

H. J. JONES.
 PRINTING MACHINE.
 APPLICATION FILED MAR. 13, 1917.

1,319,959.

Patented Oct. 28, 1919.
 2 SHEETS—SHEET 1.

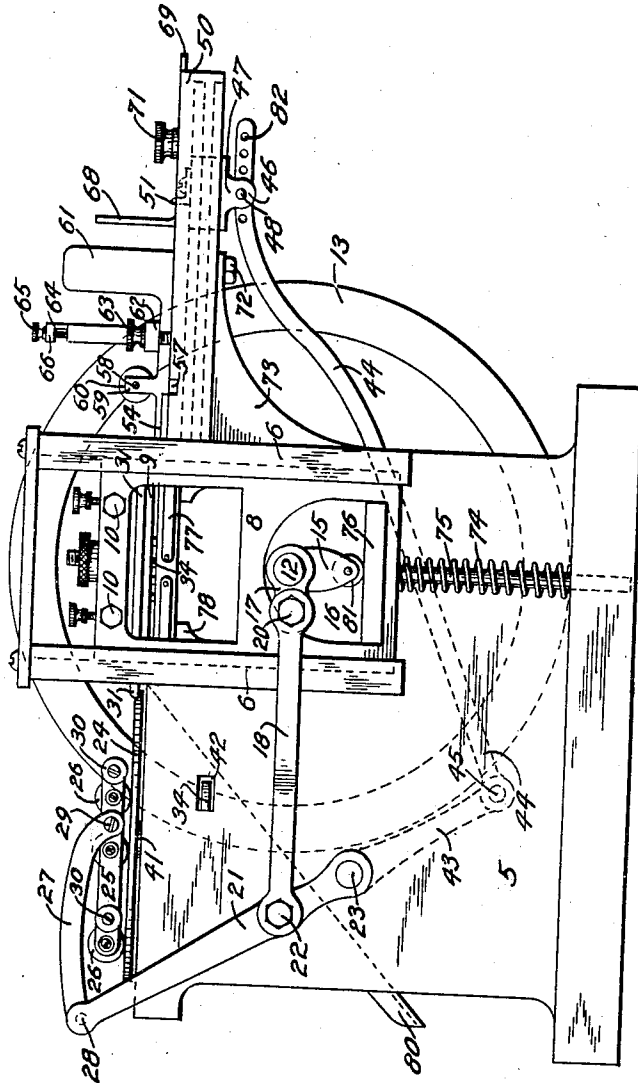


Fig. 1

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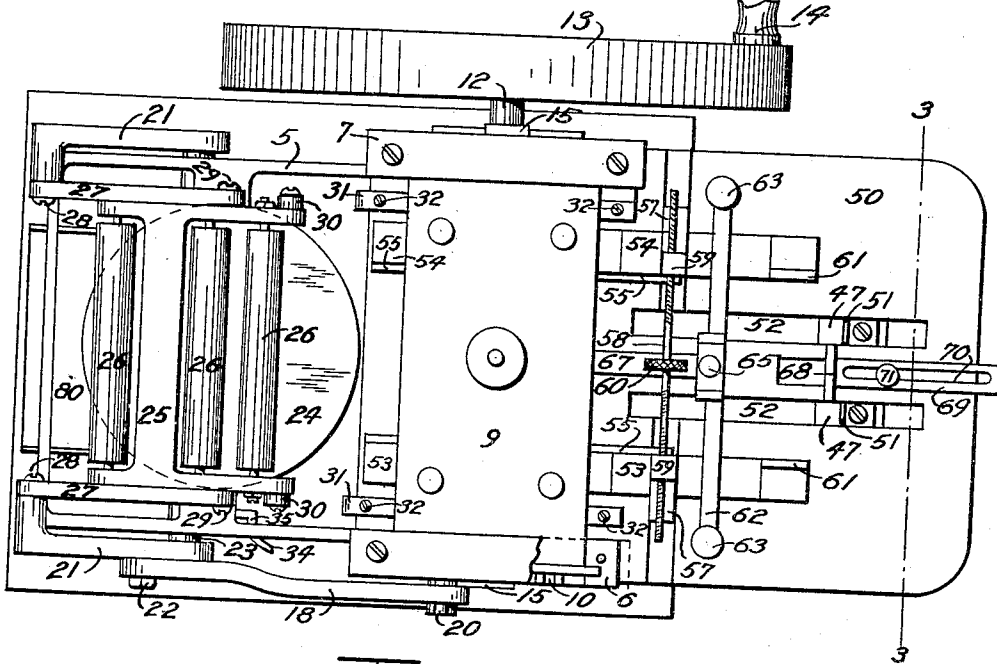


Fig 2

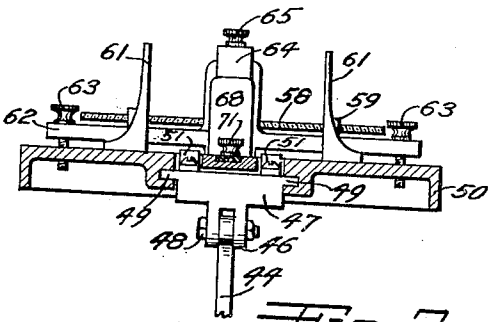


Fig 3

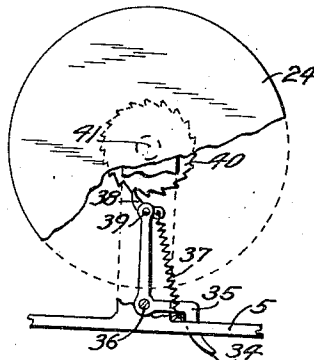


Fig 4

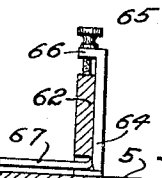


Fig 5

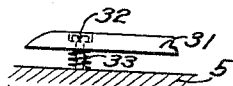


Fig 6

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HUGH J. JONES, OF DENVER, COLORADO.

PRINTING-MACHINE.

1,319,959.

Specification of Letters Patent.

Patented Oct. 28, 1919.

Application filed March 13, 1917. Serial No. 154,433.

To all whom it may concern:

Be it known that I, HUGH J. JONES, a citizen of the United States, and a resident of the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Printing-Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which the invention appertains to make and use the same.

The invention relates to improvements in printing machines designed to print articles, such as cards, envelops and letter heads, and the invention has for its object the provision of a machine of this class which may be constructed at a minimum of expense and sold at a price commensurate with the limited class of printing to be done of by the machine.

Another object of the invention is to provide an extremely simple and efficient printing machine, for printing small articles, which may be manufactured and placed on the market at a relatively small price.

Another object of the invention is to provide a printing machine which is positive in operation and which will cause the platen to make a firm and positive impression of the type on the articles being printed.

With these and other objects in view, the invention will now be described with reference to the accompanying drawings, which form a part hereof.

In these drawings, Figure 1 is a side elevation view of the printing machine; Fig. 2 is a top plan view thereof; Fig. 3 is a cross sectional view, taken on the line 3—3 of Fig. 2; Fig. 4 is a detail view showing the mechanism for revolving the ink retaining disk; Fig. 5 is a detail sectional view of the means for causing only one article at a time to be fed under the platen; and Fig. 6 is a detail fragmental view of the spring held track which elevates the inking rollers into contact with the type on the under side of the platen.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Let the numeral 5 designate a hollow box-like case on which the operative parts of the printing press are mounted. Rectangular guide frames 6 and 7 are secured to the opposite sides of the box-like case 5, the same being vertically positioned thereon,

and in each of which, a cross-head 8 is vertically movable. A bed 9 is interposed between these cross-heads 8 and is secured to the latter at the upper extremities thereof by means of bolts 10. A centrally located shaft 12 is journaled transversely of the box-like casing 5, and on one extremity thereof, a fly wheel 13 is secured, the said fly wheel 13 having an eccentrically disposed operating handle 14 secured thereto. Eccentrics 15 are fixedly secured to the extremities of the shaft 12, exteriorly of the box-like casing 5 and operate in openings 16 of the cross-heads 8, the upper parts of these openings 16 being of semi-circular form, while the lower parts thereof form a straight horizontal line. In other words, these openings 16 are cut out to form tracks against the material of the cross-heads, which tracks are adapted to be engaged by the eccentrics 15 for causing the cross-heads 8 to reciprocate vertically in the guide frames 6 and 7. The extremity of the shaft 12, remote from the fly wheel 13, is provided with an eccentric arm 17 fixedly secured thereto, and to the outer extremity of which, one extremity of a pitman rod 18 is journaled, as shown at 20. The other extremity of this pitman rod 18 is fulcrumed to an arm 21, intermediate the extremities of the latter, as shown at 22. There are two of these arms 21, one on either side of the box-like casing 5, the lower extremities of which, are fixedly secured to a shaft 23, which is journaled in the box-like casing 5 transversely of the latter and parallel with the shaft 12. An ink retaining disk 24 is journaled on the top of the box-like casing 5, which disk is caused to revolve by the oscillation of the arms 21, which will hereinafter be more fully described. An ink roller carriage 25, having inking rollers 26 journaled thereon, is operated by means of the oscillation of the arms 21. Arms 27 are pivoted to the upper extremities of the arms 21, as shown at 28, the other extremities of the arms 27 being pivoted to the ink roller carriage 25, as shown at 29, the ink roller carriage 25 being interposed between the two arms 27. Now, when the shaft 12 is revolved, the eccentric 17 will cause the pitman rod 18 to reciprocate, which in turn, causes the arms 21 to oscillate, and the ink roller carriage 25 will be caused to travel backward and forward with the arms 21. As the carriage 25 moves forwardly, bearing rollers 30,

journaled on the opposite sides of the ink roller carriage 25, will be engaged with the top of track members 31, which are disposed below the bed 9 in spaced apart relation.

5 These track members 31 are held in their proper relations by means of pins 32, which pass through the extremities of said track members and upon which said track members are movable. Spiral springs 33 surround these pins 32 under the track members 31 and hold the said track members at their limit of upward movement. Thus, when the ink roller carriage 25 engages with the track members 31, the springs 33 will act

10 upon the track members and elevate the ink roller carriage to cause the inking rollers 26 thereof to tightly engage with the type 34 on the under side of the bed 9, thereby applying the necessary ink to said type.

20 The pins 32 are adjustable to regulate the upward position at which the springs 33 will hold the track members 31, the said pins having screw threads on same, which are received in the box-like casing 5, and the

25 adjustment is accomplished by threading these pins farther into the box-like casing 5, or out of the same, as the case may be. As the arms 21 are moved forwardly for the purpose of carrying the ink roller carriage

30 25 under the platen 9, one of the arms 21 will engage with a finger 34 of a bell-crank lever 35 and actuate said lever upon its pivot 36 against the tension of a spring 37. A pawl 38 is pivoted to one extremity of the

35 bell-crank lever 35, as shown at 39, which engages with a ratchet 40 that is fixedly connected on the journal spindle 41 of the ink retaining disk 24. One extremity of the spring 37 is connected with the heel of the

40 pawl 38, and the other extremity thereof is connected with the box-like casing 5. Therefore, this spring 37 constantly holds the pawl 38 in engagement with the ratchet 40 and also serves to return the bell-crank

45 lever 35 to its normal position. When the bell-crank lever 35 is actuated by one of the arms 21, the pawl 38 will cause the ink retaining disk 24 to revolve a certain distance. The finger 34 is protruded through an opening

50 42 in the side of the box-like casing 5 into the path of the said lever 21.

The shaft 23 is provided with a downwardly depending arm 43, which is integrally secured at one extremity intermediate the extremities of the shaft 23 on the interior of the box-like casing 5, such arm 43 oscillating with the rotation of the shaft 23. One extremity of a bar 44 is pivotally connected with the lower extremity of the arm 43, as shown at 45, and the other extremity thereof is pivotally connected with a tongue 46 of a feed block 47, as shown at 48. This feed block 47 is slidably mounted in grooves 49 of a feed platform 50, and the

65 said feed block 27 is reciprocated in said grooves by means of the action of the bar 44, the bar 44 being reciprocated by the oscillation of the arm 43. Fingers 51 are secured to the top of the feed block 47 and protrude through slots 52 in the feed platform 50. These fingers 51 engage with the articles to be printed and move the same, one at a time, under the bed 9. Spaced apart guide tracks 53 and 54 extend under the bed 9, upon which, the cards, or envelopes travel under the bed. These guide tracks are provided with flanges 55, upon which the opposite extremities of the cards, or envelopes rest. Such flanges 55 form right angles with the body of the guide tracks, and thus, the cards are kept traveling successively under the bed 9 in a straight line. The feed platform 50 is provided with a transverse mortise therein, in which, tenons 57 are received, said tenons 57 being cut out of the guide tracks 53 and 54. By this means, the guide tracks 53 and 54 are held in their parallel relation. An adjusting screw 58 connects the two guide tracks 53 and 54, the said screw being threaded into lugs 59 formed on said guide tracks. This screw 58 is provided with an operating disk intermediate its extremities, the same being designated 60, by means of which the screw is operated to move the guide tracks 53 and 54 together, or away from each other, as the case may be, for the purpose of adjusting the width of the track for the accommodation of varying size articles. The outer extremities of these guide tracks 53 and 54 are provided with uprights 61, which engage with the ends of the articles to be printed. A transverse bar 62 is passed over the guide tracks 53 and 54 and is secured at its extremities to the feed platform 50 by means of set screws 63. After the guide tracks 53 and 54 have been properly adjusted, the same are firmly secured in their adjusted position by means of the transverse bar 62, which is tightened into engagement with said guide tracks by means of the set screws 63. A vertically movable gate 64 is secured to the transverse bar 62, intermediate the extremities of the latter, which said gate may be adjusted to feed only one article at a time therethrough. This adjustment is accomplished by means of an adjusting screw 65, which is threaded into a horizontal part 66, that extends over the transverse bar 62, the said screw engaging with the top of said transverse bar. By adjusting this screw in the proper direction, the gate 64 will be raised, or lowered, as the case may be, to form a space below the gate sufficiently wide to permit only one article at a time to pass thereunder. The lower edge of the gate 64 is provided with a horizontally disposed lip 67 that extends toward the bed 9. This lip 67 serves to keep the articles lying flat on the feed platform 50.

form 50 until the same have been moved under the bed 9. An upright member 68 is adjustably mounted on the feed platform 50 directly opposite the gate 64, the same being movable toward or away from the gate 64 to regulate the space therebetween. The base of the upright 68 is provided with a horizontal lip 69, having a slot 70 therein, through which, a set screw 71 is passed. Thus, the lip 69 may be moved on the screw 71, and by tightening the screw 71, the upright 68 will be fixedly held in its adjusted position. The uprights 61 and 68, together with the gate 64, form a card holding frame, or a frame in which the articles to be printed are held and fed therefrom by means of the fingers 51 of the feed block 47, the said fingers 51 engaging one card at a time in the rear of the latter and moving the same forwardly from the bottom of the stack under the gate 64 and on to the flanges 55 of the guide tracks 53 and 54. The feed platform 50 is removably connected with the box-like casing 5 by means of a bolt 72, which passes through the said feed platform 50 and a shoulder 73 of the box-like platform 5.

Springs 74 are connected with the bottom of the cross-heads 8, the said springs surrounding guide pins 75, which are fixedly connected at their upper extremities to the cross-heads 8 and are slidably received at their lower extremities in the base of the box-like casing 5. Thus, when the cross-heads 8 are moved downwardly, the springs 74 are placed under compression, and when the eccentrics 15 are disengaged from the bottom of the openings 16, the said springs 74 will cause the cross-heads 8 to move upwardly. A removable block 76 is placed in each of the cross-head openings 16, whereby said blocks may be replaced when worn, or varying size blocks may be used therein for regulating the downward movement of the cross-heads.

A block 77 is positioned under the bed 9, the same resting upon shoulders 78. The cards, or other articles to be printed rest upon this block while the impression of the type thereon is being made.

When the fly wheel 13 is turned, the arms 21 will be caused to oscillate by the eccentric 17, through the medium of the pitman rod 18. This, in turn, causes the shaft 23 to oscillate and to move the arm 43 therewith backward and forward, which results in reciprocating the bar 44 and the feed block 47. Thus, the ink roller carriage 25 and the feed block 47 will be simultaneously and alternately moved toward each other and away from each other. When the cross-heads 8 are at their downward limit of movement and the type 34' is in engagement with the article to be printed, both the ink roller carriage 25 and the feed block 44

are at their farthest limit of movement away from each other, the feed block 47 being in position for its fingers 51 to engage another article and the ink roller carriage 25 being upon the ink retaining disk 24. Further rotation of the fly wheel 13 will result in causing the feed block 47 and the ink roller carriage 25 to move toward each other, the ink roller carriage carrying its inking rollers 26 into engagement with the type 34' and the feed block 47 carrying another card under the bed 9. As the cards, or other articles to be printed are moved from the holder formed by the uprights 61 and 68 and the gate 64, a line of such articles is formed upon the feed platform 50, which line is constantly advanced by the removal of each card from the bottom of the pack, thereby successively advancing the forward article under the bed 9 and then discharging the same on a chute 80.

The eccentrics 15 are provided with rollers 81 journaled at their extremities, which rollers travel upon the track formed by the sides of the openings 16.

The reciprocating stroke of the feed block 47 is adjusted by means of the plurality of openings in the bar 44, such openings being designated 82, and through any one of which openings, the pivot pin 48 may be inserted.

While I have described and illustrated herein a specific form of my invention, it is understood that I am not limited thereto and that the same may be modified and varied without departing from the spirit of the invention, or the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A printing machine, comprising two vertically disposed spaced apart cross-heads, a bed carried by the upper portions of said cross-heads, a driving shaft, eccentrics on said driving shaft adapted to operatively engage said cross-heads for actuating the latter, a driven shaft, a reciprocable rod having an eccentric connection between said driving shaft and said driven shaft, an ink roller carriage, an operative connection between said ink roller carriage and said driven shaft for causing said ink roller carriage to travel backward and forward, an arm extending at right angles to said driven shaft and adapted to be oscillated by the latter, a feed block, and an operative connection between said feed block and said arm.

2. A printing machine, comprising a bed, a driving shaft, a driven shaft operable by the driving shaft, means on said driving shaft for operating the bed, an ink roller carriage, a feed block, and an operative con-

nection from the driven shaft to said ink roller carriage and said feed block for simultaneously actuating both toward or from each other.

5 3. A printing machine comprising a type bed, an inking roller, a feed block, means for simultaneously operating the said inking roller and the feed block toward or from each other and means for operating
10 the type bed only in consonance with the outward movements of the inking roller and feed block.

4. A printing machine, comprising a vertically movable type bed, means for applying ink to the type of said bed, feeding means, means for simultaneously operating
15 said ink applying means and the feeding means toward or from each other, and means for operating the type bed only in consonance with the outward movement of
20 the inking means and feeding means.

5. A printing machine, comprising two vertically disposed spaced apart cross-heads, a bed interposed between said cross-
25 heads at the upper extremities of the latter and movable with said cross-heads, a driving shaft, eccentrics mounted on said driving shaft and engageable with said cross-heads for moving the latter down-
30 wardly, a driven shaft, an oscillating arm fixed to said driven shaft, an operating rod having one extremity thereof eccentrically connected with the driving shaft and the other extremity pivotally connected
35 with the oscillating arm, an ink roller carriage pivotally connected with the upper

extremity of said oscillating arm and operable to travel backward and forward in a horizontal plane by said oscillating arm, a feed block and operative connection be- 40
tween said driven shaft and said feed block for simultaneously operating said feed block with said ink roller carriage toward or from the latter.

6. A printing machine, comprising two 45
vertically disposed spaced apart cross-heads, a bed interposed between said cross-heads at the upper extremities of the latter and movable with said cross-heads, a driving shaft, an operative connection between said 50
driving shaft and said cross-heads for causing the latter to move downwardly and carry the bed therewith, a driven shaft, a reciprocally mounted feed block, an operative connection between said feed block 55
and said driven shaft for operating the feed block, an oscillating arm fixedly secured to said driven shaft, an operative connection between said oscillating arm and the driving shaft for operating the 60
oscillating arm and the said driven shaft, an ink roller carriage reciprocable by said oscillating arm adapted to reciprocate simultaneously with said feed block toward or away from the latter, and means for 65
moving said cross-heads upwardly after having completed their downward movement.

In testimony whereof, I affix my signature.

HUGH J. JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."