Nov. 13, 1934. C. A. FLOOD 1,980,576

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Fig. 1.

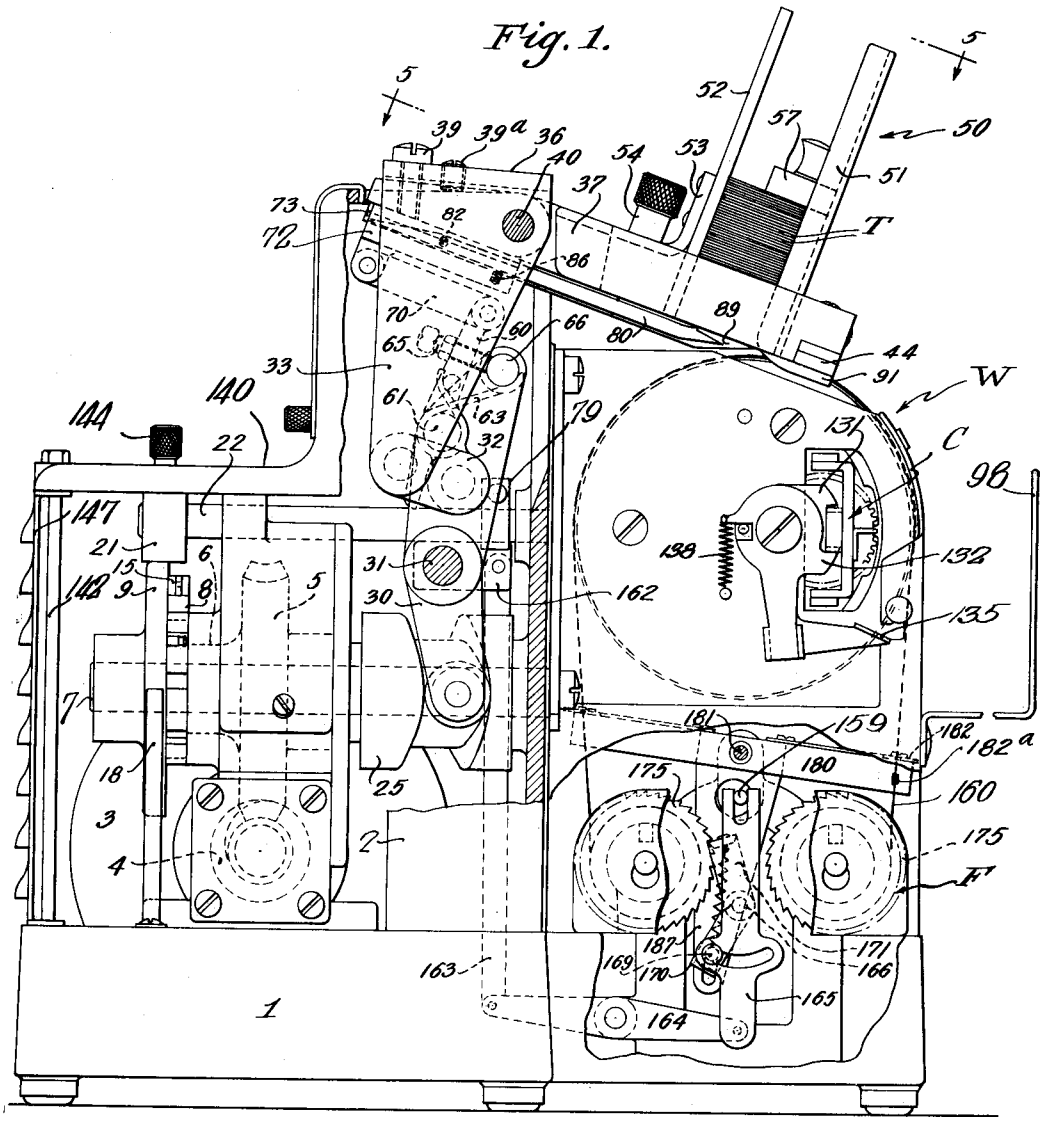
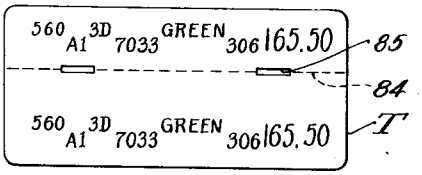


Fig. 6.



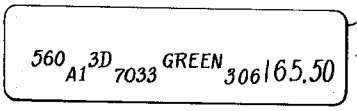


Fig. 7

Inventor,
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PRINTING MACHINE AND METHOD

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Fig. 2.

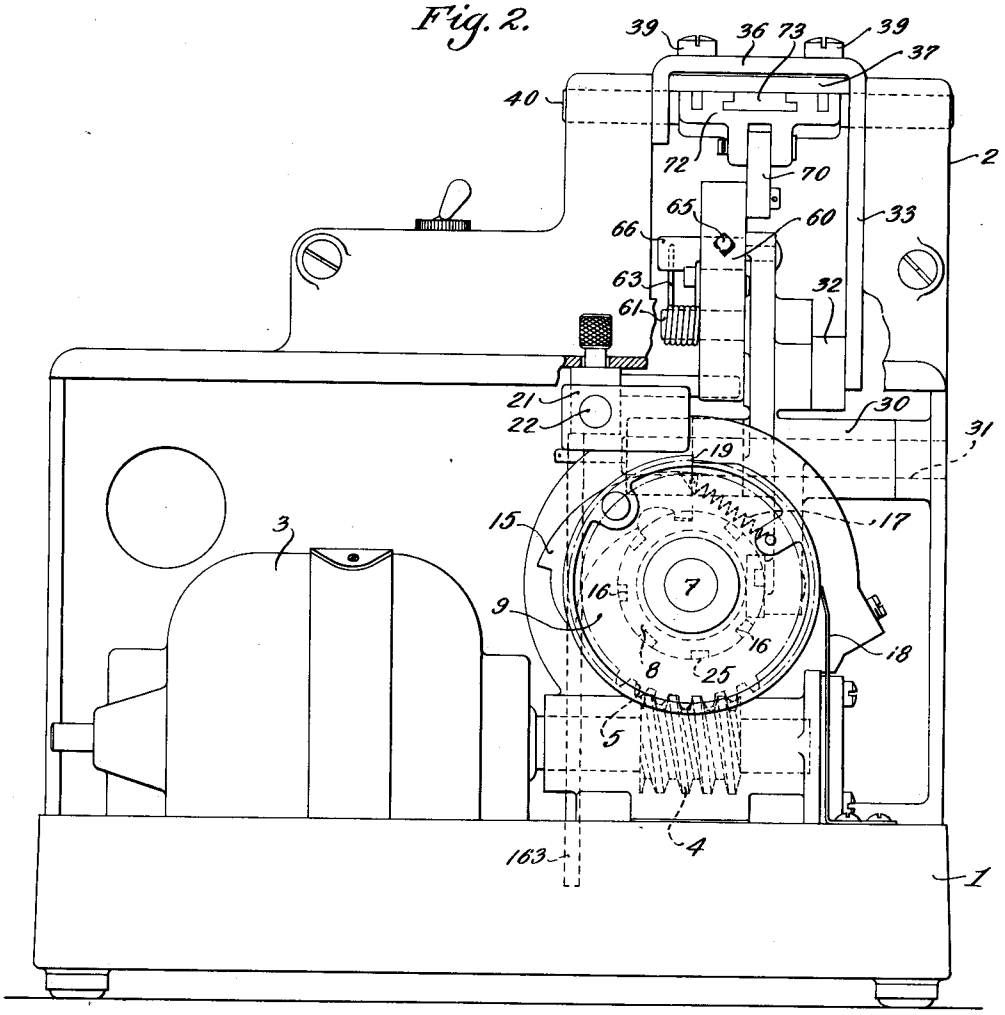
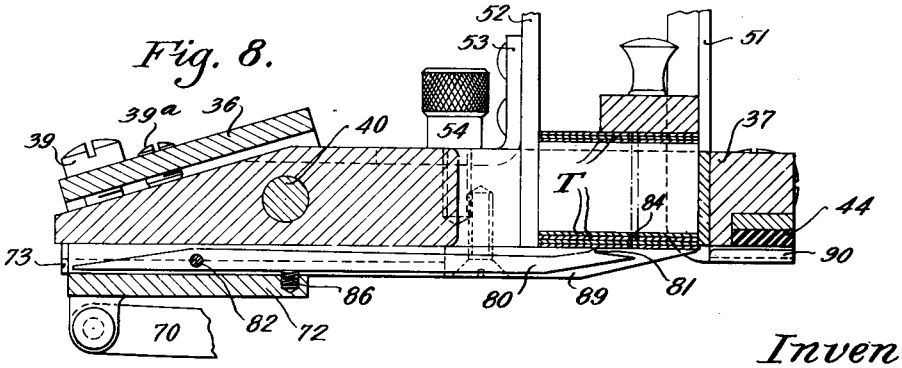


Fig. 8.



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PRINTING MACHINE AND METHOD

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Fig. 3.

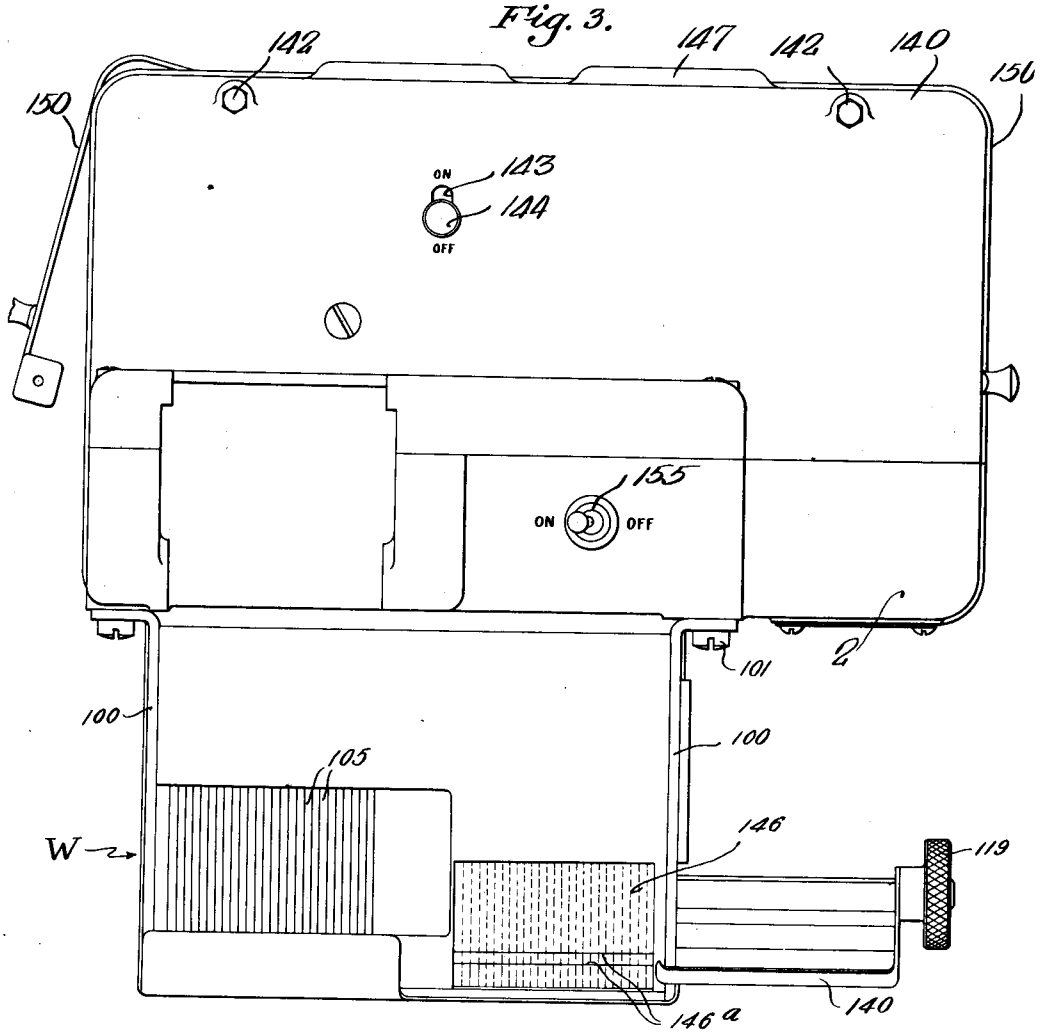
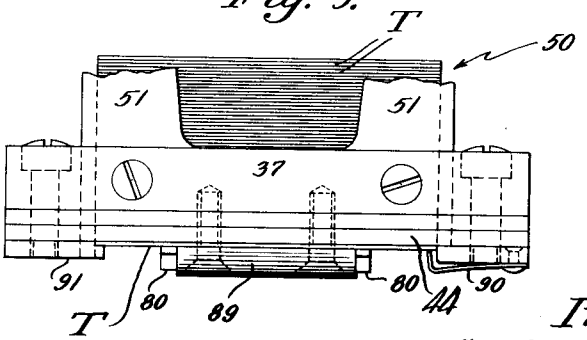


Fig. 9.



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Fig. 4.

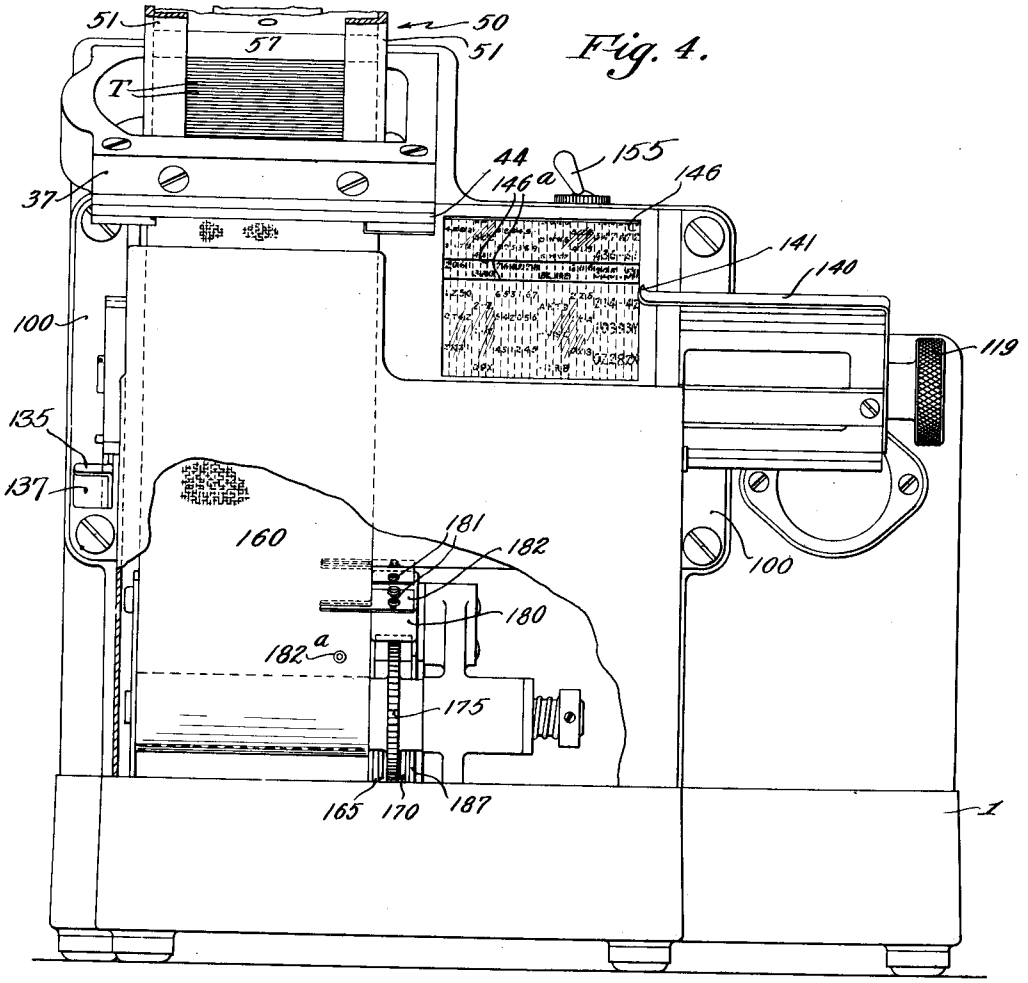


Fig. 5.

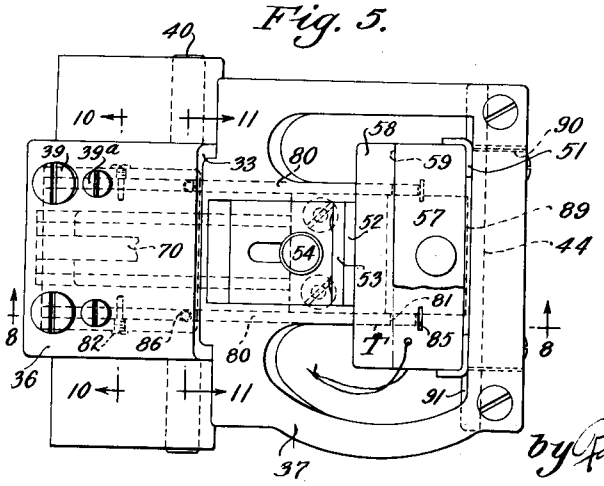


Fig. 10.

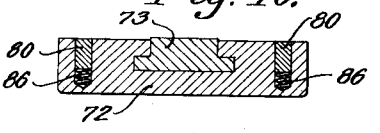
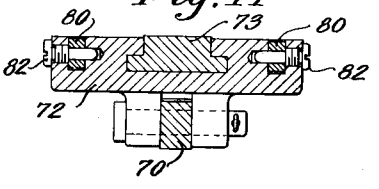


Fig. 11



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Fig. 12.

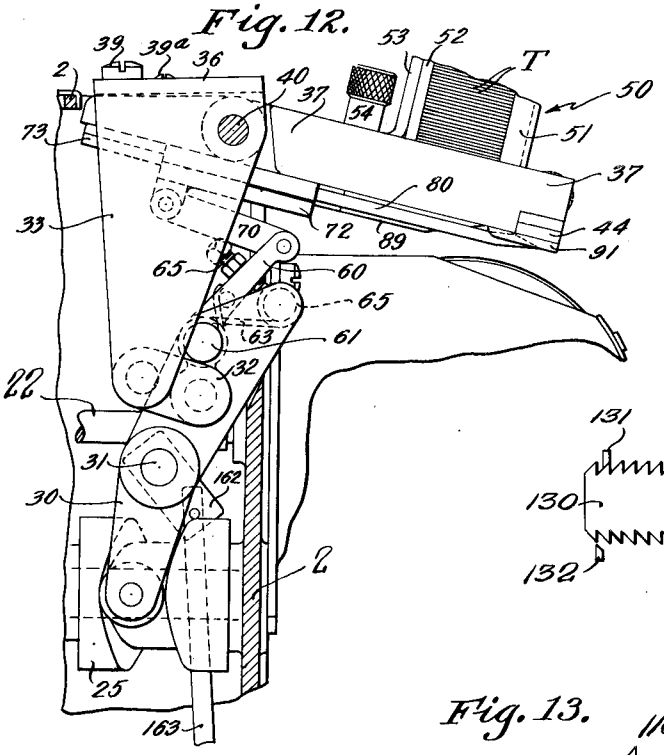
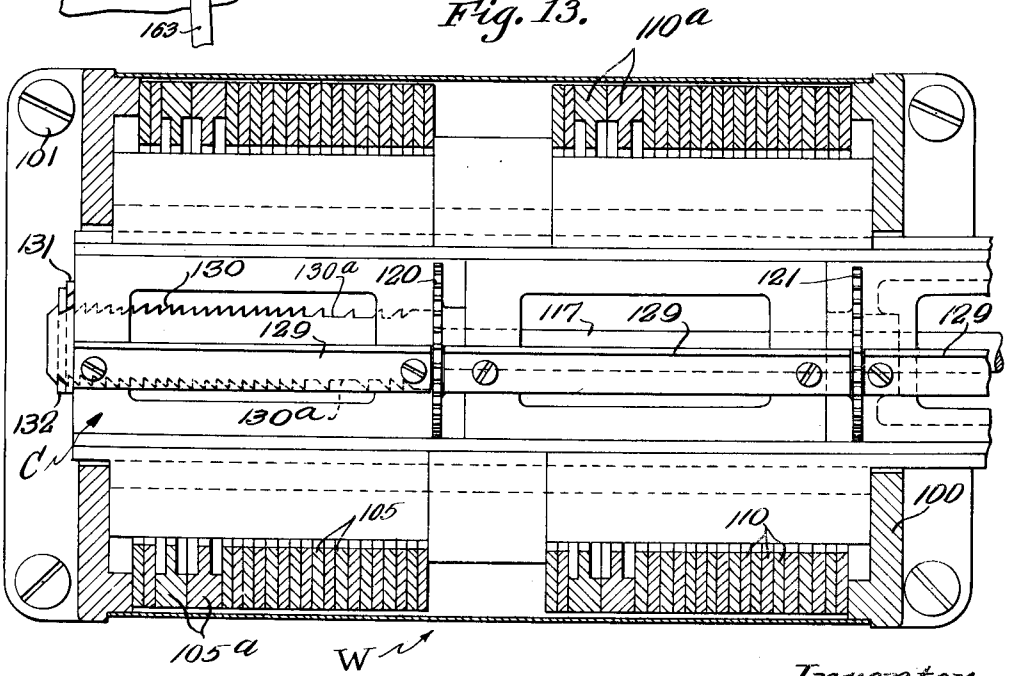


Fig. 26.

Fig. 13.



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Fig. 15.

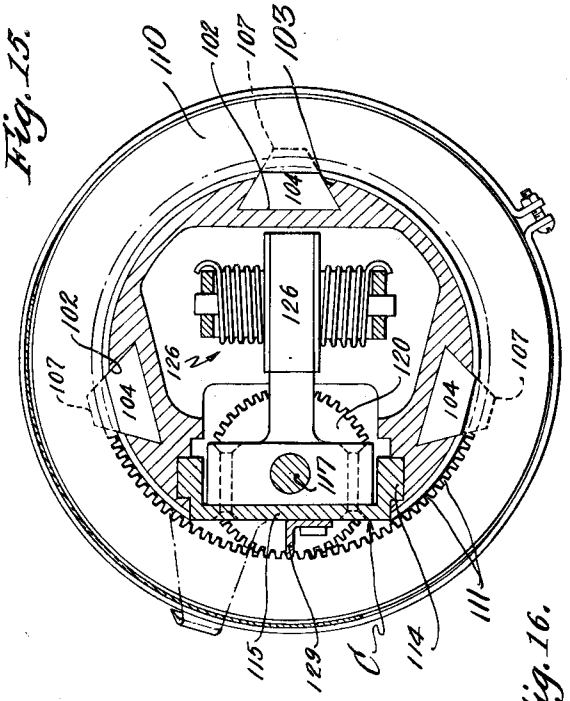


Fig. 16.

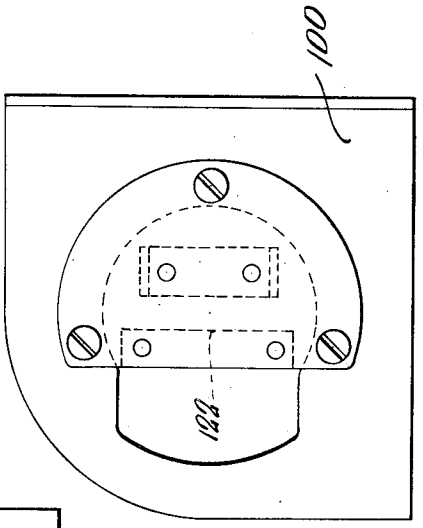
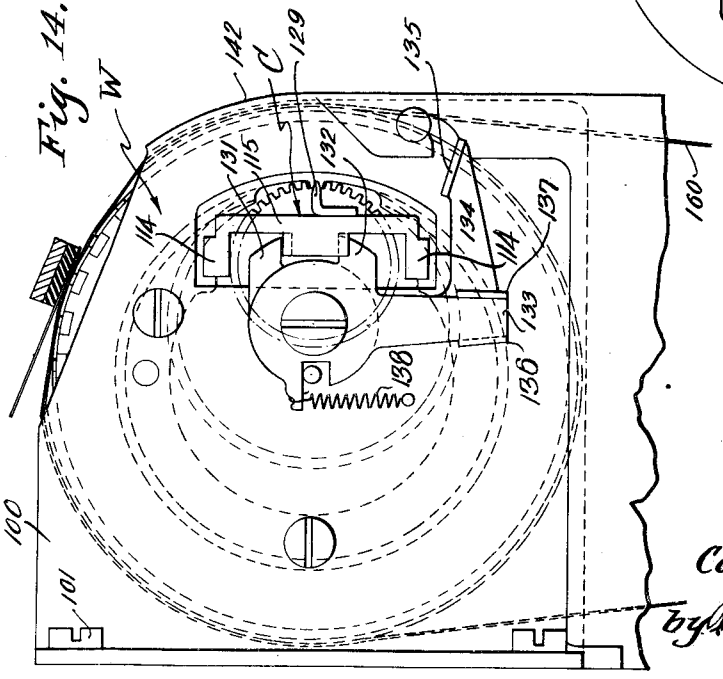


Fig. 14.



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Fig. 17.

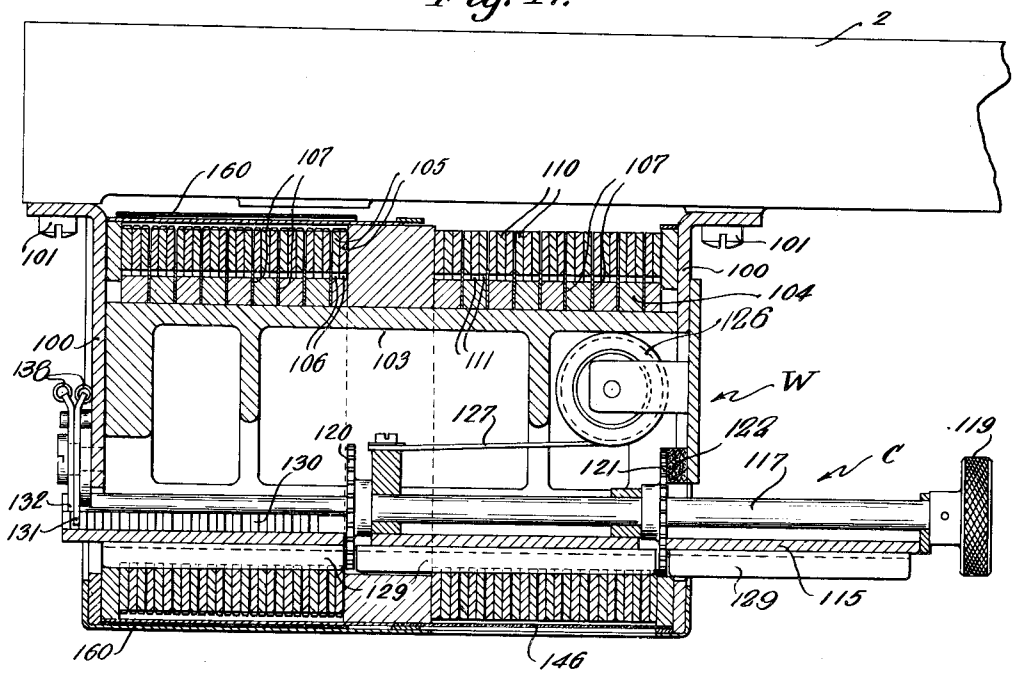


Fig. 18.

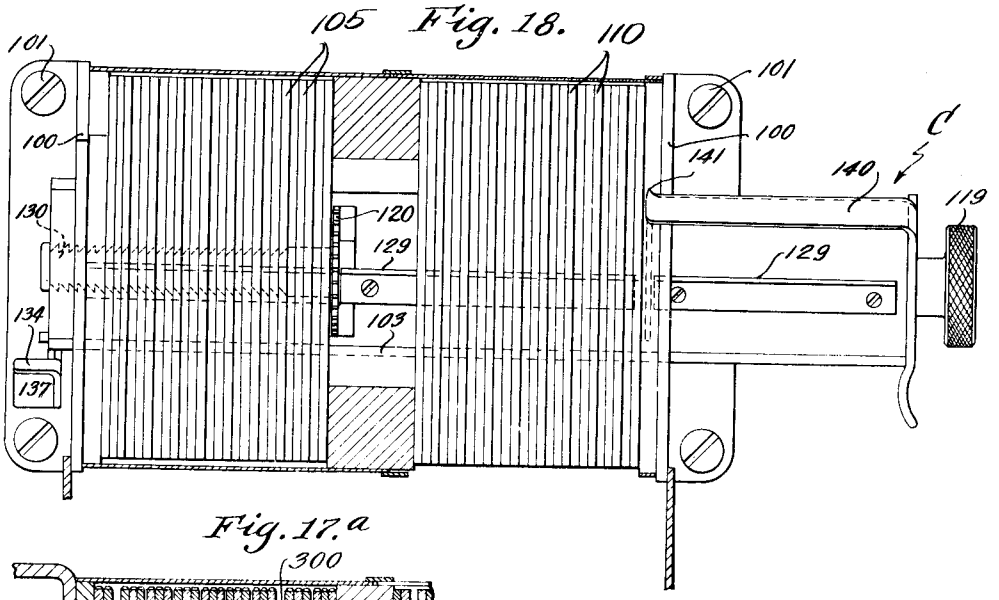
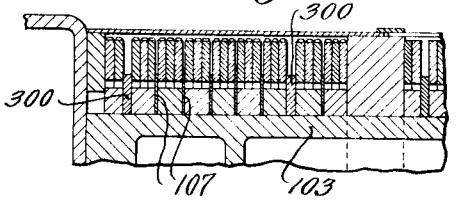


Fig. 17.a



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Fig. 19.

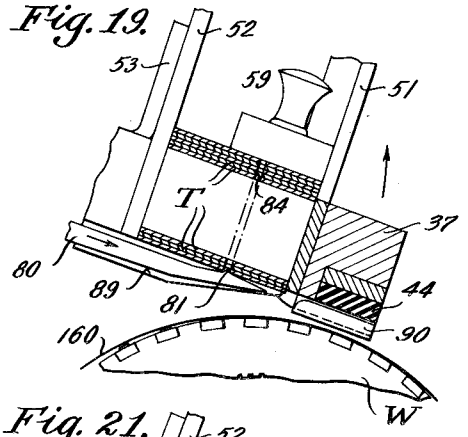


Fig. 20.

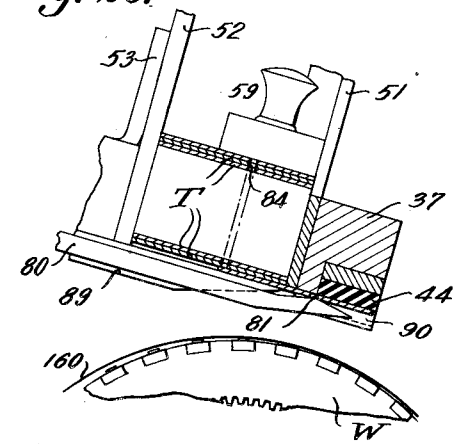


Fig. 21.

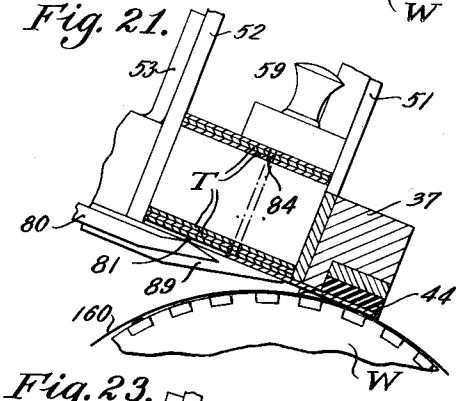


Fig. 22.

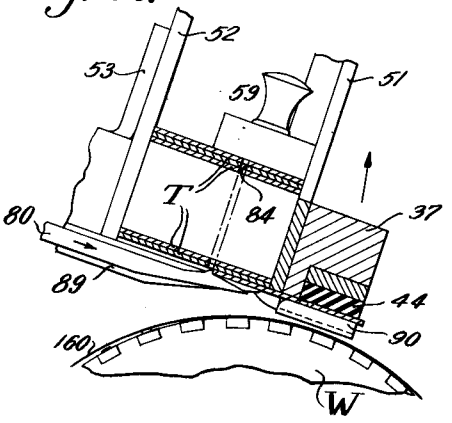


Fig. 23.

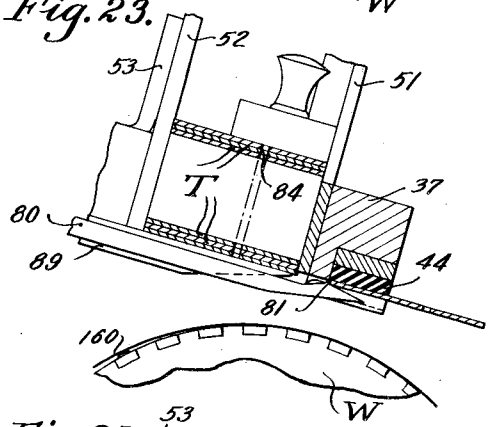


Fig. 24.

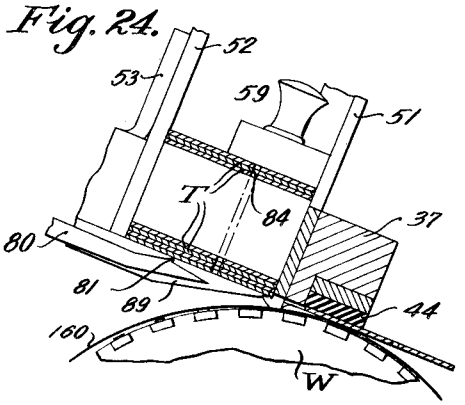
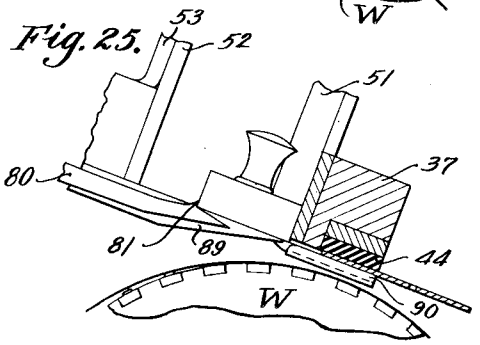


Fig. 25.



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Fig. 27.

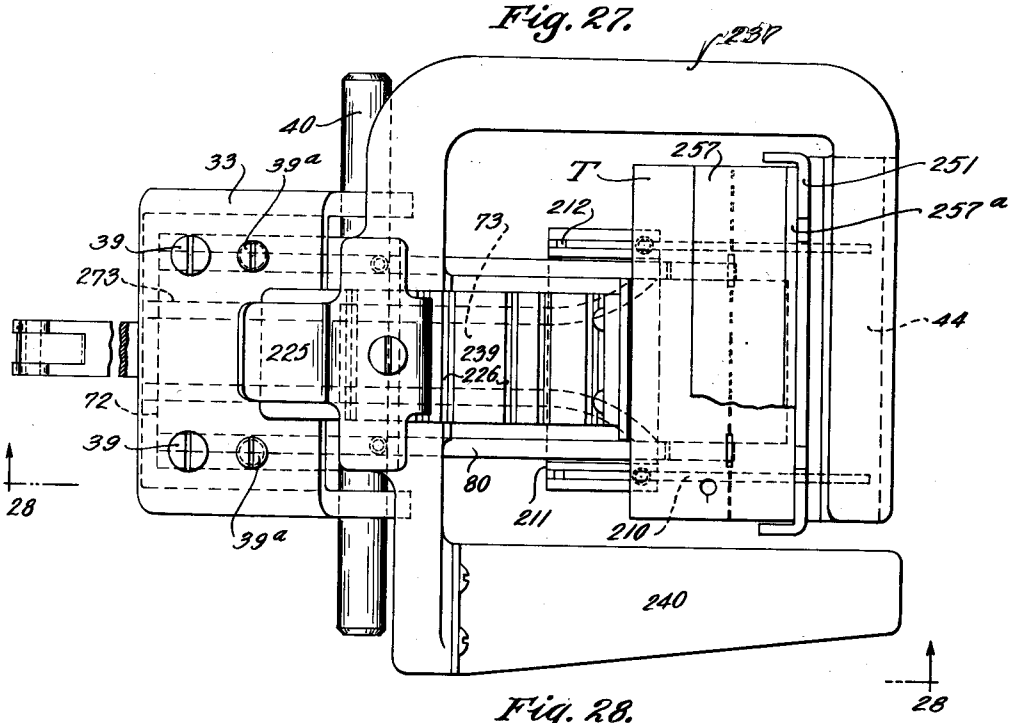
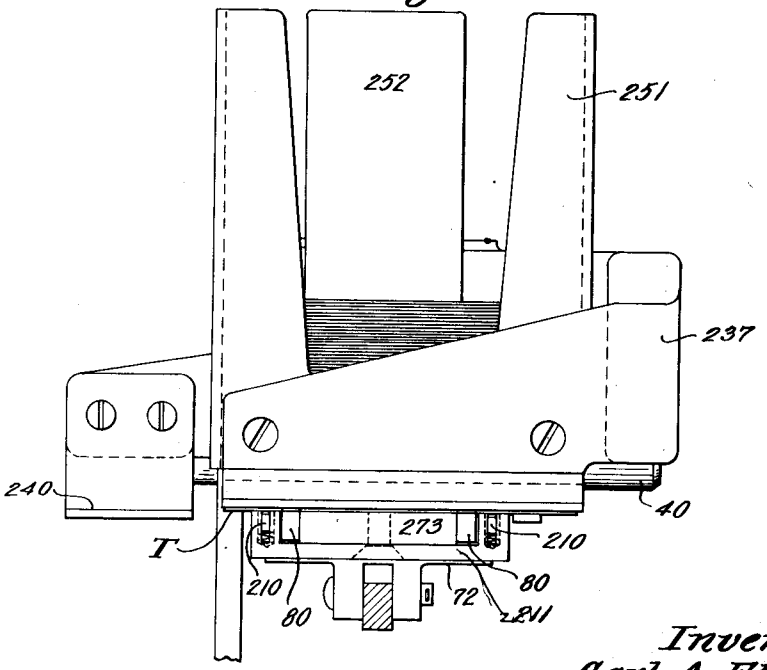


Fig. 28.



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Fig. 29.

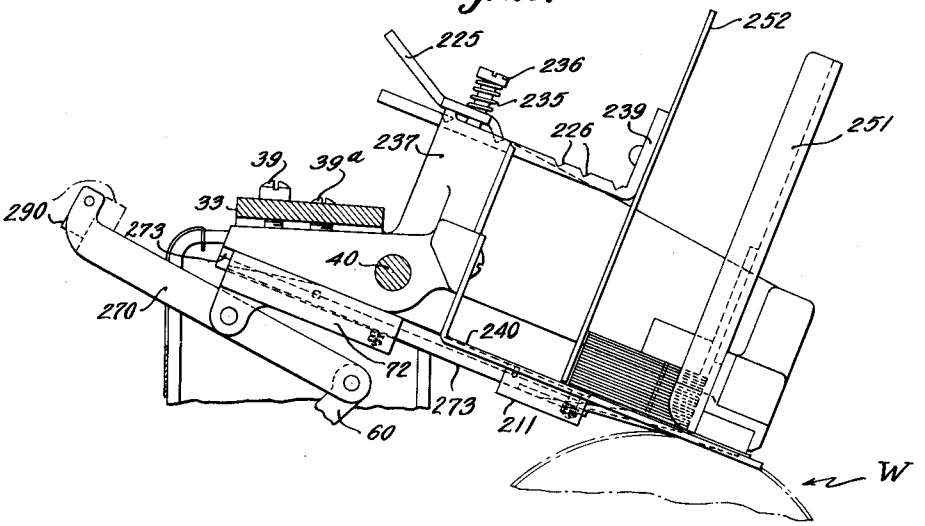


Fig. 30.

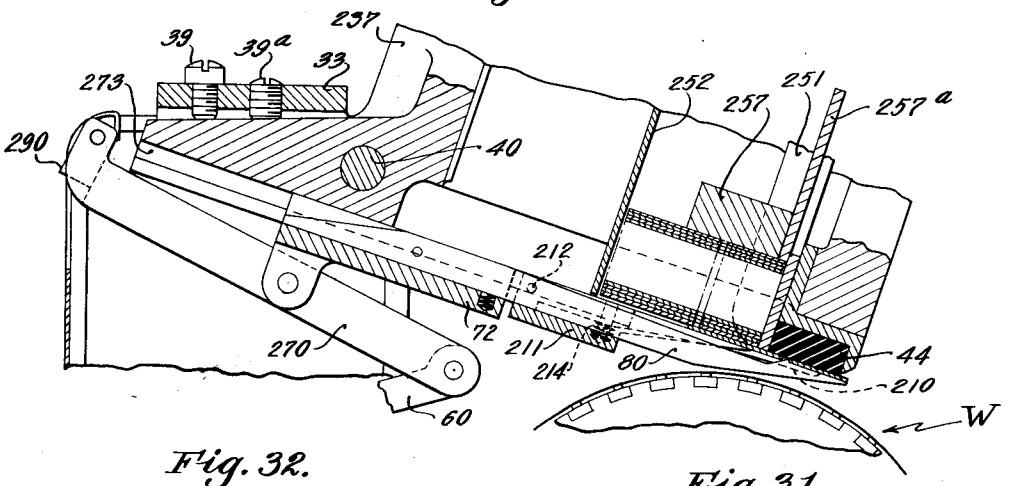


Fig. 32.

36	4K2 310 12 D11 BLA 53 C1	150.00
36	4K2 310 12 D11 BLA 53 C1	150.00
36	4K2 310 12 D11 BLA 53 C1	150.00
	STORE NAME	
36	4K2 310 12 D11 BLA 53 C1	150.00

Fig. 31.

36	4K2 310 12 D11 BLA 53 C1	150.00
	STORE NAME	T2
36	4K2 310 12 D11 BLA 53 C1	150.00

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Patented Nov. 13, 1934

1,980,576

UNITED STATES PATENT OFFICE

1,980,576

PRINTING MACHINE AND METHOD

Carl A. Flood, Framingham, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass., a corporation of Massachusetts

Application January 19, 1933, Serial No. 652,468

32 Claims. (Cl. 101—66)

This invention relates to an improved machine for stamping sheet articles such as price tickets with a plurality of descriptive and/or identifying characters, as well as a new printing method, involving a novel manner of feeding tickets. The invention is particularly suitable for stamping tickets which may have certain code symbols thereon to indicate the lot number, quality, source of supply, and the like, as well as readily readable indicia to show the retail price, color, size, etc.

The present invention permits the rapid and selective rearrangement of the stamping elements so that a lot of tickets may be rapidly printed. To permit these desirable results, a plurality of printing wheels are provided in association with a plurality of similar or corresponding indicating wheels, control mechanism being afforded to permit the arrangement of the printing wheels so that desired indicia may be printed thereby and so that the indicating wheels afford an indication of the symbols on the printing wheels which are in a printing position.

An important feature of the invention is the arrangement of the control parts so that any one of the group of symbols may be independently changed without disturbing the remaining symbols. Thus the number of tickets printed to correspond to different sizes of garments in a single lot may be provided for by a machine of this character, without necessitating the rearrangement of the printing wheels which afford information other than an indication of the size of garment. Preferably the printing means are so arranged that successive vertically staggered groups of selected symbols may be impressed upon the ticket in adjoining lines (each of the printing wheels being selectively movable to bring any one of its impressing symbols into printing position in any one of the lines), thus permitting a greater number of symbols to be impressed upon a ticket of given width and yet be readily readable. Preferably a ticket of the type employed in this machine may be provided with feeding perforations or openings spaced from opposite edges to engage feed fingers that advance the ticket under the printing platen. Thus successive sections of the ticket at opposite sides of the row of feeding openings may receive duplicate indicia. If desired a perforated line for tearing may be associated with the row of feeding perforations so that the ticket thus printed may be torn into similarly printed sections.

A further advantageous feature of the invention pertains to the arrangement of control linkage for the printing or stamping head and the ticket feeding mechanism as well as for the ribbon feeding mechanism, so that all of these parts may be driven in proper synchronism by a singularly simple and effective mechanism. The invention further affords an arrangement associated with the driving linkage to effect the automatic stopping of the driving mechanism when the supply of tickets is exhausted. The invention further relates to general improvements permitting the simple economical provision of a convenient, easily operable and adjustable machine of the character described.

In the accompanying drawings;

Fig. 1 is a side elevational view of the machine with certain parts broken away for clarity of illustration;

Fig. 2 is an end elevation of the machine with certain parts broken away;

Fig. 3 is a top plan view;

Fig. 4 is a front elevation with parts broken away;

Fig. 5 is a top view of a portion of the feeding hopper and related views;

Figs. 6 and 7 are elevational views of typical tickets printed by a machine of the character disclosed herein;

Fig. 8 is a transverse section through the platen plate assembly and hopper of the machine;

Fig. 9 is a broken end elevation of a portion of the hopper and platen assembly;

Figs. 10 and 11 are sections on lines 10—10 and 11—11 of Fig. 5;

Fig. 12 is a broken side elevation showing the platen, a portion of the hopper, and related linkage associated with a part of the numbering wheel;

Fig. 13 is a horizontal section of one form of the printing and indicating wheel assembly;

Fig. 14 is an end elevation of the same;

Fig. 15 is a transverse section thereof;

Fig. 16 is an elevation of the end portion of this assembly with the carriage removed;

Fig. 17 is a view similar to Fig. 13 but showing an optional form of the invention;

Fig. 17a is a sectional detail showing an optional printing wheel arrangement;

Fig. 18 is a top plan view of this assembly;

Figs. 19 to 25 inclusive are detail views, partly in section and partly in elevation, showing the relationship of the lettering wheel assembly, the

platen and related parts in different portions of the operating cycle;

Fig. 26 is a detail view showing the arrangement of the ratchet bar of the carriage and its pawl or control elements;

Fig. 27 is a top view of an optional arrangement of the platen assembly and related parts;

Fig. 28 is an end elevation of the assembly shown in Fig. 27;

Fig. 29 is a view, partly in side elevation and partly in section, of this assembly;

Fig. 30 is a central sectional view of the same; and

Figs. 31 and 32 are views of optional types of tickets which may be printed by the machine forming the subject matter of the present invention.

In the accompany drawings, the numeral 1 designates a base member which, as viewed in plan, is of generally L-shape and which supports a main frame member or upright casting 2 to which the major portion of the working parts of the machine are connected. An electric motor 3 (Fig. 2) drives a worm 4 engaging a worm wheel 5 through which a main shaft 7 extends. Connected to the hub 6 of the worm wheel 5 is the notched driving wheel 8 of a pawl clutch, the driven wheel 9 thereof being secured to the shaft 7. As shown in Fig. 2 the wheel 9 carries a pawl 15 engageable in notches 16 in the wheel 8, a spring 17 tending to hold the pawl 15 in engagement with one of these recesses. A projecting portion of the pawl is engageable with a throw-out block 21 mounted on a slidable shaft or rod 22, so that when the parts are in the position shown in Fig. 1, the pawl may engage the throw-out block to release the clutch and disconnect the main shaft 7 from the driving motor. When the clutch is thus released, the spring 18 may engage the notch 19 to prevent rebound of the driven member.

A barrel or grooved cam 25 is mounted on the portion of the shaft 7 which extends within main frame 2 and it engages a roller follower on the lower end of a main control lever 30. The latter is secured to a wrist pin 31 which is received in bosses in frame 2 at either side of the lever. The portion of lever 30 above the pin 31 is connected by a short link 32 to a swinging member 33 of inverted J-section (Fig. 2), the upper end of this lever providing a flat plate portion 36 disposed above the end of a platen plate 37. The plate portion 36 of lever 33 is provided with adjusting screws 39 and 39a extending to the platen plate accurately to determine the relative position of the same and the lever.

At the upper end of frame 2 platen plate 37 is pivotally mounted upon a rod 40 which extends through the opposite legs of lever 33. The end of the platen 37 carries a platen block 44 or the like which may be of rubber and which serves to press the articles to be stamped, such as tickets, against the printing wheels, which will be subsequently described.

Mounted upon the platen plate is a hopper, designated generally by numeral 50, comprising angle members 51 extending upwardly in a direction perpendicular to the plane of plate 37, and an upwardly extending plate 52 secured to the plate by an angle 53 which is provided with a slot engaging an adjusting nut or thumb screw 54 to permit variation in the spacing of the member 52 and angles 51. A weight 57 is normally mounted above a lot of tickets T disposed within the hopper, the angles 51 engaging corners of these tickets and the plate 52 engaging opposite edges. The weight 57 is of such size and shape that its corners are slidably received within the angles 51.

A secondary lever 60 is mounted on a pin or boss 61 which projects from main lever 30, the lower portion of the lever 60 being engaged by a spring 63 which tends to hold it in fixed relation to the lever 30. To permit variation in this positioning, however, an adjusting screw 65 is mounted on the upper end of lever 60 (Fig. 12) and has an end portion engaging the boss 66 upon the upper extremity of main lever 30. The upper end of lever 60 is connected by a link 70 to a carriage 72 which engages a guide 73 of inverted T-section secured to the lower part of platen member 37. Thus the carriage 72 may slide upon the platen member toward and from the platen block 44.

A machine of the type disclosed herein is particularly adapted for the printing of tickets T having either duplicate indicia thereon (Fig. 6) or tickets T' having a single group of indicating symbols (Fig. 7). Thus the ticket T, as shown in Fig. 6, may be provided with aligned feed slots 85, which are disposed parallel to its upper edge and somewhat nearer the edge than to the lower edge of the ticket. If desired, a line of perforations may be associated with these slots, as designated by numeral 84, so that the ticket may be conveniently torn into two portions, each of which bears similar or identical indicia. By an arrangement, which will be more fully described, the various groups of indicating or identifying symbols may be arranged in staggered lines upon each part of the ticket, so that a greater number of symbols may be applied to a ticket of limited width and yet be readily read.

Feed fingers 80, Figs. 8 and 11, mounted on pintle screws 82, are supported by the carriage 72 and are provided with upwardly extending prongs 81 adjoining their outer ends to engage the notches 85 in the wide tickets T as well as to engage one of the edges of each of these tickets as well as the corresponding edge of a narrower ticket T'. Small compression springs 86 tend to urge the prongs 81 upwardly against the lower face of the lowermost ticket in the hopper, and a supporting block or plate 89 secured to the platen plate is provided with a beveled end portion extending between the outer ends of the feed fingers 80 and normally supporting the stack of tickets in the hopper. The outer end of the plate 89 is spaced from the lower surface of the adjoining portion of the platen plate 37 at a distance slightly greater than the thickness of one ticket, so that the prongs 81 on feed fingers 80 may engage the lowermost ticket and feed it through the space thus provided.

At each side of the passage provided for the tickets adjoining the platen block 44 are guide means to engage the opposite edges of the tickets. Such an arrangement is illustrated more fully in Fig. 9. As shown at the left of this figure one of the guides may comprise a metal strip 91 secured to the platen plate, and having its inner edge rabbeted to cooperate with the plate in providing a groove in which one of the tickets may slide. At the opposite edge of the platen plate is a substantially L-shaped spring 90 having an upwardly extending end portion upon which the opposite edge of the ticket T may slide.

Figs. 8 and 19 to 24 illustrate more particularly the manner in which the tickets T are fed by

the fingers 80 through the lower part of the hopper under the platen block 44, which is moved downwardly to press the tickets against the printing wheel assembly, designated in general by the symbol W. As shown in Fig. 8 the springs 86 press the prongs 81 against the lower surface of the lowermost ticket as the feed fingers are advanced, due to the swinging of main lever 30 and the corresponding advance movement of the carriage 72. When the prongs 81 come into juxtaposition with the notches or feed slots 82 in the tickets T, the fingers are pressed upwardly slightly so that the prongs engage the notches in the lowermost ticket, Fig. 19. Thereupon continued advance movement of the carriage 72 and fingers 80 is effective in sliding the ticket over the supporting plate 89 so that the ticket edges engage the guide means 90, 91 provided upon platen plate, and so that its foremost portion is disposed beneath the platen block 44 (Fig. 20). Thereupon the carriage 72 moves fingers 80 in the reverse direction, and the downward movement of the platen plate is effective (Fig. 21) in pressing the ticket against the printing ribbon 160, which extends about the printing wheels while the fingers 80 are in their retracted position.

The second forward movement of the fingers 80 is effective in causing the prongs 81 to pass beneath the hopper to engage the lower edge of the partly printed ticket T or the left edge of the same, as viewed in Fig. 21, this edge being disposed somewhat to the left of the slots 84 in the superposed pile of tickets. It is thus evident that during the first forward movement of the fingers 80 the prongs 81 slide in engagement with the under surface of the ticket for a slight distance before they engage the feed slots 82, while during the next advance movement of the feed fingers the prongs 81 engage the lower surface of the ticket, which is above the lowermost ticket and engage the edge of the lowermost ticket at a point slightly behind the point wherein they would initially engage the feed slots.

The prongs 81 have a vertical extent which is slightly less than the thickness of a ticket, so that they do not catch in the feed slots of the next to the lowermost ticket when in the position shown in Fig. 22, but continue to feed the lowermost ticket until its lower edge, i. e. the left edge as viewed in Fig. 23, substantially registers with the edge of the platen block 44, thus bringing the lower or larger section of the ticket in position to be printed. Thereupon the feed fingers 80 are retracted as the platen plate swings downwardly to its printing position (Fig. 24) and the cycle of operations is then repeated, the feed fingers again engaging the feed slots 82 of the next ticket, which is slid into a position to engage the edge of the first ticket and therefore eject it from the machine into a suitable receiving rack 98 (Fig. 1). The rear portions of the prongs 81 have a gradual inclination while their front edges are disposed substantially normal to the direction of longitudinal extent of the fingers 80. Accordingly, when the fingers are retracted from the feed openings 84, the frictional engagement of guide means 90, 91, with the ticket T prevents retraction of the ticket.

If the tickets T' are to be printed to provide a single rather than a duplicate set of symbols, the side plate 52 of the hopper is adjusted so that the width of the latter corresponds to that of the narrower tickets, and the feed fingers slide forwardly to engage the lower edge of these tickets and to feed them in succession beneath the platen block in the same general manner as has been described, but one feeding operation being necessary for each ticket rather than two feeding operations, as is required when two successive sets of indicia are to be applied to the two sections of the ticket. In certain cases, tickets having more than two sections may be printed by a machine of this character, as will be more fully described.

The general operation of the mechanism so far described is as follows: The motor 3 rotates the worm wheel 5 and drives main shaft 7 through the pawl clutch, thus rotating barrel cam 25 and causing the lever 30 to swing about its pivot 31. The secondary lever 60 normally swings as a unit with the main control lever 30, thus causing reciprocation of carriage 72 and the feed fingers 80 which in their movement toward the printing block 44 are effective in feeding successive tickets from the bottom of the pile of tickets within the hopper under the retaining block. On the return motion of the feed fingers, their projections 81 have a cam-like engagement with the bottom ticket so that no tendency toward reverse movement results. The lever 33 swings about its fixed pivot 40 to depress the upper end of platen 37, thus causing the lower end, including the printing block 44, to rise as the fingers 80 execute their feeding movement and causing the lower end of the platen, including block 44, to fall to printing position as the fingers 80 approach their retracted positions illustrated in Fig. 1.

When the entire lot of tickets has thus been fed from the lower part of the hopper 50, projections 81 of fingers 80 catch against the edge of weight 54, thus preventing a feeding movement of the fingers and causing the upper part of secondary lever 60 to swing away from the boss or pin 66. In other words, sliding of the carriage 72 and corresponding movement of the link 65 is prevented. In this position of the parts, the lower end of lever 60 is engageable, with the block 79 upon the clutch control shaft 22, thus being effective in moving the throw-out block 21 into engagement with the pawl 15 to disengage the clutch and stop further movement of the printing and feeding mechanism.

The printing wheel mechanism, designated generally by symbol W, comprises supporting brackets 100 (Figs. 17 and 18), which are secured by fastenings 101 to the main frame 2. An arbor member 103 is mounted between the brackets 100. This arbor is a casting having a cross section of substantially C-shape with its outer surface providing generally cylindrical bearing portions adjoining each of its ends. Mounted upon the bearing surface at one end of the member 103 are a plurality of printing wheels 105 each having internal teeth 106 in bearing engagement with the cylindrical surface of the arbor, while at the opposite end of the arbor are a corresponding number of indicating wheels 110 with internal teeth 111 similarly bearing upon the arbor (Fig. 15). Undercut grooves 102 are provided in the arbor 103, Fig. 15, and receive spacer blocks 104 between which spacing plates 107 project to engage the sides of certain of the printing and indicating wheels thus preventing undesirable longitudinal movement of the latter upon the arbor.

A carriage or adjusting mechanism, designated in general by symbol C, is mounted in the portion of the arbor where the cylindrical surfaces

are discontinued. The arbor is provided with parallel grooves receiving ribs 114 on the carriage frame 115 which is of generally U-shaped cross section (Fig. 15). A shaft 117 is rotatably supported by journals carried by the frame 115 and supports a knurled handle or knob 119 at its outer end.

Spaced, toothed, control wheels 120 and 121 are mounted upon the shaft 117 in such a position that the teeth of gear 120 may engage the internal teeth of a lettering wheel 105 when the wheel 121 engages the internal teeth of the corresponding indicating wheel. A spring reel mechanism 126 is connected to a tension cable 127, thus normally to pull the carriage C to the right as viewed in Figs. 17 and 18. Mounted on the frame 115 of the carriage between the wheels 120 and 121 and at either side of the same are locking or retaining bars 129 which engage between teeth in the lettering and indicating wheels (Fig. 15), thus to hold the wheels which are not in engagement with the adjusting or control pinions 120 and 121 in proper position and to prevent accidental turning of the same. When the carriage C is held in the position illustrated in Figs. 17 and 18, the control wheels 120 and 121 are located out of engagement with the internal teeth of the lettering and indicating wheels, and these wheels are held in fixed position in relation to each other by the locking bars 129, while the wheel 121 engages a stop pad 122.

A ratchet bar 130 is provided on the carriage C and has upper and lower sets of teeth engageable with swinging pawl elements 131 and 132 respectively. These pawl elements are connected to swinging levers 134 and 133 respectively, (Figs. 14 and 18), a stop 136 being provided upon the lever 133 to engage the lever 134 so that normally when the button 135 at the end of lever 134 is depressed, the levers move together, but the lever 133 may be moved separately by an extension 137 if desired, (Figs. 4 and 14). Springs 138 are effective in tending to swing the levers 133 and 134 in an anticlockwise direction as viewed in Fig. 14, thus normally to hold pawl 132 in engagement with a tooth upon the lower part of the rack. The teeth upon the rack and the pawls are so shaped that the rack may move with a step-by-step movement corresponding to the width of one of the lettering wheels 105.

Referring to Fig. 26 it is evident that the pawl elements 131 and 132 are offset in relation to each other and together have a width substantially corresponding to the width of one tooth upon the ratchet bar 130. Thus as the element 131 is moved into engagement with the inclined surface of a tooth upon the bar due to the depression of the key 135, the abutment element 136 is normally effective in swinging the member 132 out of engagement with a tooth upon the bar, thus allowing the bar to move under the action of the spring mechanism 126 laterally for one-half step until the side of the element 131 engages an abutment surface at the end of the next tooth upon the bar. Thereupon as the key 135 is released, the element 131 moves out of engagement with said tooth as the element 132 engages the inclined surface of a tooth upon the bar. Thus a second half-step movement of the bar is effected. When the finger piece 137 is pressed the element 131 is being held out of locking position by its spring 138 and the element 132 is moved out of engagement with the ratchet bar so that the latter is free to move under the action of the spring mechanism 126 back to its inoperative position illustrated in Fig. 17.

Sometimes it is desirable to provide a single impressing element having greater width than that of the adjoining elements, for example, to provide suitable commonly used words such as "size", "lot", etc. As shown in Fig. 13 therefore, certain printing wheels 105^a may be relatively wide and the corresponding indicating wheels 110^a may have a similar width. In order to permit the proper step-by-step movement of the carriage to bring the adjusting wheels 120 and 121 into engagement with the internal teeth upon these wider wheels suitable spaces indicated by reference character 130^a in Fig. 13 may be provided between successive ratchet teeth, thus permitting a longer stepped movement of the carriage to bring the teeth of the control wheels from a position in engagement with one of the narrower printing wheels and the corresponding indicating wheel into proper engagement with the teeth upon the wider wheels.

Mounted upon the carriage C is an indicator bar 140 having an extension 141 to provide a pointer which normally moves past the peripheries of the indicating wheels 110. This pointer normally slides outside of the sheet metal casing 142 which encloses the wheel mechanism W. An opening or window is provided in the metal casing 142. As shown, for example, this window may be provided with a celluloid sheet 146 exposing peripheral areas of the indicating wheels. The pointer 141 moves along the window to indicate which indicating wheel is engaged with gear 121 and to indicate the corresponding printing wheel which is engaged with gear 120. A pair of heavy lines 146^a (Fig. 4) are provided upon the window 146 to define an area upon the indicating wheels which corresponds to the grouping of symbols upon the printing wheels that are in printing position. Thus rotation of the knob 119, shaft 117 and wheels 120 and 121 readily permits the adjustment of the lettering wheels to give any desired combination of symbols, the same combination of symbols then being visible through the window or opening 146 and between the lines 146^a.

As shown in Figs. 14 and 15 the symbol-impressing elements upon the printing wheels 105 and the corresponding symbols on indicating wheels 110 are so spaced in relation to the internal teeth upon these wheels that adjustment of the wheels circumferentially to bring different symbols into printing and indicating position respectively may be so effected that the symbols are arranged in alternate groups in lines one above the other thus to permit ready separation of the groups by the reader's eye although the symbols are closely spaced transversely of the ticket, see Figs. 6 and 7. Thus for this purpose there may be three teeth corresponding to the circumferential space occupied by each symbol, and when the locking bars 129 engage the wheels, the symbols may be spaced to print in vertically staggered groups in the manner indicated. The proper arrangement of a definite number of teeth to occupy an angular portion of a printing wheel corresponding to a space occupied by a symbol upon the periphery of each wheel and the proper positioning of the symbols and teeth effectively

permits the staggering of the symbols in two closely spaced lines so that it is not necessary to provide spaces horizontally of the printing line between symbols in order to separate adjoining groups of symbols. Furthermore, the described arrangement permits the arrangement of any of the symbols in either line. In other words the symbols upon any one wheel may be disposed in printing position interchangeably in either the upper or lower printed line, the yieldability of the platen block 44 permitting the proper impression of symbols in both lines despite the slight angular variation in positioning of the symbol impressing elements.

A printing ribbon 160 extends about the upper part of the group of lettering wheels 105 and suitable ribbon feeding mechanism, designated in general by the symbol F, is provided to cause feeding of this ribbon. This mechanism may be of any suitable type, such as that illustrated in Figs. 1 and 4, wherein the block 162 extending from the main lever 30 affords a slight vertical reciprocatory movement to the link 163 which is connected to one end of the rocking lever 164, the opposite end of which is connected to the swinging movable plate 165. The upper end of the latter is slotted to engage a fixed guide pin 159 extending through an opening in the depending arm 187 which is secured to the rocking bar 180, the opposite ends of the latter carrying guide pins, screws 181 engaging slots in guide plates 1 and 2. The latter are bifurcated to provide guide slots through which the ribbon 160 extends from the respective ribbon rolls about the printing wheels 105.

Fixed to each of the ribbon rolls are ratchet wheels 175 which are engageable in turn with the upper end of a toggle member 171 pivotally mounted on the vertically movable plate 165. The other toggle member 170 extends downwardly and its lower end engages a pin 169 movable in an arcuate slot in the plate 165, a spring being arranged to connect the ends of the toggle members 170 and 171 so that they may be swung from the position wherein the member 171 engages the teeth of one wheel to a position wherein it engages the teeth of the other wheel, the lower toggle member causing the pin 169 to move along the arcuate groove in plate 165 as such an adjustment is made.

The pin 169 is also received in a slot in the depending arm 187 so that tipping of the rocking member 180 from a position where it inclines upwardly to the left, as viewed in Fig. 1 to a corresponding position wherein it inclines upwardly to the right causes a change in the position of the toggle arms 170 and 171 so that the latter may engage the ratchet wheel 175 at the right to cause winding of the ribbon upon the corresponding roll rather than unwinding from that roll. An eyelet 182ª, Fig. 4, is provided adjoining each end of ribbon 160 so that it may engage the bifurcated end of the corresponding guide plate 182 thus to rock the member 180 automatically to adjust the mechanism so that the ribbon is then wound in the opposite direction. Thus automatic ribbon winding and unwinding or feeding mechanism is provided.

Suitable cover means are provided to cooperate with the base 1, the main frame 2, and the enclosure for the printing wheel mechanism W. Thus, for example, a cover plate 140 of generally right-angle cross section may be secured to the upper side of the main frame member 2 and provide a horizontal flange with a slot 143 through which a handle 44 extends, this handle being connected to the clutch throw-out shaft 22 to permit manual release or engagement of the clutch. Below the member 140 are vertical bolts 142, which retain a sheet metal cover plate 147 in place adjoining the outer end of the main shaft 7, while these bolts form pintles for swinging doors 150 at either side of the housing which includes the motor and clutch mechanism. A suitable control switch 155 for the electric motor may be disposed upon the top of the frame 2.

Figs. 27 to 30 inclusive illustrate optional developments of the present invention, and particularly a somewhat different structural arrangement of the platen assembly and related parts. In accordance with this embodiment of the invention the platen plate 37 of Fig. 1 is replaced by a casting 237 of generally C-shape which is pivotally mounted upon the shaft 40 and has an extension engaged by screws 39 and 39ª extending through the lever 33 in the same manner as has already been described.

A carriage 72, similar to that previously described, may be slidably mounted upon an inverted T-shaped member 273 secured to the member 237. An extension of the member 273 provides a supporting plate upon which the stack of tickets to be printed may rest. The feed fingers 80 may be pivotally mounted upon the carriage in the manner previously described. A plate 240 may be secured to the member 237 adjoining its pivotal mounting 40 and may extend across the open portion of the C-shaped casing providing a guard over which strings attached to the ends of the stacked tickets may extend. The angles 251 of the hopper are similar to the angles 51 previously described and the rear plate 252 of the hopper may be secured to the upstanding leg of an angular member 239, the other leg of which is engageable in a groove in the upper surface of member 273. A spring 235 disposed about a screw or stud 236 may normally hold the end of an adjusting finger 225 in engagement with one of a plurality of notches 226 upon the member 239, thus permitting the adjustable positioning of the plate 252 in relation to the fixed angles 251 of the hopper to accommodate tickets of various sizes.

As shown, the weight 257 may be provided with an upstanding flange 257ª that may be readily grasped by the fingers of an operator when a new lot of tickets is to be inserted into the hopper. Disposed at each side of the member 273 are guide fingers 210, which are pivotally mounted upon a plate 211 secured to the member 273, being connected thereto by pivot pins 212. The outer ends of these fingers are urged upwardly by compression springs 214 engaging their said portions. The outer ends of the fingers 210 are beveled and project at opposite sides of the printing wheels to engage the margins of the tickets and support the same when they are disposed beneath the platen block 44. The arrangement of the C-shaped platen member 237 with the thin plate 240 permits more convenient access to the hopper and more convenient insertion of a stack of tickets in the hopper, as well as affording convenient means permitting the strings to project from the ends of the price tickets or the like, and yet to hold these strings in such a position that they do not get between the platen and printing wheels.

In certain instances it is desirable to vary the position of the printed symbols in relation to the edge of the ticket, and in the case of a

ticket having two or more sections in relation to the edge and to the perforated line between adjoining ticket sections. As shown in Fig. 6, the indicia may be disposed substantially midway of a narrow section of the ticket, i. e. spaced appreciably from the lower edge of a small ticket T' or correspondingly spaced from the lower edge of a ticket T. In certain cases it is desirable to have the symbols impressed upon the ticket adjoining its lower edge and in the case of a duplicate ticket adjoining the lower edge of the lower ticket section and adjoining the edge afforded by the perforated line of the next section. Such a change in the position of the symbols upon the ticket is effected by varying the position of the path of the feeding fingers 80. For this purpose the set screw 65, Fig. 1, may be adjusted, for example, so that the arm 60 is moved somewhat to the left as viewed in Fig. 1, thus to position the point where the feed finger advances somewhat further to the right to permit printing adjoining the feed slots in a duplicate ticket T as well as adjoining its lower edge. Fig. 31 illustrates a ticket T^2 which is printed with the symbols adjoining the lower edges of its sections by adjusting the machine in the manner just described.

The link 70 of Fig. 1 may be replaced by a corresponding link 270 which extends beyond the pivotal connection with the carriage 72 and carries a swinging block 290 upon its outer end. As shown in Fig. 30, the block may be swunk downwardly so that it has no operative effect when the fingers are advancing to their extreme positions over the printing wheels while as shown in dotted lines in Fig. 29, the block may be swung upwardly to engage the end of the T-shaped member 373 which acts as a stop, thus to limit the movement of the fingers when the ticket sections are to receive symbols upon their mid-portions rather than adjoining their lower edges. Thus after the machine is adjusted to print adjoining the lower edges of the ticket sections the members 290 may be swung into the position shown in dotted lines in Fig. 29 to permit quick adjustment of the machine so that it will be effective in printing the ticket sections upon their mid-portions rather than upon their lower edges without necessitating readjustment of screw 65.

The principles of this invention may be employed not only to print a single set of symbols upon a ticket or to print duplicate sets of symbols upon a ticket having two sections, but also may be employed with a ticket having three or more sections. For example, Fig. 32 illustrates such a ticket which may conveniently be received in the hopper, illustrated in Figs. 28 and 29. These tickets are fed in the same manner as the tickets comprising two sections, the feed fingers moving beneath the sections of the ticket adjoining the platen block 40. In any case, it is desirable to have the last section of the ticket to be printed relatively wider than the first section, so that when the sections are in the position indicated corresponding to that shown in Fig. 21, the prongs 81 upon feed fingers 80 will not catch in the feed openings of the ticket above the one that is in printing position.

In certain cases it is desirable to have the indicia on the tickets separated into columns. For this purpose relatively wide or thick spacing plates 300 may be located at intervals upon the arbor 103, Fig. 17a, thus dividing the printing wheels into distinct groups. Thus the wheels at the left may bear relatively large symbols of substantially twice the height of the adjoining symbols to indicate the size, while the five wheels at the left may carry similar large symbols to indicate the price. The arrangement of the printed symbols with the size and price indicated by relatively large figures, and the remaining information indicated by staggered groups of small symbols is shown in Figs. 31 and 32.

It is evident that this invention affords a ticket printing machine which allows an exceedingly easy adjustment of the printing wheels and permits the printing in one operation of the maximum amount of information, i. e. a relatively large number of closely spaced or readily discernible symbols upon a ticket. If desired, the machine may be readily employed to print successive similar groups of symbols upon successive sections of each ticket without necessitating the feeding of the tickets through the machine twice.

I claim:

1. Printing mechanism comprising a supporting arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of indicating wheels having similar symbols and teeth engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced pinions mounted upon the shaft and selectively engageable with one of the printing wheels and a corresponding indicating wheel whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corersponding indicating wheel.

2. Printing mechanism comprising a supporting arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of indicating wheels having similar symbols and teeth engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced, toothed, control wheels mounted upon the shaft and selectively engageable with one of the printing wheels and a corresponding indicating wheel whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corresponding indicating wheel, and ratchet means associated with said carriage to effect the step-by-step movement of the carriage so that the control wheels of the latter may be brought into engagement with the teeth of successive printing and indicating wheels.

3. Printing mechanism comprising a supporting arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of indicating wheels having similar symbols and teeth engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced, control pinions mounted upon the shaft and selectively engageable with one of the printing wheels and with a corresponding indicating wheel, whereby the shaft may be rotated to adjust a selected printing wheel and to

effect simultaneous movement of the corresponding indicating wheel, ratchet means associated with said carriage to effect the step-by-step movement of the carriage so that the control pinions of the latter may be brought into engagement with the teeth of successive printing and indicating wheels and to permit the movement of the carriage to a position wherein the control pinions are out of engagement with the printing and indicating wheels.

4. Printing mechanism comprising a supporting arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of indicating wheels having similar symbols and teeth engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced pinions mounted upon the shaft and selectively engageable with the teeth of one of the printing wheels and of a corresponding indicating wheel whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corresponding indicating wheel, the teeth upon said printing wheels being arranged in relation to the printing elements thereon in such a manner that the elements upon successive wheels may be arranged in staggered relation to print symbols upon two lines one above the other.

5. Printing mechanism comprising a supporting arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of indicating wheels having similar symbols and teeth engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced pinions mounted upon the shaft and selectively engageable with one of the printing wheels and a corresponding indicating wheel whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corresponding indicating wheel, the teeth upon said printing wheels being arranged in relation to the printing elements thereon in such a manner that the elements upon successive wheels may be arranged in staggered relation to print symbols upon two lines one above the other, the elements upon any printing wheel being capable of printing upon either the upper or the lower lines.

6. Method of printing tickets each having a recess therein spaced from an outer edge, said method involving the employment of a feeding finger, and relatively movable printing elements and platen, said method comprising engaging the finger with the recess and moving the finger between the platen and elements so that the section of the ticket between one of its opposite edges and the recess is disposed in printing position, then causing relative movement of the elements and platen to printing position while the feed finger is withdrawn, thereafter advancing the feeding finger in engagement with the edge of the ticket remote from said section and moving the section between the recess and the last-named edge to a printing position and again withdrawing the feed finger and repeating the printing operation.

7. Method of printing tickets each having a recess therein spaced from an outer edge, said method involving the employment of a feeding finger and a movable platen, said method comprising engaging the finger with the recess and moving the finger beneath the platen so that the section of the ticket between one of its opposite edges and the recess is disposed in printing position beneath the platen, then moving the platen to printing position while the feed finger is withdrawn, thereafter advancing the feeding finger in engagement with the edge of the ticket remote from said section and moving the section between the recess and the last-named edge of the ticket under the platen and again withdrawing the feed finger and repeating the printing operation, thereupon moving a similar succeeding ticket into printing position by engagement of the feed finger with the recess in the successive ticket and thus moving the first ticket out of its last position beneath the platen.

8. Method of feeding tickets from the bottom of a pile of tickets each of which has a feeding recess between opposite edges, said method involving the employment of a feeding finger, said method comprising engaging the feeding finger with the recess in the lowermost ticket, and sliding the ticket from the bottom of the pile along a path substantially in the plane of the ticket to printing position, retaining the ticket in this position while withdrawing the feeding finger and printing upon the section of the ticket between the recess and the advanced edge of the ticket, thereafter engaging the feed finger with the opposite edge of the ticket and moving a section of the ticket between the recess and said last-named edge into printing position and again withdrawing the feeding finger and printing said last-named section of the ticket.

9. Printing mechanism comprising a support, a plurality of wheels having type elements upon their peripheries and being rotatably mounted upon the support, a plurality of indicating wheels rotatably mounted upon the support, a carriage slidable in relation to the support, a shaft rotatably mounted upon the carriage, a pair of spaced elements mounted upon the shaft and selectively engageable with one of the printing wheels and a corresponding indicating wheel whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corresponding indicating wheel, and locking bars disposed upon the carriage adjoining said elements to engage the wheels that are not in engagement with said elements to lock the same in their adjusted positions.

10. Printing mechanism comprising a support, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth, said wheels being rotatably mounted upon the support, a plurality of indicating wheels having similar symbols, and internal teeth, said indicating wheels being rotatably mounted upon the support, a carriage slidable in relation to the support, a shaft rotatably mounted upon the carriage, a pair of spaced pinions mounted upon the shaft and selectively engageable with the teeth of one of the printing wheels and the teeth of a corresponding indicating wheel, whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corresponding indicating wheel.

11. Printing mechanism of the class described comprising a driving motor, a swinging platen,

symbol impressing means, linkage between the motor and platen to cause the latter to press a ticket against the symbol impressing means, and ticket feeding means operable by said linkage to feed successive tickets between the platen and said means when the platen is spaced from said means, a clutch between said motor and said linkage, a hopper to hold a pile of tickets and supply the same to the feeding means, a weight to press the tickets downwardly in the hopper, and means associated with said linkage operable when the weight reaches the bottom of the hopper due to the exhaustion of the tickets to disengage the clutch.

12. Printing mechanism of the class described comprising a main drive shaft, a cam upon said shaft, a main operating lever movable in response to the action of said cam, a swinging platen, a connection between said lever and platen to effect the swinging movement of the latter, a feed finger slidably mounted in relation to the platen, a hopper carried by the platen and arranged to supply tickets to be fed by the finger, and link means between said finger and main lever to effect the movement of the finger and thus feed tickets to printing position.

13. Printing mechanism of the class described comprising a supporting arbor of substantially C-shaped cross section to provide a slot extending along the arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of corresponding indicating wheels having similar symbols and teeth similarly engaging the arbor, a carriage slidable along the slot in the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced control wheels mounted upon the shaft and selectively engageable with any one of the printing wheels and with a corresponding indicating wheel, a ribbon extending about the printing wheels, a movable platen disposed adjoining the ribbon and mechanism for moving the platen toward the ribbon to press an article to be printed thereagainst, a frame supporting said mechanism and the arbor, and a casing surrounding the indicating wheels, said casing having a window therein through which a group of symbols upon the wheels may be visible corresponding to the symbols upon the printing wheels which are in printing position.

14. Printing mechanism comprising a supporting arbor, a plurality of wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of corresponding indicating wheels having similar symbols and having teeth similarly engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced control wheels mounted upon the shaft and having teeth selectively engageable with one of the printing wheels and with a corresponding indicating wheel, a casing surrounding the indicating wheels, an opening in the casing arranged to permit a group of symbols upon the indicating wheels to be visible corresponding to the symbols upon the printing wheels which are in printing position, a pointer upon said carriage movable along a path adjoining said opening to indicate which of the printing and indicating wheels are in engagement with the control wheels.

15. Printing mechanism comprising a supporting arbor, a plurality of wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of corresponding indicating wheels having similar symbols and having teeth similarly engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced control wheels mounted upon the shaft and having teeth selectively engageable with one of the printing wheels and with a corresponding indicating wheel, a ratchet bar upon the carriage, and pawl means normally holding the carriage in fixed position, said pawl means being capable of movement to cause a step-by-step movement of the carriage to bring the control wheels into engagement with the teeth of successive printing and indicating wheels respectively.

16. Printing mechanism comprising a supporting arbor, a plurality of wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of corresponding indicating wheels having similar symbols and having teeth similarly engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced control wheels mounted upon the shaft and having teeth selectively engageable with one of the printing wheels and with a corresponding indicating wheel, a ratchet bar upon the carriage, and pawl means normally holding the carriage in fixed position, said pawl means being capable of movement to cause a step-by-step movement of the carriage to bring the control wheels into engagement with the teeth of successive printing and indicating wheels respectively, certain of said printing wheels and corresponding indicating wheels having greater widths than the remaining wheels, the teeth upon the ratchet bar being arranged to cause a step movement of greater extent when the control wheels are moving into engagement with the teeth of the wider printing and indicating wheels.

17. Printing mechanism comprising a supporting arbor, a plurality of wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to permit the wheels to rotate thereabout, a plurality of corresponding indicating wheels having similar symbols and having teeth similarly engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced control wheels mounted upon the shaft and having teeth selectively engageable with one of the printing wheels and with a corresponding indicating wheel, a ratchet bar upon the carriage, pawl means normally holding the carriage in fixed position, said means being capable of movement to cause a step-by-step movement of the carriage to bring the control wheels into engagement with the teeth of successive printing and indicating wheels respectively, said pawl means being manually movable normally to cause the step-by-step movement of the carriage but being adjustable to a position wherein the carriage may move freely without a step-by-step movement.

18. Printing mechanism comprising a supporting arbor, a plurality of wheels having symbol impressing elements upon their peripheries and having internal teeth engaging the arbor to

permit the wheels to rotate thereabout, a plurality of corresponding indicating wheels having similar symbols and having teeth similarly engaging the arbor, a carriage slidable in relation to the arbor, a shaft rotatably mounted upon the carriage, a pair of spaced control wheels mounted upon the shaft and having teeth selectively engageable with one of the printing wheels and with a corresponding indicating wheel, a ratchet bar upon the carriage, and spring controlled pawl means normally holding the carriage in fixed position, said pawl means being capable of movement to cause a step-by-step movement of the carriage to bring the control wheels into engagement with the teeth of successive printing and indicating wheels respectively, said carriage having retaining bars disposed at either side of either wheel to extend between the teeth of indicating and printing wheels which are not being engaged by the control wheels, thus to prevent accidental rotary movement of the printing and indicating wheels which are not thus engaged.

19. Printing mechanism comprising a support, a plurality of printing wheels having symbol impressing elements upon their peripheries and having internal teeth, said wheels being rotatably mounted upon the support, a plurality of indicating wheels having similar symbols and internal teeth, said indicating wheels being rotatably mounted upon the support, a carriage slidable in relation to the support, a shaft rotatably mounted upon the carriage, a pair of spaced pinions mounted upon the shaft and selectively engageable with the teeth of one of the printing wheels and the teeth of a corresponding indicating wheel, and locking bars disposed upon the carriage adjoining the pinions to engage the teeth of the printing and indicating wheels which are not in engagement with the pinions thereby to lock these wheels in their adjusted positions, whereby the shaft may be rotated to adjust a selected printing wheel and to effect simultaneous movement of the corresponding indicating wheel.

20. Printing mechanism comprising a supporting arbor, a plurality of printing wheels having symbol impressing elements upon their peripheries and being rotatably mounted on said arbor, and means for positioning each wheel in a plurality of positions so that each element will have at least two printing positions whereby the wheels may be adjusted to permit printing in staggered lines, each of the symbol impressing elements being capable of positioning in each of the staggered printing lines.

21. Printing mechanism of the class described comprising a main drive shaft, a main lever movable in response to rotation of said shaft, a swinging platen, a connection between said lever and the platen to effect swinging movement of the latter, a feed finger slidably mounted in relation to the platen, a hopper arranged to supply tickets to be fed by the finger and link means between said finger and main lever to effect movement of the finger and thus feed tickets from the hopper to a printing position beneath the platen.

22. Printing mechanism of the class described comprising a swinging platen member, printing elements positioned adjoining the platen, a carriage slidably mounted in relation to the platen, a feed finger carried by the carriage and adapted to engage successive articles to be printed and push the same between the platen and said printing elements, and means for adjustably varying the path of the carriage, and accordingly varying the position at which the feed finger locates articles beneath the platen so that the position of symbols printed upon the article may be varied.

23. Printing mechanism comprising a main drive shaft, a main operating lever movable in response to rotation of said shaft, a swinging platen, a connection between said lever and platen to effect swinging movement of the latter, a feed finger slidably mounted in relation to the platen to feed articles into printing position upon the platen, link means between said finger and main lever to effect the movement of the finger and thus feed tickets to printing position and adjusting means associated with said link means to permit variation in the position of the path of the feed finger in relation to the platen, thus to permit variation in the printing position of an article fed by the finger beneath the platen.

24. Printing mechanism comprising a main drive shaft, a main operating lever movable in response to rotation of said shaft, a swinging platen, a connection between said lever and platen to effect swinging movement of the latter, a feed finger slidably mounted in relation to the platen to feed articles into printing position upon the platen, link means between said finger and main lever to effect the movement of the finger and thus feed tickets to printing position, and adjusting means associated with said link means to permit variation in the position of the path of the feed finger in relation to the platen, thus to permit variation in the printing position of an article fed by the finger beneath the platen, an abutment, a swinging stop member movable with the feed finger, said stop member being swingable to a position wherein it engages the abutment to limit the advance movement of the feed finger, thus to permit quick adjustment of the extent of path of the feed finger and consequent ready variation in the position of an article beneath the platen.

25. Printing mechanism comprising a support, a plurality of printing wheels having internal teeth rotatably engaging the support, a plurality of indicating wheels having internal teeth rotatably engaging the support, a carriage slidably mounted upon the support, said carriage having a pair of spaced pinions to engage the teeth of one of the printing wheels and the teeth of a corresponding indicating wheel, and spacers projecting from the support between certain printing wheels and between certain indicating wheels to prevent undesirable longitudinal movement of the wheels in relation to the support.

26. Printing mechanism comprising a support, a plurality of printing wheels rotatably mounted upon the support, means for adjusting the prnting wheels, certain of said wheels having symbols thereon of relatively small height and other of said wheels having symbols thereon of substantially greater height, said means being arranged to adjust said first-named wheels so that each of the symbols thereon may be disposed in either one of two staggered printing lines adjoining a single printing line afforded by the symbols of greater height.

27. Method of printing tickets having a plurality of sections with adjoining feed openings and each having a relatively wide section disposed between a feed opening and a feed edge, said method involving the employment of a feed

finger having a prong thereon, said method comprising the disposing of the tickets in a stack with the corresponding wider sections superposed, reciprocating the feed finger beneath the stack, and pressing the prong upwardly to engage feed openings to advance the first-named sections to printing position, printing each of said sections directly after the advance movement thereof, and engaging the feeding edge of the wider sections to advance the same to printing position and thereafter printing the same.

28. Method of printing tickets each having a plurality of sections with feed openings therebetween and each also having a relatively wide section between one of the feed openings and a feeding edge, said method involving the employment of a feed finger with a prong thereon, said method comprising stacking the tickets with the relatively wide sections in superposed position, reciprocating the feed finger through a path of determined extent while pressing the prong upwardly first to engage the feed opening adjoining the edge of the lowermost ticket remote from its relatively wide section, thus advancing this first section to printing position, printing this section, and then engaging the opening adjoining the next section to advance that section to printing position, printing that section, continuing to reciprocate the finger and pressing the prong upwardly until the prong engages the lower face of the ticket above the lowermost ticket, thereupon causing the prong to engage the feeding edge of the first ticket to advance the same to printing position, then printing the relatively wide section of said first ticket.

29. Printing mechanism of the class described comprising a main drive shaft, a main lever movable in response to rotation of said shaft, a swinging platen, a feed finger slidably mounted in relation to the platen, and linkage connecting the platen and the said finger to the main lever to swing the platen and to effect the movement of the finger to feed tickets to be printed in synchronized relation to the swinging movement of the platen, whereby both the platen and finger are operated by the main lever.

30. Printing mechanism of the class described comprising a swinging platen, symbol impressing elements toward which the platen swings, driving means to effect the swinging movement of the platen, a hopper to receive tickets or the like mounted on the platen, and feeding means supported by the platen and operable in synchronized relation to the swinging movement of the platen to feed successive tickets from the hopper to printing position between the platen and said symbol impressing elements.

31. Printing mechanism comprising a swinging platen, symbol impressing elements toward which the platen may swing, means to effect the swinging movement of the platen, a slidable carriage mounted upon the platen and movable in synchronized relation to the swinging movement of the platen, a feed finger pivotally mounted on the platen, a prong on the end of the finger arranged to engage a feeding opening in a ticket or a feeding edge of a ticket, a spring yieldably urging the prong upwardly into feeding position, a hopper mounted on the platen and arranged to receive a plurality of tickets in stacked relation, the prong upon the feeding finger being yieldably urged upwardly by the spring so that it engages the lowermost ticket in the hopper to feed the latter into printing position between the platen and the symbol impressing elements.

32. Printing mechanism comprising a supporting frame, a set of printing wheels having symbol impressing elements upon their peripheries, said wheels being rotatably mounted on the frame, a set of indicating wheels having similar symbols, said indicating wheels being rotatably mounted on the frame, a carriage slidable in relation to the frame, and rotatable means mounted on the carriage, said means having portions to interfit with parts of the printing and indicating wheels, the carriage being slidable selectively to engage said means with a printing wheel and with a corresponding indicating wheel so that rotation of said means is effective in causing rotation of the selected printing wheel and corresponding indicating wheel, and locking means upon said carriage engageable with the remaining printing and indicating wheels to hold them against rotation.

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