B. W. SCOTT.

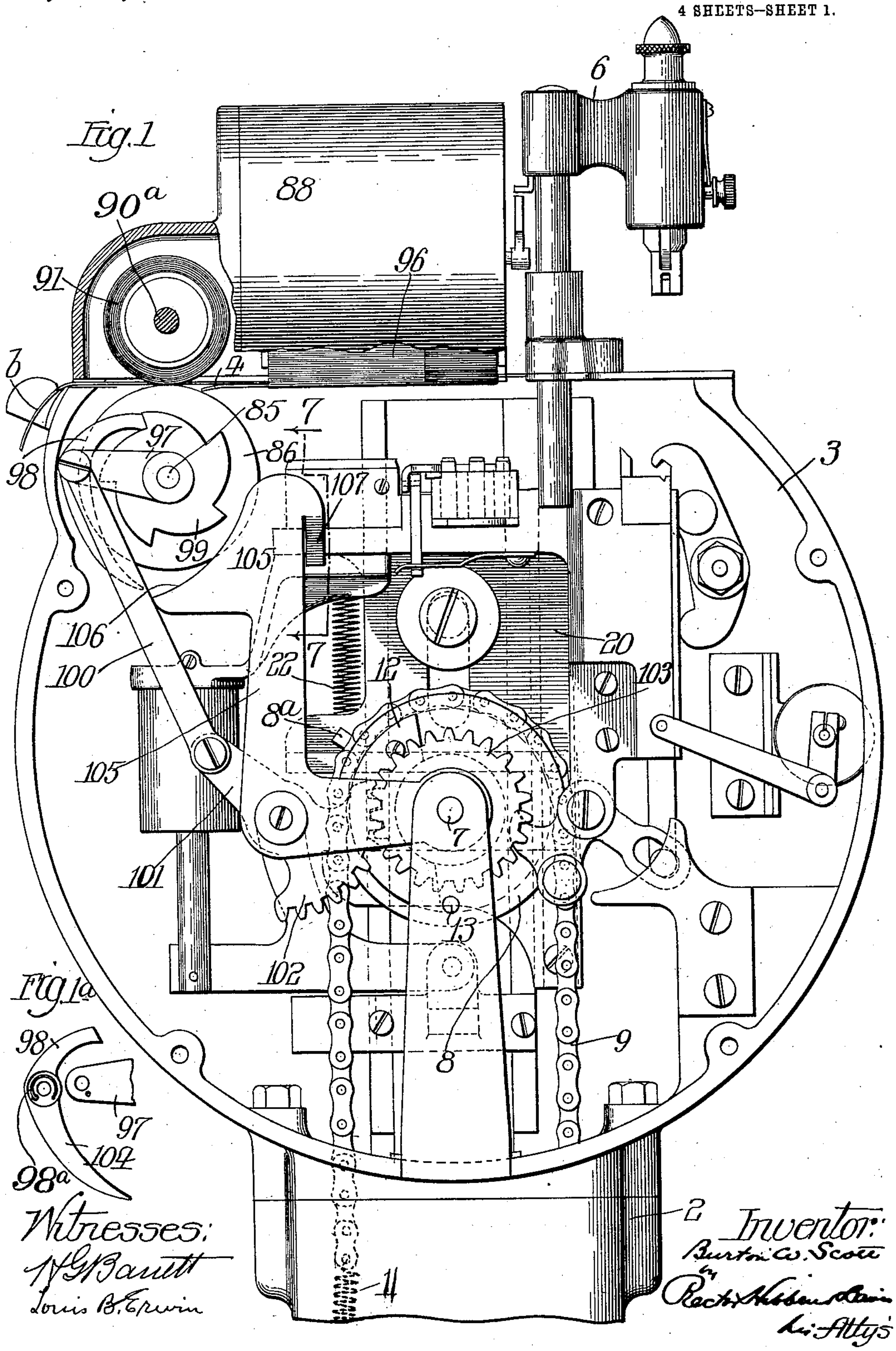
AUTOMATIC PIN TICKETING MACHINE.

APPLICATION FILED APR. 1, 1907.

1,023,883.

Patented Apr. 23, 1912.

4 SHEETS—SHEET 1.



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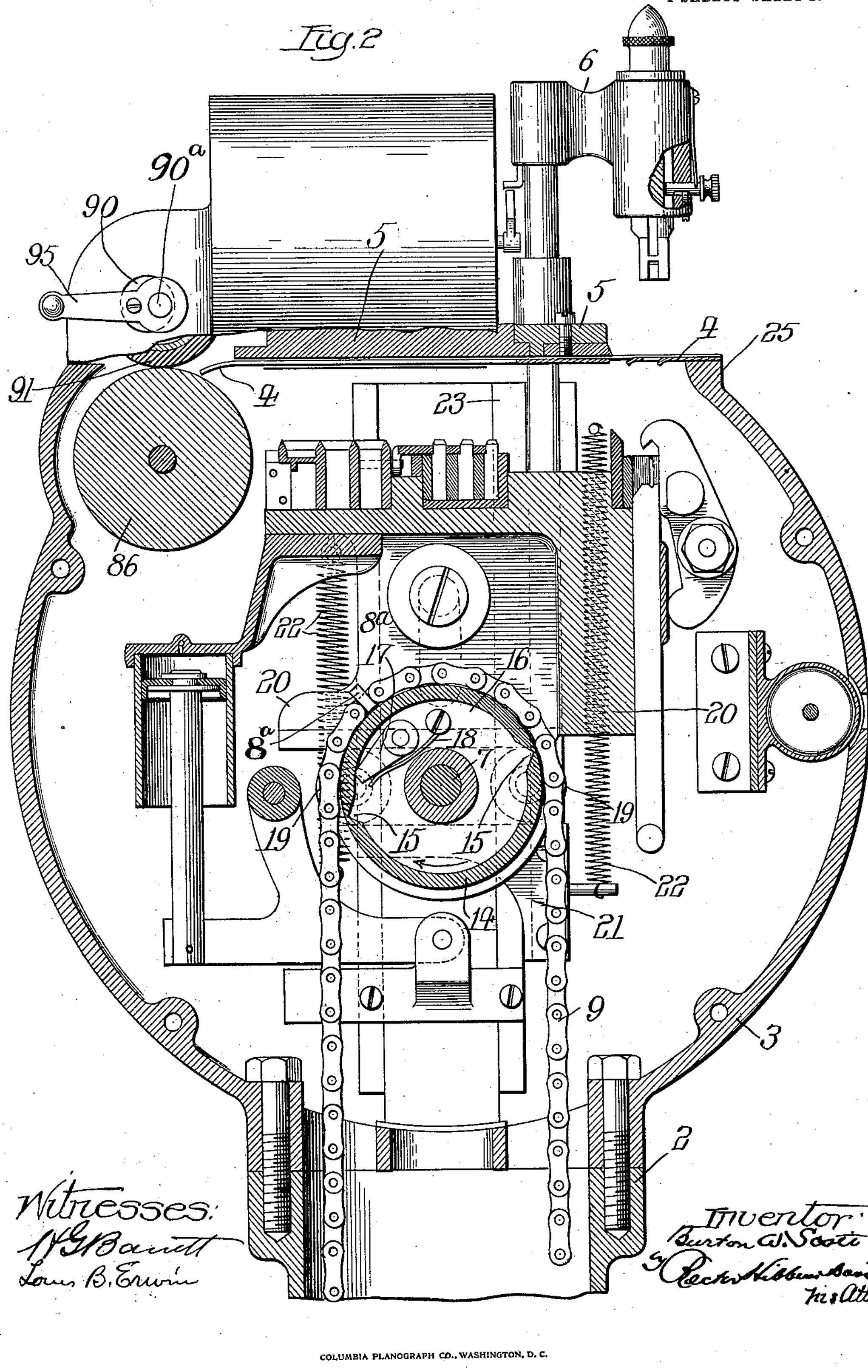
4 SHEETS—SHEET 2.

Fig. 2



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4 SHEETS—SHEET 3.

Fig. 3

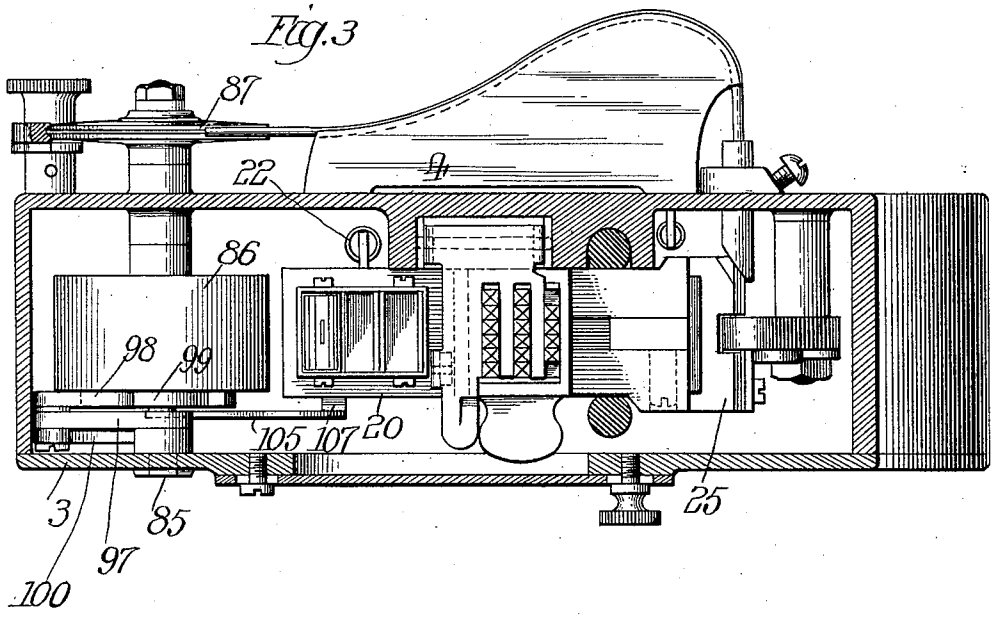
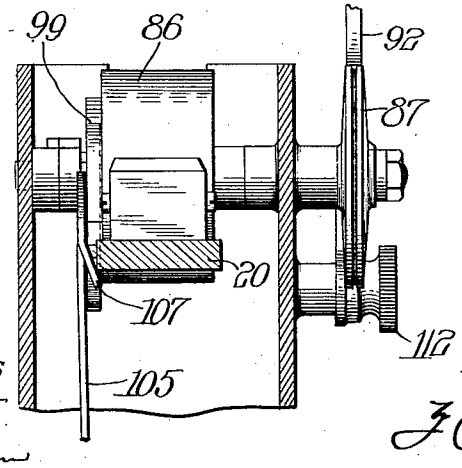


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

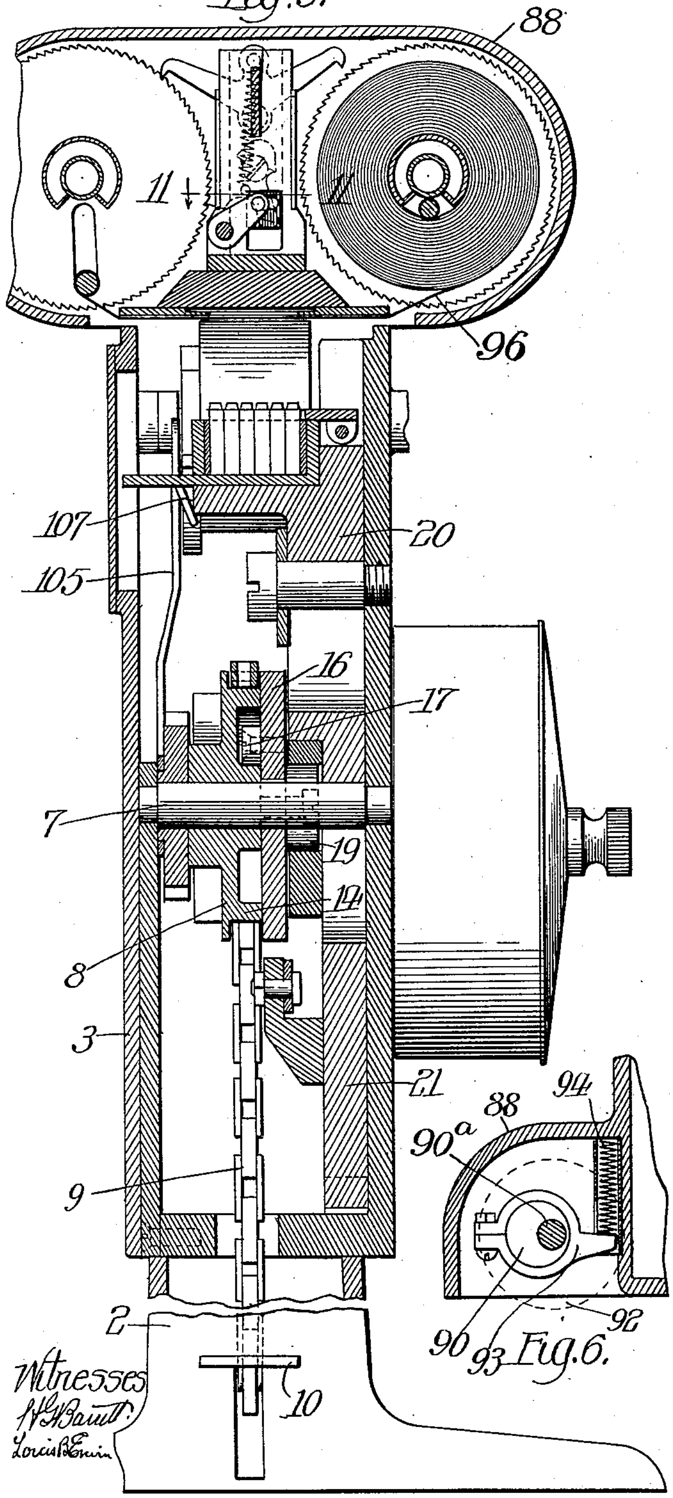

Fig. 6.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC PIN-TICKETING MACHINE.

1,023,883. Specification of Letters Patent. Patented Apr. 23, 1912.

Application filed April 1, 1907. Serial No. 365,812.

To all whom it may concern:

Be it known that I, BURTON W. SCOTT, a citizen of the United States, residing at Detroit, in the State of Michigan, have invented certain new and useful Improvements in Automatic Pin-Ticketing Machines, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates primarily to that class of machines intended for use in automatically attaching to samples of goods or articles of wearing apparel, tags or tickets with printed matter thereon, usually comprising the name of the concern handling the goods, the size, and the price or such other data as may be useful in the retailing of the merchandise. Such machines are designed to supplant the fastening of tags or tickets to goods by hand and the penciling of memoranda on the tickets. This manual process is not only slow and expensive but the pencil marks put upon the tickets if not illegible from the start become so in a short time with the handling of the goods. The automatic machine performs all of the functions before performed by hand and requires merely the application of power and the proper guiding of the work. The tags or tickets are printed on a continuous strip of paper or card-board fed intermittently and wire for staples is correspondingly fed and a length thereof cut off in each operation of the machine and formed into a staple. The machine cuts from the continuous strip of paper or card-board a printed tag or ticket at each operation and the staple formed in each operation of the machine is driven through the tag or ticket. If such tag or ticket is to be fastened to the goods the machine is adjusted to clench the ends or legs of the staple after they have passed through the tag and the goods. If on the other hand it is desired to simply turn out stapled tags or tickets then the machine is adjusted so that the ends of the staple will not be turned back. Of course when attaching the staples to the goods by the use of the machine it is not essential that the staple pass through the tag. It might pass on either side of the same in such close engagement with the edges thereof as to insure its being held securely in place.

Machines of the character indicated have been used to some extent in commercial establishments and their labor-saving capabilities demonstrated but certain difficulties have been encountered owing partly to the circumstances that the machines as a rule are run by unskilled persons and partly to the character of the stock from which the staples are formed. For example, in such a machine arranged to be operated by the depression of a treadle it will sometimes happen, through carelessness or weariness of the operator that only a partial stroke is made before the treadle is released with the result that the stapling is not thoroughly done and the premature feed of wire and strip for the next staple and ticket will cause the machine to become choked.

It is the object of the present invention to provide an efficient and reliable mechanism for feeding the wire and ticket strip in such a machine, which, among other advantages, will prevent the possibility of the wire or ticket strip being advanced until a full-stroke of the treadle or other operating device has been made.

With the above and incidental objects in view the invention consists in certain novel features of construction and combinations of parts the essential elements whereof are recited in the appended claims and a preferred form of embodiment of which is illustrated in the accompanying drawings and specifically described hereinafter.

Of said drawings Figure 1 represents the machine in left-side elevation, the cover plate being removed and some parts of the casing broken away; Fig. 1ª shows certain parts detached which appear assembled in Fig. 1; Fig. 2 represents the machine in vertical section from front to rear; Fig. 3 is a sectionalized top plan view; Fig. 4 is a section on the line 7—7 of Fig. 1; Fig. 5 is a vertical cross-section of the machine with a base portion in front elevation; and Fig. 6 is a fragmentary section from front to rear of the upper part of the machine.

In said drawings the reference numeral 2 designates a supporting column at the top of which is a casing 3 of substantially cylindrical form preferably having one removable side plate. This cylindrical form preferably is squared off at the top to receive a work plate 4 which will come flush with the upper surface of the work table when the

machine is in place. Above the said work plate is a cap piece 5 which covers all except a limited portion of the work plate at the front. The staple cutting, forming and driving mechanism is located below this work plate within the cylindrical head 3 and the formed staple is projected up through a suitable opening in said work plate in front of the cap piece 5. The type for printing the tag or ticket is also carried within the cylindrical casing and works up through another opening in the work plate 4 beneath the cap-piece 5. The printed ticket strip is fed out from under the cap-piece 5 in a channel of the work plate 4 and over the opening in the front part of the latter up through which the staple is driven. The only part of the stapling mechanism which is above the work-plate is a clencher head 6 which overhangs that part of the work-plate through which the staple is projected.

Having thus indicated generally the organization of the machine a detailed description of the mechanism will ensue.

A shaft 7 is mounted to turn in bearings in the cylindrical casing 3, said shaft extending axially of said casing and having loosely mounted upon it a disk 8 with a flange 14 over which passes a sprocket chain 9 (Fig. 1) and with a stake 8^a kept engaged with a link of said chain whereby the disk may be oscillated. This sprocket chain will be coupled at one end to a treadle 10 or other suitable operating device (Fig. 5) and connected at the other end with a coiled spring 11. This arrangement will be seen to provide for turning of the sprocket wheel in one direction by foot pressure for example and in the opposite direction by the coiled spring 11 which is of the retractile order. One end of a segmental plate 12 (secured to the disk 8) by abutting a fixed pin or lug 13 limits movement of the disk under the impulse of the spring. The laterally projecting annular flange 14 of the disk 8 at diametrically opposite points (Fig. 2) is recessed to form right-angled notches 15. Alongside of the disk on the same side as said flange there is mounted upon the shaft 7 and affixed thereto a second disk 16 (Fig. 2) which carries a pivoted dog or pawl 17 pressed by a spring 18 into engagement with the inner wall of the flange 14. This construction will be seen to provide for actuation of the disk 16 whenever the confronting side of one of the notches 15 drives against the end of the dog or pawl 17. This will take place when the disk is being turned by foot pressure on the treadle in the direction of the arrow (Fig. 2) but it will be observed that the disk 16 can at any time advance in the same direction independently of the disk 8. The presence of two notches 15 diametrically opposite each other of course indicates that the movements of the disk 16 under actuation of the disk 8 are divided, first one notch engaging with the dog in one operation of the machine and then the other notch engaging with the dog in the next operation of the machine. The reason for this will become apparent as the description proceeds. The disk 16 carries on the side opposite the dog 17 a pair of rollers 19 located at diametrically opposite points and freely rotatable upon studs fastened in the disk. These rollers lie between the confronting horizontal edges of two vertical slides 20 and 21 (Fig. 2) and it will be seen that when the axes of the two rollers are in a horizontal plane the said confronting edges of the two slides approach as near as the construction under any adjustment will permit and that by turning the disk 16 in the direction of the arrow in Fig. 2 the two rollers with their supporting disk act as a spreader to force these confronting edges of the slides away from each other. It will further be apparent that after the rollers have passed a point where their axes are in a vertical plane, power applied to turn the disk in the direction of the arrow becomes *nil* so far as a separation of the confronting edges of the slides is concerned and these edges may again approach. Retractile spiral springs 22 connect the two slides 20 and 21 with the casing tending always to draw them together and in the operation of the machine the turning of the disk 8 against the stress of the spring 11 as by application of foot pressure on a treadle, causes one of the notches 15 to engage with the end of the dog or pawl 17 and the disk 16 to be carried through a quarter turn or a fraction beyond by the thrust of one side of one of the notches against the end of the dog. Then as soon as the axes of the rollers 19 pass the vertical plane the springs 22 draw the slides together revolving the disk 16 another quarter turn and bringing the rollers again to their horizontal position. It will thus be seen that after the slides have been spread apart they can come together again while the sprocket wheel is still in a forward position. This is availed of to insure an instantaneous separation of the ticket and wire cutting knives and also of the staple-forming and staple-clenching devices so that the strip and wire feed for the next operation will not be obstructed by any of these parts.

Passing now to the wire and strip feeding devices the numeral 85 designates a rotary shaft journaled in suitable bearings on the inclosing casing 3 and having affixed to it within said casing a strip feed roller 86 and having affixed to it on the exterior of said casing a wire feed roller 87. Eccentric journals 90 in a casing 88 surmounting the casing 3 carry a shaft 90^a on which are loosely mounted a rubber-faced roller 91 for coöperation with the feed roller 86 and a disk or

roller 92 for coöperation with the said roller 87. An arm 93 secured to one journal 90 is engaged by a compression spring 94 (Fig. 6) for the purpose of rocking the shaft 90^a in a direction to press the rollers 91 and 92 into engagement with the rollers 86 and 87 respectively. A handle 95 secured to the other journal provides means for rocking the shaft against the tension of said spring when it is desired to separate the feed rollers for insertion of the strip and wire or for other purposes. The strip *b* from which the tickets are to be cut enters a suitable slot in the back of the casing 3 and passes between the rollers 86 and 91 and thence over the plate 4 and above a polychrome inking ribbon 96, the plates 4 being of course open for the passage of the type into contact with the ribbon. The strip overlying the ribbon of course receives the impression after which the strip is fed forward to the stapling devices. The stapling wire *e* is introduced between the rollers 87 and 92 occupying a groove in the former but protruding from such groove for contact with the roller 92. It will be obvious that the turning of the shaft 85 to the right, or in a clockwise direction (see Fig. 1), will result in an advance of the ticket strip and the staple wire so long as the rollers 91 and 92 are free to exert pressure upon the strip and wire.

The feed of the strip and wire is arranged to take place after the stapling of a previously advanced length of strip has been completed and the ticket severed. The turning of the disk 8 in the direction of the arrow (Fig. 2) brings about the staple-forming and driving, and it is the reverse movement of this disk which effects the feed. To this end said disk carries a gear wheel 103 in mesh with a segment 102 on one end of a rocking arm 101 the other end of which is connected by a link 100 with an arm 97 loosely journaled upon the shaft 85 and carrying a pivoted pawl 98 engaging a ratchet wheel 99 secured to said shaft, all as clearly shown in Fig. 1. It will be obvious that oscillations of the disk 8 will swing the arm 97 up and down first retracting the pawl 97 over the ratchet wheel 99 and then advancing the pawl to turn this ratchet wheel and the shaft 85 thus effecting the wire and strip feed. The pawl is recessed as shown in Fig. 1^a for the reception of a spring 98^a engaged at one end with the pawl and at the other with the arm 97 to hold the pawl against the ratchet-wheel.

It is of the utmost importance that no advance of the wire or the strip shall take place until after the stapling operations are completed for otherwise the passageways for the wire and the strip might not be clear and the machine would become choked. Thus it is essential that the slide 20 shall have moved downward to remove the cutting block 25, carried thereby, from the lines of travel of the strip and wire before any feed movement of the same commences. To guard against a premature operation of the feed mechanism by release of the treadle or other operating device short of a full stroke and thus prior to the descent of the slide 20, the feed mechanism is put under control of said slide, means being provided for disabling the feed mechanism as the slide rises and the treadle or other operating device is terminating its forward stroke. The disabling means are then themselves disabled by the slide in its descent when it has moved far enough to clear the wire and strip passages and preferably as it reaches the limit of its downward movement. The particular devices here shown for accomplishing this purpose are of the following description: The pawl 98 is formed with a downward extension or tail-piece 104 slightly curved and of sufficient weight to yieldingly hold the pawl in engagement with the ratchet, thus supplementing the spring 98^a. A cam blade 105 here shown as mounted upon the shaft 7 and the pivot of the segment arm 101, is formed with a curved rear edge 106 for the tail-piece 104 of the pawl to ride upon and the contour of this edge of the blade is such that when standing in the path of said tail-piece it will cause displacement of the pawl as the latter is retracted over the ratchet wheel and will prevent the swinging of the pawl on its pivot into engagement with the tooth of the ratchet wheel over which the pawl may have been drawn. Normally the pawl tail-piece stands in rear of the cam blade as shown in Fig. 1 and the pawl is therefore operatively engaged with the ratchet wheel 99 and of course it is not essential that the disablement of the pawl shall take place until in its retraction over the ratchet wheel it arrives at a position where it might otherwise engage a tooth of said wheel following that against which it has previously operated. The cam blade is made of resilient material so that it may be sprung sidewise to carry its rear edge 106 out of line with the pawl tail-piece and the blade is formed with an inclined ear 107 one side of which supplies a cam surface for contact with a portion of the slide 20 as shown in Figs. 1, 3 and 4. When the slide is in its lowermost position it is in engagement with this inclined ear of the cam blade so that the latter is then held to one side and out of the path of the pawl tail-piece. However, as the slide 20 rises it leaves contact with said inclined ear and the cam blade springs into the path of the tail-piece so that as the pawl 98 is retracted while said slide is rising, and before reaching a position where it can engage with the next tooth of the ratchet wheel its tail-piece strikes the cam edge 106 of the plate 105 and the pawl

is removed from contact with the ratchet wheel. This condition obtains until the stapling has been completed and the slide 20 descends. This descent of the slide cannot take place until the treadle or other operating device has been carried through a full stroke. Then it is not until the slide has passed down far enough to remove the cutting block 25 from the lines of advance of the strip and wire that said slide encounters the inclined ear of the cam blade. Hence it is impossible for any feed of wire or strip to take place when there is any obstruction presented to their advance.

When the cam blade is forced aside by the slide 20 the cam edge 106 is disengaged from the pawl tail-piece whereupon the pawl will swing into engagement with the ratchet wheel behind a tooth of the latter so that when the treadle or other operating device is released and the spring 11 returns the disk 8 the feed will take place through the operation of parts heretofore described. Release of the treadle or other operating device prior to completion of a full stroke can have no disastrous result. Of course the operation of the treadle through any appreciable distance will result in the severing of the wire and the formation of a staple and the treadle can be operated short of a full stroke far enough to even sever the ticket yet release of the treadle can then result in no harm. Indeed the actuating disk 8 can be oscillated indefinitely short of a full movement and a partly formed or completely formed staple carried up and down and the operation then goes so far as to sever the ticket without any disastrous results. The work simply cannot go on until there has been a full oscillation of the disk. When this has finally been made the machine will simply have done the same work that it would have done if the disk had been fully oscillated in the first place and the machine will then go on stapling the printed tickets as before.

While the construction here shown and described will be seen to have been well calculated to fulfil the objects primarily stated, it is to be understood that the same may be considerably modified within the scope of the invention. Hence in claims which follow essential elements are recited without limitation to details of construction.

What is claimed is:

1. In a machine of the character described, the combination of a reciprocating main actuator, intermittent feed-mechanism operatively connected therewith, and means for disabling said mechanism while the main actuator is terminating its stroke in one direction, with provisions for automatically restoring the operativeness of the mechanism governed by the main actuator at the final portion of such stroke.

2. In a machine of the character described, the combination of a reciprocating main actuator, feeding devices, ratchet and pawl mechanism for the latter operatively connected with the main actuator, and means for disabling said mechanism while the main actuator is terminating its stroke in one direction, with provisions for automatically restoring the operative relation of the mechanism with the main actuator governed by the main actuator at the final portion of such stroke.

3. In a machine of the character described, the combination of a reciprocating main actuator, feeding devices, ratchet and pawl mechanism for the latter operatively connected with the main actuator, and means for disabling the pawl while the main actuator is terminating its stroke in one direction, with provisions for automatically restoring the pawl to operative relation with the main actuator governed by the main actuator at the final portion of such stroke.

4. In a machine of the character described, the combination of a reciprocating main actuator, a reciprocating member adapted to be actuated in one direction by a stroke of the actuator in one direction but independently movable in the other direction at the conclusion of such stroke, feeding devices, ratchet and pawl mechanism therefor operatively connected with the main actuator, and means for disabling said mechanism while the main actuator is terminating its movement in the one direction mentioned, with provisions for restoring the operative relation of the mechanism with the main actuator by the independent movement of the aforesaid reciprocating member.

5. In a machine of the character described, the combination of a reciprocating main actuator, a reciprocating member adapted to be actuated in one direction by the stroke of the actuator in one direction but independently movable in the other direction at the conclusion of such stroke, feeding devices, ratchet and pawl mechanism therefor operatively connected with the main actuator, and means for disabling the pawl while the main actuator is terminating its movement in the one direction mentioned, with provisions for restoring operative connection between the pawl and the main actuator by the independent movement of the aforesaid reciprocating member.

6. In a machine of the character described, the combination of a reciprocating main actuator, a reciprocating member adapted to be actuated in one direction thereby but independently movable in the other direction, feeding devices, ratchet and pawl mechanism therefor operatively connected with

the main actuator, and a cam for disabling the pawl while the main actuator is terminating its movement in one direction, with provisions for disabling the cam by the aforesaid reciprocating member in the latter's independent movement.

7. In a machine of the character described, the combination of a reciprocating main actuator, a reciprocating member adapted to be actuated in one direction thereby but independently movable in the other direction, feeding devices, ratchet and pawl mechanism therefor operatively connected with the main actuator, the pawl being pivotally mounted and having a rearward extension or tail-piece; and a cam adapted to stand in the path of the latter to prevent effective engagement of the pawl with the ratchet while the main actuator is terminating its movement in a direction to retract the pawl, with provisions for displacing the cam by the aforesaid reciprocating member in the latter's independent movement.

8. In a machine of the character described, the combination of a reciprocating main actuator, a feed roll, a ratchet thereon, a swinging arm concentric with the roll, a pawl pivotally mounted on said arm with provision for yieldingly engaging the ratchet, said pawl having a rearward extension or tail-piece, operating connections between the pawl-carrying arm and the main actuator, a slide moved in one direction by the latter and partaking of independent movement in the other direction upon completion of the main actuator's movement in one direction, and a cam-blade presenting an edge to the tail of the pawl to prevent effective engagement of the latter with the ratchet while the main actuator is completing such movement, said cam-blade having a portion arranged to be acted upon by the said slide to disengage the blade from the pawl as the slide moves independently of the main actuator.

9. In a machine of the character described, the combination of an oscillating spring-held actuating disk, an independent rotatable member provided with a crank and having a shaft upon which said actuating disk is concentrically mounted, one-way driving connections between said disk and said member, a spring-drawn slide having engagement with the crank of the latter whereby upon turning of the disk in opposition to its spring the slide will be moved in opposition to its own spring until the point of engagement of such crank passes the center whereupon the slide-spring returns the slide moving the crank member on independently of the disk; of a feed roll, a ratchet wheel thereon, a swinging arm concentric with the roll, a pawl pivotally mounted on said arm with provisions for yieldingly engaging the ratchet wheel, said pawl having a rearward extension or tail-piece, operating connections between the swinging arm and the oscillating disk; and a cam-blade presenting an edge to the pawl-tail for the purpose of preventing effective engagement of the pawl with the ratchet wheel while the disk is terminating its movement in opposition to its spring, said cam-blade having a portion arranged to be acted upon by the slide to disengage the cam-blade from the pawl as the slide is moved by its spring.

10. In a machine of the character described, the combination of an oscillating spring-held actuating disk, an independent rotatable member provided with a crank and having a shaft upon which said actuating disk is concentrically mounted, one-way driving connections between said disk and said member, a spring-drawn slide having engagement with the crank of the latter whereby upon turning of the disk in opposition to its spring the slide will be moved in opposition to its own spring until the point of engagement of such crank passes the center whereupon the slide-spring returns the slide moving the crank member on independently of the disk; of a feed roll, a ratchet wheel thereon, a swinging arm concentric with the roll, a pawl pivotally mounted on said arm with provisions for yieldingly engaging the ratchet wheel, said pawl having a rearward extension or tail-piece, operating connections between the swinging arm and the oscillating disk comprising a gear thereon, a segment in mesh with the gear and a link extending between the segment and the swinging arm; and a cam-blade presenting an edge to the pawl-tail for the purpose of preventing effective engagement of the pawl with the ratchet wheel while the disk is terminating its movement in opposition to its spring, said cam-blade having a portion arranged to be acted upon by the slide to disengage the cam-blade from the pawl as the slide is moved by its spring.

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