Aug. 21, 1928. 1,681,905

A. A. SCUSE

PRINTING MACHINE

Filed April 13, 1925 5 Sheets-Sheet 1

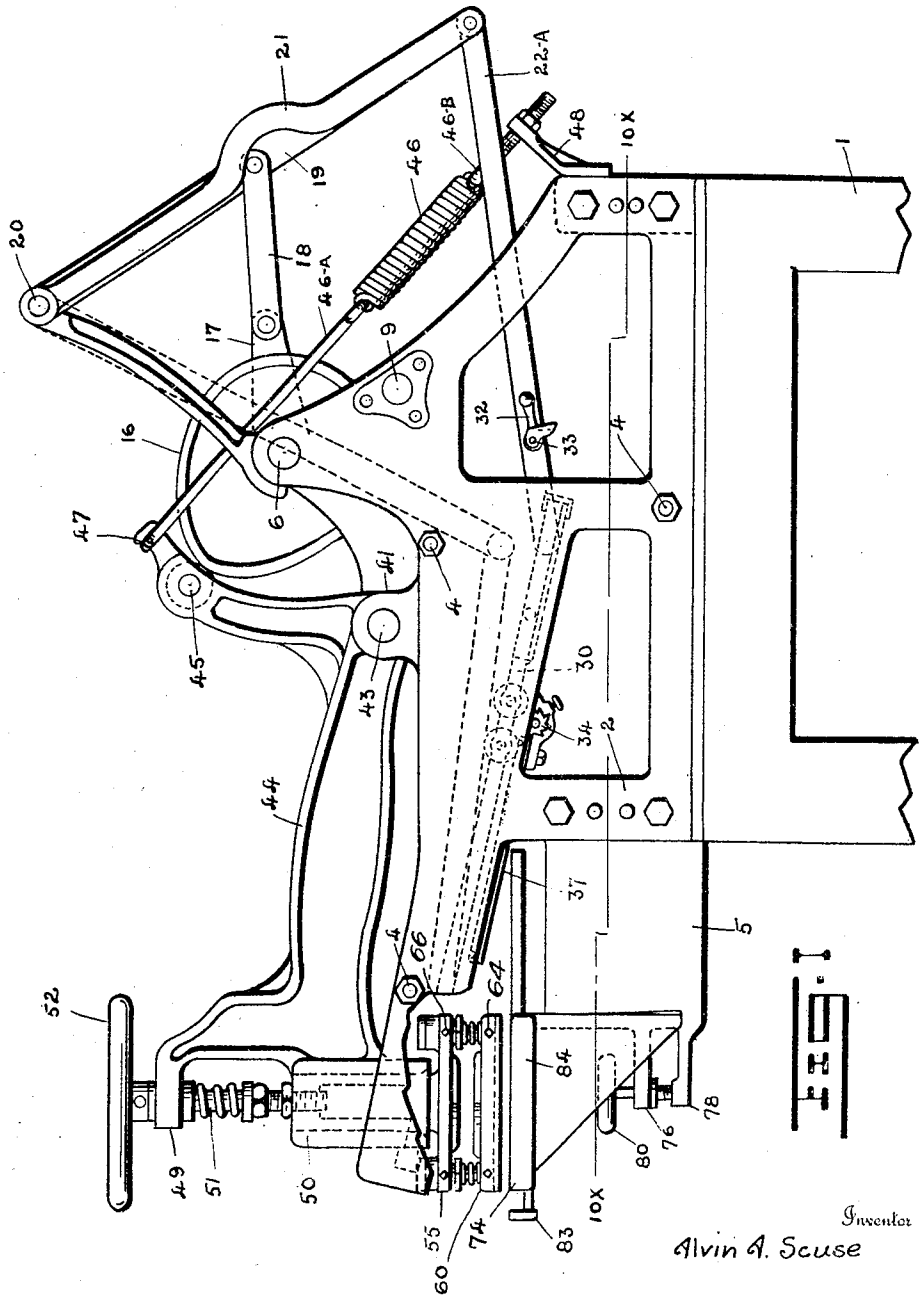


Fig. 1.

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PRINTING MACHINE

Filed April 13, 1925 5 Sheets-Sheet 2

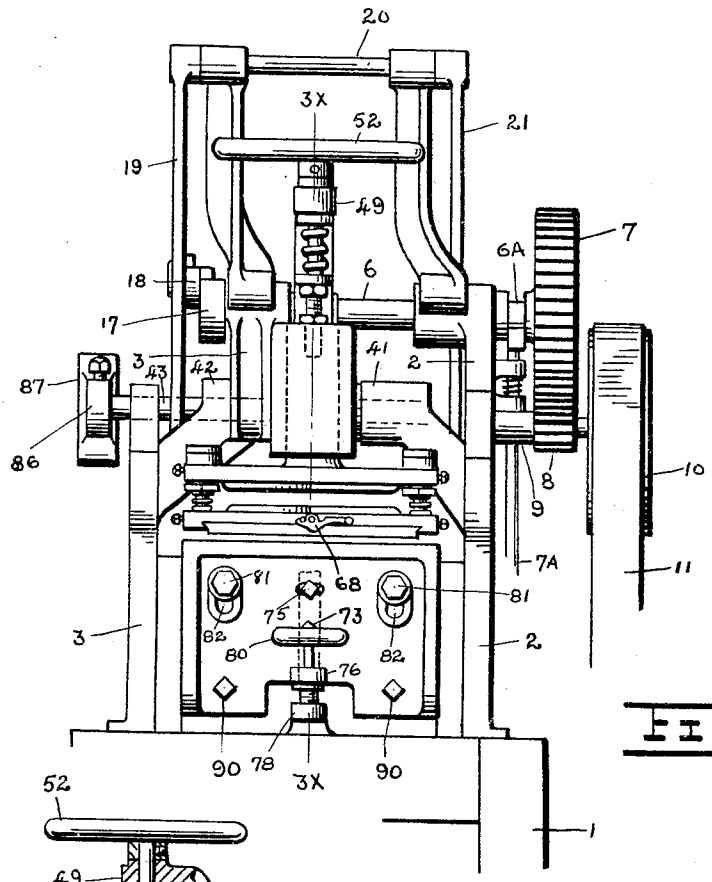


Fig. 2

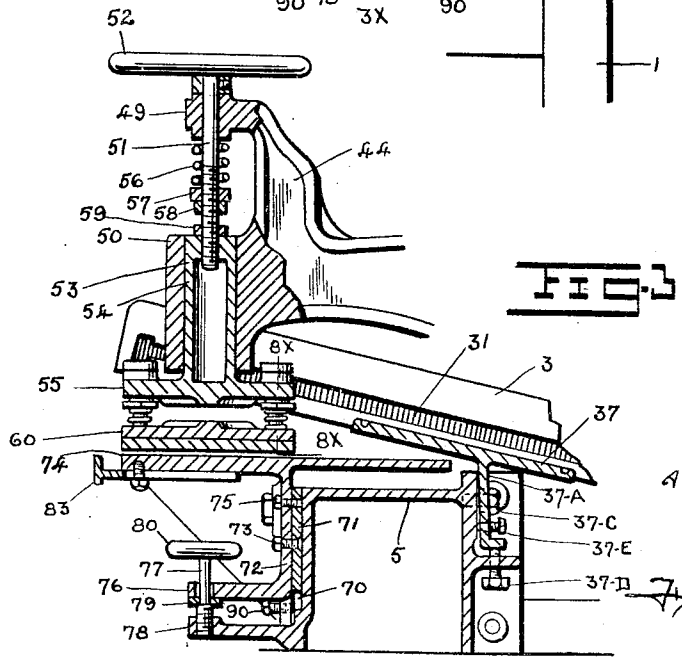


Fig. 3

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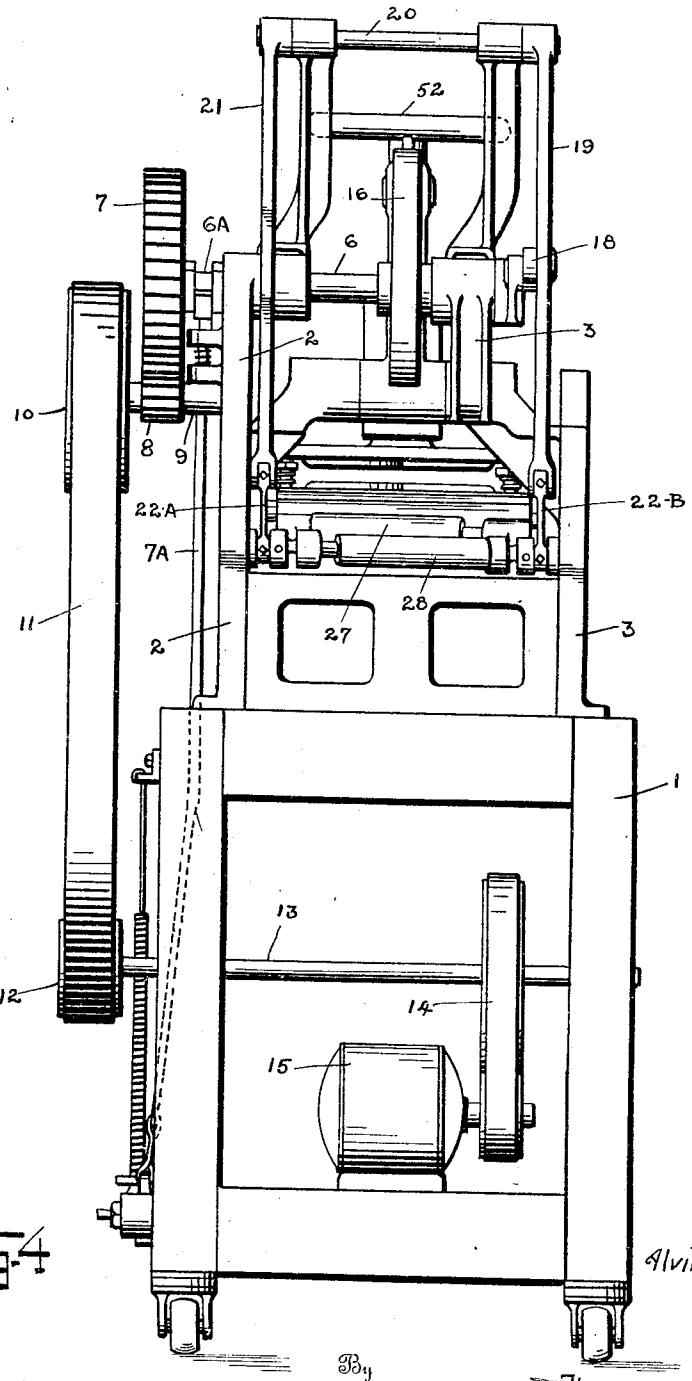


Fig. 4

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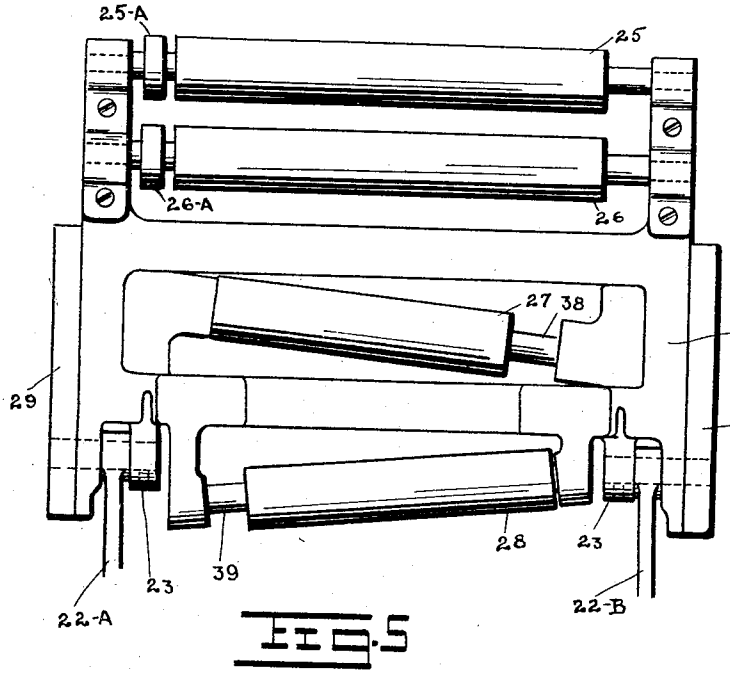


Fig. 5

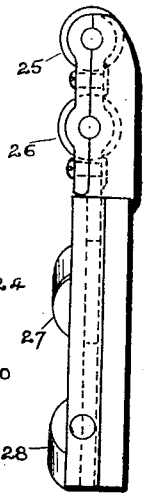


Fig. 6

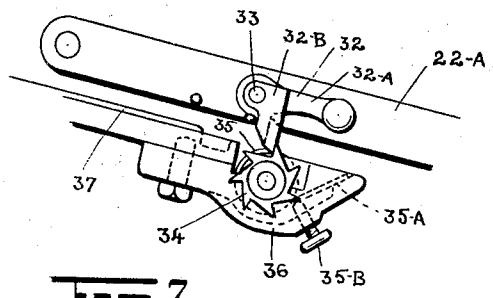


Fig. 7

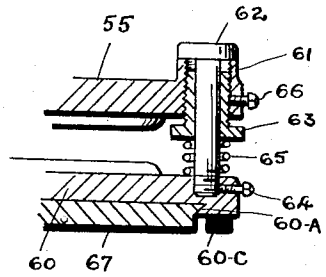


Fig. 8

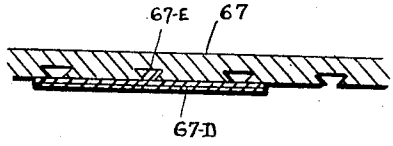


Fig. 9

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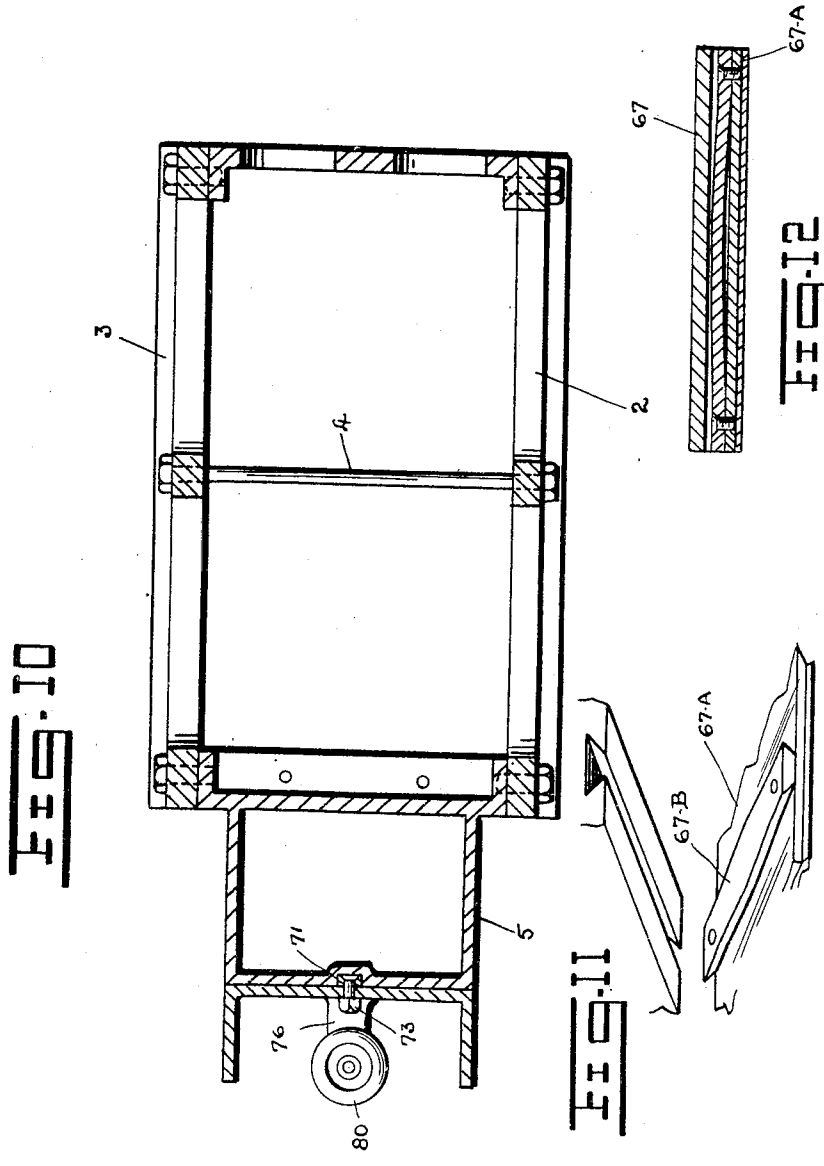


Fig. 10

Fig. 11

Fig. 12

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Patented Aug. 21, 1928. 1,681,905

UNITED STATES PATENT OFFICE.

ALVIN A. SCUSE, OF ROCHESTER, NEW YORK.

PRINTING MACHINE.

Application filed April 13, 1925. Serial No. 22,551.

The object of this invention is to provide a new and improved machine for printing, more especially for printing boxes either when empty or when filled, and boxes made of various material. The machine is also adapted to print upon boards, smooth and corrugated fiber stock, or upon paper.

This and other objects of the invention will be illustrated in the drawings, described in the specification and pointed out in the claims at the end thereof.

In the drawings:

Figure 1 is a side elevation of my improved machine.

Figure 2 is a front elevation of my improved machine.

Figure 3 is a vertical longitudinal section of the front end of the machine, the section being taken on the line $3^{\times}$, $3^{\times}$ of Figure 2.

Figure 4 is a rear elevation of the machine.

Figure 5 is a top plan view of the carriage and rollers that distribute the ink.

Figure 6 is a side elevation of the carriage shown in Figure 5.

Figure 7 is a side elevation of the fount that supplies the ink to the ink rollers.

Figure 8 is a section on the line $8^{\times}$, $8^{\times}$ of Figure 3.

Figure 9 is a section through the bed plate that carries the type.

Figure 10 is a horizontal section through the frame of the machine, the section being taken on the line $10^{\times}$ $10^{\times}$ of Fig. 1.

Figure 11 is a perspective view of the type plate and bed plate and a modified form of the connection between them.

Figure 12 is a vertical section through the parts shown in Figure 11 when assembled, the section being taken through the middle of the spring.

In the drawings like reference numerals indicate like parts.

In the drawings reference numeral 1 indicates the base which is adapted to support the machine. The machine comprises the upright plates 2 and 3 which are suitably joined together by tie rods 4, 4 and at the front the plates are joined together by a box bracket 5.

The machine is driven by the main shaft 6 which is mounted to rotate in suitable bearings in the plates 2 and 3. On the outer end of this shaft is carried a gear wheel 7 which is driven by the pinion 8 carried on a jack shaft 9 which shaft also carries a pulley 10 which is driven by the belt 11. This belt in turn is driven by the small pulley 12 carried on the shaft 13 which is driven by the belt 14 from the motor 15. The gear 7 drives the shaft 6 through a clutch 6^{A} that is operated by a rod 7^{A} which in turn is moved by a treadle at the bottom of the machine. If the treadle is held down the machine will operate continuously, otherwise it will operate intermittently as the treadle is depressed.

The shaft 6 is provided with a cam 16 keyed thereon and is also provided with a crank 17 keyed thereon. The crank 17 drives the link 18 which in turn is connected to a swinging arm 19 which is keyed to one end of the shaft 20 mounted to rock in bearings provided at the top of the side plates 2 and 3. On the other end of the shaft 20 is keyed the arm 21 which swings in unison with the arm 19 both of the arms being driven by the rotation of the crank 17 and the movement of the connecting rod 18.

At the lower end of the arms 19 and 21 are provided the links 22^{A}, 22^{B}. These links connect to the lugs 23, 23 on the carriage 24. Suitable pins are provided in the lugs 23, 23 for this connection. This carriage carries the ink rollers 25, 26, 27 and 28. This carriage is provided with a tongue 29 and 30 on the sides thereof which engage with suitable grooves 31 in the frame members 2 and 3 by which the carriage is supported and guided in its forward and backward movement. The link 22^{A} carries the pawl 32 pivoted at 33 on the link 22^{A}. This pawl is made of two parts, one of which 32^{A} has the shape of a bell crank and the other 32^{B} is a plate which is pivoted on the same center 33 and is engaged by the lower arm of 32^{B} on the forward movement but can swing free of it on the backward movement. This pawl engages the ratchet wheel 34 which is carried on a roller 35 which rotates in the ink fount 36. Each time that the link 22^{A} goes forward, that is to the left as shown in Figures 1 and 7, the plate 32^{B} rides over the upper tooth of the ratchet wheel. When the link 22^{A} goes back the pawl engages the upper tooth of the ratchet wheel and turns the ratchet wheel and its roller through one step, thus raising a certain amount of ink from the fount, and bringing it up high enough so that the rollers 27 and 28 will make contact therewith. The rollers 27 and 28 both make contact with the roller 35 and take ink therefrom, but these rollers do

not turn the roller 35 in either direction because a friction or drag is put on the roller 35 by a scraping plate 35A shown in dotted lines in Figure 7. The pawl is held in the position shown in Figure 7 by a stop provided therefor on the link 22A. The pawl may be put out of action by throwing it over 180° in which position it will be held by another stop provided on the frame. This will stop the turning of the roller 35 and stop the feed of the ink as long as the pawl remains in this inverted position.

This plate is held in adjustment by the screws 35B, two or more of which are used to hold the plate against the roller. These rollers 27 and 28 carry the ink forward to the plate or pad 37, which is coated thereby. The rollers 25 and 26 in passing over this plate 37 are coated from the plate and carry the ink to the type that will presently be described. The ink plate 37 is adjustable up and down and can be tilted in the following manner. The plate 37 is supported on a bracket 37A made integral therewith. This bracket 37A is clamped to the bracket 5 by the two bolts 37C, and pass through vertical slots in the bracket 37A and are threaded into the bracket 5. The bracket 37A is raised by the two adjusting screws 37D which are threaded into a flange in the bracket 5 and engage with a flange on the bottom of the bracket 37A. The bracket 37A and the plate 37 is tilted by the two bolts 37E which are threaded into the bracket 37A and bear against the bracket 5.

The rollers 27 and 28 are cut so to speak, that is, the axes on which they turn are not parallel to each other nor are they parallel to the axes of the rollers 25 and 26. This causes the rollers to move endwise as they move back and forth, and causes the ink carried thereby to be distributed sideways over the plate as well as forward and back. In this way the plate is coated evenly all over and is kept evenly coated regardless of what the arrangement of the type is that may be coated by the rollers 25 and 26. It will also be understood that the shafts 38 and 39 which support the rollers 27 and 28 are stationary and the rollers are in the form of sleeves which turn and slide on said stationary shafts. Each roller is made up of a metal pipe with a cast iron bushing in each end thereof that makes contact with the supporting shaft and over the pipe is placed the composition roll which carries the ink.

The rollers 25 and 26 carry the ink to the type, the operation of which will now be described.

Carried on the plates 2 and 3 are the bosses 41 and 42 in which is mounted a shaft 43. Mounted to swing on this shaft is the rocking arm 44 which has the shape of a bell crank. On one end of the crank is carried the anti-friction roller 45 which engages with the rotating cam 16 and is held in engagement therewith by the tension springs 46. At one end these springs are attached to a U-shaped yoke 46A that straddles the cam 16 and engages in the recess 47 and at the other end they engage with stud 46B that are threaded and which pass through brackets 48 in which they are moved by nuts, the turning of which throws any desired tension on the springs. As the cam rotates the arm 44 swings in unison therewith and the type plate is brought into contact with the stock on the bed plate. On the forward end of the arm 44 is carried the lug 49 and head 50. In the lug 49 the screw 51 is mounted to turn and is turned by the handwheel 52. This screw at the lower end is threaded and engages with the extension 53 in the slide bracket 54 on the lower end of which is provided the block 55. Surrounding the screw 51 is the compression spring 56 which bears against the lug 49 at the upper end and against the collar or washer 57 at the lower end. This washer is held in place by the lock nut 58. The lug 59 locks the screw 51 in place with reference to the slide bracket 54. The expansion of the spring 56 holds the plate 55 a suitable distance below the lower end of the lug 50 and when an extra pressure is put on the block 55 the plate can rise with the screw 51 compressing the spring 56. In this way an extra thickness of stock can be put through the printing mechanism without injury to the stock or the machine.

Below the block 55 is supported the top plate 60 connected to the block 55 in the following manner. At the four corners of the block 55 are provided bosses 61, in each of which is provided a pin 62. Surrounding these pins are bushings 63 which are threaded into the bosses 61. The lower ends of the pins 62 are threaded into suitable openings in the top plate 60 and are locked in place therein by the set screw 64. Between the heads of the bushings 63 and the top plate 60 are provided compression springs 65. By turning the bushing 63 down, these springs can be put under suitable pressure for the purpose intended. The bushings 63 are clamped in place by means of a set screw 66 so that the bushings 63 are firmly held in place in the block 55. This leaves the top plate 60 free to rise and fall at each of the four corners with reference to the block 55 and the block 55 can yield with reference to the lug 50 as above described.

The top plate 60 is undercut with grooves, as indicated at 60A, to receive corresponding tongues on the bed plate 67 which carries the type. These grooves and tongues converge from front to back by about one degree so that when the bed plate is moved into position it makes a snug fit and the bed plate is held firmly in place without lost motion. The bed plate is locked in position by the latch 68, which is shown in locking position in Figure

2. By turning it over a half turn the bed plate is released so that it can be drawn forward and removed from the machine. The bed plate is grooved transversely as shown in section in Figure 9. These grooves run transverse to the grooves 66 in Figure 8. The type are molded on strips 67^D in either metal or rubber with metal backing and each strip of type is provided with one dovetailed tongue 67^E that engages with a suitable groove in the bed plate. This metal dovetailed tongue is made separately and of spring steel and is lightly bent at the middle so that the spring of it will take up all lost motion, and hold the type firmly in place.

Below the bed plate is located the platen 74 on which the stock is supported during the printing operation, and this platen will now be described as follows:

Mounted on the forward end of the frame of the machine is the box bracket 5. This bracket has a groove 70 therein to form a guide to receive a tongue 71 carried on the bracket 72. This tongue 71 and bracket 72 are primarily fastened together by the bolt 73 so that the bracket 72 can swing on the tongue 71. This permits the bracket 72 to be adjusted or tilted on the tongue 71 so that the platen 74 thereon will properly line up with the type on the bed plate when the type comes down to do the printing. The platen 74 may be tilted forward and back by the adjusting screws 90 which are threaded in the bracket 72 and the small ends of which abut against the bracket 5. When the table is adjusted it is first clamped in place by the bolt 75 which passes through a curved slot in the bracket 72 and threads into the tongue 71. The bracket 72 carries an arm 76 which has an opening therein through which passes the stem of the screw 77. This screw is threaded at the bottom and engages with the arm 78 forming part of the box bracket 5. Above the threads of this screw is a shoulder on which rests the washer 79 which in turn supports the arm 76 of the bracket 72. After the horizontal adjustment of the plate 74 has been secured the platen is then raised or lowered by turning the hand wheel 80 with the screw 77 and when the platen has been brought to correct elevation, the bracket 72 is clamped in place by the bolt 81, 81 which pass through slots 82 in bosses provided in the bracket. These slots are made extra wide so as not to interfere with the tilting of the bracket 72 which may be necessary to make the platen level. Beneath the platen 74 are carried the gauges 83, and 84 that are adjustable in or out to engage the inside of the box, one at the bottom of the box and the other at the side of the box so that the boxes will be held in uniform position on the platen so that the boxes will be uniformly printed. It will be understood that the platen is shaped so that the empty box can be placed over the platen with the platen inside of the box and the box can be printed while in this position on the platen. The gauges can be adjusted to secure the correct position of the box on the platen.

When the machine is speeded up it is desirable to have the weight of the arm 44 and the parts carried thereby counter-balanced. This counter-balance can be supplied by extending out the shaft 43 and fasten a suitable arm 86 thereto to which a counter-balance weight 87 can be attached. In such case the arm 44, shaft 43, arm 86 and weight 87 should be all rigidly fastened together.

The operation of the machine is as follows. Power is applied to the motor 15 and this in turn drives the belt 14 and 11, which causes the gear 7 to turn, which turns the shaft 6, cam 16 and the crank 17. The springs 46 operate to raise the arm 44 and keep the anti-friction roll 45 in engagement with the periphery of the cam. In the position shown in Figure 1 the longest diameter of the cam is in engagement with the anti-friction roll, and in this position the types are held down in working engagement with the platen. As the cam continues to rotate the springs 46 contract and raise the arm 44 and lift the type. While the types are down in printing position, the crank 17 has moved the frame 30 with its ink rollers back so that they will pick up ink from the fount and the ink feed roll 35 and the plate 37, the parts being shown in this position in Figure 1. As the cam 16 rotates the bed plate lifts and the ink rollers start forward due to the turning of the crank 17 and when the type are raised to a position in which they are parallel to the groove 31, and they are held in this position during about one half of the time that it takes the machine to operate through one complete cycle. This is due to the fact that about one half of the cam 16 is circular or concentric with the center and while this part of the cam is passing under the roller 45 the type plate remains stationary in its raised position. While the type are in this raised position the ink rollers pass under them forward and back and coat the type with a fresh supply of ink so that when the type come down again they are ready to make an impression on the next box that will be put in place on the platen. It will be understood that the box or sheet of paper is placed on the platen while the type are raised or are coming down to make the impression and is removed from the platen while the type is lifting after the impression has been made.

By adjusting the platen up or down, any thickness of stock can be accommodated for the printing operation so that the machine can be made to fit either a thin sheet of paper or a thick piece of fiber board, corrugated paper or wood and the platen can be lowered enough so that the machine can even be made

to print a filled box, or an empty made-up box, by slipping the empty box over the platen the machine being intended more especially to be used in printing empty made up boxes.

It will also be understood that there is a considerable variation in the thickness of the stock but this does not even interfere with printing by this machine for the plate 60 is free to rise at each corner independent of the other corners and the pins 62 are made to have a loose fit in the bushings 63 so that the plate 60 cannot only tilt but also move sideways, floating as it were, to accommodate itself to irregularities in the stock.

It will also be understood that the rollers 27 and 28 pass under the type plate but do not make contact therewith because they are made of slightly smaller diameter than the rollers 25 and 26, the rollers 27 and 28 merely securing even distribution of the ink on the ink plate 37 from which plate the rollers 25 and 26 pick it up and carry it to the type.

It will also be understood that the shafts which support the rollers 25 and 26 are provided with collars 25^A and 26^A which make contact with the strip 60^C carried on the plate 60 by which these rollers are positively turned independent of the contact with the type. The strip 60^C may be of metal or may be of softer of more flexible material like rubber, so that there is no tendency for the rollers to slide over the type at the end of the movement, which might be the case if they were driven by the type alone.

It will also be understood that the rollers 25 and 26 are preferably cast solid and are provided with a composition coating but the rollers 27 and 28 are preferably made hollow as above described.

In Figures 11 and 12 I have shown a modification of the support of the bed plate from the type plate. In this figure the reference numeral 67 represents the bed plate, and 67^A represents the type plate. On the type plate is fastened a dovetailed strip 67^B of spring steel, this strip being fastened at both ends to the type plate 67^A. This strip is not only dovetailed but is slightly wider at the center than at each end, by a few thousandths of an inch, the extra width being shown as exaggerated in Figure 11 to bring it out more clearly. This strip of spring steel is normally flat but when put in place in the dovetailed groove, the extra width at the center causes it to bulge or spring up at the center drawing the type plate firmly against the bed plate so that no lost motion between them can exist. The upward bulge of the spring in Figure 12 is exaggerated to more clearly bring it out, it being understood that no part of the spring will touch the bottom or wide part of the dovetailed groove.

I claim:

1. In a printing machine, the combination of a frame, an arm mounted to swing thereon, a bed plate carried by said arm, type supported by said bed plate, a frame having ink rollers therein, stationary inclined guides in which said frame can travel back and forth, an ink supply at one end of the guides from which the rollers take ink, said bed plate and type being raised by the arm to tilted position substantially parallel with the other end of said guides to permit the ink rollers to move in contact with the type and a platen for supporting the box to be printed with reference to which the guides are inclined.

2. In a printing machine, the combination of a frame, an arm swinging thereon carrying type, a rotating cam for causing said arm to swing, a shaft on which said cam is fastened, a crank on said shaft, arms and links and ink rollers moved by said crank and said cam on its rotation thereby causing the arm to descend with the type and the ink rollers to be drawn back and then causing the arm and type to be raised and the ink rollers to advance and coat the type.

3. In a printing machine, the combination of a frame, a fixed platen, an arm mounted to swing on said frame, type carried on said arm, means for swinging said arm up and holding it stationary in raised position inclined, said means also operating to swing the arm down to the platen, a moving frame having ink rollers therein, means for moving said rollers forward into contact with the type when the arm is stationary in a raised position, said rollers being parallel to the type in its raised inclined position.

4. In a box printing machine, the combination of a stationary platen adapted to support a box to be printed, an elongated type plate adapted to print the box, stationary guides for the ink rollers on each side of the type plate, an arm for swinging the type plate up and down between the guides, the forward end of said guides being located above the platen at an angle to the platen and parallel to the type plate in its raised position.

5. In a box printing machine, the combination of a stationary platen adapted to support a box to be printed, a laterally extending support under said platen, an upright support at the end of the lateral support, a type plate, an arm on which it is carried and by which it is swung up and down over the platen, fixed inclined guides on each side of the type plate between which the type plate moves up and down, said guides being located above the platen and its lateral support with a space between the inclined guides and the platen and its laterally extending support adapted to receive a paper box and its extended flap.

6. In a box printing machine, the combination of a platen adapted to support a box

to be printed, a type plate adapted to print the box, stationary inclined guides on each side of the type plate, inking rollers adapted to travel back and forth in said guides, a swinging arm adapted to lift the type plate to a predetermined inclined position parallel to the guides and hold it stationary therein and means to move the ink rollers along the stationary guides and along the type while the type plate remains in that inclined position.

7. In a box printing machine, the combination of a platen adapted to support a box to be printed, a type plate adapted to print the box, stationary inclined guides on each side of the type plate, inking rollers adapted to travel back and forth in said guides, a swinging arm adapted to lift the type plate to a predetermined inclined position parallel to the guides and hold it stationary therein and means to move the ink rollers along the stationary guides and along the type while the type plate remains in that inclined position, means adapted thereafter to move the type plate down against the box supported on the platen.

8. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate tilted in its highest position parallel to said guides during about one-half of the rotation of said shaft, means connected to said shaft adapted to move said inking device under the type plate while it is held in its elevated position.

9. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate tilted in its highest position parallel to said guides during about one-half of the rotation of said shaft, means connected to said shaft adapted to move said inking device under the type plate while it is held in its elevated position, inclined stationary guides in which said ink device is mounted to move.

10. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate tilted in its highest position parallel to said guides during about one-half of the rotation of said shaft, means connected to said shaft adapted to move said inking device under the type plate while it is held in its elevated position, inclined stationary guides in which said ink device is mounted to move, said guides extending above said platen.

11. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate tilted in its highest position parallel to said guides during about one-half of the rotation of said shaft, means connected to said shaft adapted to move said inking device under the type plate while it is held in its elevated position, a laterally extending support for said platen, stationary guides in which said ink device is mounted to move, said guides located above said platen and its lateral support leaving a clear space between them for the box and its extended flap.

12. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate stationary in its highest inclined position parallel to said guides while the ink rollers travel across the type plate, means connected to said shaft adapted to move said inking device across the type plate while it is held in its elevated position.

13. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be

lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate stationary in its highest inclined position parallel to said guides while the ink rollers travel across the type plate, means connected to said shaft adapted to move said inking device across the type plate while it is held in its elevated position, inclined stationary guides in which said ink device is mounted to move, said guides located above said platen.

14. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate stationary in its highest inclined position parallel to said guides while the ink rollers travel across the type plate, means connected to said shaft adapted to move said inking device across the type plate while it is held in its elevated position, a laterally extending support for said platen.

15. In a box printing machine, the combination of a stationary platen, a type plate, a swinging arm adapted to move it toward and away from the platen, an ink device adapted to put ink on the type plate inclined guides therefor, a shaft having a cam thereon adapted to engage said arm and move the type plate toward the platen and permit it to be lifted away from the platen, a spring connected to said arm acting in opposition to said cam, said cam and spring being adapted to hold the type plate stationary in its highest inclined position parallel to said guides while the ink rollers travel across the type plate, means connected to said shaft adapted to move said inking device across the type plate while it is held in its elevated position, a laterally extending support for said platen, inclined stationary guides in which said ink device is mounted to move, said guides located above said platen and its support leaving a clear space between them for the box and its extended flap.

16. In a box printing machine, the combination of a stationary platen, smaller than the box to be printed, on which the box can be placed with the platen inside of the box, a swinging arm, a plate of type carried on said swinging arm and adapted to be moved into printing contact with the box and moved away from the box, means for inking the type, inclined stationary guides in which said inking means moves, said type being held stationary in inclined position parallel to the guides while they are being inked.

17. In a box printing machine, the combination of a frame, an extension arm on said frame, a platen on the end of said arm adapted to support a box with the platen inside of the box, and the flap cover of the box extended along the arm, stationary guides supported on the frame of the machine, an ink pad supported from said guides, said guides extending over said extension arm leaving a clear space between the guides and the parts supported therefrom, and the arm to receive the extended flap of the box while the machine operates to print the box.

18. In a box printing machine, the combination of a frame, an extension arm on said frame, a platen on the end of said arm adapted to support a box with the platen inside of the box and with the flap cover of the box extended along the arm, stationary guides supported on the frame of the machine, an ink roller adapted to travel along said guides, an ink pad supported from said guides, said guides extending over said extension arm leaving a clear space between the guides and the parts supported therefrom and the arm to receive the extended flap of the box while the machine operates to print the box.

19. In a box printing machine, the combination of a stationary platen, smaller than the box to be printed on which a box can be placed with the platen inside of the box, an extension arm on which said platen is supported, stationary guides extending up over said arm and said platen, said guides opening inwardly, an arm mounted to swing over said extension arm and said platen, a plate of type carried on said swinging arm adapted to be moved by the swinging arm into printing contact with the box and moved away from the box, means moving in said fixed guides to ink the type, means for holding said type stationary while they are being inked.

20. In a printing machine, the combination of a block, a top plate mounted below it, bushings threaded into the block, pins passing through the block and bushings and threaded into the top plate, springs on the pins interposed between the bushings and top plate whereby a yielding pressure is put on the top plate.

21. In a printing machine, the combination of an arm, a bracket mounted to slide therein, a block on the bottom of said bracket, a top plate mounted below said plate, bushings threaded into the block, pins passing through the block and bushings and threaded into the top plate, springs on the pins interposed between the bushings and top plate whereby a yielding pressure is put on the top plate.

In testimony whereof I affix my signature.

ALVIN A. SCUSE.