

Dec. 25, 1934.

A. J. HORTON

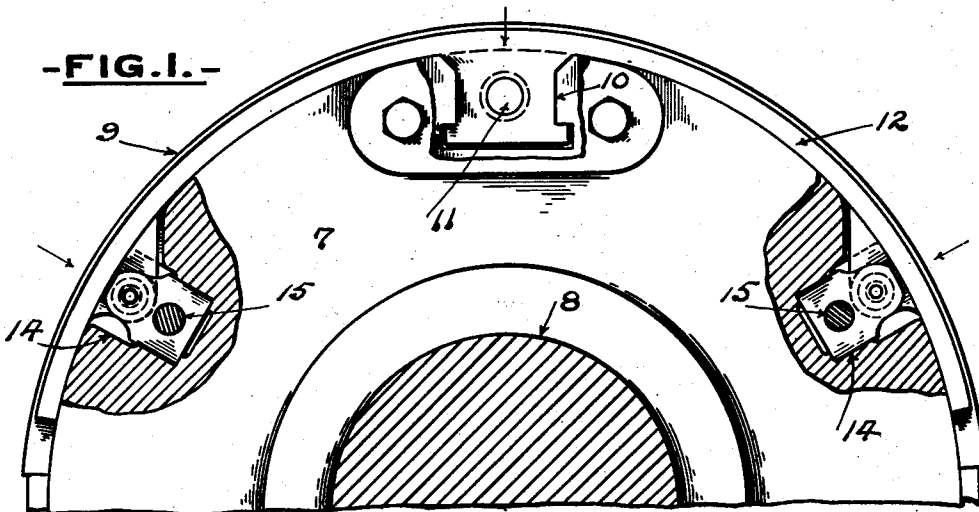
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PLATE HOLDING MEANS FOR PRINTING PRESSES

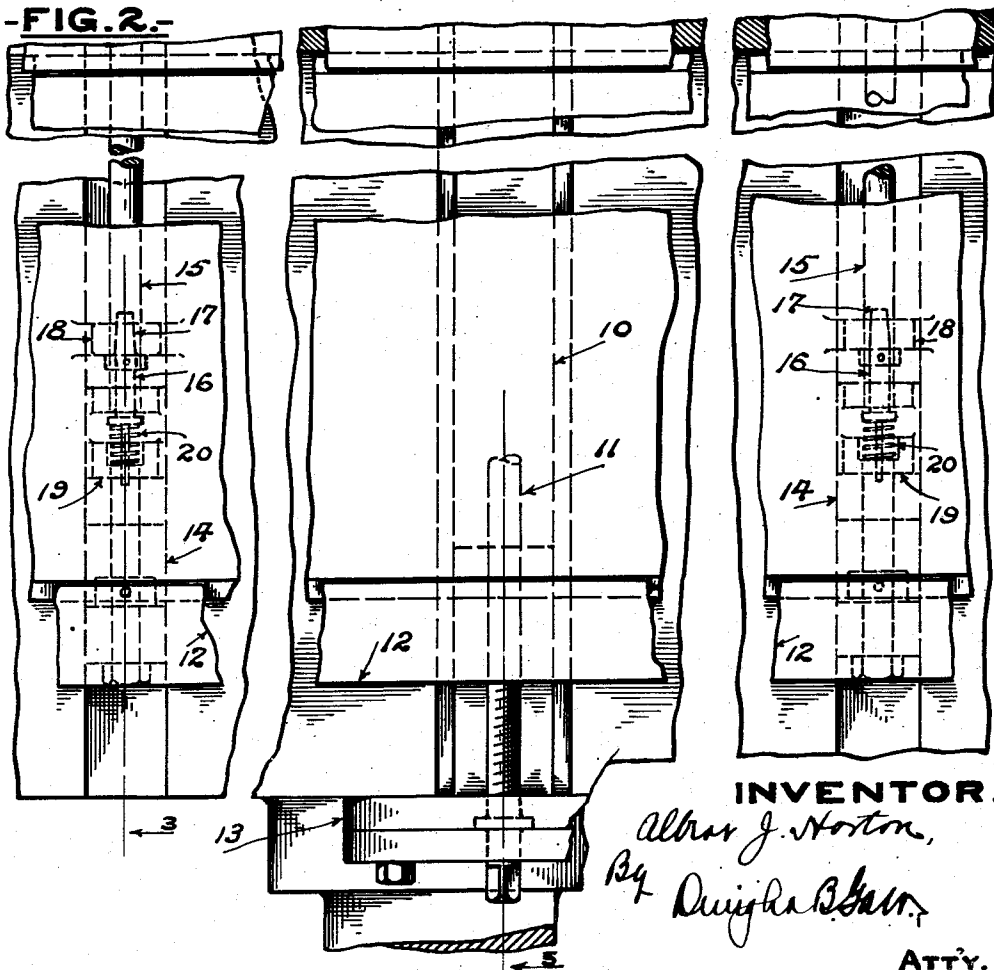
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2 Sheets-Sheet 1

-FIG. 1.-



-FIG. 2.-



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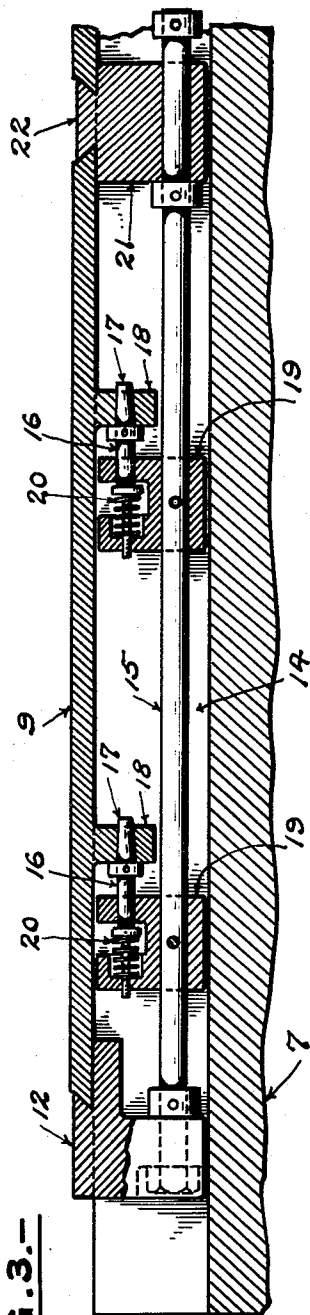
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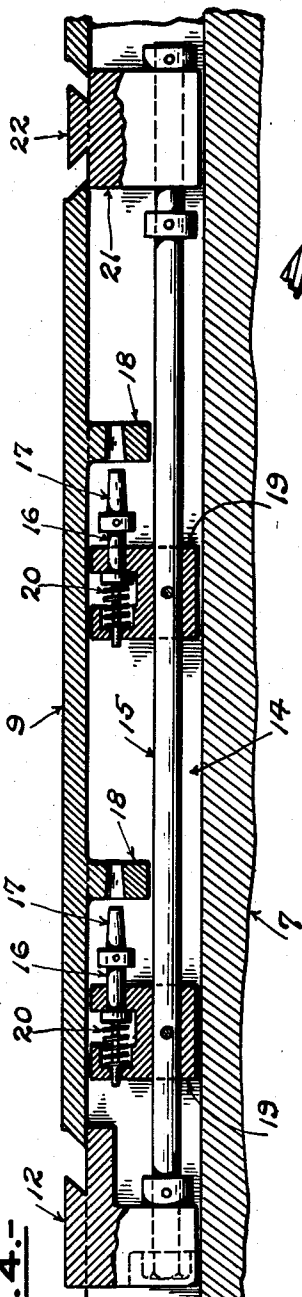
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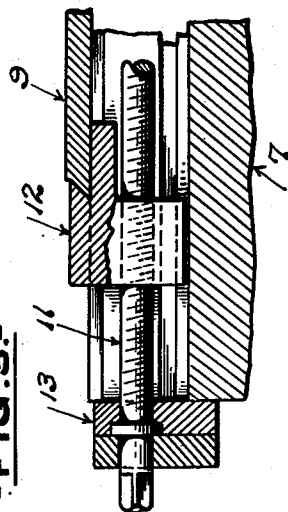
-FIG. 3.-



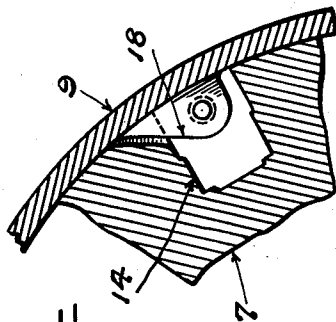
-FIG. 4.-



-FIG. 5.-



-FIG. 6.-



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UNITED STATES PATENT OFFICE

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PLATE HOLDING MEANS FOR PRINTING PRESSES

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temporary trustee

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15 Claims. (Cl. 101—378)

This invention relates to printing machinery, and particularly to means for the attachment of stereotype plates to form cylinders of the machine.

5 The method now commonly employed of securing printing plates to rolls or cylinders involves clamp members at the end of the cylinder to engage and firmly hold the edges of the curved plate tightly upon the cylinder. In press operation the tendency is toward higher speeds, and the point is rapidly being reached where centrifugal force acting upon the plates makes it dangerous to rely entirely upon clamps which engage the ends of the plates. It is the primary object of the present invention to provide means of a simple and improved nature, to provide holding means of such character as to insure proper holding of the arcuate plates upon the rolls notwithstanding great speeds of the cylinders.

20 A further object of the invention is to provide holding means of such character as to involve but little change in the present type of cylinder and printing plate whereby the invention may be put into practical use without materially varying the construction of such parts of the press.

25 With these objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings and particularly pointed out in the claims.

In the drawings:—

35 Fig. 1 is an end elevation, parts broken away, of a press cylinder embodying the invention and showing a conventional form of printing plate applied thereto,

Fig. 2 is a fragmentary top plan view of the cylinder as shown in Fig. 1,

40 Fig. 3 is a longitudinal sectional view taken substantially upon line 3 of Fig. 2; the view showing the parts in the position they will assume when the holding means is in operation,

45 Fig. 4 is a view similar to Fig. 3 and disclosing the parts in the position they will assume when the holding means is moved to plate releasing position,

50 Fig. 5 is a fragmentary sectional view on the line 5 of Fig. 2 and illustrating the end clamp operating means, and

Fig. 6 is a fragmentary transverse sectional view disclosing the specific construction of the plate lugs.

55 Referring now more particularly to the drawings, 7 indicates a conventional form of printing

press roll or cylinder mounted upon its supporting shaft 8. The plate from which the printing is done is indicated at 9, and is curved in the usual manner to conform to the circumference of the cylinder and may be of substantially the same length as the latter.

This cylinder is provided in its periphery with a longitudinally disposed channel indicated at 10 and within which is disposed a screw member 11, as is usual, for the operation of the clamps 12 employed in securing the ends of the plate to the cylinder. This screw member is properly mounted in a fixture or bracket 13 at the end of the cylinder, and it may be squared at its end as shown for the application thereto of a tool for rotating the screw. The clamp member 12 is of arcuate formation conforming to the contour of the cylinder and engages the major portion of the adjacent plate edge in order to firmly hold the plate in position. The operative faces of the clamp and plate are provided with mating bevel surfaces as shown to secure the plate firmly in position.

The cylinder 7 is provided with additional longitudinally disposed channels or recesses 14 arranged preferably equi-distant upon each side of the channel 10, which recesses 14 communicate with the peripheral face of the cylinder. Within each of the channels 14 there is disposed longitudinally thereof a rod 15 rigidly secured at its outer end to the clamp 12, so that the said rods will move longitudinally within their recesses as the clamp 12 is moved.

Each rod is equipped with means for engaging the plate 9 inwardly from the ends thereof, in order to provide additional holding means for the said plate. In the present instance this means comprises pins 16 having tapered ends 17 for engagement in recesses provided in lugs 18 formed upon the inner face of plate 9 and extending into the recesses 14. The pins 16 are slidably mounted within blocks or travelers 19 secured upon the rod 15, and springs 20 are arranged within recesses in the blocks 19 to normally hold the pins 16 in projected position.

From this construction it is apparent that upon operating the screw member 11 the arcuate clamp members 12 will be caused to travel, the direction of travel being determined by the direction of rotation of the screw. When operating the screw member to bring the clamp into engagement with the edge of plate 9, the clamp members will travel inwardly, at the same time causing the rods 15 to similarly move. The travelers 19 will move toward the lugs 18, whereupon

the tapered ends 17 of the pins 16 will enter and center themselves within the openings in lugs 18. To facilitate proper aligning and centering, the openings in lugs 18 may be tapered substantially corresponding to the taper of the pins 16. When full clamping action is had between clamp 12 and bevel edge of plate 9, the pins 16 will have been moved to their inward limit, whereupon the plate will be rigidly held upon the cylinder through the instrumentality of the pins and lugs as well as the edge clamp 12.

The inner ends of the rods 15 are equipped with blocks 21 provided with clip members 22 having beveled faces as shown for engagement with the inner edges of the printing plate 9. In instances where two or more plates are arranged in longitudinal series upon the roll or cylinder, the block 21 is provided with double bevel faces to engage edges of adjacent printing plates, while rods 15 will be extended throughout the length of the cylinder and provided with travelers and locking pins to engage in clamping action with the apertured lugs of the next adjacent plate or plates.

From the foregoing it is apparent that I have provided means of extremely simple nature for additionally securing the printing plates to the cylinder, yet the construction is such as to insure a proper and rigid holding of the plate to the cylinder notwithstanding high rotational speed of the printing roll. The parts of the improved device are so constructed and operated in such manner as to insure positive action and also to minimize the opportunity for wear, breakage and derangement.

Having thus described my invention, I claim:—

1. In a printing press, a type roll having a recess in its periphery, a plate, lugs on said plate projecting into said recess, a clamp member to engage an edge of said plate, means for moving said clamp, and pins in said recess movable by said clamp to engage with said lugs.

2. In a printing press, a type roll having a recess in its periphery, a plate to rest upon said roll, a traveler in said recess, interengaging locking means on said traveler and said plate, a clamp member on said roll to engage an edge of said plate, means for moving said clamp, and a connection between said clamp and said locking means.

3. In a printing press, a type roll having a recess in its periphery, a plate to rest upon said roll, clamp members on said roll to engage the edges of said plate, interengaging locking members disposed in said recess intermediate the ends of the plate, and means for simultaneously operating said clamp and locking members.

4. In a printing press, a type roll, a plate to rest upon said roll, clamp members on said roll to engage the ends of said plate, cooperating locking members carried by said plate and roll between the ends of the latter, and means for operating said clamp and locking members simultaneously.

5. In a printing press, a type roll, a plate to rest upon said roll, clamp members on said roll to engage the ends of said plate, cooperating locking members carried by said plate and roll inwardly from the ends thereof, a screw member disposed longitudinally of said roll and operable from an end thereof, and means governed by rotation of said screw member for operating said clamp and locking members simultaneously.

6. In a printing press, a roll having a recess in its periphery, a plate to rest upon said roll, a

lug on said plate disposed in said recess, a rod movable longitudinally of said roll in said recess, and a pin carried by said rod and movable relative thereto for locking engagement with said lug.

7. In a printing press, a roll having a recess in its periphery, a plate to rest upon said roll, a lug on said plate disposed in said recess, a traveler in said recess, a pin slidable in said traveler and adapted to cooperate with said lug in locking engagement, a spring normally maintaining said pin in locked position, and a rod movable longitudinally in said roll and operatively connected with said traveler.

8. In a printing press, a roll having a recess disposed longitudinally in its periphery, a plate to rest upon said roll, apertured lugs on said plate projecting into said recess, clamp members on said roll to engage with the ends of said plate, travelers in said recess, a pin slidable in each traveler, a spring on each traveler normally holding its pin projected, a screw rod in said roll to operate said clamp members, and a connection between said clamp members and said travelers.

9. In a printing press, a roll, a plate to rest upon said roll, a clamp member at an end of said roll, means for moving said clamp member axially of said roll, travelers in said roll movable axially thereof, cooperating locking members on said travelers and plate, and a connection between said clamp member and said travelers.

10. In a printing press, a roll having longitudinal recesses in its periphery, a plate to rest upon said roll, lugs on said plate disposed in said recesses, a clamp member on said roll to engage the end of said plate, a rod in each of said recesses and connected to said clamp member and means secured to said rods for interlocking engagement with said lugs when the clamp is moved in one direction.

11. In a printing press, a roll, a plate for engagement with said roll, elements on said roll and plate to engage with each other to lock the plate to the roll, a clamp member on the roll to engage the plate, and means operable upon movement of the said clamp member in one direction to engage said elements.

12. In a printing press, a roll having a recess in its periphery, a plate to rest upon said roll, a lug on said plate disposed in said recess, a rod movable longitudinally in said recess, a pin movable in said recess disposed substantially parallel with said rod and adapted to engage with said lug, and a connection between said rod and said pin.

13. In a printing press, a roll, a plate for engagement therewith, a lug on said plate, a traveler in said roll, a pin slidably carried by said traveler and adapted to engage with said lug, a spring forcing said pin toward said lug, and means for moving said traveler.

14. In a printing press, a roll, a printing plate for engagement with said roll, said plate having a recess, a pin yieldably carried by said roll and adapted to move into or out of said recess, and means for moving said pin.

15. In a printing press, a roll, a printing plate for engagement with said roll, a traveler carried by said roll, said plate being provided with a recess, a pin slidably carried by said traveler and adapted to move into or out of said recess upon movement of said traveler, and means for moving said traveler.

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