227-39

EXAMINER 8

No. 859,320. PATENTED JULY 9, 1907.

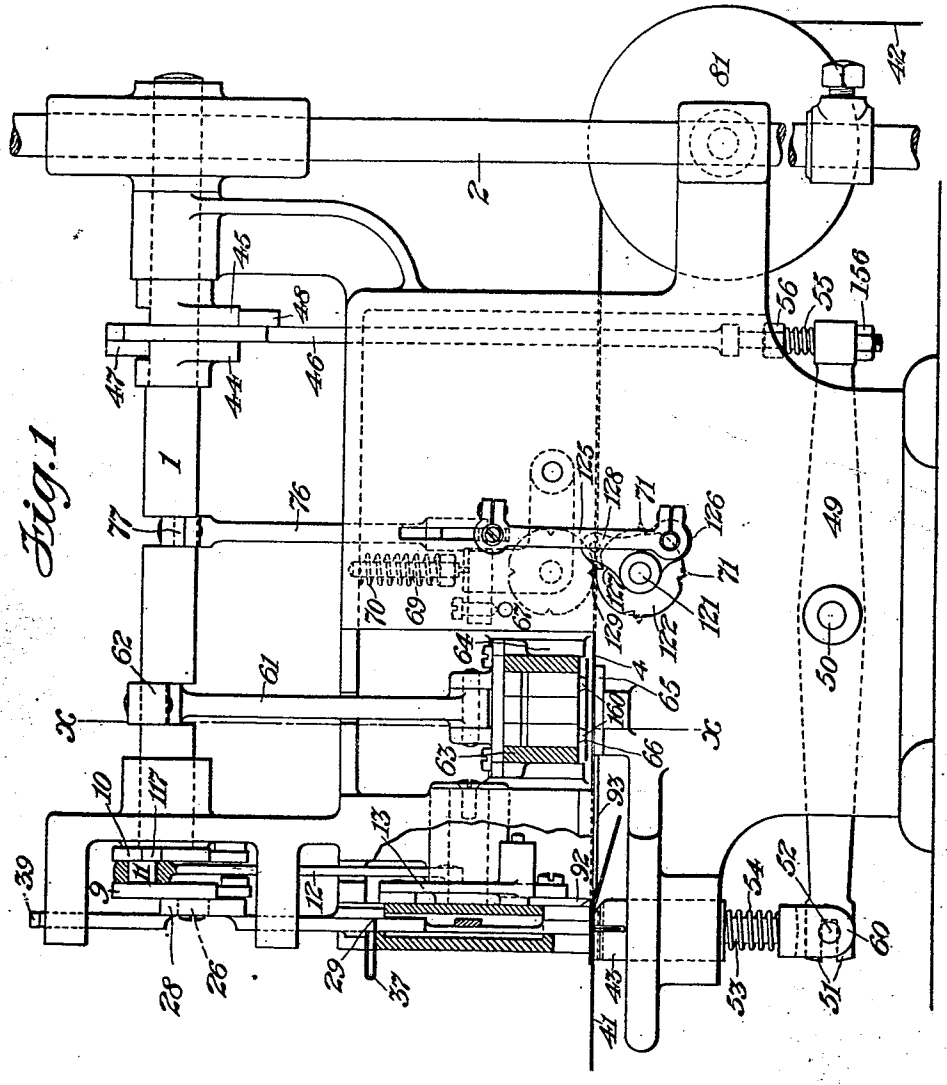
F. G. MYERS.

PIN TICKETING MACHINE.

APPLICATION FILED MAR. 6, 1905.

5 SHEETS—SHEET 1.

Fig. 1



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Thos. H. Brown

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By his Attorney
George H. Stockbridge

Examiner.

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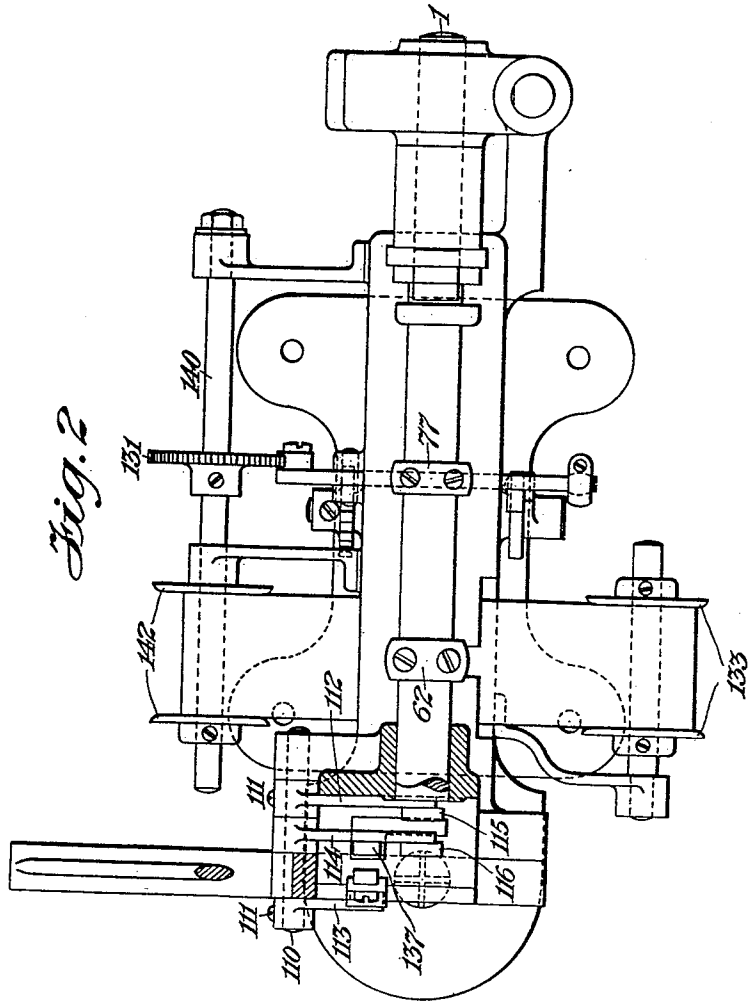
5 SHEETS—SHEET 2.

Fig. 2



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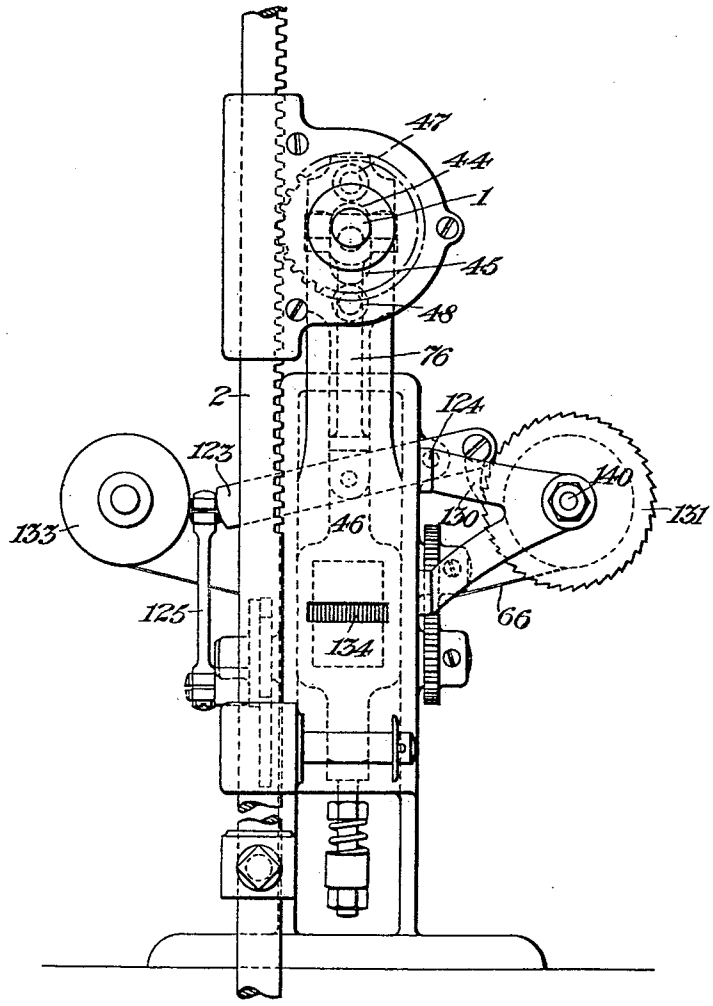
5 SHEETS—SHEET 3.

Fig. 3



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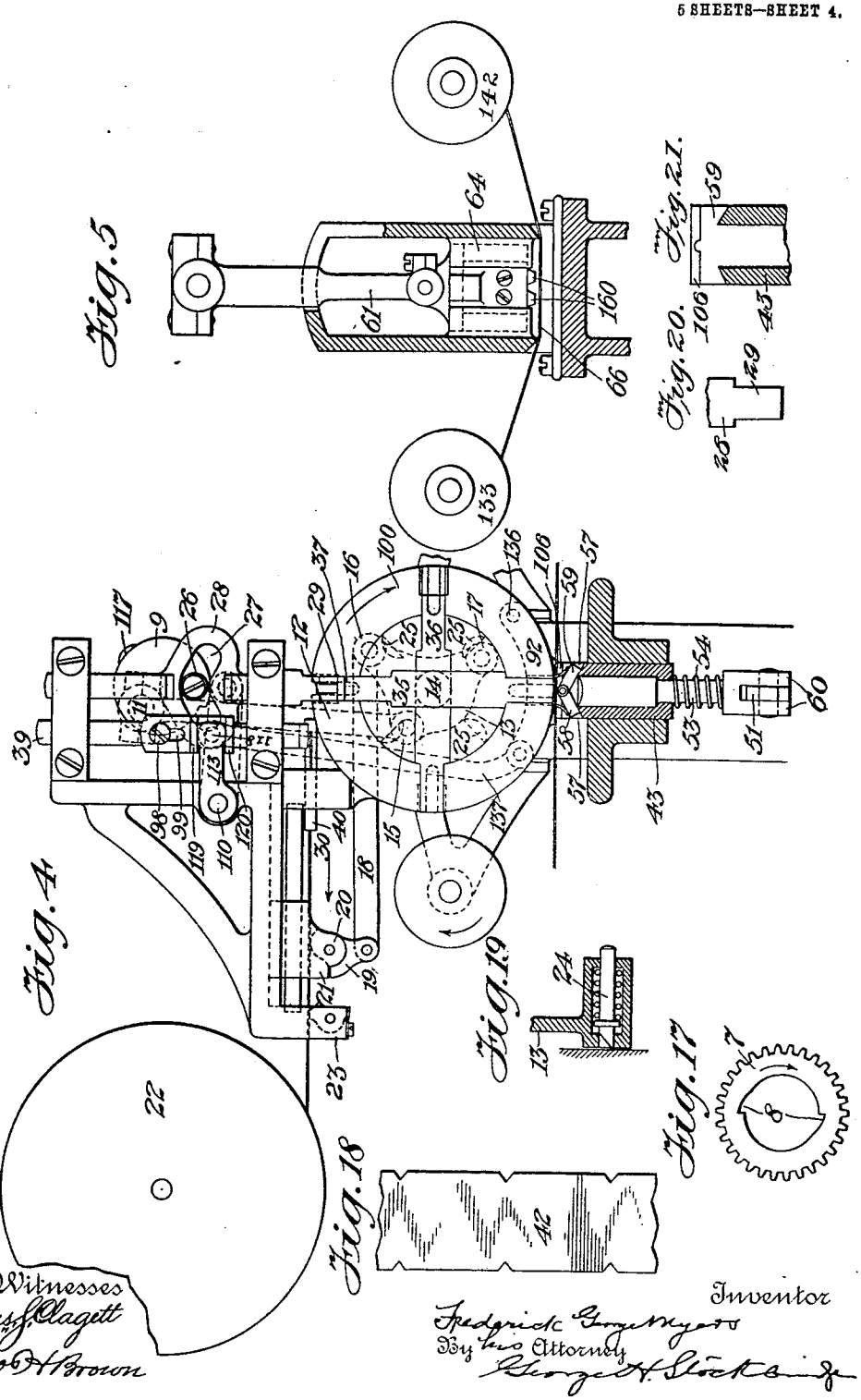
5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

Fig. 9

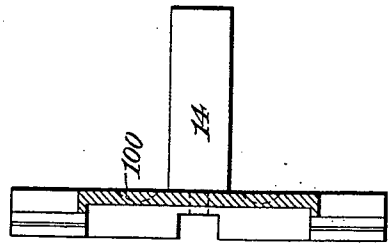


Fig. 15

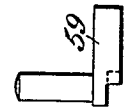


Fig. 16

Fig. 8

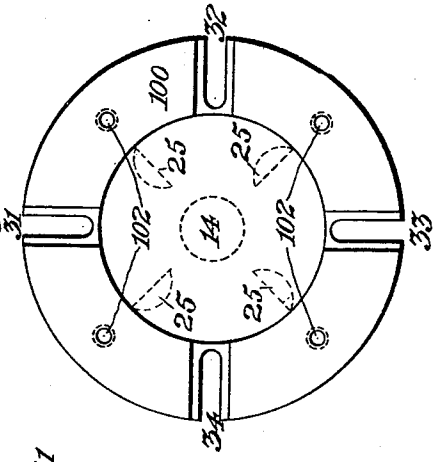


Fig. 13

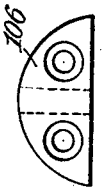


Fig. 14

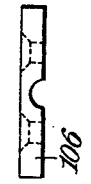


Fig. 7

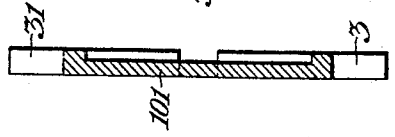


Fig. 11

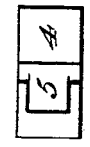


Fig. 12

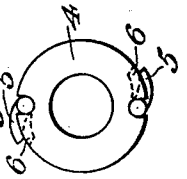


Fig. 6

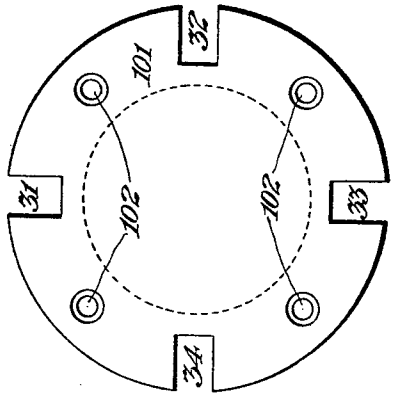
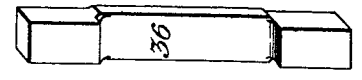


Fig. 10



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK GEORGE MYERS, OF PINELAWN, NEW YORK, ASSIGNOR TO A. KIMBALL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PIN-TICKETING MACHINE.

No. 859,320. Specification of Letters Patent. Patented July 9, 1907.

Application filed March 6, 1905. Serial No. 248,484.

To all whom it may concern:

Be it known that I, FREDERICK GEORGE MYERS, a citizen of the United States, and a resident of Pinelawn, county of Suffolk, State of New York, have invented certain new and useful Improvements in Pin-Ticketing Machines, of which the following is a specification.

The present invention relates to improvements in machinery for forming, feeding and printing pin tickets and attaching them to fabrics or to any of the materials to which it is customary or desirable to apply such tickets, the attachment of the tickets being accomplished by means of staples which are themselves formed, fed, driven and clenched by the machine.

The machine forming the subject of this invention performs all the operations named through the action of a single driving shaft and its associated parts.

By actuating the driving shaft either by foot or hand power, or by a suitable mechanical or electrical motor, the materials to be ticketed are clamped, the wire for forming the staples is fed forward simultaneously with the paper, card-board, or other material on which the printing is to be done, the staples are formed, driven and clenched, the tickets are printed and cut off and the goods or materials are released.

The improvements contemplated by the present invention reside in providing a very simple machine for accomplishing the results named with certainty and accuracy and with a high degree of speed.

One of the novel features of the present invention is that whereby the feeding of the wire for forming the staples and the carrying of the several staples to the point where they are to be driven and clenched are accomplished by rotary mechanism. In combination with the staple feeding and carrying devices I employ a set of drivers which move with the staple carrier and at proper intervals are brought into alinement with the staple which is about to be driven and are at the same time in a position to be actuated by a staple forming device at their opposite ends, so that the act of forming a staple and the act of driving a staple already formed are accomplished simultaneously and in part by the same set of devices.

Other distinguishing features of my invention will appear in the present specification and be more particularly pointed out in the claims.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of my pin ticket machine; Fig. 2 is a plan thereof; Figs. 3 and 4 are end views taken respectively, from points of view at the right and the left with relation to Fig. 1, the front plate or cover of the staple carrier being removed to show the drivers; and Figs. 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 and 21 are detail views.

Referring to the drawings, 1 is the main driving shaft of the machine, the same being actuated by any suitable means. For purposes of illustration I have shown the shaft 1 as being operated through intermediate mechanism by a rack or treadle bar, 2, operated by a treadle (not shown). The intermediate mechanism referred to may consist of a clutch block, 4, (see Figs. 11 and 12) having pawls, 5, 5, pivoted in sockets, 6, 6, in said clutch block. Surrounding the clutch block is a pinion, 7, (Fig. 17) provided with pawl sockets, 8, 8, for engaging the ends of the pawls 5, 5 when the pinion is moved in the direction of the arrow marked thereon. Springs may be provided for throwing the pawls 5, 5, outward to insure engagement with the walls of the sockets, 8, 8, when the pinion is rotated in the direction indicated.

The treadle rack 2 engages with the pinion 7 when the treadle is depressed and the treadle rack thereby lifted. During this motion of the treadle rack the pawls 5, 5 engage with the walls of the sockets, 8, and the driving shaft is moved in a clock-wise direction as looked at from the point of view taken in Fig. 3. During the descent or reverse movement of the treadle rack the pawls fall or are pressed into the sockets, 6, 6 and under those circumstances the pinion 7 does not engage with the clutch block and the shaft 1 is consequently unaffected.

The shaft 1 performs the various operations described at the opening of this specification through the medium of various eccentric devices presently to be explained. One of the said eccentric devices consists of disk cranks, 9 and 10, the latter of which is formed on the end of the shaft itself and is connected to the co-operating disk 9 by a wrist pin, 11, to which the connecting rod, 12, is pivoted. The lower end of the said connecting rod is pivotally joined to a segment, 13, which is loosely mounted on a shaft, 14. The segment 13 is in the present instance provided with three arms or extensions, 15, 16 and 17, to the first of which the connecting rod 12 is pivotally joined as described above and to the second of which the link, 18, is similarly pivoted. The opposite end of the link 18 is joined to a wire grip, 19, the same being pivoted to a lug, 20, on a wire grip carriage, 21. The wire itself is fed from a reel, 22, by the forward movement of the wire grip carriage, that is to say, a movement toward the right in Fig. 4. Such a movement of the carriage is caused whenever the link 18 is drawn to the right during the rocking movement of the segment 13 under the action of the connecting rod 12. During the reverse movement of the link, however, the wire grip 19 is so actuated as to release its hold upon the wire so that the carriage moves backward without exercising any pull upon the wire in that direction. To prevent any accidental slipping back of the wire under these circumstances,

I provide a second wire grip, 23, which is brought into operation only during the reverse movement of the grip carriage.

The third arm or extension 17 on the segment 13 is provided with a spring pressed ratchet tooth, 24, (Fig. 19) which is adapted to engage at intervals with one or the other of four notches 25, 25, 25, 25, in the back of a rotating or rocking staple carrier, 100, 101, the latter being rigidly secured to the shaft 14. By the engagement of the said ratchet tooth with the notches in the back of the carrier 100 the said carrier is rotated one-quarter of a revolution during each complete excursion of the connecting rod, 12, as will be readily understood.

On the outer disk crank 9 is carried a roller, 26, eccentrically mounted with relation to the shaft 1. This roller enters a curved slot, 27, in a cam bar, 28, which is extended in a downward direction so as to present above the wire 30 a staple forming end, 29. This staple forming end is located not only above the wire, 30, but also above one of a series of four pockets, 31, 32, 33, 34, in the rotating staple carrier 100, 101. The described pockets are formed in the staple carrier in pairs at diametrically opposite sides thereof and between the members of each pair extends a staple driver. One of these is indicated at 35 and the other, arranged in the carrier at right angles to the first named driver, is shown at 36. By referring to Fig. 10, it will be seen that the driver 36 is provided with a bend or notch and it is also true that the driver 35 is provided with a similar bend or notch so that when the two drivers are crossed as shown in Fig. 4 they can lie at right angles to each other in the carrier and still be capable of longitudinal movement without interfering one with the other. Accordingly, either of the staple drivers may conveniently be operated longitudinally to drive a staple as will presently be explained. The staple carrier itself is made up of two parts one of which, 100, is rigidly secured to or formed on the shaft 14 (Fig. 9) and the other of which, 101, serves as a removable cover, and, after the staple drivers have been inserted in place, may be secured to the part 100 by screw bolts passing through openings 102, 102, in the parts 100 and 101.

Figs. 6, 7, 8 and 9 show that there are radial slits in the edges of the disks, 100 and 101, the same corresponding in position to the four pockets 31, 32, 33 and 34. The slits in the part 101 serve the purpose of admitting the leaf spring 37, as clearly shown in Fig. 1.

By referring to the plan, Fig. 2, and to the end elevation, Fig. 4, it will be seen that the end frame of the machine supports a shaft 110, parallel to the main shaft 1. To this shaft are secured by set screws, 111, 111, rocking levers, 112 and 113, while another rocking lever 114 is loosely mounted on the said shaft 110. On the outer side of the rocking lever 112 is mounted a roller 115, and on the outer side of the rocking lever 114, is mounted a similar roller 116. These rollers stand, respectively, in line with the disks 10 and 9 at the end of the shaft 1. The disk 10 is provided with a cam pin or enlargement, 117, which periodically makes contact with the roller 115; that is to say, once during each rotation of the shaft 1. By this means the said shaft 110 is rocked, carrying with it the rocking arm, 112, as will be readily understood. Now the arm 113 terminates, as shown in Fig. 4, in a roller 118, which stands between two flanges 119 and 120 on an adjustable cutter-bar, 39. Manifestly, this cutter-bar will be operated in a downward direction once during each rotation of the shaft 1; that is to say, when the cam pin 117 strikes the roller 115 and presses it and its lever downward. This action is so timed as to cut the wire 30 for forming a staple just previous to the descent of the forming end of the cam bar, the cutting edge of the part 39 co-operating for this purpose with a shearing die, 40, to cut off a suitable length of wire.

The function of the rocking lever 114 is that of cutting off the end of the ticket strip for forming a ticket. This action will be described in its proper place later on. The lower part of the cutter bar 39 is made adjustable on the upper part thereof by means of a screw and slot shown at 98 and 99, respectively, to compensate for any wear that may take place at the cutter edge in the work of successively cutting off wire to form staples.

Assuming that the normal position of the apparatus is that in which the cam bar is at the upper limit of its excursion, the action which takes place through the medium of the forming end of the cam bar may now be described, it being first understood that a leaf-spring, 37, is attached to the lower end of the forming portion of the cam bar so arranged as to project slightly beyond the said end. During the descending motion the cam bar first carries the spring 37 into contact with the wire 30 thus holding the free end of the wire from being disturbed or thrown out of place by the cutting operation which ensues immediately thereafter. A still further descent of the cam bar forces its lower end more firmly against the wire, causing the spring 37 to collapse or be forced up against the bottom of the cam bar after or during which operation the wire is forced into one of the notches, say 31, and is shaped into the form of a staple. Meanwhile, the segment 13 is being rocked and at this moment is nearly ready for the ratchet tooth 24 to enter one of the notches 25 at the back of the carrier 100, 101. When the cam bar has been carried nearly or quite to its extreme upper limit of motion the feeding forward of the staple carrier takes place, at which time the end of the wire staple is free to pass under the lower end of the cam bar and the spring thereon without being interfered with. After the tooth has engaged with the notch, a repetition of the movements described above will cause the staple carrier to be fed forward a quarter of a revolution, the tooth afterwards being carried backward to engage with the next notch in the series. At the same time that the described operations are being carried out, the link 18 is going through the operations of being carried to its extreme left and right positions. The beginning of the movement to the left takes place immediately after the cutting of the wire as described, the timing of the apparatus being adapted for that purpose. It has already been explained that during this movement the grip 19 is released from engagement with the wire 30 and the carriage has moved back without disturbing the wire. During the latter half of the excursion of the cam bar the grip carriage is moved to the right and at such times the grip 19 takes upon the wire 30 and draws it along the proper distance for forming

another staple after which the same cycle of operations is repeated.

The goods or materials to which the tickets are to be attached are shown at 41, and the ticket strip at 42. The material to be marked is, as indicated, thrust in below the rotating staple carrier 100, 101 and below the ticket strip.

It will be described later on how the goods are held in place by means of the staple carrier above and the clamp 43 below and also how the pressure of the said clamp can be so regulated or adjusted as to permit the insertion of materials of any desired thickness, and how the staple, once driven through the ticket and the goods, is clenched. It is desired at present, however, to explain the operation of driving a staple. It will already be clear that the staples are carried around by the carrier 100, 101 one-quarter of a revolution by each complete rotation of the shaft 1. Consequently as soon as the carrier is loaded or charged with the first few staples formed as set forth above there will always be a staple at the lower end of the driver which happens to be in a vertical position, said staple being ready for being driven through the ticket and the goods. When the ramming, staple-forming action at the upper end of the driver is carried out and the staple is formed, the driver is forced downward far enough to carry the staple through the goods and the ticket, as clearly illustrated in Fig. 4.

The mechanism for operating the clamp 43 and its associated parts consists in the first instance of a set of cams, 44, 45, on the shaft 1 acting upon the clenching rod, 46, provided with rollers 47 and 48 operating on the opposite sides of the rod. Through the action of the cams upon these rollers the rod 46, after the shaft 1 begins its excursion, and after the material to be marked or ticketed has been put in place, is depressed slightly so as to lower one end of a connecting lever 49, pivoted at 50, and raise the opposite end of the said lever. At its remote end the lever 49 is formed into a yoke as shown at 51, and between the yoke arms a cross-pin, 52, is inserted, the same passing through wings or yokes 60 on the lower end of a clenching ram, 53, surrounded by the cylindrical clamp 43. Between the lower end of the cylinder 43 and the upper end of the wings or yoke piece 60 is a spring, 54, as shown. A spring 55 is also provided near the lower end of the rod 46, the spring being readily adjustable by means of nuts 56 and 156 as shown. By reason of the presence of the two springs 54 and 55, the machine adapts itself to attach tickets to materials of any desired thickness, the proper adjustment being made at the spring 55 and the proper compression being adopted for the spring 54.

The parts comprising the clenching rod 46, the connecting lever 49, the pivot 50, the yoke 60, the clenching ram 53, the cylindrical clamp 43, and the springs 54 and 55, constitute what may be called an adjustable yielding frame permitting goods of any thickness within limits to be received for ticketing.

The upper end of the cylindrical clamp, 43, is slitted as shown at 57, 57, and within the slits clenching wings, 58 and 59, (Fig. 4) are mounted upon the clamp and retained in position by caps, 106 (Figs. 13 and 14). The ram 53 is normally placed below the wings 58 and 59, so that when the ram is forced upward it spreads the wings until they reach practically a horizontal position.

The described initial action of the cams 44 and 45 is continued during a considerable portion of the rotation of the shaft 1 and until after a staple has been driven through the ticket and the goods in the manner already explained. At this point in the revolution of the main shaft, the cam action upon the rollers 47 and 48 is such as to cause a marked and sudden depression of the rod 46, thereby causing the ram 53 to be forced home to spread the wings 58 and 59 and clench the lower staple. With a clenching device of this character, there is practically no tendency to turn the points of the staple back into the goods in an injurious way and thus a very common difficulty in connection with the ticketing of fabrics is avoided. When the driving shaft is moved towards the completion of its rotation the cam action upon the rollers 47 and 48 is such as to lift the clenching rod 46 and release the clamp, thereby permitting the withdrawal of the goods with the ticket attached.

In order to accomplish the printing, it is found convenient to attach a printing crank arm, 61, to a reduced eccentric portion, 62, of the shaft 1 as shown. The crank motion thus provided causes an alternate raising and lowering of the printing chase, 63, which is suitably mounted in chase guides, 64, above the printing bed, 65. The ticket strip 42 travels over the printing bed and between the ticket strip and the type 160 is an inked printing ribbon, 66. I prefer to time the movement of the printing crank so that the printing shall take place just after a ticket has been cut off at the end of the printing strip and the staple has been clenched.

The ticket strip is notched at its edges as shown in Fig. 18, the notches being made at the four corners of that portion of the strip which is to form a ticket. On opposite faces of the strip I place a pair of feed rollers, the upper one of which is shown at 67, and the lower one of which is mounted on a shaft 121, the roller 67 being made adjustable and subject to yielding pressure through a pressure bar, 69, and a spring, 70. The feed roller 67 is notched at points 90° apart on its periphery, the notches corresponding in position to teeth, 71, 71, on the under roller. On the same shaft 121 is mounted a notched disk, 122, having four notches arranged in quadrature. The said disk is rigidly mounted on the shaft 121 and when it is moved it operates the said shaft in a manner well understood. The disk is itself operated by mechanism which will now be described. A feed roller crank, 76, is operated from an eccentric 77, on the shaft 1 in a manner similar to that in which the printing crank is operated. This crank is pivoted, as shown in Fig. 3, to a cross lever, 123, the latter being itself pivoted to the frame at 124. One end of the cross lever 123 is connected by a link, 125, with an extension, 126, on a segment, 127 loosely mounted on the shaft 121. Another extension 128 on the same segment carries a dog or pawl, 129, which engages successively with the notches in the disk 122. The link 125 is shown in Fig. 1 in its lowermost position. A rotation of the shaft so as to raise the link 125 to its uppermost position will result in a forward feeding of the disk 122 through a quarter of a revolution. Accordingly, the shaft 121 will be similarly moved and

through the same angular distance. This will cause a rotation of the feed rollers whereby the strip 42 will itself be fed forward the distance of one ticket. A further complete revolution will carry the link 125 back again during which movement the dog 129 will slip over the surface of the disk 122 and will engage with the next notch on the said disk after which the link will be carried upward once more and will cause another feeding of the ticket strip.

Referring again to Fig. 3 it will be seen that the outer end of the cross lever 123 carries a pawl, 130, which engages with a ratchet wheel, 131, mounted on the shaft 140 which carries a spool 142 on which the printing ribbon, 132, is wound from a reel, 133, on the opposite side of the machine. Thus the reverse movements of the feed roller crank 76 already described will not only perform the operation of feeding the ticket strip but also causes a feeding of the printing ribbon so as to present a new surface to the type after each printing operation.

I prefer that the ticket strip should pass over an idle reel, 81, on its way to the feed mechanism, the delivering reel being placed at any convenient point. On its way into the machine the ticket strip enters through an opening, 134, at the right hand end of the machine (see Fig. 3).

Referring now to the mechanism, by which the ticket strip is cut off to form tickets, this part of the mechanism is shown in Fig. 1 as a knife or cutter, 92, cooperating with a shearing plate 93. The ticket strip is fed over the shearing plate 93 and underneath the point of the knife or cutter 92. The operating mechanism for the knife or cutter consists of a connecting rod, 137, pivoted to the knife at the free end of the latter and extending upward into connection with the rocking lever 114, from which it receives its motion. The opposite end of the knife is connected with a stationary pivot 136. Every time the connecting rod 137 is moved downward (an action which is caused by a slight enlargement or eccentric on the disk 9, as shown in dotted lines in Fig. 4) it depresses the free end of the knife 92 and thereby cuts off a ticket. The knife 92 is restored by the same mechanism that restores the cutter bar 39.

It is obvious that the upper end of each staple driver constitutes the bottom of the upper pocket at the time when the lower end of the cam bar constituting a plunger is forming a new staple; and at the same time the lower end of the same staple driver when driven home for the purpose of driving and clenching the lower staple forms a resisting body against which sufficient pressure for fully developing the upper staple can be exerted.

In a divisional application, filed June 1, 1905, Serial Number 263,342, claims are made upon the ticket forming mechanism disclosed herein.

I claim as my invention:—

1. In a ticketing machine, a rotary staple carrier provided with pockets arranged in diametrically opposite pairs therein, a plurality of pairs of staple drivers in the carrier crossing each other, and terminating at the inner ends of the pockets, the members of each pair being so arranged as to have free vertical movement under pressure, in combination with a reciprocating wire feed, a ticket strip feeding device, and a staple forming plunger, and means whereby the said plunger may be operated to form a staple and by the same movement to actuate one of the drivers for driving another staple through a ticket.

2. In a ticketing machine, a rotary staple carrier provided with pockets arranged in diametrically opposite pairs therein, a plurality of pairs of staple drivers in the carrier crossing each other, and terminating at the inner ends of the pockets, the members of each pair being so arranged as to have free vertical movement under pressure, in combination with a reciprocating wire feed, a ticket strip feeding device, a staple forming plunger, means whereby the said plunger may be operated to form a staple and by the same movement to actuate one of the drivers for driving another staple through a ticket, and means for timing the movement of the carrier so as to bring a staple into line with each succeeding ticket.

3. In a ticketing machine, a rotary staple carrier consisting of circular disks coupled together with an intervening central space, the same being provided with bottomless staple pockets arranged in diametrically opposite pairs, a plunger for forming the staples within the pockets, a wire feed, a spring connected to the plunger and adapted to engage with the wire in advance of the plunger and to be compressed against the end of the plunger as the latter is brought into operation, and means operated by the feeding mechanism for the staple carrier for reciprocating the wire feed.

4. In a ticketing machine, a rotary staple carrier consisting of circular disks coupled together with an intervening central space, the same being provided with bottomless staple pockets arranged in diametrically opposite pairs, a plunger for forming the staples within the pockets, a wire feed, a spring connected to the plunger and adapted to engage with the wire in advance of the plunger and to be compressed against the end of the plunger as the latter is brought into operation, means for operating the plunger, and means operated by the feeding mechanism for the staple carrier for reciprocating the wire feed.

5. In a ticketing machine, a rotary staple carrier provided with staple pockets, a plunger for forming the staples, feeding mechanism for the staple carrier, and a reciprocating wire feed, such feeding mechanism consisting of a segment having a plurality of arms, one arm being operatively connected with the staple carrier and adapted to feed the same forward intermittently and another arm being connected to the reciprocating wire feed and provided with means for releasing the wire during one movement of the staple carrier feed, and gripping the wire during another movement of the staple carrier feed.

6. As an element of a ticketing machine, a staple carrier provided with pockets, arranged in diametrically opposite pairs therein, and a plurality of integral staple drivers crossing each other each terminating at the pockets constituting a single pair.

7. As an element of a ticketing machine, a staple carrier provided with pockets arranged in diametrically opposite pairs therein, and integral staple drivers also contained therein, the said staple drivers crossing each other and being capable of vertical movement without mutual interference.

8. In a ticketing machine, the combination with a staple forming plunger, of a staple carrier provided with pockets arranged in diametrically opposite pairs therein, a plurality of integral staple drivers extending between the pockets which constitute a single pair, the dimensions being such that when one end of a staple driver is at the inner or lower end of a pocket, the opposite end of the staple driver shall be at or near the outer end of the opposite pocket, whereby the forming of a staple in one pocket will result in the driving of a staple through the opposite pocket.

Signed at New York, in the county of New York, and State of New York, this 2nd day of March A. D. 1905.

FREDERICK GEORGE MYERS.

Witnesses:
WM. H. CAPEL,
GEORGE H. STOCKBRIDGE.