May 23, 1933. C. M. LAMB 1,910,111

BED PLATE STRUCTURE FOR PRINTING MACHINES

Filed May 4, 1932 2 Sheets-Sheet 1

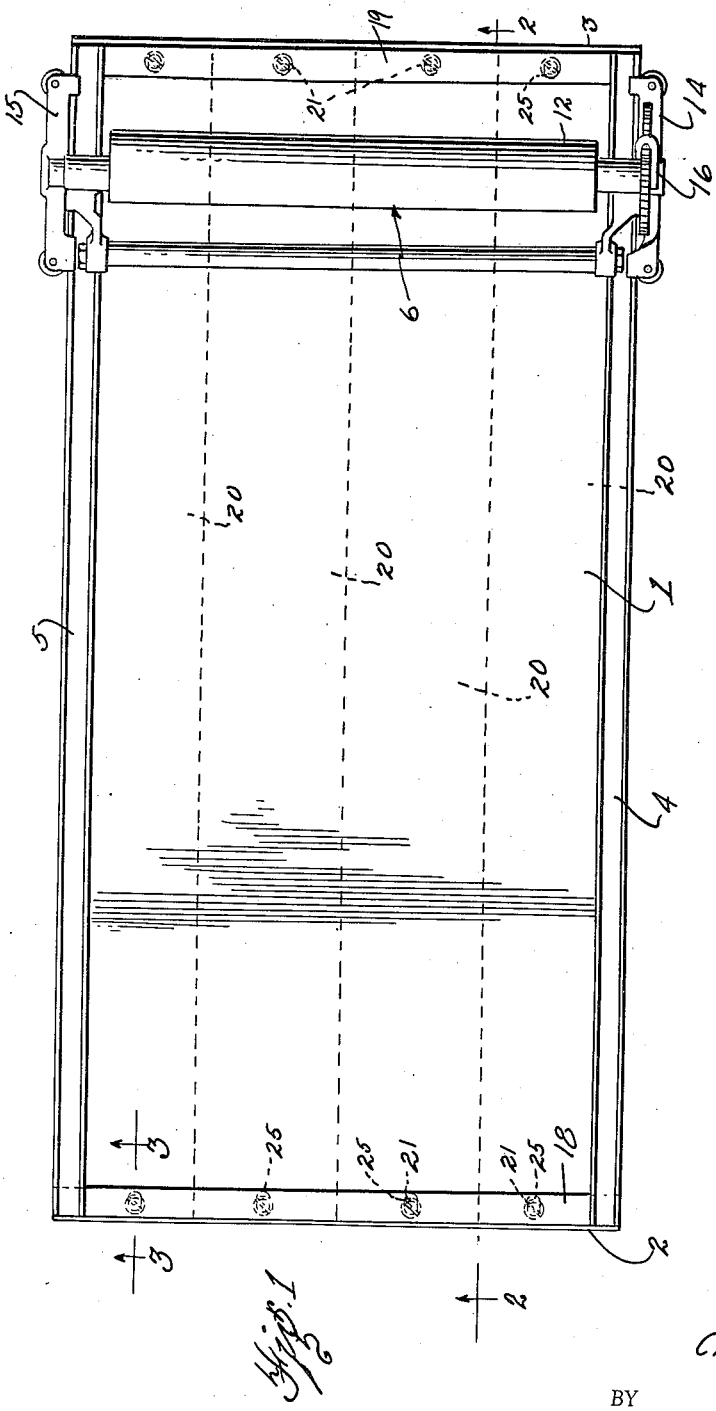

Fig. 1

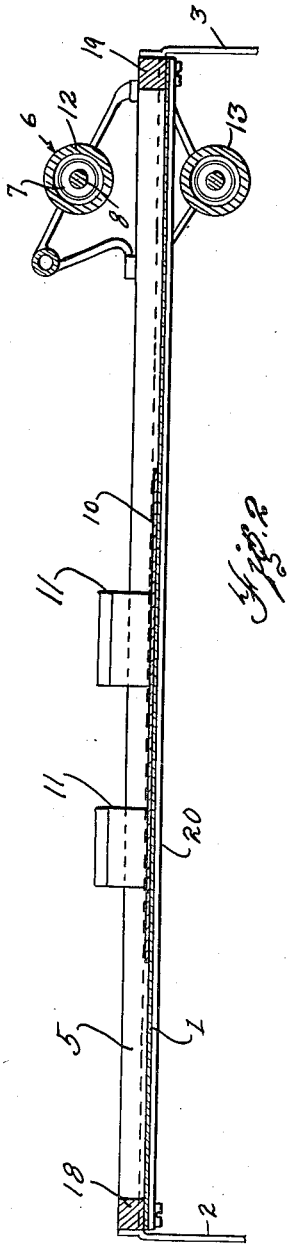

Fig. 2

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BED PLATE STRUCTURE FOR PRINTING MACHINES

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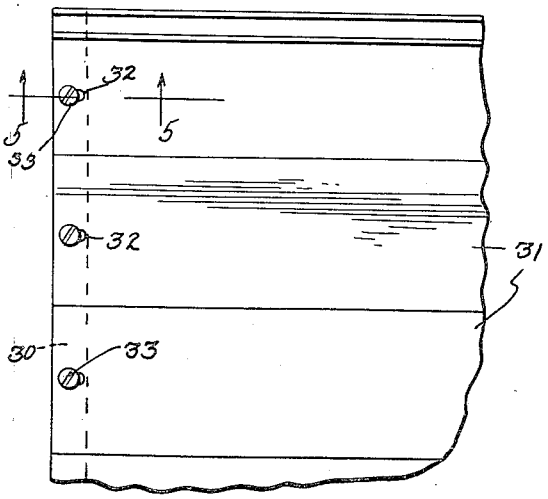

Fig. 4

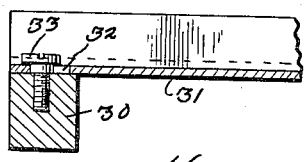

Fig. 5

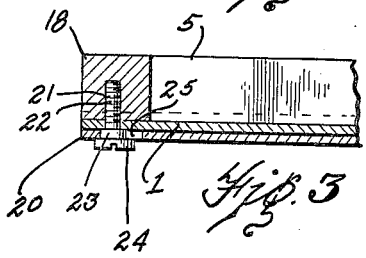

Fig. 3

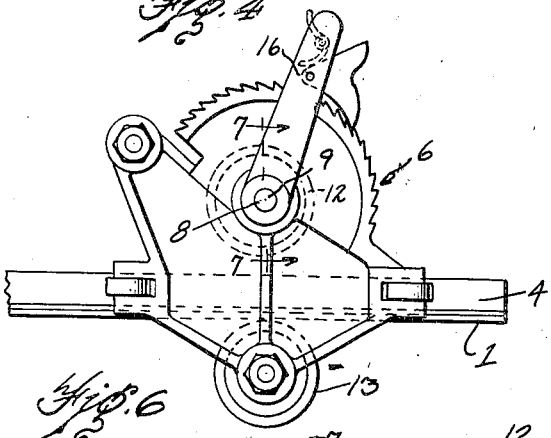

Fig. 6

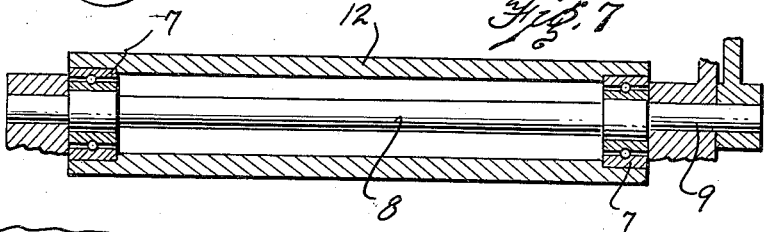

Fig. 7

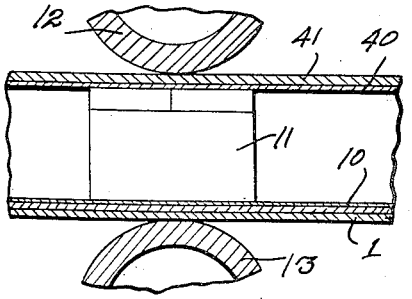

Fig. 8

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Patented May 23, 1933 1,910,111

UNITED STATES PATENT OFFICE

CHARLES M. LAMB, OF PASADENA, CALIFORNIA

BED PLATE STRUCTURE FOR PRINTING MACHINES

Application filed May 4, 1932. Serial No. 609,185.

This invention relates to improvement in bed plates for printing machines of the type disclosed in the application on printing machine of Charles M. Lamb, Serial No. 439,794, filed Mar. 28, 1930. It has been found that when using a printing machine of this type, the same having a one-piece bed plate which was contacted by the lower pressure roll during the printing operation, that that portion of the bed plate above which the type was ordinarily set was distorted due to the pressure exerted by the rollers and to the rolling action caused by the lower roller. Due to this distortion of the bed plate proper printing results could not be obtained and it was therefore necessary to replace the bed plate which was an added expense and inconvenience both to the owner of the machine and to the manufacturer thereof. It is therefore an object of this invention to provide a bed plate in which movement is permitted to the portion thereof contacted by the lower pressure roller to compensate for lengthening or distortion of the bed plate caused by the rolling action of the lower roller.

Another object of the invention resides in the provision of a plurality of strips positioned between the bed plate and the lower pressure roller whereby the rolling action is imparted to the strips, the strips being arranged to permit movement thereof in a direction parallel to the direction of movement of the pressure roller during the printing operation.

Another object of the invention resides in the provision of a bed plate for printing machines which comprises a plurality of longitudinally extending strips arranged to permit movement thereof in a direction parallel to the direction of movement of the pressure rollers during the printing operation to compensate for lengthening of the strips.

Another object of the invention resides in the provision of a bed plate comprising a one-piece flexible bed plate and a plurality of longitudinally extending strips positioned therebeneath whereby the lower pressure roller contacts the strips and any distortion is imparted thereto, the strips being arranged for movement relative to the bed plate in a direction parallel to the direction of movement of the pressure rollers during the printing operation, the strips being welded at one point to the bed plate to prevent the accumulation of dirt between the strips and the bottom of the bed plate.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are attained is shown in the accompanying drawings in which—

Fig. 1 is a plan view of a printing machine equipped with my improved bed plate.

Fig. 2 is a longitudinal section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail section taken on line 3—3 of Fig. 1.

Fig. 4 is a partial top plan view of a modified form of construction.

Fig. 5 is an enlarged section taken on line 5—5 of Fig. 4.

Fig. 6 is an end view of the impression member.

Fig. 7 is a section taken on line 7—7 of Fig. 6.

Fig. 8 is a detail longitudinal sectional view through a portion of the bed plate during the printing operation.

Referring to the drawings, the bed plate 1 is supported at its respective ends by the legs 2 and 3. The channel members 4 and 5 are suitably secured to the upper face of the bed plate 1, one adjacent each side edge thereof and act as stiffeners for the edges of the bed plate as well as runways for the impression member 6. The impression member 6 comprises the upper roller 12 and the lower roller 13 carried by the side frames 14 and 15. The roller 12 is adjustably positioned between the side frames 14 and 15 so that the roller may be raised and lowered relative to the bed plate 1 by operation of the handle 16 to adjust the pressure on the face of the type 11.

The upper roller 12 is rotatably supported at its ends by the bearings 7 through which the shaft 8 extends the same formed with

the eccentric extension 9 to which the handle 16 is secured. It will thus be seen that as the handle 16 is moved in either direction that the distance between the upper and lower rolls of the impression member will be changed to accommodate for varying thicknesses of cards that are to be printed. The type 11 is supported on the bed plate 1 in any desired manner such as by the waxed sheet 10 positioned on the upper face of the bed plate 1. The end frames 18 and 19 extend between the side frames 4 and 5 and are suitably secured thereto. The strips 20 are positioned below the bed plate 1 and are supported at their ends by the screws 21 extending into the end frames 18 and 19. The screws 21 are each formed with the threaded portion 22 extending through the bed plate 1 and into the end bars and have the enlarged portion 23 which forms a shoulder which engages the lower face of the bed plate 1 and holds the bed plate tightly against the end bars. The screws are each further provided with an enlarged head 24 which support the strips 20. Each strip 20 is provided at each end with an elongated slot 25 through which the enlarged portion 23 of the screw 21 passes so that the strips 20 are permitted longitudinal movement relative to the base 1.

It will be noted that the lower pressure roller 13 engages the bottom face of the strips 20 during the printing operation causing only the bars 20 to be deformed or lengthened by the rolling action of the lower pressure roller 13 and not the bed plate 1. Since the length of the enlarged portion 23 is slightly greater than the thickness of the bars 20 no appreciable pressure will be put on the bars when the screws 21 are tightened down thereby permitting freedom of longitudinal movement to the bars. Referring to Figs. 4 and 5 the end bars 30 are positioned below the strips 31 which form the bed plate of the machine. The strips 31 are provided at each end with an elongated slot 32 through which the screw 33 passes, the same being threaded in the end bars 30. The screw 33 is so constructed as to not tightly hold the strip 31 down against the end bar 30 to permit longitudinal movement of the bars caused by the lengthening thereof due to the pressure and rolling action exerted thereon.

Referring to Fig. 8 I have shown the impression member during the printing operation and it will be seen that the card 40, being printed, is placed over the face of the type 11 and a pad or cover 41 is preferably placed thereover. It will be understood that at this time there is considerable pressure exerted between the upper and lower rolls 12 and 13 and due to the pressure and the rolling action of the lower roll 13 the bed plate is ordinarily deformed but with my improved structure any lengthening or distortion of the strips 20 is permitted independently of the bed plate and since there is no rolling action exerted on the bed plate there is practically no distortion thereof.

It will thus be noted that in the form shown in Figs. 1 and 2 that no distortion is caused to the bed plate 1 and that in the second construction distortion or lengthening of the bed plate is compensated for by the lengthening of the strips forming the bed plate. It will be understood, of course, that the strips 20 may be spot welded at some point intermediate their ends to the bed plate 1 to prevent dirt and dust from accumulating on the upper face of the strips. It will be further understood that the strips may be fixedly secured at one end and all movement thereof permitted at the opposite end.

From the foregoing description it becomes evident that I have provided a new and improved bed plate which will not be distorted by the pressure exerted by the lower roller riding on the lower surface thereof during the printing operation, further that the device is relatively simple in construction and obviates the necessity of replacing the bed plate caused by distortion thereof.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. In a printing machine, a frame, an impression member including an upper pressure member for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the pressure member, a lower pressure member carried by the support, a plurality of strips supported by the frame and positioned between the upper and lower pressure members, the lower surface of the strips engaged by the lower pressure member to maintain the upper pressure member in a predetermined position relative to the type face during the printing operation, means for supporting the strips on the frame to permit lengthening of the strips caused by the action of the lower pressure member thereagainst during the printing operation.

2. In a printing machine, a frame, an impression member including a roller for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the roller, a second roller carried by the support, a plurality of strips supported by the frame and positioned between the rollers, the strips engaged by the second roller to maintain the first named roller in a predetermined position relative to the type face during the printing operation, means for supporting the strips on the frame to permit lengthening of the strips

caused by the rolling action of the second roller during the printing operation.

3. In a printing machine, a frame, an impression member including a roller for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the roller, a second roller carried by the support, a plurality of strips supported by the frame and positioned between the rollers, the strips engaged by the second roller to maintain the first named roller in a predetermined position relative to the type face during the printing operation, the strips each provided with an elongated aperture, and means extending through each of the elongated apertures and into the frame for maintaining the strips in position, the elongated apertures permitting lengthening of the strips caused by the rolling action of the lower roller.

4. In a printing machine, a frame, a bed plate carried by the frame for supporting type thereon, a plurality of strips carried by the frame and positioned below the bed plate, an impression member including an upper roller for causing an impression of the type on the printing surface and arranged to traverse the same, a support for the roller, a lower roller carried by the support for engaging the lower face of the strips to maintain the upper roller in a predetermined position relative to the type face during the printing operation, each strip provided with an elongated aperture, and means extending through each elongated aperture and into the frame for maintaining the strips in position, the elongated apertures permitting lengthening of the strips caused by the rolling action of the lower roller.

5. In a printing machine, a frame, a flexible bed plate carried by the frame for supporting type thereon, a plurality of strips carried by the frame and positioned below the flexible bed plate, an impression member including an upper roller for causing an impression of the type in the printing surface and arranged to traverse the frame, a support for the roller, a lower roller carried by the support and engaging the lower face of the strips to maintain the upper roller in a predetermined position relative to the type face during the printing operation, and means for securing the strips to the frame to permit lengthening thereof in a direction parallel to the direction of movement of the impression member.

6. In a printing machine, a frame, a bed plate carried by the frame for supporting type thereon, a plurality of strips carried by the frame and positioned below the bed plate, an impression member including an upper roller for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the roller, a lower roller carried by the support and engaging the lower face of the strips to maintain the upper roller in a predetermined position relative to the type face during the printing operation, and means for securing the strips to the frame to permit lengthening thereof in a direction parallel to the direction of movement of the impression member.

7. In a printing machine, a frame, a bed plate carried by the frame for supporting type thereon, a plurality of strips carried by the frame and positioned below the bed plate, an impression member including an upper pressure member for causing an impression of the type on the printed surface, and arranged to traverse the frame, a support for the upper pressure member, a lower pressure member carried by the support and engaging the lower face of the strips to maintain the upper pressure member in a predetermined position relative to the type face during the printing operation, and means for securing the strips to the frame to permit lengthening thereof in a direction parallel to the direction of movement of the impression member.

8. In a printing machine, a frame, a plurality of strips carried by the frame for supporting type thereon, an impression member including an upper pressure member for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the upper pressure member, a lower pressure member carried by the support and engaging the lower face of the strips to maintain the upper pressure member in a predetermined position relative to the type face during the printing operation, and means for securing the strips to the frame to permit lengthening thereof in a direction parallel to the direction of movement of the impression member.

9. In a printing machine, a frame, a plurality of strips carried by the frame for supporting type thereon, an impression member including an upper roller for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the roller, a lower roller carried by the support and engaging the lower face of the strips to maintain the upper roller in a predetermined position relative to the type face during the printing operation, each strip provided with an elongated aperture, and means extending through each elongated aperture and into the frame for maintaining the strips in position, the elongated apertured permitting lengthening of the strips caused by the rolling action of the lower roller.

10. In a printing machine, a frame, a plurality of strips carried by the frame for supporting type thereon, an impression mem-

ber including an upper roller for causing an impression of the type on the printing surface and arranged to traverse the frame, a support for the roller, a lower roller carried by the support and engaging the lower face of the strips to maintain the upper roller in a predetermined position relative to the type face during the printing operation and means for securing the strips to the frame to permit lengthening thereof in a direction parallel to the direction of movement of the impression member.

In testimony whereof I sign this specification.

CHARLES M. LAMB.