Sept. 26, 1933. H. A. W. WOOD 1,928,161

PRINTING PLATE CLAMP

Original Filed April 6, 1929

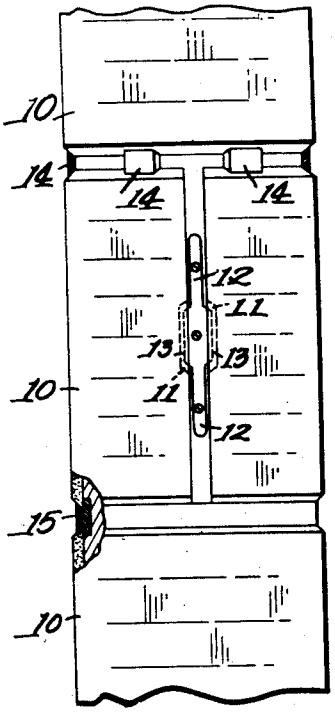


Fig. 1

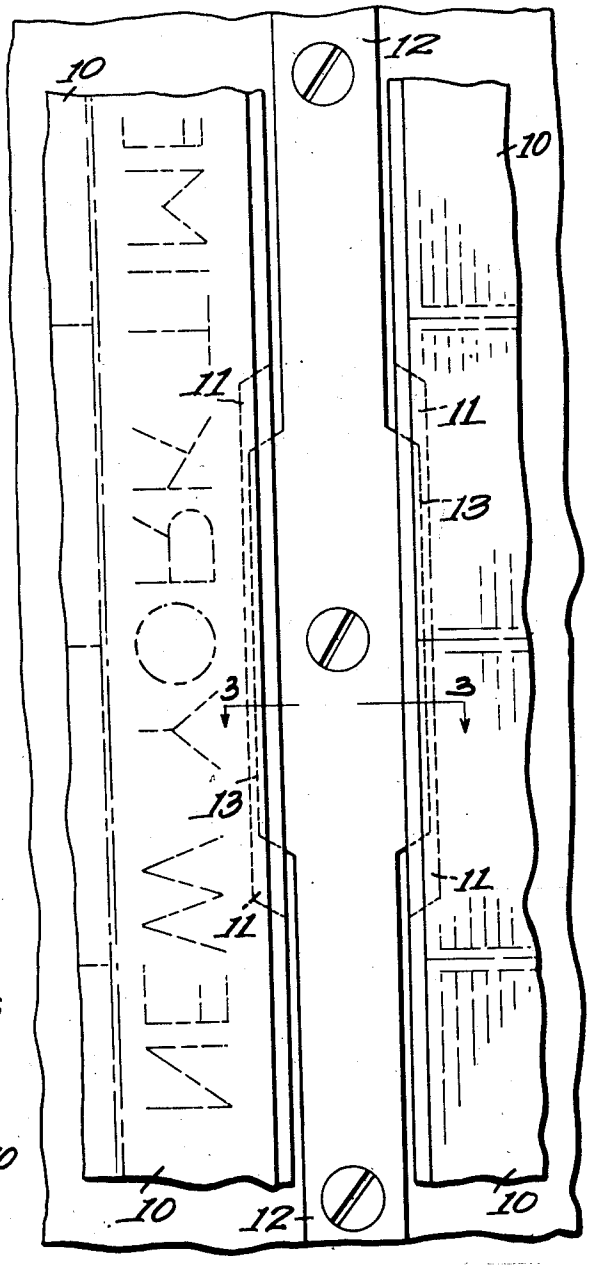


Fig. 2

Fig. 3.

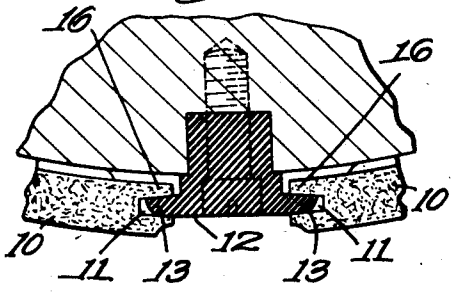
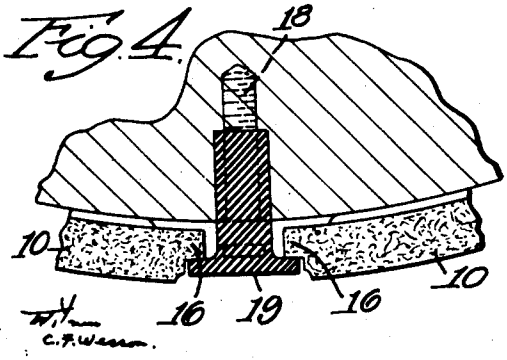


Fig. 4.



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PRINTING PLATE CLAMP

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Original application April 6, 1929, Serial No. 353,201. Divided and this application January 10, 1931. Serial No. 507,833. Renewed January 30, 1933

16 Claims. (Cl. 101—384)

This invention relates to a clamp for holding a plate down on a printing cylinder at the longitudinal edges of the plate.

The principal objects of the invention are to hold down the straight edges of the plate and prevent their bulging out so as to imprint an excessively black impression on the paper, and also to avoid the possibility of breakage of the edge of the plate due to its pounding back and forth repeatedly, and to provide a construction by which when the attendant pulls his end clamps too tight it will not cause the bowing of the edges of the plate. This case contains matter divided out of my prior application, Serial No. 353,201, filed April 6, 1929.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing in which

Fig. 1 is a plan of a printing cylinder, partly in section, showing the subject of this invention;

Fig. 2 is an enlarged view of the same;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2, and

Fig. 4 is a similar transverse sectional view showing a modification.

In clamping stereotype plates on printing press cylinders it is customary to secure them by longitudinal sliding clips carrying beveled edges to fit complementary beveled edges on the stereotype plates. With slow running presses this form of clamping has been sufficient to hold the plates properly in position, but with the advent of high speed printing presses there is a tendency on the part of the center of the edge of the plate to bow out under speed. The repetition of this action of pressing the edges of the plates back against the cylinder as they pass through the impression, then throwing them out by centrifugal force, results in fatigue of the metal and sometimes a piece breaks out of the edge of the plate. This is apt to cause considerable damage. Besides the centrifugal action just described, the bowing out of the edges of the plates is apt to be caused or increased by the setting in of the clamps on both ends of the plate. The natural tendency of a man working on a high speed press is to keep pulling his clamps tighter so that the plate will not fly off, thus accentuating the bowing outwardly of the edges of the plate.

It is the purpose of this invention to provide a clamp which will hold down this edge of the plate which is parallel to the central axis of the printing cylinder and to do it in such a manner that the plate will not be subjected to unnatural strains as it grows in length circumferentially under repeated impressions.

Referring to Figs. 1, 2 and 3, which are divided out of my above identified application, I provide each plate 10, in addition to its holding means at its semi-circular ends, with a longitudinal recess 11 in each straight edge, preferably about halfway between the ends. I also provide margin bars 12 extending along the straight edges of the plates with two tongues 13 on opposite sides, each one extending into a longitudinal recess 11 in the plate adjacent thereto and projecting over a projecting ledge 16 on the plate. It will be observed that the bars 12 are of less length than the plates and the object of making them shorter is to permit a pressman to lift the plate by its straight edges which it would be somewhat difficult to do if such bars were of full length. I have shown these tongues as of considerable length so as to hold the plates down and as having considerable clearance in the recesses at the ends. This construction provides the bars with enough space to receive and hold the plates even after the plates are lengthened by constant use. These tongues obviously are used in addition to the clamping means and the center clips 14 and margin rings 15 ordinarily employed.

In Fig. 4 the invention is shown in a modified form in which the plate 10 is provided simply with a longitudinal ledge 16 located in the same position as the recess 11 in the other figures and open on the outer side, that is, having no metal projecting over it. As shown in this figure, these projecting ledges will easily slide under the shoulders on the margin bar 19 without any motion on the part of the plate clamp and thus will require no additional work on the part of the pressman in plating up. If necessary the margin bar can be adjusted by means of its holding screws 18 after the plates are in position.

It will be seen that by either of these forms of the invention the difficulties which have been described above are entirely eliminated.

Although I have illustrated and described only two forms of the invention I am aware of the

fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to the exact form of construction shown herein but what I claim is:—

1. The combination with a printing plate cylinder, of a margin bar extending longitudinally thereof and having tongues projecting on opposite sides, a printing plate on each side thereof, each printing plate having a longitudinal recess in its straight edge into which said tongues are adapted to project to hold the straight edges of the printing plates down on the cylinder and means for clamping the curved edges of the plates on the cylinder.

2. As an article of manufacture, a printing plate cylinder for mounting substantially semi-cylindrical stereotype printing plates, said cylinder having means rigid with the cylinder for holding down the straight edges of a printing plate, said means providing circumferential clearance between the plate and said means, and means for clamping the curved edges of the plate.

3. As an article of manufacture, a printing plate cylinder for mounting substantially semi-cylindrical stereotype printing plates, said cylinder having rigidly secured thereto means for holding down on the cylinder the straight edges of a printing plate, said means providing clearance between the plate and said means, and axially movable means for clamping the curved edges of the plate.

4. The combination with a printing plate cylinder adapted to carry a plurality of substantially semi-cylindrical stereotype printing plates, of plate-restraining means for preventing the bowing, of the plates along their straight edges, said means providing circumferential clearance between the plate and said means, and means for clamping the curved edges of the plates.

5. The combination of a substantially semi-cylindrical stereotype printing plate having a ledge along the inner portion of its straight edge, and a plate cylinder, a margin bar rigidly secured to said plate cylinder having a tongue provided with an inner substantially tangential surface projecting over the printing plate ledge and thereby holding the straight edge of the plate against the cylinder, said bar providing clearance between the plate and bar, with means for clamping the curved edges of the plate.

6. The combination with a printing plate cylinder, of a margin bar extending longitudinally thereof and having projections on opposite sides, a substantially semi-cylindrical stereotype printing plate on each side thereof, each printing plate having substantially tangential ledges along its straight edges over which the said projections are adapted to project to restrain bowing of the plates while running, said ledges providing circumferential clearance between the plate and ledges, and means for clamping the curved edges of the plate on the cylinder.

7. The combination with a printing plate cylinder, of a margin bar extending longitudinally thereof and having a substantially tangential projection on its side, a substantially semi-cylindrical stereotype printing plate having a ledge along its straight edge, over which the projection is adapted to project to restrain bowing of the plate while running, said ledge providing circumferential clearance between the plate and ledge, and means for clamping the curved edges of the plate on the cylinder.

8. The combination with a printing plate cylinder adapted to carry a substantially semi-cylindrical stereotype printing plate of insufficient strength to prevent the straight edges thereof from leaving the cylinder when rotated at printing speed, of means rigid with the cylinder for restraining the straight edges from leaving the cylinder, said means providing circumferential clearance between the plate and said means.

9. In a printing plate cylinder adapted to carry a substantially semi-cylindrical stereotype printing plate having insufficient strength when rotated at printing speed to prevent its straight edges from bowing, the combination of end clamps for clamping the curved edges of the plate to the cylinder and restraining means rigid with the cylinder contacting with the tangential surfaces only on the straight edges of the plate to prevent them from bowing when the said cylinder is in operation.

10. The combination of a printing press cylinder adapted to carry substantially semi-cylindrical stereotype printing plates at high speed wherein the curved edges of the plate are clamped to the cylinder by means of clamps whose clamping force is applied to the plate in a direction which tends to buckle the straight edges of the plate, and means carried by the cylinder for restraining the straight edges of the plate from buckling, said means contacting with the tangential surfaces only on the straight edges of the plate.

11. The combination of a printing press cylinder adapted to carry substantially semi-cylindrical stereotype printing plates at high speed, and clamps for clamping the curved edges of the plate to the cylinder whose clamping force is applied to the plate in a direction which tends to buckle the straight edges of the plate, of projecting means carried by the cylinder under which projections on the straight edges of the plate are slipped when the plate is placed upon the cylinder, the said projections serving to restrain the straight edges of the plate from buckling, said means providing circumferential clearance between the plate and said means.

12. The combination with a printing press cylinder adapted to carry substantially semi-cylindrical stereotype printing plates at high speed, and clamps for clamping the curved edges of the plates to the cylinder whose clamping force is applied to the plate in a direction which tends to buckle the straight edges of the plate, of fixed projecting means carried by the cylinder for restraining the straight edges of the plate from buckling, said means providing clearance between the plate and said means.

13. The combination with a cylinder adapted to carry substantially semi-cylindrical stereotype printing plates, of clamps for the straight edges of said printing plates adapted to restrain the said straight edges from leaving the cylinder by centrifugal force, said clamps being so positioned on said cylinder that projections on the straight edges of the plate will pass beneath the clamps for the straight edges when the plate is placed upon the cylinder, said clamps providing circumferential clearance between the plate and the clamps, and means for clamping the curved edges of the plate.

14. The combination with a printing plate cylinder, of a margin bar thereon extending longitudinally and having tongues projecting on opposite sides, a printing plate on each side thereof, each

printing plate having a surface adapted to be received under one of said tongues and the end of said surface being terminated at a short distance from the margin bar to allow for elongation of the plate circumferentially.

15. As an article of manufacture, a printing plate cylinder having means for clamping the curved edges of the plate and means rigid with the cylinder and of less than plate width for holding down the straight edge of the plate.

16. As an article of manufacture, a printing plate cylinder for mounting substantially semi-cylindrical stereotype printing plates, said cylinder having means for clamping the curved edges of the plate and means rigid with the cylinder and of less than plate width for holding down the straight edge of the plate.

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