

No. 688,876.

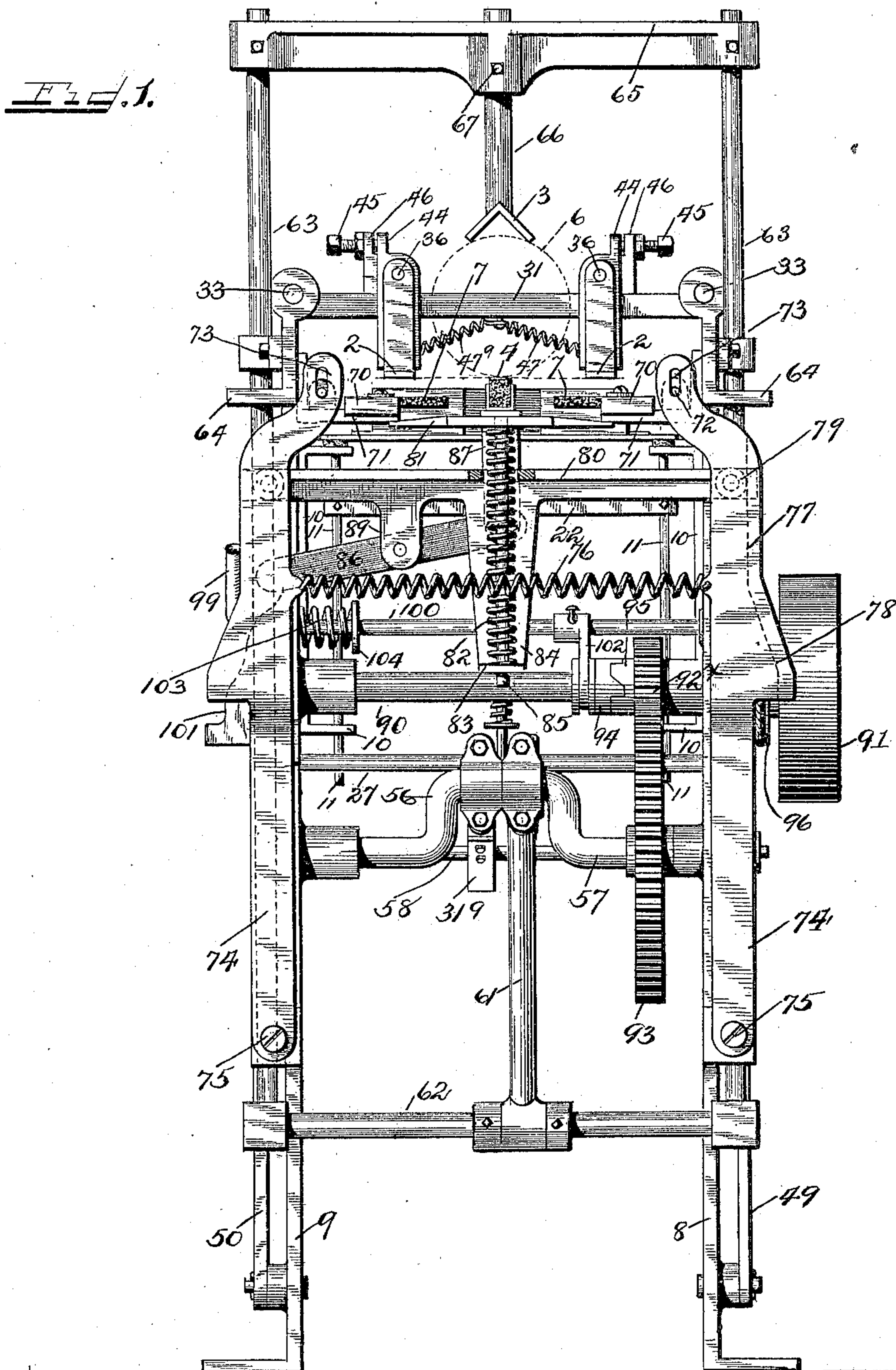
Patented Dec. 17, 1901.

E. T. MCKAIG.
LABELING MACHINE.

(Application filed May 26, 1900.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES

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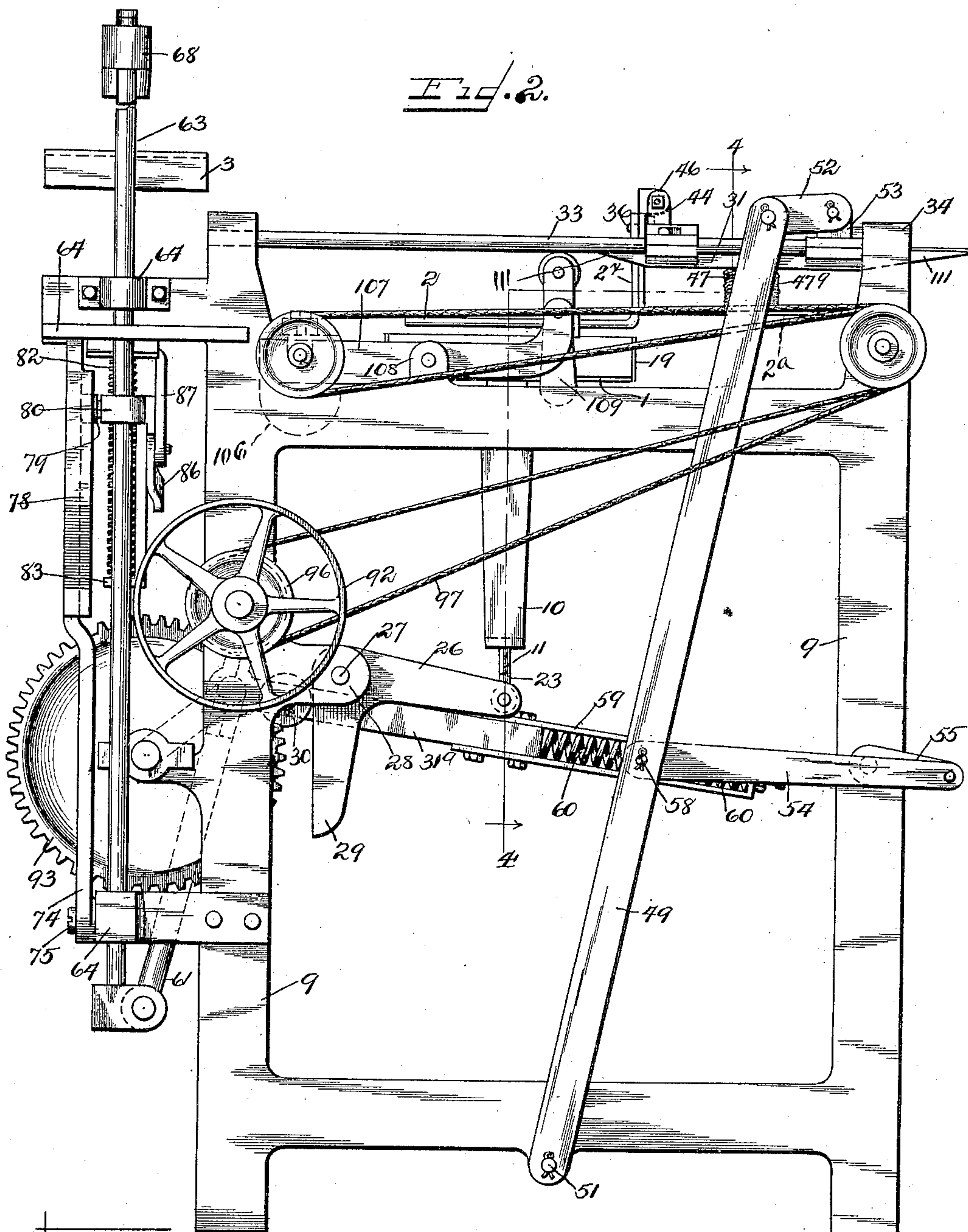
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5 Sheets—Sheet 2.



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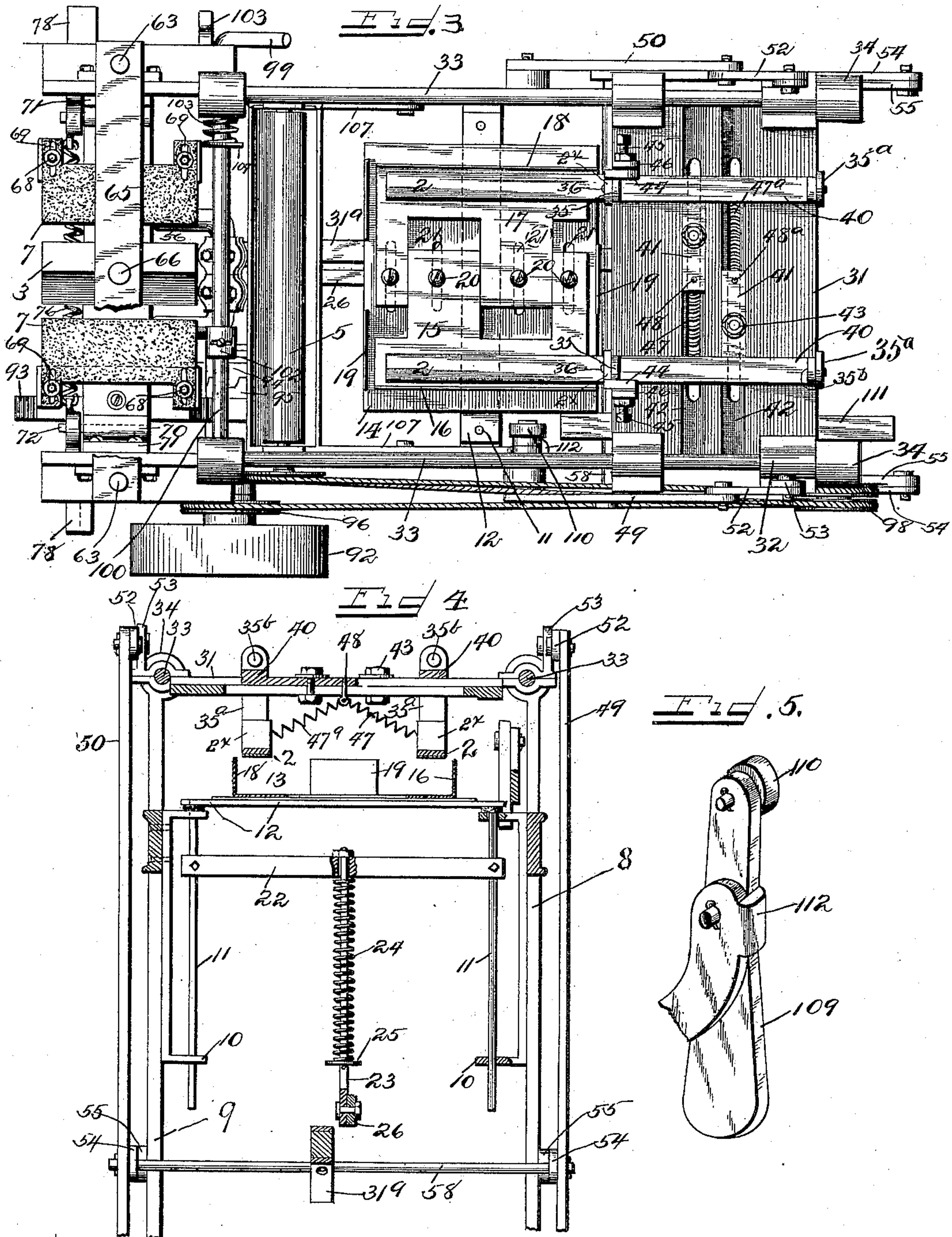
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5 Sheets—Sheet 3.



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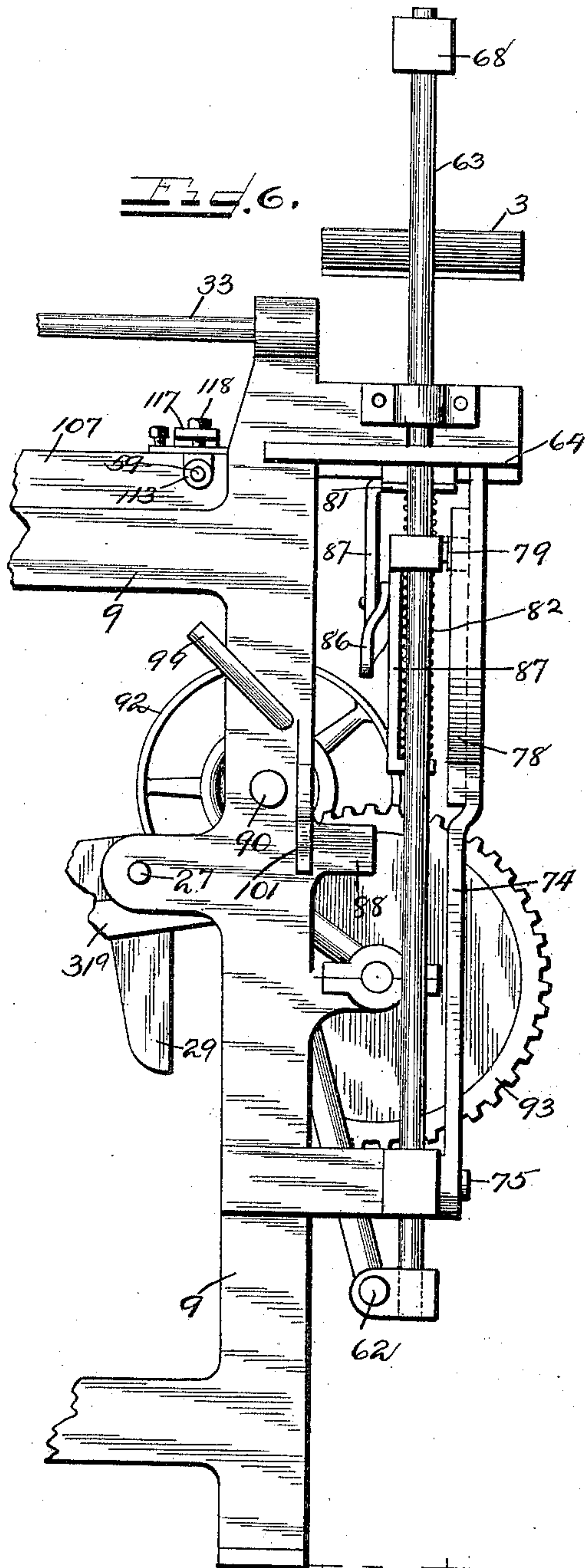
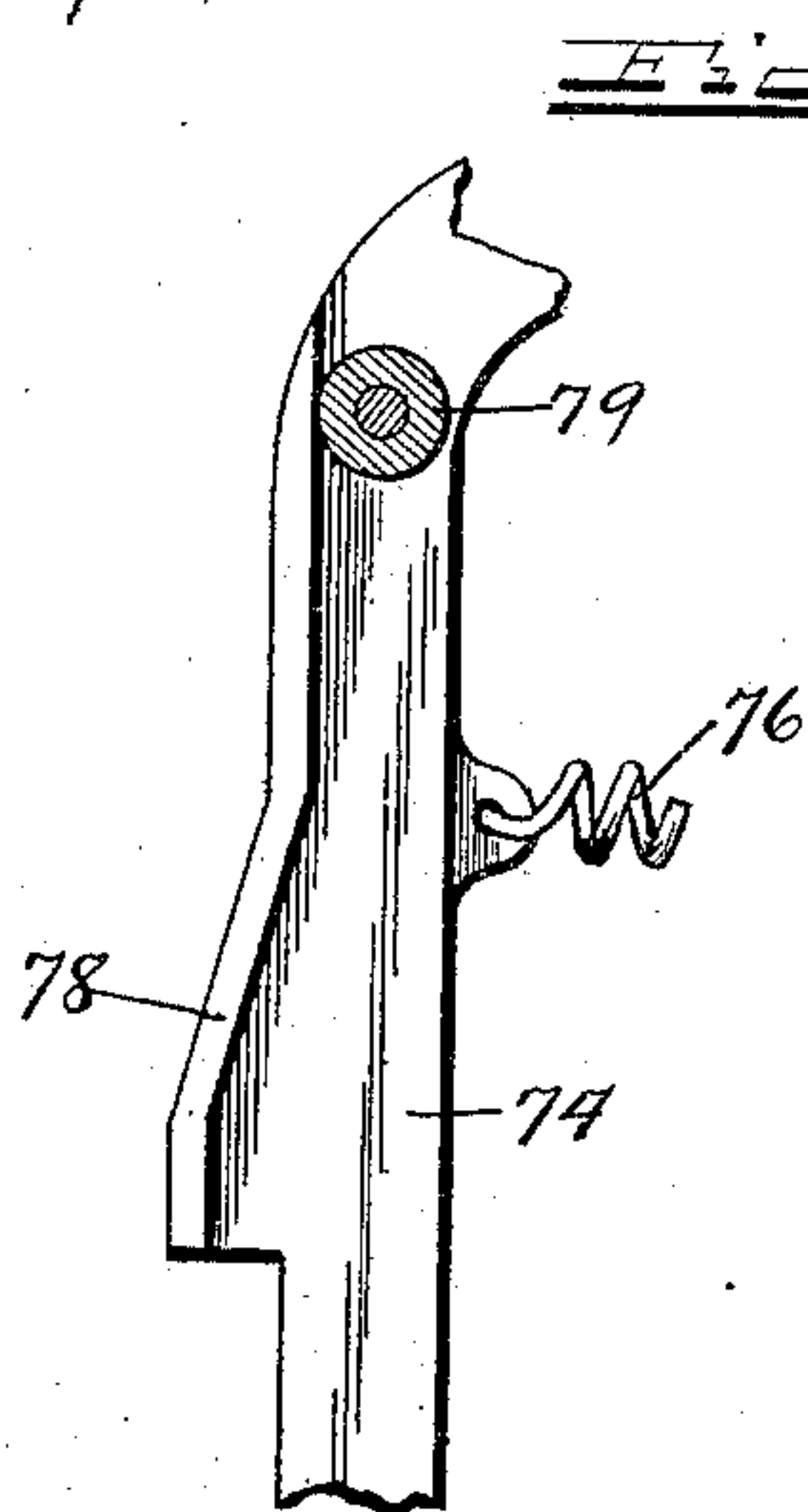
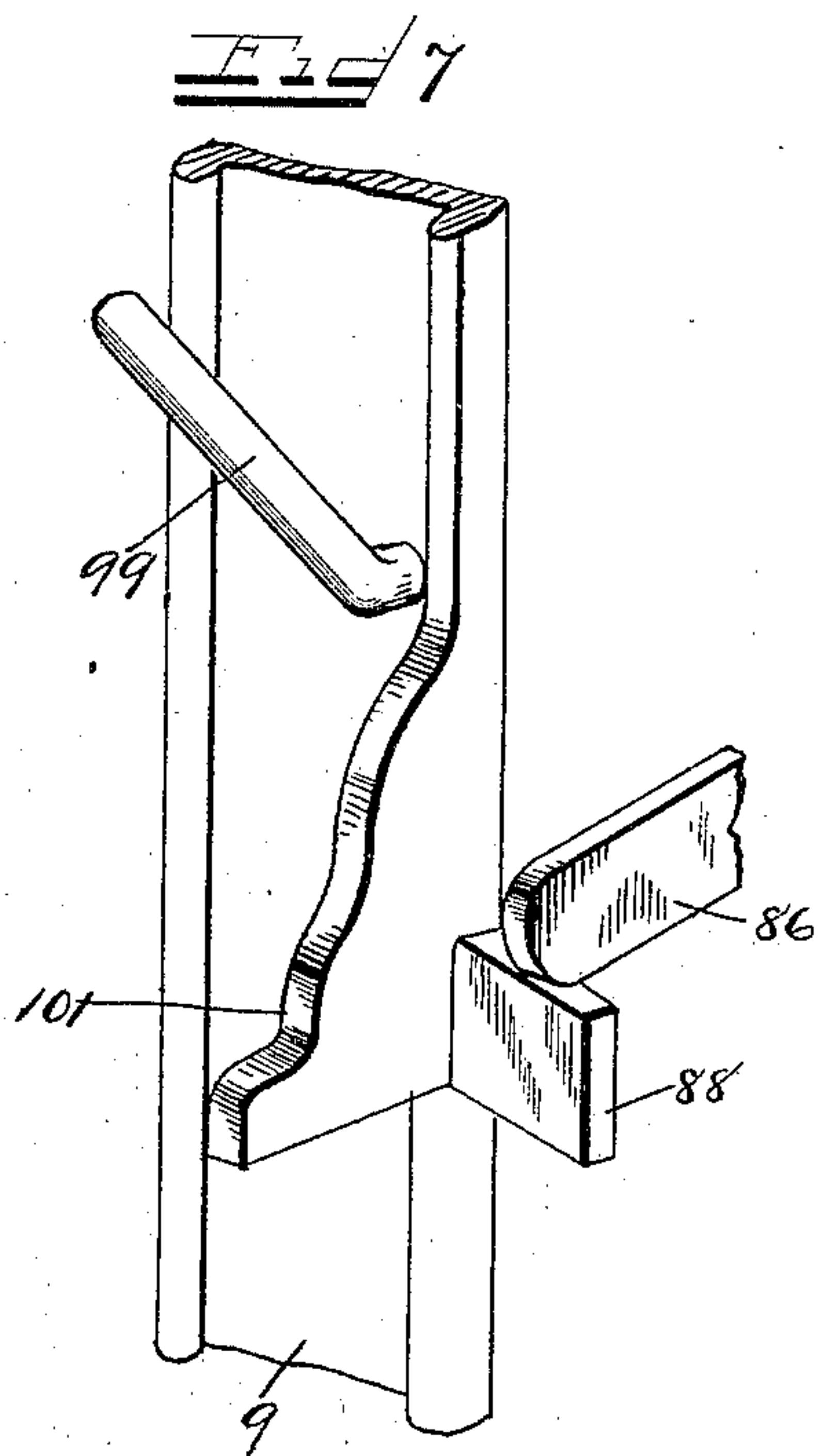
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5 Sheets—Sheet 4.



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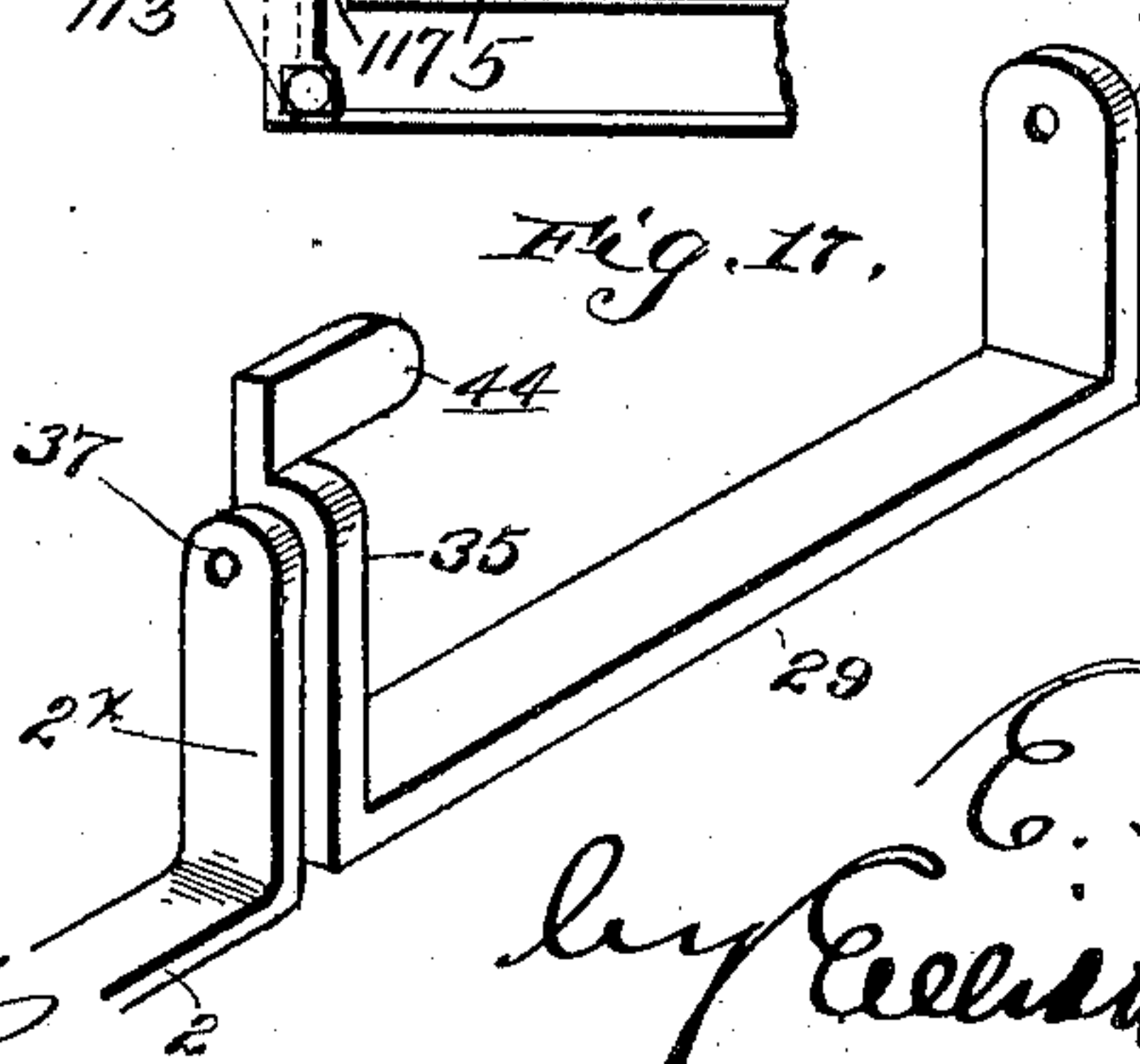
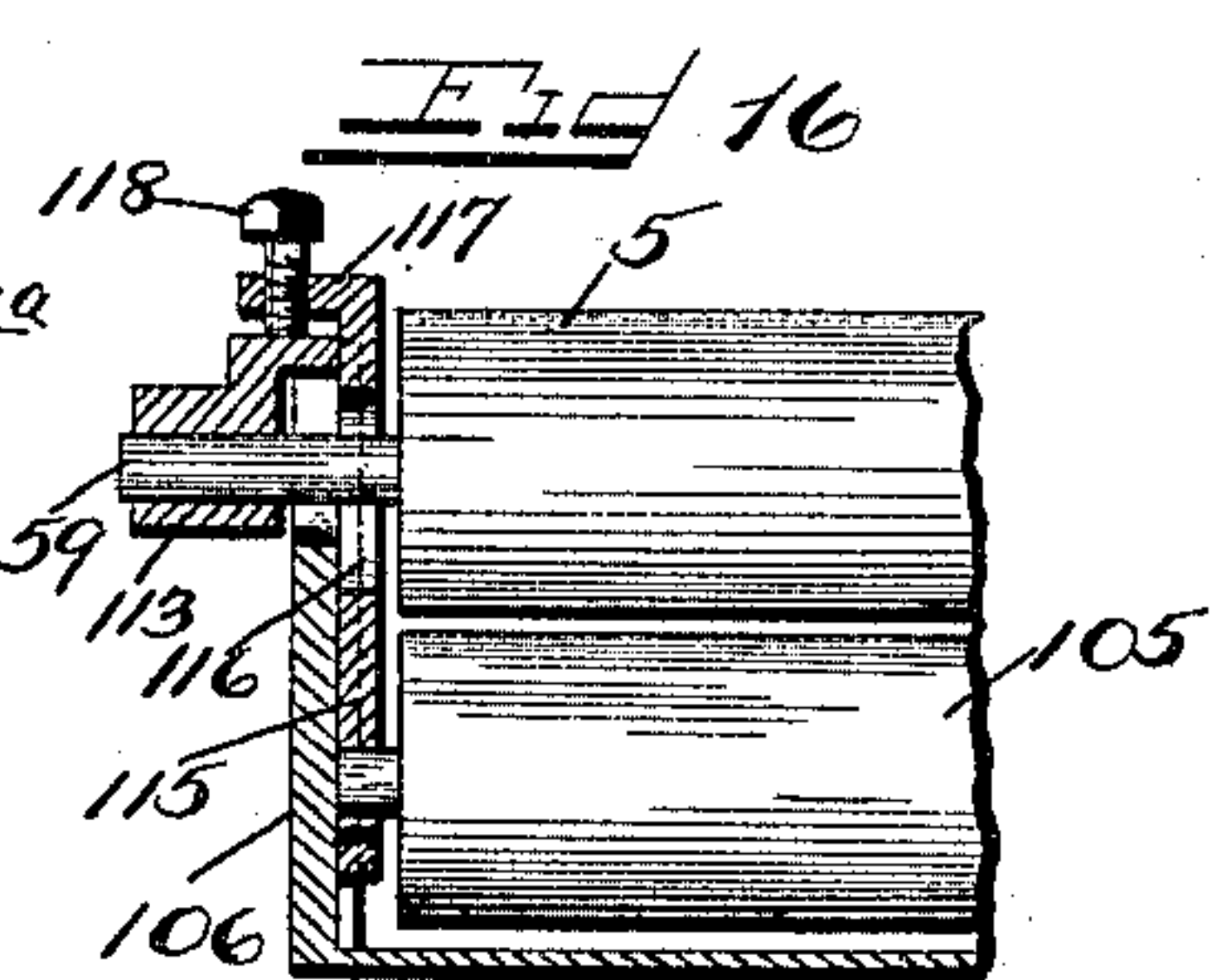
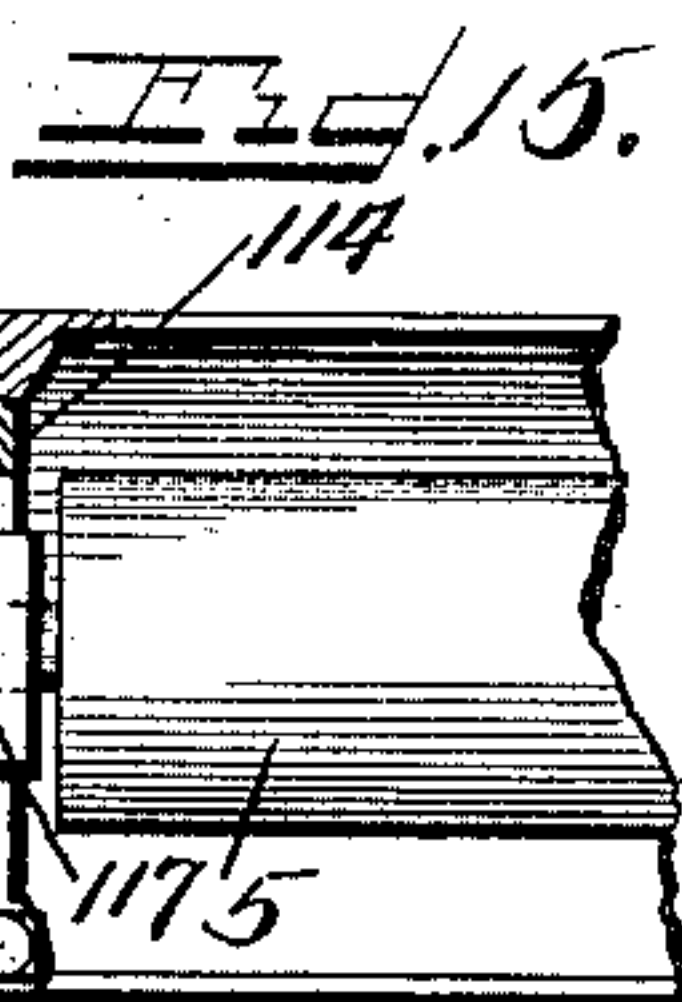
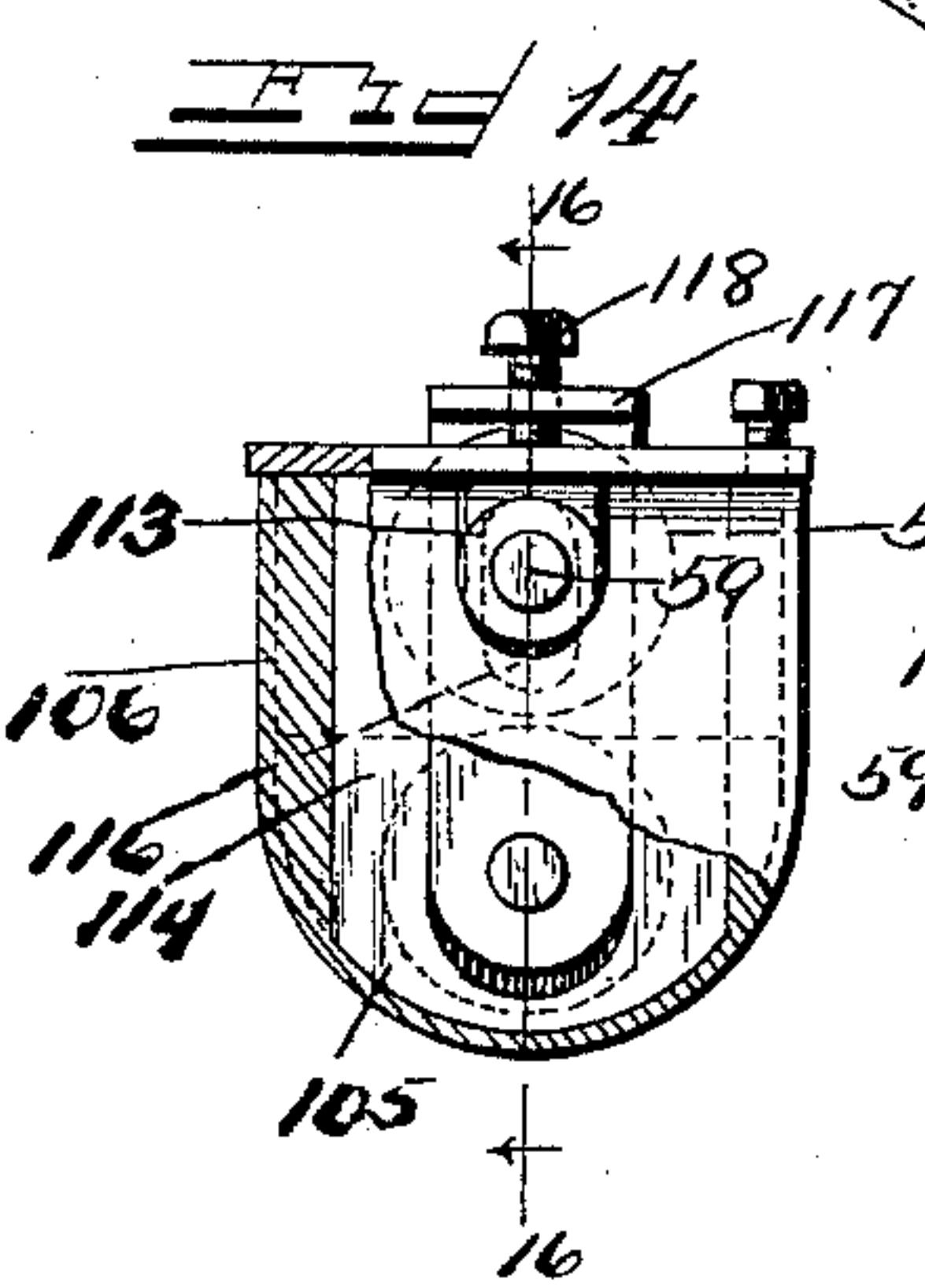
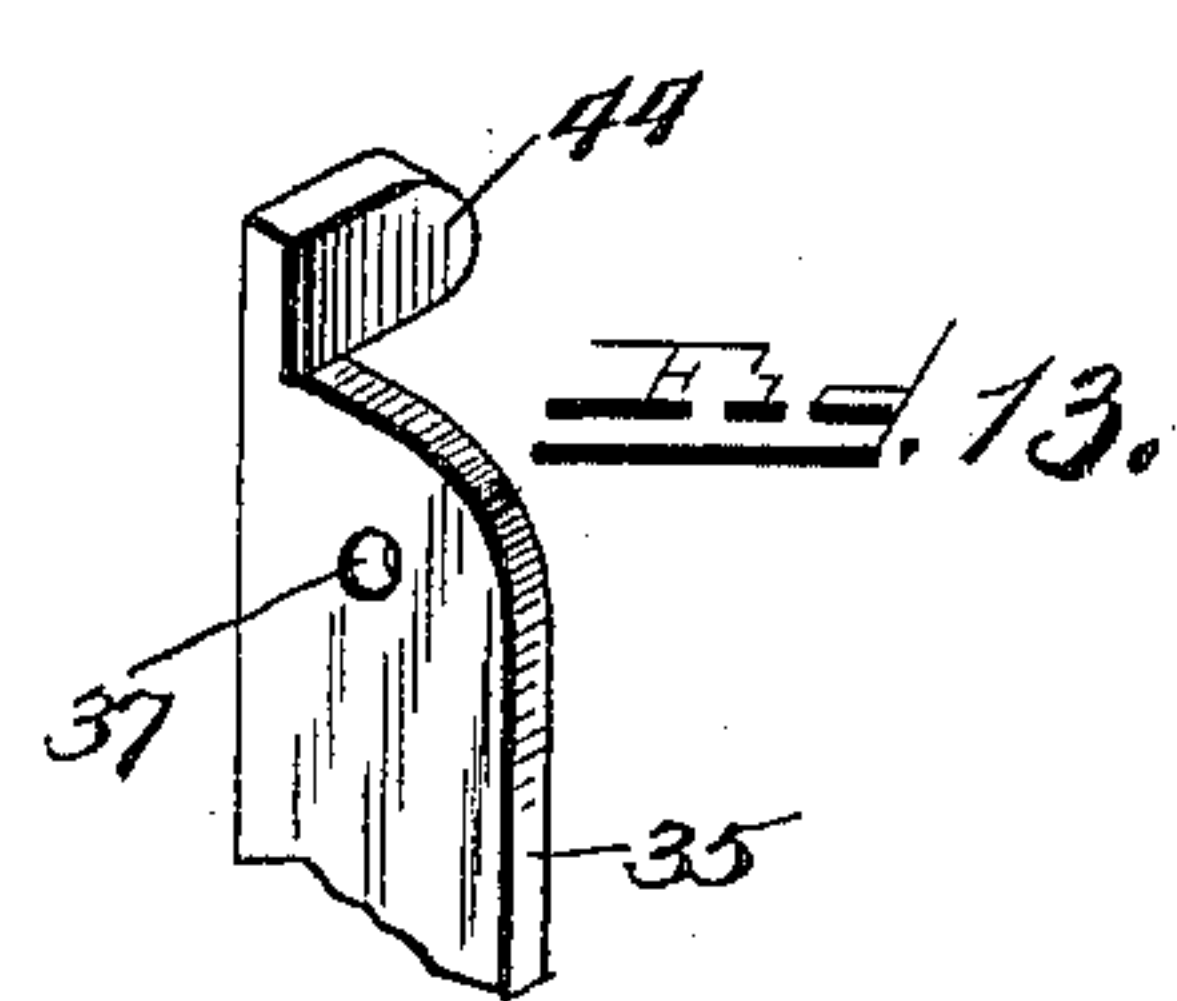
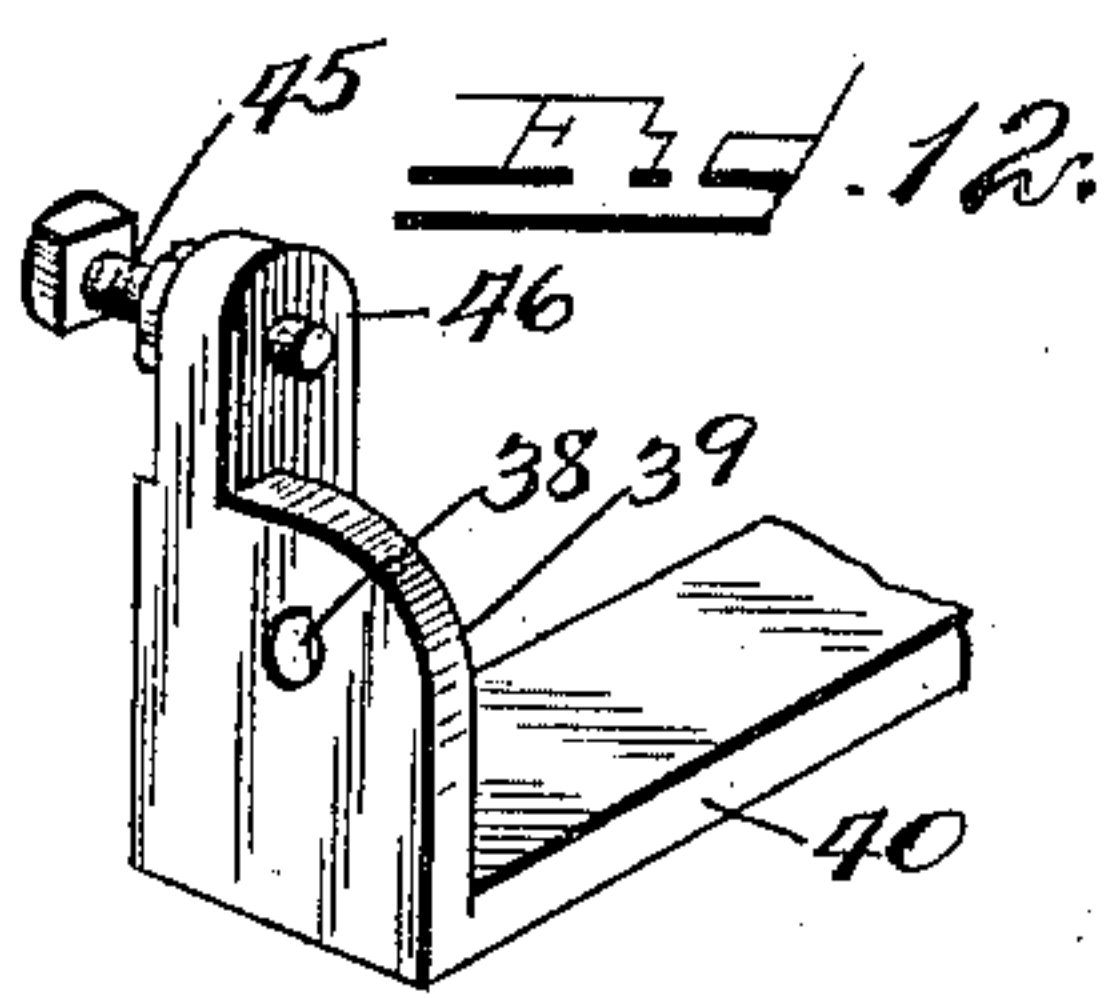
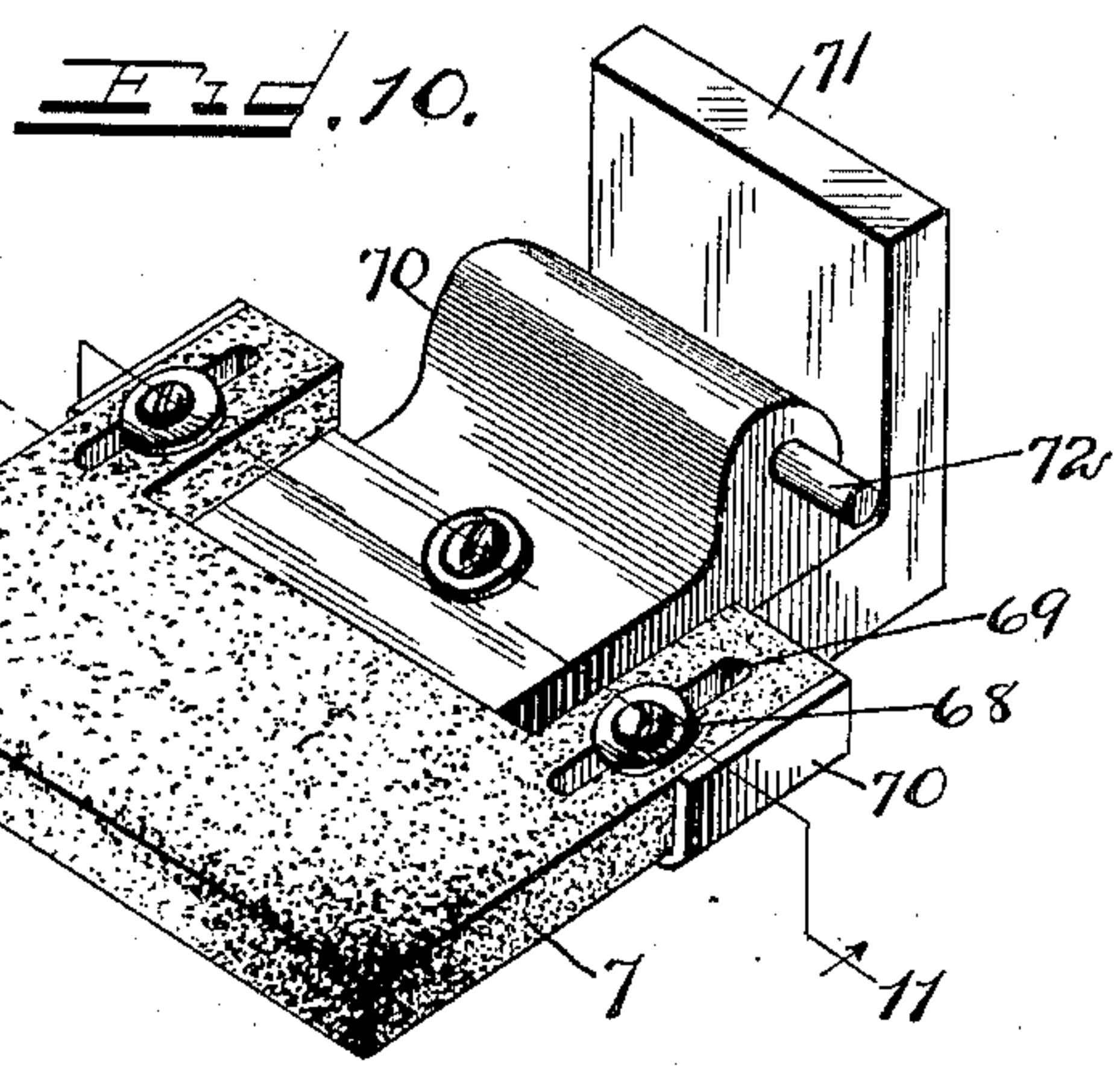
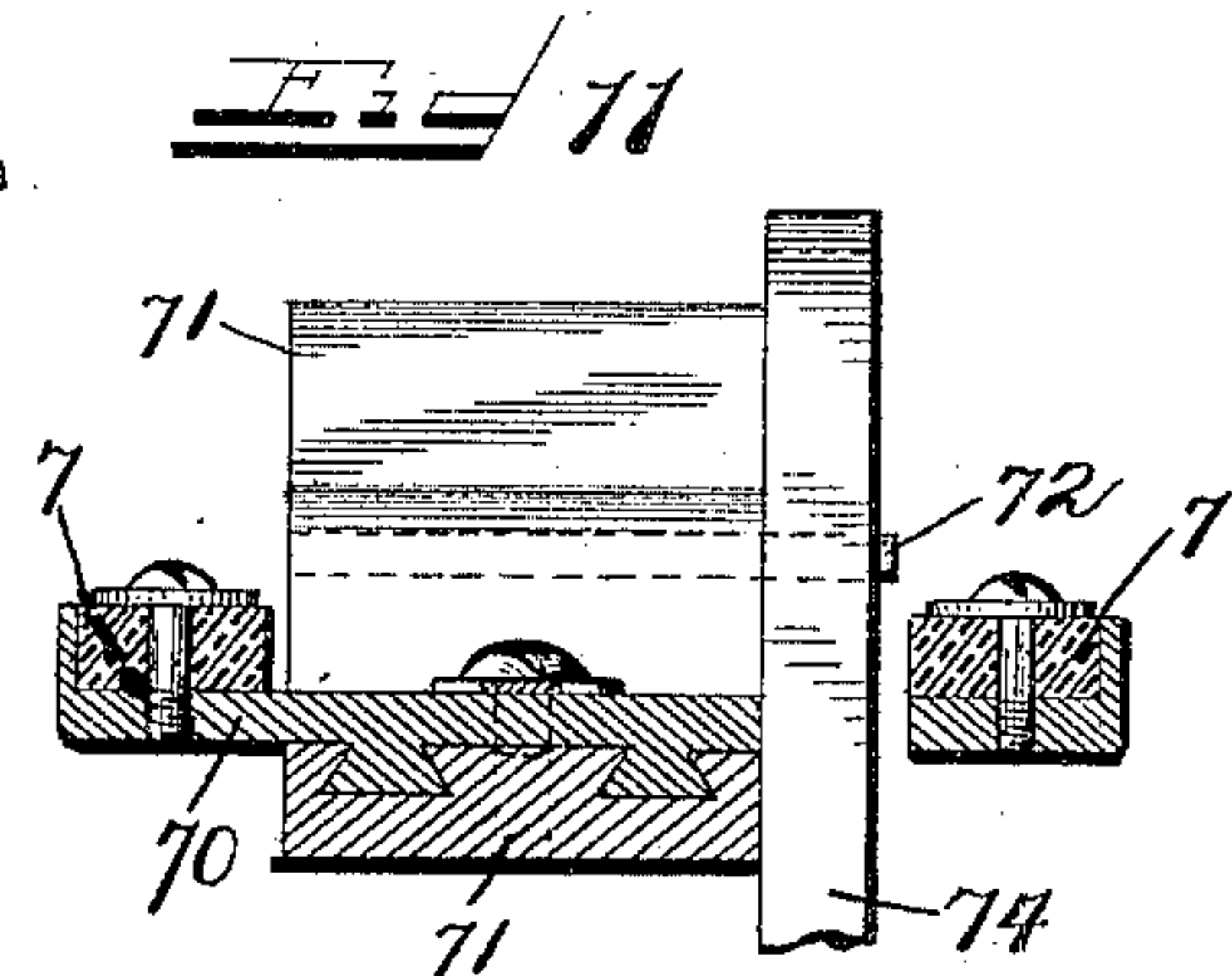
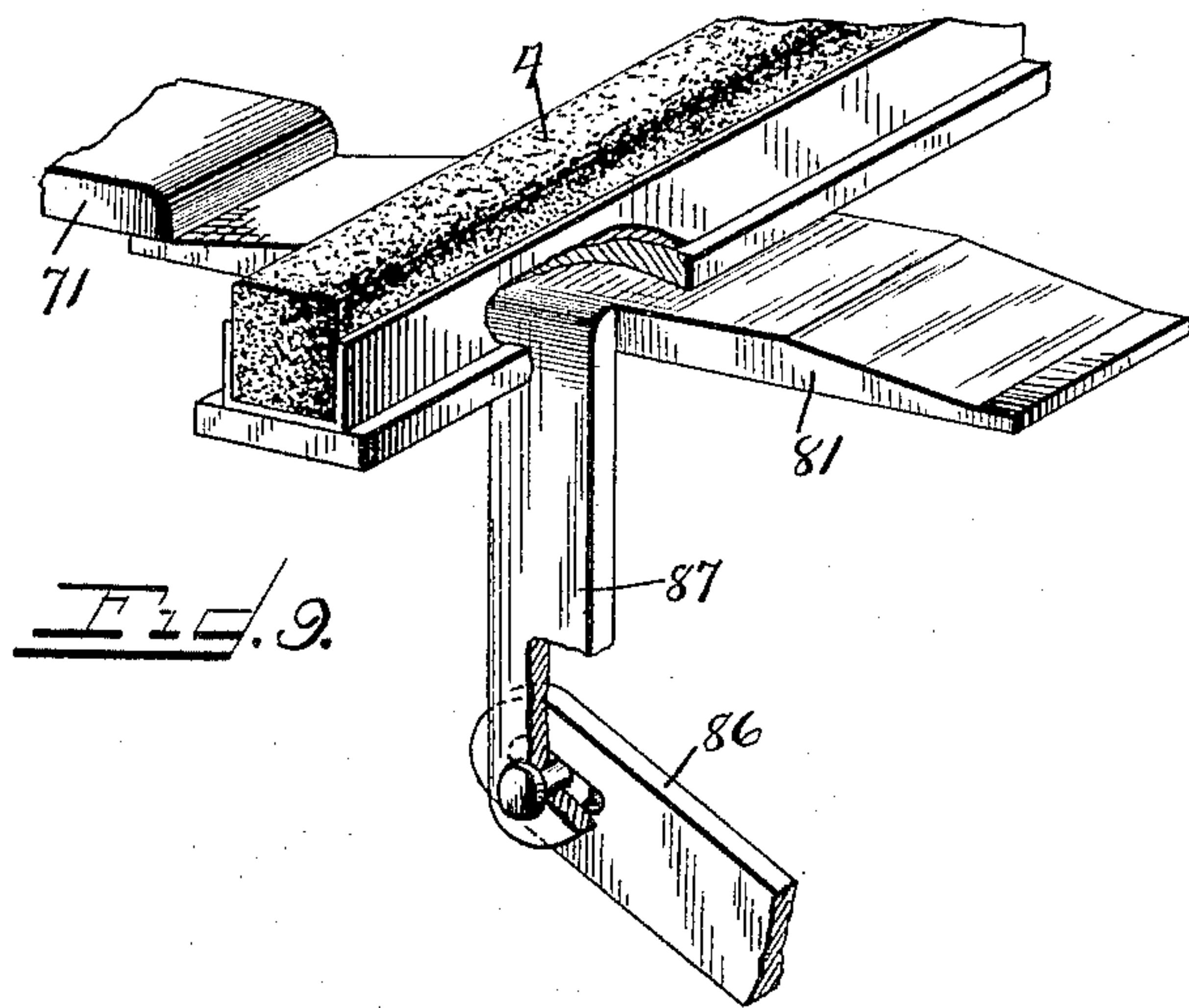
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(Application filed May 28, 1900.)

(No Model.)

5 Sheets—Sheet 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

EDDY THOMAS MCKAIG, OF CHICAGO, ILLINOIS, ASSIGNOR TO NEW YORK LABELING MACHINE COMPANY, A CORPORATION OF NEW YORK.

LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 688,876, dated December 17, 1901.

Application filed May 26, 1900. Serial No. 18,021. (No model.)

To all whom it may concern:

Be it known that I, EDDY THOMAS MCKAIG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Labeling-Machines, of which the following is a full, clear, and exact specification.

My invention relates to machines for labeling bottles, cans, and other packages; and it has for its primary object to provide improved means for applying paste to the labels and conducting the same to a point between a support for the package to be labeled and a presser-head which forces the package against the label and causes the latter to be smoothed out on the package as the latter descends in the grasp of the support and presser-head.

Another object of my invention is to cause the label to lap entirely around or substantially around the bottle or package, if necessary.

A further object of my invention is to provide means whereby the paste apparatus may be kept in motion while the label-applying mechanism is at rest, thus preventing the paste from deteriorating and the surfaces of the paste-rollers from becoming coated with hard paste and sticking together.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is a side elevation thereof. Fig. 3 is a plan view. Fig. 4 is a detail transverse section taken on the line 4 4, Fig. 2. Fig. 5 is an enlarged detail perspective view of a pawl, hereinafter described, for elevating the paste-fountain. Fig. 6 is a detail view of one end of the machine in side elevation looking from the opposite side of the machine to that presented in Fig. 2. Fig. 7 is an enlarged detail perspective view of one side of the frame, showing means for holding the paste-applying mechanism out of action

and also showing a trip whereby the movement of the bottle-support is accelerated, as will be hereinafter explained. Fig. 8 is an enlarged detail view of one of the arms or levers by which the label-smoothing members are forced toward each other. Fig. 9 is a detail perspective view of the bottle-support and a portion of the lever by which it is carried downwardly. Fig. 10 is a perspective view of one of the label-smoothing members. Fig. 11 is a transverse sectional view taken on the line 11 11, Fig. 10. Fig. 12 is a detail perspective view of the adjusting-arm of one of the label-carrying fingers. Fig. 13 is a support therefor. Fig. 14 is an end elevation, partly in section, of the paste-fountain. Fig. 15 is a plan view of one end thereof, partly in section. Fig. 16 is a vertical longitudinal sectional view of one end thereof, and Fig. 17 is a perspective view of one of the label pasting and carrying fingers and connected parts hereinafter described.

In describing and claiming my invention I shall use the term "bottle" as a generic term, meaning any package or object capable of being labeled by this machine.

The labels are placed upon a label-support 1, which is caused to rise and fall at the proper time and to force the uppermost one of the labels against the bottom faces of a pair of label carrying and pasting fingers 2, which reciprocate back and forth between a point over the label-holder and a point under a presser-head 3, which is directly over a bottle-support 4, and between which support and label-holder 1 is arranged a paste-fountain having a paste-applying roller or member 5, which rises at the proper time and coats the bottom faces of the fingers 2 with paste, so that when the label-holder forces the uppermost label against the fingers 2 it will adhere thereto, and the fingers will then conduct it to a point between the presser-head 3 and the bottle-support 4 and there hold it until the bottle (shown in dotted lines at 6) is placed upon it under the head 3, whereupon the head 3 descends and forces the bottle and label together downwardly between a pair of label-smoothing members 7, which smooth the label around the bottle and cause the paste to adhere. After the bottle has passed or substantially passed

the label-smoothers 7 the movement of the bottle-support 4 is accelerated so as to release the grip on the bottle and permit the latter to be withdrawn, the bottle being preferably held by the neck by the operator during the labeling operation.

8 9 represent the side members of the main frame, which are provided on their inner sides with guide-lugs 10, through which pass a pair of guides or rods 11, upon the upper ends of which is secured a cross-bar 12, which supports the label-holder 13. The label-holder 13 consists of a bottom plate 14, upon which is secured on one side a plate 15, having a vertical flange 16, and on the other side a plate 17, having a vertical flange 18, the plate 14 being provided on opposite sides with vertical flanges 19, and such vertical flanges being for the purpose of sustaining the labels, as will be understood. The plates 15 17 are adjustable transversely with relation to each other by virtue of set-screws 20, which pass through slots 21 in the bottom plate 14, thereby adapting the device for use with labels of different width.

The guide-rods 11 are connected together by a cross-head 22, through which loosely passes the upper end of a sliding rod 23, which has sleeved upon it a coil-spring 24, the latter having a support 25 on the rod 23 and serving to support the cross-head 22 at its upper end. The lower end of the rod 23 is pivoted to one arm 26 of a bell-crank lever, which is secured to a shaft 27, journaled in brackets 28, and has its other arm 29 arranged in the path of a friction-bowl 30, moving back and forth with a connecting-rod 31^a, so that as the rod 31^a reciprocates the motion of the bowl 30 will oscillate the bell-crank lever, and consequently lift the label-holder 1 and force the labels thereon against the under side of the fingers 2, the spring 24 absorbing the surplus motion of the arm 26 after the labels have come to rest against the fingers 2.

The fingers 2 are supported upon a cross-head 31, having slides 32 running on horizontal guide-rods 33, which are supported in bosses 34 on the side frames 8 9 of the machine. Each of the fingers 2 is provided with a flange 2^x, secured to an upwardly-extending arm 35, (see Figs. 13 to 17,) which is pivoted by pin 36, passing through perforation 37 and a perforation 38 to a standard 39, formed on a plate 40, which extends across the cross-head 31, and each of these plates 40 is provided with a slide 41, mortised in grooves 42 in the cross-head 31 and provided with set-screws 43, whereby the slides 41 may be locked to any desired adjustment, thus providing means for adjusting the fingers 2 with relation to each other and making them correspond to the width of the labels to be applied. Each of the arms 35 is provided with a lug 44, which projects rearwardly over the top of the standard 39 and comes opposite the inner end of a set-screw 45, threaded in a boss 46, formed on the upper end of the standard

39, so that by turning the set-screw 45 the upper ends of the arms 35 may be forced toward each other, and as a consequence the fingers 2 forced apart. The fingers 2 are normally strained toward each other by means of springs 47 47^a, secured at their lower ends to horizontal extensions 2^a, projecting from the lower ends of arms 35, and which extensions 2^a project rearwardly under the cross-head 31 and are bent up at their rear ends, as shown at 35^a, and pivoted to ears 35^b on the rear ends of plates 40, formed on or secured to slides 41, respectively. The upper ends of springs 47 47^a are attached to lugs 48 48^a on the bottoms of the slides 41. By this means the angularity or plane of the operative faces of the fingers 2 may be adjusted with relation to the plane of the label-holder for causing the fingers to conform to the surface of the labels.

The cross-head 31 is reciprocated on its guide-rods 33 by means of levers 49 50, one of which is arranged on each side of the machine and pivoted at 51 to the bottoms of the frames 8 9, respectively. The upper ends of these levers 49 50 are provided with links 52, which are pivoted to lugs 53 on opposite ends of the cross-head 31, and at about the mid-length of each of the levers 49 50 is pivoted one end of a connecting-rod 54, whose other end is pivoted to a short crank 55, pivoted to the side frames. This crank 55 is of sufficient length when multiplied by the levers 49 50 to throw the fingers 2 from a position over the label-holder to a position directly under the presser-head 3, and the levers 49 50 derive their motion for producing this movement from connecting-rod 31^a, which is pivoted at its forward end to a crank 56 on a shaft 57; but as the movement of the crank 56 is required to be greater than the movement of the levers 49 50 at the points where they connect with the rod 31^a (in order that the crank 56 may be utilized for producing the longer movement of the presser-head 3) the rod 31^a is provided with a yielding medium in its connection with the levers 49 50. I accomplish this by connecting the levers 49 50 together by means of a cross-rod 58, which passes through a strap 59, secured to the end of the rod 31^a, and on each side of the rod 58 is arranged a cushion or coil-spring 60, so that the levers 49 50 will move with the rod 31^a until the limit of the stroke of crank 55 is reached, whereupon the further movement of the rod 31^a will be absorbed by one or the other of the springs 60, according to the direction in which the rod 31^a happens to be moving. By this cushioning means, in conjunction with the cranks 55, I provide an easy movement for the reciprocating cross-head 31 and avoid all shock and jar. The crank 56, as before intimated, is of sufficient length to impart the requisite rising-and-falling movement to the presser-head 3, and this connection is effected by means of a connecting-rod 61, pivoted at its upper end to the crank 56 and at its lower end to a cross-bar

62, whose opposite ends are connected to vertical rods 63, sliding in guides 64, and connected at their upper ends to a cross-head 65, in which a stem 66 of the presser-head 3 is adjustably secured by means of set-screw 67.

The label-smoothing members 7, which are preferably flat blocks of rubber or felt, are adjustably secured by means of set-screws 68 and slots 69 to slides 70, dovetailed in supporting-brackets 71, secured to the frame in any suitable manner, and each of these slides 70 is provided with a pivot-pin 72, over which engages the upper slotted end 73 of a vertical arm 74, pivoted at 75 to the side frame of the machine, one of these arms being arranged on each side, as clearly shown in Fig. 1, and they are connected together by a spring 76, which strains them toward each other. The inner face of each of the arms 74 is provided with a camway 77, which flares outwardly or is offset at 78, and engaging in these camways are friction-rollers 79, carried on opposite ends of a rising-and-falling cross-head 80, which descends with the presser-head 3. Thus it will be seen that after the bottle has passed downwardly between the smoothing members 7 a sufficient distance to bring the friction-rollers 79 opposite the offset 78 in the camways the spring 76 will draw the smoothing members 7 together over the top of the bottle, and as a consequence lap the label entirely around the bottle, if necessary.

The bottle-support 4 is supported upon a cross-plate 81, which strikes against the under sides of the brackets 71, and thus limits the upward movements of the bottle-support. This cross-plate 81 is supported by a spiral spring or other cushion 82, which in turn is supported on a lug 83, formed on the lower end of a depending arm 84, constituting a part of the cross-head 80 and having a perforation for the passage of a rod 85, which passes through the spring 82 and is connected to the cross-plate 81, so that the cross-plate 81 and bottle-support 4 may be depressed independently of the cross-head 80. As the presser-head 3 comes down, the cross-head 80, which is secured to the guide-rod 63, moves downwardly in unison with it and also carries downwardly the bottle-support 4; but after the bottle has descended past the label-smoothing members 7 and it is desired to remove the bottle the bottle-support 4 is accelerated in its downward movement to a rate of speed greater than the movement of the presser-head 3 by means of a lever 86, pivoted at one end to an arm 87, depending from the cross-plate 81 and having its other end arranged in a position to strike against a lug 88, formed on the side member 9 of the frame, as clearly shown in Fig. 7. The lever being pivoted to a hanger 89 on the bottom of the cross-head 80, it follows that when the lever engages the lug 88 the bottle-support 4 will be lowered faster than the head 3 and the bottle released.

90 is the driving-shaft, provided with driv-

ing-pulley 92 and loose pinion 92^x, which meshes with gear 93 on shaft 57 and drives the shaft 57 when a clutch member 94, keyed to shaft 90, is forced into engagement with its companion member 95, attached to the pinion 92^x, and when the clutch member 94 is out of engagement the shaft 57 will cease to rotate, and as a consequence the label-applying mechanism will remain at rest while a driving-pulley 96 on the shaft 90 will continue to drive the upper one of the paste-rollers 5 through the intermediary of a belt 97, running over idler 98, and thus keep the paste in proper condition and prevent the same from hardening on the surface of the rollers. The clutch 94 may be thrown out of engagement by means of a lever 99, secured to shaft 100 and having its end arranged so as to be forced outwardly and pull the shaft 100 lengthwise by means of a cam 101, secured to the side of the frame, the shaft 100 being provided with an arm 102, operatively connected to the clutch member 94, as usual, and the shaft 100 also having a spring 103, which returns the shaft 100 to its normal position when the lever 99 is raised. The spring 103 bears between the side of the frame and a collar 104 on the shaft 100.

Arranged below the upper paste-roller 5 is a second feed-roller 105, both rollers being located in a trough 106, which is supported in horizontal arms 107, pivoted at 108 to the side frames of the machine. The other ends of these arms carry pivoted pawls 109, whose lower ends are weighted for the purpose of holding the pawls upright, as better shown in Fig. 5, while their upper ends are provided with friction-rollers 110, adapted to be engaged by cam-surfaces 111 on the lower side of the cross-head 31 when the cross-head returns toward the label-holder, and thus depress the arms 107 and lift the paste-trough to a position where the fingers 2 will drag over the paste-roller 5 and become coated with paste. When the cross-head 31 moves in the opposite direction, however, the pawls 109 will simply be deflected on their pivots and the paste-fountain will not be raised, the arms 107 being provided with lugs 112, which prevent the pawls 109 from being deflected when the cross-head moves in the opposite direction. The journals 5^a of the roller 5 are mounted in bearings 113, projecting over the ends of the trough 106 and formed on plates 114 and recessed in the ends of the trough, and the journals of the roller 105 are each mounted in a slide or plate 115, which is straddled by the plate 114 and which has a slot 116, through which the journal 5^a of the upper roller passes, the upper end of the plate 115 being carried above the upper end of the plate 114 and thence deflected outwardly, as shown at 117, so as to overhang the support 113, whereby a set-screw 118 may be passed downwardly through the overhang 117 and supported upon the support 113, thus providing means for adjusting the lower roller

with relation to the upper roller, whereby the amount of paste carried up by the upper roller may be regulated to a nicety.

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

1. In a labeling-machine the combination of a presser-head, a label-support depressible by the movement of said head, means for holding a label between said support and head, means for smoothing the label against the bottle, means for accelerating the movement of the bottle-support after the label has passed the smoothing means, substantially as set forth.

2. In a labeling-machine the combination of a presser-head, a label-support depressible by the movement of said head, means for holding a label between the head and support, means for smoothing the label against the bottle, a lever connected to said support and a trip with which said lever engages for accelerating the movement of said support after it has moved in unison with the presser-head a certain distance, substantially as set forth.

3. In a labeling-machine the combination of a presser-head, a bottle-support, a spring supporting said support, a lever connected with said support and carried therewith, a trip with which said lever engages for lowering said support faster than the presser-head and means for holding the label between the support and presser-head, substantially as set forth.

4. In a labeling-machine the combination of a presser-head, a reciprocating label carrier and paster, means for limiting the movement of the same, a crank operatively connected to said presser-head and a yielding operative connection between said crank and carrier, substantially as set forth.

5. In a labeling-machine the combination of a presser-head, a reciprocating label carrier and paster, a crank operatively connected to said presser-head, a crank of different length of stroke than the stroke of said first crank, operatively connected with said carrier, and a yielding operative connection between said cranks, substantially as set forth.

6. In a labeling-machine the combination of a rotary paste-applying member, a driving-

shaft operatively connected therewith, label-applying devices and a disengageable connection between said shaft and label-applying devices, whereby said paste-applying member may be permitted to operate continuously while the label-applying devices are at rest, substantially as set forth.

7. In a labeling-machine the combination of a paste-trough, a roller arranged therein, a second roller arranged under said first roller, supports in which the lower roller is journaled, and adjusting means at the upper ends of said supports whereby the lower roller may be raised with reference to the upper roller, substantially as set forth.

8. In a labeling-machine the combination of a paste-trough, two rollers arranged therein, slides in which the lower one of said rollers is journaled having a slot or opening through which the journals of the upper one of said rollers pass, a support in which the journals of the upper one of said rollers are journaled and set-screws in said slides supported upon said supports whereby said slides may be adjusted relatively, substantially as set forth.

9. In a labeling-machine the combination of a bottle-support, a presser-head for forcing the bottle against said support, label-smoothing members between which the bottle passes, pivoted levers or arms connected with said label-smoothing members, means for straining said arms toward each other, studs movable in unison with said presser-head and camways formed on said arms for the engagement of said studs, said camways having offsets for permitting the said arms to approach each other when said studs come opposite said offsets, substantially as set forth.

10. In a labeling-machine the combination of means for holding a supply of labels, a label-carrier comprising a plurality of flat fingers having their faces presented toward the labels on said holder and means for adjusting the operative faces of said fingers to different planes or angles with reference to the plane of the label-holder, substantially as set forth.

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Witnesses:

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