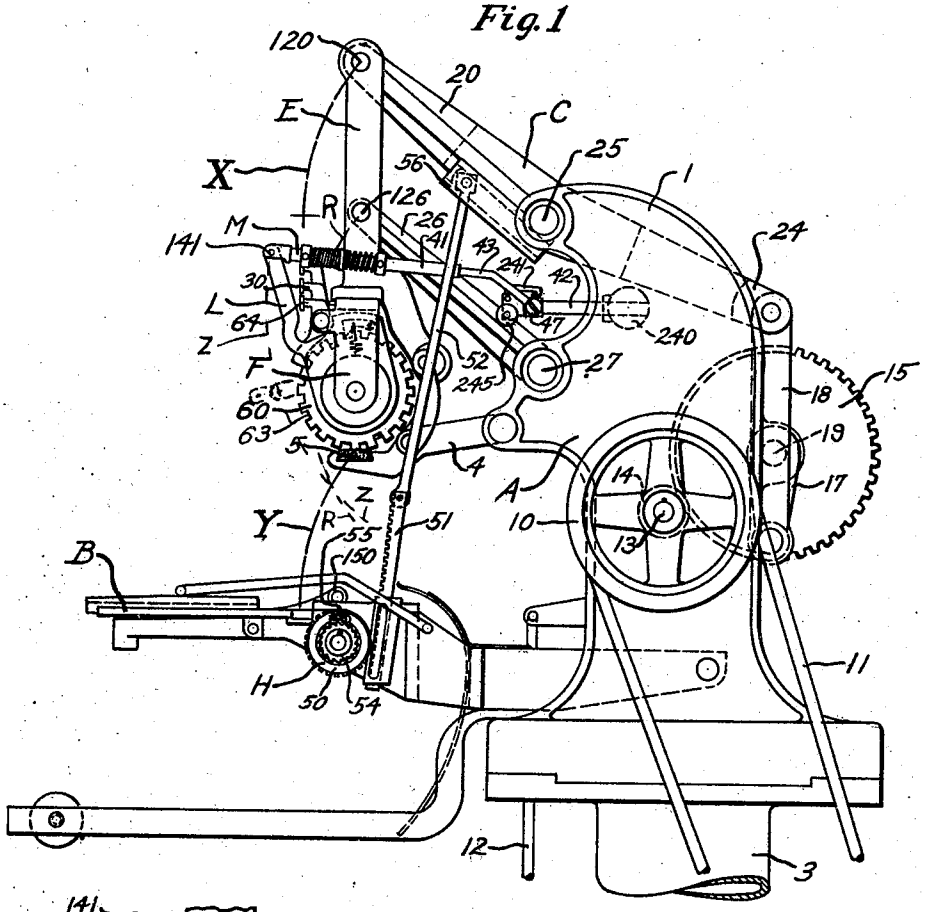
May 13, 1930. F. FITZGERALD 1,758,436

NUMBERING MACHINE ATTACHMENT

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Fig. 1



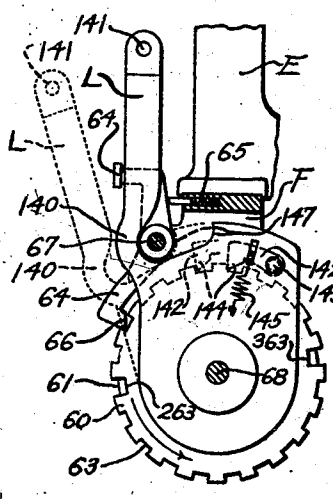
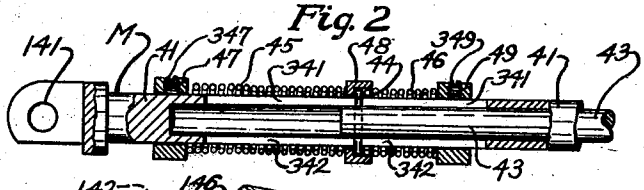


Fig. 3

Fig. 2



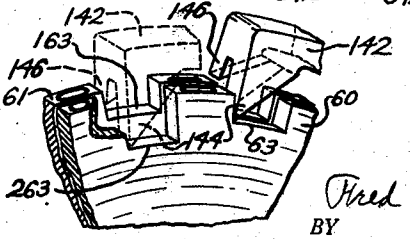


Fig. 4

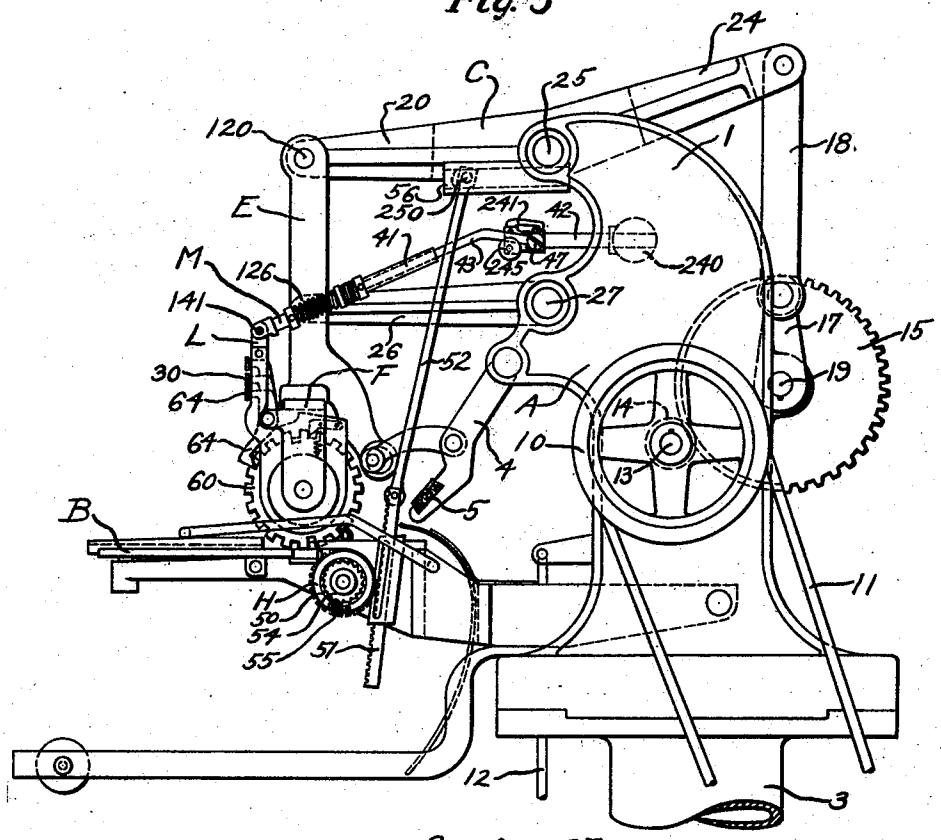
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Fig. 5



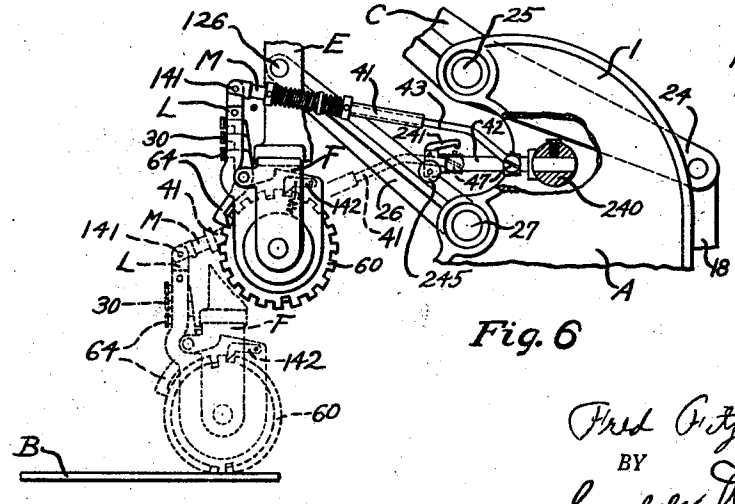


Fig. 6

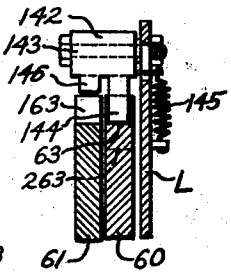


Fig. 7

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Fig. 8

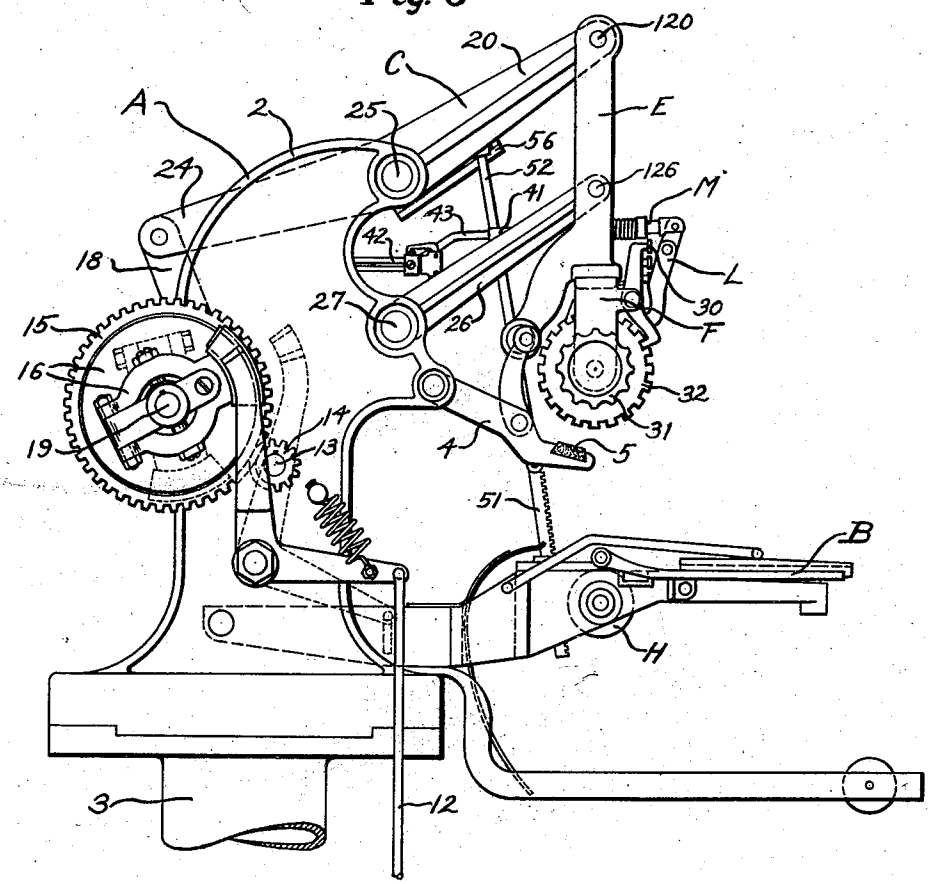


Fig. 9

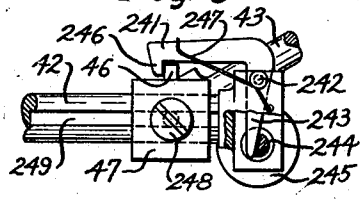


Fig. 10

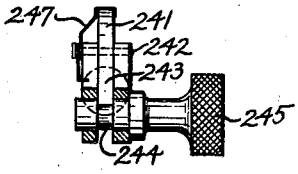
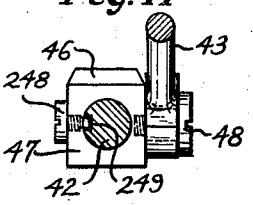


Fig. 11



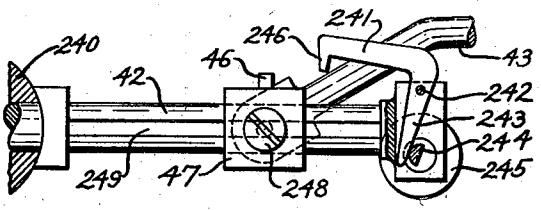


Fig. 12

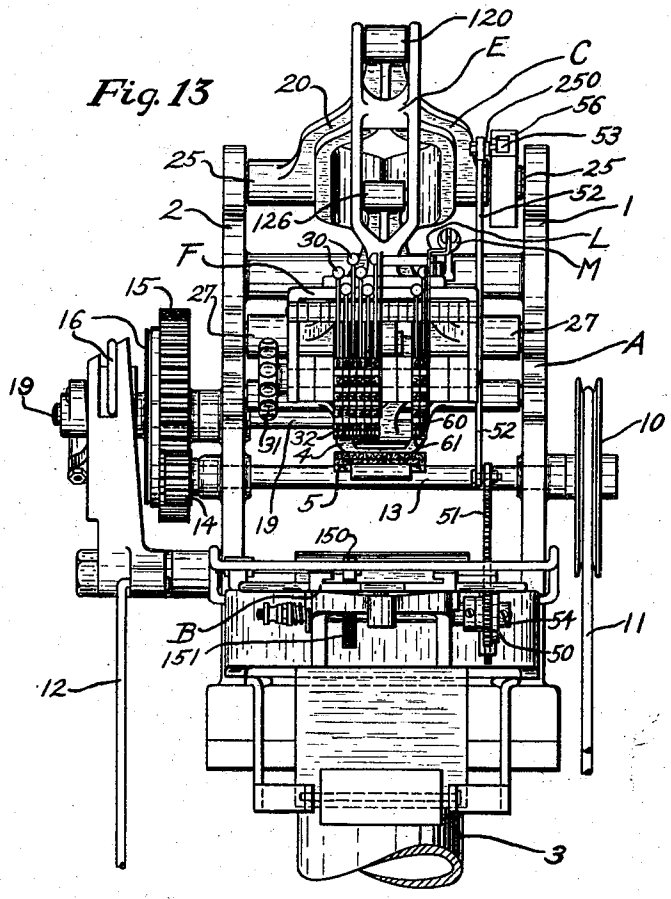
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NUMBERING MACHINE ATTACHMENT

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Fig. 13



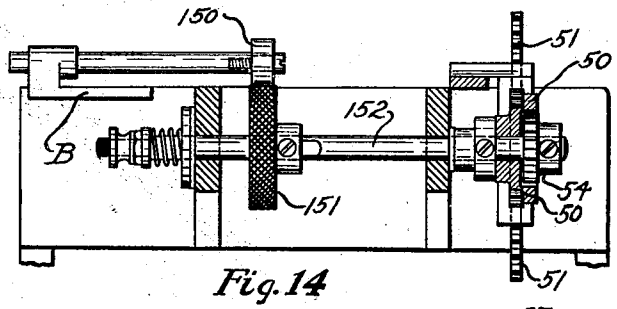


Fig. 14

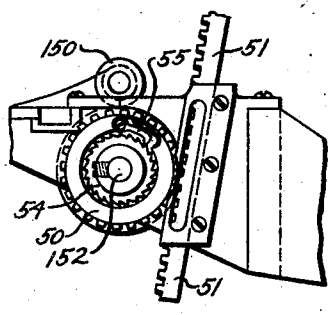


Fig. 15

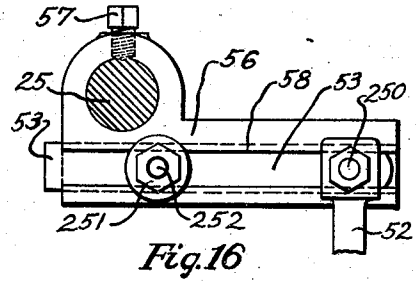


Fig. 16

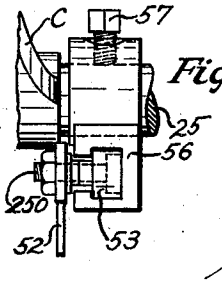


Fig. 17

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UNITED STATES PATENT OFFICE

FRED FITZGERALD, OF LAWRENCE, MASSACHUSETTS

NUMBERING-MACHINE ATTACHMENT

Application filed May 4, 1928. Serial No. 275,155.

This invention relates to stamping or marking machines of a type similar to that shown in patent to Merrick dated May 31, 1910, No. 960,029.

In such machines there is a fixed frame comprising two uprights and between these is what might be called a rocker frame which includes two pivoted arms, one being upper and the other lower, each arm being pivoted at one end to the fixed frame.

At their free ends, these arms are connected by what might be called a head frame which is so pivoted to these arms that it will move up and down with them carrying fixably attached what may be called a type head.

This type head might carry fixed or movable type, but in the machine of Merrick carries a number of wheels around the edges of which are letters or numbers. The type head preferably in any case carries what might be called settable types at the bottom.

There is also preferably an inking arm which carries an ink pad in such position that when the rocker frame is raised, the pad comes in contact with the type and inks them.

Machines of this type may be provided merely with a feed bed upon which the blanks or tickets to be printed can be placed by hand and removed by hand, but in my preferred form of device which is an attachment to the above described machine, I prefer to use feeding means which include a feed roll and feed roll revolving mechanism operable by means of a rack which is connected preferably adjustably to some part of the rocker frame.

The purpose of my present device is to provide numbering wheels which will number tickets or cards to be printed consecutively at each up and down movement of the rocker frame.

I accomplish this by my improved connecting device which can be thrown out of action whenever it is desired to turn the numbering wheel or wheels by hand.

In connection with this automatic numbering device, it is very desirable that the feeding mechanism should be automatic and synchronized therewith and this forms another feature of my invention.

As the tickets vary in size and as it is desirable that different sizes of letters or numbers should be used in connection with them, I provide adjusting means by which the distance which a strip of paper is advanced to form tickets, can be changed at will.

In the Merrick machine, the feeding of the stock and the change of the numbers are both done by hand while with my machine I can set the device for automatic consecutive numbering and the feed for automatically feeding stock of different sizes. I utilize the up and down movement of the rocker frame to advance my numbering wheel, usually one number at every cycle or complete up and down movement. The parts can be so arranged that the first or digits wheel at certain intervals will move the next wheel or wheels which I will call for convenience the multiple wheel or wheels.

To accomplish this I use an advancing arm carrying a one way pawl which engages notches in the digits wheel. I pivotally connect the end of this advancing arm with one end of a connecting rod which is preferably of the telescoping and elastic type, the other end of which is pivoted to the frame in a different position from the pivots of the rocker frame.

By so doing as the rocker frame moves up and down, the pivot on the advancing arm between it and the connecting rod moves through a different arc from that traced by the moving ends of the rocker arms with the result that the advancing arm is moved back and forth thereby advancing the digits wheel.

It is necessary however to control the extent of this movement and this is accomplished by the particular machine which I show in the drawings.

The main purposes of my machine are convenience, speed and accuracy.

In the drawings, Fig. 1 is a side elevation of the preferred form of my machine, with the parts in the raised position.

Fig. 2 is a vertical sectional view of the telescoping elastic connecting rod.

Fig. 3 is a side elevation in detail showing the advancing arm and digits wheel.

Fig. 4 is a perspective detail showing my preferred construction of advancing pawl

and the two wheels upon which it operates.

Fig. 5 is a side elevation similar to Fig. 1 showing the parts in the down or printing position as they appear when set for automatic numbering.

Fig. 6 is a side elevation showing in full and dotted lines two positions of the parts when set for manual numbering.

Fig. 7 is a vertical section showing the preferred form of advancing pawl.

Fig. 8 is an elevation from the side opposite to that shown in Fig. 1.

Fig. 9 is a side elevation of the numbering latch showing the position of the parts for automatic consecutive numbering.

Fig. 10 is a view from the right of Fig. 9.

Fig. 11 is a section through the movable pivot.

Fig. 12 is a view from the left of Fig. 11.

Fig. 13 is a front elevation of Fig. 1.

Fig. 14 is a detail sectional elevation of the feed mechanism.

Fig. 15 is an elevation from the right of Fig. 14.

Fig. 16 is a detail of the adjusting slide carried by the top rocker arm for the feed rack.

Fig. 17 is an elevation from the right of Fig. 16.

In the drawings, A represents a fixed frame having the two sides 1 and 2, the whole being supported on any suitable support such as a standard 3.

The feed table B is fixed in any suitable manner to the frame A.

C represents a rocker frame comprising an upper arm 20 pivoted at 25 medially and extending back at 24 where it connects with either manual or power mechanism for rocker frame C, and a lower arm 26 pivoted to the frame at 27.

E represents a head frame pivoted at 120 to the free end of arm 20 and at 126 to the free end of arm 26. It extends downward below the free end 126 of arm 26 and is formed with or carries a type head F which carries any suitable type.

As shown, in this case, the type is carried on a plurality of wheels 32 revoluble by means of a hand wheel 31 and which can be locked in position by the handles or locking pawls 30.

Where the machine is operated by power it may be transmitted to a pulley 10 by belt 11 and thence by means of the shaft 13 to a small gear 14 which engages a large gear 15 free to turn on shaft 19 and provided with a clutch 16 of any suitable type keyed to shaft 19 and operable by means of a foot lever attached to rod 12 by means of which the clutch may be engaged and disengaged and thereby actuate a shaft 19 carrying a crank 17, to the end of which one end of link 18 is pivoted. The other end of link 18 is pivoted to the end 24 of arm 20 whereby the rocker frame C, the head frame E and the type head F can be moved up and down, the type being caused to engage any article on table B.

4 represents an ink pad lever the function of which is to carry the pad 5 up in contact with the type on the up-stroke as shown in Fig. 1 whereby the particular type which is set for printing is properly inked.

The above parts are all old.

It will be observed that as shown by the dotted line marked X in Fig. 1, the top of the head frame, and as shown by the dotted line Y, the bottom of the type head or the types swing over as the rocker frame descends while the inking lever moves out of the way.

It is this curved and forward motion which I utilize to actuate my consecutive numbering mechanism.

My numbering devices indicated generally by G include one or more wheels 60, 61 on the periphery of each of which are number types and between these are the notches 63 which on the digits wheel are engaged by the back turn prevention pawl 64 which is spring pressed by a spring 65 so that its slanting nose 66 will permit wheel 60 to move in the direction of the arrow but not in the other direction. This pawl 64 is pivoted to the type head F at 67.

L represents an advancing arm which is shown as pivoted on the same shaft 68 as the numbering wheels 60 and 61, and is so positioned that its part 140 will strike the pivot 67 and limit its backward movement while its forward movement is limited by this same stop 67 which will be engaged by the part 147. Thereby the back and forth movement is accurately limited.

142 is an advancing pawl pivoted at 143 to the advancing arm and having a slanting nose 144 which is caused to engage the notches 63 on wheel 60 by a spring 145.

The dotted line Z shows the arc which the pivot point 141 would make as the head frame descends, its pivots moving along the arcs X and R provided the connecting means M was rigid. It is obvious that the distance between Z and either X, R or Y varies and this means that as the head frame moves up and down the advancing arm L with its advancing pawl 142 will move back and forth and the pawl 142 will enter and leave the notches such as 63 moving the wheel 60 forward more or less according to the adjustment.

This movement is limited between the stop 67 and part 147 and something must break if I did not use an elastic connecting rod.

M represents broadly the connecting means preferably a telescoping connecting rod between the advancing arm L and the fixed frame A. This comprises a track 42 attached to the fixed frame A at 240 and which carries at a suitable position, the latch 241 pivoted at 242 and having an arm 243 held by spring

247 in engagement with the cam 244 operable by thumb piece 245 so that the hook 246 can be set to engage or disengage a ridge 46 on the pivot block 47 slidable on track 42. Pivot block 47 is retained in proper position and is prevented from turning by screw 248 whose tip slides in groove 249 on 42.

This position must be such a position that when pivot block 47 is held by the latch 241, the connecting means M will be compressed to less than normal length to exert a push outward on L when type head F is in the uppermost position, and that the connecting rod M will be extended to greater than normal length to exert a pull on L in the printing position of type head F.

I use a telescoping connecting rod including the bent rod 43 which pivots on block 47 at screw 48 and which telescopes inside the tube 41 formed with the oppositely disposed slots 341 and 342 as see Fig. 2. Tube 41 is pivoted on advancing arm L at 141.

49 represents a stop collar adjustable by means of set screw 349 on female member 41, and 47 represents another similar stop collar adjustable by means of set screw 347.

44 is a pin passed through male member 43 and which also passes through slots 341 and 342 and which ordinarily engages and carries with it a medial collar 48.

The coiled compression spring 45 between 47 and 48, and coiled compression spring 46 between 49 and 44 give a resiliency to the telescoping connecting means, the extent of which can readily be adjusted by moving collars 47 and 49.

As the movement of arm L is limited by the stops 140 and 147, it will be seen by examining Figs. 1, 3 and 5 that as the head frame moves down, the advancing pawl 142 will move over to the right hand position shown in Fig. 3 and when the frame rises it will move over to the dotted line position thus moving the digit numbering dial one figure.

I may use a single disc like 60 or as shown, a plurality of discs as for instance 61 and these may be connected in any well known way so that ten or any desired number of movements of pawl 142 will move 61 one digit.

As shown this is accomplished by having the notch 63 in 60 as deep as the notches 163 in 61 except that two notches 263 and 363 in 60 are deeper than those in 61. By this device the lip 145 of pawl 142 will not enter the notches 163 except when lip 144 enters notch 263 or 363 when it will move 61 one notch, then continue to revolve 60 without revolving 61 until the pawl 142 enters the next deep notch 263 or 363 in 60.

When latch 241 is set for disengagement as in Fig. 12, block 47 is free to slide back and forth on track 42 so that connecting rod 41, 43 remains at normal free length and is not compressed or extended to exert a push or pull at pivot 141 and therefore does not operate arm L to advance the type. It is evident that by this means, the same digits may be repeated at will and since thumb piece 245 is stationary, this may be made to take place during operation of the machine without stopping it.

The feeding means includes adjustable devices which cooperate with feed table B, and is indicated broadly by H, and includes a top idler feed roll 150 and a bottom knurled feed roll 151 carried by shaft 152 to which is fixed a ratchet 54. The rack gear 50 is revoluble on shaft 152 and carries a pawl 55 which is spring pressed to engage the teeth of ratchet 54 whereby when the rack gear is moved in one direction by the rack 51, the ratchet 54, and therefore the positive feed roll 151 is moved a corresponding distance.

This rack 51 is pivoted at one end to a connecting arm 52 which is pivoted at its upper end to a pivot 250 on a bar 53 which is slidable in T slot 58 in member 56 and may be clamped in any position thereon by means of a nut 251 on screw 252 which is fastened to bar 53.

This pivot bar 53 may be integral with the arm 20 or is retained in a member 56 fixed to the pivot 25 of arm 20 as by means of a set screw 57 and turns with arm 20.

By moving the pivot bar 53 and pivot 250 along bar 56, the movement of rack 51, and therefore of ratchet 54 and feed roll 151 can be regulated so as to advance the stock more or less at will.

The extent of this movement can be much greater than if a simple pawl was attached to arm 52 because such a direct pawl device can only engage its ratchet through a very small arc, while with my pawl on the rack gear, such an arc is unlimited.

I claim:

1. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms each pivoted to the fixed frame, and having their free ends connected by a head frame pivoted to the free ends of said arms; a type head carrying settable types and carried by and under the head frame; a numbering wheel having ratchet notches and revoluble in said type head; a spring pressed back turn prevention pawl pivoted to the type head and engaging said wheel notches; an advancing arm pivoted on the same axis as the numbering wheel and carrying an advancing pawl in engagement with said wheel notches; a pivot track attached to the fixed frame; a telescoping connecting rod having adjustable springs between its sections and pivotally connected at one end to the advancing arm and at its other end to a pivot slidable on the pivot track; stops for said advancing arm; a manually operable catch to hold the slidable pivot in fixed position on

the pivot track; a feed table adapted to be engaged by the type head; and feeding means including a feed roll, feed roll revolving means comprising a ratchet and a rack gear together with a pawl carried by the rack gear and in engagement with the ratchet and a rack in engagement with the rack gear and adjustably pivoted to the rocker frame.

2. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms each pivoted to the fixed frame, and having their free ends connected by a head frame pivoted to the free ends of said arms; a type head carrying settable types and carried by and under the head frame; a numbering wheel having ratchet notches and revoluble in said type head; a spring pressed back turn prevention pawl pivoted to the type head and engaging said wheel notches; an advancing arm pivoted on the same axis as the numbering wheel and carrying an advancing pawl in engagement with said wheel notches; a pivot track attached to the fixed frame; a telescoping connecting rod having adjustable springs between its sections and pivotally connected at one end to the advancing arm and at its other end to a pivot slidable on the pivot track; stops for said advancing arm; a manually operable catch to hold the slidable pivot in fixed position on the pivot track; a feed table adapted to be engaged by the type head; and feeding means including a feed roll operative intermittently by mechanism connected to a rocker arm.

3. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms each pivoted to the fixed frame, and having their free ends connected by a head frame pivoted to the free ends of said arms; a type head carrying settable types and carried by and under the head frame; a numbering wheel having ratchet notches and revoluble in said type head; a spring pressed back turn prevention pawl pivoted to the type head and engaging said wheel notches; and advancing arm carrying an advancing pawl in engagement with said wheel notches; a pivot track attached to the fixed frame; a connecting rod pivotally connected at one end to the advancing arm and at its other end to a pivot slidable on the pivot track; a manually operable catch to hold the slidable pivot in fixed position on the pivot track; a feed table adapted to be engaged by the type head; and feeding means including a feed roll operative intermittently by mechanism connected to a rocker arm.

4. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms each pivoted to the fixed frame, and having their free ends connected by a head frame pivoted to the free ends of said arms; a type head carrying settable types and carried by and under the head frame; a numbering wheel having ratchet notches and revoluble in said type head; a spring pressed back turn prevention pawl pivoted to the typehead and engaging said wheel notches; an advancing arm carrying an advancing pawl in engagement with said wheel notches; a pivot track attached to the fixed frame; a connecting rod pivotally connected at one end to the advancing arm and at its other end to a pivot slidable on the pivot track; a feed table adapted to be engaged by the type head; and feeding means including a feed roll operative intermittently by mechanism connected to a rocker arm.

5. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms each pivoted to the fixed frame, and having their free ends connected by a head frame pivoted to the free ends of said arms; a type head carrying settable types and carried by and under the head frame; a numbering wheel having ratchet notches and revoluble in said type head; a spring pressed back turn prevention pawl pivoted to the type head and engaging said wheel notches; an advancing arm carrying an advancing pawl in engagement with said wheel notches; a pivot track attached to the fixed frame; a connecting rod pivotally connected at one end to the advancing arm and at its other end to a pivot slidable on the pivot track; a feed table adapted to be engaged by the type head.

6. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms of substantially equal length each pivoted to the fixed frame on pivots located in the same vertical line and having their free ends pivotally connected by a head frame pivoted thereto; a type head carried by and under the head frame and carrying a revoluble numbering wheel having on its periphery marking type and ratchet notches; a spring pressed back turn prevention pawl for said numbering wheel pivoted to the type head; and an advancing arm pivoted to the type head on the same axis as the numbering wheel and carrying an advancing pawl in engagement with the notches of said wheel, said arm extending upward therefrom; a connecting rod pivot positioned on the frame in a different position from either frame pivot of the top or bottom arm; and a connecting rod pivoted at one end to said connecting rod pivot and pivoted at its other end to the top end of the advancing arm.

7. In a stamping or numbering machine, the combination with a fixed frame; of a rocker frame comprising upper and lower arms each pivoted to the fixed frame on pivots located in the same vertical line and having their

free ends pivotally connected by a head frame pivoted thereto; a type head carried by and under the head frame and carrying a revoluble numbering wheel having on its periphery marking type and ratchet notches; a spring pressed back turn prevention pawl for said numbering wheel pivoted to the type head; and an advancing arm pivoted to the type head and carrying an advancing pawl in engagement with the notches of said wheel; a connecting rod pivot positioned on the frame in a different position from either frame pivot of the top or bottom arm; and a connecting rod pivoted at one end to said connecting rod pivot and at its other end attached to the advancing arm.

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