

June 5, 1934.

H. FREDRICKSON

1,961,821

TICKET PRINTING MECHANISM

Original Filed Dec. 31, 1928

4 Sheets-Sheet 1

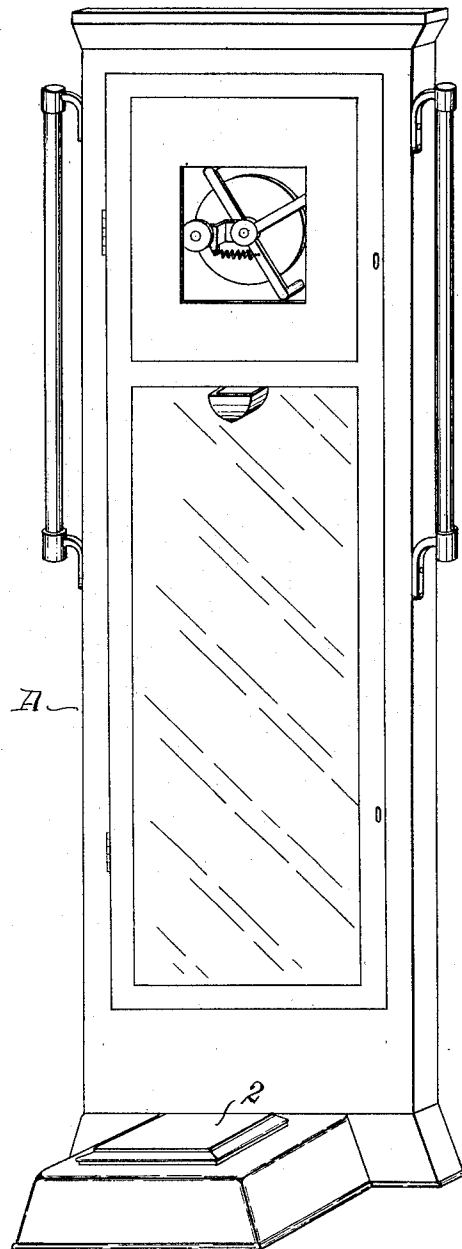


Fig. 1

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4 Sheets-Sheet 2

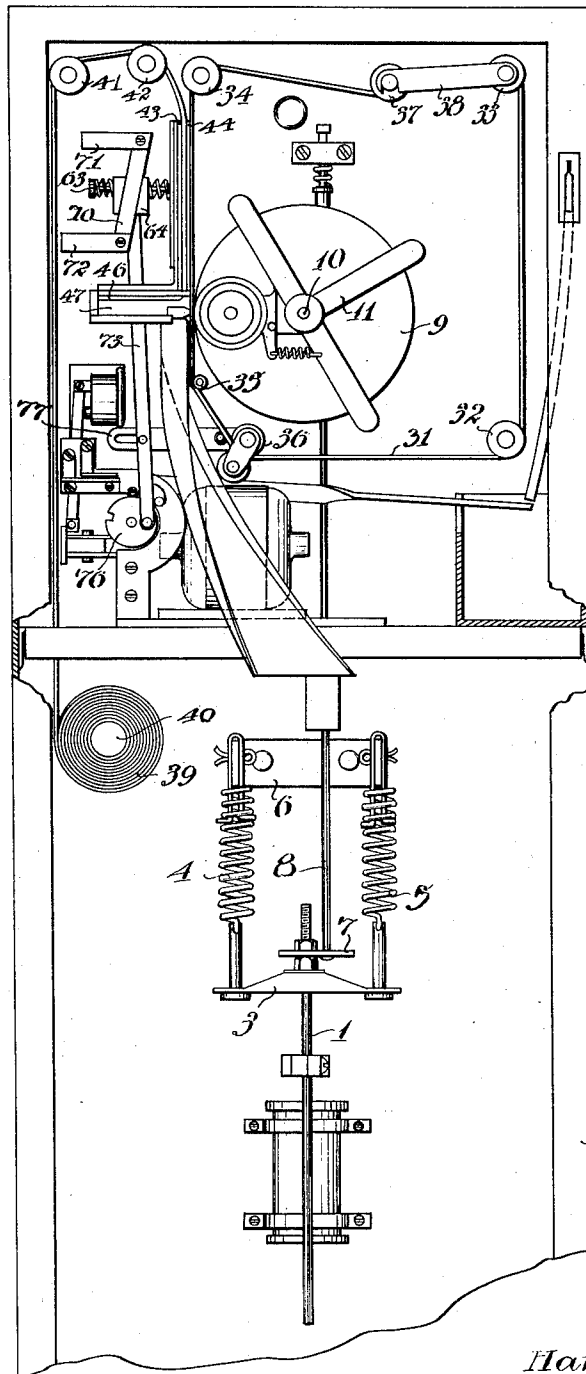


Fig. 2

B

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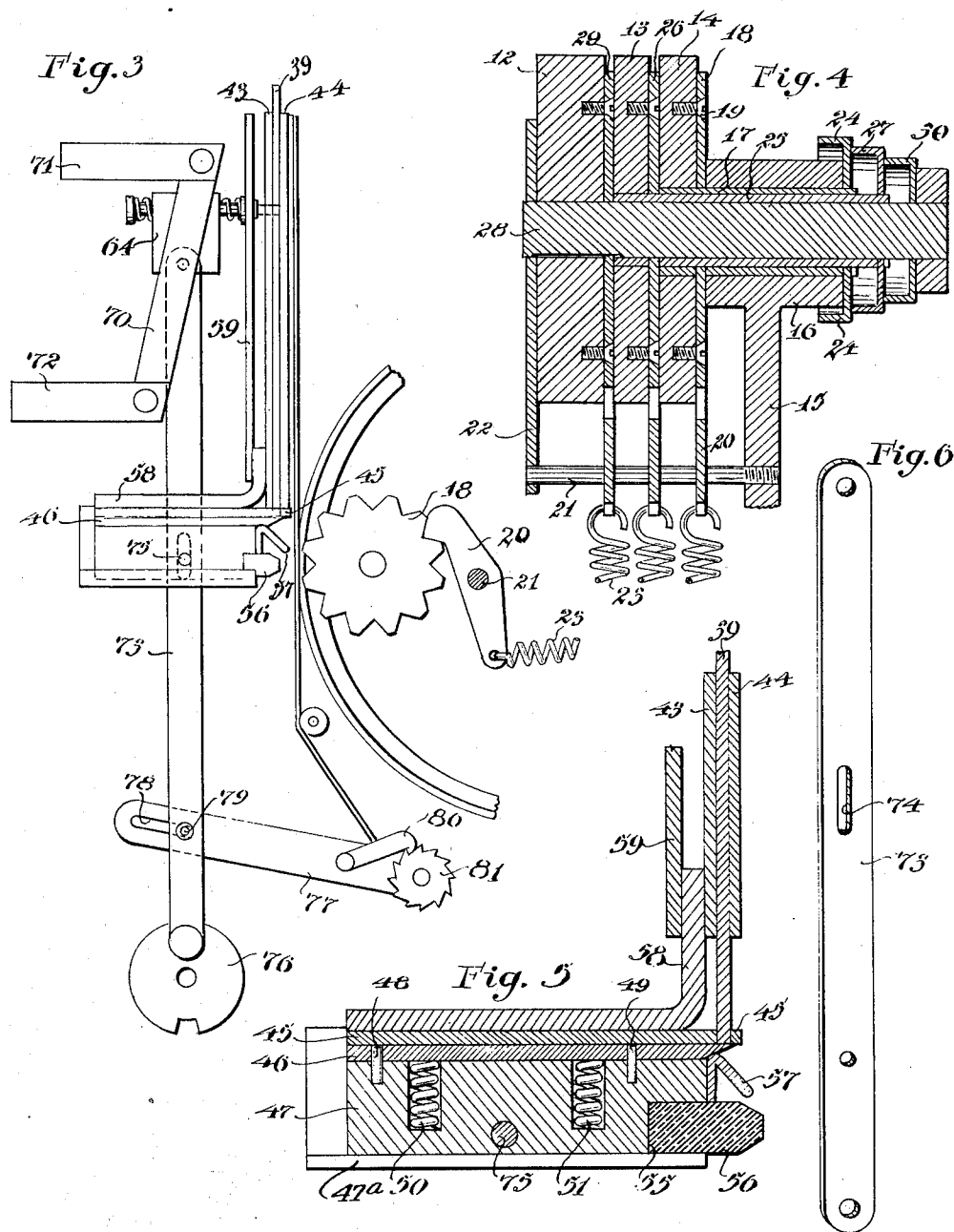
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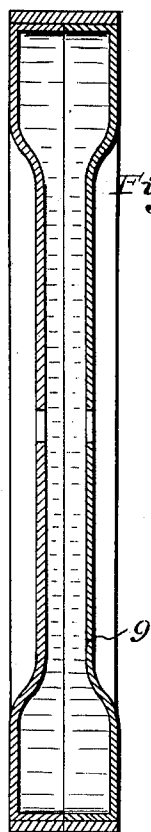


Fig. 7

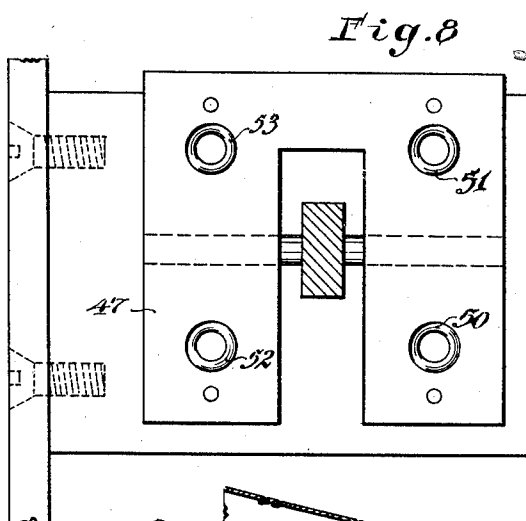


Fig. 8

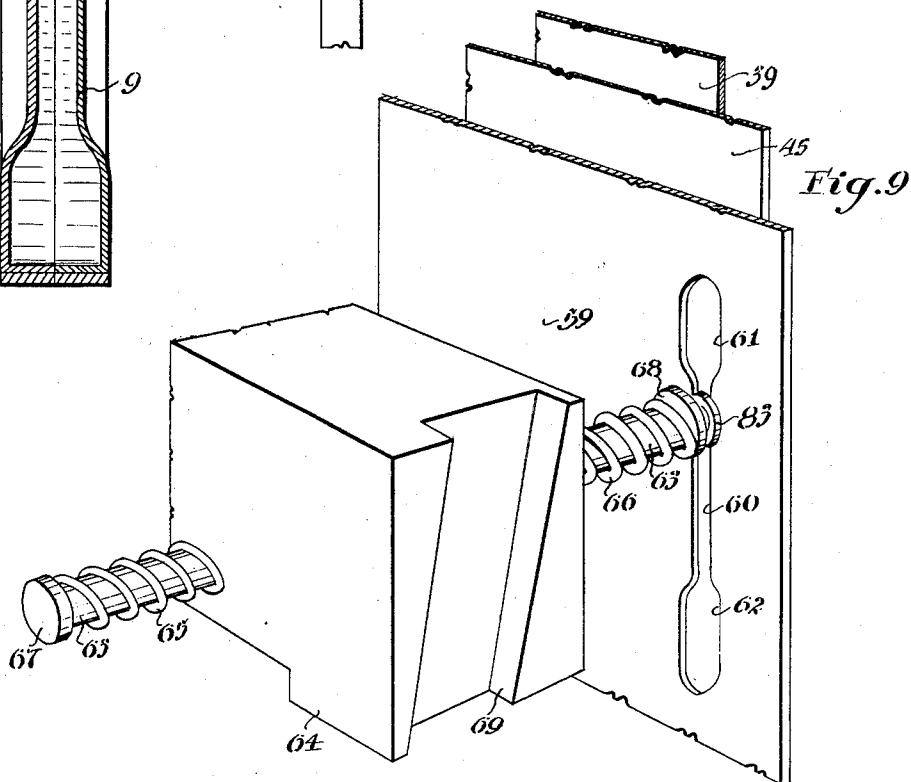


Fig. 9

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## UNITED STATES PATENT OFFICE

1,961,821

## TICKET PRINTING MECHANISM

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Original application December 31, 1928, Serial  
No. 329,394. Divided and this application May  
26, 1930, Serial No. 455,559

4 Claims. (Cl. 101-69)

The present application is a division of application, Serial Number 329,394, for Electrical weighing machine, filed December 21, 1928, and the invention of the present case relates to a ticket printing mechanism for use in machines of this general character.

An object of the present invention is to make an improved ticket printing mechanism.

In order to attain this object there is provided in accordance with one feature of the invention, a type wheel having type projecting from the periphery thereof in various predetermined designations and having supplemental type wheels mounted adjacent thereto, said type wheels being manually operable by a control mechanism associated therewith.

A ticket feeding and severing mechanism is operatively connected with the above mechanism to feed a ticket into position adjacent the type wheels, and an impression member is mounted to force the ticket and the type into engagement to produce an impression of the type opposite the ticket onto said ticket.

These and other features of the invention will be more fully brought out in the following description and the accompanying drawings, wherein:

Figure 1 is a view in front elevation of a scale in which the present invention is embodied.

Figure 2 is a view of the upper portion of the scale shown in Figure 1 with the front portion of said scale removed.

Figure 3 is a view in side elevation of a portion of the ticket feeding and printing mechanism.

Figure 4 is a vertical section through a plurality of manually operable type wheels.

Figure 5 is a vertical transverse section through a striking hammer and ticket severing mechanism.

Figure 6 is a view in perspective of an operating link.

Figure 7 is a view in transverse section through a type wheel.

Figure 8 is a view in top elevation of the severing knife and striking hammer support block with the severing knife and striking hammer removed; and

Figure 9 is a view in perspective of a cam block and ticket feeding pin.

Referring to the drawings in detail, a scale A may be of conventional type with a weight supporting platform 2 and conventional type of operating mechanism. Since the scale mechanism itself is not essential to the present invention, and since the scale mechanism per se is of a

conventional type, it is believed that a very brief description of this portion of the invention will be sufficient to disclose to one versed in the art the structure and operation of the present mechanism.

A rod 1 is connected from customary lever means associated with the weighing platform 2 to a yoke 3 which is connected to two coil tension springs 4 and 5 which are supported upon a bracket 6 fixedly secured to the rear wall of the scale housing B. An offset bracket 7 is connected to the top of the rod 1 and supports a rod 8 which rests by gravity on the bracket 7. This rod 8 is connected by customary gear means to a type wheel 9 having type in successive weight designation around the periphery thereof. When a weight is placed on the weighing platform 2 the rod 1 will be pulled down against the tension of the coil springs 4 and 5 until the tension of the coil springs balances the weight on the platform. The rod 8 will follow by gravity until it rests upon the offset bracket 7 rotating the type wheel by means of the aforesaid gear means to a position which will bring type indicating the weight on said platform opposite the ticket upon which said indication is to be printed.

The type wheel 9 is rotatably mounted on a shaft 10 which is freely supported in a bearing on a framework 11 which is in turn fixedly supported upon the rear wall of the scale housing B. The other end of the shaft 10 is supported for rotation in a bushing, not shown, secured to the rear wall of the scale housing. The type wheel 9 is mounted in these bushings to rotate freely therein and is provided with gear mechanism, not shown, associated with the weighing mechanism so that the type wheel will be rotated in the same manner as the weight indicating dial or pointer is moved in an ordinary non-printing scale.

A plurality of manually adjustable type wheels 12, 13, and 14, see Figure 4, are mounted on a bracket 15 which is secured to the three-legged framework 11 which supports the outer bushing for the shaft 10 of the large type wheel. The structure of these wheels is clearly shown in Figure 4. The bracket 15 has a bushing 16 in which a tube 17 is mounted to be freely rotatable therein. The inner end of this tube has the type wheel 14 fixedly secured thereto and a ratchet wheel 18 is secured to one side of the type wheel as by means of screws 19 so that this ratchet wheel rotates with the type wheel. A pawl 20 is pivotally mounted on a transverse rod 21 which is secured to the bracket

15 and to a rear plate 22 which is connected to the bracket 15. The pawl 20 is pivoted to move freely upon this rod 21 and a spring 23 is connected to hold the pawl in engagement with the ratchet wheel 18. To the outer end of the tubular member 17 is fixedly connected an operating dial 24, said dial bearing indicia on the periphery thereof to correspond with the type on the periphery of the printing wheel 14.

10 A second tubular member 25 is mounted interior of the tube 17 to rotate freely therein, the inner end of said tubular member having the type wheel 13 and ratchet 26 secured thereto in a similar manner to the type wheel 14 and ratchet wheel 18 and having an operating dial 27 secured to the outer end thereof in the same manner as the operating dial 24. Within the inner tubular member 25 a shaft 28 is mounted to be freely rotatable therein, said shaft having the type wheel 12 and ratchet wheel 29 secured to the inner end thereof similarly to the type wheels 13 and 14 and ratchet wheels 18 and 26, said shaft extending through the type wheel 12 and having free pivotal bearing in an opening in the plate 22. An operating dial 30 is fixedly secured to the outer end of the shaft 28. These type wheels may be individually set in any desired position so as to bring the desired type into alinement and opposite the ticket upon which it is to be printed.

30 An inking ribbon 31 passes over rollers 32, 33, 34, 35, and 36. A weighted roller 37 being supported on links 38 places a tension upon the ribbon and prevents sagging thereof. A roll 39 of ticket material is mounted upon a spindle 40 and the strip of tickets is fed upwardly over a roller 41, a second roller 42, and is threaded down between metal guides 43 and 44 and through a guide member 45. This guide member is flat on its lower surface and forms a slidable support for a ticket severing knife 46. The forward edge of the opening in the guide through which the ticket is fed forms a stop against which the ticket is held, while being severed with the knife. The severing knife is mounted upon a block 47, as indicated in Figure 5, the knife being held in position by pins 48 and 49 fixed in the supporting block 47 and being freely insertible in apertures in the severing knife. Four coil springs 50, 51, 52, and 53 are positioned in recesses in the severing block and exert an upward pressure on the knife to resiliently hold it in engagement with the lower surface of the ticket guide member 45. A recess 55 in the forward edge of the supporting member 47 has a rubber striking hammer 56 set therein to force the ticket into engagement with the type on the type wheels to cause an impression to be printed on the ticket. A spring ticket-supporting member 57 is provided above the hammer to hold the ticket in position after severing until the printing operation is completed. This entire structure is supported on a ticket slide member 47a which in turn supports a bracket 58 and the ticket guide member 43 and plate 59. The plate 59 has an elongated slot 60 therein, best shown in Figure 9, with narrowed central portion and enlarged end portions 61 and 62. A pin 63 is positioned to ride in the slot 60, being supported in a cam block 64, the pin being normally held in a central position in said block by means of coil springs 65 and 66 mounted to rest on the inner and outer surfaces of said block, respectively, and to engage the enlarged outer end of a head 67 of said pin and a washer 68 secured near the inner end of said pin, respectively. This cam block is

provided with angularly disposed recesses 69 in each side thereof, said recesses being adapted to have a free sliding fit over angularly disposed track members 70 mounted one on each side of said block and held by arms 71 and 72 which are fixedly secured to the housing B of the mechanism. A link 73 has pivotal connection with the block 64 and has a slot 74 therein which rides over a pin 75 positioned transversely of the support member 47, as best shown in Figures 3 and 8. The lower end of the link 73 is connected eccentrically to a rotatable member 76 which is arranged (by means of mechanism shown generally in Figure 2, but which is not pertinent to the present invention and, therefore, is not described in detail in the present application), to make one complete revolution upon each actuation of the mechanism.

A laterally extending link 77 is constructed with a slot 78 which rides a pin 79 mounted on the vertical link 73. A pawl 80 is provided on the link 77 which pawl engages a ratchet 81 connected to the roller 36 around which the inking ribbon 31 is passed. Upon each actuation of the mechanism the link is advanced and retracted so as to advance the ratchet 81 by means of the pawl 80 and to thereby advance the inking ribbon.

The operation of the mechanism is as follows:

Upon being released and actuated by the suitable associated mechanism not herein described in detail, the rotatable member 76 is rotated one complete revolution counter-clockwise. The link 73 starts from its lowermost position and is moved first to the right and upward during the first quarter of the cycle of the rotatable member, and then to the left and up during the second half of said cycle, then to the left and downward during the third quarter and to the right and downward to the starting point during the fourth quarter.

During the upward travel of the link 73 the block 64 is slidably moved upward along the track members 70. At the upper end of its travel this block is positioned forwardly on the members 70 and the inner coil spring 66 is compressed to force the pin 63 forwardly through the plate 59, the pin being at this point opposite the enlarged upper portion 61 of the slot 60. The inner washer 83 will pass through this enlarged portion of the slot so as to bring the washer 83 on the inner or ticket side of the plate 59, forcing the pin into engagement with the ticket.

During its downward travel the block 64 will be moved away from the plate 59 by the increased distance of the track members 70 from the plate 59 at their lower ends. The washer 83 during this downward travel will be retained inside the plate 59, riding on the sides of the narrow portion of the slot 60, holding the inner end of the pin 63 into engagement with the ticket. The coil spring 65 will be compressed during this movement, tending to force the pin outwardly as the block reaches the lower end of its travel. As the washer 83 comes into registry with the enlarged lower portion 62 of the slot 60, the outer coil spring 65 will force the pin outwardly out of engagement with the ticket strip 39. The normal position for the operating mechanism is with the block 63 at its lowermost position.

The parts are shown after completing one-half cycle in Figure 3, and after the completion of one quarter cycle in Figure 2.

During the first half of the cycle the support member 47 will be moved forward, severing the ticket by means of the severing knife 46. The spring ticket holding member 57 at the same time

forces the ticket into engagement with the type wheels to prevent it from prematurely dropping down into the discharge chute. Further forward movement of the support block 47 brings the rubber striking hammer 56 into engagement with the ticket to force it against the type, on the type wheels, causing an impression of said type to be printed on the ticket. As the rotatable member 76 continues its cycle of operation the block 64 and associated parts will be withdrawn, releasing the spring 57 from engagement with the ticket and permitting the severed, printed ticket to drop into the discharge chute. During the second half of the cycle the pin 63 will engage the ticket strip and feed downwardly a sufficient amount of ticket material for the next ticket as hereinbefore described.

The manually rotatable type wheels may contain designations of the months, days of the month, and years, and these may be manually adjusted by means of the actuating members 24, 27, and 30 each morning, so that the proper date will be imprinted upon the tickets for that day.

While primarily designed for use in a scale, it is not desired to limit the ticket printing mechanism to use with a scale, but it may be used with any desired mechanism which requires a ticket printing mechanism of this general character.

I claim:

1. A ticket printing mechanism, comprising a rotatable weight controlled type bearing wheel, a plurality of manually controlled type bearing wheels in lateral alinement with the periphery thereof, ticket guide means positioned to feed a strip of ticket material adjacent said type wheel, a plate having a slotted opening therein adjacent said ticket guide means, a track positioned at an acute angle with respect to said plate, a spring reciprocable means mounted on said track, a feed pin mounted in said reciprocable means and having an enlarged portion adapted to ride on one side of said slot on one cycle of reciprocation of said reciprocable member and on the other side during the other cycle of said reciprocable member, and a striking hammer operatively connected with said reciprocating member to strike type to print an impression of said type on said ticket.

2. A ticket printing mechanism, comprising a type bearing element, inking means associated therewith to ink said type, a guide for a strip of ticket material, the ticket severing mechanism mounted to operate transversely of said guide to

sever a ticket strip mounted therein, a feed pin mounted to travel longitudinally of said ticket guide, cam means associated with said pin to move said pin toward said guide in one direction of travel and away from said guide means in the opposite direction of travel, a track mounted to engage a pin element to hold said pin element inwardly of said track for the entire length of said track during a movement in one direction and outwardly of said track during a travel in the opposite direction, and reciprocating means operatively connected to said pin to cause a reciprocating movement of said pin upon actuation of said reciprocating means.

3. A ticket printing mechanism, comprising printing means, a ticket guide, ticket severing means mounted to operate transversely of said guide, a track mounted longitudinally of said guide and at an acute angle thereto, a pin support member mounted to ride on said track, a pin mounted in said pin support, resilient means mounted to normally hold said pin in a predetermined position with respect to said pin support, a slotted guide-way to receive a portion of said pin to permit longitudinal movement of said pin therein, a pin element extending beyond the sides of said guide-way to engage said sides to hold the pin into engagement with a ticket in said ticket guide when said pin element is on one side of said track and to hold said pin out of engagement with said ticket when said pin element is on the opposite side of said track, and reciprocating means operatively connected to said pin support element to move said pin along said track during an operation of said reciprocating means.

4. A printing mechanism, comprising a printing element, a slidably supported impression hammer supported adjacent said wheel, a severing knife carried by said impression hammer and movable therewith, a guide for a strip of ticket material having an edge portion mounted to co-operate with said severing knife in severing a ticket from said strip, ticket feed means mounted to advance said ticket strip a predetermined distance upon each operation thereof, and a reciprocating and laterally oscillable member connected to said ticket feed means and to said impression hammer to operate said feed means and said printing hammer and severing knife on each cycle of operation thereof.

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