

C. S. BATDORF.
 COIN HANDLING MACHINE.
 APPLICATION FILED AUG. 24, 1906.

Patented July 25, 1911.

11 SHEETS—SHEET 1.

998,830.

Fig. 1.

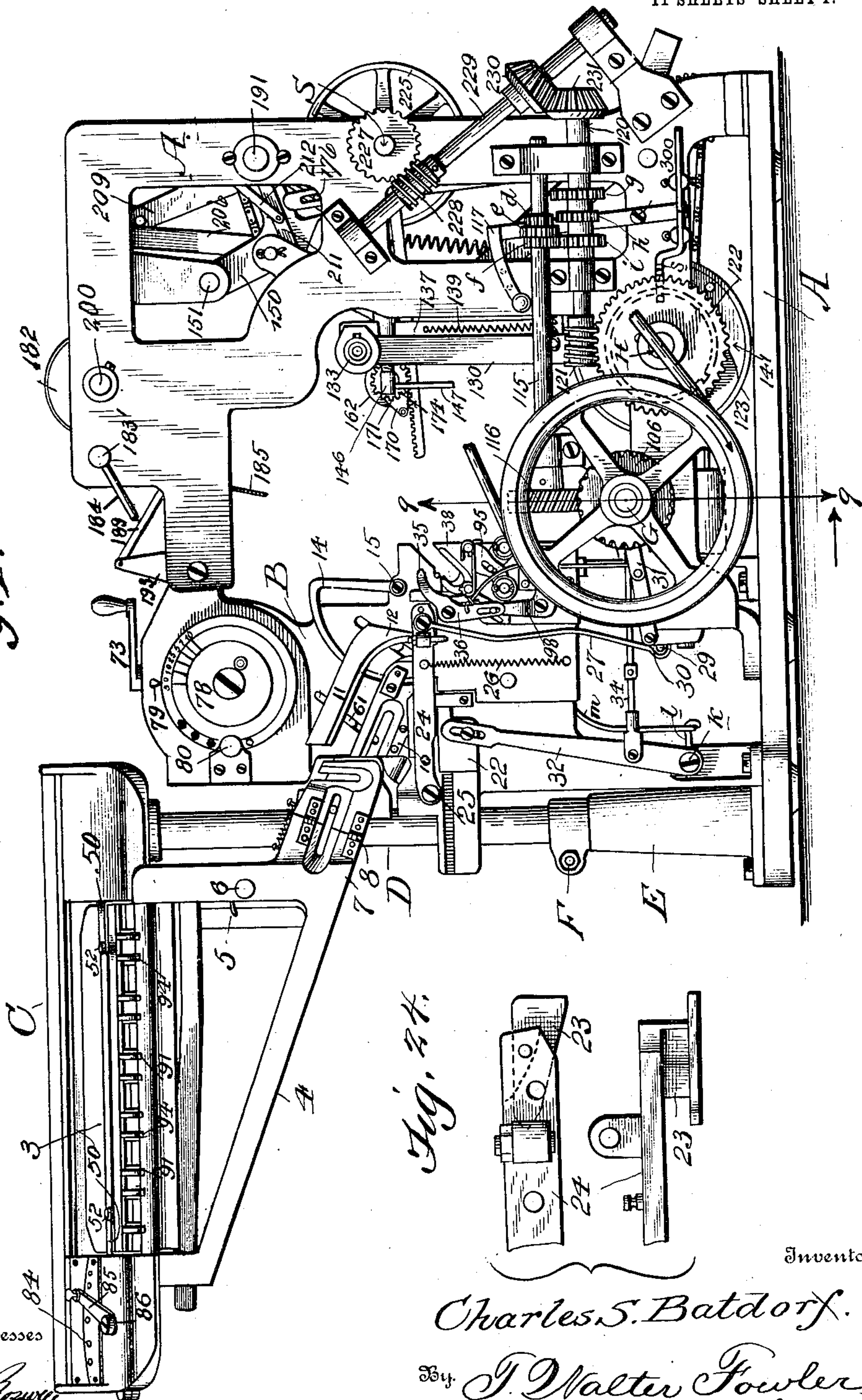
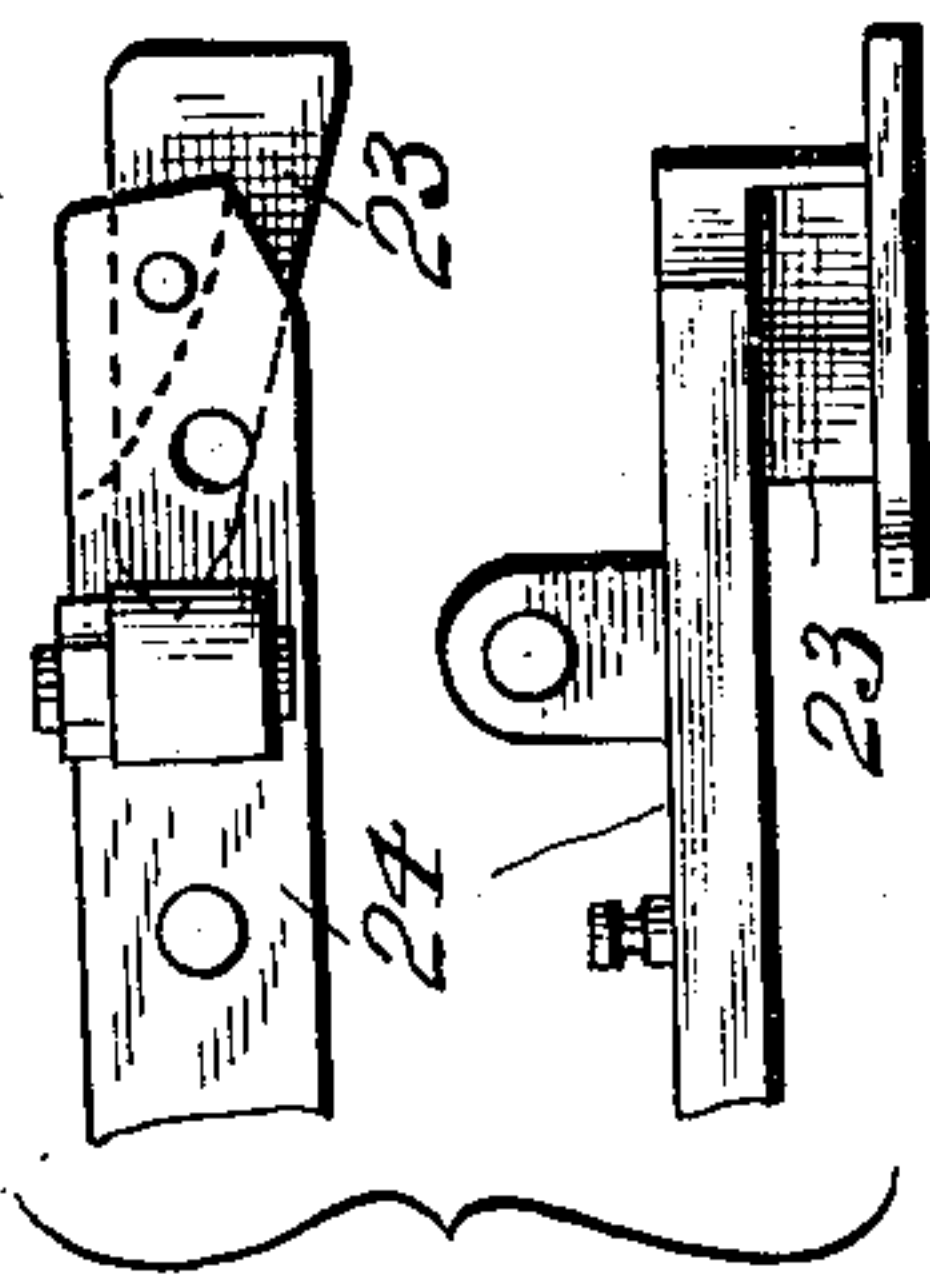


Fig. 2.



Inventor

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By J. Walter Fowler
 his Attorney

Witnesses

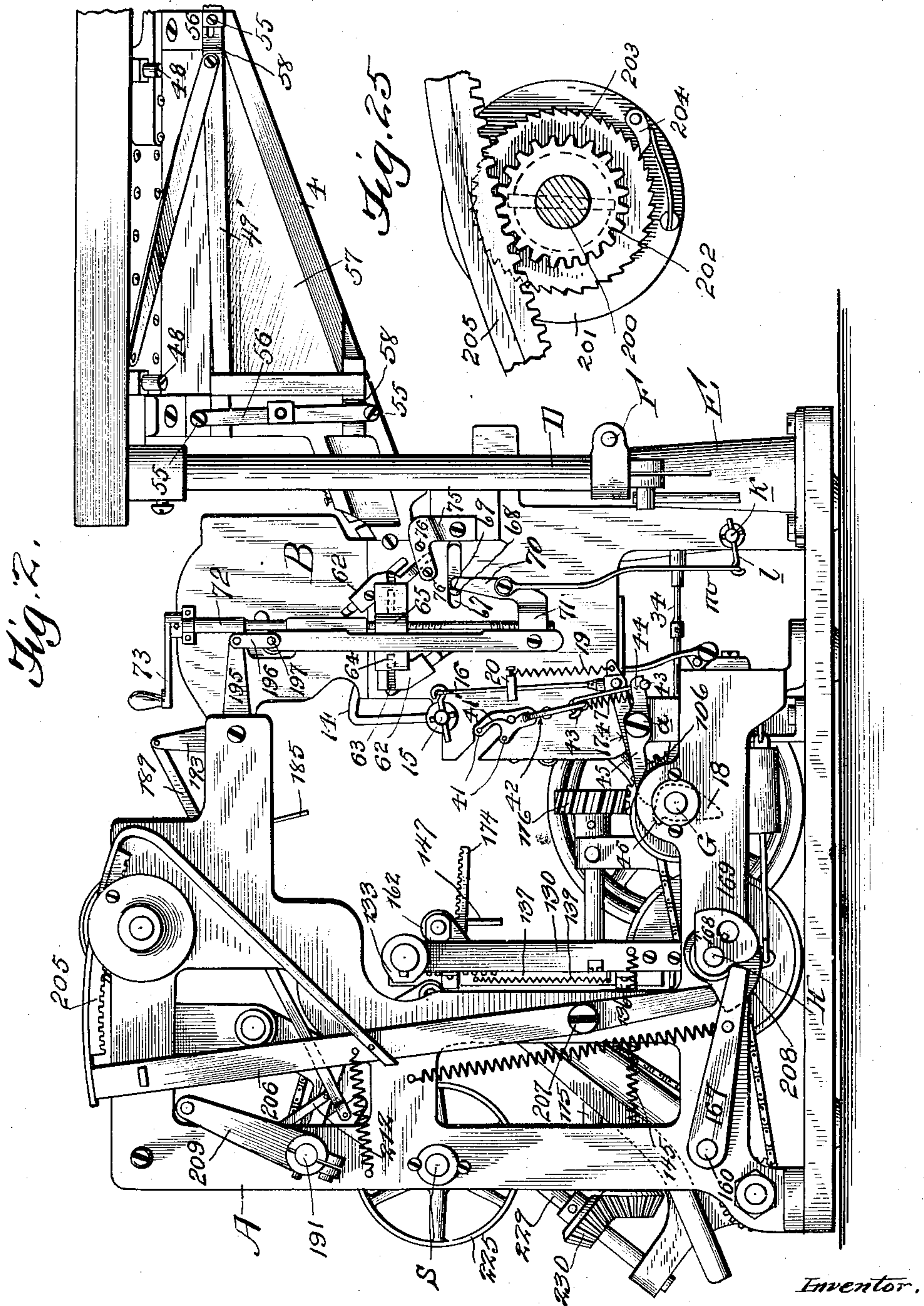
W. H. Fowler
 C. H. Fowler

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11 SHEETS—SHEET 2.



Witnesses
R. A. Brown.
E. W. Fowler.

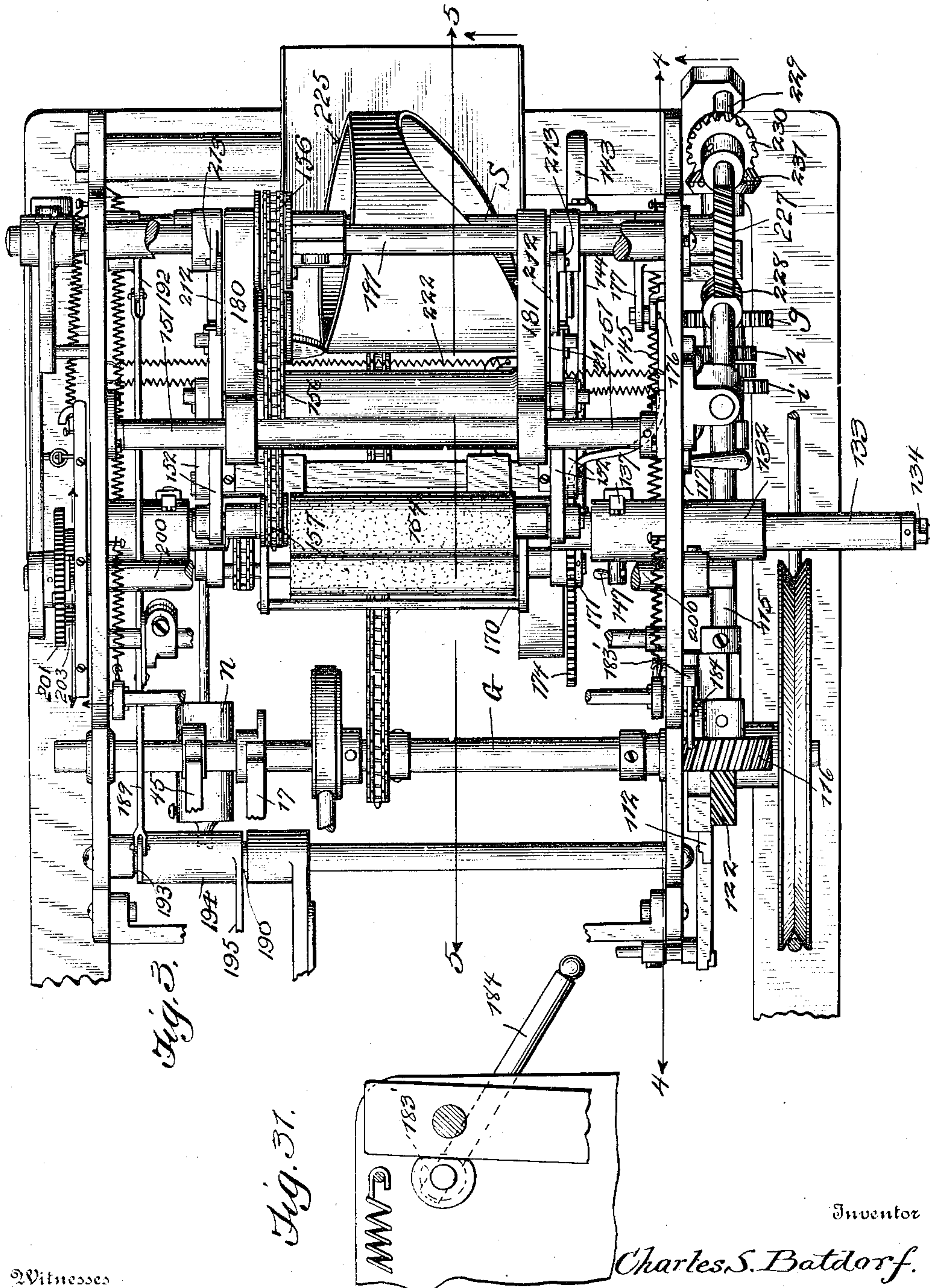
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Witnesses

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Fig. 4.

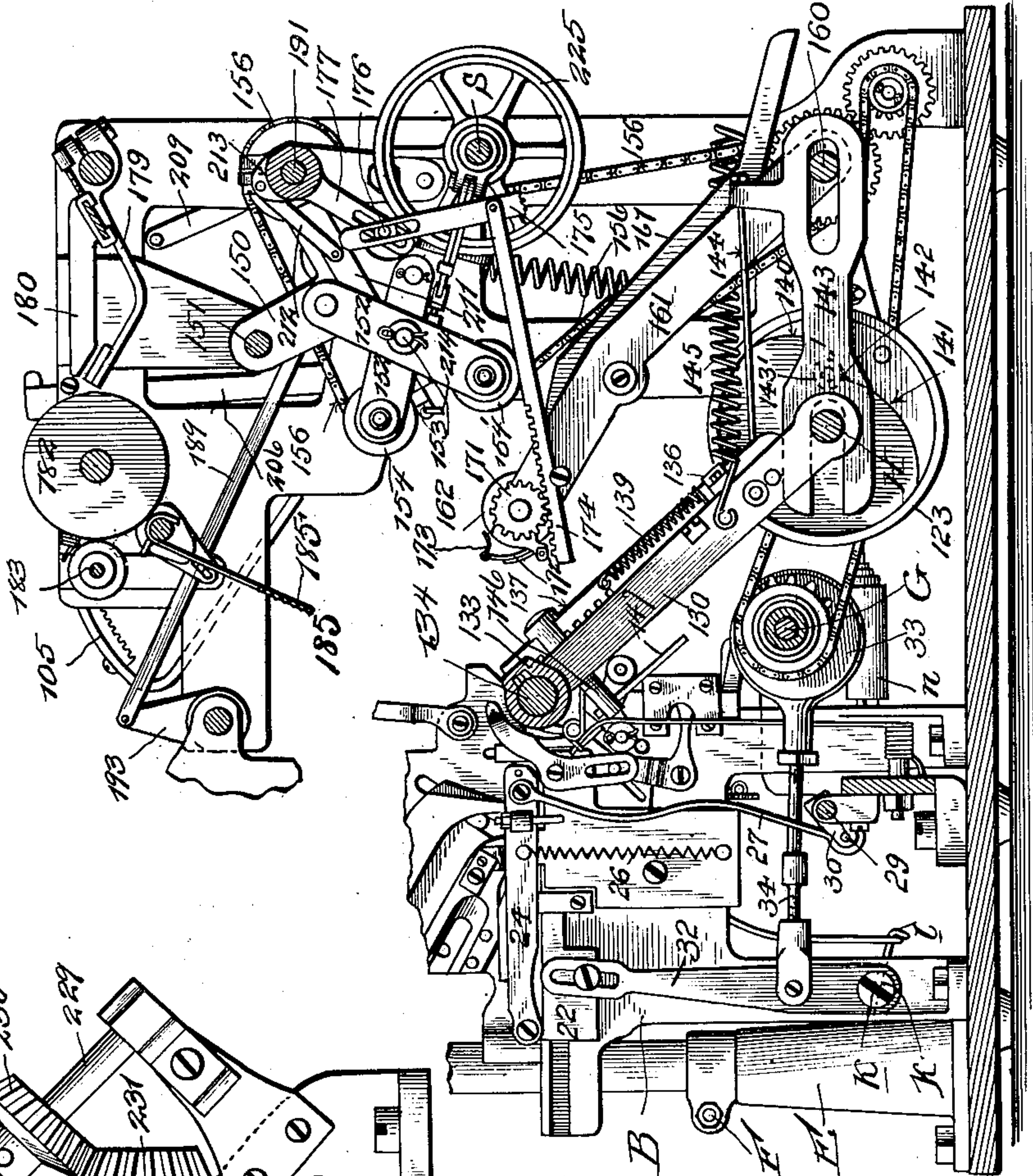


Fig. 5.

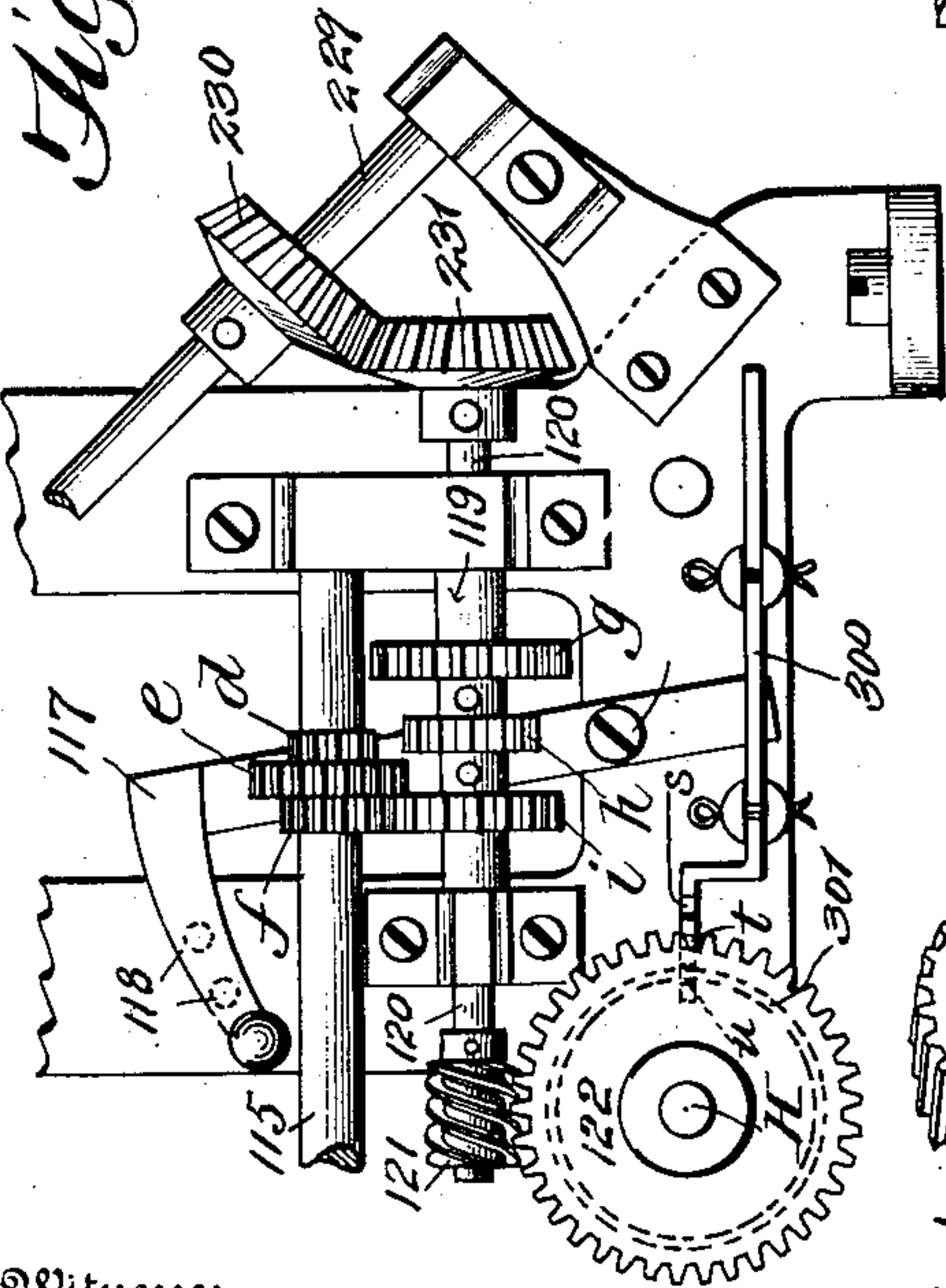
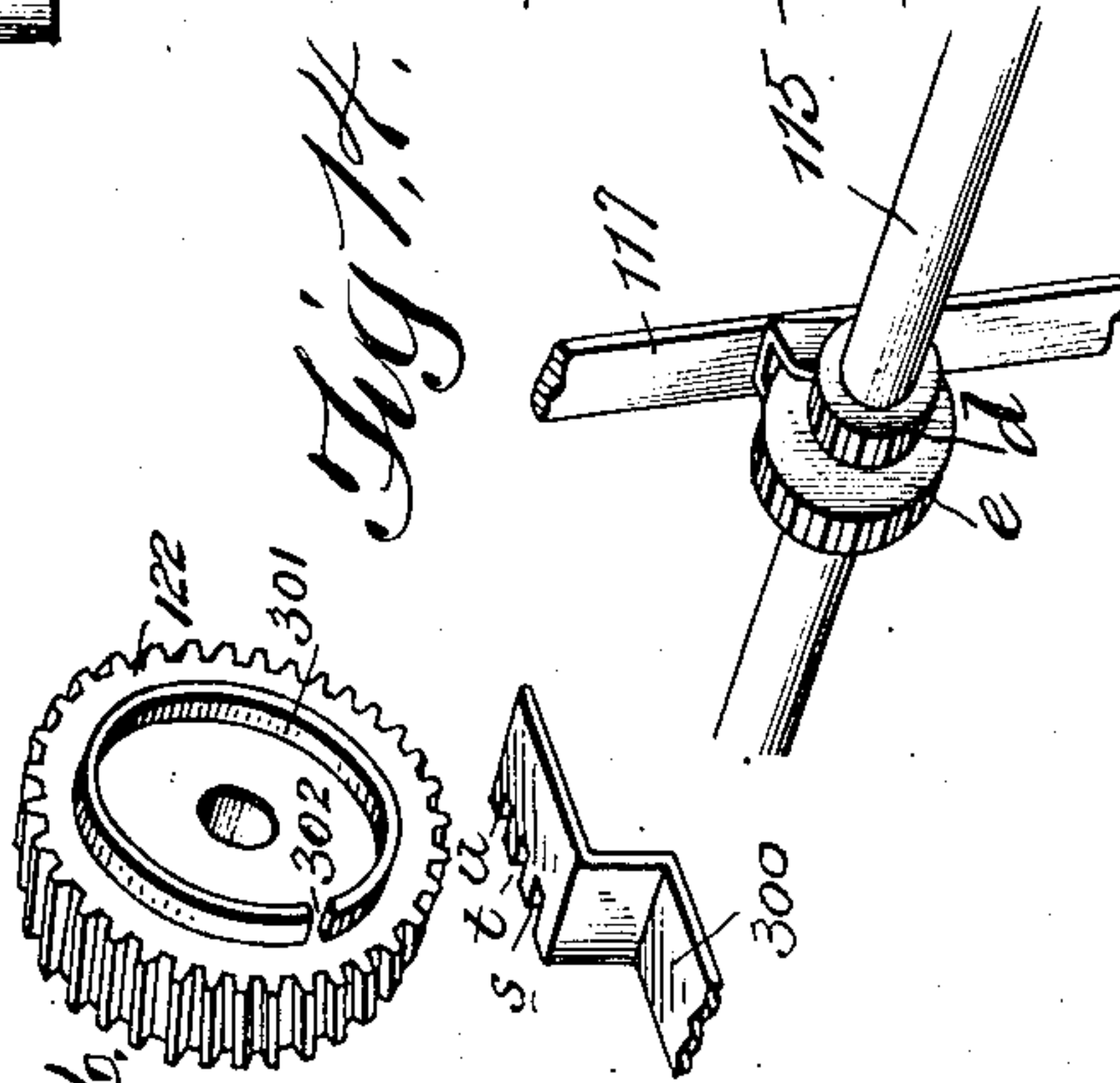


Fig. 6.

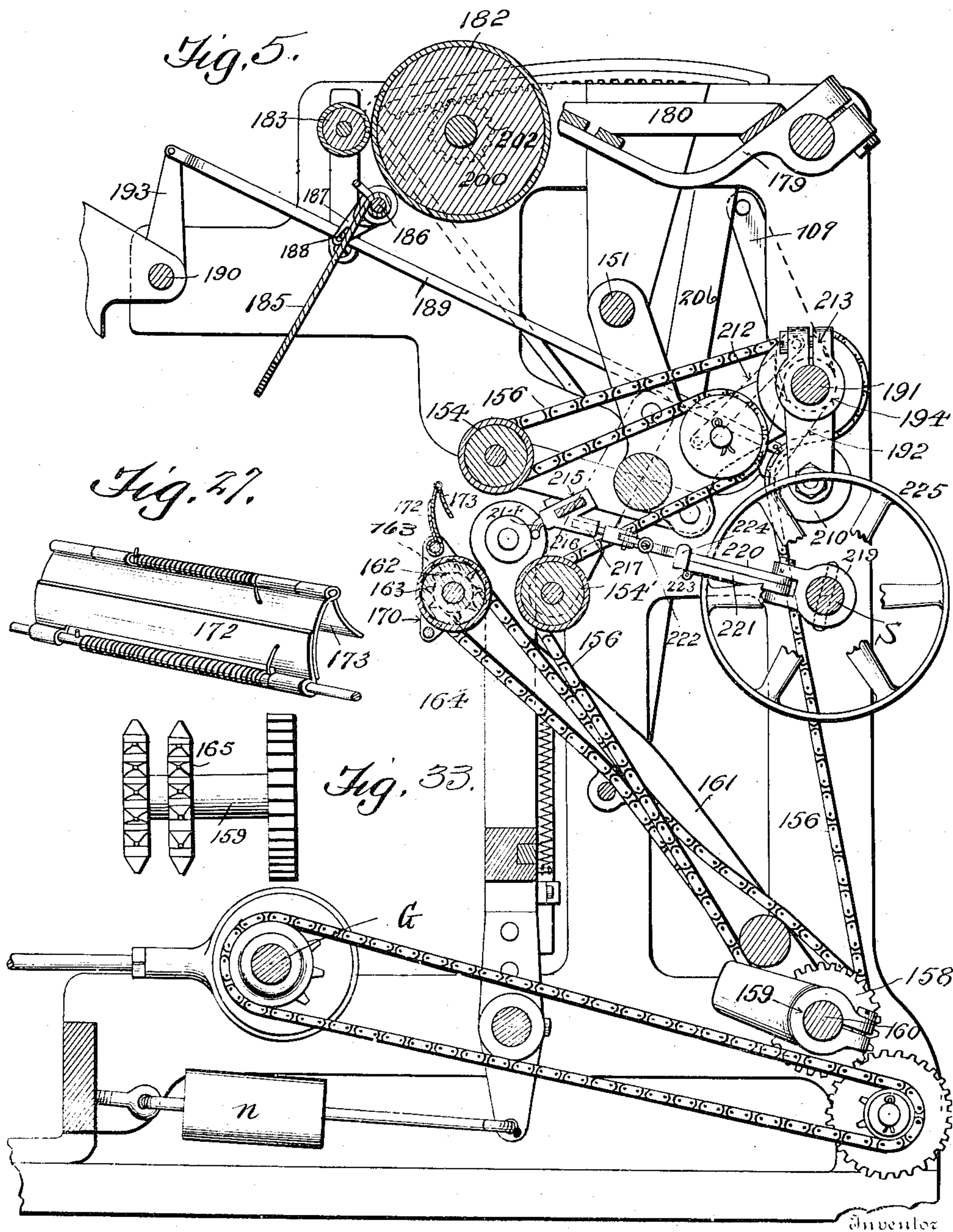


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11 SHEETS—SHEET 5.



Witnesses
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11 SHEETS—SHEET 6.

Fig. 7.

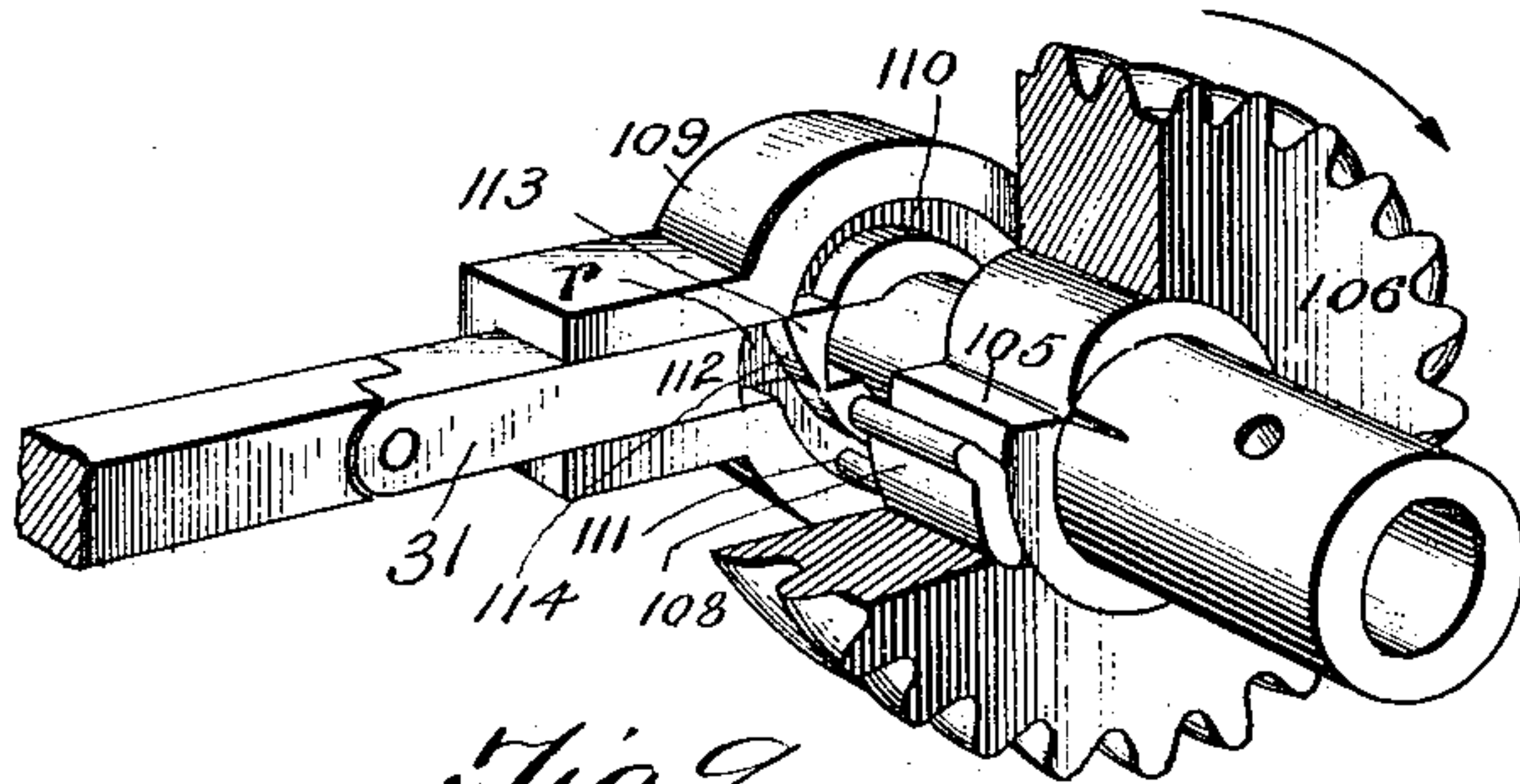


Fig. 8.

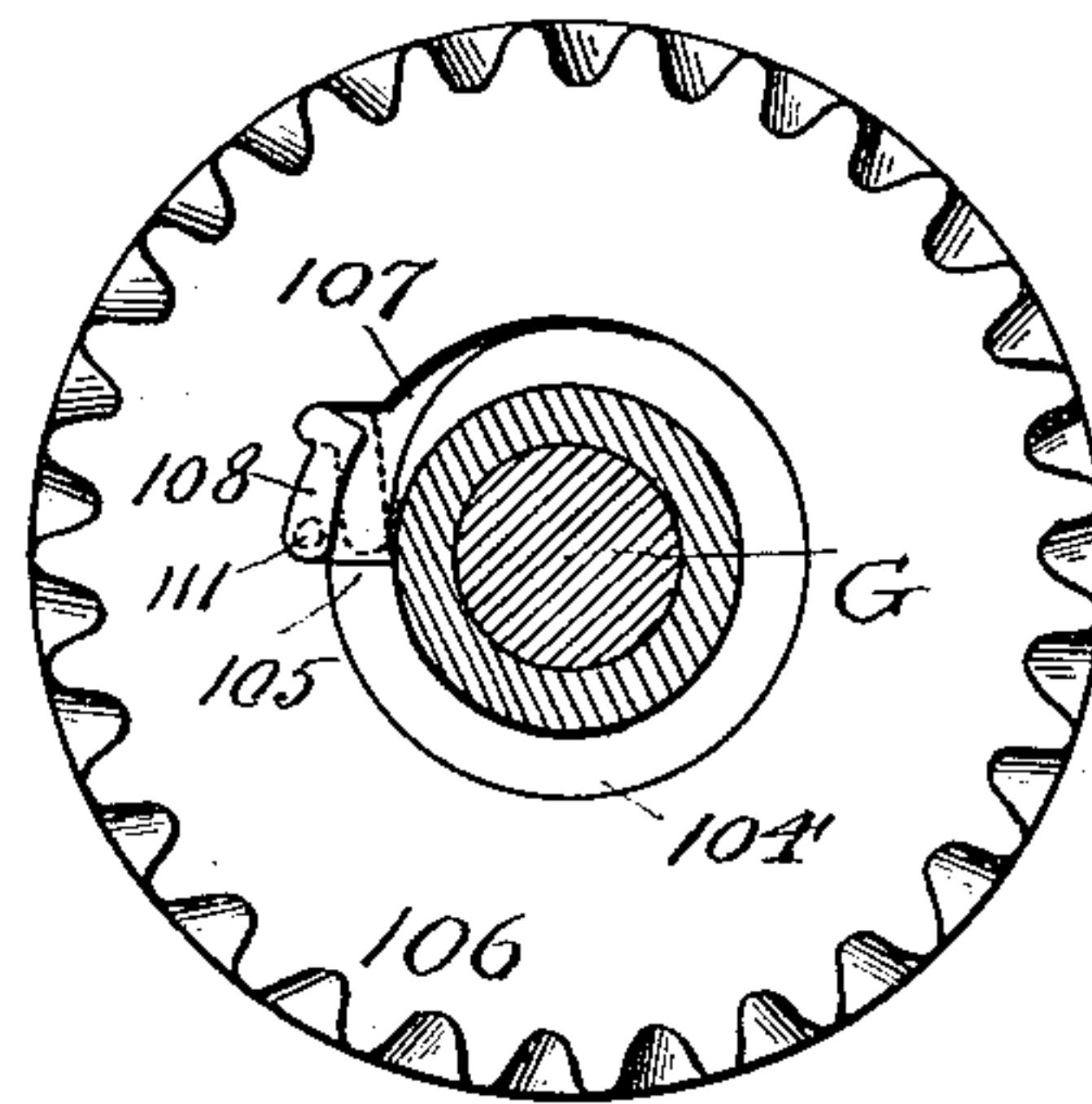


Fig. 9.

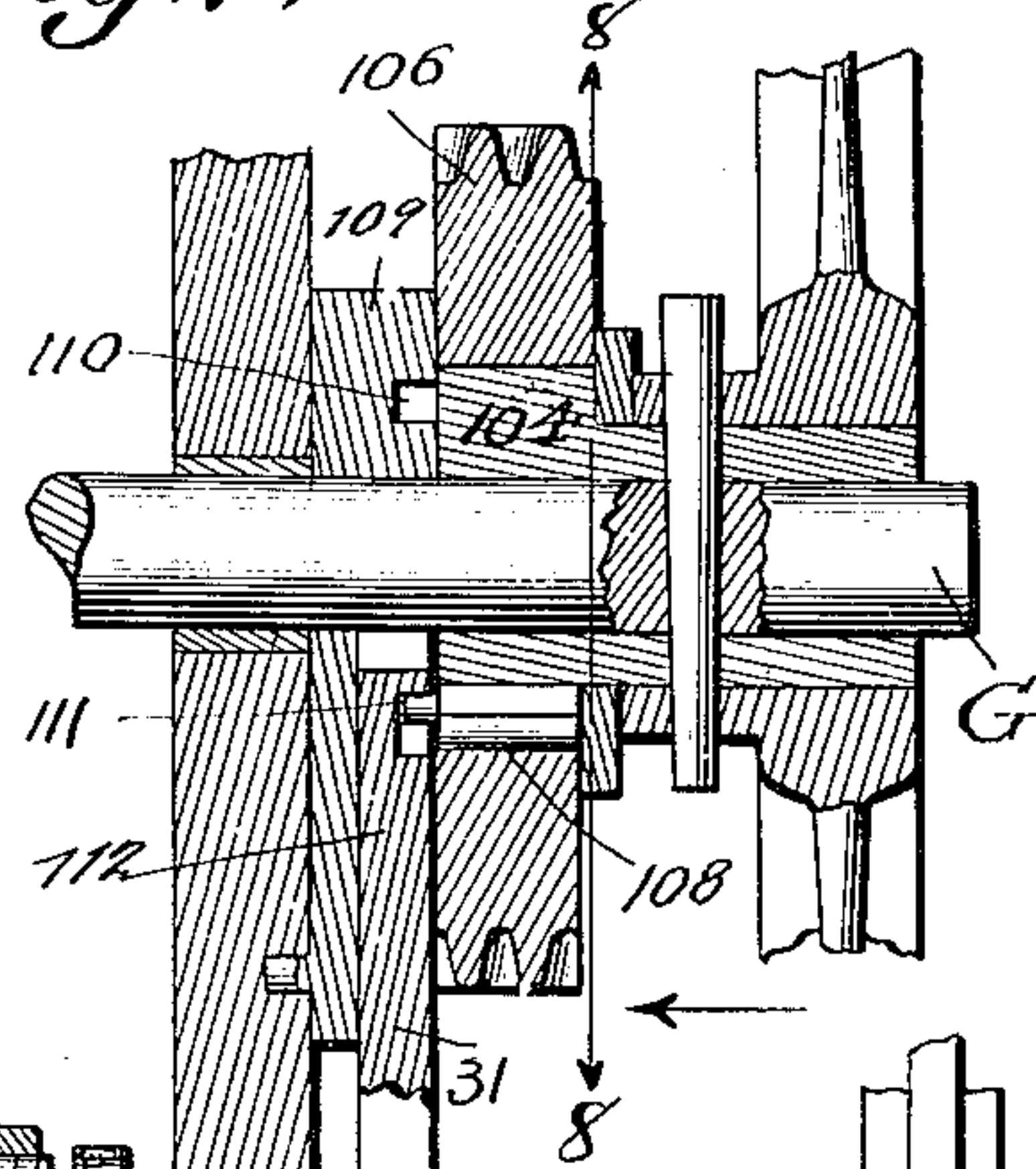


Fig. 10.

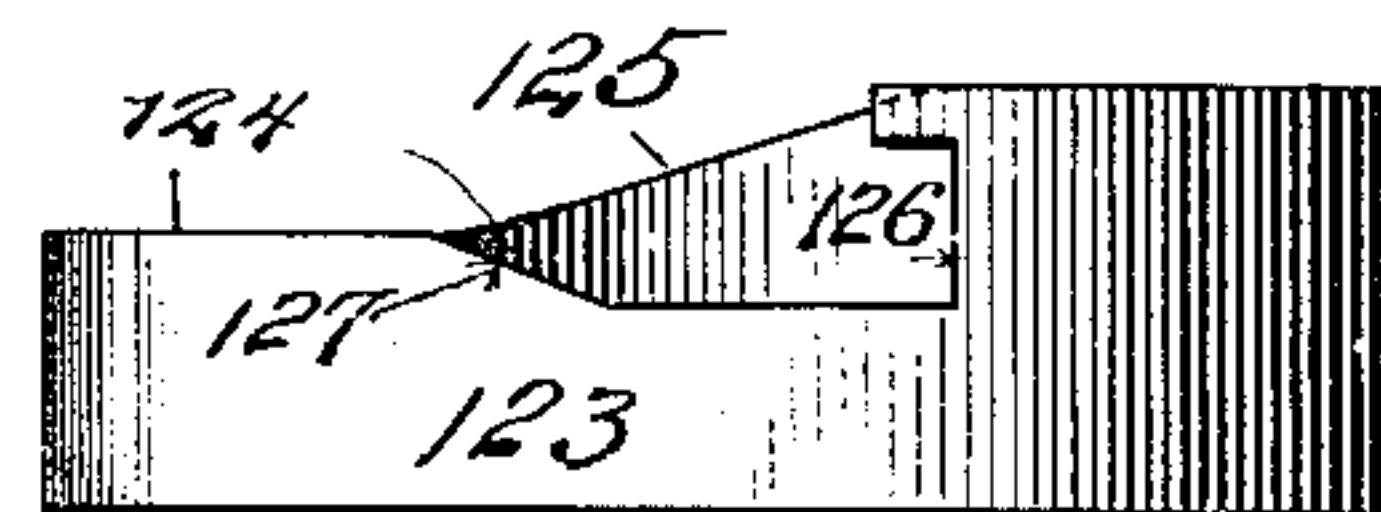


Fig. 11.

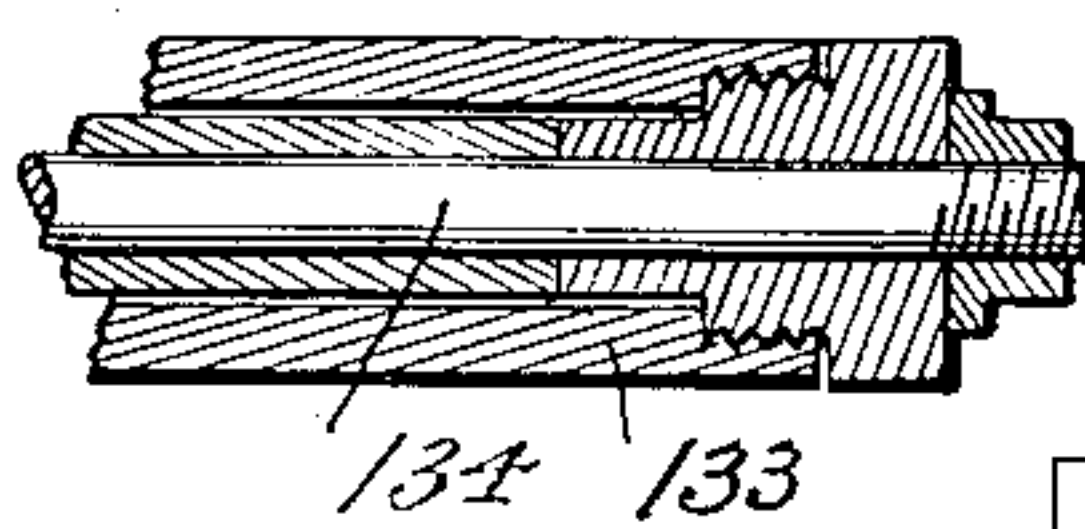
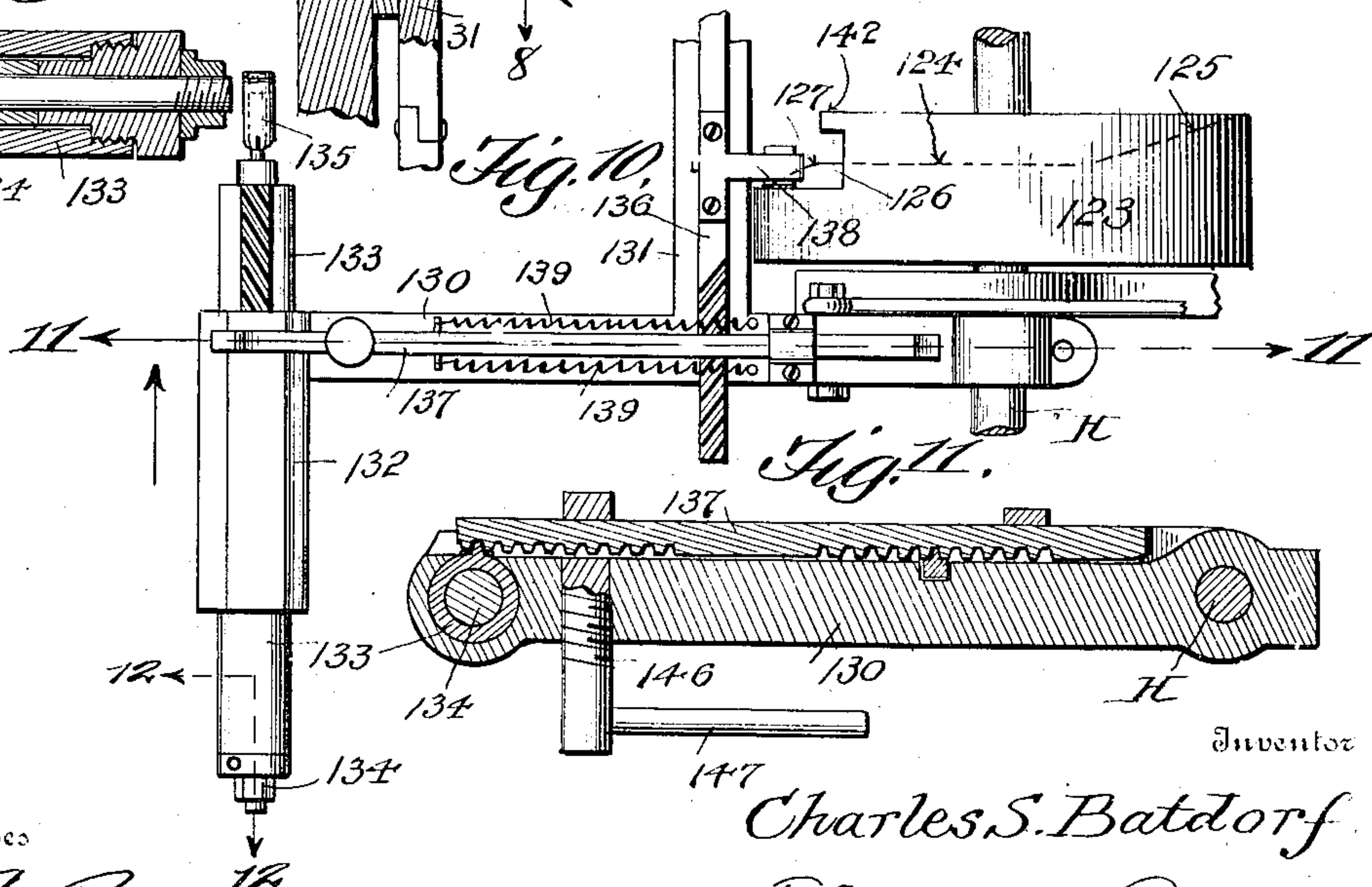


Fig. 12.



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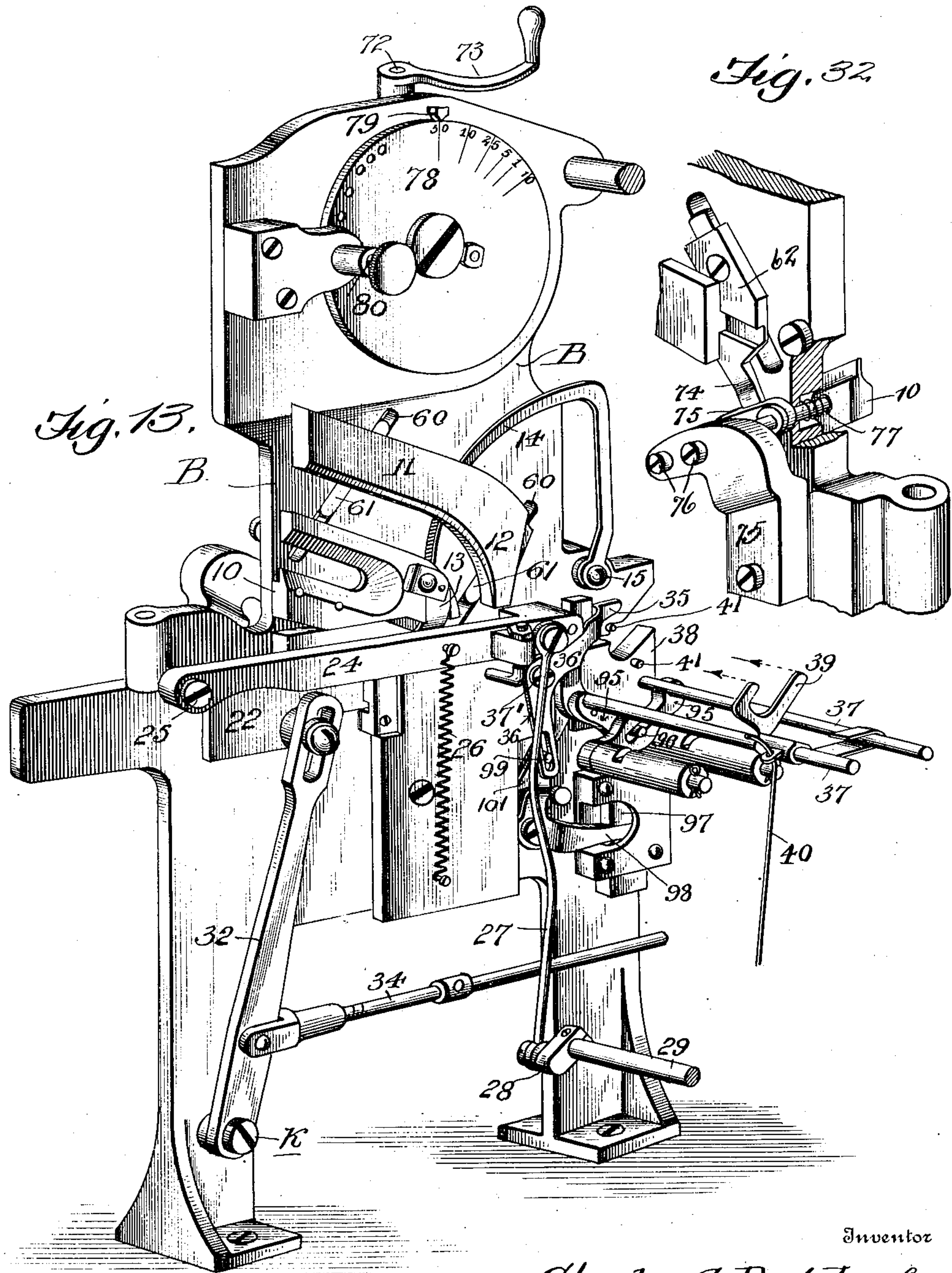
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 11 SHEETS—SHEET 7.



Witnesses

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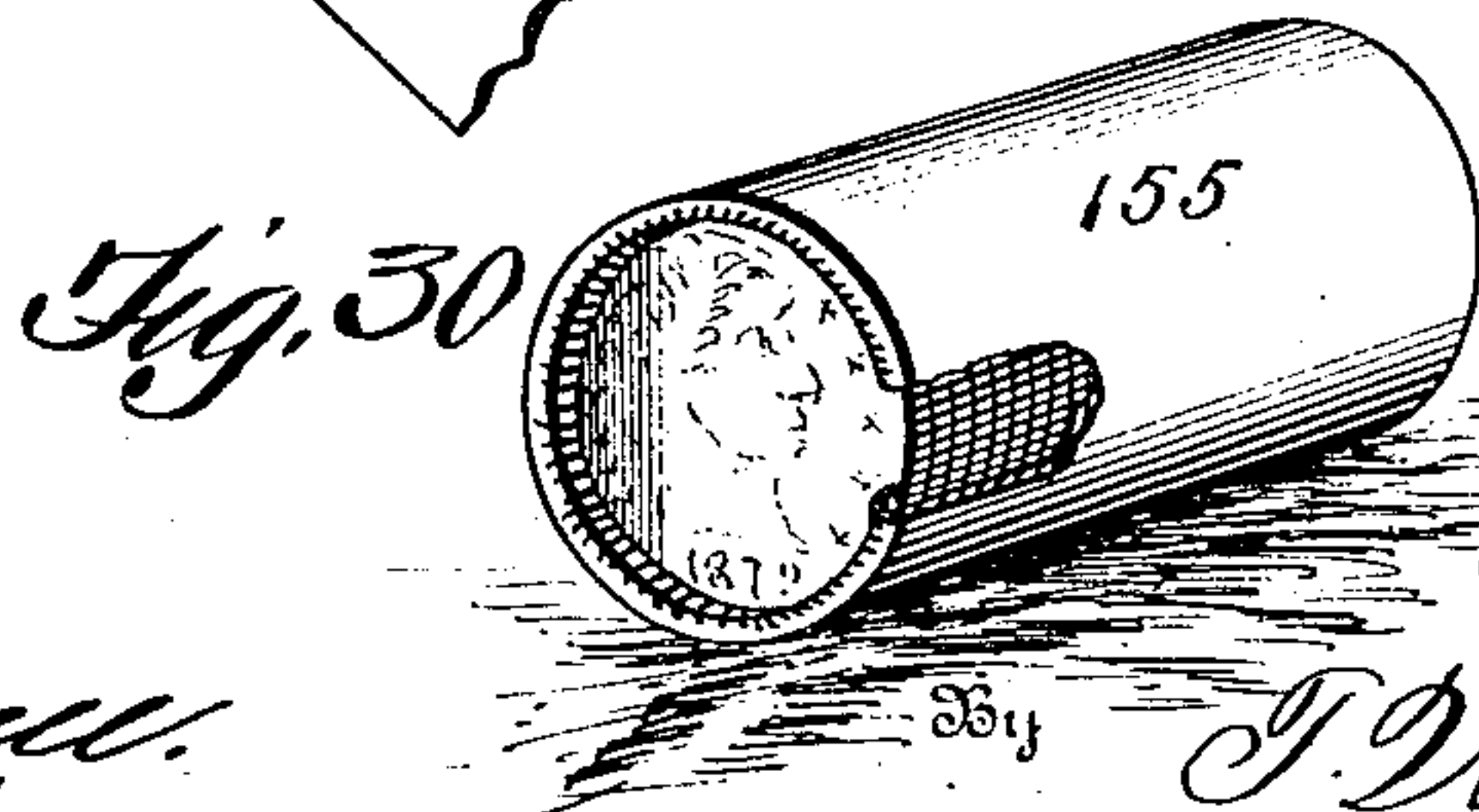
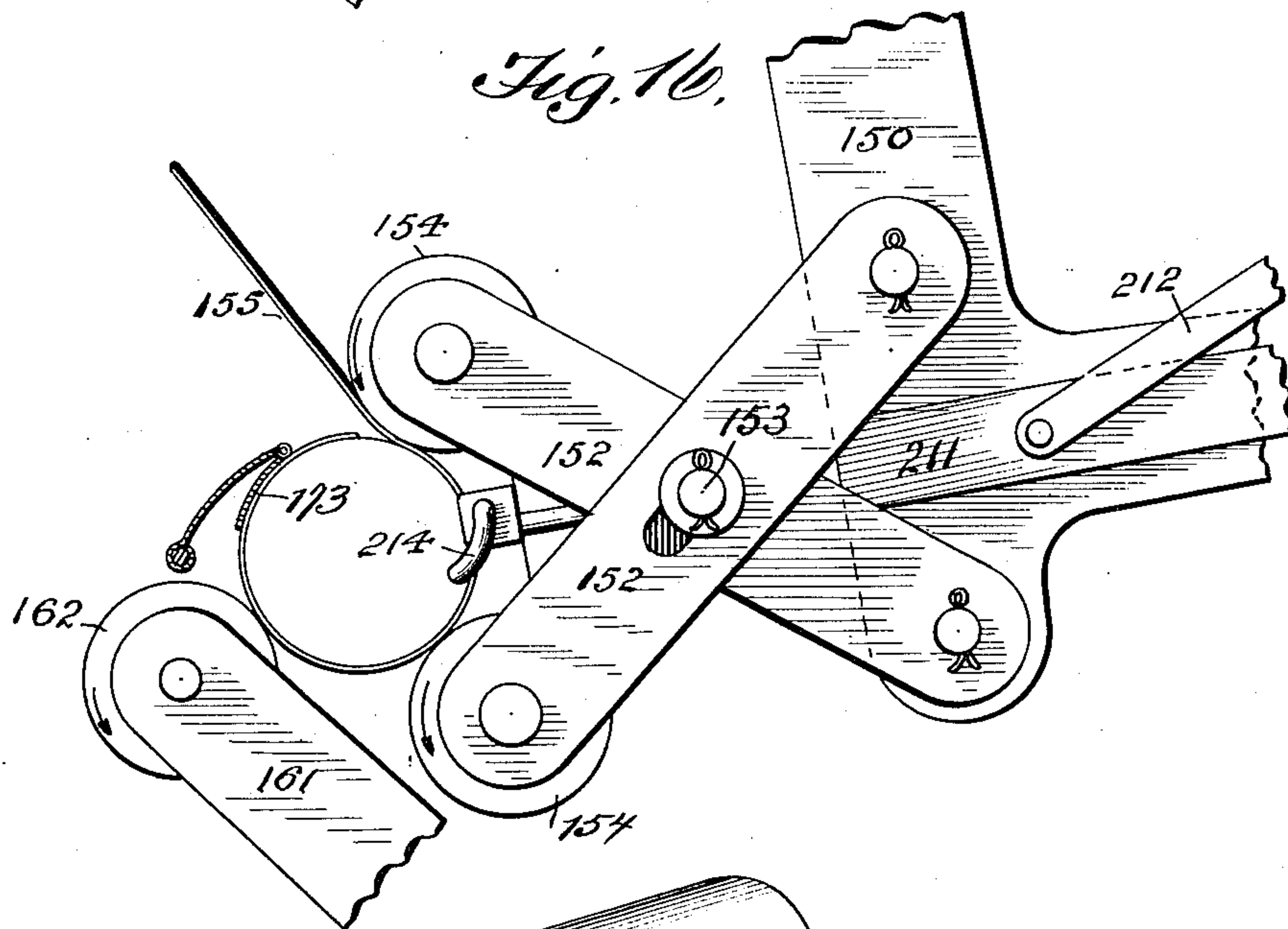
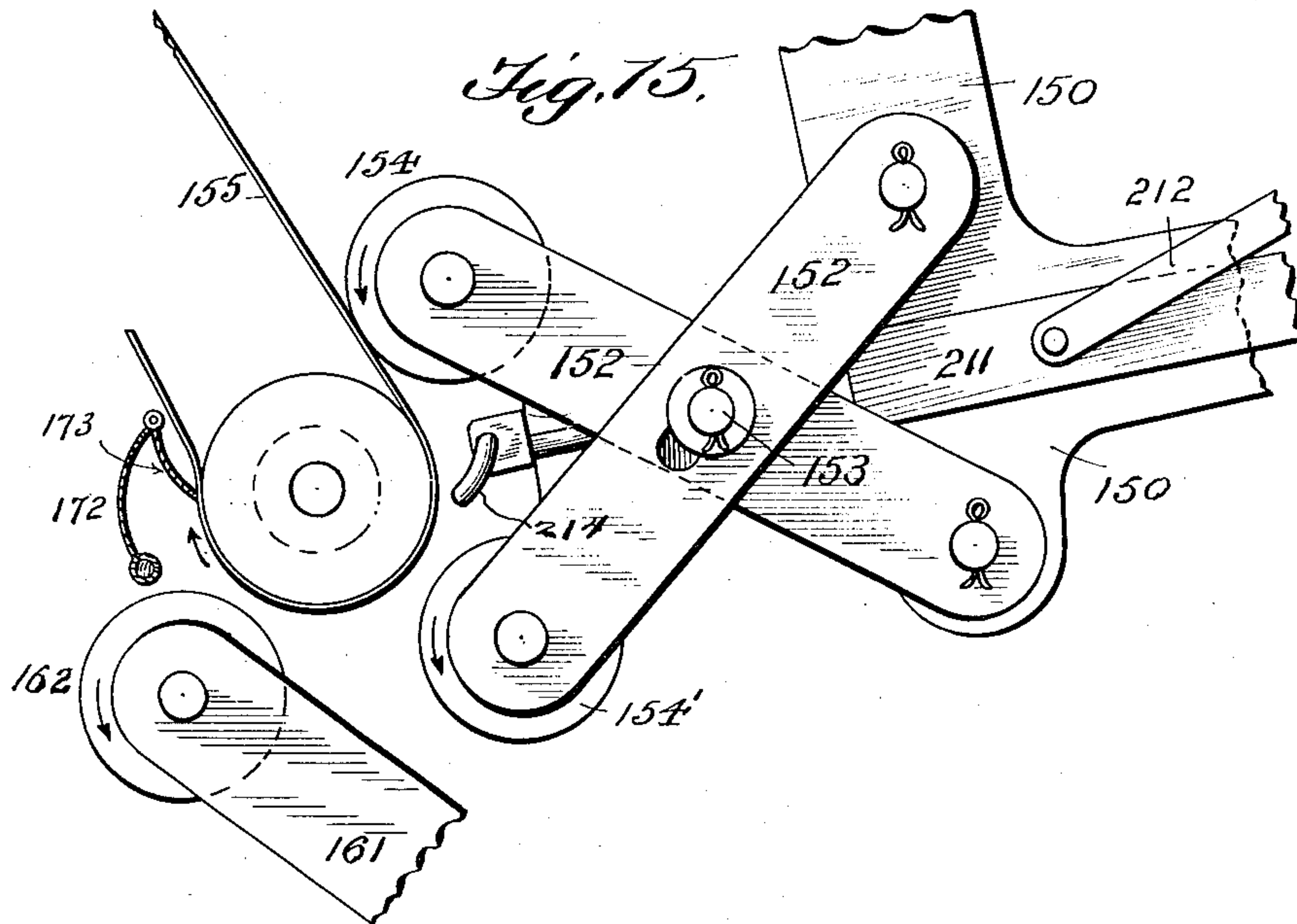
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11 SHEETS—SHEET 8.



Inventor

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Witnesses

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11 SHEETS—SHEET 9.

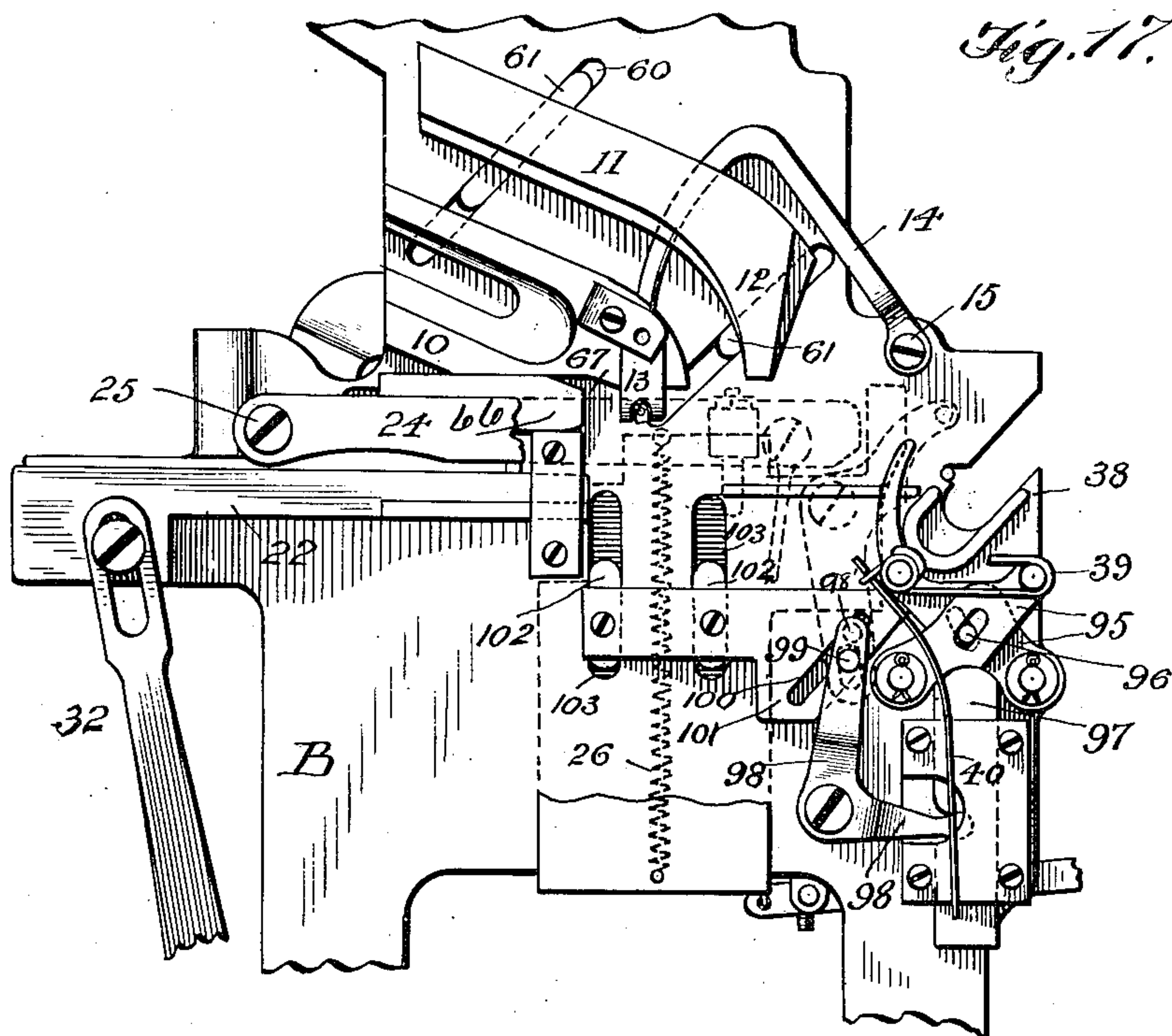


Fig. 18.

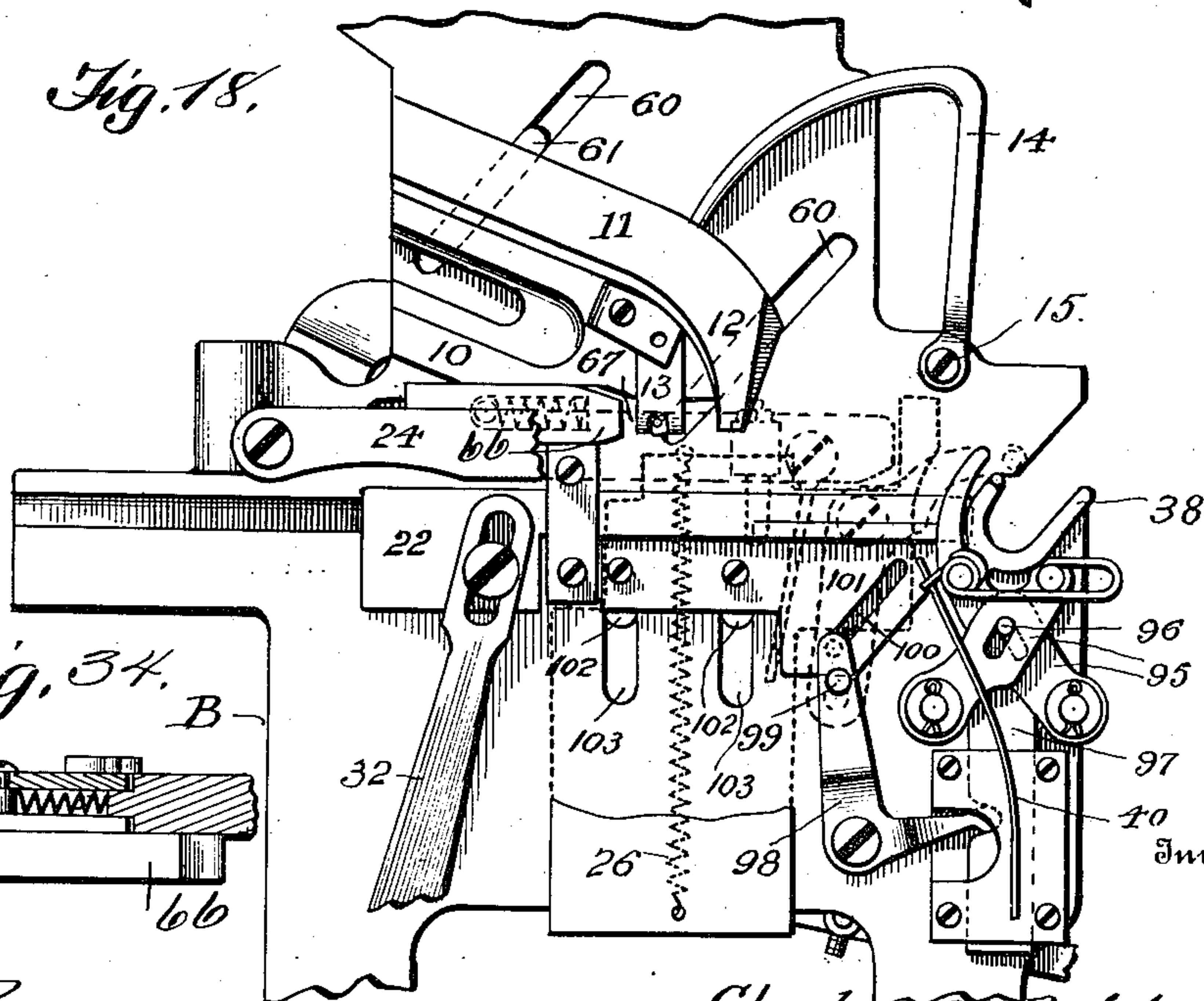
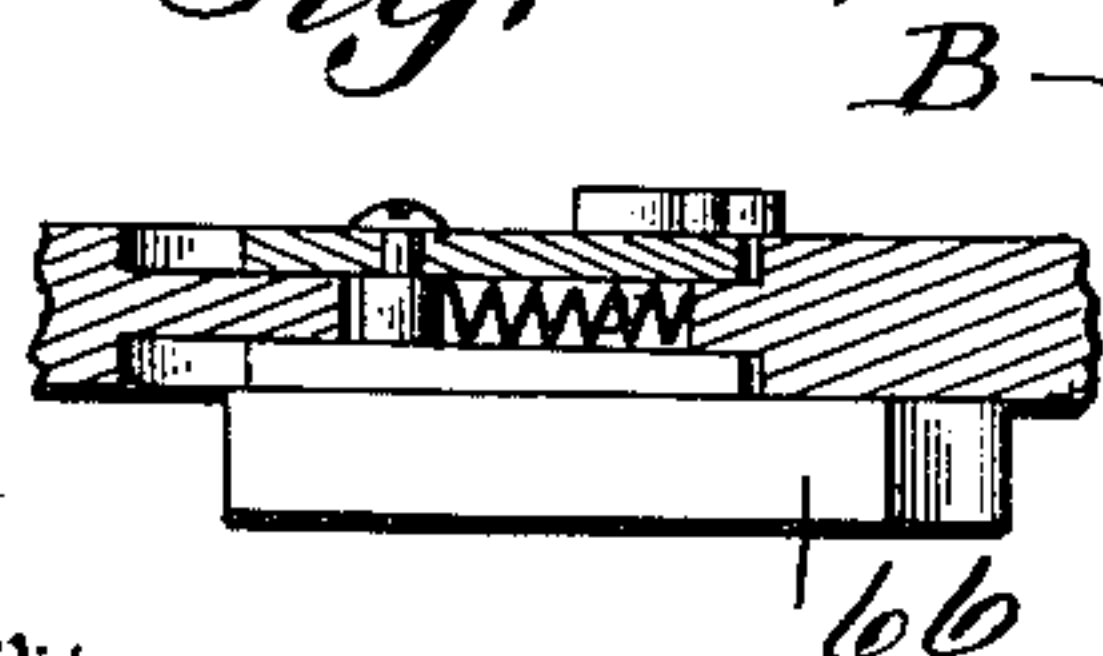


Fig. 34.



Witnesses

W. H. Bowell.
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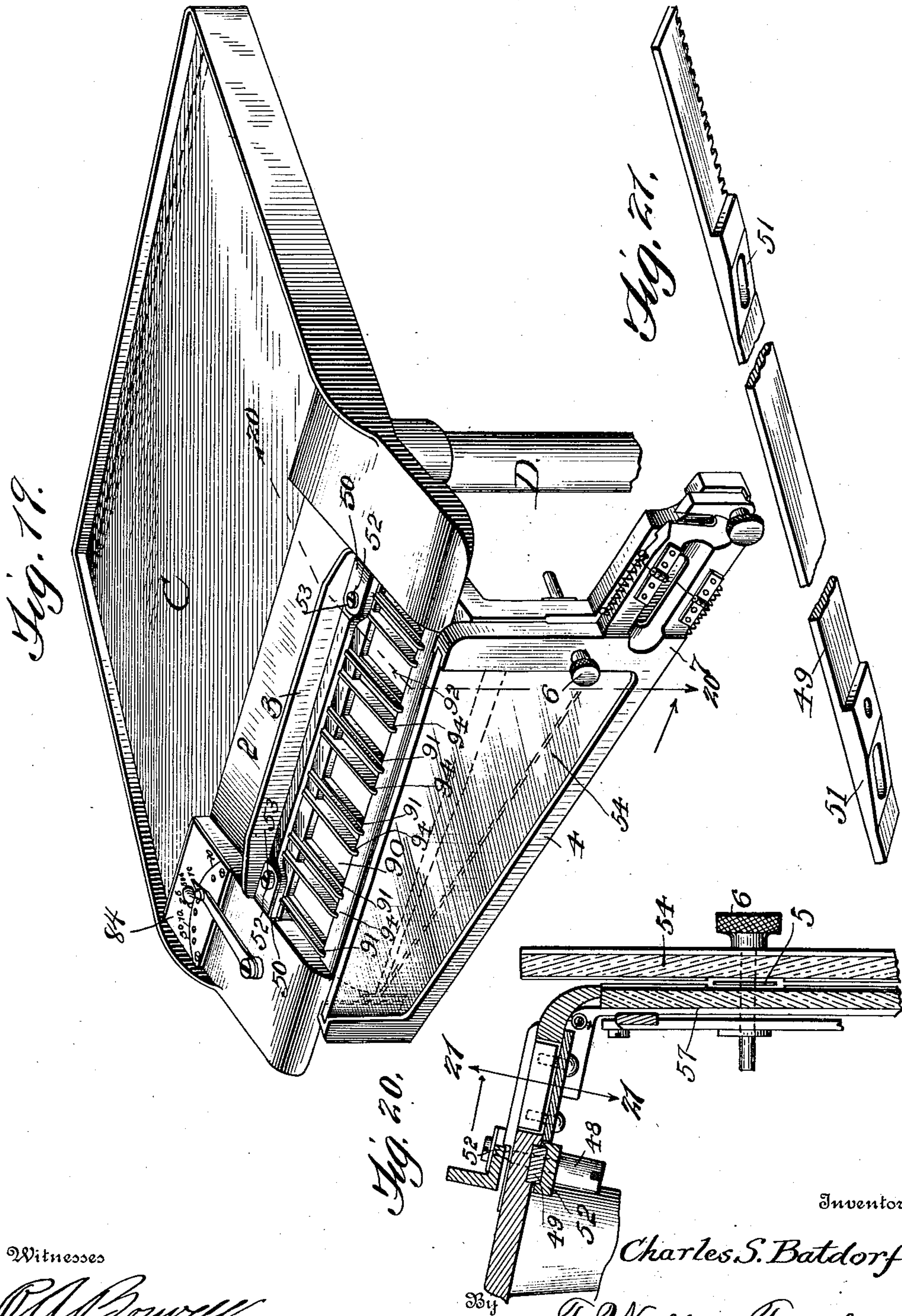
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11 SHEETS—SHEET 10.



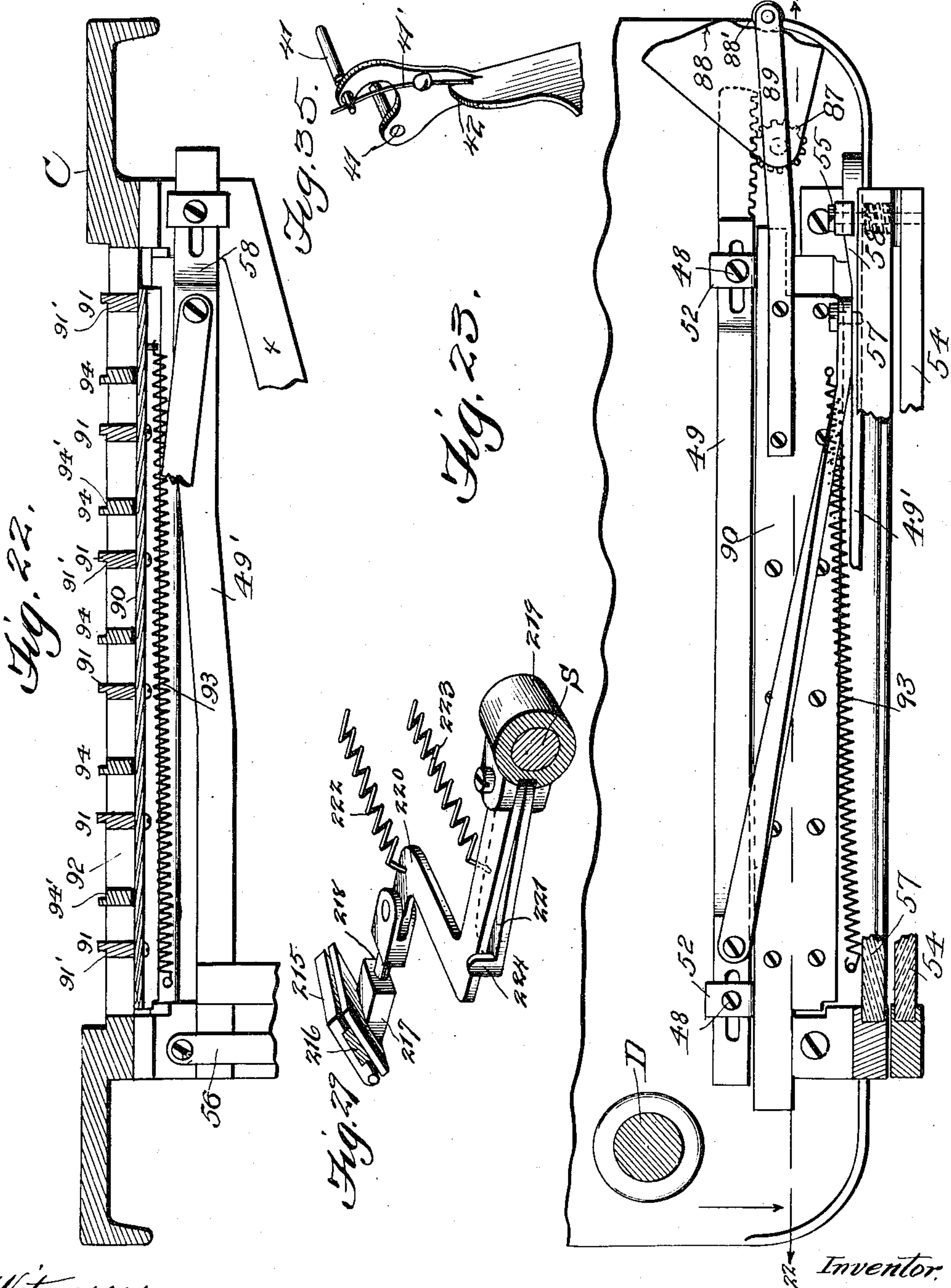
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Patented July 25, 1911.

11 SHEETS—SHEET 11.



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UNITED STATES PATENT OFFICE.

CHARLES S. BATDORF, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNIVERSAL COIN-WRAPPING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

COIN-HANDLING MACHINE.

998,830.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed August 24, 1906. Serial No. 331,350.

To all whom it may concern:

Be it known that I, CHARLES S. BATDORF, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Coin-Handling Machines, of which the following is a specification.

My invention relates to a certain new and useful machine adapted particularly for automatically advancing and assembling coins of predetermined sizes and values into a stack, bunch or column and then applying a wrapper to said bunch to thereby prepare the coins for the needs of the commercial world.

The essential object of the invention is to provide a simple, compact machine which will readily handle the accumulation of coins received from the now extensively used coin-actuated vending machines, as well as those paid to street railways, department stores, banks, etc., the proper handling of which coins is a heavy task and necessitates the employment of clerks or other persons who, although more or less skilled in this particular field of labor, often find it difficult to continue the counting and wrapping of coins for any considerable period without experiencing great fatigue, while errors are likely to arise because of a miscount.

To meet the conditions above noted and to facilitate the easy and accurate handling of coins, and to place the coins in securely wrapped packages convenient for those who receive and disburse large amounts of coin, I have devised the present invention, which performs the work automatically and in a very efficient and practical manner. The said machine, one type of which is illustrated in the drawings, is of universal application in that it is capable of such adjustments that coins of different sizes and values may be passed through the machine and successfully and accurately handled, provision being made for preventing the passage through the machine, in each of the adjustments of said machine, of any but coins of a given size and value. To meet these ends the distributing table of the machine has a mechanism which is capable of adjustment to correspond to the thickness and diameter of the coins to be delivered to the coin conductor, and said conductor, its receiving hopper-end, and the various parts which constitute the bunching and wrapping mech-

anisms, are also capable of adjustment to receive and bunch and finally wrap the bunches of coins of like sizes and values, whereby a single machine is adapted for handling coins from the largest to the smallest size, and of successfully applying a wrapper to the coin columns or bunches without regard to the variation in the length of said columns due to the different thicknesses of coins of the several denominations commonly used for commercial purposes.

My invention consists, essentially, of a machine of the character described having in combination a mechanism which may be set for handling coins of only like sizes and values and delivering said coins singly to form a stack, column or bunch, and which mechanism may be quickly adjusted to enable coins of another size and value to be handled and bunched; and a wrapping mechanism and paper feed mechanism also capable of adjustment to correspond to the length of column or bunch and diameter thereof, of the coins assembled by the first-named mechanism whereby the machine is convertible from one design for handling and wrapping coins of the largest size to those of the smallest or any intermediate size, as I will herein describe.

My invention also consists of the parts and the constructions and combinations of parts which I will hereinafter describe and point out in the claims.

In the accompanying drawings forming part of this specification and in which similar reference characters indicate like parts throughout the several views,—Figure 1, is a side elevation of a coin handling machine embodying my invention. Fig. 2, is a view of the opposite side of the machine. Fig. 3, is a top plan view, with certain parts removed. Fig. 4, is a sectional view on the line 4—4 of Fig. 3 showing parts broken away. Fig. 5, is an enlarged sectional view on the line 5—5 of Fig. 3. Fig. 6, is a side view of the change-gear mechanism. Fig. 7, is a perspective view partly broken away of the clutch mechanism. Fig. 8, is a side view of the worm gear. Fig. 9, is a cross sectional view of the clutch mechanism. Fig. 10, is a plan view of the main cam and one of the grippers, showing the actuating rack bars therefor. Fig. 11, is a sectional view on the line 11—11 of Fig. 10. Fig. 12, is a sectional view on the line 12—12 of Fig. 10.

10. Fig. 13, is a perspective view of the coin advancing and bunching mechanisms. Fig. 14, is a detail of the gear showing part of the shipping lever. Figs. 15 and 16, illustrate side views of the wrapping rolls and their crossed levers, showing the position of the bunch of coins. Fig. 17, is a side view of the coin advancing and bunching mechanism, with parts broken away. 5 Fig. 18, is a similar view showing the parts in an adjusted position. Fig. 19, is a perspective view of the coin inspection table. Fig. 20, is a cross section on the line 20—20 of Fig. 19. Fig. 21, is a broken detached view of the bar 49. Fig. 22, is a longitudinal section of the table on the line 21—21 of Fig. 20. Fig. 23, is a bottom plan view of a portion of the table. Fig. 24, shows in side elevation and plan a detail of the front end 15 of the bar 24. Fig. 25, is a detail of the paper-feed ratchet mechanism. Fig. 26, is a perspective view of the spiral gear 122 and a portion of the safety slide bar 300. Fig. 27, is a perspective view of the aprons 172—173. Fig. 28, is a plan view of the cam 123. Fig. 29, is a perspective of one of the crimper-carrying arms. Fig. 30, illustrates a wrapped coin package. Fig. 31, is a detail of the eccentric 183'. Fig. 32, is a detail showing a plate 62 and means for adjusting the plate 10 laterally. Fig. 33, is a view of the sleeve 159 with its sprockets. Fig. 34, is a detail of the spring-pressed bar 66. Fig. 35, is a detail of the pins 41 and part of their bell-crank lever 42.

In carrying out my invention I employ a frame work A or structure of any desired size, material, and design, and upon or within which the several operating parts of the various mechanisms are appropriately mounted. The frame may include a vertical standard or upright portion B, which rises from a base of suitable construction and design, and which standard or upright furnishes the support for certain parts of the coin-conducting and feeding devices, as I will hereinafter describe.

The coins having first been sorted by any of the methods now in vogue to separate those of a like size and value from others of different sizes and values are dumped upon the distributing table C (Fig. 19), which is preferably made with a surrounding rim to properly retain the coins upon the table, and said table may have its bottom made of glass or other hard smooth material to facilitate the rapid movement of the coins thereover on the way to the coin-conductor. I also make that side of the table nearest to the conductor sufficiently inclined, as at 2, to cause the coins fed thereon to slide unassisted and by gravity into the "hopper end" so called, of the coin conductor. Before entering the coin conductor each coin is preferably caused to pass beneath a gage which

is designed to allow coins of a predetermined thickness and value to pass the same, said gage, as herein shown, consisting of a transverse horizontal bar or plate 3, whose under side is so positioned relative to the upper surface of the inclined portion of the table over which the coins glide that true coins of a certain size and denomination may escape this bar, while bent or irregular coins of this same size and value and coins of greater thickness and increased value will be held back from passage to the machine and may be discarded. The table and gage bar also enable the operator to employ the senses of sight and touch in detecting counterfeit coins, thus following closely the methods usually adopted by banks and depositories of money for detecting counterfeit specimens and prevent their being associated with good coins.

The table is provided with a post or support D, which removably fits a socket or holder E (Fig. 2) on the frame and is turnable therein and may be swung over the machine out of the way and serve as a protection therefor when said machine is not in use, said table in either of its positions being held by a clamping or other holding device, as at F.

The inclined side of the table has connected with it what I term the "hopper" end of the coin conductor, said hopper consisting of an inclined bottom 4 upon which the edges of the coins roll, and two vertical sides separated from each other sufficiently to allow the coins to drop edgewise between them to the bottom, said sides being, if desired, made of glass or other transparent material to enable the coins received into the hopper to be observed. In some instances, as when feeding the coins with great speed, there is a possibility of the coins at the discharge end of the hopper overlying each other edgewise, and when this happens the lowest coin is retarded in its progress to the conductor by a coin or coins resting upon it, and to meet this condition which is observable through the transparent sides of the hopper and to relieve the obstructed coins by displacing the one or more resting upon it, I provide means for agitating the obstructing coins to allow the temporarily-obstructed coin to enter the coin runway and proceed to the advancing devices. Any means for agitating the coins will suffice for my purpose, and as a simple and effective means I show a star-wheel 5 (Figs. 1 and 20) journaled between the inner sides of the hopper near the outlet thereof and having an exterior button or finger piece 6, by which the wheel may be rotated to cause its points to strike and dislodge a coin resting upon the coin held at the entrance to the coin runway.

The coin hopper is preferably, though not necessarily, constructed with an inclined ex-

tension which forms a part of the coin runway, as shown at 7, another inclined portion of said runway being supported upon the frame standard B, the two parts mentioned 5 being in line and forming a single runway along which the coins roll after leaving the hopper proper. To enable the table and the hopper portion of the coin conductor, which latter term I will hereafter use to designate 10 generally the entire portion through which the coin travels after leaving the table, to be turned around out of the way when the machine is not in use, I provide a separable connection at the point 8, and I secure this joint 15 with the two parts of the coin conductor longitudinally in line to form a continuous channel for the coin, by any well known and appropriate fastening.

The lower member of the divided coin 20 conductor includes a bottom plate 10 (Figs. 13, 17 and 18) on which the edge of the coin rolls and an upper plate 11 whose lower end has a downwardly curved portion 12 against which the front edge of the coin strikes and 25 by which the further travel of the coin, in its first or inclined direction, is interrupted and by which the travel of the coin is diverted vertically to bring it into the range of action of the coin advancing mechanism, 30 which I will presently describe. The lower portion of this part of the coin conductor has its end also removed far enough from the curved wall 12 of the companion member to form the vertical passage through 35 which the coin is to be ejected to position it for final delivery by the coin advancing mechanism. The coin is supported in or above the said vertical passage by means of a spring plate or finger 13 or equivalent 40 means, and it is delivered therefrom and ejected through the passage by means of a force feed mechanism which may be varied in character but which is herein shown as including a curved oscillating arm 14 mounted 45 upon a pin or shaft 15 and having its end to operate substantially in the vertical plane of the coin while supported by the spring member 13 whereby when the arm is oscillated its end strikes the top edge of the coin and forces said coin past the spring member 13 said coin then dropping into the range 50 of action of the coin advancing means.

The oscillating arm 14 is fixed to its pin or shaft 15 which latter is journaled in the 55 frame standard and projects through said standard, and on the opposite side thereof is connected to a vertical rod 16 which in turn is pivotally connected to one end of a horizontal lever 17 fulcrumed upon a stud or 60 pin *a* whose opposite end is adapted to be actuated by a suitable cam 18 fixed to the main shaft G of the machine, as shown in Fig. 2, whereby the arm 14 is oscillated to advance each coin into the range of action 65 of the push bar, and to prevent the feed of

but single coins into the final part of the coin runway. The lever 17 upon which the aforesaid cam operates, is spring-pressed, its short arm being connected to one end of spring 19, whose other end is connected to a 70 collar 20 adjustably fixed to the vertical rod 16 whereby the tension of said spring may be regulated to obtain the best results.

The coins are advanced by the push bar 22 (Figs. 1, 13, 17 and 18) and are thereby 75 brought into contact with an inclined or cam portion 23 fixed on the free end of a bar 24 (Fig. 24) which latter is pivoted at 25 and normally held down by a spring 26; and as the coin is forced under the said free end of 80 the bar, said end is lifted against the pressure of its spring. The bar 24 is connected with a vertical rod 27 whose lower end is in turn connected to a pin on the crank arm 28 fixed to one end of a transverse rock shaft 85 29 whose opposite end has a crank arm 30 with a pin connected to a horizontally-sliding clutch operating push bar 31 (Fig. 7) by which the wrapping devices are coupled for actuation at the proper period and sub- 90 stantially coördinately with the feed and bunching of the coins, to advance the amount of paper required for a wrapper for the particular bunch or stack of coins assembled 95 for wrapping purposes and to adjust the grippers and other parts which coact therewith. The push bar 22 reciprocates in a suitable guide in the frame standard B, and reciprocal movement is imparted to said bar 100 through the medium of a pivoted lever 32 and an eccentric 33 (Fig. 4) on the main shaft G, and a rod 34 connecting the strap of said eccentric with said lever.

The lever 32 for actuating the push bar 24 is eccentrically fulcrumed at *k* on shaft 105 K turnable in the lower part of the frame standard B to shift the angular position of said lever 32, said shaft having a crank arm *l* at the opposite side connected by a rod *m* 110 with one of the traveling nuts or blocks (71) whereby the limit of the forward throw of the push bar relative to the diameter of the coin is adjusted and controlled from the same point that controls the adjustment of 115 the other several mechanisms hereinafter described.

As each coin is delivered from the runway it is received into the bunching devices but before being received into the latter its 120 top edge must pass beneath the under side of the inturned short arm 35 of substantially a bell-crank lever 36 (Fig. 13) pivoted at 37 to the side of the standard B of the main frame, whereby the overthrow of the coin 125 is prevented, and the proper seating and centering of the coin in the bunching devices is insured. To assist this latter result, as each coin is forced out of the runway and beneath the short arm of the said 130 lever 36 it falls edgewise upon a coin sup-

port or holder which includes two transverse spaced rods 37 and between the fixed and movable jaws of the bunching mechanism, said fixed jaw 38 being, if desired, a
 5 fixed part of the standard B and being formed with an opening for the admission and operation of one of the pair of grippers hereinafter described, and said movable jaw 39 being slidably mounted on the said rods
 10 37 and connected to a spring 40 the tendency of which is to draw the jaw inward toward its fixed companion but which spring yields as the successively admitted coins increase the length of the column or bunch to be
 15 wrapped. In their normal or closed position the fixed and movable jaws 38, 39 of the bunching mechanism are separated from each other a distance sufficient to form an intermediate channel which is longitudi-
 20 nally in line with the end of the runway and into which channel the first coin of the number required for a predetermined bunch or column is received, and as before stated, supported on the parallel bottom rods. Be-
 25 fore a succeeding coin can be delivered between the jaws, the first coin or the one immediately preceding the one being delivered by the push bar 22, is pushed sidewise to make provision for the oncoming coin, this
 30 side movement being given the preceding coin (or coins if more than one has been assembled on the rods and between said jaws) by means of suitable devices, as the sliding pins 41, operating through the frame
 35 standard and adapted to push the assembled coin, or coins, laterally against the opposing pressure of the spring actuated movable jaw 39 said pins being projected into and out of the range of action of the
 40 successively arriving coins, by means of a bell-crank lever 42 (Figs. 2 and 35) pivotally mounted on the other side of the frame standard, having one of its arms carrying
 45 said pins and the opposite arm connected to a rod 43 which is in turn connected to the heel or short arm 44 of a lever 45 pivoted upon the before-mentioned stud or pin *a*
 and having a long arm with a curved end or toe adapted to ride in contact with a cam
 50 46 on the main shaft, the parts being so timed that the lever 45 is rocked to withdraw the pins 41 as a coin is being finally advanced by the push bar 22, and being projected to push the coin sidewise into the
 55 holder as soon as it is deposited onto the bottom rods thereof, the retraction of said pins being effected by the cam 46 and their projection being the result of the action of the spring 47 to which the bell crank lever
 60 42 is connected. One of the pins 41 is made flexible by mounting it loosely in the bell-crank lever and against a light spring 41' so that its free end may yield in a horizontal transverse plane when struck by any of
 65 the coins of the larger size or diameter.

The throw of the pins by their bell crank levers is, in the machine shown, set for coins of the smallest diameter, and to obviate the necessity of changing the throw of said pins
 each time I change from one class of coins 70 to another, I make one of the pins flexible or yieldable laterally, as described, to compensate for coins of the larger diameters which because of their increased diameter would be liable to strike the upper pins be-
 75 fore the latter could be retracted far enough to fully admit said coin of increased size. If the flexible pin is struck, it is simply pressed aside to allow the coin to pass, after which its spring tends to return it to its
 80 normal straight position and in so doing assists in forcing the coin sidewise into the coin holder.

For commercial and other reasons it is desirable to so construct the machine that 85 it is capable of universal use, that is, that one machine may have such adjustments as to make it capable of handling and accurately counting coins of various sizes and denominations, thereby adapting the single 90 adjustable machine for all other uses that a number of non-adjustable machines might be put to, and make it capable of handling coins from the smallest to the largest sizes. To accomplish my purpose it is evident that 95 the coin conductor must have several adjustments to meet the varying diameters and thicknesses of the different coins, and the gage bar of the table must also be adjustable to correspond to the thickness of the differ- 100 ent coins, and the mechanisms for effecting these adjustments and rendering the machine capable of counting any class of coins and quickly adapting it for coins of another class, I will now describe. 105

From the under side of the end portions of the gage bar project the guide pins 48, and on the under side of the inclined portion of the table is a horizontal bar 49 which is slot-
 110 ted at the ends to receive said pins, whereby the bar is capable of a guided movement longitudinally. Between this bar 49 and the table are suitable springs 50 which tend to hold the bar upward and which are com-
 115 pressed when the bar is lowered relative to the table surface; and the ends of the bar 49 are provided with cams or wedge-shaped portions 51 operating in saddle plates 52 which fit the guide pins 48 and are secured
 120 by appropriate nuts 53 on threaded ends of said pins, whereby as the bar 49 is moved in one direction, the cams or wedge portions 51 thereof ride past the saddle plates and cause
 125 the pins and the gage bar to be depressed against the pressure of the springs 50 and lowering the bar relative to the surface of the table; and when the bar 49 is moved in the opposite direction, the declining por-
 130 tions of the cams or wedge portions by riding past the saddle plates allow the springs

to simultaneously expand and elevate the gage bar relative to the table surface.

The gage bar having been adjusted, it is necessary for the best results, that the width of the hopper and of the coin conductor should be correspondingly adjusted and to effect this additional adjustment at the same time the gage bar is adjusted and by the same mechanism, thereby requiring but one operation for the two adjustments, I construct said hopper portion with a movable front member 54 (Fig. 23) which has suitable pins 55 projecting rearwardly and passing through plates or bars 56 and appropriately secured. The plates or bars 56 are separate from, and are movable relative to, the back of the stationary member 57 of the coin conductor; and the slide bar 49', passes between and is guided by the plates or bars 56 and is provided with cam or wedge portions 58 (Fig. 22,) which operate against the said bars 56 to pull the pins rearward and thereby move the movable front of the hopper portion of the coin conductor relative to the companion stationary portion thereof and decreasing the space between the inner surfaces of the glass or other spaced plates which form the coin passage, to correspond to the thickness of the coin to be delivered therethrough and the height of the space beneath the gage bar. When the indicator is turned to cause the pinion to move the slide bar outwardly to allow the gage bar to be elevated by its springs 50 to gage a coin of increased thickness, the cams or wedge portions 58 progressively withdraw relative to the bars 56 when suitable springs 57 act upon the movable front of the hopper portion of the coin conductor and allow it to move coordinately with the elevation of the gage bar. Thus it will be seen that the table and the hopper end of the coin conductor are capable of adjustment for coins of different thicknesses and when adjusted for coins of one thickness will not allow the passage of a coin of an increased thickness.

That portion of the divided coin runway which leads from the lower or discharge end of the hopper portion it is not necessary to make adjustable, and it suffices if it be stationary but made of such height and width as to take the coins of maximum diameter and width, but the lower member of the divided runway, *i. e.*, that portion which is carried upon the vertical standard of the main frame and which include the plate 11 with its downwardly curved lower end 12 for diverting the course of the coins, is made adjustable both in height and width to correspond with the adjustment of the width of the coin hopper and the elevation of the gage bar. The adjustment of these parts is effected in the manner I will now describe.

The vertical standard B of the main frame is provided with a plurality of inclined

guides or slots 60 (Figs. 1, 13, 17, 18, and 32) and from the back of the upper plate 11 of the lower member of the divided coin conductor projects suitable lugs 61 which slidably fit said guides and are fixed to suitable inclined plates 62 which move over the rear face of the standard, said plates 62 being grooved in a horizontal plane as shown at 63 Figs. 2 and 32 to slidably fit a lug or lugs or projections 64 formed on the wings of a vertically traveling nut or block 65.

When the coin passage is adjusted in height by the vertically movable plate 11 the size of the vertical portion of said passage is correspondingly changed and the width of the coin passage is also adjusted. These adjustments are obtained substantially as follows: The downturned end of the plate 11 forms one wall of the vertical portion of the coin passage, the opposite wall of the said passage being formed by the vertical wall of a bar 66 which is horizontally slidable in a slot or guide 67 (Figs. 2, 17, and 18) in the frame standard, said bar 66 having an inclined lug or wall 68 on its rear, (Fig. 2,) which is engaged by an inclined surface 69 on an extension or wing 70 of a second traveling nut or block 71 whereby as the nut is moved in one direction the engaging inclined surfaces 68, 69, cause the bar 66 to be moved toward the curved wall of the plate 11, and when the nut is moved in an opposite direction said surfaces recede relative to each other and allow a spring to move the bar away from said curved wall of the plate 11.

On the back of the frame standard is journaled a vertical screw rod 72 having right and left threads engaging the aforesaid nuts 65 and 71 whereby when the rod is rotated by its handle 73, the nuts approach or recede from each other to simultaneously increase or decrease the vertical height of the inclined coin passage and simultaneously increase or decrease the size of the vertical portion thereof. During this adjustment of the height of the coin passage to correspond to the diameter of the coins to be passed there-through, the limit of the forward throw of the push bar is also changed by varying the angular position of lever 32, and the width of the said passage is increased or decreased laterally to correspond to the thickness of the said coin, and to the adjustment of the aforesaid gage bar and coin-channels therein. This lateral adjustment of the coin passage is effected by a cam or wedge portion 74, (Fig. 32) on one of the inclined and guided plates 62 engaging a correspondingly inclined surface on a plate or bar 75 which is held against the back of the frame standard by the shouldered threaded rods 76 which pass through said standard and engage and secure the plate 10 which forms the lower part of the lower member of the divided coin

conductor along which the edge of the coin rolls.

The plate 10 is backed by a suitable spring 77 and when the cam or wedge portion 74 is receding from its companion surface 75 this spring expands and forces the plate laterally thereby increasing the width of the coin passage; and when the aforesaid inclined surface 74, is advanced progressively toward the companion surface 75, the threaded rods 76 pull the plate inward against the pressure of the spring 77 and thereby reduce the lateral width of the coin passage coördinately with the lowering of the plate 11 and the inward horizontal movement of the bar 66 to decrease the height of the said passage and the longitudinal width of the vertical portion thereof. By these, or similar, adjustments I am enabled to set the several parts of the machine so that I can almost instantly change from the feeding of the smallest coins to coins of the greatest size, and to any size between the minimum and maximum; and the several adjustments of the coin conductor, or passage, are indicated upon a revoluble graduated disk or plate 78 and a fixed pointer 79. The disk may be locked in any of its adjustments by a spring-pressed bolt 80 engaging one of a series of holes in the disk.

In connection with the foregoing adjusting features, I also locate on the table an indicator or dial 81 (Figs. 1 and 19) having designating marks for the different denomination of coins to be fed, over which dial a pointer 85 is adapted to operate. This pointer is mounted on a shaft 86 to which, beneath the table, is fixed a pinion 87 (Fig. 23) adapted to mesh with the teeth formed on the horizontal bar 49 whereby said bar is moved to adjust the gage bar in the manner before described. On the shaft 86 or fixed rigid with the said pinion 87 is a cam plate 88 the edge of which operates in contact with a roller 88' on the end of a bar 89 projecting from a plate 90 slidably mounted on the under side of the inclined portion of the table, said plate having parallel spaced bars 91 rigid with its upper side and disposed in a slot 92 in the inclined portion of the table in front of the gage bar, said spaced bars having their ends recessed to slidably engage the wall or edge of the slot and said plate being connected to a spring 93 whereby the roller 88' is maintained in contact with the edge of the cam plate 88 in whatever position said plate is turned. In addition to the foregoing features, the portion of the table in front of the gage bar and overlying the slot 92 is made rigid with spaced bars 94 which lie parallel with the bars 91 carried by the spring-pressed plate 90. The two sets of parallel bars, namely, the bars fixed to the table and those carried by the plate 90 form channels into which the coins pass-

ing beneath the gage bar enter and through which they slide to the outer or delivery edge of the table and thence into the hopper-end of the coin conductor, each of said spaced bars having a step or offset 91', 94', which forms a guide for the edge of the coin.

When the indicator is set for coins of a certain definite size, the slide bar 49 is operated to adjust the vertical height of the gage bar above the table to permit the passage beneath said gage bar of the coins of the predetermined size and to exclude all coins of a larger size; and the cam-plate is at the same time operated to move the spring-pressed plate 90 to cause its bars to be moved relative to the fixed bars 94 so that the channels between the inner stepped faces of the fixed and movable bars of each pair of bars will be of a width equal to the size of the coins to be fed into the machine whereby said coins will readily pass through said channels and into the coin conductor.

In the event of a coin of smaller size than the one for which the gage bar and parallel spaced bars are set passing beneath the gage bar, said coin will, upon entering the channel formed by the respective fixed and movable bars 91, 94, drop into the recess or pocket formed by the walls of the slot in the table and the spring-pressed plate 90 which forms a bottom for said slot, from which pocket the undesirable coin can readily be removed by the operator. This arrangement affords an automatic means for separating coins of any size smaller than the one for which the table and machine is set; coins whose size is larger than that for which the machine is set cannot enter the machine because the adjustment of the gage bar will prevent the passage thereunder of any such coin of increased size. To meet the requirements of the machine and the adjustment of the coin conductor, I also provide means for adjusting the bunching devices to make the same operatively receive and handle the different sizes of bunches or columns of coins, and to center the same relative to gripping devices to be hereinafter described, it being understood that the length and diameter of the column of coins will vary with each denomination of coins counted. Referring therefore to Fig. 13 and to the transverse rods 37 which form the bottom of the bunch holder, it will be seen that the inner ends of these rods are fixed to the upper ends of crossed levers 95, 95, which are slotted at the point of crossing to receive a pin or stud 96 projecting from a vertical slide bar 97 appropriately guided on the frame standard. This slide bar is recessed to loosely receive the end of one arm of a bell-crank lever 98 whose other or upper arm has a pin 99 which operates in a slot in the lower arm of the aforesaid bell-crank lever 36 whose upper arm is turned inward

into the range of action of the coin ejected from the delivery end of the coin runway, and engages the upper edge of the advancing coin to prevent the possible overthrow of the coin and to insure the proper seating of the coin in the coin holder when the machine is running at high speed.

Owing to the difference in diameters of the various coins, it is manifest that the upper arm of the bell-crank lever 36 must be raised and lowered to compensate for the different diameters of coins, and to so position itself that it will satisfactorily perform its function upon coins of the several different diameters; and that the bars 37 which constitute the coin holder must be adjusted to properly receive, center, and hold the coins of different diameters in a smooth and regular bunch or column so that said bunch may be readily taken by the grippers and transferred to the wrapping devices, as I will hereinafter describe. Accordingly I raise or lower the slide bar 97 and thereby rock the crossed levers 95 to open or close the bars 37 relative to each other, and raise or lower the upper end of the lever 36, by means of an inclined or cam groove 100 (Fig. 17) in a sliding plate 101 engaging the pin 98', said plate being fixed to lugs 102 operating in slots 103 in the standard B and carried by a traveling nut or block 71 hereinafter mentioned.

On the main power shaft G which is journaled across the lower part of the frame A and which as before described, transmits motion to operate the coin advancing means, is fixed a collar 104 (Figs. 7 to 9) having a single tooth 105 and upon this collar is loosely mounted a spiral gear 106 having a recess 107 in which is pivotally mounted a pawl or clutch lever 108 adapted to engage and disengage the single tooth as I will presently explain. Adjacent to the worm gear is a casting 109 having an annular channel 110 in the face next to the gear, said channel adapted to receive a pin 111 projecting from the swinging pawl or clutch lever 108. The push rod 31 which is actuated through the spring-pressed bar 24, rod 27 and rock shaft 29 each time a coin passes beneath said bar 24, has its end 112 guided in a channel in the casting 109 the said end 112 being recessed at r to provide a lug 113 having an inclined wall 114. When no coin is passing beneath the spring-pressed bar 24 the push bar 31 is retracted and the inclined wall 114 is withdrawn from register with the annular channel 110 in the casting 109 and is in engagement with the pin 111 on the swinging pawl out of the range of action of the single tooth 105 of the fixed collar, thereby disconnecting the spiral gear 106 from the power; but as each coin passes beneath the bar 24 the push bar 31 is advanced and the inclined wall of the lug 113

is moved into register with the annular channel 110 and the pawl is allowed to swing inward into engagement with the single tooth the pin of said pawl at the same time entering the annular groove 110, whereby the spiral gear is connected to the power and revolves with the shaft, the purpose being to have this gear make one complete revolution each time a coin is advanced by the push bar 22 and to complete said movement and come at rest again before the next coin is advanced. Just as the spiral gear is completing its cycle, the pin 111 strikes the inclined wall 114 on the lug 113, and as the slide bar which carries this lug moves back, as it does each time the spring-pressed bar 24 drops after a coin passes thereunder, the swinging pawl is rocked to withdraw from the single tooth 105 and disconnect the spiral gear from the power. In actual operation and when the machine is running at high speed and coins are being continuously fed, the make-and-break of the connection of the pawl with the single tooth is hardly perceptible, but whatever the speed of the machine, the spiral gear is not operated except by the actual passage of a coin beneath the bar 24, therefore it is only when a coin is being advanced that the spiral gear is made operative, and allowed to make a complete rotation, which rotation is completed before another coin can be advanced.

The foregoing serves as an effective clutch mechanism for connecting the spiral gear with the power shaft while coins are passing beneath the bar 24 and being deposited in the bunch holder whereby each coin performs its quota of work upon the devices which form the salient features of the wrapping operation, which I will presently describe. Any other well known and appropriate clutch mechanism may be substituted for the foregoing clutch devices without departing from the spirit of my invention it only being desirable that the clutch shall operate to connect the spiral gear with the power only when coins are actually being advanced beneath the bar 24, the said gear remaining inoperative when coins are not being advanced, even though the advancing means be in operation.

Having fully described the coin feeding and coin advancing and bunch or assembling means and the several adjustments which are necessary in a single machine capable of handling coins of all sizes, I will now describe the wrapping mechanism and the parts which relate directly thereto, and the several adjustments which are necessary to adapt the paper wrapper and travel of the wrapping rolls, grippers, crimpers, and other parts to the adjustments of the coin conductor and coin advancing means.

Lying parallel with the side of the main frame is a horizontal shaft 115 (Fig. 1) upon

one end of which is fixed a spiral gear 116 which meshes with the spiral gear 106 and is adapted to make one complete revolution in unison with the said gear 106 the teeth of the two gears being so relatively inclined that this object is effected without regard to the relative sizes of the two gears. The shaft 115 also carries the shiftable multiple-gear *d, e, f*, of a change speed mechanism, the other member of said mechanism consisting of a sleeve having the gears *g, h, i*, of different diameters which are adapted to be respectively engaged by the members *d, e, f*, of the triple gear. The relative size of the gears *d, g*, are such that they are to be engaged when I am wrapping say fifty (50) coins to be bunched; when the gears *f, i* are in mesh I am wrapping say forty coins to the bunch; and when the gears *e, h*, are in mesh I am wrapping twenty (20) coins to the bunch, the shifting of the gears bringing them into mesh, as described, being effected by a shifting lever 117 embracing the gear *e*, and the said lever being held locked in its adjusted position by a pin thereon engaging any one of a series of holes 118 in the frame as shown in Fig. 6.

The sleeve 119 which carries the gears *g, h, i*, is fixed to a shaft 120 on the end of which is a worm 121 adapted to engage a worm gear 122 on the end of a shaft H journaled transversely across the lower part of the frame and to which the carrying arms of the gripper frame are fixed, the said change-speed gears, worm and worm gear being so proportioned relative to each other that whichever of the pairs of change gears are in mesh, the worm gear 122 will be caused to make a certain definite proportion of a full revolution. In other words, when the change gears *d, g*, are in mesh, one revolution of the spiral gears 106, 116 and shaft 120 will result in the worm gear 122 being turned about one fiftieth of a complete revolution; and when the change gears *e, h*, are in mesh, the worm gear 122 will be turned one-twentieth of a revolution; and when the change gears *f, i*, are in mesh, the said worm gear 122 will be turned one-fortieth of a revolution. Thus in counting fifty coins to a bunch the worm gear 122 makes one complete revolution during the advancement of fifty coins; in counting twenty coins to the bunch, said gear 122 makes one revolution during the advancement of said twenty coins; and when counting forty coins to the bunch the said worm gear will make one revolution during the advancement of said forty coins. By this change gear mechanism I may vary the increment of operation of the coin-handling parts relatively to a single cycle of operation of the machine, thereby permitting the formation of stacks of different predetermined lengths. During each advance movement of the worm gear, a cam

123 (Figs. 4, 10, and 28) fixed to the shaft H is correspondingly advanced to cause the grippers to advance to and seize the bunch of assembled coins just as the said cam is completing its cycle of movement, and to convey said bunch of coins to the wrapping rollers. To make this part of the invention better understood I refer to Fig. 28 where the cam 123 is shown as having on one edge a surface 124 at one terminal of which is a more sharply inclined portion 125 and at the other terminal of the said surface 124 is an offset or recess 126 following which is a sharply inclined surface 127 from which the lower point of the first-named cam surface 125 the edge of the cam is made straight and without incline. The cam is also formed with two other cam surfaces 140—141, these being for a purpose I will hereinafter describe.

The gripper carrying frame includes the parallel arms 130 loose on the shaft H and suitably connected by the cross bar 131. At their upper ends, these arms are formed or provided with bearings 132 in which are slidably mounted sleeves 133 in which the stems 134 of the revoluble grippers 135 are rotatably mounted (Figs. 10 and 11) said grippers having their inner ends provided with some soft non-abrading material, as cork, leather, etc., and designed to grip the ends of the column or bunch of coins in the coin holder with sufficient friction to safely transfer said bunch to the hereinafter described wrapping rolls, but without marring or abrading the end coins of the bunch.

In the cross bar 131 is slidably mounted a bar 136 having diagonal teeth at each end; and on the sleeves 133 of the grippers are formed like teeth, these teeth of both of said bars being in turn engaged by similar teeth on bars 137 longitudinally slidable in the arms 130 of the gripper frame. The sliding toothed bar 136 which operates in the cross bar 131 has a projecting member 138 which lies in the range of action of the cam edge 124 of the aforesaid cam 123, the action of the aforesaid parts being as follows:

In Fig. 4, the gripper frame is shown in its lowered position with the grippers in line with the center of the column or bunch of coins being assembled in the coin holder. In this position, the lug 138 of the transversely sliding toothed bar 136 lies in the intermediate portion of the recess 126 of the cam and near one end of a straight edge portion of said cam. To reach this position I would explain that just as the final coin of the predetermined number required for a bunch or package is seated in the coin holder, the spiral gear 122 is caused to make a partial rotation, by the means and in the manner before described, and the cam 123 makes a corresponding partial rotation to enable the lug 138 of the transverse rack

bar 136 which is now resting on the high point of the cam edge, to be pulled into the recess 126 of said cam by the springs 139 with which the vertical rack bars 137 are connected. These springs exert a downward movement on the vertical rack bars and because of the diagonal pitch of the rack teeth cause the transverse rack bar 136 to be moved sidewise to draw the said lug in the recess of the cam. The rack teeth on the sleeves of the grippers are inclined oppositely to each other and to those on one end of the transverse rack bar 136 consequently when this latter bar is moved sidewise inwardly, the sleeves 133 are moved toward each other by the power of the springs 139, and the grippers approach the opposite ends of the bunch now assembled in the coin holder and seize the ends thereof. At this point it should be explained that the cam 123 is also provided with the reversely curved surfaces 140, 141, (Fig. 4,) which substantially merge into a flattened point 142 intermediate of said surfaces. The gripper frame is pushed forward after depositing the bunch of coins between the wrapping rolls, to receive the new bunch being assembled, by means of the before-mentioned cam surface 140 on the main cam 123 engaging a roller 143' on the front end of a horizontally slotted yoke 143 guided on the shafts H and 160 and having a rod or bar 144 which connects the said slidable yoke with the gripper frame. In operation, the roller first engages the lower portion of the cam surface 140 and rides up said surface thereby gradually forcing the yoke forward and through the rod or bar 144 engaging the gripper frame above its pivotal axis pushing the said frame into its lowered position, Fig. 4. The return of the gripper frame is effected by the springs 145, the slots in the yoke 143 allowing the latter to slide backward in unison with the return movement of the gripper frame.

In operation, the point 142 between the cam surfaces 140—141 is adapted to engage the roller 143' to hold the gripper frame securely in its lowered position, Fig. 4, until the next to the last coin of the bunch has been added to said bunch. As the succeeding or final coin for the bunch passes beneath the spring-pressed bar 24 it induces a further movement of the cam 123 to allow the projection 138 on the transverse rack bar 136 to be drawn into the recessed portion of the cam and thereby permit the springs 139 and rack bars to move the grippers toward each other to seize the bunch. Immediately preceding the seizure of the bunch by the grippers, the next advancing coin, which is the final coin of the bunch, through the connections before described, induces the succeeding partial movement of the cam 123 already referred to as occurring

when each coin passes beneath the bar 24 and the projection 138 of the gripper frame arm slips off the point 142' of the cam and is drawn into the recess of the cam by the springs 139 and rack bars before mentioned, to allow the grippers to move inward and seize the bunch at opposite ends; and substantially simultaneously with the aforesaid approach of the grippers toward each other, and when said grippers are firmly seated against the bunch, the springs 145 which are connected to the arms of the swinging gripper frame act on said frame to cause the roller 143' to ride past the projection 142 between cams 140 and 141, and to quickly lift the bunch of coins out of the coin holder to allow the initial coin of the next bunch to be formed to be properly deposited without interference from the previous bunch or the carrying means therefor. The deposit of the single coins for the succeeding bunch causes the cam 123 to be operated in unison with the passage under the bar 24 of said coins, and as the springs 145 are pulling upon the gripper frame it is evident that the lug 138 remains seated in the recess of the cam until the coin has been moved by the advance of succeeding coins, to enable the grippers to place the bunch of coins held by them between the winding rolls of the wrapping mechanism. Then the cam continues to rotate intermittently under the influence of each coin passing under the spring-pressed bar, and consequently the recessed portion of the cam moves away from the now stationary gripper frame, and until the sharply inclined portion 127 of the cam strikes the lug of the rack bar when said bar is operated outwardly and through the vertical rack bars and the rack sleeves causes the grippers to separate relative to each other and release the now deposited bunch, said grippers however remaining sufficiently close to the ends of the bunch to prevent the ends of the coins falling away therefrom and thereby destroying the continuity of said bunch. It will be understood that at the time the grippers thus release the bunch, said bunch has been placed into the wrapping sheet and that the wrapping rolls, hereinafter mentioned, have rolled the sheet about the bunch, and that the grippers are in position in the tubular ends of the wrapped roll in which they retain the end coins in the manner just described.

As the machine is intended for universal use, that is, to operate upon coins of different sizes, it is manifest that the length of the coin column will vary with each denomination of coins used, therefore the grippers must be made adjustable to meet this condition. Accordingly I have shown in the drawings, Fig. 11, one of the vertical rack bars as passing through the head of a screw 146 which passes through the arm of the

gripper frame and is provided with a handle piece 147 by which the screw may be moved to lift the teeth of the upper ends of the said vertical rack bar 137 out of mesh with the teeth on the companion slidable gripper sleeve 133 to enable said sleeve and its contained gripper to be adjusted in and out relative to the other gripper, which may or may not be adjustable, and relative to the length of the coin column to be subsequently formed. When once adjusted, the sleeve is locked by the proper turning of the screw and the parts will operate, through the cam 123 and rack bars in the manner before specified.

Having described the coin advancing and bunching mechanisms and grippers or transfer devices, I will now proceed to explain the wrapping devices which perform the final operation upon the bunch of coins.

The wrapping roll frame 150 (Fig. 5) is appropriately hung upon transverse rods 151 and upon the sides of this frame the rear ends of pairs of suitable crossed levers 152 are pivotally mounted, one of said levers of each pair having a pin 153 working in a slot in the other lever of the same pair, as shown in Figs. 15 and 16. In the forward ends of the crossed levers the wrapping rolls 154, 154', are mounted, in front of which rollers the wrapping sheet 155 hangs, said rollers being separated from each other a distance sufficient to form a chamber into which the bunch of coins is deposited, against the interposed depending end of the wrapping sheet, by the gripping and transfer devices, said rolls being rotated by appropriate driving means, as the chain 156 (Fig. 5,) passing around sprocket wheels 157 on the ends of the roll shafts, and a similar sprocket wheel 158 on a sleeve 159 which is loose on the transverse shaft 160 journaled in the lower rear portion of the frame. Upon this latter shaft 160 is also fixed the lower ends of an oscillating or vertically-swinging frame 161 in the upper forward ends of which the third wrapping roll 162 is journaled, said roll having a sprocket wheel 163 on one end of its shaft, around which a chain 164 passes from a sprocket wheel 165 on the aforesaid sleeve 159 (Fig. 33) the arrangement of the chains 156-164 being such that the rolls 154, 154' and 162, are caused to revolve inwardly toward each other. The oscillating frame 161 which carries the third wrapping roll is raised and lowered at the right period of time, lowering to allow the bunch of coins to be carried by the grippers over the third or forward wrapping roll and substantially in contact with the other rolls 154, 154', and then closing upwardly against the now deposited roll, said oscillating movement being effected by means of an arm 167 (Fig. 2) on said shaft 160 engaged by the flat surface

168 of a cam 169 on the main drive shaft H as shown in Fig. 2, whereby said frame is lifted from its lowered position into its elevated position with the wrapping rolls in operative contact with the bunch of coins.

On the shaft of the front wrapping roll is turnably mounted a frame 170 (Fig. 1) having a sleeve end provided with a pinion 171 said frame carrying a pivoted, lightly spring-pressed, apron or curved plate 172 (Fig. 5,) which lies just in front of the said roll and is normally opened outwardly or away from the roll. The purpose of this apron is to insure the free end of the wrapping sheet being tucked into proper position around the bunch of coins during the initial part of the wrapping process as shown in Fig. 16. The free edge of the pivoted apron or curved plate 172 has attached to it the upper edge of a second curved plate or member 173 which is also lightly spring-pressed and has its lower edge so positioned that it is adapted to bind the paper against the bunch of coins with sufficient power to insure all looseness and wrinkles being taken out of the portion of the sheet which first surrounds said bunch, for as the bunch of rolls is rotated by reason of its contact with the three wrapping rolls, it is manifest that the free end portion of the paper is dragged past the lower edge of the spring-pressed member 173 under sufficient resistance or tension to insure the paper which first surrounds the bunch being laid smooth and uniformly thereon, without wrinkle or unevenness, to preserve the uniformity and attractiveness of the wrapped package. The movement of the apron-carrying frame and the consequent tucking of the free end of the paper into proper position on the roll, is effected by means of the aforesaid pinion 171 being engaged by a guided rack-bar 174 (Fig. 4) whose rear end is pivotally connected to a lever 175 fulcrumed on the inner side of the main frame, and having its upper portion connected by a pin 176 with an arm 177 fixed to and depending from a transverse shaft 191 journaled across the upper rear portion of the main frame. From this description it will be understood that as the front roll-carrying frame is oscillated in an upward direction, the apron carrying frame is partially rotated, by its pinion traveling over the rack 174, to move said apron-carrying frame from the position in Fig. 4 to the successive positions of Figs. 15-16.

The roll of paper from which the individual wrappers are severed, rests in a frame or support 179 (Fig. 5) at the upper rear end of the main frame, said paper roll frame or support having a fixed side 180 (Fig. 3) and also a side 181 which is movable relative to said fixed side to adapt the support for rolls of different lengths, it being

understood that as the coin bunches are of different lengths, the wrapping paper must be of different widths.

The fixed side of the paper roll support 5 serves as a stationary gage for all widths of paper used. The paper passes from the roll over the paper feed roll 182 and between the same and the pressure roll 183 which latter roll may be moved to and from the 10 feed roll, to allow the paper to be passed between the rolls by means of an eccentric 183' (Fig. 1) or like means and an operating hand piece 184. After passing between the feed roll and pressure roll, the free end of 15 the paper passes over the pendent blade 185 fixed to the shaft 186 and having its lower edge as indicated at 185 in Figs. 1, 4, and 5, extending diagonally transversely of the body of the knife from one side to the other 20 so that the wrapper strip will likewise be cut on a corresponding diagonal line. The object of so constructing the knife is that on rolling or molding the wrapper about the stack or bunch, the ends of the wrapper strip 25 will be coiled spirally about the bunch and will be drawn tightly longitudinally of the bunch by reason of the crimping operation, so that particularly the rear end of the wrapper strip, or that last laid upon the 30 stack will be tightly wound thereon, and will not bulge at the longitudinal center of the stack. The cutting edge may be serrated or otherwise formed to readily sever a wrapper as the rolls in wrapping the bunch of 35 coins exert a pull upon the portion of paper being used as a wrapper for said bunch. The shaft of the knife or blade 185 is rockable in its bearings in the main frame and the lower edge of the blade is accordingly 40 raised and lowered to insure the portion of paper hanging below it being properly positioned relative to whatever size of bunch of coins is to be wrapped, said shaft being thus adjusted in unison with the adjustment 45 of the coin conductor and advancing means by means of a slotted arm 187 on said shaft 186 engaging a pin 188 on a bar 189 which extends between the two shafts 190—191 and having one end connected to an arm 192 50 on said shaft 191 and the other end connected to an arm 193 on a sleeve 194 loose on the other shaft 190 said sleeve having a second arm 195 connected by a link 196 with the pin or stud 197 by which the dial 55 or disk is operated whereby the knife or blade is moved by the same unitary means, namely, the crank handle 73 and screw 72 and accessories which adjust the coin conductor and its adjuncts.

60 The length of the paper to be fed during each cycle of the machine is dependent on the diameter of the bunch of coins to be wrapped consequently this paper feed is adjustable to meet this condition. For this 65 purpose I fix to the outer end of the feed

roll shaft 200 (Fig. 25) a wheel 201; and on said shaft I place a loose pinion 202 to which is fixed a ratchet wheel 203 which is engaged by a pawl 204 carried by the first wheel 201.

70 The pinion 202 is engaged by a curved rack 205, Fig. 2, carried by a vertical spring-pressed lever 206 fulcrumed at 207 to the side of the main frame, and having its short arm engaged by a spiral cam 208 on the 75 main shaft H whereby each impulse of said shaft due to the passage of each coin beneath the spring-pressed bar 24, transmits a substantially corresponding impulse to the lever, and through the curved rack and pin- 80 ion, rotates the feed roll.

The length of the paper feed is determined by the length of the movement allowed the curved rack bar, and the length of this movement is determined by an adjustable stop 85 209 fixed to the shaft 191 which shaft may properly be termed an adjusting shaft since it controls the several adjustments for the paper feed and wrapping rolls and also the chain tightener 210 (Fig. 5) by which the 90 tension of the sprocket chains may be regulated under all the conditions of adjustments of said mechanisms, and in unison with the adjustment of the coin conducting and advancing means.

95 Referring again to Figs. 4, 15 and 16, and the rear wrapping rolls, said rolls are adjustable to increase or decrease the distance between them to accord with the diameter of the coin package, by means of slide bars 211 100 mounted in the stationary wrapping roll frame and carrying the pins 153 operating in the slots of the crossed levers 152 said slide bars 211 being connected by links 212 with crank arms 213 on the aforesaid ad- 105 justing shaft 191 whereby as said shaft is rocked by the bar 189 in adjusting the coin-conducting features, the slide bars 211 correspondingly operate the crossed levers 110 to spread or close the rear wrapping rolls relative to each other to properly receive the bunch of coins prepared for wrapping, and to advance the paper required for such roll. To complete the action upon the coin pack- 115 age, the rolled wrapper sheet is intended to have its tubular ends crimped to secure the coins, to provide a strong tight package, and to allow the end coins of the bunch to be visible. The crimping operation is effected 120 by means of the crimpers 214 (Figs. 5, 15, and 16) which are fixed to sleeves 215 which have a slidable movement on a transverse guide bar 216 on the stationary wrapping roll frame. These sleeves 215 (Fig. 29) have 125 socket portions 217 in which operate the front ends of slides 218. To suitable collars 219 on the shaft S are pivotally connected the rear ends of pairs of parallel arms 220, 221, the arms of each of said pairs being of unequal length and the longer arms, 220, 130

of the pairs having their front ends pivotally connected to the aforesaid slides 218. The long arms 220 are attached to springs 222 and the short arms of said pairs of arms are also connected to springs 223 the springs of the shorter arms being of greater strength than the springs of the longer arms and said shorter arms having a projection 224, which is designed to strike against the longer arms at a certain period of the crimping operation.

The arms are parallel with each other but the longer arm which carries the crimpers is set slightly to one side or in advance of the other arm for the purpose of causing the crimpers to first engage and gently lay over the first turn of the edge of the wrapped roll. Immediately following this action, the shorter arm with its more powerful spring comes against the longer arm and presses this arm and its crimper with increased power against the ends of the revolving coin package this power gradually increasing as the crimping progresses, by reason of the arms riding down the declining portions of a cam 225 fixed to the transverse shaft S and operated by a worm gear 227 thereon engaged by a worm 228 on an inclined shaft 229 which latter shaft is operated by a miter gear 230 thereon engaging a similar gear 231 on the shaft 120 which carries the worm 121 whereby the movement of the two shafts 120 and S is coördinate and the cam 225 is given a movement in harmony with the cam 123. In other words as each coin passes under the bar 24 the cam 225 is given a movement proportionate to the full number of coins in the package for which the machine is set consequently the crimpers are automatically adjusted during the formation of the bunch so that when the bunch is wrapped they are in the right position to fully crimp the ends of the package, after which the ascending portion of the cam 225 forces the crimper arms outward to normal position and allows the wrapped package to be delivered outside of the machine and into some suitable receptacle placed to receive it.

In order to preserve the timing of the machine at whatever adjustment the several parts have been set, it is desirable, if not necessary, that the change of gears should be permitted to occur only at the commencement of a cycle of the machine and of the spiral gear 106. In the beginning of said cycle, the gripper-carrying frame is in its lowered position and the grippers thereof have seized and have lifted the bunch of coins out of the coin holder and is now advancing the bunch to the wrapping devices; and the lug 138 of the transverse toothed rack bar 136 is in the recess of the cam 123.

The shipper lever 117 of the change gears is connected with a slide bar 300 one end of

which is bent and provided with three notches, *s, t, u*, one for each of the change gears, and the spiral gear 122 has an annular flange 301 on its inner face with an opening 302 therein into register with which one or the other of the notches in the slide bar 300 may be moved by the shipper lever in changing from one gear to the other. Just as the machine and spiral gear complete a cycle, and at no other time, the opening 302 in the flange 301 is brought into alinement with the slide bar to allow this bar to be moved simultaneously with the changing of the gears *d, e, f, g, h, i*, to bring the desired notch into register with the annular flange whereby the next movement of the spiral gear causes the flange to enter said desired notch in the slide bar, and to hold said bar from movement until the gear completes its cycle and the opening in the flange thereof is again alined with the slide bar. Until this last-named movement occurs, the slide bar is held locked against any movement which will permit the change gears to be shifted, consequently the time of the machine is preserved and is only changeable at the completion of a cycle of the machine. Connected with the gripper frame is an air check or cushion *n* adapted to soften or modify the spring-return of said frame and thereby relieve said frame from excessive jar.

Thus it will be seen that the several mechanisms which constitute the machine are adjustable to accommodate, first, coins of different diameters; second, to wrap stacks of different lengths determined by the thickness of the particular denomination of coin operated upon or by variation of the number of coins in the stack; third, to vary the number of steps in a complete cycle of operations determined by the number of coins in the stack, consequently, to vary the extent of movement of the operating parts in performing a step of a cycle of operations; fourth, to vary the speed of operation of the operating parts in performance of a step of the cycle, which is accomplished by changing the connecting gearing between the driving mechanism and the parts driven.

I have selected the terms "coördinating" or "coördinately" and "coördinate" as expressing the nature of these changes by adjustment which result in the harmonious operation of all parts of the machine in the initial relative position of the parts, in extent of movement of the parts in performing each step of a cycle of operations and in the timing of the operation of the parts in performing each step.

The means herein specifically described for adjusting the several mechanisms may be varied without departing from the spirit or scope of my invention. In fact the several broad combinations and adjustments

may be obtained by various modifications of the mechanism shown and described consequently I wish it to be understood that I do not limit myself to the foregoing or to

- 5 any specific constructions of mechanical elements as I claim broadly any means by which the several functions and broad operations may be combined in a machine which embodies adjustable coin feeding and coin
10 advancing means, adjustable coin bunching or assembling devices, and adjustable coin wrapping mechanism, and wherein the operations are more or less dependent upon the size and passage of the coin to be wrapped.
15 I also do not claim in this application the means described for adjusting the coin conductor, as these form the subject matter of my prior application, Serial Number 188,689, filed January 12th, 1904.
20 It will be observed that the advance movement of the various coin-handling parts is brought about by means of yielding connections, whereby in the event of accident, such as the jamming of a coin, the part or parts
25 coacting therewith will yield, thereby avoiding the danger of breakage. In this type of machine this feature of improvement is of the utmost value, since it reduces to a minimum the possibility of an accident
30 which would tend to put the machine out of commission.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is,—

- 35 1. A coin handling machine having coin advancing mechanism and coin wrapping mechanism, and means whereby said mechanisms may be simultaneously and coördinately adjusted.
40 2. A coin handling machine having in combination coin advancing mechanism and coin wrapping mechanism, and means whereby said mechanisms may be adjusted coördinately for different sizes of coins by
45 one operation.
3. A coin handling machine having in combination coin advancing mechanism and coin wrapping mechanism, and means whereby said mechanisms may be simultaneously
50 adjusted coördinately relative to the different diameters of the coins to be wrapped, and means to adjust said wrapping mechanism to different lengths of packages to be wrapped.
55 4. A coin handling machine having in combination coin advancing mechanism, coin stacking mechanism and coin wrapping mechanism, and means for adjusting said mechanisms simultaneously relative to the
60 diameter of the coins to be operated upon.
5. A coin handling machine having in combination mechanism for advancing single coins of a predetermined uniform size, means whereby said mechanism is adjust-
65 able to coins of a particular size, and a

wrapping mechanism for operatively receiving coins of predetermined size and means whereby all of said parts are coördinately and simultaneously adjustable to operatively receive and wrap coins of the different uniform size. 70

6. A coin handling machine having in combination coin advancing mechanism by which coins of a predetermined size are successively stacked, a wrapping mechanism 75 and means whereby the latter is progressively driven by the advance of each coin into the forming stack whereby the wrapping mechanism is intermittently actuated proportionately to a predetermined number 80 of coins in a stack.

7. A machine of the character described having in combination coin advancing and coin wrapping mechanisms and means whereby the wrapping mechanism is auto- 85 matically and progressively moved a proportionate part of its full movement by each coin advanced proportionate to the number of coins in the stack to be wrapped.

8. A machine of the character described 90 having in combination coin advancing mechanism and means whereby the same may be adjusted to operatively act upon coins of different sizes, coin wrapping mechanism and means whereby said wrapping mechanism is 95 caused to operate by each coin advanced, said wrapping mechanism being adjustable relatively to the different sizes of coins selected for advancement by the first named mechanism. 100

9. A machine of the character described having in combination a coin conductor and means for advancing coins singly there- 105 through; means for assembling said single coins into stacks; and a wrapping mechanism for applying wrappers to said stacks, and means whereby said coin conductor, coin advancing means, coin assembling means, and coin wrapping mechanism may be coördinately and simultaneously adjusted 110 to operate upon different sizes of coins.

10. A machine of the character described having in combination means for feeding coins and assembling said coins to form a stack, said feeding means being adjustable 115 to admit coins of different sizes, a coin wrapping mechanism, means for adjusting said assembling and wrapping mechanisms simultaneously relative to the diameter of the coins operated upon, and means for adjust- 120 ing said wrapping mechanism relative to a predetermined length of the stack.

11. In a machine of the character described having in combination coin feeding means, coin assembling means and coin 125 wrapping means, and adjusting means for each of said means operable by a single adjusting member.

12. A machine of the character described having in combination adjustable coin feed- 130

ing means, adjustable coin assembling means and adjustable coin wrapping means, and means whereby the operation of said wrapping means is controlled step by step for progressive means by successively fed coins.

13. A machine of the character described having in combination adjustable coin feeding means, adjustable coin assembling means, adjustable coin wrapping means, and means whereby said assembling and wrapping means may be adjusted simultaneously and coordinately.

14. In a machine of the character described having means for advancing coins and means for assembling said coins in stacks, a wrapping mechanism, and means whereby said several mechanisms may be simultaneously adjusted relative to the diameter of coins of predetermined size.

15. A machine of the character described having means for advancing coins of like size, means for assembling said coins in stacks, wrapping and crimping mechanism, and means whereby said wrapping and crimping mechanisms may be simultaneously adjusted to compensate for differences in the length and diameter of the coin stacks to be wrapped.

16. A machine of the character described having adjustable means for advancing coins of like size, adjustable means for assembling said coins in stacks, a wrapping mechanism and means for adjusting the same in synchronism with the adjustment of the coin advancing means.

17. In a machine having adjustable means for advancing coins and assembling said coins in stacks, a wrapping mechanism including wrapping rolls and a paper supply and means whereby said rolls may be adjusted substantially synchronously with the adjustment of the means for advancing the coins to be assembled.

18. In a machine having means for advancing the articles to be wrapped and adjustable means for packaging said articles, including means for applying a wrapper to said package and means whereby said wrapper-applying means may be adjusted substantially synchronously with the adjustment of the packaging means whereby the wrapper is adapted to the size of said package.

19. In a machine having means for advancing single articles of different sizes to be wrapped, means for packaging said articles including means for automatically supplying a wrapper sheet and means for automatically varying the feed of the wrapper sheet proportionate to the size of the package.

20. In a machine having adjustable means for advancing single articles to be wrapped, and means for packaging said articles, a wrapper applying means controlled by the

number of the articles singly advanced, and means whereby the length of the wrapping sheet fed may be coordinated with the number and size of the coins to be wrapped.

21. In a machine having means for advancing single articles to be wrapped, means for assembling said articles, a wrapper applying means and means whereby the latter is moved in synchronism with the movement of the article advancing means, and means whereby the length of the paper fed to the package is coordinated with the diameter and number of articles in said package.

22. A machine of the character described having in combination means for advancing single articles to be wrapped, means for packaging said articles, including a wrapper feeding means operating in synchronism with and controlled by the articles advanced, and means whereby said advancing and packaging means are adjustable to advance and package articles of different sizes, and means whereby the said wrapper feeding mechanism is adjustable relative to the desired size of said package.

23. In a machine having means for singly advancing articles to be wrapped and means for packaging said articles, a wrapping mechanism having an adjustable paper feed and wrapping rolls, said rolls being adjustable relative to each other to accommodate packages of different diameters, and means for causing said packaging means and wrapping mechanism to operate step by step with the advance of each coin.

24. In a machine having means for singly advancing articles to be wrapped, and means for packaging said articles, a wrapping mechanism having an adjustable paper feed and means whereby the same will operate synchronously with the advance of single articles.

25. In a machine having means for singly advancing articles to be wrapped, and means for packaging said articles, a wrapping mechanism having wrapping rolls adjustable for packages of different sizes, and a paper feed and means whereby the same will operate synchronously with the advance of single articles to be packaged, and means whereby said paper feed is adjustable for packages of different diameters.

26. A machine of the character described having adjustable means for singly advancing articles to be wrapped, means for packaging said article, a wrapping mechanism having adjustable wrapping rolls for packages of different sizes, and a paper feed and means whereby the same is operated synchronously with the packaging of the articles.

27. In mechanism of the character described, the combination of a coin channel, a coin operated packaging mechanism adjustable for the passage of coins of different di-

ameters and thicknesses, and means for adjusting the coin channel and packaging mechanism simultaneously to correspond to the diameters and thicknesses of coins of different denominations.

28. In mechanism of the character described, the combination of coin delivery mechanism, a coin channel adjustable for the passage of coins of different diameters and thicknesses, means for adjusting the coin channel to correspond to the diameter and thickness of coins of different denominations, adjustable wrapping mechanism and actuating means therefor controlled by the introduction of each coin.

29. A coin handling machine having in combination a coin channel adjustable for coins of different sizes, wrapping devices and means for adjusting the same simultaneously and coördinately with the adjustment of said coin channel.

30. A coin handling machine having in combination a coin channel adjustable for coins of different sizes, and a paper feed and wrapping rolls and means for adjusting the same coördinately with the adjustment of said coin channel.

31. A coin handling machine having in combination a coin channel adjustable in width and depth for coins of different sizes, wrapping devices and crimping devices, and means for adjusting said channel and devices coördinately.

32. A coin handling machine having in combination a coin channel adjustable vertically and horizontally for coins of different sizes, and an adjustable coin package holder and means for simultaneously effecting the adjustment of both.

33. A coin handling machine having in combination a coin channel adjustable for coins of different sizes, an adjustable coin package holder, and adjustable coin wrapping mechanism, and means whereby said channel coin package holder and wrapping mechanism may be adjusted coördinately and simultaneously.

34. A coin handling machine having in combination a coin channel adjustable for coins of different sizes, an adjustable coin stacker, an adjustable stack gripping and transfer mechanism, and an adjustable wrapping mechanism, and means whereby said gripping and transfer mechanism and wrapping mechanism are adjustable coördinately with the adjustment of the coin channel, and connections whereby said coin channel and wrapping mechanism may be adjusted simultaneously.

35. A coin handling machine having in combination a coin channel, means for successively advancing single coins therethrough and stacking the same, a holder for a stack of coins, means for engaging and transferring said stack, wrapping mechanism

to which said stack of coins is transferred, and operative connections whereby said transferring and wrapping mechanisms are operated synchronously with the successive operations of the coin advancing mechanism.

36. A coin-handling machine having in combination a coin channel, means for advancing coins therethrough and stacking the same, a holder for the stack of coins, an adjustable gripping and transfer mechanism for removing a stack of coins from the holder, a driving member adapted to make a definite advance each time a coin is advanced to the holder, means whereby each advance movement of the driving member is translated into a partial movement of the gripping and transfer mechanism, a shiftable change-gear mechanism to variably control the gripping and transfer mechanism to determine the moment of operation of the gripping mechanism and the extent of each movement of the transfer mechanism at each definite advance of the driving mechanism.

37. In a coin handling machine having an adjustable coin channel, coin advancing mechanism, a coin holder for receiving the coins advanced, and transfer mechanism for the stack of coins assembled in the holder, a wrapping sheet applying mechanism and means for coördinately adjusting all of said mechanisms to adapt the machine to coins of different sizes.

38. A machine of the character described, having coin advancing means, coin stacking means, coin stack engaging and transfer means, coin stack wrapping means, means for coördinately adjusting all of said mechanisms to adapt the machine to coins of different sizes, and means for changing the moment of operation of said parts relative to a given cycle of the machine.

39. A machine of the character described having coin-advancing means; coin-packaging means; coin-package-engaging-and-transfer means; coin-package-wrapping means; means for adjusting the various parts relative to the size of the coins operated upon, and means for changing the moment of operation of said parts relative to the cycle of operation of the machine.

40. A machine of the character described having in combination an adjustable coin-channel; an adjustable coin-advancing means; an adjustable holder for a stack of advanced coins; an adjustable coin-package-engaging-and-transfer means; an adjustable coin-wrapping means; a power shaft, and connections therefrom for operating the aforesaid coin-advancing, transfer, and wrapping means; change-gear mechanism by which the increment of operation of the coin-handling mechanism may be varied relative to a single cycle of operation to adapt the machine to different sized stacks.

41. In a coin-handling machine, coin stacking mechanism including a set of power-driven parts, in combination with wrapping mechanism for stacks of coins and including a set of power-driven parts, and means for mechanically conveying stacks of coins to the wrapping mechanism including a set of power-driven parts, means whereby the operation of said stacking mechanism causes synchronous operation of said conveying and wrapping mechanism, and a yielding actuating connection for imparting an advance movement to a certain part of one of said sets of driven parts.

42. In a coin-handling machine, coin stacking mechanism including a set of power-driven parts, in combination with wrapping mechanism for stacks of coins and including a set of power-driven parts, means for conveying stacks of coins to the wrapping mechanism including a set of power-driven parts, means whereby the operation of said stacking mechanism causes synchronous operation of said conveying and wrapping mechanism, and a yielding actuating connection for imparting a coin advancing movement to a certain part of all of said sets of driven parts.

43. In a coin-handling machine, coin stacking mechanism including a set of power-driven parts, in combination with wrapping mechanism for stacks of coins and including a set of power-driven parts, means for conveying stacks of coins to the wrapping mechanism including a set of power-driven parts, means whereby the operation of said stacking mechanism causes synchronous operation of said conveying and wrapping mechanism, and a yielding actuating connection for all the parts of one of said sets of driven parts.

44. In a coin-handling machine, coin stacking mechanism including a set of power-driven parts, in combination with wrapping mechanism for stacks of coins and including a set of power-driven parts, means for conveying stacks of coins to the wrapping mechanism including a set of power-driven parts, means whereby the operation of said stacking mechanism causes synchronous operation of said conveying and wrapping mechanism, and a yielding actuating connection for all the parts of all of said sets of driven parts.

45. A coin-handling machine having coin stacking mechanism, coin wrapping mechanism, and connections between said stacking and wrapping mechanism whereby said wrapping mechanism may be operated by each operation of said stacking mechanism.

46. A coin-handling machine having coin stacking mechanism, coin wrapping mechanism, and operating connection between said mechanisms whereby the cycle of operation of said wrapping mechanism is controlled

step by step by the number of coins constituting a predetermined stack to be wrapped.

47. A coin-handling machine having in combination coin stacking mechanism, coin wrapping mechanism, means whereby said mechanisms may be adjusted coordinately relative to the different lengths of coin packages and different diameters of coins operated upon, and means whereby the operation of said wrapping mechanism may be controlled step by step from said stacking mechanism.

48. In a machine of the class described, mechanism to segregate from mixed articles, articles of similar size and assemble the same in a row, the said mechanism being manually adjustable as to size on which it operates so that rows of different sizes may be assembled, means for taking from a row a stack containing a desired number, means adjustable as to size on which it operates for wrapping the stack.

49. In a machine of the class described, mechanism to segregate from a lot of mixed articles, articles of any particular size, the said mechanism being adjustable as to size so that articles of different sizes may be assembled, means manually adjustable as to size on which it operates, for dividing the articles thus segregated into bunches containing a predetermined number; and means of wrapping the said bunches.

50. In a machine of the class described, mechanism to segregate coins of similar size from a mass of mixed coin, means for dividing the selected size into stacks containing a definite number, means for delivering a wrapper, adjustable as to size of stack, from a single roll of flexible material, means for rolling the wrapper around the stack and a crimping mechanism whereby the edges of the wrapper are turned inward to lock the wrapper over the end of the stack.

51. In a machine of the class described, mechanism to separate mixed articles according to similar size and assemble them in rows, the said mechanism being manually adjustable for any size so that rows of different sizes may be assembled, a single means manually adjustable as to size to divide the particular size thus handled into stacks containing a desired number, means manually adjustable for delivering a wrapper the proper size from a single roll of flexible material and a single means for wrapping the desired number of the selected size.

52. In a machine of the class described, means for assembling articles in stacks, in combination with a wrapper forming mechanism, and means to coil the wrapper around the stacked articles, a mechanism provided with two crimper hooks operated by a single cam whereby the crimpers are

drawn toward the face of the stacked articles with an increasing but yielding pressure.

53. In a machine for handling articles of various diameters, means for assembling articles in a bunch, said means being adjustable so that articles of different sizes may be assembled, a wrapping mechanism provided with means for feeding a strip of flexible material from a single roll, including means for severing a wrapper of varying size therefrom, and means for coiling the same around the bunch.

54. In a machine of the class described, mechanism to separate from mixed articles, articles according to similar size and assemble them in rows, said means being adjustable so that articles of different sizes may be assembled, means for taking from the row a stack containing a desired number and an adjustable wrapping mechanism adapted to make a wrapper of the proper size to accommodate the articles, and to apply said wrapper to said stack.

55. A coin handling machine having in combination mechanism for advancing single coins of a predetermined uniform size, means whereby said mechanism is adjustable for coins of different sizes, and wrapping mechanism for operatively receiving coins of predetermined size, and means whereby all of said parts may be coordinately adjusted to operatively receive and wrap coins of the different uniform size.

56. A coin handling machine having coin advancing mechanism, and coin wrapping mechanism, and means whereby said mechanisms are adjustable coordinately in position and time of operation for operating upon coins of different sizes.

57. A coin handling machine having coin advancing mechanism, and coin wrapping mechanism, and means whereby said mechanisms are adjustable coordinately relative to the different diameters of the coins to be wrapped, and to different numbers of coins in the packages to be wrapped.

58. A coin handling and coin wrapping mechanism and means whereby said mechanisms may be coordinately adjusted for operating upon coins of different sizes, and for forming packages containing different numbers of said coins.

59. A coin handling machine having in combination, mechanism for advancing single coins of a predetermined size, a wrapping mechanism for operatively receiving coins of predetermined size, and means whereby all the said parts are adjustable coordinately in relative position, and time of operation to operatively receive and wrap coins of different uniform size.

60. A machine of the character described, having in combination a coin conductor, and means for advancing coins sin-

gly therethrough, means for assembling said single coins into stacks, and a wrapping mechanism for applying wrappers to said stacks, and means whereby said coin conductor, coin advancing means, coin assembling means and coin wrapping mechanism are adjustable coordinately both in relative position and in times of operation to operate upon different sizes of coins.

61. A machine of the character described, having in combination means for feeding coins and assembling said coins to form a stack, a coin wrapping mechanism, and means for coordinately adjusting said assembling and wrapping mechanism relatively to the diameter of the coins operated upon, and for coordinately adjusting said wrapping mechanism relative to a predetermined length of the stack.

62. A machine of the character described, having in combination coin feeding means, coin assembling means and coin wrapping means, means for coordinately adjusting said several means for operation upon coins of different sizes, and means for coordinately adjusting the times of operation of said several means relative to the predetermined number of coins assembled.

63. In a machine of the character described, having in combination adjustable coin feeding means, adjustable coin assembling means, and adjustable coin wrapping means, and means whereby said several means may be caused to operate intermittently and coordinately by each successively fed coin.

64. In a machine of the character described, having in combination adjustable coin feeding means, adjustable coin assembling means, adjustable coin wrapping means, and means whereby said assembling and wrapping means may be adjusted coordinately.

65. In a machine of the character described, having means for advancing coins, and means for assembling said coins in stacks, a wrapping mechanism, and means whereby said several mechanisms may be adjusted coordinately relative to the diameter and number of coins of different predetermined sizes in the package.

66. In a machine of the character described having means for advancing coins of like size, means for assembling said coins in stacks, wrapping and crimping mechanism and means whereby said wrapping and crimping mechanism may be coordinately adjusted to compensate for differences in the number and diameter of the coins to be wrapped in one package.

67. In a machine of the character described, having means for advancing coins of like size, means for assembling said coins in stacks, wrapping and crimping mechanism, and means whereby said several means

are adjustable coördinately to operate upon coins of different sizes, and whereby the time of operation of said several means may be varied coördinately relative to different predetermined numbers of coins assembled.

68. A machine of the character described, having means for advancing coins, adjustable for coins of different sizes, means for assembling the coins in stacks, adjustable for coins of different sizes, a wrapping mechanism adjustable for coins of different sizes, and means for coördinating said several means both relatively to the size of the coins and the size of the stacks operated upon.

69. In a machine having adjustable means for advancing coins and assembling said coins in stacks, wrapping mechanism including wrapping rolls and their paper supply, and means whereby said coin advancing, assembling and wrapping mechanisms may be coördinately adjusted relative to a predetermined size of coins operated upon, and means whereby the operation of said several mechanisms may be coördinated relative to the predetermined number of coins to be wrapped in a single package.

70. In a machine having means for advancing articles to be wrapped, and adjustable means for packaging said articles, including means for applying a wrapper to said package, and means whereby said wrapper applying means and packaging means may be coördinately adjusted relative to the size of the articles to be wrapped, and means whereby the operations of said mechanisms may be coördinated relative to the number of articles to be wrapped in a single package.

71. A machine having means for advancing single articles to be wrapped, means for packaging said articles, a wrapper applying means, means whereby the latter is automatically moved in synchronism with the movement of the coin advancing means, and means whereby the length of wrapper fed for the package may be varied according to the diameter of the articles in said package.

72. A machine of the character described, having in combination means for advancing single articles to be wrapped, means for packaging said articles, including a wrapper feeding means, operating in synchronism with and controlled by the articles advanced, and means whereby said advancing and packaging means may be coördinated to operate upon articles of different sizes, and means whereby the operation of said wrapper feeding mechanism may be coördinated relatively to the diameter of the package.

73. In a mechanism of the character described, the combination of coin delivery mechanism, a coin channel adjustable for the packaging of coins of different diameters and thicknesses, adjustable wrapping mechanism,

and actuating means therefor controlled by the introduction of a coin, and means for coördinating said several mechanisms relatively to the size of the coin operated upon, and means for coördinating the operations of said mechanisms relatively to the number of coins to be wrapped in a single package.

74. A coin handling machine having in combination, a coin channel adjustable for coins of different sizes, and a paper feed and wrapping rolls, and means for coördinately adjusting said parts relatively to the size of coins to be handled and means for coördinately adjusting the operation of said parts relatively to the number of coins to be wrapped in a single package.

75. A coin handling machine having in combination a coin channel adjustable for coins of different sizes, an adjustable coin stacker and adjustable stack gripping and transfer mechanism, and an adjustable wrapping mechanism and means whereby said gripping and transfer mechanism, and wrapping mechanism, may be coördinated relatively to the number of coins to be wrapped in a single stack.

76. A coin handling machine having in combination a coin channel adjustable for coins of different sizes, an adjustable coin stacker, an adjustable stack gripping and transfer mechanism, and an adjustable wrapping mechanism and means whereby said gripping and transfer mechanism and wrapping mechanism may be adjusted coördinately with the adjustment of the coin channel, and connections whereby said coin channel and wrapping mechanism may be adjusted by a single adjusting member.

77. A coin handling machine having in combination a coin channel, means for successively advancing single coins therethrough, and stacking means and holder for a stack of coins, means for engaging and transferring said stack, wrapping mechanism to which said stack of coins is transferred, and means whereby said several mechanisms may be coördinately adjusted to operate upon coins of different sizes, and means whereby the operation of said mechanisms may be coördinated relatively to the number of coins to be wrapped in a single stack.

78. A coin handling machine having in combination a coin channel means for advancing coins therethrough, and stacking the same, a holder for the stack of coins, and adjustable gripping and transfer mechanism for removing a stack of coins from the holder, a driving member adapted to make a definite advance each time a coin is advanced to the holder, means whereby each advance movement of the driving member is translated into a partial movement of the gripping and transfer movement, a shiftable

change gear mechanism to variably control the gripping and transfer mechanism to determine the moment of operation of the gripping mechanism, and the extent of each movement of the transfer mechanism at each definite advance of the driving mechanism, and means to coördinate said several mechanisms for operation upon coins of different sizes, and means to coördinate the operation of said mechanisms relatively to the number of coins to be wrapped in a single stack.

79. In a machine of the class described, mechanism to segregate any predetermined size from a lot of mixed articles, means for dividing the selected size into groups containing a predetermined number, means for delivering a wrapper adjustable as to size of the selected group from a single roll of flexible material, and means for coördinately adjusting said mechanism relative to the size of the coins operated upon.

80. In a machine for handling coins, in combination, mechanism to separate mixed articles according to similar sizes, and assemble them in rows, the said mechanism being manually adjustable as to size on which it operates so that rows of different sizes may be assembled, means for taking from the rows a bunch containing a definite number, means for making and delivering a wrapper adjustable as to the size of bunch from a single roll of flexible material, means for carrying the wrapper around the bunch of coin, and means for turning the ends of the wrapper inward to form a crimp.

81. In a machine of the character described, in combination, a segregating and feeding device, a stacking device provided with means for determining the number to be stacked, an intermittent transferring device set in operation by passage of each coin, and an intermittent wrapping device set in operation by the passage of each coin.

82. In a machine for handling coins, in combination, means for assembling coins, said means being manually adjustable as to size so that coins of different sizes may be assembled in bunches, the wrapper forming mechanism including means for feeding a strip of flexible material from a single roll and severing the same into wrappers of proper size for the bunch assembled, means for coiling the wrapper around the bunch and means operated by one cam for crimping the ends of the wrapper.

83. In a machine for handling coins, in combination, mechanism to separate mixed coins according to similar size, means to handle the size thus separated and place them in a row, said means being adjustable manually so that coins of different sizes may be handled, means for dividing the coins into bunches containing a definite number, means for making and delivering a wrapper of proper size for the bunch assembled from a single roll of flexible material, means for coiling the wrapper around the bunch of coins, and means for turning the ends of the wrapper inward to form a crimp.

84. In a machine for handling coins in combination, mechanism for assembling coins of different size in a bunch, a wrapper forming mechanism, including means for feeding a strip of flexible material, mechanism for severing the strip to form the wrappers, said severing mechanism being so constructed and arranged relative to the strip that the rear edge of said strip or that last laid upon the coins, will extend diagonally from side to side of the strip and will be coiled spirally around said coins, and mechanism for coiling the wrapper around the bunch and means for coördinately adjusting said several mechanisms and varying the length of the wrapper to wrap bunches of different diameters and lengths.

85. In a machine for handling coins, the combination with mechanism for assembling coins in a bunch, of a wrapper forming mechanism including means for feeding a strip of flexible material, a knife adjacent the path of the strip constructed and arranged to so sever the strip that the rear end thereof will have its edge extending on a single line diagonal to the length of the strip whereby said rear edge will be wound spirally about the package, mechanism for coiling said wrapper about the coins and for crimping the opposite edges of the wrapper thereon, and means for coördinately adjusting said mechanisms to wrap stacks of coin of different sizes.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES S. BATDORF.

Witnesses:

C. W. FOWLER,
T. W. FOWLER.