

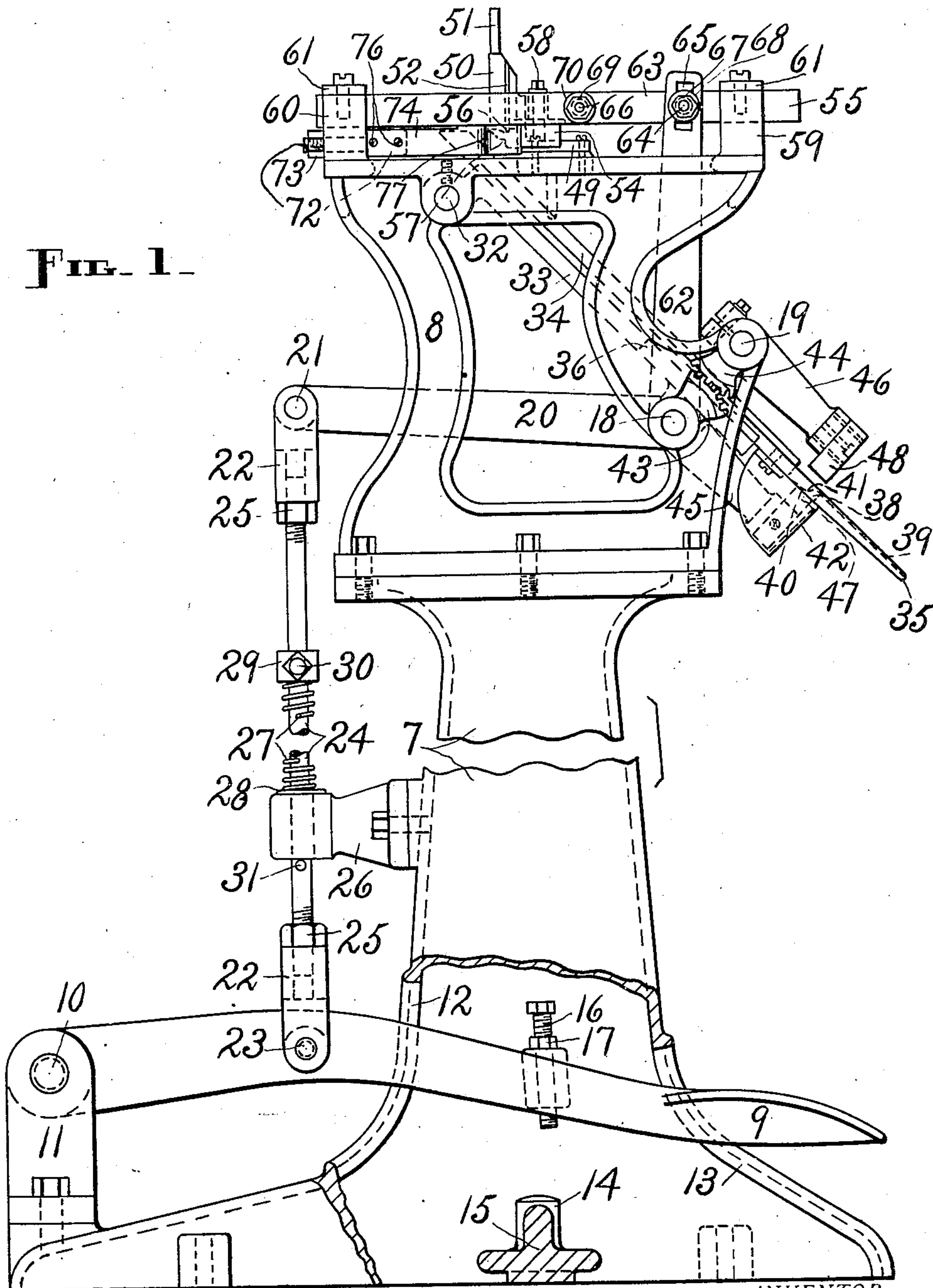
C. F. SMITH.
TAG SETTING MACHINE.
APPLICATION FILED OCT. 9, 1909.

Patented Dec. 20, 1910.

4 SHEETS—SHEET 1.

979,217.

FIG. 1.



WITNESSES:

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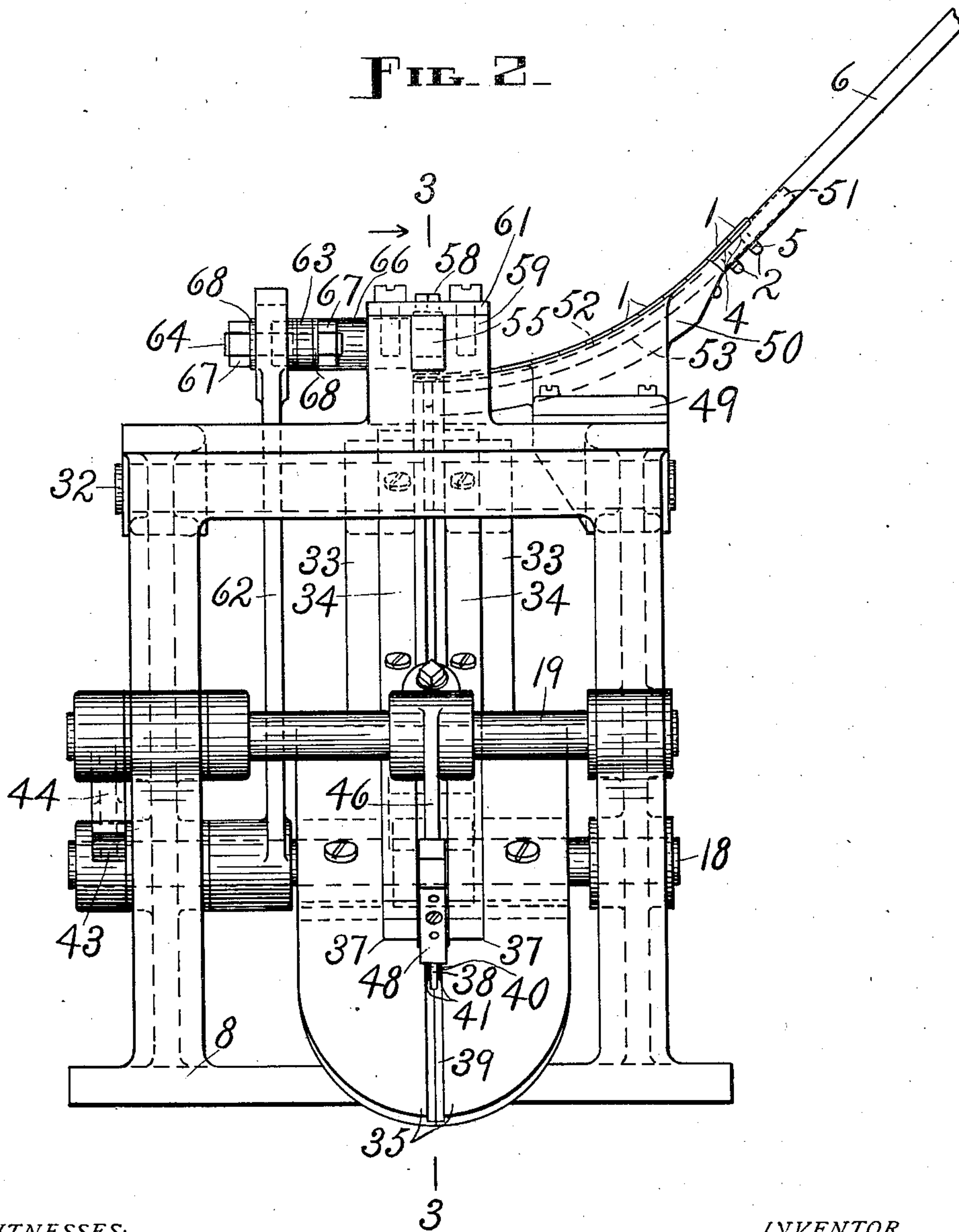
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4 SHEETS-SHEET 2.

FIG. 2.



WITNESSES:

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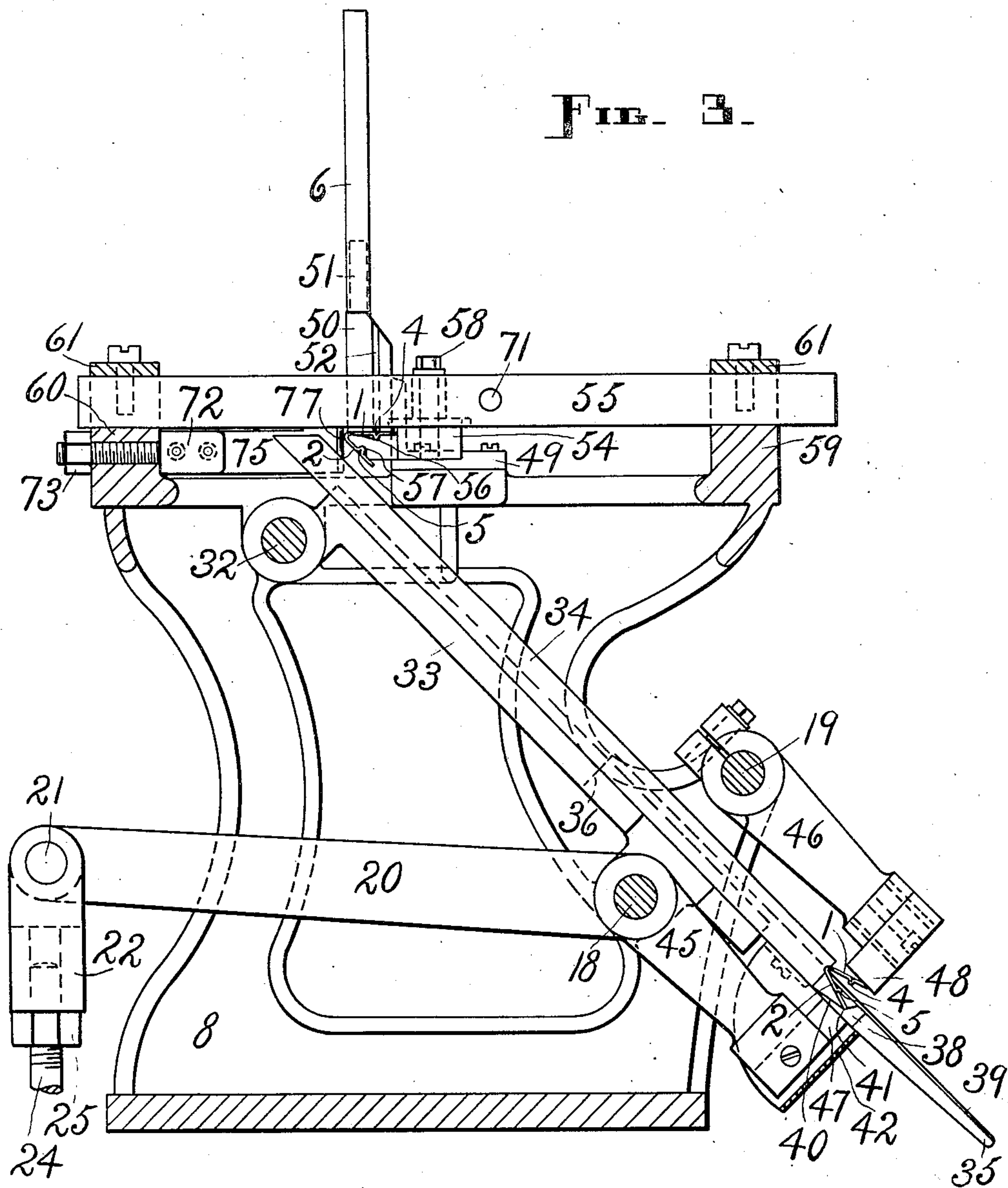
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4 SHEETS-SHEET 3.

FIG. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES F. SMITH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO McCALLUM HOSIERY COMPANY, OF NORTHAMPTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

TAG-SETTING MACHINE.

979,217.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed October 9, 1909. Serial No. 521,868.

To all whom it may concern:

Be it known that I, CHARLES F. SMITH, a citizen of the United States of America, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Tag-Setting Machine, of which the following is a specification.

My invention relates to improvements in tag-handling machines, and consists in a general way of certain peculiar feeding mechanism and certain peculiar attaching or setting mechanism for the tags, all as hereinafter set forth.

The object of my invention is to provide a comparatively simple machine, both in construction and operation, for accurately and expeditiously feeding tags of a certain peculiar kind, one at a time, and so attaching them to hosiery or other wearing apparel or articles, a single pulsation of the operating mechanism of said machine causing one tag to be fastened to an article properly placed on the machine table and bringing about the release of another tag so that it can and does take position in readiness to be fastened to the next article.

Other objects of my invention will appear in the course of the following description.

This machine is particularly designed to handle metallic tags or clips, of the shape herein shown, which are used especially on hosiery, although they might be used on almost any textile or fabric article, to denote style, size, price, etc. It is conceivable, however, that a machine which embodies all of the essential elements and characteristics of my invention may be made to handle tags which differ more or less from the form of tag just mentioned.

I attain the objects and secure the advantages herein pointed out by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine which embodies a practical form of my invention, parts of the pedestal and foot-treadle rod being broken out to economize space, and a portion of one side of said pedestal being broken away to show more clearly the members within the same; Fig. 2, an enlarged front elevation of the upper part of said machine; Fig. 3, a vertical section on lines 3—3, looking in the direction of the arrow, in Fig. 2; Fig. 4, a top plan of so much of the machine as is shown in

Fig. 2; Fig. 5, an enlarged detail in top plan of a portion of the feeding mechanism; Fig. 6, an enlarged top plan of one of the stocking-holding or table-forming plates; Fig. 7, a perspective view of a tag which this machine is adapted to handle, and, Fig. 8, a cross-section through the tag-carrying tube used with said machine, the last two views being on a still larger scale than the other enlarged views.

Similar figures refer to similar parts throughout the several views.

The particular form of tag-clip or tag, which this machine is constructed to set, is best shown in Fig. 7, wherein it will be seen that the tag comprises a face piece 1 for the written or printed matter, and a tongue 2, said face piece and tongue being provided with inwardly-directed ribs 4 and 5, respectively, which are out of registry with each other. This tag is made of ductile metal, and is the device covered by United States Letters Patent, No. 843,960, and dated February 12th, 1907. It will be noticed that the tongue 2 is quite narrow as compared to the face piece 1.

The tags are fed to the machine from a triangular tube 6 upon which they have been previously placed, usually being discharged or run onto such tube by or from the machine which produces said tags.

Referring, now, to the machine itself and as illustrated, it will be seen that the same comprises mechanism mounted on and in a suitable supporting column, standard, or pedestal 7, and a suitable frame 8 bolted to the top of said pedestal. The mechanism just mentioned is described as follows:

Above the base of the pedestal 7 an operating lever or treadle 9 is provided, which treadle has its rear end pivoted at 10 to a bracket 11 rising from said base behind said pedestal. The treadle 9 extends forward through suitable openings 12 and 13 in the back and front sides, respectively, of the pedestal 7, in which opening said treadle operates, and presents its front or free terminal in convenient position for the foot of the operator. The downward movement of the treadle is limited by means of a vertical lug 14 located in the center or below the center of the pedestal proper on a cross-piece 15 that forms part of the base of said pedestal, and an approximately vertical bolt or stop 16 tapped through that portion of

said treadle that passes through the pedestal, said stop being so situated that the lower end of the same strikes the top of said lug when the treadle is depressed. The amount of depression permitted the treadle by the stop 16 can be adjusted, to increase or decrease it, by screwing said stop up or down accordingly. A set-nut 17 is employed on the stop to prevent the same from getting loose and so turning accidentally.

Two rock-shafts 18 and 19 are suitably journaled laterally in the frame 8, the latter above and somewhat in advance of the vertical plane of the former. Tight on the rock-shaft 18, in the center thereof, is a rocker-arm 20 which extends rearwardly and has pivoted at 21 to its back end a socket 22. A similar socket 22' is pivoted at 23 to the treadle 9 below. Opposite ends of a rod 24 are tapped into the sockets 22 and secured by means of two nuts 25. The rod 24 passes through the forked end of a bracket 26 bolted to the back side of the pedestal 7, and a spring 27 encircles said rod between such forked end, or an interposed washer 28, and a collar 29 secured to the rod by a set-screw 30. A pin 31 is inserted in the rod 24 to project beneath the bracket 26 and limit the upward movement of said rod and consequently the movement in one direction of each of the movable members which are directly or indirectly connected with the rod. Proper adjustment of the rod 24 is afforded by reason of the threaded engagement of said rod with the sockets 22 and 22', the distance between the pivotal points 21 and 23 being lengthened or shortened by turning such rod in one direction or the other, when the nuts 25 are loose. After such adjustment the nuts 25 are set tightly against adjacent ends of the sockets 22. The tension of the spring 27 is changed by loosening the set-screw 30, moving the collar 29 up or down on the rod 24, and retightening said set-screw.

A rod 32 is fixed laterally in the upper part of the frame 8, back of the transverse central plane thereof, and mounted on this rod and the rock-shaft 18 are parallel supporting beds or plates 33—33 which carry parallel guides 34—34 for the tags. The guides 34, in the present case, consist of angle-irons placed with their upstanding sides adjacent to each other, and said guides are so supported by the plates 33 that they incline, from above, downward and forward. The upper ends of the guides 34 are horizontal, and said guides are spaced apart for a distance which is a little greater than the width of a tag tongue 2. Thus it will be seen that a tag can slide down the guides with the underside of its face piece 1 on the upper (not the top) or front edges of the same and the tongue 2 between, it being understood that the tag when presented to

this machine is open, that is, the tongue stands at an angle to the face piece, as shown in Figs. 3, 7 and 8. The inclination of the guides is sufficient to enable the tags when delivered thereto to slide down by force of gravity.

A table, upon which the stockings are placed while the tags are being attached to them, is provided at the front of the machine. This table consists of two juxtaposed plates 35 which are fastened on the beds or plates 33 and have the same inclination as do the guides 34. The lower, front terminals of the plates 33 are widened, as shown at 36—36, in Fig. 4, to receive the stocking-holding plates. Each plate 35 is cut out at 37, Fig. 6, to accommodate the lower front terminal of the adjacent guide 34, and also at 38, Figs. 3 and 6, for the purpose presently to be described. The cut-away portions 38 form a slot, when the plates 35 are fitted together in their places in the machine to make up the table, which opens into the bottom of a groove or channel 39 in the center of such table. Along the upper longitudinal edges of the aforesaid slot are ledges 40—40 having side walls which rise to the bottom of the channel 39, and which are in line with the adjacent faces of the guides 34, so that the space between said walls is of the same width as that between said guides or adjacent faces thereof. The slot made by the indentations 38 is at the inner end of the channel 39, and said slot at its widest part is narrower than said channel. The ledges 40 are indented to form lateral shoulders 41—41, Figs. 3 and 6. The plane of the upper surface of the table is between the top and bottom planes of the guides 34, and the shoulders 41 are intermediate of the plane of said upper table surface and that of the bottom of said guides and distant from the lower, front ends of said guides a little less than the length of a tag tongue. The relation of these parts is such, in fact, that a tag can rest with the free end of its tongue 2 against the shoulders 41 while the upper edges of its face piece 1, that is, the edges which are adjacent to the junction between said tongue and said face piece, are against the lower, front ends of the guides, with said junction in the plane of the upper surface of the table and said plane practically bisecting the angle formed by the open tag, as clearly shown in Fig. 3.

A stocking shield or guard 42 is fastened beneath the table to the plates 35. This guard has a generally semicircular outline and serves to protect that part of the stocking which is under the table, during the tag-attaching operation presently to be explained, from the adjacent mechanism.

Two meshing sectors 43 and 44 are mounted rigidly on the left-hand terminals of the rock-shafts 18 and 19, respectively;

and two arms or holders 45 and 46, for the same number of closing-jaws 47 and 48, are mounted rigidly on said shafts, respectively, in the center, the end of the holder 45 which is mounted on the shaft 18 being forked to accommodate the adjacent end of the rocker-arm 20. The holders 45 and 46 extend downward and forward from the rock-shafts 18 and 19 and position the closing-jaws, which are secured in any suitable manner to the free ends of said holders or may form integral parts thereof, below and above, respectively, the inner end of the channel 39. The closing-jaw 47 is thin enough to pass through the slot at 38 and act on the tongue 2, when the holder 45 is rocked upwardly, while the closing-jaw 48 is wider and acts on the face piece 1, when the holder 46 is rocked downwardly, so that the tag positioned between said jaw is closed, that is to say, its face piece and tongue are pressed together, when the closing action of the jaws takes place. The downward movement of the rocker-arm 20 causes the jaws to close by the resulting swinging toward each other of the holders 45 and 46 through the medium of the rock-shafts 18 and 19 and the sectors 43 and 44. The front terminal of the holder 45 operates within or behind the guard 42.

Having now described in detail the tag-attaching or setting mechanism proper, in addition to the actuating or operating mechanism of the machine, I will next proceed to describe the feeding mechanism.

Fastened on the top of the frame 8, at the right-hand side, is a supporting bracket 49 for the tube 6. The bracket 49 has a part 50, angular in cross-section, which curves upwardly and outwardly from a point near the longitudinal central plane of the machine to a point beyond the right-hand side thereof, and terminates at its outer end in a triangular stem 51 upon which the tube 6 is placed and supported as shown in Figs. 2 and 3. There is a longitudinal groove 52 in the part 50, which groove continues inward, from the upper, front corner of the tube 6, when the latter is in place on the stem 51, at the left-hand end of said tube, to the inner end of said part 50. The groove 52 forms a runway for the ribs 4 on the tag face pieces 1. The part 50 of the bracket 49 really constitutes a guide for the tags which slide down the same to be fed subsequently to the closing-jaws, the face pieces 1 of said tags resting and sliding on the upper surface of said guide, with the ribs 4 in the groove 52, and the tongues 2 of said tags bearing against and sliding on the rear side of said guide, with the ribs 5 in front of the bottom edge, represented by dotted lines at 53, in Fig. 2, of the guide.

A tag-carrier 54 is fastened to the underside of a carrier-slide 55 and so located that

it is adapted to travel back and forth immediately adjacent to the inner end of the guide 50. The back part of the tag-carrier 54 is somewhat similar in outline to that of the guide 50 in cross-section, so that when said carrier is in its forward position the adjacent end tag on said guide slides on to the carrier. Said carrier has an indentation 56 in its upper edge which corresponds with the groove 52 with which such indentation is in line at the time a tag is received on to the carrier, and the latter has also an indentation 57 in the back end. The indentations 56 and 57 receive the ribs 4 and 5, respectively, of a tag supported by the carrier 54.

The tag carrier 54 is bolted to the carrier-slide 55 at 58. The carrier-slide 55 is mounted to reciprocate in suitable bearings afforded by front and back supports 59 and 60, respectively, on the top of the frame 8, caps 61 being secured by screws to said supports over said slide and so constituting parts of such bearings. Reciprocal motion is imparted to the carrier-slide by means of a rocker-arm 62 mounted at its front end on the rock-shaft 18 at the left of the jaw-holder 45, and a link 63 connected at its front end, by a stud 64 which passes through a slot 65 in the upper terminal of said arm, with the latter, and connected at its rear end, by a stud 66, with such slide. The stud 64 is adjustably secured to the rocker-arm 62 and held in place in the link 63 by means of suitable nuts 67 and washers 68, and the stud 66 is secured to said link by means of a nut 69 and washer 70. In Fig. 3, the pivot opening in the carrier-slide for the end of the stud 66 which connects directly with said slide appears at 71. From the foregoing it is clear that, as the arm 62 is rocked by the shaft 18, reciprocal motion is imparted to the carrier-slide, through the medium of the link 63, which link is loose on the stud 64 and has the stud 66 loose in said slide. The slot 65 affords means by which adjustment of the travel of the carrier-slide may be effected upon loosening the left-hand nut 67, whereby the actuating mechanism for the tag-carrier 54 can be made to locate said carrier in exactly the proper relation to the inner end of the tag-guide 50 when the carrier is at the front end of its travel.

A horizontal stud 72 is tapped into the support 60 from the inside and held in place by a nut 73. The head of this stud has two flat faces on opposite sides against which the rear terminals of two tag-retaining springs 74 and 75 are secured by screws 76. The springs 74 and 75 are flat, they extend forward on both sides of the upper terminals of the guides 34, and the spring 74 is longer than the spring 75 and extends far enough forward on the left-hand side of the tag-carrier 54 to serve as a stop for the tag received

on said tag-carrier—see Fig. 5. The normal space between the springs 74 and 75 is a little wider than the width of the face piece 1 of a tag, but said springs are provided with oppositely-disposed, interior, vertical ribs 77—77 the normal space between which is less than said width of the face piece. The rib 77 on the spring 75 is situated at the front end of said spring, which end is immediately adjacent to what is then the back end of a tag on the carrier 54 when said carrier is at the forward end of its travel, and the rib 77 on the spring 74 is directly opposite said first-mentioned rib, as already intimated. The construction and arrangement of parts is such, as will be readily seen, that, when the carrier 54 is actuated backward with a tag thereon, said carrier forces said tag past the ribs 77, the springs 74 and 75 yielding outwardly or laterally to permit this, and locates said tag behind said ribs, and then when said carrier advances again said tag is held by said ribs or prevented by them from going with the carrier. Thus the carrier passes away from the tag, and the latter immediately drops onto the guides 34 in such a way that it instantly slides down said guides with its tongue 2 between them. The tag-carrier is sufficiently narrow to pass the ribs 77 without separating them, therefore it can pass forward, after forcing a tag back of said ribs far enough to allow them to spring in front of said tag, without acting on the springs 74 and 75, with the result that said tag is left by said carrier and permitted to drop onto the guides 34. The tag drops onto the guides 34 in such a way that it tilts downward over the front edges thereof at the top, and slides down as stated.

The complete operation of the machine is, briefly, as follows, it being assumed that there is a loaded tube 6 mounted on the stem 51, as shown in Fig. 2, that tags from said tube have passed down onto the guide 50 and one from said guide onto the carrier 54, and that there is a tag at the setting point, tags at the feeding point (on the carrier 54) and setting point (supported by the shoulders 41 and the lower ends of the guides 34) being shown in Fig. 3. It will be observed that the face piece 1 of the tag at the setting point is so positioned that its front edge while in such position is against the bottom or working face of the closing-jaw 48, the parts being so arranged, relatively, that such edge slides under said working face directly after said tag arrives at the bottom of the guides 34 and before the upper or back edges of said face piece drop down in front of the lower ends of said guides or the free end of the tongue 2 reaches the shoulders 41. A pair of stockings (not shown) is slipped onto the table at 35, with part of one stocking below said table where it is protected from the closing-

jaw 47 and the holder 45 therefor by the guide 42, and with contiguous edges of the two stockings held together in readiness for the tag which is to fasten said stockings one to the other as well as to mark them. While thus held by the hands of the operator the parts of the two stockings so grasped are pushed up on the table into the space between the face piece of the tag at the setting point or station and the adjacent portion of said table, and the treadle 9 is depressed and released. The depression of the treadle results in drawing down the rod 24, against the resiliency of the spring 27, and with it the rocker-arm 20. The downward swing of the arm 20 rocks the shaft 18 and also the shaft 19, although in opposite directions, through the medium of the sectors 43 and 44, and thus causes the jaw-holders 45 and 46 to swing toward each other and the closing-jaws 47 and 48 to act, respectively, on the contiguous tongue 2 and face piece 9 to close the tag, compressed by these members, on the stockings and so securely attach it to them, owing to the peculiar construction of the tag and to the arrangement of the ribs 4 and 5. The closing-jaw 47 passes through the slot at 38 to perform its work, while the closing-jaw 48 operates above the table. The same rocking of the shaft 18 that brings about the setting of the tag also causes the carrier slide 55 to be moved toward the rear, through the medium of the rocker-arm 62, the link 63, and connections, and to take with it the tag-carrier 54. The latter in its backward movement locates the tag thereon behind the ribs 77. Now, upon the release of the treadle 9 to the spring 27 and the consequent rise of said treadle and return of the actuating and operating parts and members to initial positions, the jaws 47 and 48 are caused to swing away from each other or to open and release the tag just closed by them on the stockings, and the latter are removed from the machine, the channel 39 being provided to facilitate such removal since the space thus afforded or the trough thus formed in the table for the closed tag and leading away from the setting station enables said stockings to be withdrawn from the machine as soon as said jaws start to separate; and simultaneously with the opening of the closing-jaws occurs the releasing of the tag at the feeding point or station from the carrier 54, the latter traveling forward at this time and leaving said last-mentioned tag behind to drop onto and slide down the guides 34 to the setting station to take the place of the tag just attached to the stockings. The tag-carrier, when it makes its backward stroke, presents an unbroken side to the bottom tag on the guide 50 and so holds back this tag and those above or at the right of it, but when said carrier arrives at the end of its forward stroke, upon the re-

lease of the treadle to its spring, said bottom tag instantly slides onto the carrier, the movement of this tag and its followers being checked by that part of the spring 74 which is in front of the rib 77 on said spring, so that now there is once more a tag at the feeding station as well as at the setting station, and the machine is ready for a repetition of the operations previously explained. After the last tag leaves the tube 6 said tube is removed from the stem 51 and taken away to be reloaded, and another, loaded tube is placed in position on said stem.

Various changes in the construction and arrangement of some or all of the parts of this machine, some of which have previously been alluded to, may be made without departing from the nature of my invention.

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

1. The combination, in a tag-setting machine, of tag-closing members, both being movable, a suitable table between said members, gravity-feed guides, stationary positioning means for a tag relative to said members, such means including adjacent parts of said guides and table, and operative mechanism for such tag-closing members.

2. The combination, in a tag-setting machine, of a suitable table, stationary positioning means for a tag relative to said table, means at a higher elevation than and remote from the table to feed tags to such positioning means, tag-closing members in operative relation to such positioning means above and below the same, and mechanism to operate said tag-closing members, both of said members being movable.

3. The combination, in a tag-setting machine, with suitable tag-positioning means and suitable tag-closing mechanism, of a tag-supply guide, a tag-carrier adapted to receive a tag thereon and to transfer such tag while on the carrier from said guide to retaining means for said tag, mechanism to actuate said carrier, and tag-retaining means capable of engaging the tag on the carrier at the end of the rearward travel of the carrier and of preventing said tag from going with the carrier when the latter moves forward.

4. The combination, in a tag-setting machine, with a feeding station and a setting station at different levels or elevations, said setting station being stationary, of means to deliver a tag from the first to the second of such stations, and means to close the tag at said setting station.

5. The combination, in a tag-setting machine, with a feeding station and a setting station at different levels or elevations, said setting station being stationary, of reciprocating means to cause a tag to be delivered from the first to the second of such stations, oscillating means movable toward the tag from opposite directions to close said tag at

said setting station, and means to actuate simultaneously said reciprocating and oscillating means.

6. The combination, in a tag-setting machine, with a gravity-feed guide for tags, of a tag-carrier, means to actuate said carrier, and yielding members in operative relation to the tag-carrier and provided with engaging means for a tag forced behind such means by the carrier, one of such yielding members serving as a lateral stop for a tag on the carrier.

7. The combination, in a tag-setting machine, with a gravity-feed guide for tags, of a tag-carrier, means to actuate said carrier, yielding members in operative relation to the tag-carrier and provided with engaging means for a tag forced behind such means by the carrier when moved backward, and gravity guides leading downward from between said yielding members and adapted to receive the tag held back by said engaging means when the carrier advances.

8. The combination, in a tag-setting machine, with gravity guides for tags, and a suitably slotted table provided with tag-receiving shoulders on opposite sides of the slot therein, the arrangement of parts being such that a tag after sliding down said guides rests at one end against the guides with its tongue against said shoulders, of suitably mounted jaw-holders provided with tag-closing jaws at their free terminals, one of such jaws being adapted to enter said slot and engage said tongue and the other of such jaws being adapted to engage the face piece of said tag, and operative means for such holders.

9. Feed mechanism, for a tag-setting machine, comprising a gravity-feed guide, a slide, means to reciprocate such slide, yielding tag-retaining members adapted to receive between them a tag carrier with a tag thereon and to hold back such tag, and a tag-carrier supported by said slide and actuated thereby across the adjacent end of said guide and into and out of the field of action of said tag-retaining members, the construction and arrangement of parts being such that said tag-carrier is capable of receiving a tag bodily thereon and of transmitting such tag so supported from the guide to the tag-retaining members.

10. Feed mechanism, for a tag-setting machine, comprising a gravity-feed guide, a slide, means to reciprocate said slide, yielding tag-retaining members, one of which latter is longer than the other, and a tag-carrier supported by said slide and actuated thereby, between the adjacent end of said guide and the forward part of the longer of said tag-retaining members, into and out of the field of action of both tag-retaining members.

11. Setting mechanism, for a tag-setting

machine, comprising rock-shafts, meshing sectors mounted on such shafts, means to actuate one of such shafts, and jaw-holders mounted on the rock-shafts and provided with tag-closing jaws, together with positioning means for a tag, such positioning means being so constructed and arranged as to retain the tag while being closed by said jaws between the adjacent faces thereof.

10 12. The combination, in a tag-setting machine, with suitably-supported gravity guides, and a suitably-supported slotted table having shoulders in its slotted part for a tag tongue, such shoulders being adjacent to
15 but somewhat remote from the lower ends of said guides, of tag-setting mechanism comprising rock-shafts, meshing sectors mounted on such shafts, means to actuate one of such shafts, and jaw-holders mounted on the
20 rock-shafts and provided with tag-closing jaws positioned by said holders normally above and below the slot in said table and one of such jaws being adapted to enter said slot.

25 13. The combination, in a tag-setting machine, with suitably-supported gravity guides, a suitably-supported slotted table having shoulders in its slotted part for a tag tongue, such shoulders being adjacent to but

somewhat remote from the lower ends of 30 said guides, and a shield or guard beneath said table, of tag-setting mechanism comprising rock-shafts, meshing sectors mounted on such shafts, means to actuate one of such shafts, and jaw-holders mounted on the 35 rock-shafts and provided with tag-closing jaws positioned by said holders normally above and below the slot in said table and one of such jaws being adapted to enter said slot, one of said holders with its jaw operating behind or within said shield or 40 guard.

14. Feed mechanism, for a tag-setting machine, comprising two gravity-feed guides, a tag-carrier adapted to be actuated in operative relation to the adjacent ends of said 45 guides and when it advances to convey a tag from one of said guides to the other, and means to hold the tag when said carrier moves back, so that the latter passes out of supporting relation thereto, and thus to 50 cause the tag to be delivered to said second guide.

CHARLES F. SMITH.

Witnesses:

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