

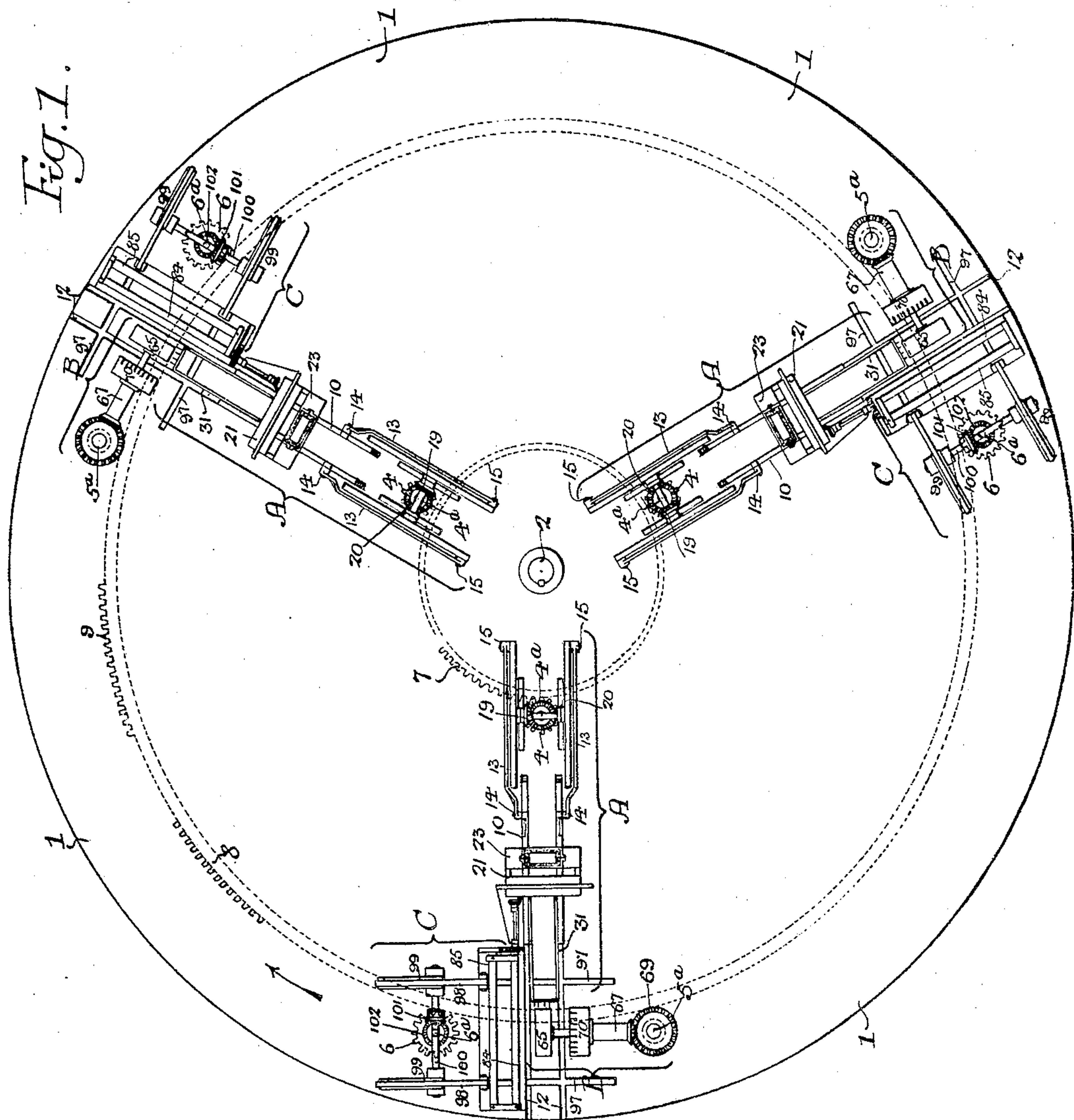
C. W. MACDONALD.
PAPER BOX COVERING MACHINE.
APPLICATION FILED MAY 21, 1908.

Patented Nov. 16, 1909.

7 SHEETS—SHEET 1.

940,541.

Fig. 1.



Witnesses:
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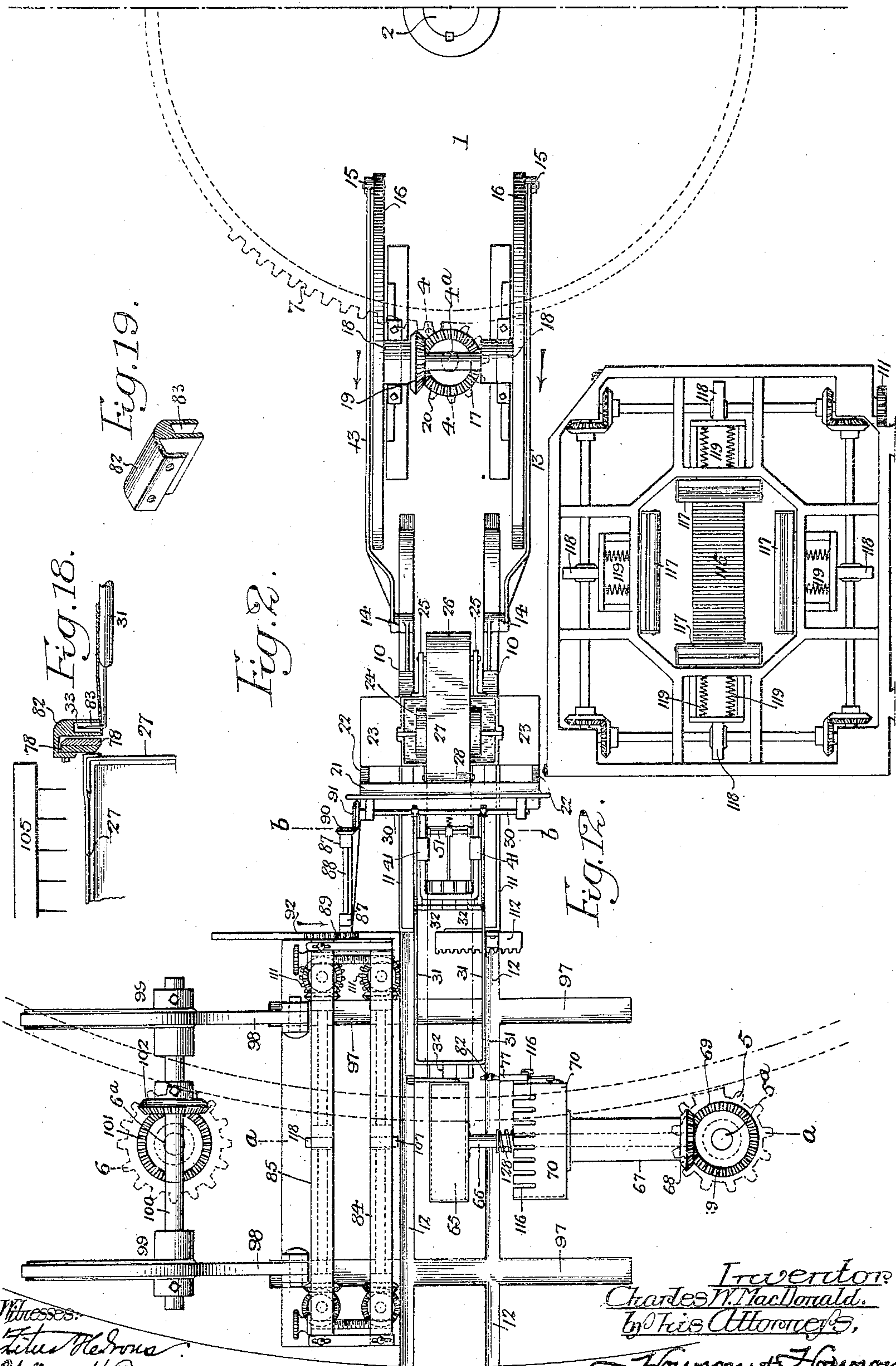
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7 SHEETS—SHEET 2.



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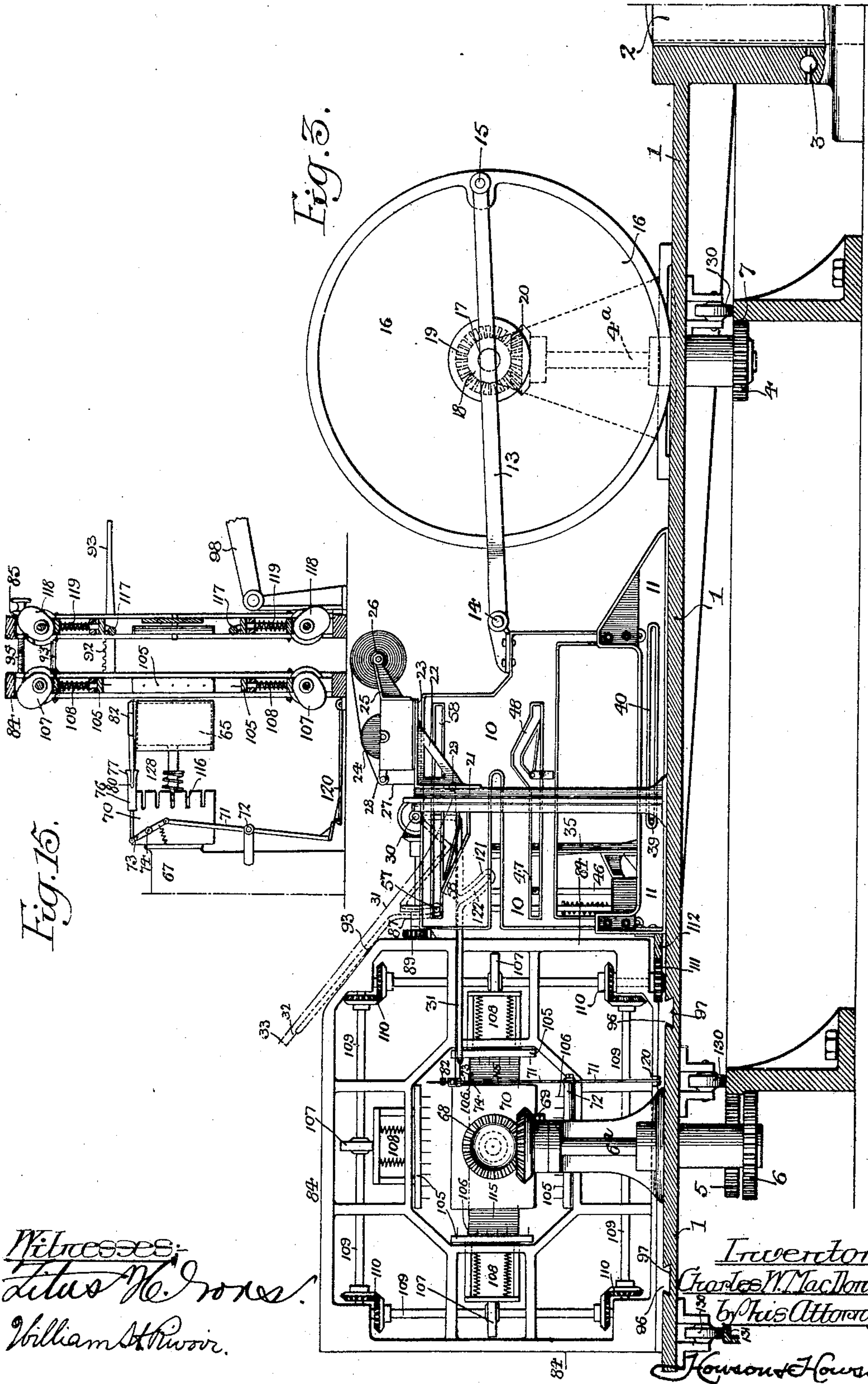
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7 SHEETS—SHEET 3.



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7 SHEETS—SHEET 4.

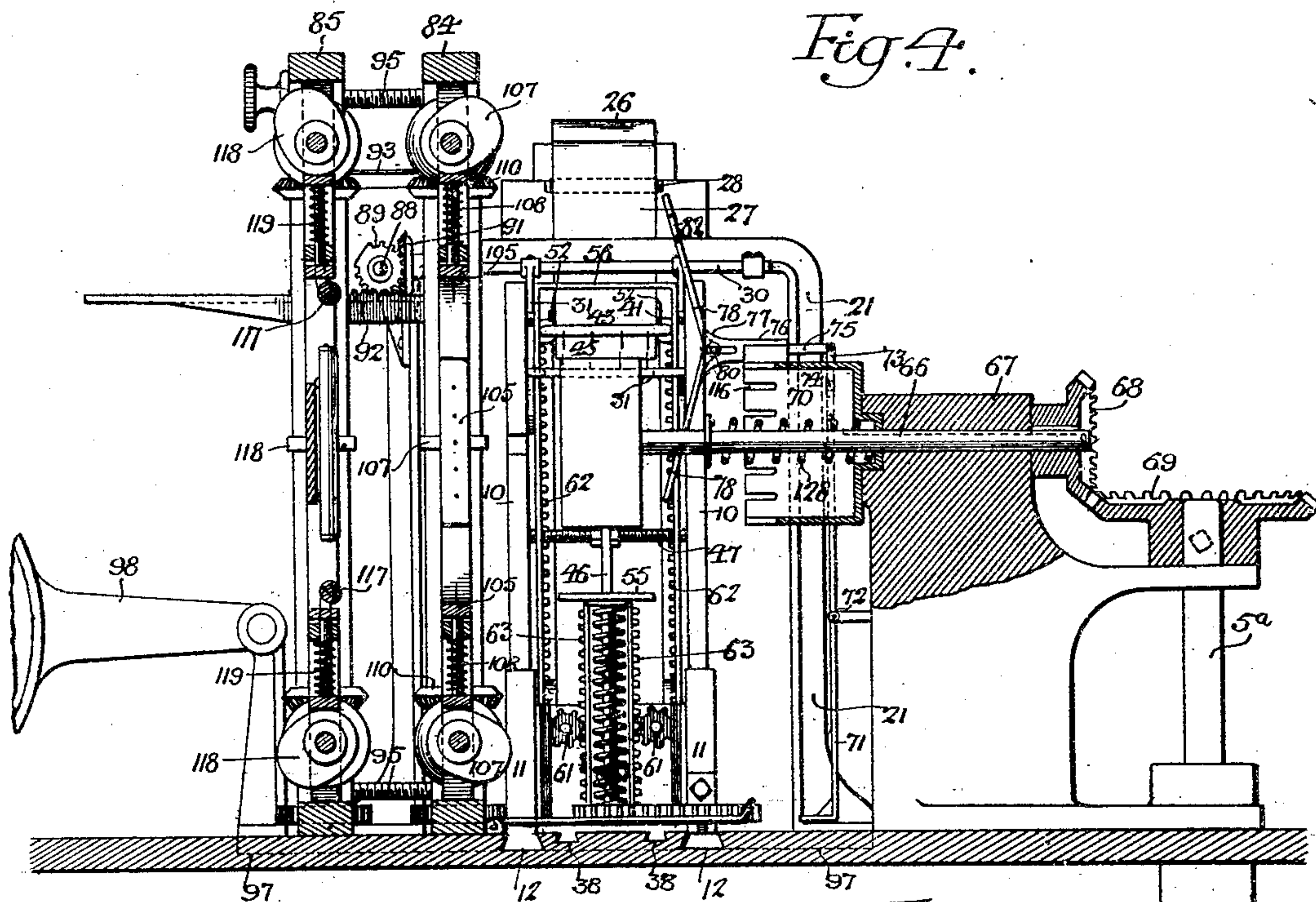


Fig. 5.

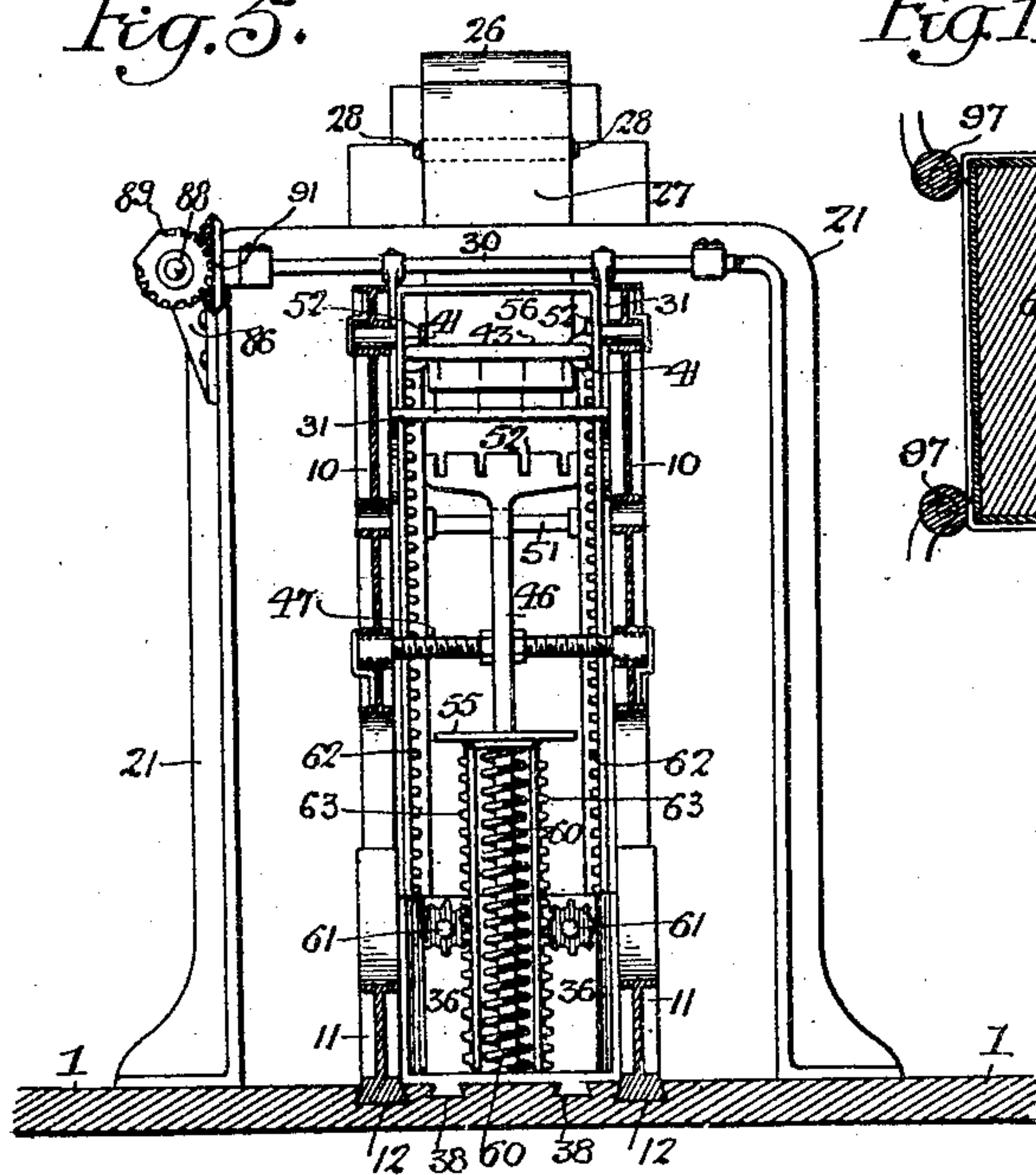
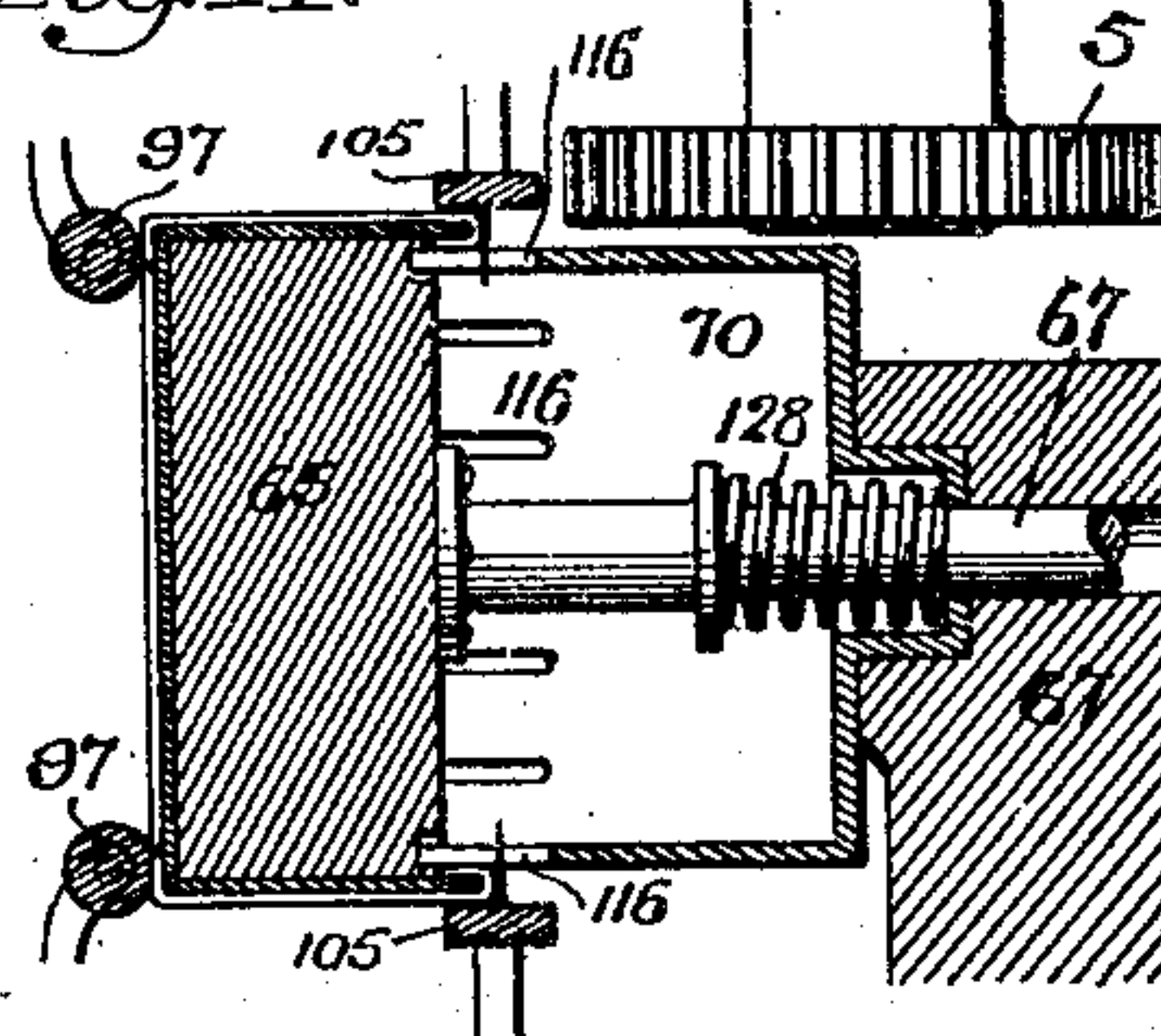


Fig. 11.



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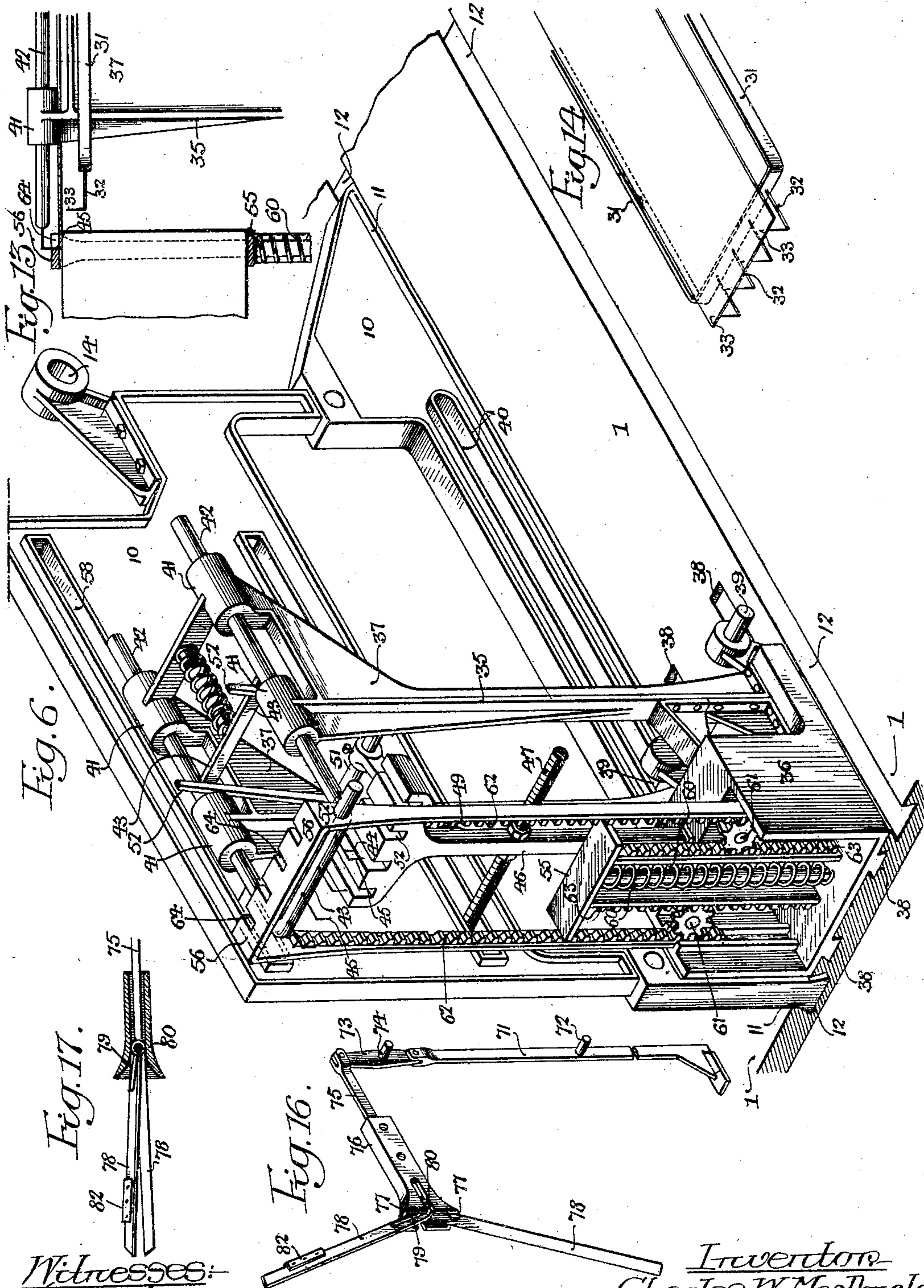
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7 SHEETS—SHEET 5.



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7 SHEETS—SHEET 6.

Fig. 7.

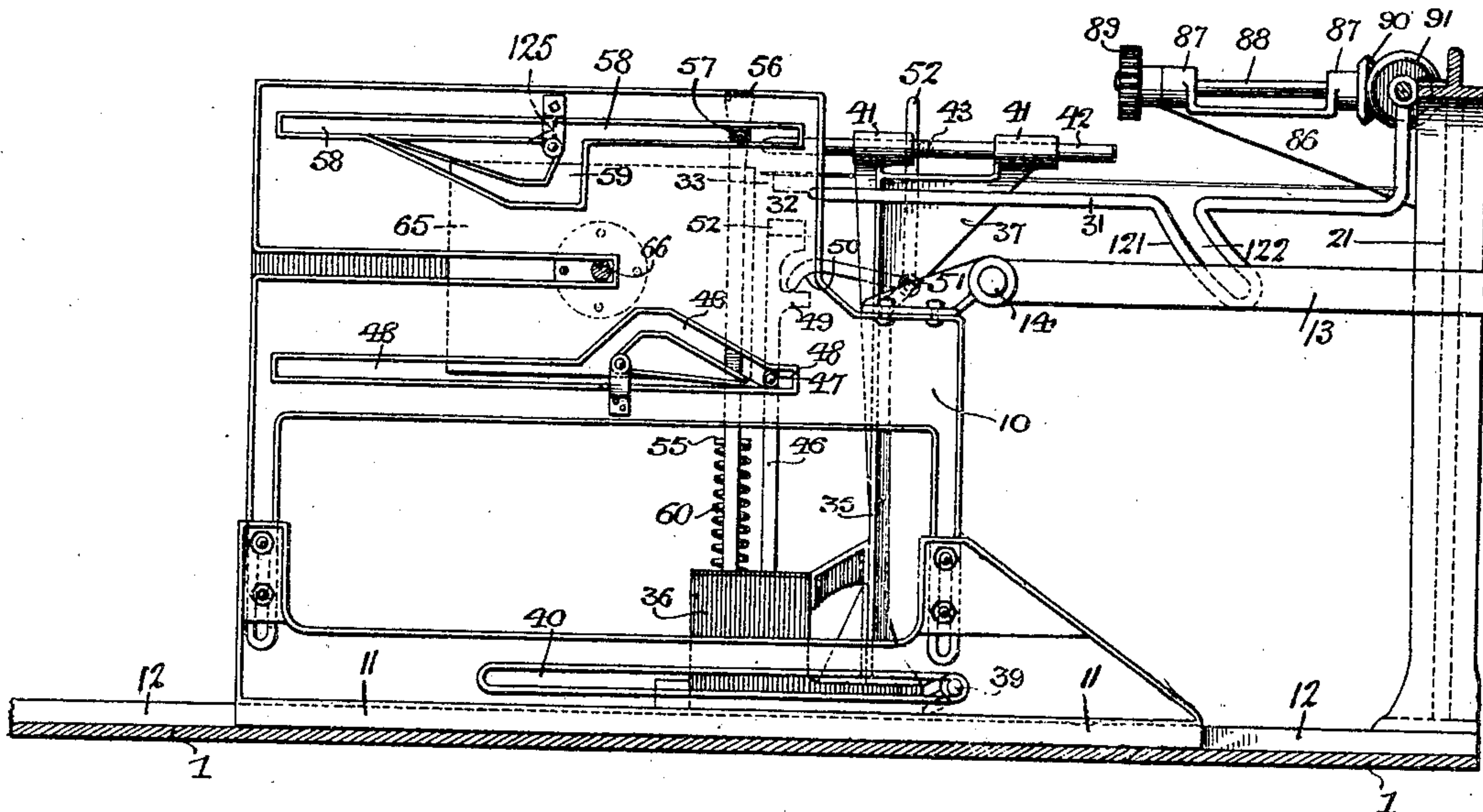
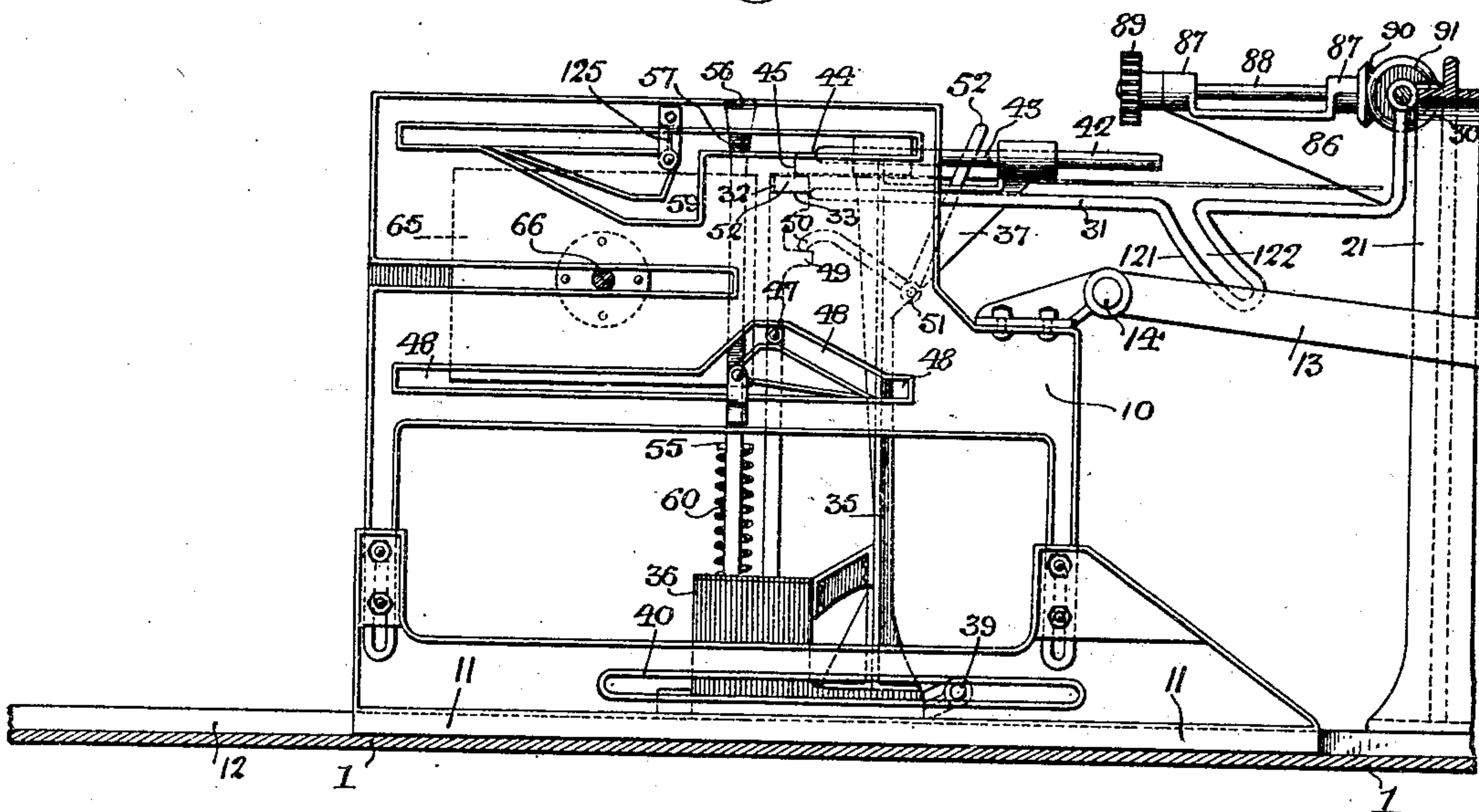


Fig. 8.



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7 SHEETS—SHEET 7.

Fig. 9.

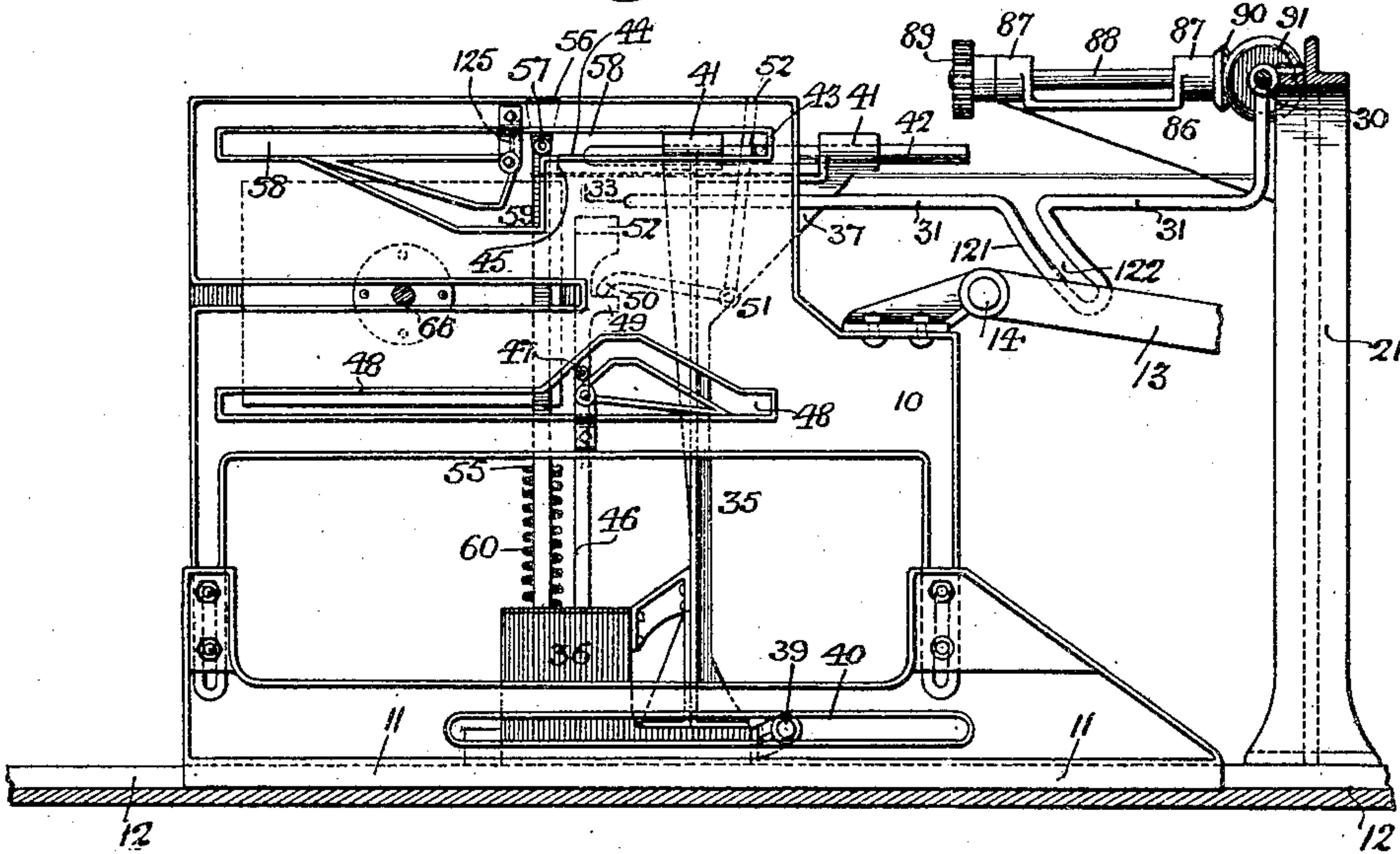


Fig. 10.

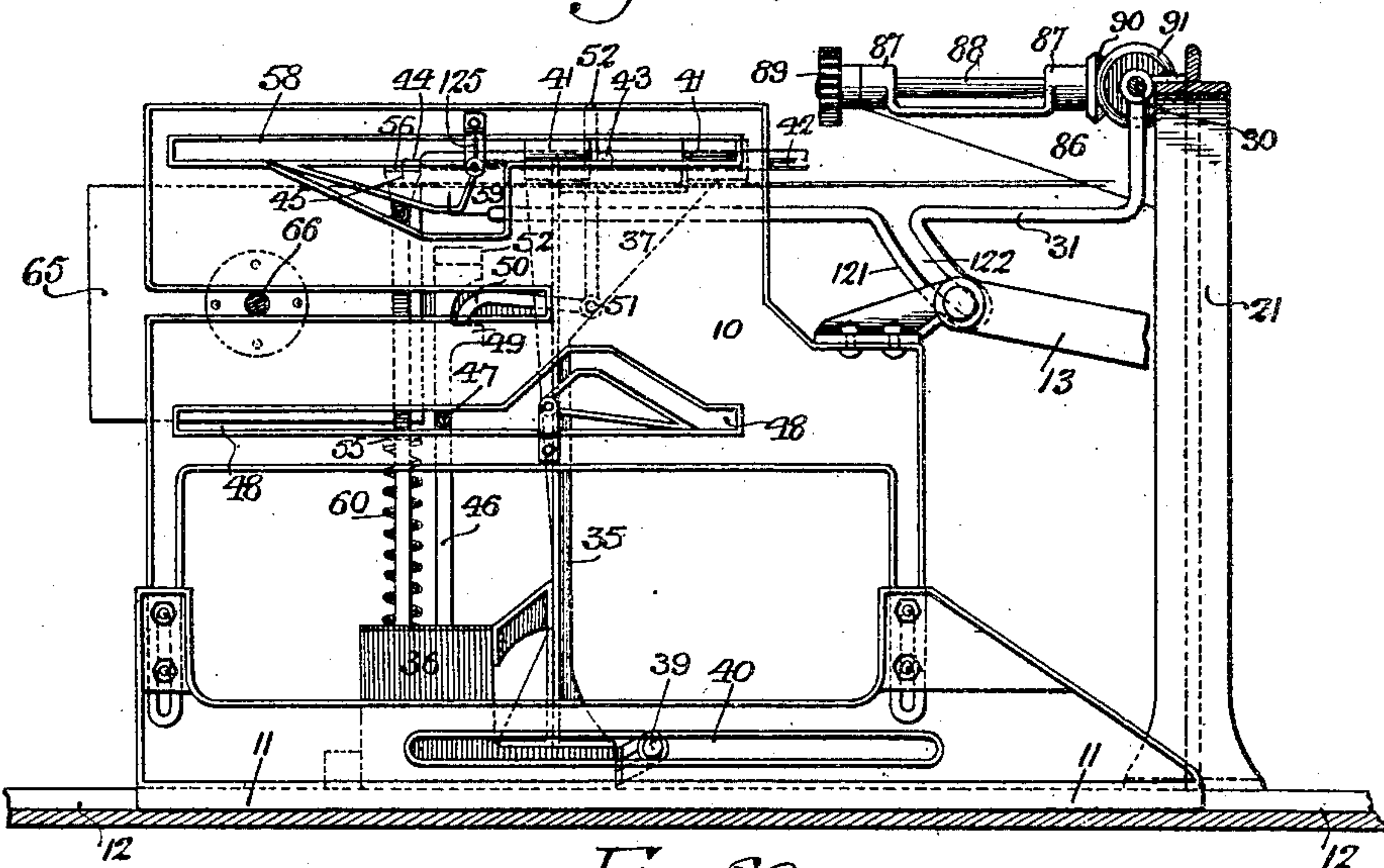
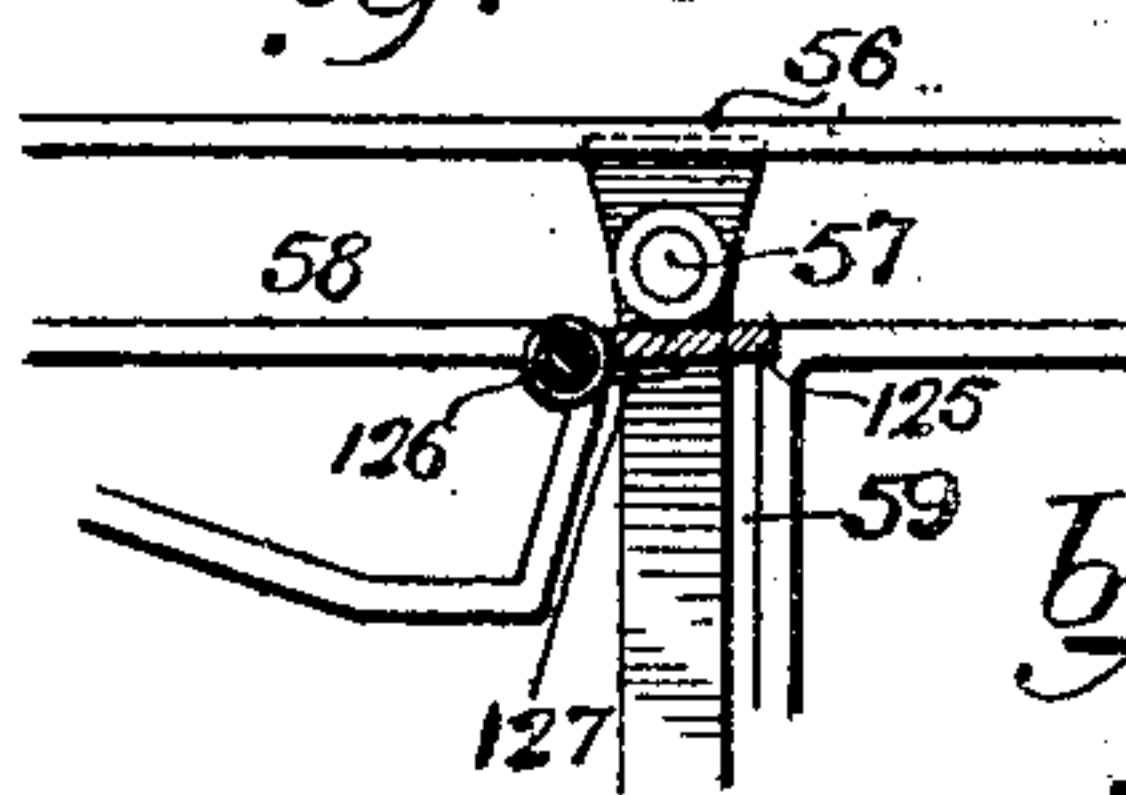


Fig. 20.



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UNITED STATES PATENT OFFICE.

CHARLES W. MacDONALD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO SAMUEL T. MacDONALD AND ONE-THIRD TO WILLIAM H. DAVISON, OF PHILADELPHIA, PENNSYLVANIA.

PAPER-BOX-COVERING MACHINE.

940,541.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed May 21, 1908. Serial No. 434,160.

To all whom it may concern:

Be it known that I, CHARLES W. MACDONALD, a citizen of the United States, residing in Philadelphia, Pennsylvania, have
5 invented certain Improvements in Paper-Box-Covering Machines, of which the following is a specification.

My invention relates to machines designed for the purpose of covering box blanks with
10 paper.

In machines of this class, a blank previously made of pasteboard or other material of the desired size and shape is applied to a support familiarly known as a chuck.

15 This structure may be adjustable to accommodate boxes of various sizes, and is rotatable so that when a strip or sheet of paper has been applied to a convenient part of the same, it may be turned to facilitate the engagement of the paper with the rest of
20 the blank.

In the ordinary method of covering boxes, the operator applies to a portion of said blank, the end of a sheet of paper previously
25 coated with paste whereby it may be secured to said blank. The paper having been applied to the sides of the blank, the latter is then ready to have such paper tucked in on the open side of the blank and pasted down
30 upon the bottom of the same, thereby finishing the operation necessary to deliver a completely covered box. Box lids may be treated in the same way, except that a relatively narrower strip of paper will be applied, and
35 the chuck supporting the cover, as well as the other mechanism will be relatively modified as to size, so as to act upon the same. The top of the cover then receives a rectangular sheet of paper to finish the same, and,
40 if desired, a similar section of paper may be applied to the bottom of the blank.

The improvements forming the subject of my invention are designed to automatically present the strip of paper to the box blank;
45 to automatically revolve the chuck carrying the latter when the paper has been brought into engagement therewith; to automatically sever such strip of paper; to automatically tuck the projecting portion against the inside walls of the blank, and to automatically fold down the projecting portion of the paper against the bottom of said blank; the operator simply supplying blanks to the
50 chuck and removing the same when covered.

In presenting my invention to the trade, it
55 is my object to provide a machine that will avoid the great waste of paper usually accompanying the work of covering box blanks, and at the same time greatly reduce the amount of time and labor necessary to
60 produce completely covered boxes in a neat and satisfactory condition.

The apparatus forming the subject of my invention is a great labor saver in that it does away with the independent operation
65 of applying paste to the paper, and the services of an operator for such work. The paper with which the blanks are covered is taken directly from a roll of the same and the paste is applied in its passage therefrom;
70 and not only in this way is labor saved, but also by reason of the fact that the apparatus I have designed is operated in triplicate; the several structures for carrying out the functions of my invention being mounted on a
75 suitable revolving table, and intermittently actuated as said table revolves. Thus, while an operator is applying a blank to one chuck, the other structures are at work covering the blanks, so that three boxes are being
80 turned out for every revolution of the table, and with the labor of but one operator. It is also possible to produce covered boxes of different sizes on the separate sets of mechanism.
85

By having an automatic gluing device for the paper, a great amount of time is saved over machines which require the paper to be glued independently of its passage to the blanks and then transferred to the latter.
90 A great amount of time is also saved by providing a machine capable of working on several blanks at the same time.

Other features of my invention will be pointed out hereinafter, reference being had
95 to the accompanying drawings, in which:

Figure 1, is a plan view illustrating a rotatable table or mounting carrying three complete sets of the apparatus forming the subject of my invention; Fig. 2, is a plan
100 view, on a larger scale, of a complete apparatus capable of performing the work of covering boxes, forming the subject of my invention; Fig. 3, is a side elevation of the structure illustrated in Fig. 2; Fig. 4, is an
105 enlarged sectional view, taken on the line *a—*a**, Fig. 2; Fig. 5, is an enlarged sectional view, taken on the line *b—*b**, Fig. 2; Fig. 6,

is a perspective view of the paper applying mechanism forming part of my invention, with one of the side frames removed to illustrate parts of the same in a clearer manner; Figs. 7, 8, 9 and 10, are side elevations of this structure in various positions; Fig. 11, is a sectional view of a part of the mechanism, showing the manner of securing the projecting portions of the paper covering; that on one side being turned in against the inner walls of the box blank, and on the other side being turned down against the bottom of the blank; Fig. 12, is an elevation of the frame carrying the rollers for turning down the paper on the bottom of the box blank; Fig. 13, is a side elevation, and Fig. 14, a perspective view of a part of the means for delivering the paper to the blank; Fig. 15, is a side elevation showing the means for severing the strip of paper, and the operating means therefor; Fig. 16, is a perspective view of the part of the structure shown in Fig. 15; Fig. 17, is a sectional view of the means for operating the shears forming part of the paper severing means; Figs. 18 and 19, are details of such mechanism, and Fig. 20, is a view illustrating a detail of my invention.

In Fig. 1, of the drawings herewith, I have illustrated three complete apparatus made in accordance with my invention for covering paper boxes, mounted upon a rotatable bed or table. In such structure the automatic operations of applying the paper to the box blank and securing the same thereto may be carried on during the rotation of the table; the feeding of blanks and removal of the covered boxes being attended by a single operator. Referring to this figure of the drawings, 1 represents a rotatable base or table mounted on a vertical shaft or spindle 2, which may be driven in any desired or well known manner, (not shown), and may be provided with a ball bearing 3. This base or table, as above indicated carries three operative mechanisms of the type forming the subject of my invention for applying paper to the blanks, and for securing such paper thereto, to which particular reference will be made hereinafter. Each of these mechanisms comprises paper applying means, indicated at A; blank receiving and rotating means, indicated at B, and securing and turning in means for the paper, indicated at C. These several means for operating upon the box blank are driven respectively by the pinions 4, 5 and 6, mounted on the shafts 4^a, 5^a and 6^a, which serve to transmit movement to the rest of the mechanism, and these pinions in turn are operated by the teeth of annular racks shown by dotted lines in Fig. 1, and indicated at 7, 8 and 9. To prevent movement of the parts except when desired, these pinions have blank spaces for engagement with blank portions

of the rack before and after they perform their necessary work. The rack 7 is much less in diameter than the racks 8 and 9, and is designed for engagement with the pinions 4 for operating the paper applying mechanism. The racks 8 and 9 are disposed at different heights so that they will be free to engage the pinions 5 and 6 independently of each other, the one for operating the chuck carrying the box blank as the paper applying mechanism is brought into position to pass the paper to such blank, and the other for operating the means for turning in the projecting portion of the strip of paper covering the box blank.

The paper applying mechanism is clearly shown in plan view, Fig. 2, in side elevation, Fig. 3, and in the several diagram views. This mechanism comprises first a traveling frame indicated at 10 having ribs 11 adapted to slide in ways 12 formed in the rotatable table 1, which ways may be dovetailed. Motion is imparted to said frame by means of links 13 connected thereto at 14, and at their opposite ends at 15 to face plates 16 mounted on a shaft 17 carried by suitable bearings 18, and driven by the pinion 4 and shaft 4^a through the medium of bevel gears 19 and 20, from the rack 7. The rack 7 is of a length sufficient to rotate the pinion 4 one complete revolution so that the frame will be carried forward and back by such movement of said pinion.

Mounted on the revolving table 1 and disposed so that the frame 10 travels through the same, is an arched standard 21 having a bracket 22 supporting a paste receptacle 23, in which a paste roll 24 is arranged to rotate; said receptacle also carrying brackets 25 supporting a roller 26 from which the paper 27 is unwound. This paper passes over said paste roller; then over a guide roller 28 carried by the paste receptacle; then under a guide roller 29 carried by the frame 10, and thence is carried through said frame for engagement with the box blank. The frame 10 travels through the arched structure 21, and mounted on a rock shaft 30 journaled in the same, is a yoke arm 31 having fingers 32 with upwardly extending points 33, projecting from the end of the same and lying normally adjacent the blank to be covered. The end of the paper to be applied to the box is engaged by these points and maintained in such position until delivered to transfer means and from the latter to the box blank. The arm 31 is operated at regular intervals by means to be described hereinafter.

Disposed within the frame 10, is a standard 35 having a base 36 with ribs 37 adapted to slide in grooves 38 in the table 1, which standard is actuated by the frame 10 at the ends of its reciprocative movement; in the one instance to carry means holding the end

of the paper to the box to be covered, and in the other instance to return said means to the original position for fresh engagement with said paper. For this purpose
 5 said base 36 is provided with side projections 39, and the frame 10 is slotted at 40 for the accommodation of said projections, the ends of said slots engaging the latter and imparting movement in each direction
 10 to said standard.

In Fig. 7, the frame 10 is shown as moved to its full extent toward the chuck carrying the box blank, together with the standard 35, which carries the transfer mechanism for
 15 engaging the paper and taking the same from the points of the fingers 32. The upper part of the standard 35 carries bearings 41 for the passage of rods 42 having a cross piece 43 carrying fingers 44 with down-
 20 wardly projecting points 45, to which the paper is to be transferred from the points 33. The transfer mechanism is actuated by the rearward movement of the frame 10. Disposed adjacent the standard 35 and
 25 mounted in its base is a vertically movable rod 46 having projections 47 for engagement by cam slots 48 formed in the side walls of the frame 10. As said frame is retracted, the projections 47 are carried by the cam
 30 slots in an upward direction, which moves the rod toward the points 33 of the fingers 32 carrying the paper. This rod also carries a step or projection 49, and as it rises, said step engages the end 50 of a bell crank lever
 35 pivoted at 51; the opposite ends 52 of said bell crank lever engaging the cross piece 43 connecting the rods 42; the continued movement of said rod pushing said arms rearwardly so as to bring the fingers 44 with
 40 their points 45 directly over the upper portion of said rod 46. This portion of the rod is channeled at 53 for the passage of the fingers 32 having the points 33 in engagement with the paper and said portion serves
 45 to strip the paper from said points and apply it to the points 45 of the fingers 44. As the frame 10 continues its rearward movement to the position shown in Fig. 9, the rod 46 descends under the control of cam
 50 slots 48 of the frame, and this movement releasing the bell crank lever, permits said rods 42 to be carried forward with the points 45 of its fingers 44 in engagement with the end of the paper until the latter is brought
 55 directly over the edge of one of the box blanks as shown in Fig. 10, and it is then ready to be applied to said blank.

For the purpose of attaching the end of the paper to the edge of the box blank, I
 60 provide vertically movable gripping mechanism mounted in the base of the standard 35. This mechanism comprises a table 55 to engage the under side of the blank, and a stripping or presser member 56 to engage
 65 the upper portion of the blank for remov-

ing the paper from the points 45 of the fingers 44 in its action and thereby securing it to the box blank. This mechanism is normally upheld by means of projections
 57 of the member 56 adapted to cam slots 70 58 in the side walls of the frame 10. When the frame moves rearwardly a slight distance beyond the position shown in Fig. 9, these projections come opposite vertical por-
 75 tions 59 of said cam slots and then the members 55 and 56 will be operated. This is accomplished by means of a spring 60 normally compressed by the inactive position of said members, and this spring serves to
 80 directly raise the table or support 55. In order that this movement may be communicated to the member 56, I provide pinions 61 for engagement with racks 62 and 63 carried by said members, whereby the upward
 85 movement of the member 55 will cause downward movement of the member 56. The stripping or presser member 56 is notched at 64 to pass the fingers 44, and in Fig. 10 this member is shown just after it
 90 has secured the paper to the box blank. The frame 10 is now retracted to the full extent as shown in Fig. 3, restoring the standard 35 and its operatively connected parts to
 95 the normal position, ready for fresh engagement with the paper when another blank is to be covered.

The form or chuck to receive the box blank is indicated at 65. The end of the paper strip having been applied thereto in
 100 the manner indicated, the mechanism which has been employed to attach the paper thereto is retracted until it is necessary to apply said paper to a fresh blank, leaving the
 105 fingers 32 with their points 33 in position ready for fresh engagement with the end of said paper strip. The form or chuck carrying the blank is then revolved until the
 110 paper has been applied to all four sides of said blank and then the paper is cut, and the last edge of the paper in engagement with the box is smoothed down. The form or
 115 chuck 65 is carried by a shaft 66, rotatably and slidably mounted in a bearing 67 and driven by a pinion 68 from a gear wheel 69 mounted on the shaft 5^a, which in turn is
 120 driven by the pinion 5 operated by the rack 8. Disposed adjacent the chuck 65, is a hollow plunger 70 which serves to turn in against the inner wall of the box blank the
 125 paper projecting at the open side of the same; the chuck carrying the blank being movable against said plunger for this purpose.

To cut the paper after it has been applied to the blank, the following means are em-
 125 ployed: Referring to Figs. 3, 4, 16 and 17, 71 represents a lever pivoted at 72 to the supporting base of the bearing 67. This lever 71 is in turn connected to a lever 73 pivoted
 130 at 74 on the side of the plunger 70; the op-

posite end of said lever being connected at 74^a to a rod 75 adapted to slide in a casing 76 having a flaring mouth 77. A pair of blades 78, normally held apart by a spring 79, are connected at 80 to said rod 75. When the rod 75 is retracted, the blades 78 will close, shearing the paper, and the mechanism for closing said blades is operated in a manner to be described.

In severing the paper, the shears cannot, of course, come closer than the width of the blade nearest the blank, and such cutting of the paper leaves a short edge to be turned down against the box, and this is accomplished by said blade in its final movement after cutting the paper. To render this action as easy as possible, such blade is provided with a smoothing surface 81 which is so arranged that it will not disturb the portion smoothed down when the blades are opened upon the retraction of the frames. The shears also carry means for insuring engagement of the end of the strip of paper with the points 33 of the fingers 32 carried by the yoke arm 31. Such means consists of a guard 82 pivoted to one of the blades and overlying the other blade; said guard being provided with a groove 83 arranged to lie directly over the points 33 of said fingers when the paper is severed. As the blades come together, the end of the paper will be pressed onto said points by said guard in the manner shown in Fig. 18.

After the paper applied to the box has been severed from the length extending from the roll, it is necessary to raise the yoke arm 31 carrying the fingers 32 having the points 33 in engagement with the end of the paper strip. Numerous ways of accomplishing this may be employed, one of which is shown in the accompanying drawings. The yoke arm 31 is carried by the rock shaft 30 to which movement is imparted to raise said yoke arm so that the frames 84 and 85 carrying means for turning in the projecting edges of the paper and for turning down the portion on the bottom of the blank can come forward to perform their work. Carried by the arched standard 21 is a bracket 86 having bearings 87 for a shaft 88; said shaft carrying at one end a pinion 89 and at the opposite end a bevel gear 90 for engagement with a bevel gear 91 carried by the rock shaft 30. To actuate this shaft the frame 84 carries a rack 92 for engagement with the pinion 89 when said frame moves forward, and this motion being imparted to the bevel gears 90 and 91 by the shaft 88, the yoke arm 31 is raised over the frames 84 and 85, the front one of which carries a guide-way or guard 93 for engagement therewith during this movement. When the frames are retracted, the pinion 89 is turned in the opposite direction until the yoke arm 31 has

been restored to its normal position. During this movement of said yoke arm, the fingers 32 at the end of the same still retain the end of the paper ready to apply the same to the next blank in the manner described. To prevent too great a lift of the yoke arm, the rack 92 is quite short, as it only requires a partial revolution of the shaft 88 to raise said yoke arm to the necessary height, and when the pinion is disengaged from the rack, the rack arm will be held by the guard 93. The next thing to be done is to turn in against the walls of the blank the projecting edges of the paper covering the same, and this is accomplished in the following manner: Arranged to move with respect to the blank and at right angles to the frame 10 are a pair of frames 84 and 85, secured together and spaced the proper distance apart by means of adjusting screws 95. These frames have projections or feet 96 adapted to grooves 97 in the bed or table 1, and are moved by arms 98 connected to eccentrics 99, mounted on a shaft 100 which is driven by the bevel gears 101 and 102, the latter mounted on the shaft 6^a carrying the pinion 6 which is driven by the rack 9.

The frame 84 has a series of radially movable arms 105, each of which is provided with pins or projecting members 106; said frame being so mounted as to be brought into a position surrounding the box blank. The arms 105 carrying the pins 106, are normally in the retracted position until said frame is brought into such position with respect to the projecting edges of paper that when said members are radially moved they will turn said paper over substantially at right angles to the side walls of the blank. To accomplish this, I provide cams 107 for engagement with said arms to move them in one direction; springs 108 being arranged to move them in the opposite direction. These cams are carried by shafts 109 journaled in the frame 84 and driven from each other by bevel gears 110; motion being imparted to one of said shafts by means of a pinion 111, which is brought into engagement with a fixed rack 112 when the frame 84 is moved forward. The frames 84 and 85 are then moved forward to their full extent so that the chuck carrying the blank is engaged by a wall 115 carried by the frame 85, which moves said chuck and blank into engagement with the plunger 70 which enters the box and presses down the turned-over edge of paper against the inner wall of the same, holding the paper in such position until it has engaged said wall. The pins 106 are held in engagement with the paper during this action, and to permit the plunger 70 to operate, it is slotted at 116 for the passage of said pins. While this turning in of the paper is taking place, the bottom of the box

is disposed opposite the frame 85 carrying rollers 117 which are radially movable and which are arranged to be moved out against the projecting portion of the paper at the bottom of the box and lay the same down against said bottom; said rollers being operated simultaneously, or independently in pairs, so that the action of one pair will not interfere with the action of the other pair. These rollers are operated by cams 118 driven in the same manner as the cams 107, and springs 119 are provided to hold them in the inactive position. The blank having now been covered with paper, the several elements are retracted; the covered box removed, and a fresh blank applied to receive the covering in the manner described.

The shears for severing the paper are operated by a foot or projection 120 carried by the frame 84 and arranged to engage the lower end of the lever 71 when said frame comes forward for the purpose of embracing the blank and turning in the projecting edge of the paper. This foot is so arranged that after it has actuated the shears, it will disengage from the lever 71 and slide under the same, whereupon the shears will open. On the retraction of said frame, said foot 120 will be carried back and will be in position for operation of the shears when the frame 84 comes forward again.

In order to move the yoke arm 31 to the position shown in dotted lines, Fig. 3, it must pass the projections 47 carried by the rod 46 and to permit this action, the arm has an offset portion 121 slotted at 122 so that when moved to said dotted position, it will not interfere with the projections.

While I have shown the frame 10 as actuated by a pair of links 13 from the face plates 16, it will be understood that a single face plate may be employed, having a single link centrally disposed with respect to said frame and connected thereto. The cam slots 58 of the frame 10 have the vertical portions 59 as indicated, permitting downward movement of the stripper member 56 when said vertical portion is brought opposite the projections 57 of the same, and this action takes place during the rearward movement of the frame 10. Upon the forward movement of this frame, the projections 57 must cross the gaps formed by the vertical portions 59 of the cam slots, and to do this I provide bridge pieces 125 pivoted at 126 to the frame and normally upheld by means of springs 127. When these bridge pieces are engaged by the projections 57, they will be moved down to the position shown in Fig. 20, permitting the passage of said projections.

When the chuck carrying the paper blank is moved toward the plunger for the purpose of turning in the projecting edges of the paper, it compresses the spring 128, which will return said chuck to its normal position

opposite the paper strip ready to receive another blank to be covered.

As the table 1 upon which the mechanism forming the subject of my invention is mounted is somewhat broad in its expanse, it is desirable to support the same, and for this purpose I have shown rollers 130 adapted to suitable rails; that adjacent the periphery of the table being indicated at 131, while the others may be the supports for the racks 7, 8 and 9.

The mechanism forming the subject of my invention is mounted upon a rotatable table, which, as described, is circular in form; and in the present instance carries three sets of such mechanism. To operate these several structures, the table is rotated by suitable means so that the pinions carried thereby are brought into contact with fixed racks disposed beneath the same, and these racks are so arranged that the actuation of the several parts of the mechanism will be synchronous for the purpose of carrying out the operation of covering boxes at three separate points.

I claim:

1. The combination, in a paper box covering machine, of a chuck to receive a box blank, means for rotating said chuck, a sliding frame, a source of paper supply, carrying means for the paper operated by said sliding frame and vertically movable, means controlled by said frame for removing the end of said paper from the carrying means and applying it to the blank.

2. The combination, in a paper box covering machine, of a rotatable chuck to receive a box blank, a source of paper supply, carrying means for maintaining the free end of said paper adjacent the blank including a reciprocable element, means for reciprocating said element, and vertically movable means controlled by said reciprocating means for removing the end of the paper from the carrying means and applying it to the blank.

3. The combination, in a paper box covering machine, of a rotatable chuck to receive a box blank, a source of paper supply, means for presenting the free end of said paper to the blank, means for removing the paper from the presenting means and applying it to the blank, means for tucking in the paper on the blank, means for severing the paper after it has been applied to the sides of the blank, and means whereby said severing means is operated by the tucking-in means.

4. The combination, in a paper box covering machine, of a rotatable chuck to receive a box blank, a paper roll, means for maintaining the free end of said paper adjacent the blank, means for removing the paper from the first mentioned means and applying it to the blank, means for severing the paper after it has been applied to the

latter, and means carried by the severing means for returning the paper to the first mentioned carrier of the same.

5 5. The combination, in a paper box covering machine, of a rotatable chuck to receive a box blank, a source of paper supply, means for presenting the free end of said paper to the blank, a sliding frame arranged to travel in line with the movement of said
10 paper, means controlled by said sliding frame for removing the paper from the presenting means and applying it to the blank, means for tucking in the paper on the blank, means for severing the paper after it has
15 been applied to the sides of the blank, and means whereby said severing means is operated by the paper tucking-in means.

6. The combination, in a paper box covering machine, of a rotatable chuck to receive the blank, a paper roll, means for maintaining the free end of said paper adjacent the blank, a sliding frame arranged to travel in line with said paper, means controlled by said sliding frame for removing the end of
20 the paper from the first mentioned means and applying it to the blank, means for severing the paper after it has been applied to the sides of the latter, and means carried by the severing means for returning the paper
25 to the first mentioned carrier of the same.

7. The combination, in a paper box covering machine, of a support for a box blank, means for feeding a strip of paper to said blank comprising a series of pins to engage
30 such strip from one side of the same, a second series of pins for taking the paper from the first series and applying it to the box, and means for removing the paper from the second series of pins.

40 8. The combination, in a paper box covering machine, of a support for a box blank, automatic means for feeding a strip of paper to said blank comprising a series of pins to engage such strip from one side of the
45 same, a second series of pins for taking the paper from the first series and applying it to the box, means for removing the paper from the second series of pins, and means for operating said several series of pins.

50 9. The combination, in a paper box covering machine, of a holder for a box blank, means for applying paper to said blank comprising a traveling frame, paper engaging and paper releasing mechanism for operating
55 therewith, a supplementary frame carrying a part of the same, and means for operating said traveling and supplementary frames, one portion of the paper engaging and paper releasing mechanism being carried by said supplementary frame and operated by the movement of the traveling
60 frame.

10. The combination, in a paper box covering machine, of a holder for a box blank,
65 means for applying paper to said blank comprising

a traveling frame, a supplementary frame, two sets of paper engaging mechanisms, paper releasing mechanism, means for moving the main frame, and means cooperating therewith for moving the supplementary frame and actuating both sets of
70 paper engaging mechanisms and the paper releasing mechanism.

11. The combination, in a paper box covering machine, of a rotatable form for holding a box blank to receive a covering of
75 paper, a sliding frame, independent sets of pins operated by said frame for engaging said paper to present it to the box blank, and means for releasing the paper from one set
80 of said pins and applying it to the blank.

12. The combination, in a paper box covering machine, of a rotatable form for holding a box blank to receive a covering of paper, a sliding frame, independent sets of
85 pins for engaging paper to present it to the box blank, and means operated by said frame for applying said paper to the pins and for releasing the paper therefrom and applying it to the blank.
90

13. The combination, in a paper box covering machine, of a rotatable form for holding a box blank, means for applying paper to said blank, said paper projecting on both
95 sides of the same, a frame movable in line with the axis of rotation of said blank, and means carried by said frame for simultaneously turning in and securing to the blank the projecting edges of its paper covering.

14. The combination, in a paper box covering machine, of a rotatable form to receive a box blank, means for applying paper to
100 said blank, a moving frame, means for turning over the projecting portion of the paper at the open side of the box, carried by said moving frame and means for turning said paper in and securing it to the inside of the box.
105

15. The combination, in a paper box covering machine, of a chuck for a box blank, means for maintaining a supply of paper adjacent the blank, means for applying paste to said paper, means for applying said pasted
110 paper to the blank comprising a traveling frame, and two sets of paper engaging mechanisms and paper releasing mechanism operated by said frame, and means for effecting the reengagement of the paper with one set of said paper engaging mechanisms after
115 the blank has been covered.
120

16. The combination, in a paper box covering machine, of a rotatable blank holding chuck, means for maintaining a supply of paper adjacent the blank, a sliding frame, independent sets of pin points operated by
125 said frame for engaging said paper to present it to the box blank, and means for releasing the paper from said pin points and applying it to the blank.

17. The combination, in a paper box covering machine, of a rotatable blank holding
130

ering machine, of a rotatable blank holding chuck, means for maintaining a supply of paper adjacent the blank, a sliding frame having cam slots, means controlled by said cam slots for engaging said paper to present it to the box blank, and independent means operated by said frame for releasing the paper from said engaging means and applying it to the blank.

18. The combination, in a paper box covering machine, of a rotatable chuck to receive a box blank, means for applying paper to cover the sides of said blank, a moving frame apertured to pass over the blank, means carried thereby for turning over the projecting portion of the paper at the open side of the box, independent means for turning said paper in and securing it to the inside of the box, and means for turning the opposite projecting edge of the paper against the bottom of the box blank.

19. The combination, in a paper box covering machine, of a rotatable chuck to receive a box blank, means for applying paper to cover the sides of said blank, a moving frame, means carried thereby for turning over the projecting portion of the paper at the open side of the box, means arranged to telescope the chuck for turning said paper in and securing it to the inside of the box, and means carried by said moving frame for turning the opposite projecting edge of the paper against the bottom of the box blank.

20. The combination, in a paper box covering machine, of a chuck for the blank, means for applying paper thereto comprising a traveling frame having paper engaging and paper releasing mechanisms, said frame having cam grooves, projections carried by said mechanisms in operative engagement with said cam grooves, means for rotating said chuck to receive the paper, severing means for said paper lying adjacent the blank, and means for automatically operating said severing means at regular intervals.

21. The combination, in a paper box covering machine, of a chuck for the blank, means for applying paste thereto comprising a traveling frame having paper engaging and paper releasing mechanism, said frame having cam grooves, projections carried by said mechanisms in operative engagement with said cam grooves, means for rotating said chuck to receive the paper, automatically operated means for severing said paper at regular intervals, and means carried by said severing means for smoothing against the blank the projecting end of the paper applied thereto.

22. The combination, in a paper box covering machine, of a rotatable blank holding chuck, a sliding frame, means carried by said frame for engaging paper to present it to the box blank, means for engaging said

paper carrier to release the paper therefrom and apply it to the blank, a rotatable table carrying said frame, means for moving said table, and means for operating said sliding frame by the movement of the table.

23. The combination, in a paper box covering machine, of a rotatable blank holding chuck, a sliding frame, means carried by said frame for engaging paper to present it to the box blank, means for engaging said paper carrier to release the paper therefrom and apply it to the blank, a rotatable table carrying said frame, means for moving the table, a pinion carried by said table, a fixed rack for engaging said pinion, and means operated by said pinion for actuating the frame.

24. The combination, in a paper box covering machine, of a chuck for the blank, means for applying paper thereto comprising a traveling frame having paper engaging and paper releasing mechanisms, said frame having cam grooves, and projections carried by said mechanisms in operative engagement with said cam grooves, a rotatable table carrying said chuck, gearing for rotating the chuck and the blank carried thereby so that paper may be pasted on the surface of the same actuated as said table is moved, means for moving the table, and means actuated by the movement of said table for turning in the projecting edges of the paper on said blank.

25. The combination, in a paper box covering machine, of a chuck for the blank, means for applying paper thereto comprising a traveling frame having paper engaging and paper releasing mechanisms, said frame having cam grooves, and projections carried by said mechanisms in operative engagement with said cam grooves, a rotatable table carrying said chuck, gearing for rotating the chuck and the block carried thereby so that paper may be pasted on the surface of the same actuated as said table is moved, means for moving the table, a fixed rack, a pinion for operating said gearing arranged to engage said rack when the table moves, and automatically operated means for turning in the projecting edges of the paper on said blank also actuated by said rack.

26. The combination, in a paper box covering machine, of a rotatable form to receive the blank, means for applying paper to said blank, a movable frame, means carried thereby for turning over the projecting portion of the paper at the open side of the box, means for moving the form, and telescoping means arranged to enter the blank to turn said paper down and secure it to the inside of the box.

27. The combination, in a paper box covering machine, of a rotatable form to receive the blank, means for applying paper

to said blank, a movable frame, means carried thereby for turning over the projecting portion of the paper at the open side of the box, means for moving the chuck, and a
 5 plunger arranged to enter the blank to turn said paper down and secure it to the inside of the box.

28. The combination, in a paper box covering machine, of a rotatable chuck for a
 10 box blank, means for maintaining paper adjacent said blank, a sliding frame, means operated by said frame for attaching said paper to the blank, means for cutting said
 15 paper, means for turning the projecting edges of the paper, and means for elevating the paper carrier prior to such turning action.

29. The combination, in a paper box covering machine, of a rotatable chuck for a box
 20 blank, means for maintaining paper adjacent said blank, a sliding frame, means operated by said frame for attaching said paper to the blank, means for cutting the
 25 paper, means for turning the paper, a rock shaft supporting the paper carrier, and means actuated by the means for turning the paper for actuating said rock shaft to elevate the paper carrier.

30. The combination, in a paper box covering machine, of a rotatable chuck for holding
 30 a box blank, means for maintaining a supply of paper adjacent said blank, a bed-plate supporting said chuck, a movable frame adapted to ways in said bed-plate,
 35 means for moving said frame back and forth, paper engaging and releasing means, and a supplementary frame operated by said movable frame for controlling said
 40 paper engaging and releasing means.

31. The combination, in a paper box covering machine, of a rotatable chuck for a
 40 box blank, means for maintaining a supply of paper adjacent said blank, a bed plate, a frame adapted to ways in the bed plate,
 45 means for moving said frame back and forth, paper carrying means, paper transferring means, and means controlled and operated by said frame for actuating said
 50 paper engaging and transferring means.

32. The combination, in a paper box covering machine, of a chuck for holding box
 50 blanks, means for maintaining a supply of paper adjacent said chuck, a sliding frame, a standard mounted independently of said
 55 frame but arranged to be moved thereby, paper engaging means carried by said standard, and means controlled and operated by the frame for shifting the paper to said
 60 engaging means.

33. The combination, in a paper box covering machine, of a chuck for holding box
 60 blanks, means for maintaining a supply of paper adjacent said chuck, a sliding frame, a standard mounted independently of said
 65 frame but arranged to be moved thereby,

paper engaging means carried by said standard, and means controlled and operated by the frame for shifting the paper to said engaging means, said frame having cam slots to effect such action. 70

34. The combination, in a paper box covering machine, of a rotatable chuck for the
 box blanks, means for applying paper to said blanks while on the chuck, said paper
 projecting laterally beyond the walls of the
 blank, a slidable frame movable at right
 75 angles to the line of movement of the covering paper, laterally moving members carried by said frame, and means carried by
 said members to turn over the projecting
 80 edges of the paper applied to the blank.

35. The combination, in a paper box covering machine, of a rotatable chuck for box
 blanks, means for applying paper to said
 blanks, said paper projecting beyond the
 85 edges of the blanks, a slidable frame, members movable toward and from the center of said frame carried thereby, and pins carried by said members to turn over the projecting
 90 edge of the paper.

36. The combination, in a paper box covering machine, of a chuck for a box blank,
 means for applying paper to said blank, a
 sliding frame movable to a position embracing
 said blank, members carried by said
 95 frame and movable toward and from the center of the same, means carried by said members for engaging projecting edges of the blank, cams for moving said members,
 shafts carrying said cams, and means for
 100 operating said cams.

37. The combination, in a paper box covering machine, of a chuck for a box blank,
 means for applying paper to said blank, a
 sliding frame movable to a position embracing
 said blank, members carried by said
 105 frame and movable toward and from the center of the same, pins carried by said members for engaging projecting edges of the blank, cams for moving said members,
 110 shafts carrying said cams, and means brought into operative engagement by the movement of the frame for operating said
 115 cams.

38. The combination, in a paper box covering machine, of a rotatable bed or table,
 blank receiving and rotating means, paper
 feeding means, means for applying the
 paper to the blank, means for turning over
 the projecting portions of the paper applied
 to the box blank, actuating mechanisms for
 said several means having driving elements
 disposed beneath said table, and fixed means
 also located below the table and in engagement
 120 with said driving elements of the actuating mechanisms, said mechanisms operating only when the table is rotated. 125

39. The combination, in a paper box covering machine, of a rotatable bed or table,
 blank receiving and rotating means, paper 130

feeding means, means for applying the paper to the blank, means for turning over the projecting portions of the paper applied to the box blank, actuating mechanism for said
 5 several means including pinions carried thereby and disposed beneath the table, and fixed racks also located below the table for engagement with said pinions, said co-acting means being brought into operative engage-
 10 ment by the movement of the table.

40. The combination, in a paper box covering machine, of a rotatable chuck receiving box blanks, means for rotating the same, means for feeding paper for application to
 15 said blank, means for severing the paper covering the blank from the supply of the same, and means carried by the paper severing mechanism for engagement with the projecting portion of paper on the blank
 20 whereby the latter may be smoothed into place.

41. The combination, in a paper box covering machine, of a rotatable chuck receiving box blanks, means for rotating the same, means for feeding paper for application to
 25 said blank, means for severing the paper covering the blank from the supply of the same, means carried by the paper severing mechanism for engagement with the projecting portion of paper on the blank
 30 whereby the latter may be smoothed into place, and means for reengaging the free end of the paper.

42. The combination, in a paper box cov-

ering machine, of a rotatable chuck for re- 35
 ceiving box blanks, a source of paper supply, a member arranged to engage said paper and present the same to the blank, means for detaching the paper from said
 40 engaging member and applying it to the blank, means for rotating the chuck carrying the blank, means for severing the paper, and means combined with such severing mechanism for reengaging the free end of the
 45 paper with the first mentioned member.

43. The combination, in a paper box covering machine, of a rotatable chuck for receiving box blanks, a source of paper supply, a member arranged to engage said paper and
 50 present the same to the blank, means for detaching the paper from said engaging member and applying it to the blank, means for rotating the chuck carrying the blank, means for severing the paper, means combined with such severing mechanism for re- 55
 engaging the free end of the paper with the first mentioned member, means for turning the projecting edges of the paper applied to the blank, and a telescoping member arranged to secure against the inner wall of 60
 the blank one of said projecting edges.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES W. MACDONALD.

Witnesses:

MURRAY C. BOYER,
 JOS. H. KLEIN.