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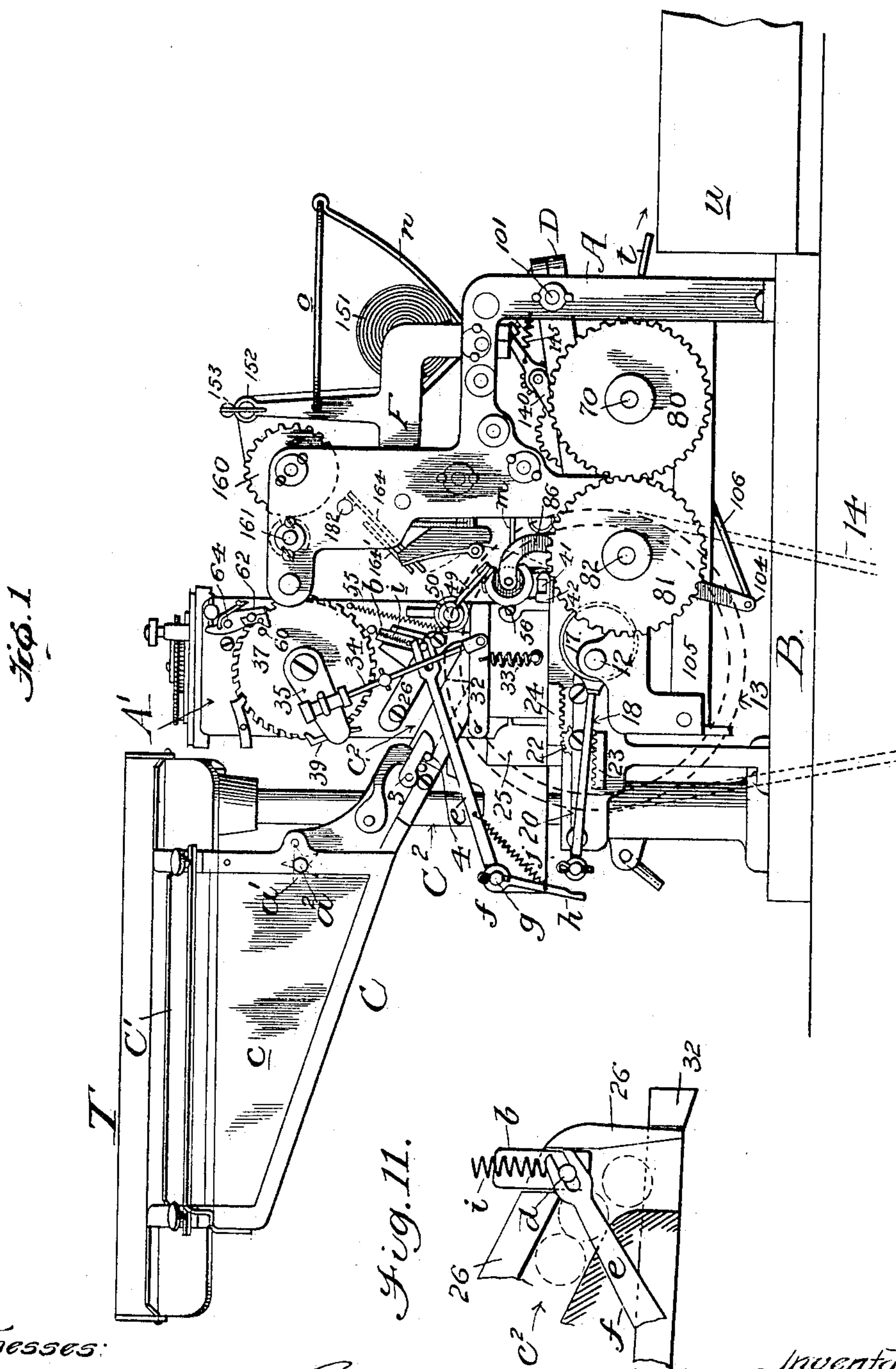
PATENTED MAY 3, 1904.

C. S. BATDORF.
COIN COUNTING, REGISTERING, AND WRAPPING MACHINE.

APPLICATION FILED JAN. 6, 1904.

NO MODEL

6 SHEETS—SHEET 1.



Witnesses:

Chapman W. Fowler

Inventor.

Charles S. Batdorf
By *J. Walter Fowler*
his atty.

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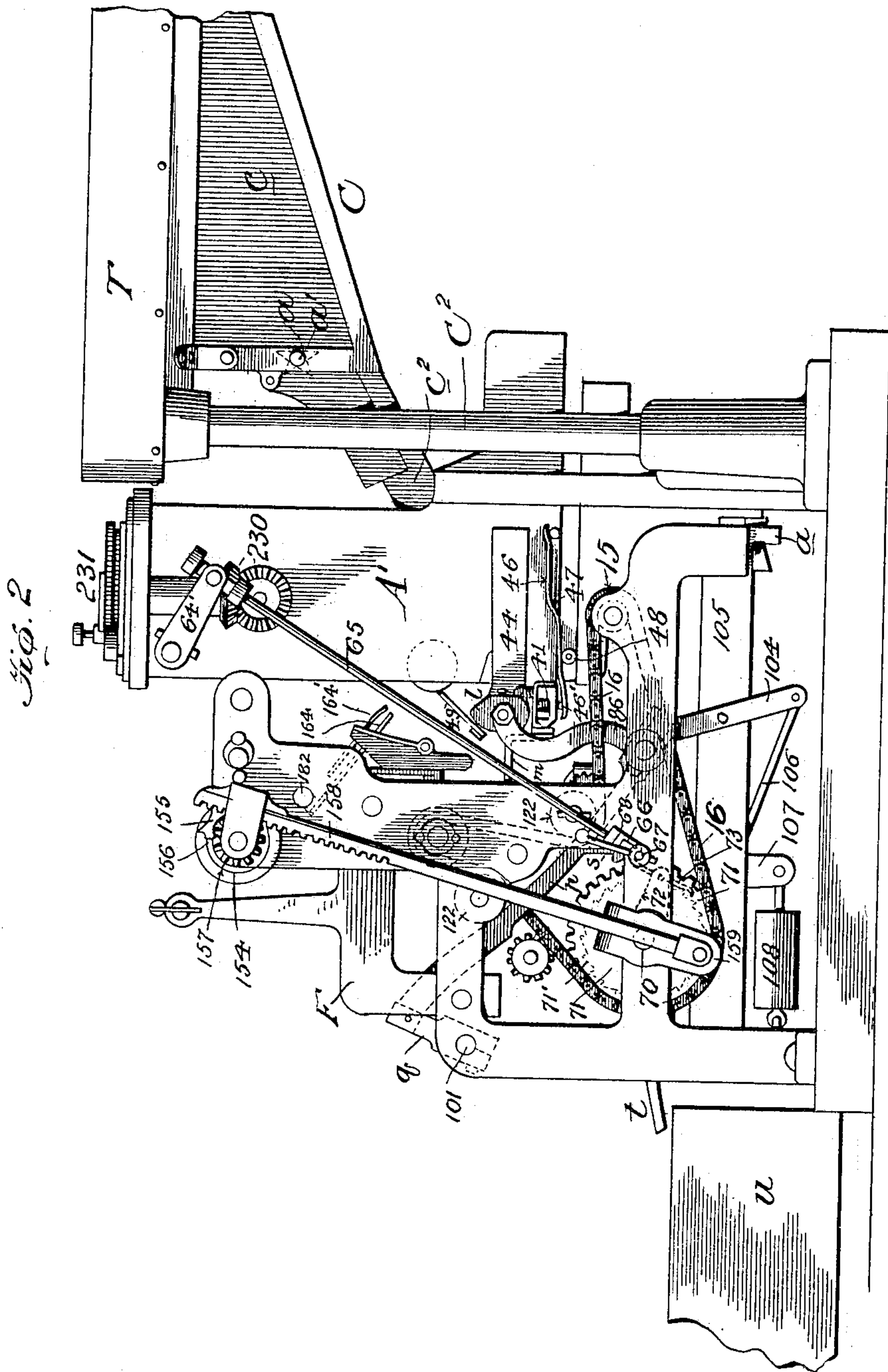
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Witnesses.

Chapman W. Fowler

Inventor:

Charles S. Batdorf
-By- J. Walter Fowler
Liz. Atty.

No. 758,733.

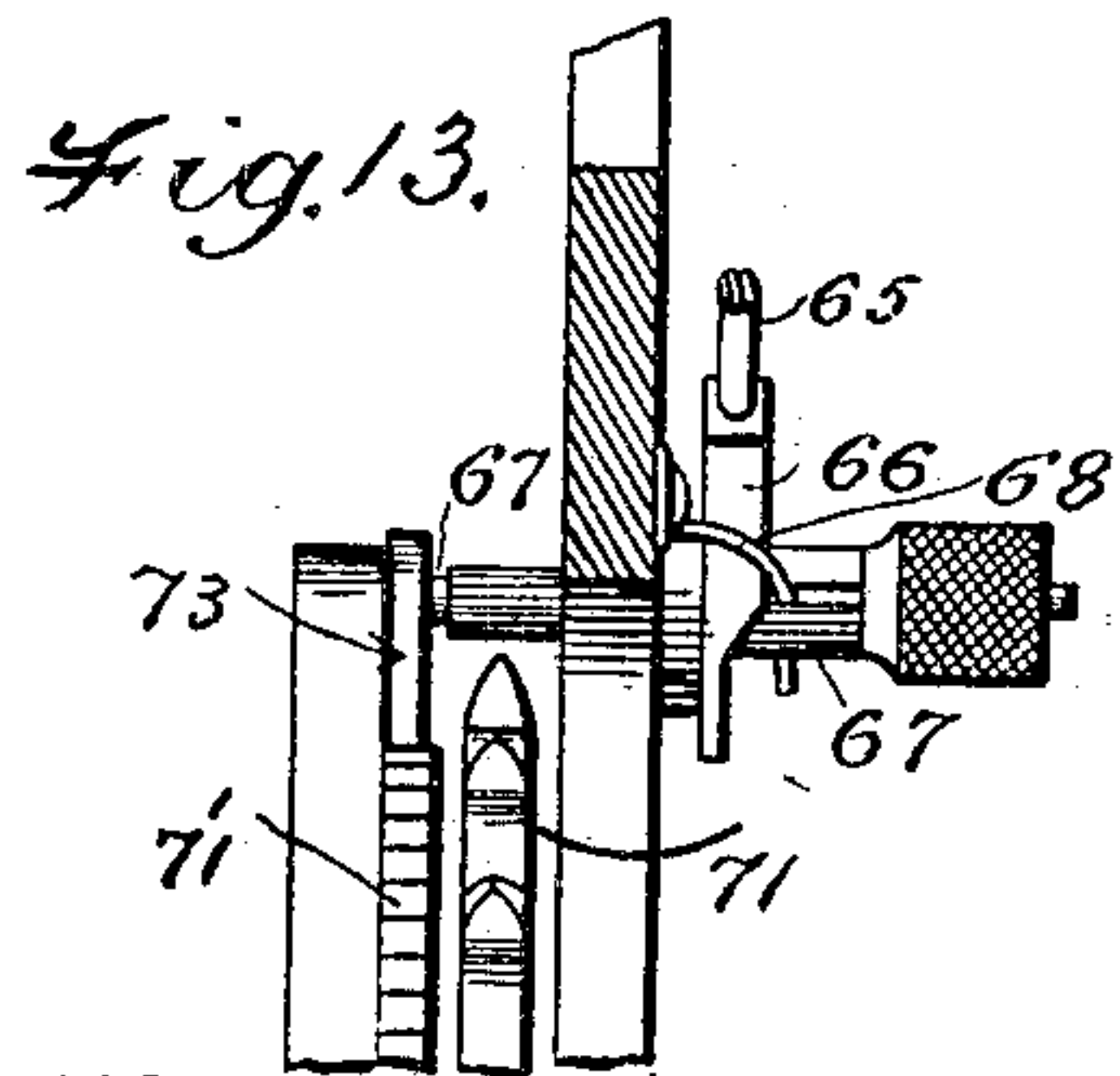
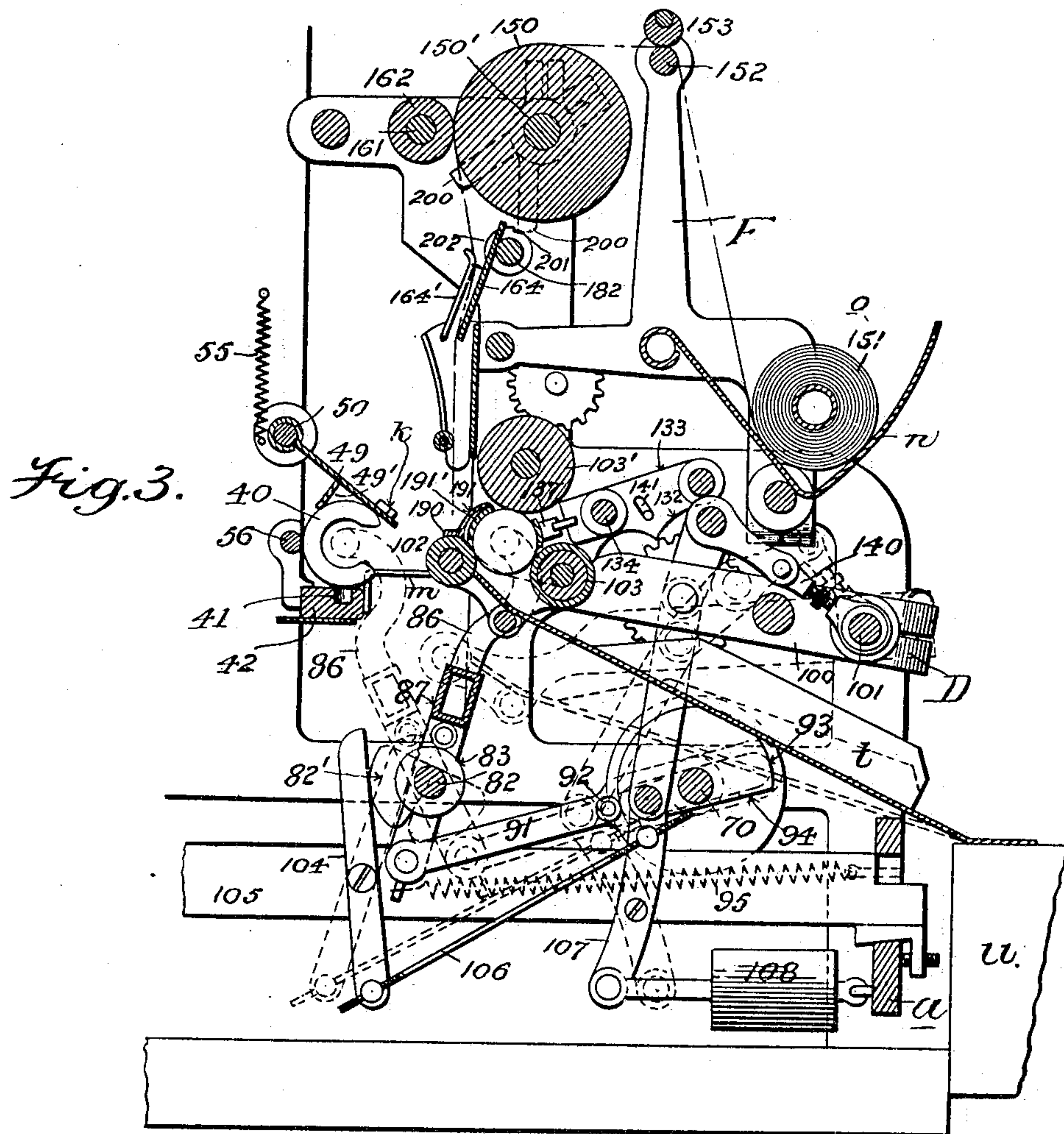
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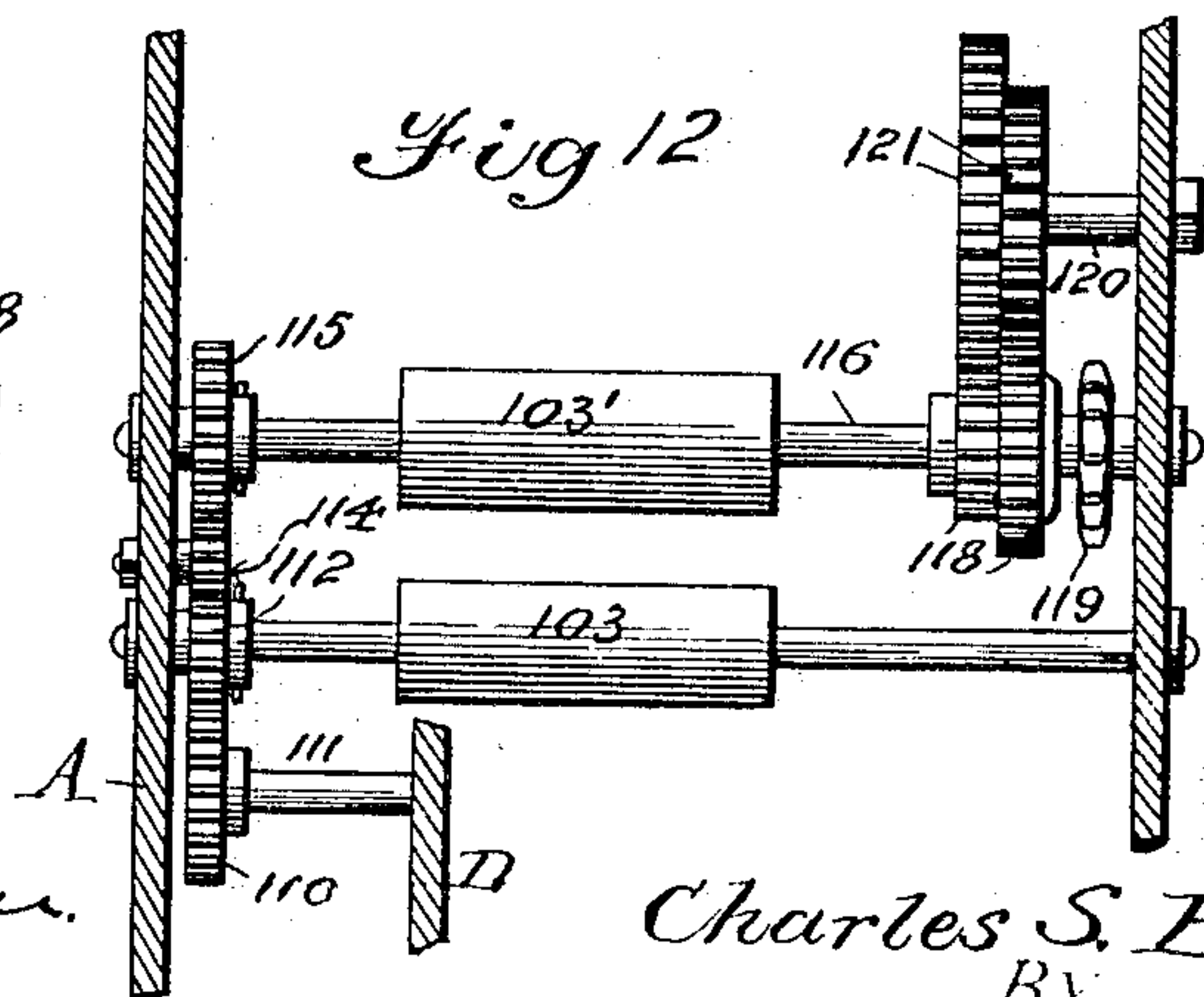
NO MODEL.

6 SHEETS—SHEET 3.



WITNESSES:

C. H. Walker
C. W. Fowler



INVENTOR

Charles S. Batdorf
BY
J. D. Walter Fowler
Attorney

No. 758,733.

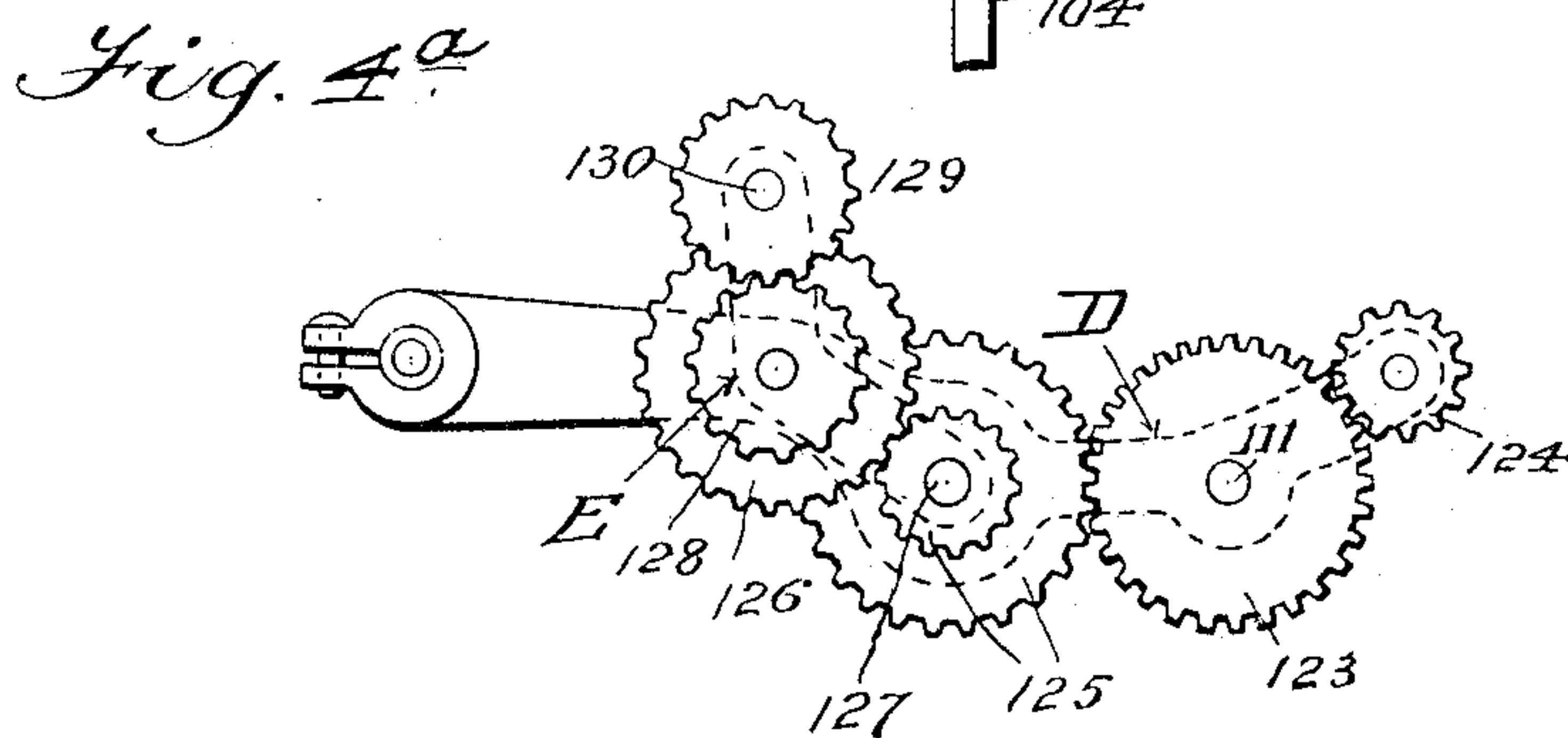
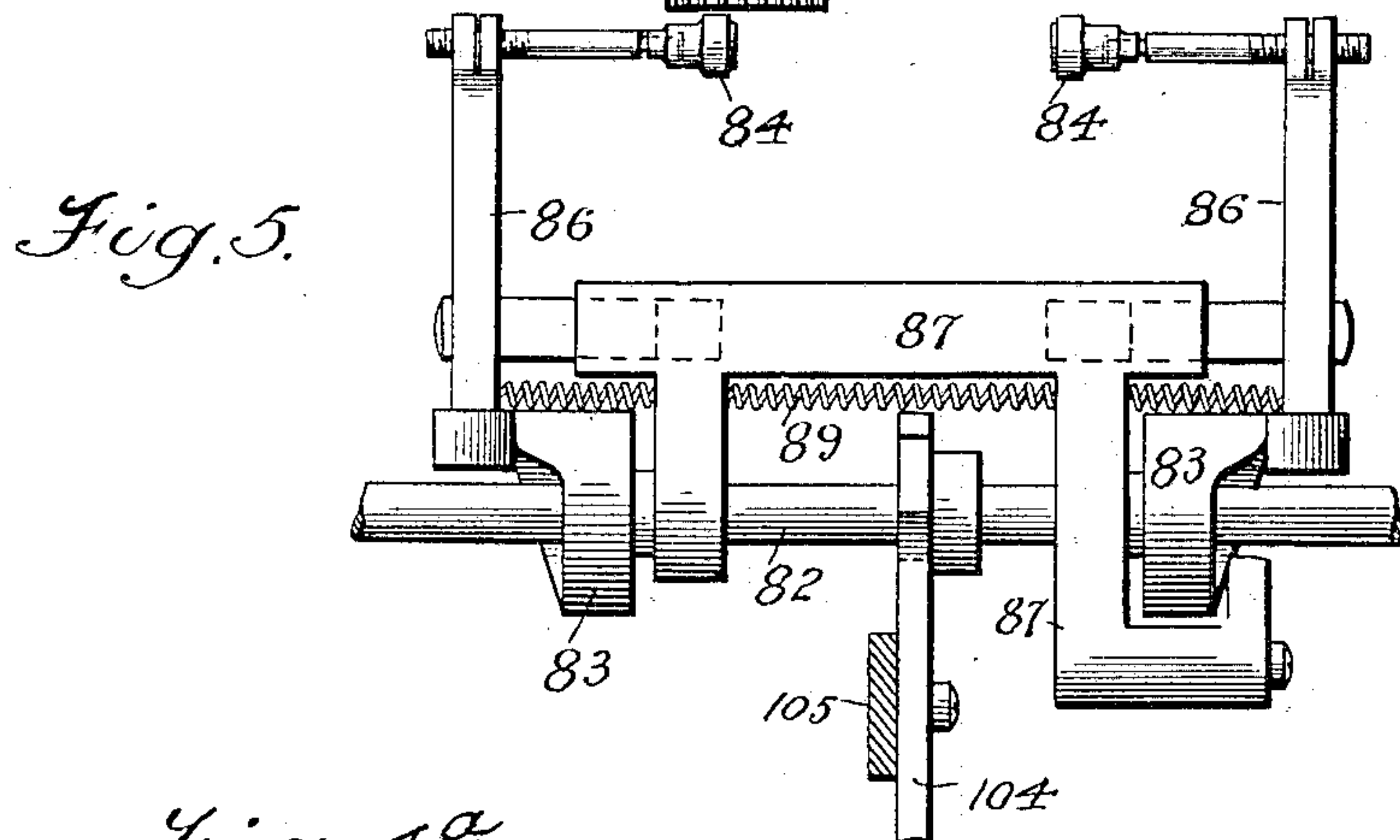
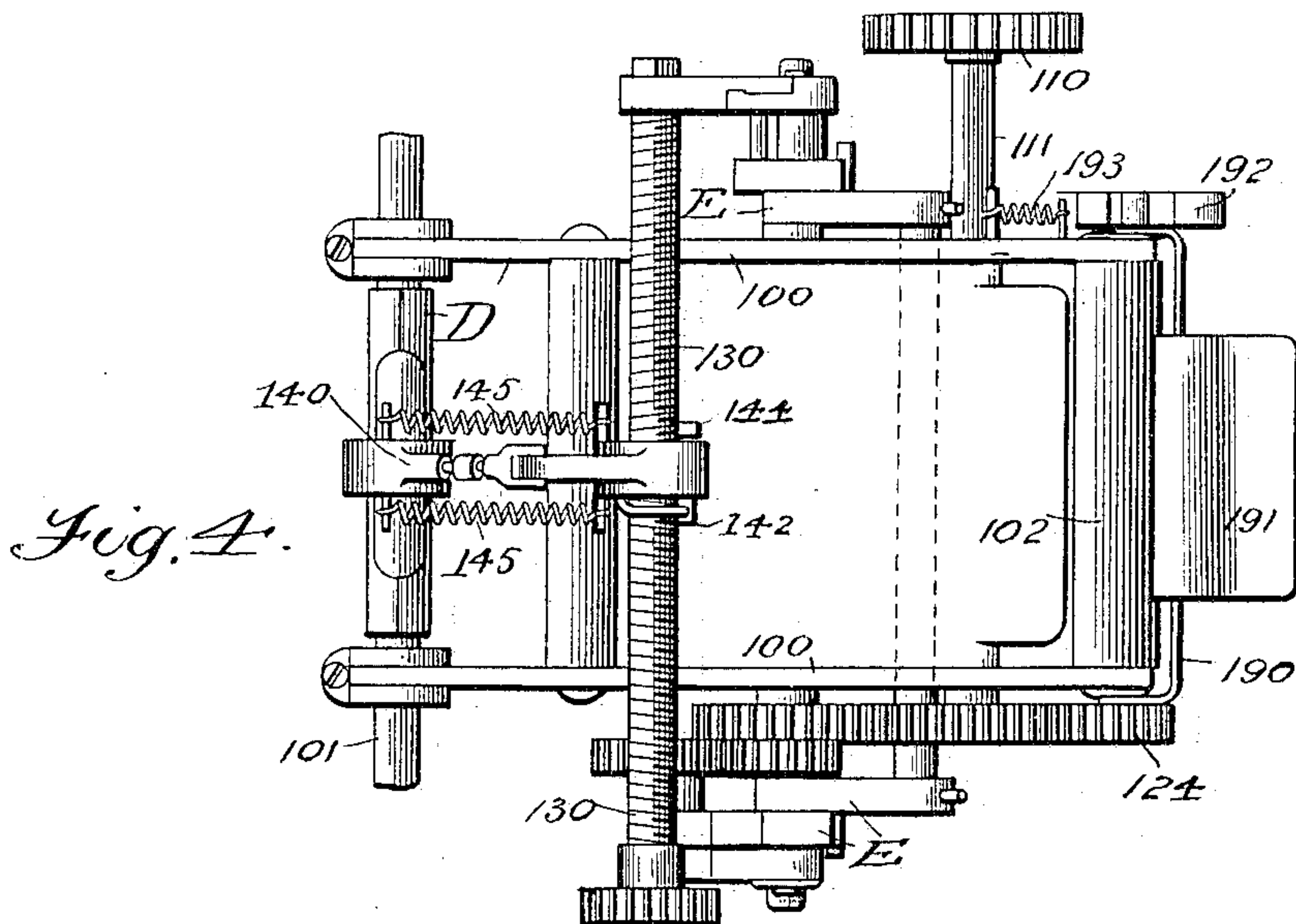
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NO MODEL.

6 SHEETS—SHEET 4.



WITNESSES:

C. H. Walker.
C. W. Fowler

INVENTOR

Charles S. Batdorf
BY
J. Walter Fowler
his Attorney

No. 758,733.

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6 SHEETS—SHEET 5.

Fig. 6.

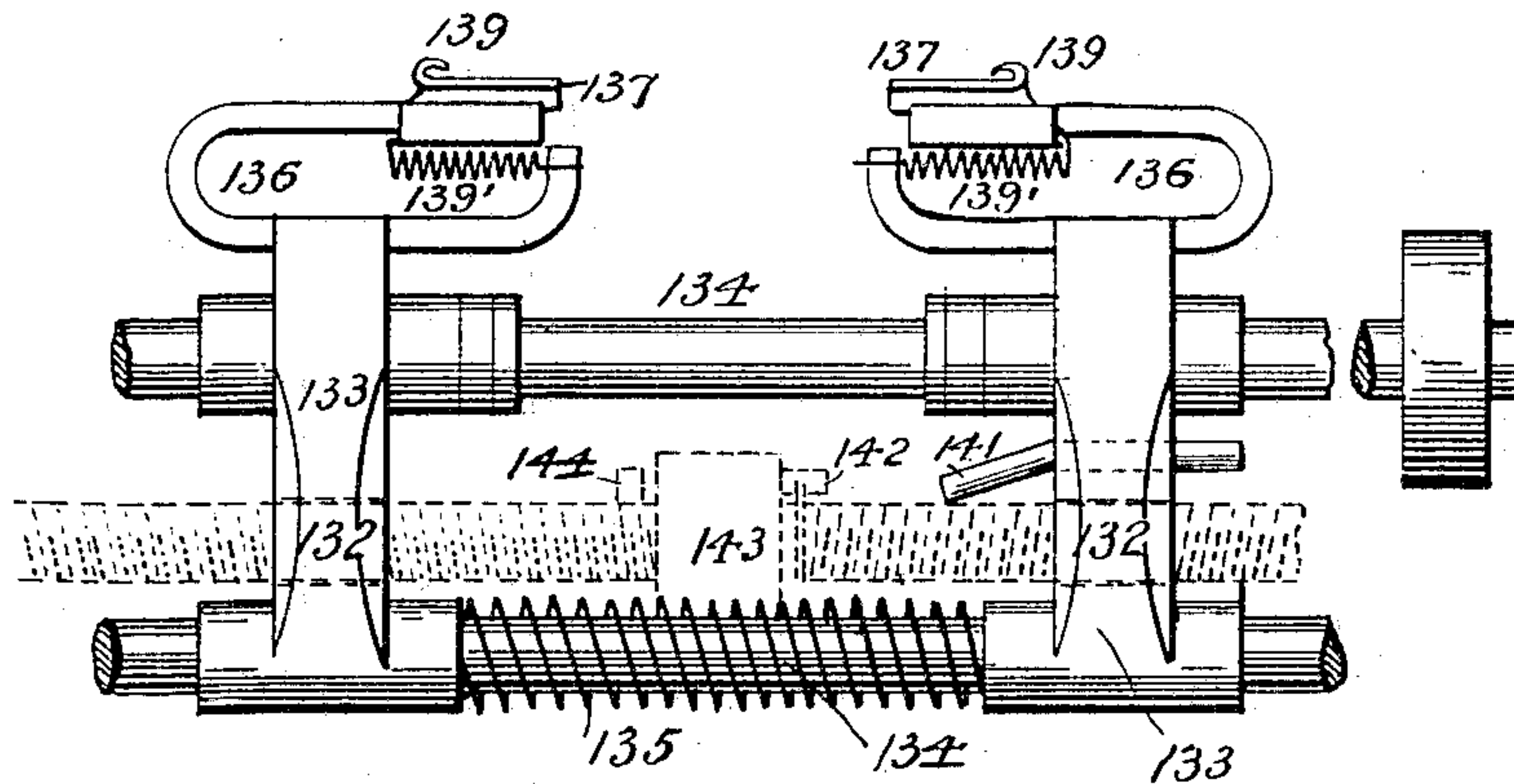


Fig. 14.

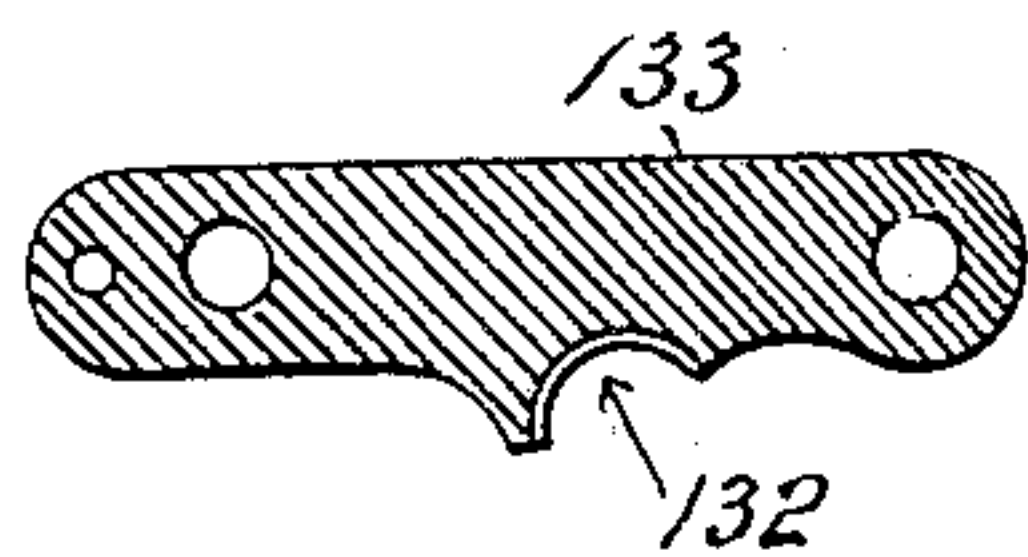
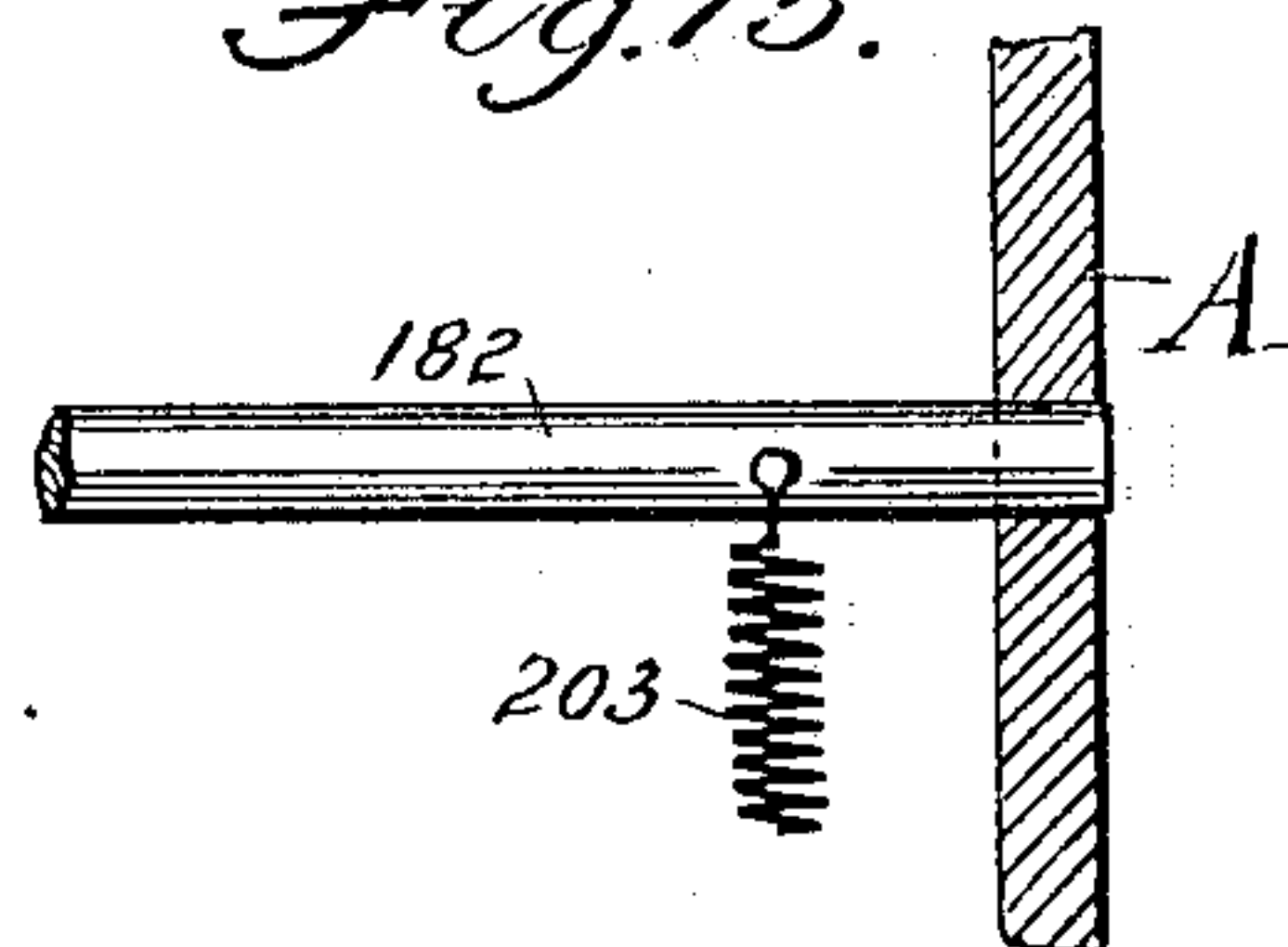


Fig. 15.



WITNESSES:

C. W. Fowler
C. H. Walker

INVENTOR

Charles S. Batdorf

BY

J. D. Waller Fowler
his Attorney

No. 758,733.

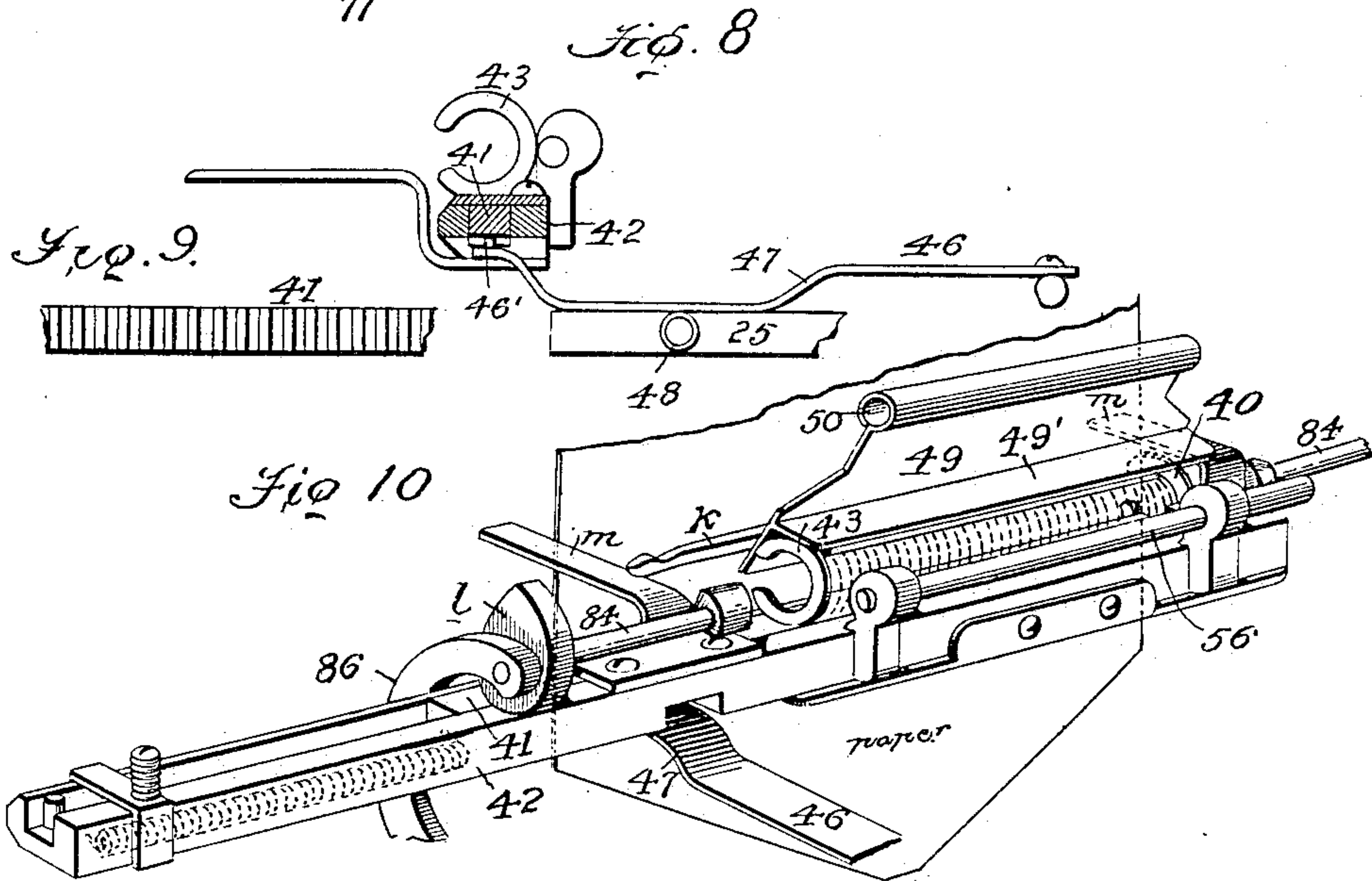
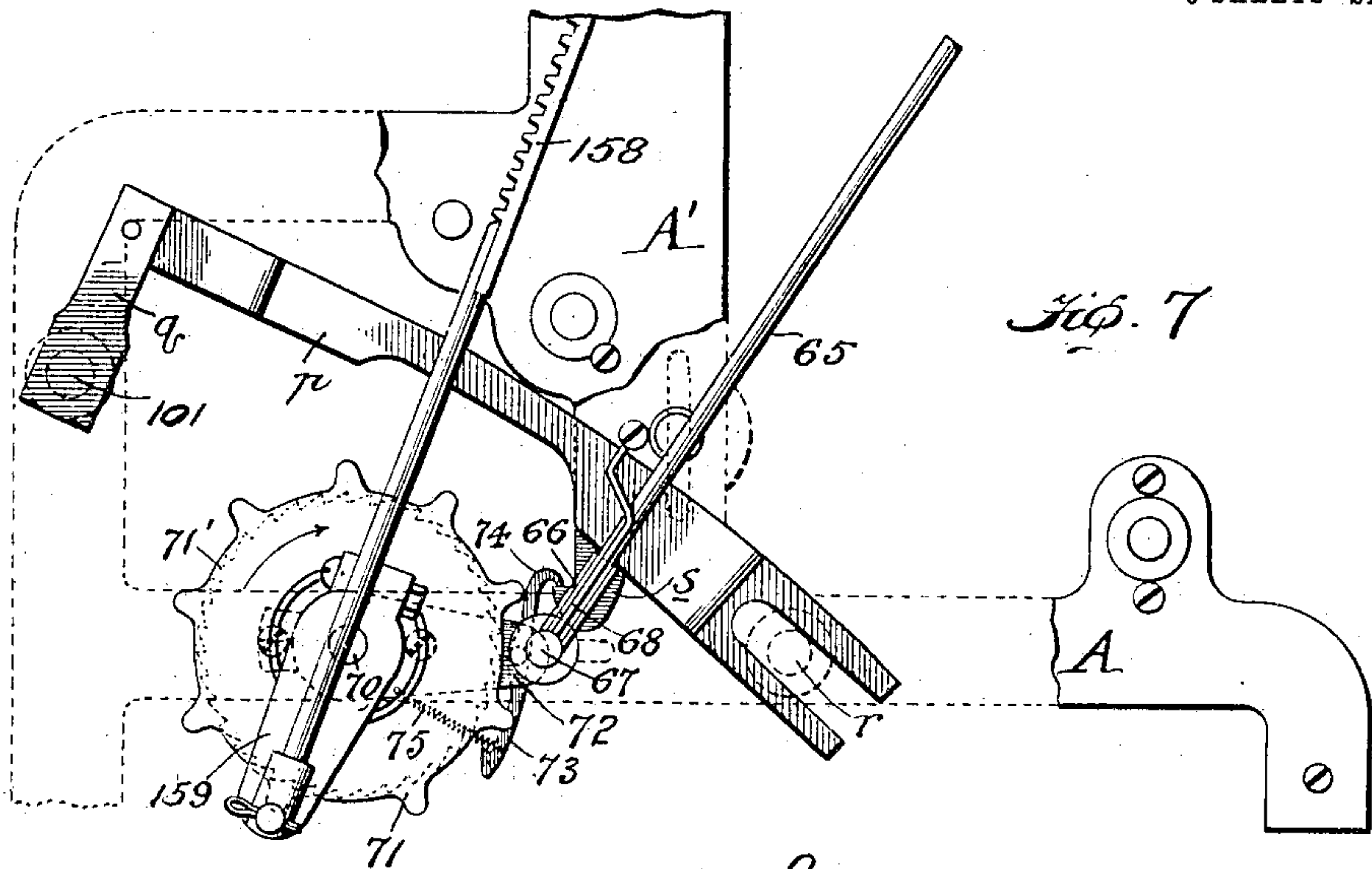
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APPLICATION FILED JAN. 6, 1904.

NO MODEL.

6 SHEETS—SHEET 6.



Witnesses:
Wm. O. Ashby
E. W. Fowler

Inventor:
Charles S. Batdorf
By *J. D. Walter Fowler*
his Atty.

UNITED STATES PATENT OFFICE.

CHARLES S. BATDORF, OF BROOKLYN, NEW YORK.

COIN COUNTING, REGISTERING, AND WRAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 758,733, dated May 3, 1904.

Application filed January 6, 1904. Serial No. 187,890. (No model.)

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 Counting, Registering, and Wrapping Machines, of which the following is a specification.

My invention relates to certain new and useful improvements in a machine adapted particularly for counting and registering coins and applying a wrapper to an assembled bunch of coins where the wrapping of the coins into convenient packages is desired.

The present invention offers certain improvements to the structure shown, described, and claimed in my former patent, No. 691,435, dated January 21, 1902, and in my former application, Serial No. 147,459, filed March 12, 1903, to which latter the present improvements are particularly related.

My present invention consists of the parts and the constructions and combinations of parts, which I will hereinafter describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention, and in which similar characters of reference indicate like parts throughout the several views, Figure 1 is a side elevation of a coin counting, registering, and wrapping machine embodying my invention. Fig. 2 is a side elevation of the opposite side of the machine. Fig. 3 is a sectional view of the wrapping mechanism and adjunctive parts. Figs. 4 and 4^a are plan and side views of the swinging frame D and its attachments. Fig. 5 is a detail of the gripping mechanism. Fig. 6 is a detail of the crimping mechanism. Figs. 7 to 15 are enlarged details to be referred to.

In carrying out my present invention I prefer to use the general form and construction of the salient features of my aforesaid prior application, wherein the framework, which may be of any desired design and construction, preferably includes two sides or standards A and appropriate cross-bars *a* and a central vertical standard A', which frame is appropriately mounted upon a base or table

B, which may be supported upon legs or standards. (Not shown.)

Within the main frame is suitably mounted a main shaft 12, carrying a pulley 13, to which power is applied either by a crank or handle, for a hand-machine or through the medium of a belt 14, running from any well-known and desired form of motor. On the opposite end of the shaft is a sprocket-wheel 15, over which passes the sprocket-chain 16, which communicates the motion of the main shaft to the wrapping mechanism in the manner set forth in detail in my said former application and hereinafter explained. Near the center the main shaft has fixed to it a cam 17, which operates the sliding rod 20 through the medium of an intermediate rod 18, said sliding rod carrying a loose pinion 22, which is interposed between the fixed and movable rack-bars 23 24, the latter of which is connected to the reciprocating plunger or push-bar 25, which operates in the coin-passage and is designed to engage and separately advance the coins passing into the machine from the coin-conductor C. The coins are placed upon a table T, the bottom of which is composed of glass or other suitable material, and said table has a portion nearest the entrance to the coin-conductor sufficiently inclined toward said conductor to cause the coins when swept off the horizontal portion of the table to slide by gravity into the inlet end of the conductor. To prevent the admission into the coin-conductor of a bent coin, I prefer to have said coins pass beneath a gage-bar C', fixed to the inclined portion of the table, with its under surface removed therefrom a distance substantially equivalent to the thickness of a predetermined true coin. This gage-bar serves as a detector to prevent any but true coins passing into the conductor, and the operator is enabled to detect the presence of a bent coin and discard the same. The table, as in my aforesaid application, has a vertical stem C², which enables the table to be rotated and turned over the machine as a protection therefor when the table is not in use. The inclined side of the table communicates with the upper end of the hopper *c*, whose sides may be of

transparent material, said hopper having an inclined bottom and a chute extension which in turn connects with a runway c^2 for the coins. This whole arrangement constitutes what I herein term a "coin-conductor."

During a rapid feeding of the coins into the hopper it sometimes happens that one or more coins will pile edgewise one on top of another at the discharge end of the hopper, and to relieve this objection I provide means for agitating the coins which might assemble at this point. Any means for relieving the lowest coin by dislodging the one above it will come within the scope of this part of my invention. Therefore the star-wheel a' of Figs. 1 and 2 may be considered as but one of many devices for the purpose. This wheel is located in the hopper, between the inner walls thereof and proximate to the point where the discharge of the hopper connects with the runway for the coins, and it has a shaft a^2 extending to the outside, by which it may be rotated, so that its points may strike the coin resting upon the edge of the lowest one, and thereby release the latter by dislodging the former.

As I prefer for some purposes to swing the table around over the machine, and as I also prefer to fix the hopper end of the coin-conductor to the table, I have shown a separable connection between the discharge end of the hopper c and the adjacent end of the runway c^2 , said connection being herein shown as including a latch or hook member 3 on one part adapted to engage a pin 4 or like member on the other part, as shown in Fig. 1.

The coin-runway is inclined to allow the coins to roll along the same on edge, and is fixed on the fixed central portion A' of the main frame in such relative position that it communicates directly with the discharge from the hopper, said runway including an inclined plate 26, whose lower end is curved downwardly to direct the coins vertically in position in the range of action of the horizontal reciprocating plunger or push-bar 25 to be advanced to the mechanism which assembles the coins in proper bunches for wrapping.

In that portion of the coin-conductor where the travel of the coin is changed from the inclined to the vertical direction to place it in the range of action of the push-bar I locate a positive feed device to insure the proper positioning of one coin in the range of action of the push-bar before a succeeding coin can pass out of the inclined portion of the runway, and which device therefore also acts substantially as an escapement to control the delivery of the coins to the push-bar. This positive feed device constitutes an essential part of my present improvements, and while its construction may be varied at pleasure without departing from the scope of my invention a desirable form and one that has proved effective in actual operation is shown

in Fig. 6, and consists of a vertically - arranged bar b , slidably guided vertically above the vertical portion of the runway and having its lower end arranged to strike the top of each coin arriving at this point and force said coin by a positive force-feeding action through the vertical part of the runway and into the range of action of the push-bar. This force-feeding bar has a projecting pin or stud d , to which is connected the slotted end of an arm e of the oscillating lever f , which is pivoted or movably mounted to rock upon a shaft or stud g on a fixed part of the main frame, said oscillating lever having a short arm h disposed in the range of action of the push-bar and adapted to be struck by the push-bar in each of the rearward reciprocal movements thereof, whereby the lever is oscillated to cause the force-feed bar to deliver a coin through the vertical portion of the runway and into the range of action of the push-bar during the rearward stroke of the latter. The force-feed bar or the lever is connected with a spring i , which assists its upward movement to remove its lower end of the bar out of the path of the coins to allow the next coin to come below the bar, and the oscillating lever f is preferably of a jointed character, with the parts held by a spring j , whereby in the event of a coin sticking in the vertical portion of the runway the short arm of the oscillating lever may yield when struck by the push-bar without danger of breaking the lever or the parts coacting with it. As the coins separately pass from the runway they contact with the free end of a pivoted bar 32, held down by a spring 33, and as each coin is forced beneath the free end of said bar 32 the bar is lifted by the coin and the movement of said bar is communicated to a register through the medium of a rod 34, which connects the bar 32 with an arm 35, fixed to the shaft of the register-wheel 37. The arm 35 carries a pawl 39, which is adapted to engage the teeth of the ratchet-wheel 37 and advance said wheel a distance of one tooth each time the bar 32 is lifted by a passing coin, the spring 33 and weight of the parts returning the bar to normal position after the passage of the coin from beneath the front end of the pivoted bar 32. As in my aforesaid former application, the shaft of the ratchet-wheel 37 extends through the frame-standard A' , and by means of bevel-pinions 230 a total-adder 231 or register of any suitable character may be actuated to disclose at the conclusion of the counting the total value of the coins which have passed through the counting-machine and the total number of wrapped packages.

Just in front of and in line with the channel through which the coin is ejected by the push-bar is arranged a pair of jaws forming members of a coin-holder and adapted to separate progressively as the coins are forced

between them, and one of said jaws is designed to be advanced intermittently in a horizontal lateral plane as the bunch of coins increases in size by successive additions thereto. The jaw 40, which I will term the "movable" jaw, is fixed to one end portion of a horizontal transverse bar 41, which has a guided sliding movement in a grooved bracket or bar 42, forming part of the machine-frame structure. The other or fixed jaw 43 consists of a plate of spring metal or a plate backed by a leaf-spring 44 for advancing the bunched coins laterally in the holder formed by the jaws and the slide-bar 41, which latter forms the bottom support for the bunch of coins. Both jaws are open at the center to expose the end coins and to permit the grippers of the transfer mechanism to seize the bunch of coins at the proper period in the cycle of operation and transfer the same to the mechanism by which the wrapper is applied to the assembled bunch. From this description it will be understood that as each coin is ejected by the push-bar it contacts with and pushes aside the movable jaw, and as the latter jaw is returned to its normal position by its spring said coin and those which have preceded it in the bunch will be moved laterally a distance substantially equivalent to the thickness of the coin to provide space for the next advancing coin.

On one side of the vertical central standard A' of the framework is fixed a plate or bar 46—say of spring metal—having an inclined portion 47, and on the push-bar 25 is a roller 48, which rides under the inclined portion of the plate and forces the free end thereof upward, said free end having a pin or projection 46', adapted to enter notches or openings made in the under side of the lateral sliding bar 41, and thereby positively lock this bar against further movement until the push-bar has returned far enough to remove the roller from the inclined or cam portion of the spring-plate 46, when the disengagement of the pin or projection with the bar 41 is effected and said bar may now be advanced laterally another step by the coin next added to the bunch. This positive lock between the bar 46 and the spring-plate 47 I prefer to the frictional contact of the like parts of my aforesaid former application to insure the immovability of the bar 46 during the entry into the bunch of another coin. The laterally-sliding bar 41, which forms the bottom support for the bunch of coins, is thus alternately locked on the forward movement of the push-bar and released on the return movement of said bar, the locking and releasing being effected at the right period of time to insure the successive step-by-step side movement of the coins until the desired number of coins are assembled, when the grippers act to remove the bunch through the open front of the jaws and transfer said bunch to the wrapping mechanism for per-

forming the next operation. The transversely-slidable bar 41 is returned to its normal position by a spring, and a flanged pivotally-mounted plate 49 bears upon the upper forward edges of the assembled column or bunch of coins and serves to retain the coins in an upright position transversely in line. This apron or plate 49 rocks upon a transverse rod 50 and a spring 55 serves to hold the plate down with its lower portion against the front portion of the bunch and its flange 49' against or proximate to the top portion of the bunch, while a transverse rod 56 forms a rear support, whereby the coins are retained in an upright position in line and prevented from being thrust too far forward or dislodged vertically. While the tendency of the spring 55 is to hold the apron or plate downwardly upon the bunch of coins, provision is made for lifting the apron or plate at the right moment to enable the transfer of the bunch to the wrapping devices. As one means for accomplishing this function and as a further improvement of the construction shown for the purpose in my said prior application I provide the plate 49 with a laterally-projecting finger or portion *k*, as shown in Fig. 9, and I provide one of the grippers with a cam-shaped member, as *l*, which when the grippers move inward to seize the bunch of coins rides past the projecting finger or portion *k*, and when the grippers start to transfer the bunch the said cam lifts the plate clear of the bunch to allow the grippers to transfer it, clear of all obstructions, to the wrapping-rolls, as I will presently more fully describe. When the desired number—say twenty in a machine for wrapping half-dollars or fifty for wrapping pennies—has been assembled, as before described, the bunch will be ready for wrapping, if such wrapping is desired, and the grippers operate to seize the bunch and transfer it to the wrapping mechanism, and the wrapping mechanism, which up to this time has been idle, is automatically set in motion by the deposit of the last coin of the bunch causing the registering devices to trip and set in operation the wrapping devices. This operation and the parts which contribute thereto are substantially like those disclosed in my said former application, and therefore, except as to the improvements thereto, need not be specified with great particularity.

Referring to Fig. 1, it will be understood that the toothed register-wheel has a lug 60, which during the completion of a revolution of the wheel actuates a spring-pressed dog 62 on the shaft 64, which extends through the standard or upright A' and carries an arm 64'. The contact of the lug 60 with the dog 62 occurs when the desired number—say twenty half-dollars—of coins has been assembled in the holder, and it is at substantially this period of the operation—namely, at the end of a final movement of register-wheel between the

starting and stopping of the counting of the twentieth coin—that the arm 64' is rocked. This arm is connected with a rod 65, which carries at its lower end a wedge-shaped member 66, which when the arm 64' is rocked engages and rides past a corresponding wedge on a sliding pin 67, normally held inward by a spring 68 to hold the wrapping devices inactive; but as the wedge member 66 is forced down by the rocking arm 64' the said wedge moves the pin 67 outward and releases the normally locked wrapping mechanism, which is permitted to make one complete cycle before it is again engaged and locked by the pin.

Mounted in the frame A is the shaft 70 with its loose sprocket-wheel 71, which is kept continuously in operation by means of the sprocket-chain 16, and on the shaft 70 is made fast an arm 72, provided with a spring-pressed double-ended pawl 73, whose curved toe-piece 74 normally hooks over in locked engagement with the spring-pressed pin 67 and whose point forms a pawl which is normally out of engagement with the teeth of the ratchet-wheel 71', which is fast to the sprocket, and therefore loose upon the shaft, and when the wedge-shaped member is withdrawn, as before described, the toe 74 of the pawl 73 is released and the spring 75 immediately draws the point of the pawl into engagement with the ratchet, thus communicating the motion of the continuously-operating sprocket and ratchet to the normally idle shaft 70. The operations of the machine are so timed that as soon as the arm 72 is locked to the constantly-operating ratchet-wheel the spring-pressed pin 67 is released and resumes its position in the path of rotation of the toe of the pawl to be engaged again by the latter just when the arm 72 and shaft 70 have made a complete revolution, when the pawl, by reason of its positive engagement with the stationary pin, holds the arm and shaft against rotation with the constantly-operating loose ratchet, thereby disconnecting the wrapping devices from the power mechanism. It is during the time the arm 72 is locked to the ratchet-wheel 75 that the wrapping mechanism is actuated and the paper-feeding devices supply the paper for a succeeding bunch of coins, and it is when the arm and shaft 70 cease their rotation and the arm is unlocked from the constantly-rotating parts that the wrapping mechanism becomes again inactive.

On the normally idle shaft 70 is a gear-wheel 80, which meshes with a similar gear 81 on the shaft 82, said shaft having fixed to it suitable cams 83 for allowing the grippers to close and grip the bunch preparatory to transferring the bunch of coins from the dotted position of Fig. 3 to the full-line position of said figure, where the bunch is having its wrapper applied by the wrapping-rolls. The grippers, as shown, consist of two oppositely-facing loose heads 84, faced with a non-abrad-

ing material and carried by the curved vertically-disposed lever-arms 86, which are laterally slidable in a yoke or frame 87, pivotally mounted on a shaft 82, the lower ends of said lever-arms 86 being provided with anti-friction-rollers which travel in contact with the faces of the cams 83 to normally separate the gripper-heads, whereby as the cams rotate when the wrapping devices are set in operation the declining portions of the cams allow the lever-arms 86 to move inward, and the heads 84 are thus forced inward by the spring 89 to engage and press upon the end coins of the bunch, and when the bunch is under rotation during the period of applying the wrapper the heads rotate with the bunch, and therefore do not mar or abrade the end coins thereof with which the heads contact. It will thus be seen that when the wrapping mechanism is thrown in operation by the registering or counting of the final coin of the bunch the gear-wheels 80 81 are also set in motion and the shaft 82 is rotated, carrying with it the cams 83 and allowing the gripper-heads to take the bunch.

The coin-carrier frame or yoke 87 is rocked about its shaft 82 by means of an arm 91, slotted on the shaft 70 and having a roller 92, which is engaged by a cam 93 on said shaft 70 and having one face 94 to engage the roller and cause the arm 91 to be moved lengthwise, and thus rock the coin-carrier frame from the dotted position of Fig. 3 into the full-line position of said figure, thus transferring the bunch while held by the grippers to the wrapping-rolls, said arm 91 after the wrapping is completed and the cams 83 move the grippers apart or outwardly being returned to normal position when the cam 92 has made a single revolution and the declining portion of the cam-face meets the roller 92, when a spring 95 draws the arm back and rocks the coin-conveyer frame back to normal position, as shown by dotted lines in Fig. 3.

The bunch of coins is transferred by the conveyer into the front end of a vertically-swinging frame D, consisting of side arms 100 and suitable connecting-rods, said arms having their rear ends fixed to a cross-shaft 101, whose ends are mounted in the sides of the main frame. The front or receiving ends of the arms have a roller 102 mounted between them, and between this roller and rollers 103 103', mounted in the main frame, the coin-conveyer deposits the bunch of coins. The vertically-swinging frame is lifted from a depressed or lowered position to an elevated operative position by means of a cam 82' on the shaft 82, engaging one end of a lever 104, pivoted on a bar 105, which extends lengthwise of the lower portion of the machine and has its ends mounted in the lower cross-bars of the main frame, said lever having its opposite ends connected to a lever 107, also pivoted on said bar and having one end connected

to the swinging frame D and its opposite end connected with the piston of an air-cushion 108 for relieving the shock and deadening the noise due to the dropping of the swinging frame from its elevated to its normal lowered position. When the swinging frame D has been elevated by the mechanism just described, a gear-wheel 110, which is mounted on a shaft 111, which extends across the front of the swinging frame, is brought into mesh with a pinion 112 on the axis of the roller 103, which pinion engages an idle pinion 114, that meshes with a gear-wheel 115 on the shaft 116, which carries at its central portion the roller 103'. On the opposite end of the shaft of the roller 103' is secured a double gear 118, of two diameters, and a sprocket-pinion 119, over which the driving-chain passes, and on a stub-shaft 120, projecting from the frame just above the aforesaid double gear, is a second double gear 121, which is in mesh with the first-named double gear 118. The sprocket-chain passes over suitable direction-pulleys 122, as shown. The shaft 111 also carries at its opposite end a gear-wheel 123, which meshes with a gear 124 on the shaft of the roller 102, and through a train of gears 125 motion is communicated to a gear-wheel 126, which is carried in a horizontally-swinging frame E, which frame swings about the stub-shaft 127 as a center. On the axis of the gear-wheel 126 is a pinion 128, which meshes with a gear-wheel 129 on the end of a horizontal screw-shaft 130, which extends transversely across the frame and is provided with right and left threaded portions, as shown at *d e* in Fig. 11. When the wrapping mechanism is thrown into operation, as before described, and the train of gears 125 is set in motion thereby, the said train of gears causes the gear-wheel 126 of the swinging frame to climb around the final member of said train of gears 125, and thus swing the horizontal screw-carrying frame E forward until it assumes the position shown in Fig. 3. In the path of the swinging movement of the screw-carrying frame are two segmental nuts 132, opening downward and adapted to receive the screw, said nuts having right and left threads to engage with the threads of the screw when the latter is seated therein. The nuts are carried by arms 133, having bearings which slide on transverse rods 134, and a spring 135, surrounding one of these rods between the inner sides of the arms 133, tends to normally separate the arms. At the forward ends of the arms 133 are slotted yokes 136, upon which are slidably mounted a pair of crimpers, consisting of curved plates 137, having their outer ends folded inwardly to form crimping-surfaces 139, said crimpers being yieldingly held by appropriate springs 139', engaging their shanks, which slide on the yokes 136. From this description it will be seen that when the swinging frame E has been

advanced to engage the right-and-left screw with the segmental nuts the train of gears 125 and the gears 128 129 communicate motion to the screw, and the nuts, with their arms and crimpers, are advanced along the screw in approaching directions, and the said crimpers engage the edge of the rolled sheet and tuck in and progressively crimp said edge to form a finished rolled and crimped package of coins. When the crimping has been completed, the cam 82' actuates the lever 104 and, through the connections before described, the vertically swinging frame D is allowed to drop, swinging about the shaft, and the train of gears 125 is removed from driving connection with the power, and the wrapping devices cease their rotation, and the roller 102 recedes from the rollers 103 103', thus releasing the rolled package, which drops into an inclined chute *t* and is delivered at the rear of the machine into a suitable receptacle, as at *u*.

Between the right-and-left screw and the shaft upon which the vertically-swinging frame D is mounted is a toggle connection 140, and when the frame is elevated to connect its driving-train with the power and the screw begins to climb over the final gear of train of gears 125 the said toggle connection is straightened out until the joint in the connection is slightly out of line with a line drawn centrally through the members of the toggle, and the screw is thus held in proper engagement with the segmental nuts, and this condition is maintained until a pin 141, carried by one of the slidable arms of the crimper-frame and which is moved laterally by the screw and nut action before described, strikes a pin 142, slidably mounted in the collar 143 of the member of the toggle which is mounted upon the screw. This action of the advancing gripper-frame arm and pin 141 causes the latter to engage one end of the sliding pin 142 and push said pin laterally until its opposite end is projected into the path of a pin or stud 144, fixed in the screw, thus arresting the rotation of the screw and exerting such a pressure upon the toggle that the joint thereof is broken, and the springs 145, which connect the members of the toggle, as shown in Fig. 4, draw the screw out of engagement with the segmental nuts and cause the arms to swing about their axes on the stub-shafts, and thus return the screw to normal inoperative position.

The mechanism for supplying paper for the wrapping of the bunch of coins includes a drum or roller 150, mounted upon a shaft 150' in the upper part of the frame and over which the paper from a roll 151 passes after first passing between a roll 152 and a tension device 153. On one end of the shaft of the roll 150 is fixed a disk 154, to the side of which a pawl 155 is pivoted, and lying against this disk is a one-tooth ratchet 156, with the shoulder of which the point of the pawl engages.

A pinion 157 is fixed to the loose ratchet 156, and this is engaged by a rack-bar 158, which extends therefrom to a crank-arm 159 on the normally idle shaft in the lower part of the frame and which is periodically set in motion by the registering devices, as before described, so that when the wrapping mechanism is set in motion the rack-bar 158 is moved upward, rotating the pinion 157 and the ratchet 156 without imparting motion to the paper-feed roll; but on the downward movement of the rack-bar the pawl 155 by locking behind the shoulder of the ratchet 156 connects the latter with the disk, and the disk and feed-roll are now caused to make one revolution, which feeds a fresh supply of paper for a succeeding wrapper. On the opposite portion of the shaft is a gear-wheel 160, which meshes with a pinion on a shaft 161, carrying a tension-roll 162, between which and the roll 150 the strip of paper passes. The strip of paper after passing between the rolls 150 and 162 passes over a V-shaped knife or cutter 164 and below suitable spring-fingers 164', and its loose end passes through a paper-guide and hangs loosely in the path of the bunch of coins and just in front of the rollers 102 103 103', said lower end of the paper below the rollers being appropriately guided and held in proper position, so that it may not be moved sidewise out of a perpendicular line, by means of suitable fingers or plates *m*, extending horizontally from the bar 42 or some other fixed part and in a plane sufficiently low to allow the bunch of coins to be lifted over them without obstruction and accurately placed against proper portion of the hanging paper from which the wrapper is formed. The roll of paper is placed in a holder *n*, which may be of V shape, and has a brace *o* to stiffen it, and said roll and the paper-feeding devices are mounted in a transversely-movable carriage F, the construction and operation of which are substantially the same as set forth in detail in my said former application.

On the shaft 150' is fixed an arm 200, the lower end of which is formed with a toe normally resting upon a shoulder 201 on a collar 202, fixed to the rock-shaft 182, whose ends are mounted in the main frame. This latter shaft has fixed to it the cutter or blade 164, and a spring 203, connected to the shaft, serves to rock it downwardly, carrying the blade with it and feeding the paper forward when the pinion and rack devices impart movement to the shaft of the paper-feed roll. This shaft makes one revolution, and as the arm moves around with the shaft its toe strikes the shoulder of the collar and rocks the shaft upward, returning the blade and movable parts of the paper-guide to normal substantially horizontal position. When the parts are lowered, as just described, the paper hangs from the roll in substantially a loose and vertical position and may be readily fed forward, and when the

parts are elevated again the toe of the arm locks behind the shoulder of the collar and the paper feed is inactive.

The front end of the vertically-swinging frame D has a yoke 190 extending in front of the roll 102 and provided with a curved plate 191, which serves to tuck the lower V-shaped edge of the sheet of paper around the bunch of coins when said bunch is carried by the grippers to the wrapping mechanism. The bunch of coins is deposited just beyond this curved plate as the coin-carrying frame is transferring the bunch to the wrapping devices, and when the gears 125 and 124 are set in motion they cause the curved plate 191 to close over the bunch of coins and tuck the end of the paper in place for the wrapping action. An arm 192 on the yoke has substantially a hook-shaped end, and when it is pressed forward—say by contact with the shanks of the gripper-heads—this end lightly hooks under the shaft of the wrapping-roll 103 to assist in holding the plate in position. As the wrapping operation begins a pressure is brought upon the paper strip, and the point of the V-shaped cutter first punctures the paper, and as the pressure on the paper continues the inclined sides of the cutter sever the paper in diagonal lines to form the wrapper. When the wrapping is completed, the dropping of the vertically-swinging frame breaks the connection between the hook end of the arm 192 with the roll 103, and the weight of the curved plate, assisted by a spring 193, returns the parts to normal position. The curved plate 191 is bent upon itself or otherwise formed with a spring member 191' of slightly-smaller radius and adapted to yieldingly engage the back of the bunch of coins and prevent the rearward action of the point of the paper.

Another and important feature of the present improvement is the provision of a safety mechanism for preventing the accidental release of the idle wrapping mechanism until the wrapping devices have completed their cycle of operation and the grippers and transfer devices have completed their return movement and the vertically-swinging frame D has returned to normal position with its wrapping-roll 102. This safety mechanism may be of a varied character, and one suited for the purpose is shown in detail in Fig. 7 and consists of a bar or member *p*, which is fixed to the shaft 101, which shaft rocks in its bearings in the main frame and has the vertically-swinging frame D fixed to it, and which frame is moved upward into the full-line position of said figure at about the beginning of the wrapping operation. The shaft 101 has a crank-arm *q* fixed to it, and this arm is pivotally connected with the upper end of the bar *p*, whose lower end is slotted or forked and slidably fits over a stud or shaft *r*, fixed in the main frame, the intermediate portion of the

bar having a dog *s*, which alternately engages and disengages the toe 74 of the pawl 73, which connects and disconnects the constantly-operating ratchet and sprocket with the main shaft 70 of the wrapping mechanism. Now assuming that the final coin of the number to be bunched has been registered and the register-wheel has actuated the rod 65 and withdrawn the pin 67 from its connection with the toe of the pawl 74, the pawl, as soon as released from the pin, is drawn into locked engagement with the teeth of the constantly-driven loose ratchet 75, and the motion of said ratchet is thereby communicated, through the pawl and the arm 72, to the shaft 70, thus starting the wrapping mechanism in motion, and during the single revolution of the ratchet and pawl and the other mechanism before described the bunch is transferred to the wrapping devices, and the frame D is elevated to cause the rolls to appropriately inclose the bunch and tuck the end of the wrapping-sheet in position for the beginning of the wrapping operation. As the frame D is elevated by the mechanism before described the shaft 101 is rocked, and the crank-arm thereon causes the bar *p*, with its dog *s*, to be moved nearer the axis of the shaft 70 and in such position that the dog lies in the range of action of the toe 74 of the pawl 73, whereby the said toe in completing its cycle with the ratchet meets the dog and simultaneously is rocked thereby about its pivotal center to lift its pawl end out of the teeth of the ratchet and momentarily break the connection between the latter and the shaft 70. Almost immediately thereafter, however, the frame D drops to its normal position, and the shaft 101 is rocked and the bar *p* moved farther away from the axis of the shaft 70, and thereby releases the toe of the pawl 74, when the spring 68 again draws the pawl into operative engagement with the ratchet 75 and the pawl and ratchet travel together again for a brief interval and until the toe of the pawl finally comes at rest upon the pin 67, when the pawl is again disengaged from the ratchet and the power of the constantly-driven parts is removed from the shaft 70 and the wrapping and other mechanisms which it actuates. It will be understood that if the pawl 74 were permitted to complete its cycle with the ratchet and then engage the pin and disengage with the ratchet 75 any accidental movement of the rod 65 and its attachments—say by the carelessness or inadvertence of the operator—would result in the withdrawal of the pin 67 and the premature starting of the wrapping mechanism before the frame D was lowered and its roll 102 removed from the path of the transfer devices. Unless the frame and roll are brought back to normal position before the transfer devices can be allowed to again operate, the latter devices would strike the roll and considerable damage might result to some

of the more delicate parts; therefore the advantage of the bar *p* and its dog in holding the pawl just before the conclusion of the complete revolution of the arm 72 and shaft 70 and until the frame D is permitted to drop to normal position and automatically remove the dog from the pawl to allow the momentary reengagement of the pawl with the ratchet to allow the wrapping, crimping, and transfer devices to return to full normal position.

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

1. In a machine of the character described the combination with coin-advancing means, mechanism for assembling the advanced coins of a predetermined number into a bunch, and means for removing the bunch of coins from the assembling devices for transfer to another point said assembling mechanism including a pivoted member which forms the front wall for the coin-column and said transfer mechanism having means for displacing said wall coördinate with the beginning of the transfer operation.

2. In a machine of the character described the combination with coin-advancing means, mechanism for assembling the advanced coins of a predetermined number into a column, grippers and means for causing the same to take the coin-column by the ends, a member forming a front wall for the coin-column and preserving the alinement of said column, means for moving the gripping mechanism in a forward direction while holding the coin-column, and means carried by the gripping mechanism for displacing the front wall of the coin-column coördinately with the forward movement of the gripping mechanism.

3. In a machine of the character described the combination with coin-advancing means, mechanism for assembling the advanced coins of a predetermined number into a column, grippers and means for causing the same to take the coin-column by the ends, a pivoted member forming a front wall for the coin-column and preserving the alinement of said column, means for moving the gripping mechanism in a forward direction while holding the coin-column, a cam carried in unison with the gripping devices, and a lateral projection on the said pivoted member engaged by said cam during the commencement of the said forward transfer movement of the devices whereby said member is removed from the path of the coin-column coördinately with the forward movement of said transfer devices.

4. In a machine of the character described the combination with reciprocating coin-advancing mechanism, of coin-assembling devices comprising a pair of jaws normally in the path of the coin-advancing means and separable to receive the advanced coin, one of

said jaws yieldable laterally to admit the coin, a spring-actuated slide-bar fixed to the other of said jaws and having notches or openings in it, a spring-plate having a pin to engage said notches or openings and thereby hold the slide-bar against movement until the coin is properly positioned, said coin-advancing mechanism having means for actuating said plate to lock the slide-bar during one reciprocal movement of the said mechanism and to release said locked bar during another reciprocal movement to allow the yielding jaw and assembled coin, or coins, one step sidewise to provide accommodation for the next advancing coin.

5. In a machine of the character described, the combination with coin-advancing mechanism, coin-counting mechanism, means for assembling the coins in a column containing a predetermined number of coins; means for transferring the column of coins to the wrapping devices; a wrapping mechanism actuated by the count of a final coin of the predetermined number of coins; a paper-feed mechanism; means for severing a piece of paper to constitute the wrapper for the column of coins; and spaced guide means for the lower side edges of the wrapping-sheet said guide means positioned below the path described by the coin-column during the transfer of the column to the wrapping devices.

6. In a machine of the character described the combination with coin-advancing means, coin-counting mechanism, coin-bunching devices, and a normally idle wrapping mechanism set in motion by the count of a final coin of a bunch, means for transferring the bunch or column of coins, and means for elevating the assembled coins to the wrapping devices, of a safety mechanism interposed in the wrapping mechanism and controlled by the coin-elevating means to prevent the overthrow of the wrapping mechanism.

7. In a machine of the character described, the combination with means for advancing coins separately, means for registering the advance of each coin, a normally inoperative wrapping mechanism, a constantly operating power mechanism, means for transferring the bunch of coins, means controlled by the registering of the final coin of the bunch for setting in operation the idle wrapping mechanism, said wrapping mechanism including a vertically-swinging frame into the free end of which the bunch of coins is admitted, said frame carrying a wrapping-roll, a safety-dog and connections between the same and the swinging frame for moving said dog into and out of the range of action of the constantly-operating member to enable the dog to hold said member during the period the frame is elevated and to release said member when the frame resumes its normal position.

8. In a machine of the character described

the combination with coin-counting mechanism, coin-bunching devices and a transfer mechanism, a normally idle wrapping mechanism including a main shaft having a crank member, and a vertically-swinging frame into the free end of which the bunch of coins is received from the transfer devices said frame carrying a wrapping-roll, a constantly-operating ratchet-wheel loose on said shaft, a pivoted pawl carried by the crank member and adapted to engage the teeth of said ratchet, and having a toe-piece, a slide member normally projected into the path of said toe-piece and engaged by the latter to hold the pawl out of engagement with the constantly-operating ratchet, means for withdrawing the slide member by the counting of the final coin of the bunch thereby releasing said toe-piece and allowing the pawl to interlock with the ratchet to rotate said shaft, a rock-shaft upon which the swinging frame is mounted, provided with a crank member, and a bar connected to the last-named crank member and longitudinally movable thereby, said bar having a dog which, in the upward movement of the frame and connections is projected into the range of action of the toe of the pawl and engages and holds the latter and releases the pawl and shaft from the ratchet, said frame in resuming its normal position after the wrapping operation is completed, moving the bar to remove the dog from its connection with the toe of the pawl and allow the pawl to again momentarily engage the ratchet and the toe-piece to reengage the slide-piece and again disconnect the pawl from the ratchet.

9. In a machine of the character described, the combination of means for advancing the coins separately, means for registering the advance of the coins, coin bunching and transferring mechanism, a normally depressed swinging frame into which the bunch of coins is transferred said frame carrying a wrapping member, a constantly-operating mechanism including a ratchet, a wrapping mechanism having a main shaft provided with a crank member, a pawl pivoted on said member having one part to engage the ratchet and a second part provided with a toe-piece, a release mechanism holding the said main shaft normally disconnected from the constantly-operating mechanism, means for tripping the release mechanism by the deposit of the final coin of the bunch and thereby connecting said wrapping-machine shaft with the constantly-operating mechanism and setting in operation the wrapping devices, means for elevating the swinging frame with its bunch of coins to the wrapping devices, a member having a substantially coordinate movement with the swinging frame and provided with a dog which, during the upward movement of the frame, is moved into the range of action of the pawl and trips said pawl from the con-

stantly-operating mechanism just before the
conclusion of a full rotation of the latter, and
means for releasing the swinging frame from
its elevated position at the conclusion of the
5 wrapping operation said frame in resuming
its normal position removing the dog from
its engagement with the pawl to allow the
latter to reëngage with the release mechanism.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 10
nesses.

CHARLES S. BATDORF.

Witnesses:

NORA V. FALLON,
J. W. BATDORF.