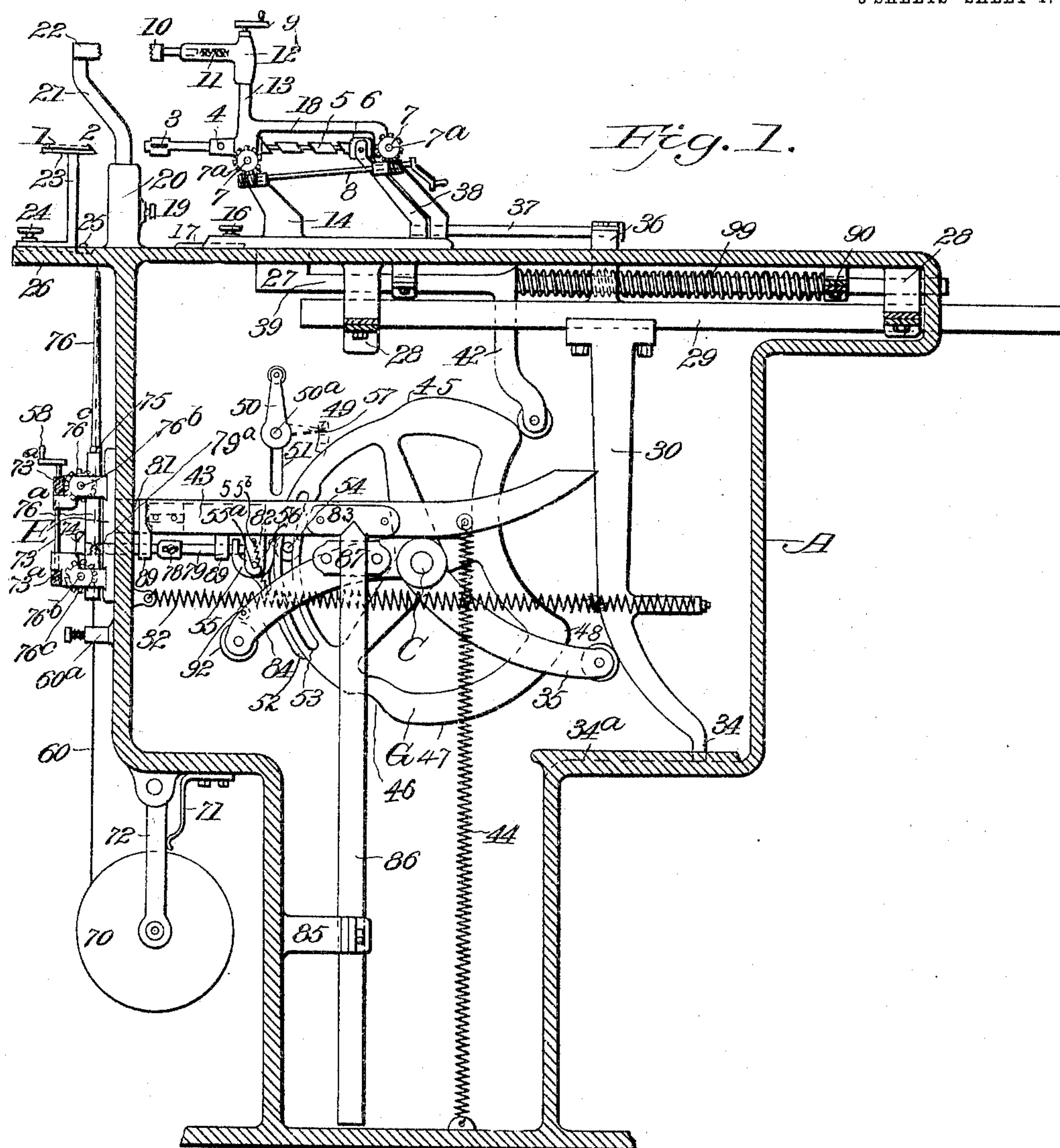


No. 784,150.

PATENTED MAR. 7, 1905.

W. W. FULLER.  
MACHINE FOR WIRING TAGS.  
APPLICATION FILED MAR. 3, 1904.

5 SHEETS—SHEET 1.



*WITNESSES:*

C. N. Walker,  
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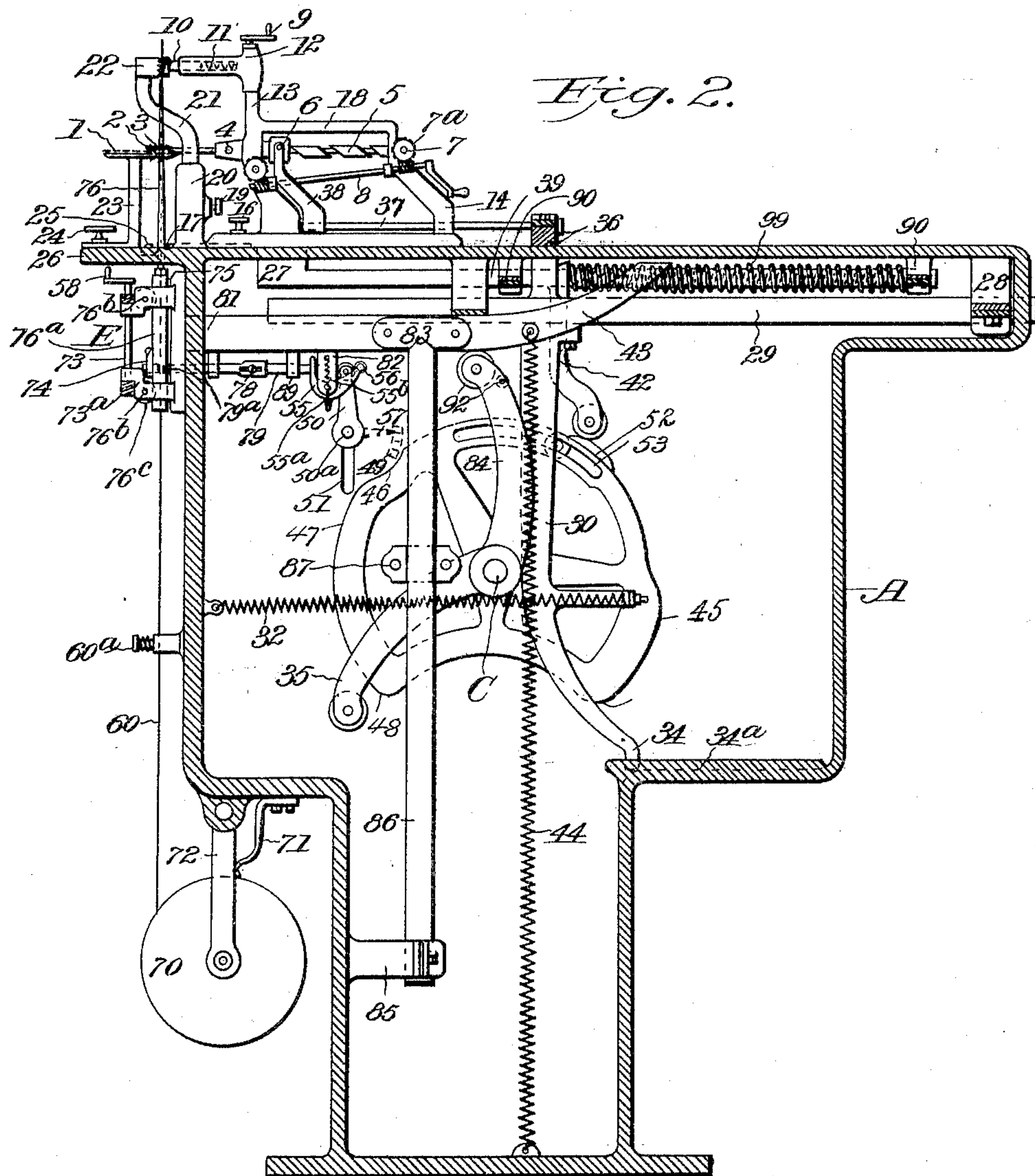
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5 SHEETS—SHEET 2.



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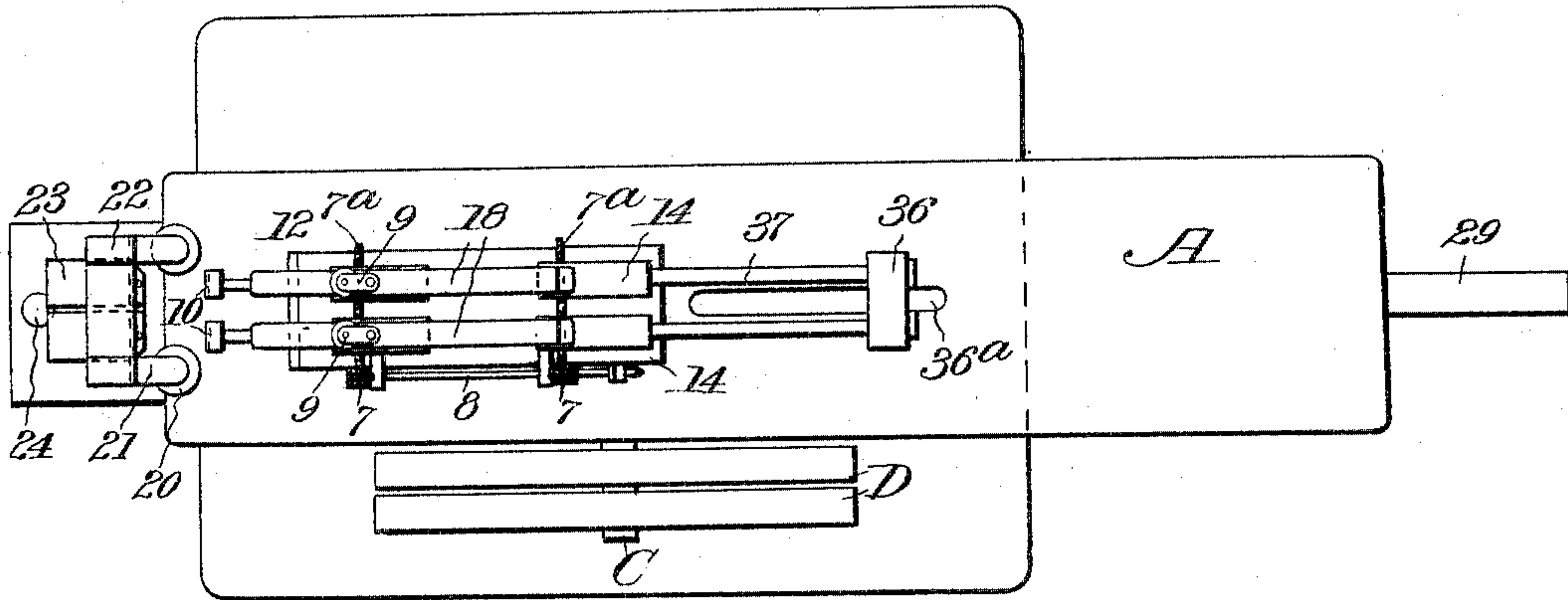
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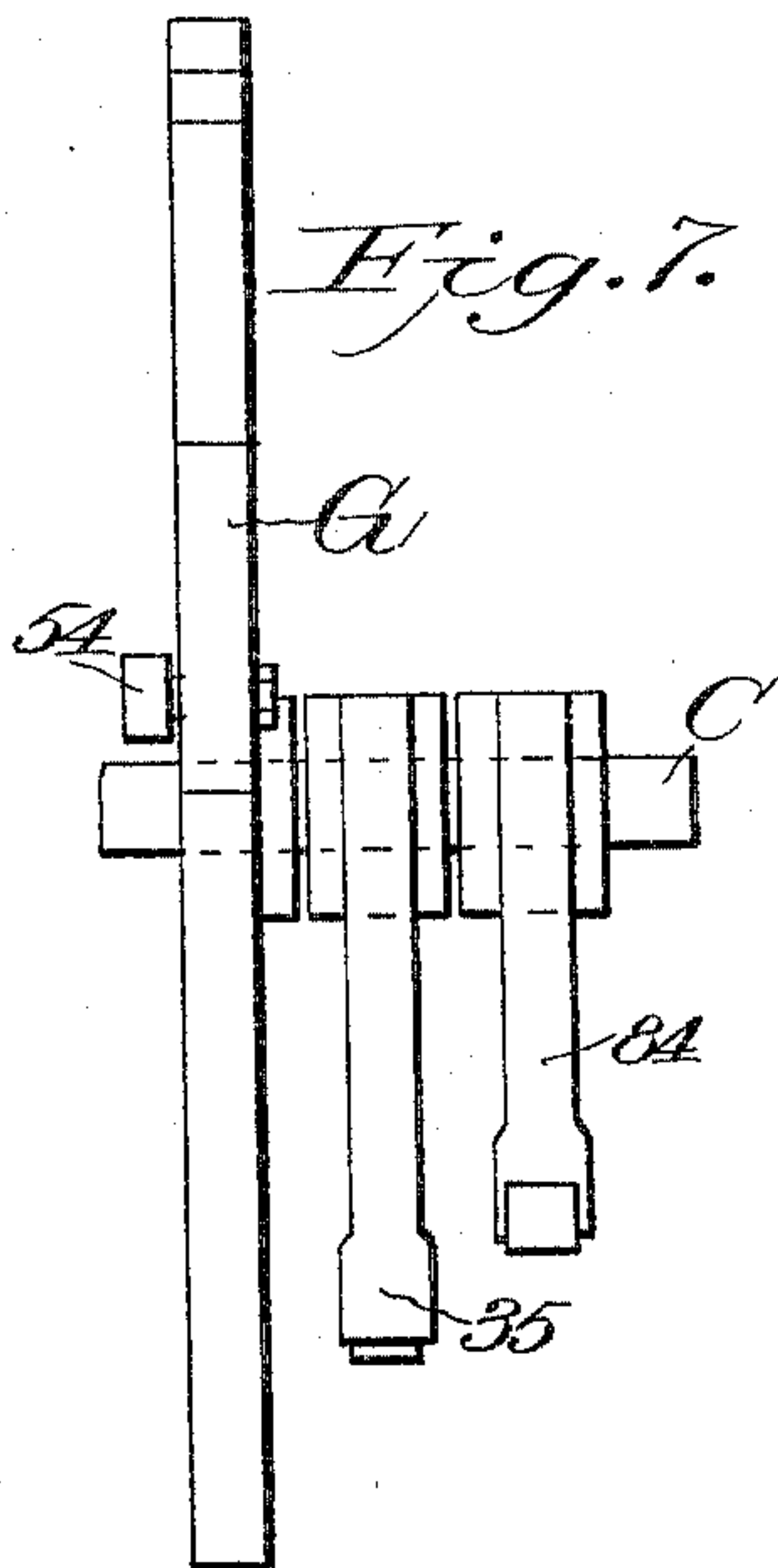
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5 SHEETS—SHEET 3.

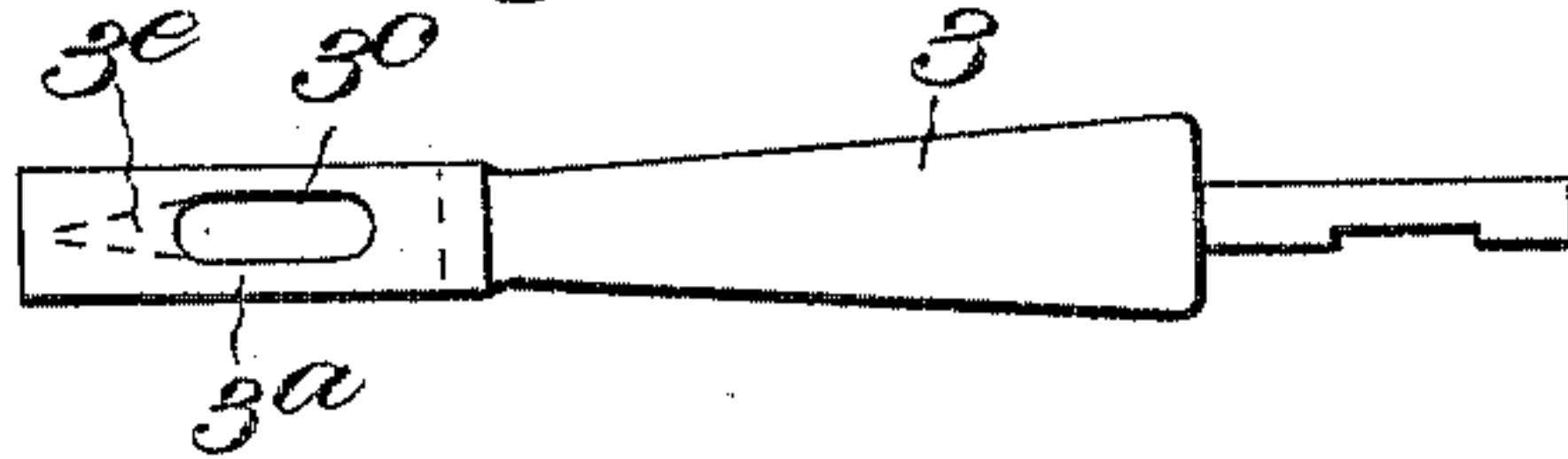
*Fig. 3.*



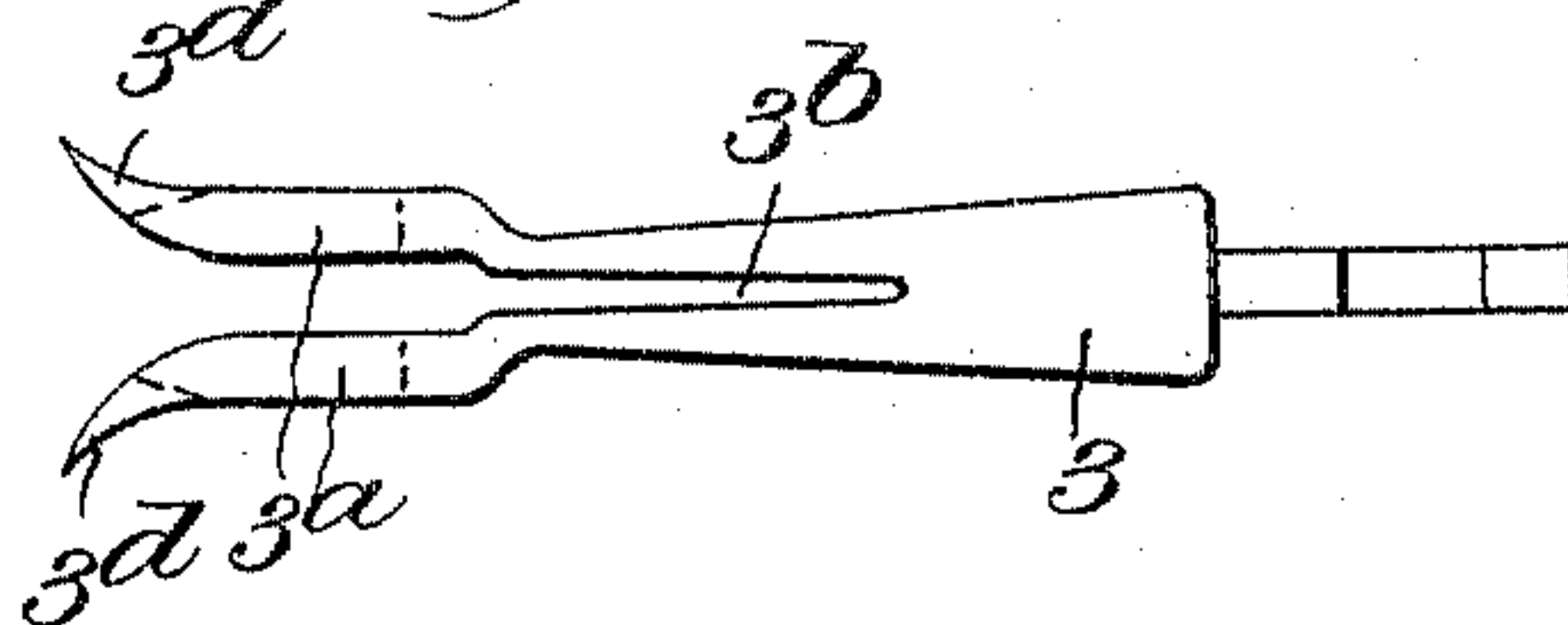
*Fig. 7.*



*Fig. 10.*



*Fig. 11.*



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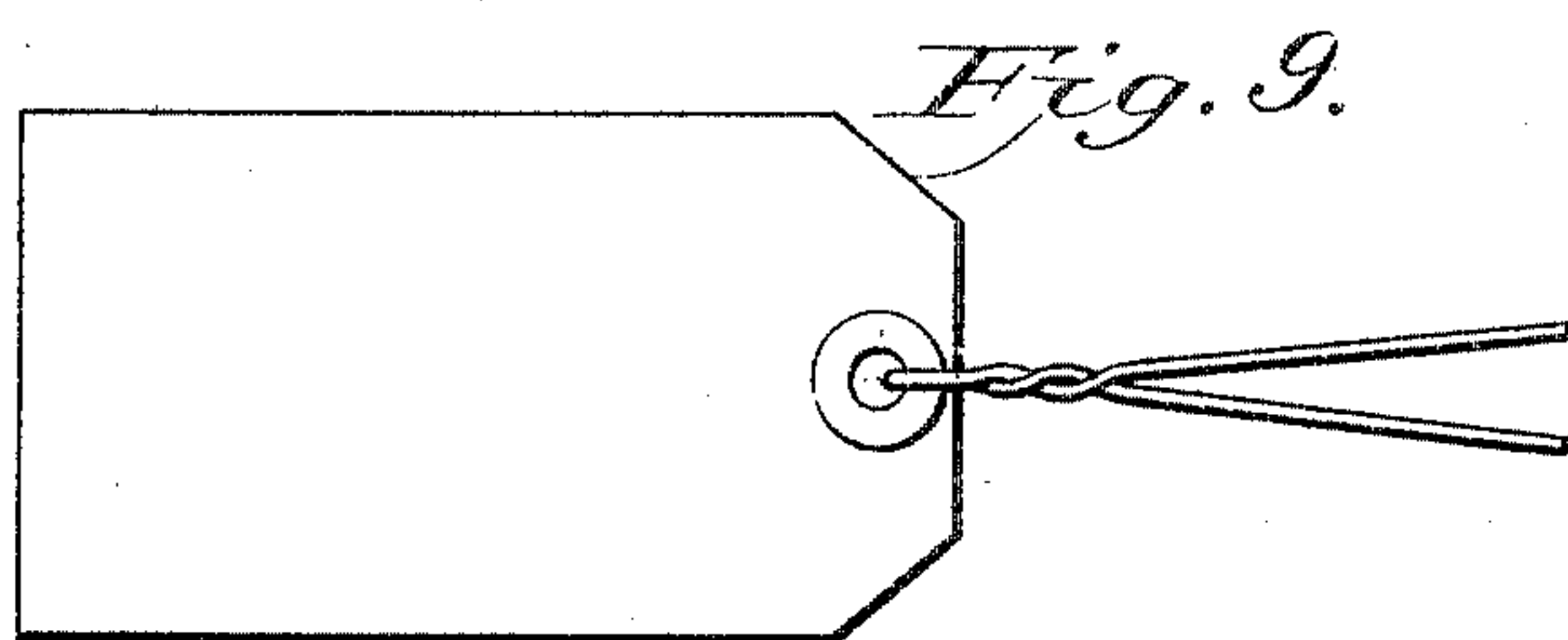
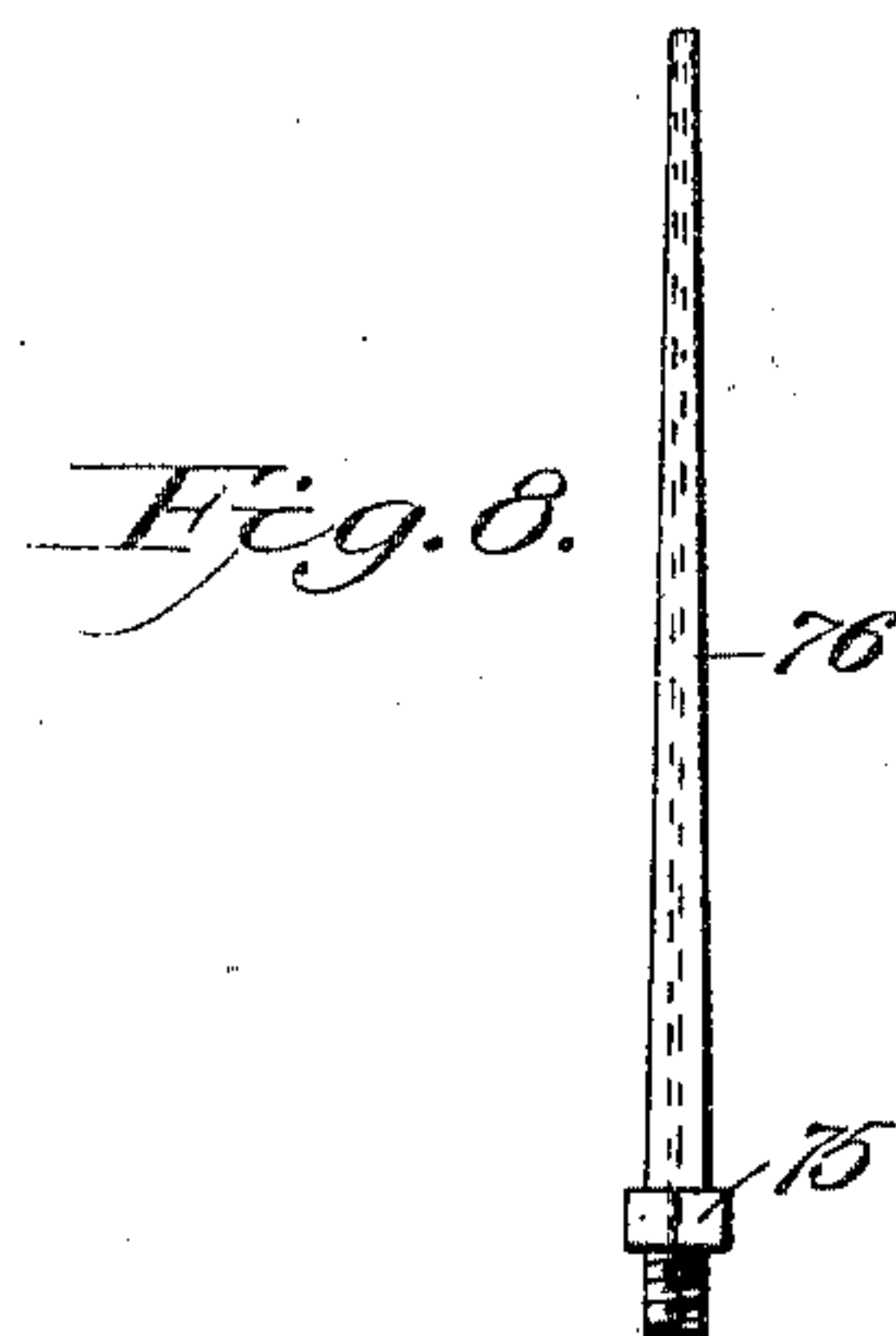
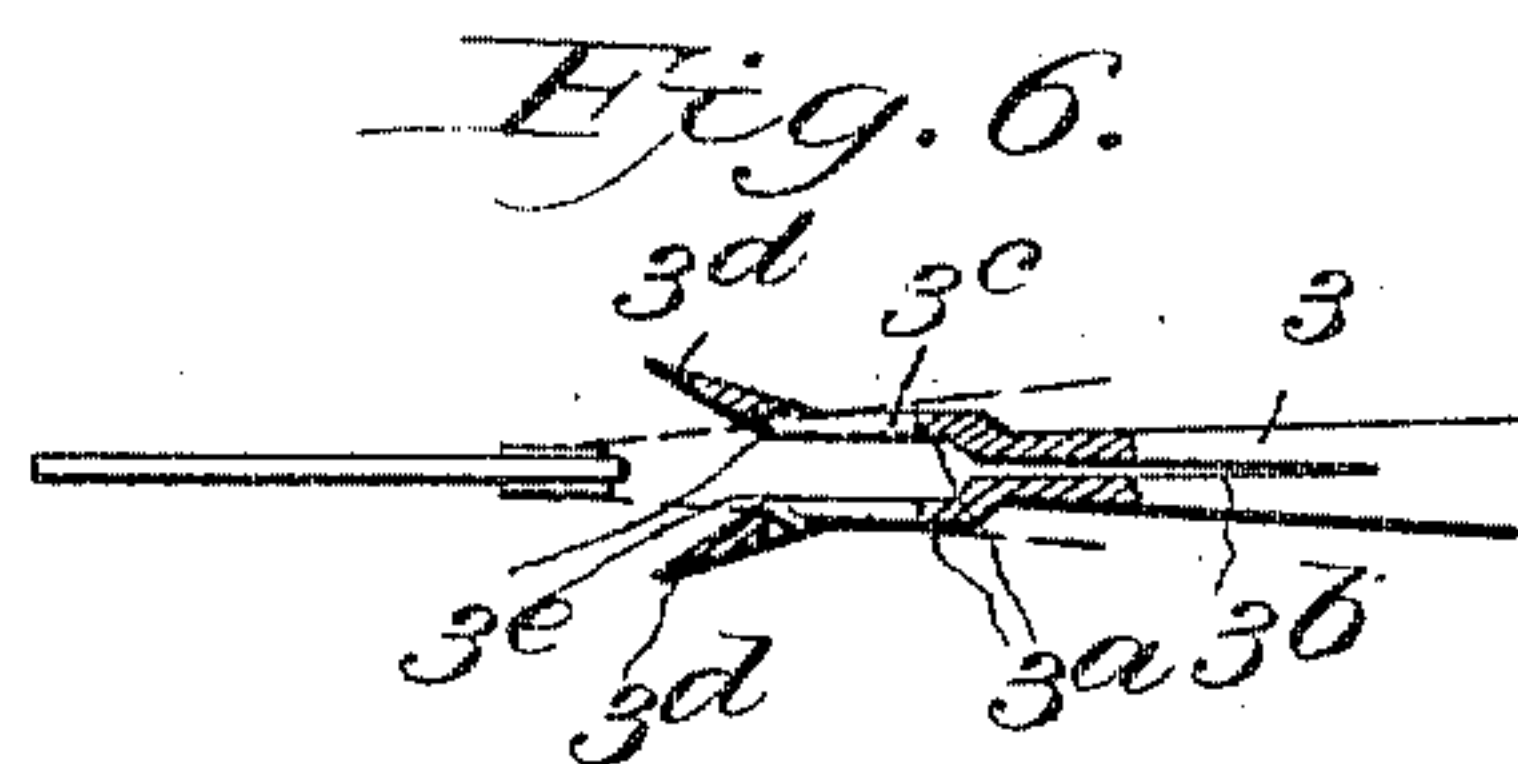
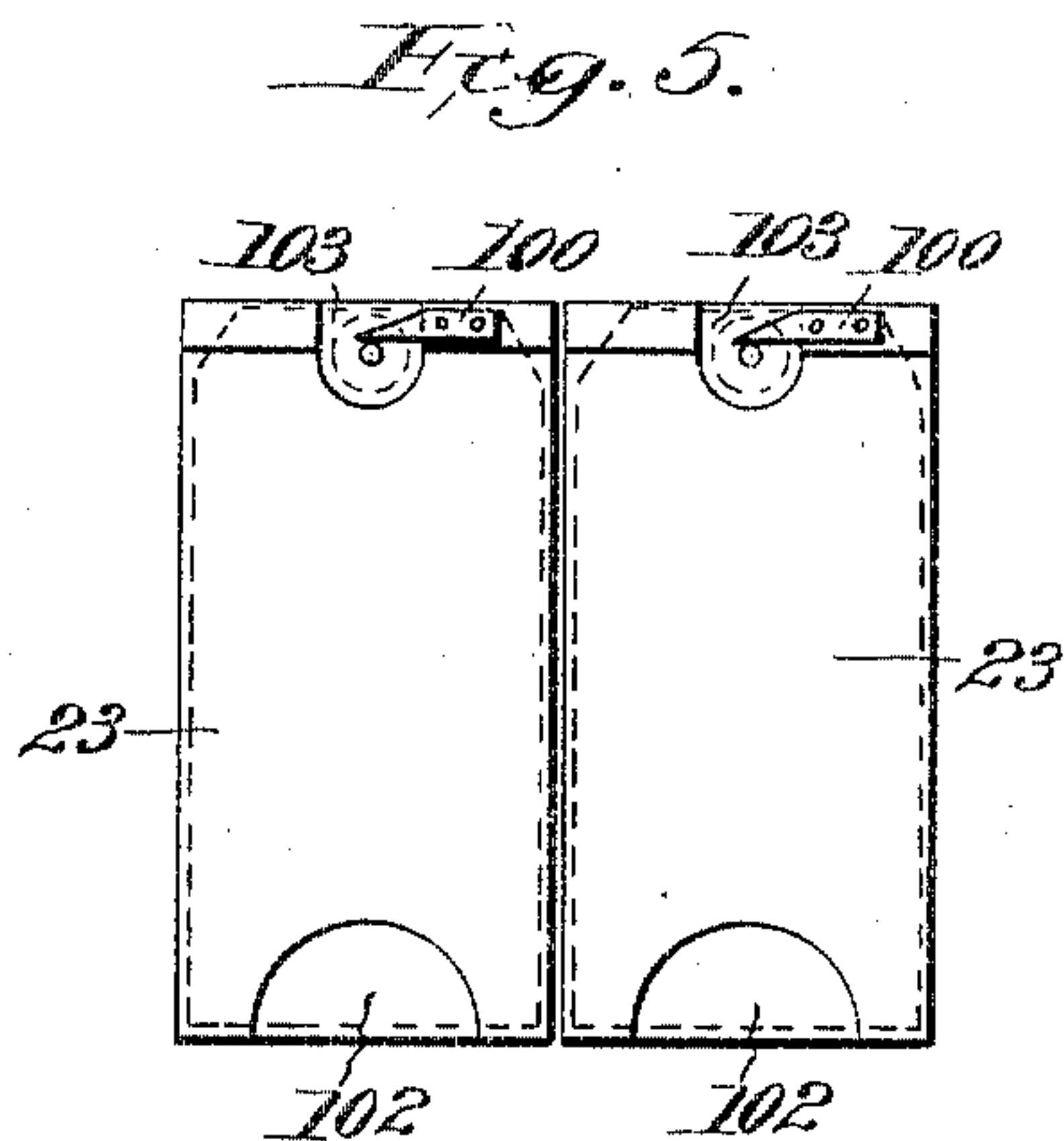
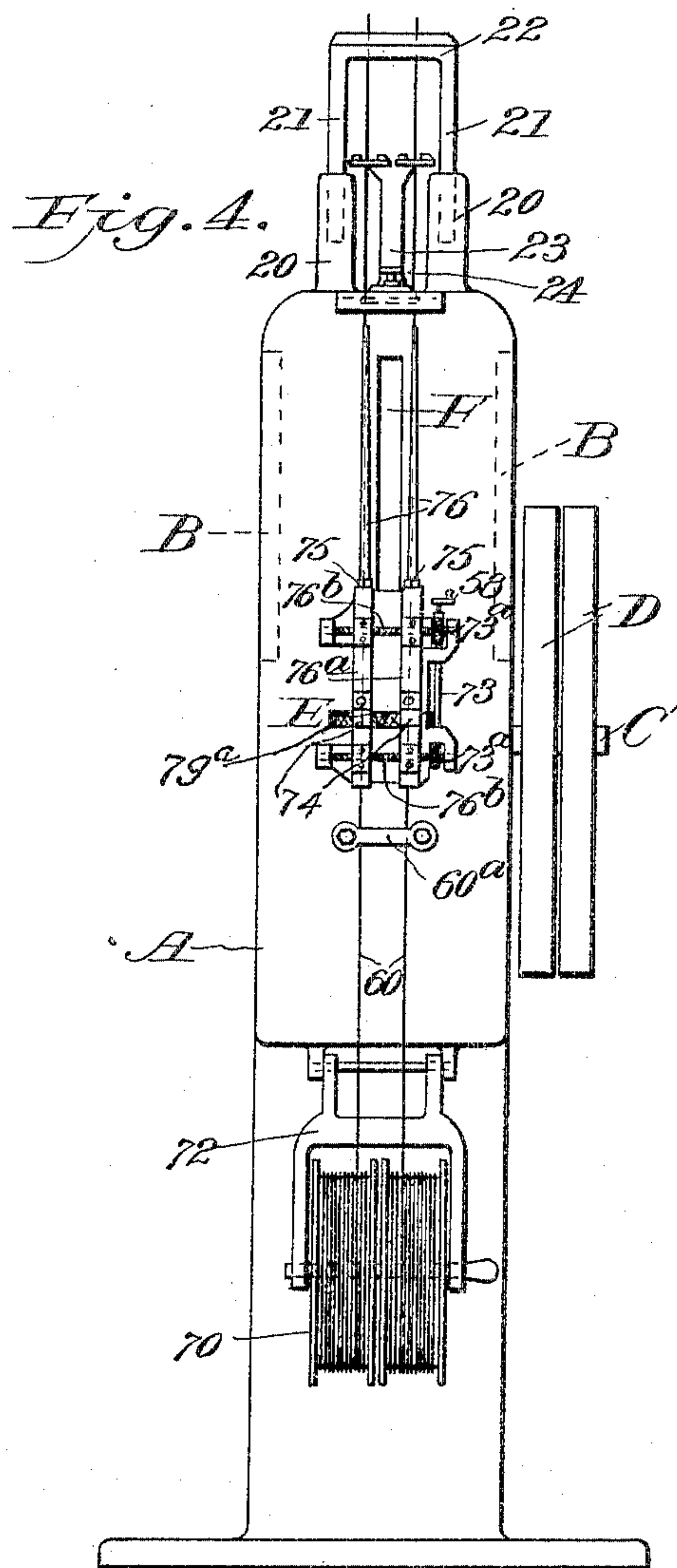
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5 SHEETS—SHEET 4.



WITNESSES:

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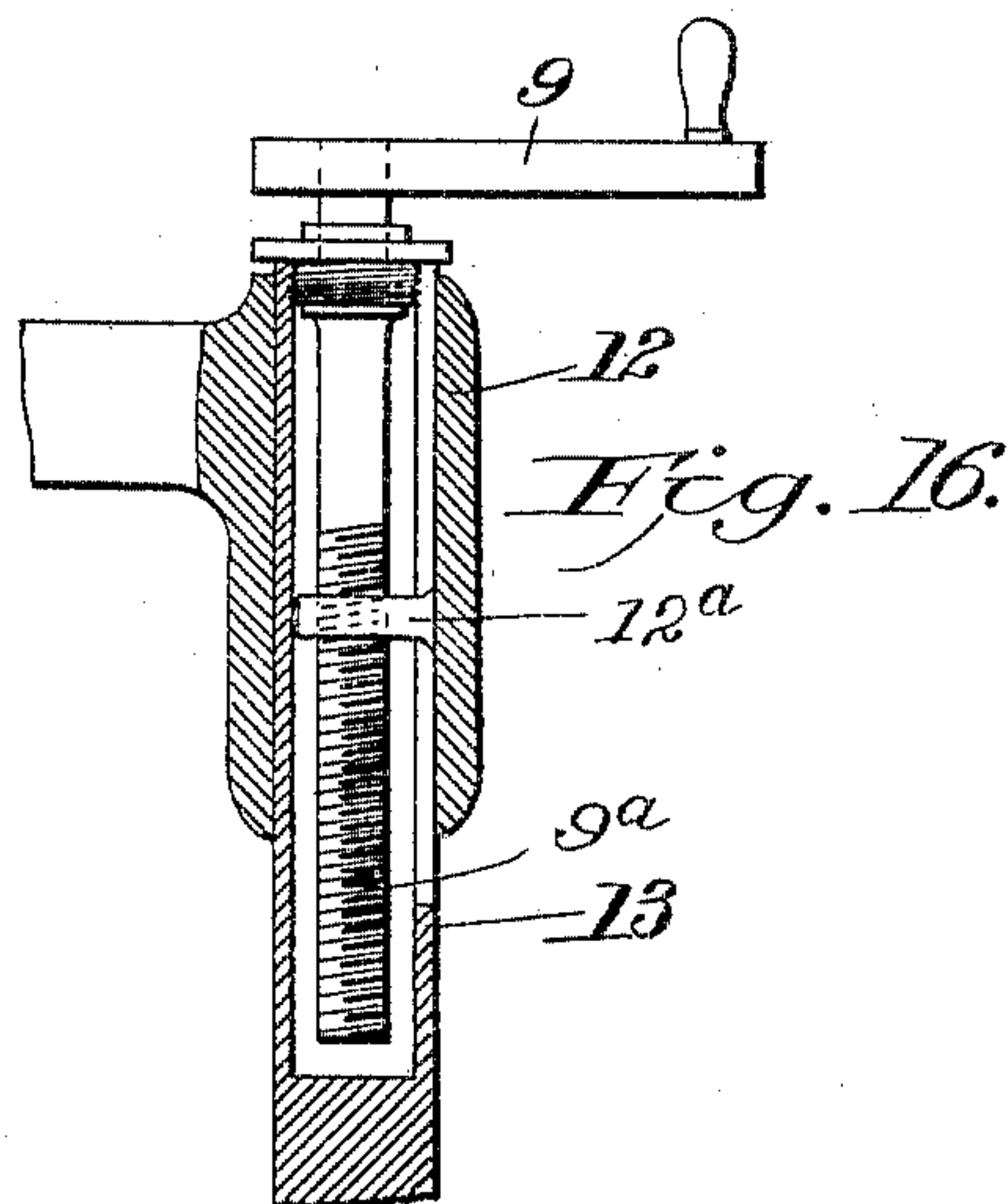
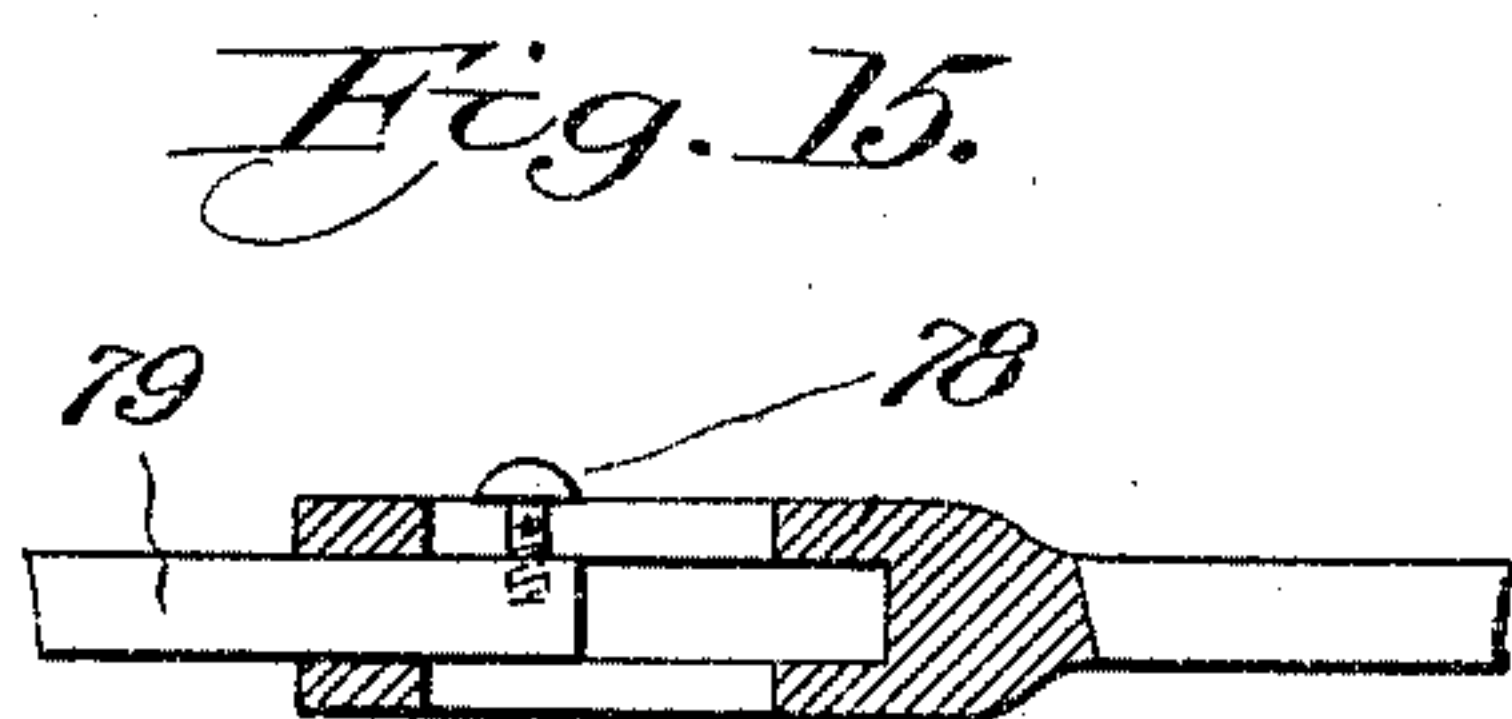
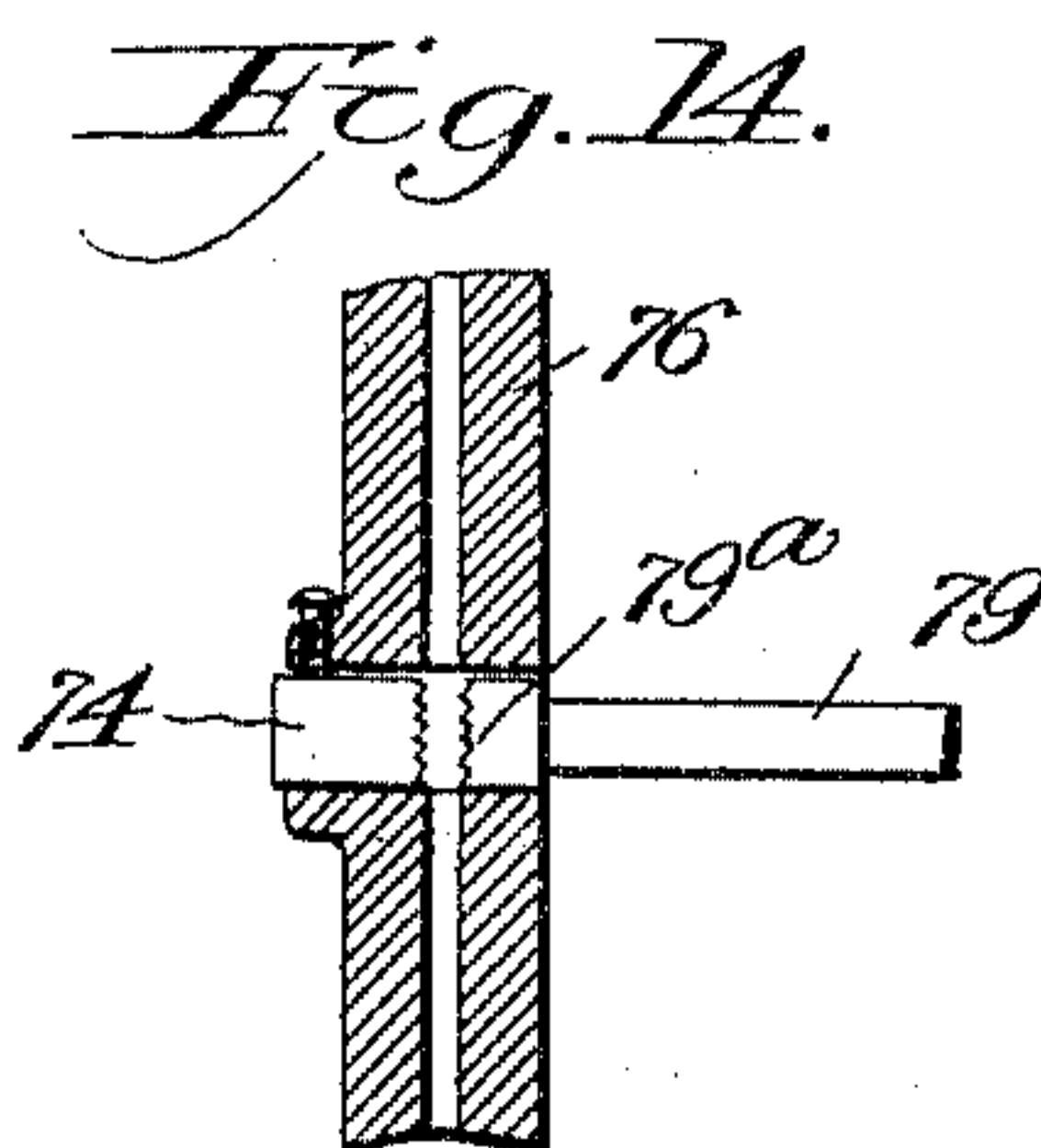
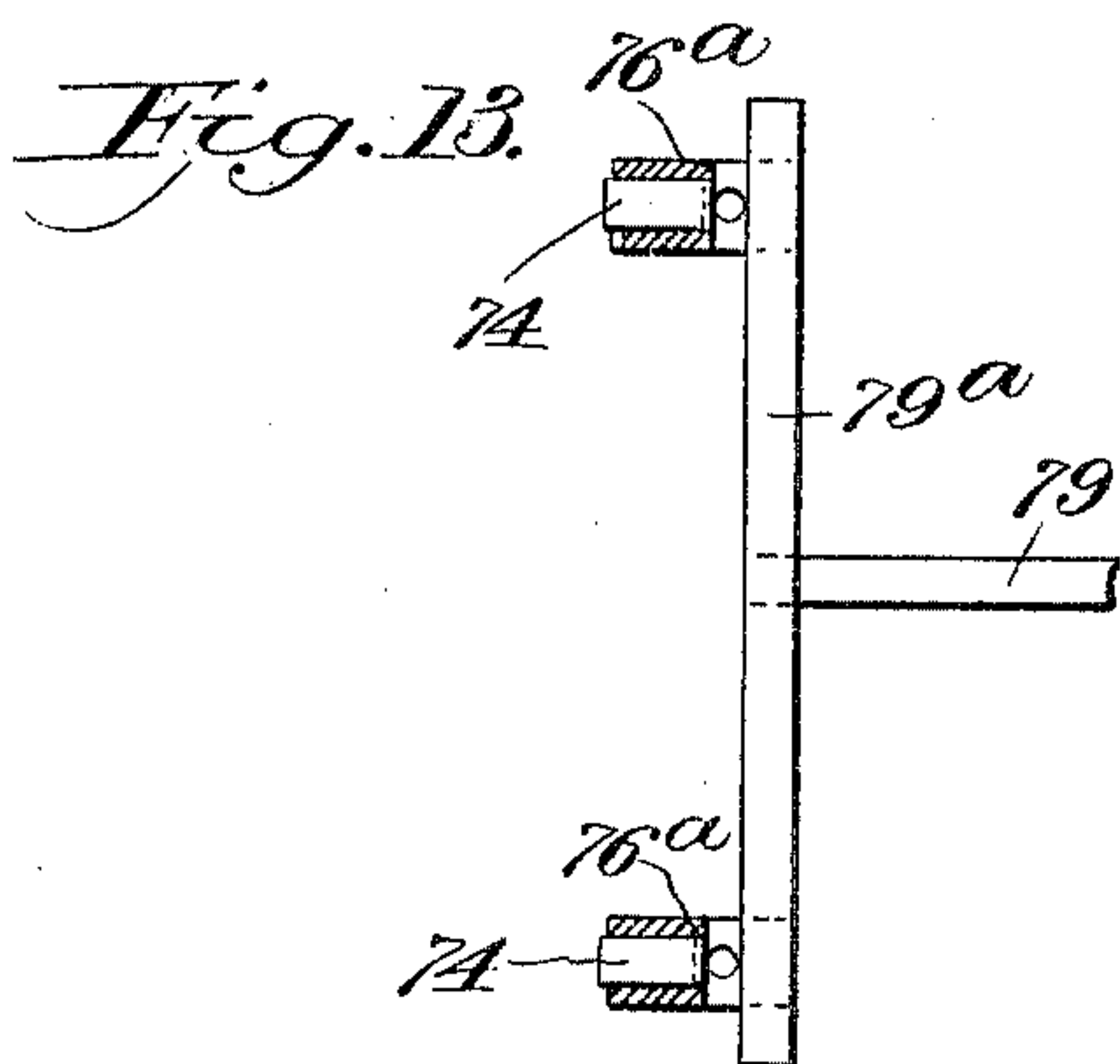
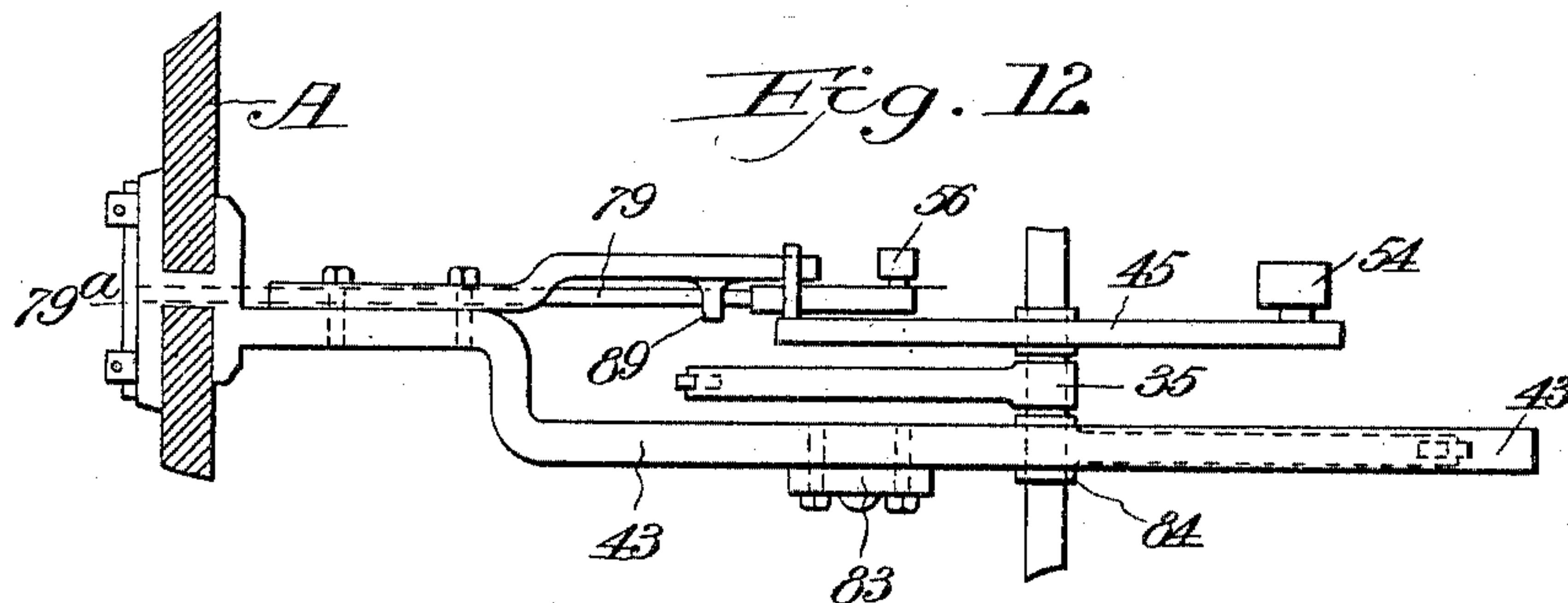
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5 SHEETS—SHEET 5.



WITNESSES:

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*Geo. E. Tew.*

INVENTOR

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# UNITED STATES PATENT OFFICE.

WALLACE W. FULLER, OF CHARLESTON, SOUTH CAROLINA, ASSIGNOR OF ONE-THIRD TO GEORGE S. LEGARE, OF CHARLESTON, SOUTH CAROLINA, AND ONE-THIRD TO THOMAS R. HARNEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

## MACHINE FOR WIRING TAGS.

SPECIFICATION forming part of Letters Patent No. 784,150, dated March 7, 1905.

Application filed March 3, 1904. Serial No. 196,323.

*To all whom it may concern:*

Be it known that I, WALLACE W. FULLER, a citizen of the United States, residing at Charleston, in the county of Charleston and State of South Carolina, have invented new and useful Improvements in Machines for Wiring Tags, of which the following is a specification.

This invention relates particularly to an improved machine for wiring tags, cards, and the like—that is, securing wires thereto which may be utilized for the purpose of attaching said tags, cards, &c., to other objects.

The machine embodies means for threading wires through the eyes of tags or similar articles, shearing the wires the proper length, and twisting the wires together to fix the same to the tag. It is especially an improvement on the machine shown in my Patent No. 674,369, issued May 21, 1901, but is particularly distinguished therefrom by the fact that the needle works up through the tag instead of down. Decided improvements in other respects will be apparent—specifically, means for wiring a plurality of tags at the same time, means for housing the main operating mechanism, means for supporting the tags while they are being wired, means for twisting both wires around each other instead of twisting one around the other, means for supporting and feeding the wire, means for adjusting the parts for tags of different sizes, and otherwise, as may be apparent from the following description.

The machine is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, the near side of the casing being removed to expose the working parts. This view shows the machine in the position just before the lift of the needle. Fig. 2 is a similar view showing the needle at the limit of the upward stroke. Fig. 3 is a top plan view of the machine. Fig. 4 is a front elevation. Fig. 5 is a detail in plan of the tag-platform. Fig. 6 is a detail in section of the twister. Fig. 7 is a detail in edge view of the main shaft and

the cams thereon. Fig. 8 is an elevation of the needle. Fig. 9 is a plan of a wired tag, showing the work the machine does. Figs. 10 and 11 are enlarged details in plan of the twister. Fig. 12 is a detail in plan of the main shaft and the arm actuated thereby, which lifts the needle-carriage. Figs. 13 and 14 are details in horizontal and vertical section, respectively, of the jaws which lift the wires during the thrust. Fig. 15 is a detail in section of an adjustable connection in the rod which carries the jaws. Fig. 16 is a detail in vertical section, showing the means for raising and lowering the socket-pieces which carry the upper jaws.

The machine herein shown and described contains means for wiring two tags simultaneously and, speaking generally, comprises a casing which contains most of the working parts, a needle-carriage which slides in guides on the front wall of said casing, a tag-platform above the needle-carriage, jaws which grip the wire above the platform to hold it while being sheared, jaws which grip the wire below the needle to hold it during the thrust, a twister through which the needle passes and which after the needle is withdrawn and the wire sheared is retracted to twist the wire, and various adjusting mechanisms to regulate the actions and parts according to the local conditions.

Referring specifically to the drawings, the housing or casing is indicated at A, having a removable side or sides B, so that the working parts may be got at when desired. The lower part of the housing is made oil-tight, so that it can be filled with oil to immerse part of the working parts, thereby providing constant and effective lubrication.

The main or driving shaft is indicated at C and projects through bearings in the side of the casing to receive fast and loose pulleys D. The needle-carriage is indicated at E and reciprocates vertically upon the front of the machine upon guides afforded by the opposite sides of the slot F, said carriage having a por-



tion 81, extending through the slot to connection with an arm 43, which is connected to a guide-rod 86, which slides in guides 85 and 87, fixed to the inner walls of the housing, the guides being wide apart and the rod comparatively long to avoid binding.

The vertical reciprocation of the carriage is produced by a wiper or cam arm 84 on the main shaft, which engages under the arm 43 and lifts the same, and with it the needle-carriage, as the shaft is rotated. The arm 43 is properly shaped or offset laterally to bring it in line with the cam 84, and the guide-rod 86 is offset at its attachment 83 to bring it out of the way of the cam-arm. The return or downward movement of the arm 43 and needle-carriage is effected by a spring 44, connected between the arm and the bottom of the housing. The arm 84 is preferably provided with antifriction-rollers 92, which may, if desired, be repeated along the whole upper edge of the cam.

The tubular needles are indicated at 76, standing side by side and screwed at their butts into the upper ends of tubular supports or needle-bars 76<sup>a</sup>, where they are held by nuts 75. These needle-bars are made tubular in order that the wires (indicated at 60) may be threaded and fed up through the same and through the needles, and they, (the needle-bars,) are carried and supported by upper and lower small shafts 76<sup>b</sup>, which are threaded right and left and supported in bearings on the needle-carriage and carry pinions 76<sup>c</sup> in mesh with worms 73<sup>a</sup> on the small shaft 73, which may be turned by crank 58. This permits an adjustment of the needle-bars and needles closer together or farther apart, whereby the needles are accommodated to tags of different sizes, as will more fully appear hereinafter. The wires are fed through or under a tension-clamp 60<sup>a</sup>.

The spools for the wires are indicated at 70 suspended upon a swinging hanger 72, which is pressed from behind by a spring 71. The strength of the spring is so proportioned that it causes the wire to extend vertically from the tension-clamp at all times—that is, the spool when full of wire hangs by gravity with its periphery in line with the needles, so that the wire is vertical. As the wire is reeled off the weight is accordingly decreased, and the spring 71 gradually swings the hanger forwardly, so that the spool is kept in line. As said, the strength of the spring or weight of the spool is properly proportioned to effect this action, which is obviously advantageous, as it avoids undue and variable friction at the tension.

To hold the wires during the upward movement or thrust of the needles and to release the same when the needles drop, a jaw 79<sup>a</sup> is provided, which coöperates with jaws 74, which are let in through mortises in the side of the needle-bars 76<sup>a</sup>. There is one of the

jaw-pieces 74 in each needle-bar; but the jaw-piece 79<sup>a</sup> is of sufficient width to cover all possible adjustment of the needle-bars, and it works through or into a recess in the back side of the needle-bars. This jaw 79<sup>a</sup> is carried at the front end of a rod 79, which is mounted to slide in lugs 89, depending from the arm 43. The length of the rod is adjustable by slot and screw. (Shown at 78.) The inner end of this rod connects with one arm of a bent or trip lever 55, which is pivoted at 55<sup>a</sup> between ears depending from a piece 82, fixed to the arm 43. A spring 55<sup>b</sup> holds the lever in either position as it is snapped to one side or the other of the pivotal point when the lever is tripped. The other arm of the lever carries an antifriction-roller 56, arranged to be struck by a roller 54, the arbor of which is adjustably carried in a slot 53 in the cam-wheel G. When the roller strikes and turns the lever, it forces the rod 79 outwardly or forwardly and grips the wires between the jaws 79<sup>a</sup> and 74. This is at the beginning of or during the thrust or upward movement of the needles. The time of this action is variable by adjustment of the roller 54 along the slot 53, and since the wire does not begin to feed until the jaws take hold the length of wire supplied is variable accordingly. To cause these jaws to let go at the proper time, a trip 50 is employed. This is located on the inside of the casing and is carried upon the inner end of a screw-stud 50<sup>a</sup>, which extends through a slot 51 in the side of the casing and is properly positioned to strike the roller 56 on the trip-lever 55 and throw the same backward to open the jaws, the different positions being clearly shown in Figs. 1 and 2. Adjustment of the trip in the slot 51 enables the time of this action to be varied, and the extent of the motion may be varied by turning the trip one way or the other, as indicated by a pointer 57 upon a scale 49 on the outside of the housing. Turning the trip varies the position of its head with respect to the line of travel of the roller 56 so that it strikes said roller sooner or later, as the case may be.

The needles work upwardly through a slot in the ledge 26 at the top and front of the casing, and this ledge carries an adjustable platform 23, the base of which is slotted and let into a groove in the shelf, where it is fixed at adjustment by a set-screw 24, extending through the slot. The platform is constructed to receive a pair of tags, which are shown in dotted lines at 1. The front edge of the platform is bent up and back, as at 2, to prevent the tags being pulled off the platform during the twisting action. Finger-recesses 102 (see Fig. 5) are also provided in the platform to enable the tags to be held thereon by the operator. At the forward edge of the platform are recesses 103 to allow the twistors hereinafter described to extend over the eyelet of the tag. At 100 is indicated a small piece of



steel which is fastened to the front edge of the platform in a position to project over the space 103, and this piece is slanted to a point, as shown, the point extending just beyond the eyelet in the tag. The purpose of this piece is to prevent the wire from cutting or ripping out of the tag during the twisting action. When the wire is bent over to be twisted, it loops over the point of the piece 100, and the pull thereon is taken by said piece, so that cutting through the tag is prevented. The slanting point of the piece 100 permits the tags to be removed by simply pulling them back, as the loops of the wires will slip over the said points in that direction.

To hold the wires while the needles are withdrawing and while the wires are being sheared, a jaw 22 is employed. This is carried at the upper end of rods 21, which are adjustable vertically in sockets 20 on the frame of the machine and are fixed at adjustment by set-screws 19. This jaw is positioned directly above the line of motion of the needles and is long enough to accommodate any possible lateral adjustment of the needles with respect to each other. It coöperates with individual jaws 10, which are carried in sockets 12 and cushioned by springs 11 therein, from which sockets the jaws may be removed for sharpening, &c. The rear portions of the socket-pieces are tubular and fit over standards 13, and the sockets can be raised or lowered upon these standards by means of cranks 9 upon screws 9<sup>a</sup>, which pass down into the standards and through threaded nuts 12<sup>a</sup> on the socket-pieces 12. These standards project from frames 18, which are in turn carried upon right and left threaded cross-spindles 7<sup>a</sup>, which are mounted in bearings in a sliding carriage 14, which slides upon the top of the casing. The spindles 7<sup>a</sup> have pinions 7, meshing with worms upon a crank-shaft 8, by turning which the distance apart of the frames 18 may be adjusted to accord with the similar adjustment of the needles. The frames 18 also carry the twisters 3, which fit sockets 4 in the front end of spirally-grooved shafts 5, which are mounted to rotate in bearings in the frames 18.

The reciprocating carriage 14 carries at the front edge thereof a knife-blade 17, held by set-screws 16, which knife-blade coöperates with a knife-plate 25, set in the shelf 26 along the edge of the slot through which the needles work.

The carriage 14 has a portion 27 extending through a guide-slot in the top of the casing and connected to a guide-rod 39, which is carried to reciprocate in suitable guide-bearings 90, formed on the under side of the top of the casing. The arm 39 has a descending arm 42, at the end of which is an antifriction-roller arranged to run upon the surface of the cam-wheel G during the operation of the machine.

Upon each grooved spindle 5 is a worm-nut

6, engaging in the spiral groove, and this nut is carried by an arm 38, fastened to the front end of a rod 37, which extends thence through the rear wall of the carriage 14 to connection with an arm 36, which projects through a slot 36<sup>a</sup> in the top of the casing to connection with a rod 29, which slides lengthwise in guides 28 on the under side of the casing-top. This rod 29 is bolted to a depending arm 30, the foot of which has a toe 34, which works in a horizontal groove 34<sup>a</sup> in the rear side of the casing. The rod 39 and carriage 14 are normally projected forwardly by a spring 99 in compression against the part 90, and the rod 29, arm 30, and nut 6 are normally drawn forward by a spring 32 in tension between the arm 30 and the front wall of the casing. The cam-wheel G acts against the arm 42 to force said arm and the carriage 14 backwardly or allow it to move forwardly, according to the shape of the cam. The main shaft C carries an arm 35, the end of which is provided with an antifriction-roller which contacts with and operates the arm 30 and the worm-nut connected thereto. The action of the jaws 10 and the shearing-knife 17 is effected by the cam-wheel G. The rotary action of the twisters is effected by the cam-arm 35 through the worm-nuts 6, and the longitudinal action of the twisters and also of the carriage 14 generally is effected by the combination of the movements produced by the cam-wheel G and cam-arm 35.

The twisters are particularly shown in Figs. 6, 10, and 11. Each consists of a piece of good spring-steel flattened and forked at the end, as indicated at 3<sup>a</sup>, and split back from the junction of the forks, as shown at 3<sup>b</sup>, to allow the forks to easily spring over the end of the tag. The forks have holes 3<sup>c</sup>, which are elongated lengthwise of the twister, and beyond these eyes the forks are flared outwardly, as at 3<sup>d</sup>, to receive the tag. The eyes 3<sup>c</sup> have at the ends narrow slits 3<sup>e</sup>, which extend up into the flared portions 3<sup>d</sup> particularly for the purpose of permitting the wires to be drawn down on a line substantially parallel to the shank of the twister, thus providing an even close twist and enabling a much easier withdrawal of the ends of the wires than otherwise. The slits cause the wires to be drawn back in a straight line and act as a guide for the wires in producing a perfect twist.

The operation of the machine will be explained with particular reference to Figs. 1 and 2. Fig. 1 shows the needle-carriage about to lift, the machine being first made ready by threading the wires through the needle-tubes and needles until the same project slightly beyond the point of the needles, and when the main shaft starts the arm 84 lifts the arm 43, and with it the needle-carriage and needles. At this time the wires are clamped by the jaw 79<sup>a</sup> through the action of the trip-lever 55 and roller 54, so that the wires lift with the



needles and are thrust up through the eyes of the tags and the twisters 3 until the ends of the wires are between the jaws 22 and 10, as shown in Fig. 2. When this point is reached, the trip-lever 55 strikes the trip 50 and opens the jaw 79<sup>a</sup>, after which the cam-arm 84 passes off the end of the arm 43 and allows the latter to drop to its original position. Before the needles in their upward stroke reach the tags the cam-arm 35 leaves the arm 30 and permits the spring 32 to draw the same forwardly, advancing the part 38 and nut 6 to the front end of the carriage 14, after which these parts all move together forwardly until the twisters are in position upon the tags. The movement of the arm 30 and the nut 6 precedes that of the carriage 14 and the twisters, because the latter is detained by the roller on the arm 42, striking the cam-wheel G in advance of the point 45, and this causes the twisters to be held off from the tags until the worm-nut is fully returned to its forward position, when the twisters are allowed to advance to their proper position by the roller on the arm 42, passing off at the point 45 to the lower surface of the cam, at which point the twisters will have moved to the proper position to allow the tubular needles to pass through the holes of the twisters. The continued rotation of the cam-wheel next causes the projection 52 thereon to force the arm 42 back slightly, thereby moving the frame 14 and jaws 10 back a sufficient distance (about one-fourth of an inch) to make an opening sufficient to allow the ends of the wires, which at this instant reach the highest point, to pass between the jaws, and as the roller on the arm 42 passes off the projection 52 the jaws immediately close by the force of the spring 99 and grip the ends of the wires and hold the same while the needles drop. At this time the knife 17 will have advanced to the rear edge of the slot opposite the knife 25, and just after the needles fall below the slot the roller on the arm 42 will have reached the depression 46 in the cam-wheel, permitting a quick and sudden movement forward of the frame 14 and shearing-knife 17 sufficient to shear the wires at 25. After this the roller on the arm 42 is immediately forced back to the face of the cam at 47, from which point to point 48 there is a gradual inclination or projection beyond the true circle of the cam sufficient to start the withdrawal of the frame 14 and the twisters from the tags. This withdrawal bends the wires in the eyelets and draws the same down parallel to the axis of the twisters, forming loops sufficiently large to permit the desired number of twists between the ends of the twisters and the eye of the tag, three being an ordinarily sufficient number. At this instant the cam-arm 35 comes in contact with the arm 30, producing a quick backward action, which causes the worm-nuts 6, by means of the connections 37 and 38, to be drawn back on the spindles 5 of

the twisters, thereby rotating the twisters and twisting the wires together between the ends of the twisters and the tags. While this twisting action is taking place, the frame 14, supporting the twisters, is being slowly forced back from the tags by the gradual elevation of the cam from the point 47 to the point 48, so that a compound rotary and longitudinal action of the twisters is produced which gives a true twist and bending of both wires and avoids the twisting of only one wire around the other. In other words, there is a longitudinal drawing action and a turning action which are most efficient in producing a perfect twist. The twist being finished, the two ends of the wires are left projecting through the eyes of the twister; but at this instant the nuts 6 contact with the rear ends of the frame 18, and by continued movement of the cam 35 and the arm 30 the whole carriage 14 and the twisters are drawn back rapidly a sufficient distance to withdraw the wires from the eyes of the twisters, permitting the tags to be withdrawn from the platform by the operator and new ones placed, after which the carriage 14 advances and the needles begin to lift for the next operation.

It will be seen that the elongated holes 3<sup>a</sup> in the twisters are essential to permit the slight back action or movement of the frame 14 while in the acts of clamping the wires between the upper jaws and shearing the same—that is, the frame moves back and forth slightly to accomplish these results and this while the needles are in the holes of the twisters. The springs 11 permit and take up the slight forward movement incident to the shearing action, holding the jaws closed during the same.

The operation above described produces a double-wired tag. If it be desired to wire the tags with a single free wire instead of a double one, it may be accomplished by a special adjustment of the parts shown. This is done by removing the long needles and substituting shorter ones and then lowering the jaw 22 and the jaws 10. This will grip the wires at a shorter distance above the platform, and when twisted there will be a single end or wire on the tag. A single wire is often sufficient for the purpose of attaching tags to whatever they are to be used on, and a saving of wire is thus effected.

Tags of various widths and sizes may be wired on the same machine by proper manipulation of the adjusting mechanisms. Likewise the length of the wire fed at each stroke may be varied by adjustment of the trip which controls the clamp-jaws of the needle-carriage. Although the machine shown will wire only two tags at once, the number of needles and twisters may be indefinitely increased. Shipping-tags are usually made in gangs of two, four, eight, or twelve before being cut up. By widening the platform and the carriages and increasing the number of



needles and twisters the machine may be readily adapted for work upon a greater number of tags at once.

The invention is not limited to the exact construction shown, but various modifications may be made within the scope of the following claims.

What I claim as new, and desire to secure by Letters Patent, is—

10 1. In a tag-wiring machine, the combination with a tag-holder and means to insert a wire through the eye of a tag thereon, of a carriage, means to reciprocate the same, a rotatable  
15 twister carried thereby and constructed to engage the wire, and means independent of the movement of the carriage to rotate the twister.

2. In a tag-wiring machine, the combination with a tag-holder and means to insert a wire through the eye of a tag thereon, of a carriage,  
20 means to reciprocate the same, in alinement with the tag, a spirally-grooved twister carried thereby and engageable with the wire, an independently-operated nut slidable on the twister and engaging the groove to rotate  
25 the twister, and means to slide the nut on the twister.

3. In a tag-wiring machine, the combination with a reciprocating needle and means to supply wire thereto, of jaws reciprocating with  
30 the needle and between which the wire is supplied, means to reciprocate the needle and jaws and independent means to close and open the jaws, upon the wire.

4. In a tag-wiring machine, the combination with a reciprocating needle and means to supply wire thereto, of jaws reciprocating with  
35 the needle and arranged to grip and release the wire, means to reciprocate the needle and jaws, and adjustable means to open and close the jaws.  
40

5. In a tag-wiring machine, the combination with a reciprocating cam-actuated needle and means to supply wire thereto, of jaws, means to reciprocate the same with and behind the  
45 needle, said jaws being arranged to grip and release the wire, a trip-lever connected to one of the jaws, and means engageable with the lever to throw the same, to open and close the jaws.

50 6. In a tag-wiring machine, the combination with a reciprocating cam-actuated needle and means to supply wire thereto, of jaws, means to reciprocate the same with and behind the needle, said jaws being arranged to grip and  
55 release the wire, a trip-lever connected to one of the jaws, a projection connected to and moving with the cam and arranged to strike the lever and close the jaws, and a trip located in the way of the lever and arranged to strike  
60 the same and open the jaws.

7. The combination with the casing, of the needle-carriage reciprocable vertically on the front thereof, and having an arm extending into the casing, a rotating cam in the casing  
65 arranged to strike and lift the arm and car-

riage, means to supply wire to the needle, a pair of jaws on the carriage behind the needle and arranged to grip the wire, one of said jaws having an operating-rod extending into the casing, a lever pivotally supported on the arm and connected to the rod and means to trip and throw the lever, to open and close the jaws, according to the movement of the cam.

8. The combination with a reciprocating  
75 needle, of a spool for wire, having its periphery in line with the needle, means to feed wire from the spool to the needle, and means to preserve the alinement of the periphery of the spool with the needle, as the wire is reeled  
80 off.

9. The combination with a tubular needle reciprocating vertically, of a spool for wire hung to swing, with its periphery in line with the needle, means to feed wire from the spool  
85 to the needle, and a spring bearing on the spool and constructed to swing the same, to preserve said alinement, as the wire is reeled off.

10. A twister for tag-wiring machines, comprising a shank forked at the head and having elongated eyes in the forks, as and for the purpose described.

11. A twister for tag-wiring machines, comprising a shank having diverging forks at the head, said forks having eyes therein terminating in narrow slits at the divergent portions, as and for the purpose described.

12. A tag-platform for tag-wiring machines, having a recess at the front end to receive a  
100 needle and twister therethrough, and a tapered piece extending from one side of the recess partly across the same, as and for the purpose described.

13. In a tag-wiring machine, the combination with means to hold a tag and means to insert a wire through the eye thereof, of a reciprocating carriage, a rotary twister carried thereby and having forks with eyes therein through which the wire is inserted on both  
110 sides of the tag, and means moving more rapidly than the carriage to rotate the twister, whereby comparatively slower drawing and faster rotating movements are imparted to the twister.

14. In a tag-wiring machine, the combination with means to hold a tag and means to insert a wire through the eye thereof, of a reciprocating carriage, a rotary twister carried thereby and having means to engage the wire  
120 so inserted and loop the same over the end of the tag, means to rotate the twister and twist the wire, and means to accelerate the speed of the carriage after the twist is made.

15. In a tag-wiring machine, the combination with means to hold a tag and means to insert wire through the eye thereof, of a carriage, means to move the same toward and from the tag, a jaw and a knife carried by the carriage, respectively on opposite sides of the tag, to  
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grip and cut the wire, another jaw coöperating with said jaw, and a twister mounted on the carriage and having means to loop and twist the wire over the end of the tag.

5 16. In a tag-wiring machine, the combination with means to hold a plurality of tags and means to insert wires through the respective eyes thereof, of a carriage, means to move the same toward and from the tags, a fixed jaw,  
10 a movable jaw and a knife carried by the carriage, respectively on opposite sides of the tags, to grip and cut the wires, and a plurality of twist-  
15 the ends of the tags.

17. In a tag-wiring machine, the combination with a casing, and vertical and horizontal guides in the front and top thereof, respectively, of a tag-platform in line with both  
20 guides, a fixed jaw above the platform, a needle-carriage, slidable in the vertical guides under the platform, and having a wire-carrying needle arranged to pass through the tag in the platform and project the end of the wire be-  
25 side said jaw, a carriage slidable in the horizontal guides and having thereon wire cutting and twisting devices and a jaw coöperating with said fixed jaw, and means to operate the carriages.

30 18. A wire cutting and twisting mechanism for tag-wiring machines, comprising a tag-

holder, a fixed jaw above and a fixed knife below the same, a carriage slidable toward and from the holder, a knife at the front lower edge thereof and coöperating with the fixed  
35 knife, a jaw at the top of the carriage and coöperating with the fixed jaw, the rotary twister mounted on the carriage and having means to engage the wire on both sides of the tag in the holder, and means to operate the carriage  
40 and twister.

19. A wire cutting and twisting mechanism for tag-wiring machines, comprising a plurality of tag-holders, a fixed jaw above and a fixed knife below the same, a carriage, means  
45 to slide the same toward and from the holders, a knife carried by the carriage under the holders and acting to simultaneously cut all the wires, a plurality of frames mounted on the carriage and adjustable with respect to  
50 each other, and a jaw and a rotary twister carried by each frame, the jaws being arranged to coöperate with the fixed jaw and the twist-  
55 ters having respectively means to engage the wires in the several tags.

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

WALLACE W. FULLER.

Witnesses:

F. K. MYERS,  
A. R. STERNER