G. B. GAVIN.

PRINTING DEVICE.

APPLICATION FILED AUG. 12, 1915.

1,158,478.

Patented Nov. 2, 1915.

2 SHEETS—SHEET 1.

Fig. 1

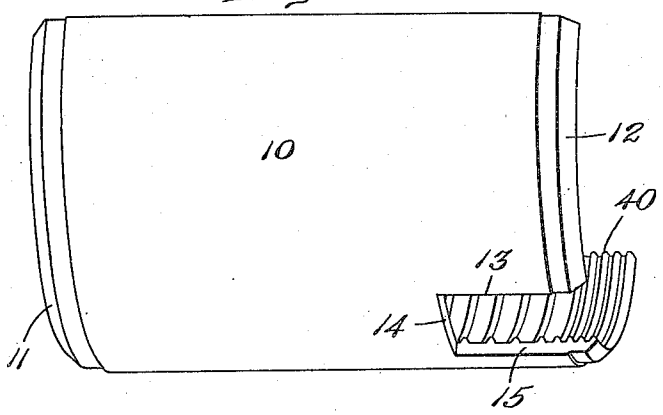


Fig. 4

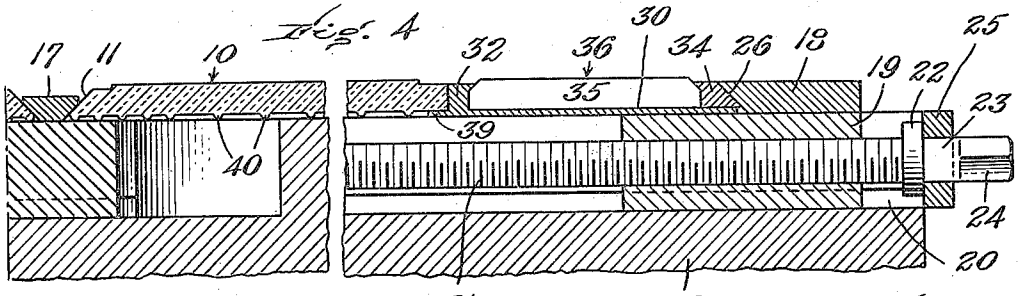


Fig. 2

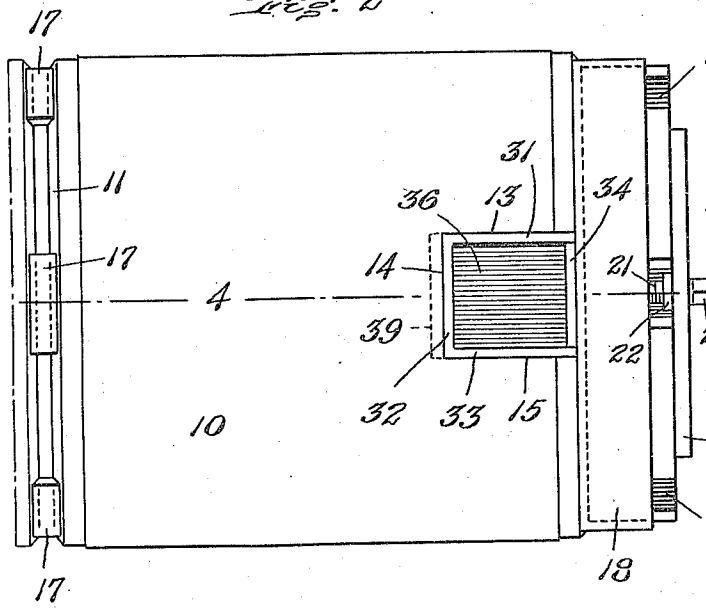
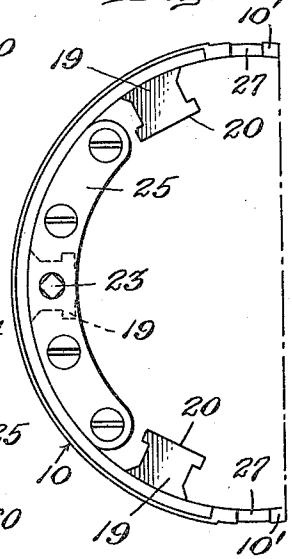


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 5

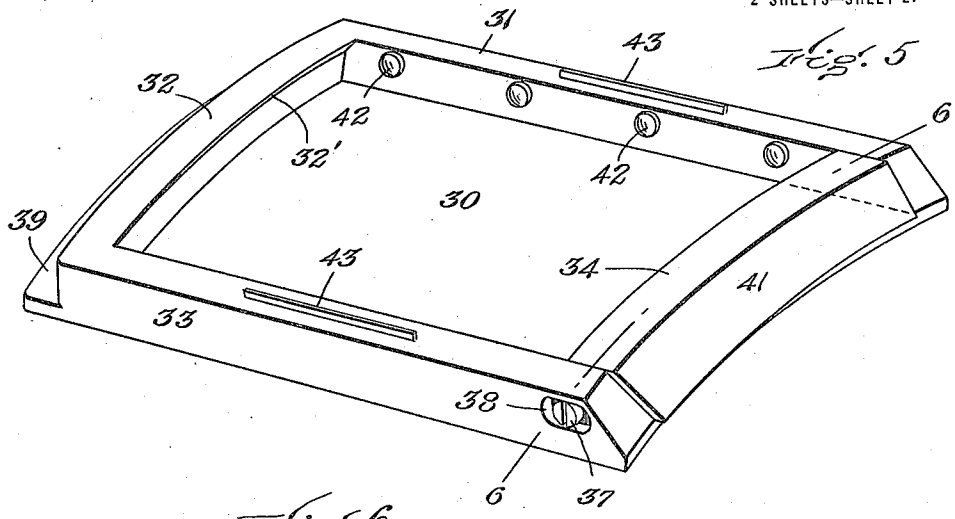


Fig. 6

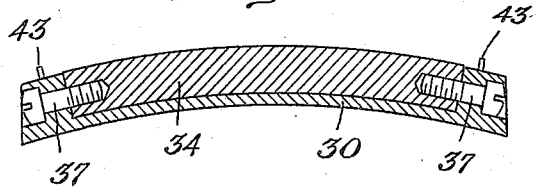


Fig. 9

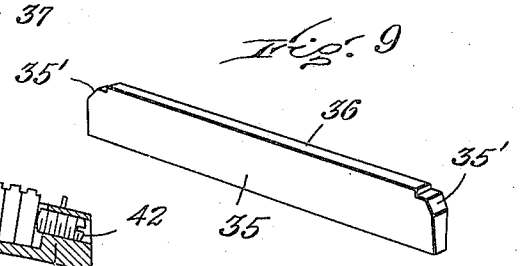


Fig. 7

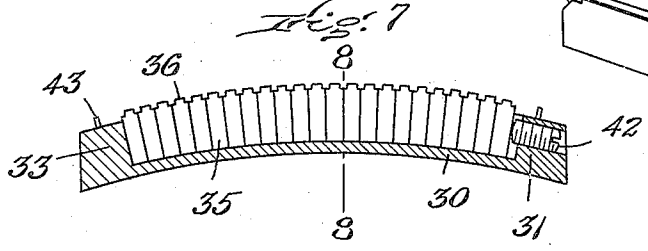
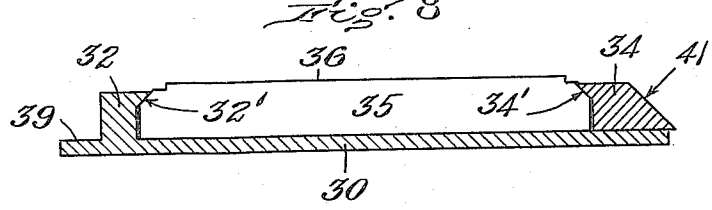


Fig. 8



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UNITED STATES PATENT OFFICE.

GEORGE B. GAVIN, OF BRAINTREE, MASSACHUSETTS.

PRINTING DEVICE.

1,158,478. Specification of Letters Patent. Patented Nov. 2, 1915.

Application filed August 12, 1915. Serial No. 45,121.

To all whom it may concern:

Be it known that I, GEORGE B. GAVIN, a citizen of the United States, and resident of Braintree, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Printing Devices, of which the following is a specification.

The object of the present invention is to provide a printing device adapted to be used in conjunction with a stereotype plate, for printing late despatches or news items in a newspaper without disturbing the stereotype plate by which the body of the page is printed.

There have been a great many printing devices devised for printing late despatches or other special items in a newspaper, with a view to saving time, and, so far as I am aware, they have all required special means for attaching them to the bed of the printing machine.

My present invention involves what I believe is a new combination, in that the element which is used to print the late despatch or special item is attached to the bed of the printing machine by the same means which is used to attach the stereotype plate to said bed, the equipment of the bed as to its attaching devices being no more complicated or cumbersome for the two purposes than for the sole purpose of fastening the stereotype plate.

Another feature of my invention which I believe is new is that the type which is used to print the late despatch or special news item is held in its holder by the aforesaid means which fastens the stereotype plate to the bed of the printing machine. The holder for the special type comprises a type bed having walls forming a type inclosure. One of the said walls is movable and coacts with the opposite wall to clamp the type which is interposed between them. The movable wall is arranged to be engaged and moved by an undercut clamping device carried by the bed of the printing machine, and when the stereotype plate and the special type holder are arranged upon the bed of the printing machine and the said undercut member is set up to engage the movable wall of the type holder, such action accomplishes five results, viz.: (1) It causes clamping action of the type-engaging walls of the type holder; (2) it clamps the type holder against the bed of the printing machine; (3) it holds the special type holder in interlocked relation with the stereotype plate; (4) it acts through the special type holder to force the inner edge of the stereotype plate against an undercut plate-holding device carried by the bed of the printing machine; and (5) it moves into overlapping relation with the outer edge of the stereotype plate to retain said outer edge against the bed of the printing machine.

Of the accompanying drawings, which illustrate one form in which the invention may be embodied: Figure 1 represents a perspective view of a substantially semi-cylindrical stereotype plate, the form of which is well known excepting the recess which is formed therein. Fig. 2 represents an elevation including the bed or cylinder of a rotary printing machine, a stereotype plate such as that shown in Fig. 1 arranged on said bed or cylinder, a special type holder arranged on said bed or cylinder in the recess of said stereotype plate, and means carried by the bed or cylinder for holding the stereotype plate and special type holder in place thereon. Fig. 3 represents an end elevation of a portion of the rotary bed or cylinder and other elements included in Fig. 2. Fig. 4 represents a sectional view, on a larger scale and partly broken away, of the structure intersected by line 4—4 of Fig. 2. Fig. 5 represents a perspective view of the special type holder, omitting the type. Fig. 6 represents a sectional view through the type holder in the plane indicated by line 6—6 of Fig. 5. Fig. 7 represents a sectional view through the type holder in a plane intersecting the type inclosure, and includes a plurality of type members arranged therein. Fig. 8 represents a sectional view through the type holder in the plane indicated by line 8—8 of Fig. 7, and includes one of the type members in elevation. Fig. 9 represents a perspective view of a linotype member such as those included in Figs. 2, 4, 7 and 8.

The same reference characters indicate the same parts wherever they occur.

The stereotype plate shown by Fig. 1 is intended to print the body of a page of a newspaper or other publication. Inasmuch as this plate is intended to be used in a rotary printing machine, it is substantially semi-cylindrical in form, its circumferential length being slightly less than 180 degrees

of a circle in order to allow sufficient space for margin bars. The impression surface of the stereotype plate is shown conventionally at 10, no attempt having been made to indicate the type characters. The end surfaces 11 and 12 are beveled for the purpose of coacting with undercut holding devices (hereinafter described) carried by the bed of the printing machine. The stereotype plate, as thus far described, is well known and has been in use for some years.

In order to be able to print special matter in the body of a page as printed by the stereotype plate, I cut a recess in said plate as shown by Fig. 1, the recess-forming surfaces being indicated at 13, 14 and 15. The surfaces 13 and 15 extend from the surface 14 to one end of the plate. The special type is arranged in a holder which is a counterpart of the recess formed in the stereotype plate. Before describing the special type holder I will describe the means for locking the stereotype plate to the bed or cylinder of a printing machine.

The bed or cylinder is indicated at 16. It carries a plurality of undercut members 17 arranged to overlap the surface 11 of the sterectype plate as shown by Figs. 2 and 4. A curved bar 18 is carried by a plurality of sliding blocks 19, said blocks being arranged to slide lengthwise of the cylinder in guides 20 formed in the cylinder. One of the blocks 19 is bored and tapped for cooperation with a screw 21. The function of the screw is to move the bar 18 toward the members 17 to lock the stereotype plate and the special type holder (hereinafter described) to the cylinder. For this purpose the screw 21 is provided with a collar 22, and with an extension 23 provided with angular surfaces 24 adapted to receive a wrench or other implement whereby the screw may be turned. The extension 23 projects through a strip 25 which is affixed to the end of the cylinder. The collar 22 abuts against the inner surface of the strip 25, said strip thereby serving as the abutment against which the screw works to move the bar 18 toward the devices 17. Preparatory to arranging the stereotype plate upon the cylinder, the bar 18 is retracted. When the plate has been placed upon the cylinder it may be locked in place by turning the screw 21 to move the bar 18 toward the members 17. As shown by Figs. 2 and 4, the inner surface 26 of the bar 18 is undercut so that it will overlap the beveled surface 12 of the plate. Consequently, when the bar 18 is set up as shown by Figs. 2 and 4, the undercut portions of the members 17 and 18 overlap the ends of the plate and lock the plate to the cylinder. If the bar 18 is set up with sufficient force, the undercut members may be brought to bear against the surfaces 11 and 12 of the plate with pressure to clamp the plate against the cylinder, the clamping action in such case being due to the inclination of the contacting surfaces of the plate and its holding members. My invention, however, is not limited to an inclined arrangement of the overlapping portions of the members 17 and 18 nor to the beveled formation of the surfaces 11 and 12 of the plate. So far as said overlapping portions are concerned, it is only necessary that they keep the plate in contact with the cylinder, or substantially so, while the cylinder is rotating.

Fig. 3 includes two margin bars 27, 27 arranged respectively at the top and bottom of the cylinder and affixed to the latter. The cylinder in this case is intended to carry a plurality of stereotype plates, and Fig. 3 shows two fragments 10′, 10′ of one such plate in addition to a complete plate. The margin bars hold the stereotype plates against circumferential movement, while the members 17 and 18 hold the plates against movement parallel to the axis of the cylinder, and also, because of their overlapping formation, they lock the plates against radial movement away from the cylinder.

The special type holder comprises a type bed 30, and four walls, 31, 32, 33 and 34, which form a type inclosure. This holder may take various forms of type, but I have shown only one form, namely, the linotype form. A linotype member 35 is shown separately by Fig. 9, and a plurality of such members is included in Figs. 2 and 7. The impression surface of the type is indicated conventionally at 36, no attempt having been made to indicate the type characters. The walls 31, 32 and 33 of the type holder are fixed, but the wall 34 is movable toward and from the opposite wall 32. For the purpose of keeping the movable wall 34 permanently though movably attached to the holder, connecting screws 37 are passed through the walls 31 and 33 and anchored in the ends of the wall 34. The walls 31 and 33 are provided with slots such as that indicated at 38 in Fig. 5, which permit the aforesaid movement of the wall 34.

The outer surfaces of the walls 31, 32 and 33 are formed to engage respectively the recess-forming surfaces 13, 14 and 15 of the stereotype plate, Fig. 2 showing the type holder arranged in and filling the recess of the plate. When the plate and type holder are attached to the cylinder, the type holder is seated directly upon the cylinder, as shown by Fig. 4. A lip 39 formed upon the type holder is arranged to underlie the stereotype plate at the inner end of the recess as shown by Figs. 2 and 4, the plate thus serving, in conjunction with other means, to lock the type holder upon the cylinder. The necessary space between the body of the stereotype plate and the cylinder, for the

reception of the lip 39, is provided by ribs 40 which are formed upon the interior of the plate.

The same bar 18 which locks the stereotype plate to the cylinder also locks the type holder to the cylinder and locks the type in the type holder. The outer surface 41 of the movable wall 34 is beveled so as to be overlapped by the undercut surface 26 of the locking bar 18. Consequently, when the locking bar is set up tightly it produces (1) a clamping action of the walls 34 and 32 to clamp type 35, (2) a clamping action in conjunction with the cylinder to clamp one end of the type holder to the cylinder, (3) an interlocking action as between the type holder and the stereotype plate, due to the lip 39, (4) a clamping action as between the members 17 and the cylinder to clamp the inner end of the stereotype plate against the cylinder, and (5) a locking action with reference to the outer end of the stereotype plate, due to the overlapping arrangement of the undercut surfaces 26 relatively to the beveled surface 12.

It will be observed that Figs. 4, 5 and 8 show the movable wall 34 projecting beyond the right hand end of the bed 30 of the type holder. In the course of setting up the bar 18 the latter will engage the surface 41, but will not necessarily engage any other surface of the type holder nor the surface 12 of the stereotype plate. It is thus assured that the type members 35 in the type holder will be firmly clamped and that the type holder as a whole will be forced against the surface 14 of the plate and that the inner end of the plate will be forced against the overlapping members 17. Whether the surface 26 of the bar 18 actually touches the surface 12 of the plate, is of minor consideration, because there will necessarily be an overlapping of the surface 12 by the surface 26 sufficient to lock the outer end of the plate to the cylinder, so that the outer marginal portions of the plate will be held against excessive radial movement away from the axis of the cylinder in consequence of centrifugal force while the cylinder is rotating.

The walls 32 and 34 of the type holder are provided with undercut lips or flanges, the undercut surfaces of which are indicated at 32′ and 34′ in Fig. 8. These surfaces coact with inclined surfaces 35′ formed upon the type members 35, and consequently, when the movable wall 34 is brought to bear against the type members with sufficient force to clamp them, there will be two distinct clamping actions, one of which will take up end shake of the type members and the other of which will depress the type members against the type bed 30 in consequence of the wedging action of the surfaces 32′ and 34′.

As shown by Figs. 5 and 7, the wall 31 of the type holder is provided with a plurality of set screws 42 arranged to engage one of the type members 35 at the end of the series to take up side shake of the type members. As shown by Figs. 7 and 9, the type members are made wedge shaped, so that their arrangement in the type holder will readily conform to the curvature of the type holder. The flanges 43 formed upon the walls 31 and 33 are intended to make rule impressions on the paper to set off the special printed matter from the body of the page.

The means which I have described for locking the stereotype plate to the cylinder was not invented by me. It is my invention, however, to combine a type holder with a bed, a stereotype plate, and plate-locking means, in such manner that said plate-locking means will do any one of the following additional things, viz., lock the type holder to the bed, lock the type holder in interlocked relation with the stereotype plate, lock a type member in the type holder; or in such manner that the type holder will be instrumental in locking the stereotype plate to the bed; and I desire to claim such combination, in its several aspects, in the broadest possible legal scope.

I believe the combination of a rotary bed and a stereotype plate and a type holder arranged thereon to print simultaneously is broadly new irrespective of interlocking portions of the plate and holder, and I claim this combination in its broadest possible legal scope.

I claim:

1. In combination, a bed, a stereotype plate arranged thereon, a type holder arranged on said bed, and clamping means carried by said bed and arranged to force said plate and type holder against each other, said means including an undercut member arranged to overlap said plate and said holder to hold the two latter against said bed.

2. In combination, a bed, a stereotype plate arranged thereon, a type holder arranged on said bed, said plate and holder having interlocking portions adapted to be disengaged, and clamping means carried by said bed and arranged to force said plate and type holder against each other, said means including coöperative undercut members arranged to overlap opposite edges of said plate, one of said undercut members being arranged to overlap one edge of said holder, said undercut members being arranged to keep said plate and holder against said bed and to keep said interlocking portions interlocked.

3. In combination, a bed, a stereotype plate arranged thereon, an undercut member carried by said bed and arranged to overlap one edge of said plate, a type holder arranged on said bed to engage an opposite edge of said plate, and means carried by

said bed and arranged to engage said holder to keep the latter against said bed, said means acting through said holder to keep the first said edge of said plate against said undercut member.

4. In combination, a bed, a stereotype plate arranged thereon, an undercut member carried by said bed and arranged to overlap one edge of said plate, a type holder arranged on said bed to engage an opposite edge of said plate, type arranged in said holder, said holder comprising two relatively movable type-engaging members arranged to clamp the type between them, and means carried by said bed and arranged to engage one of said type-engaging members to force the latter one toward said undercut member, whereby said type-engaging members are caused to clamp said type, and whereby said holder is caused to keep the first said edge of said plate against said undercut member.

5. In combination, a bed, a stereotype plate arranged thereon, said plate having a recess, a type holder arranged on said bed in said recess, and coöperative clamping devices carried by said bed at opposite edges of said plate and arranged to clamp said plate to said bed, one of said clamping devices being arranged to engage said holder to clamp the latter against said bed.

6. In combination, a bed, two coöperative holding members carried by said bed, one of said holding members being movable toward and from the other, a stereotype plate arranged on said bed between said holding members, said holding members having undercut edges arranged to overlap opposite edges of said plate to keep said plate against said bed, said plate having a recess extending to one of said opposite edges, a type holder arranged on said bed in said recess, said type holder having an edge arranged to be overlapped by one of said undercut edges of one of said holding members, the opposite edge of said type holder being arranged to engage said plate at the inner end of said recess, and means carried by said bed and arranged to move said movable holding member toward the other one of said holding members.

7. In combination, a bed, a stereotype plate arranged on said bed, a member carried by said bed and having an undercut portion arranged to overlap one edge of said plate to hold said edge against said bed, said plate having a recess extending to its opposite edge, a type holder arranged on said bed in said recess, a movable member carried by said bed and having an undercut portion arranged to overlap the outer edge of said type holder to hold the latter against said bed, said movable member having undercut portions arranged to overlap said opposite edge of said plate to keep the latter against said bed, and means carried by said bed and arranged to move said movable member toward the first said member.

8. In combination, a stereotype plate having a recess, and a type holder formed to enter said recess from the impression surface of said plate, said type holder having a projection arranged to go under said plate.

9. In combination, a stereotype plate having a recess extending to one edge, and a type holder formed to enter said recess from the impression surface of said plate, and having surfaces arranged to abut the recess-forming surfaces of said plate at the inner end and at opposite sides of said recess, said holder having a projection arranged to go under said plate.

10. In combination, a bed, a stereotype plate arranged thereon, said plate having bed-engaging ribs or projections whereby the body of said plate is held away from said bed, said plate having a recess, and a type holder arranged on said bed in said recess, said type holder having a projection arranged to lie between said bed and said body of said plate.

11. In combination, a bed, a stereotype plate arranged thereon, said plate having bed-engaging ribs or projections whereby the body of said plate is held away from said bed, said plate having a recess, a type holder arranged on said bed in said recess, said type holder having a projection arranged to lie between said bed and said body of said plate, and means carried by said bed and arranged to engage said plate and type holder to lock the two latter to said bed.

12. In combination, a bed, a type holder arranged thereon, and means carried by said bed and arranged to lock said holder to said bed, said holder comprising relatively movable elements arranged to clamp type between them, said means including relatively movable members arranged to cause type-clamping action of said type clamping elements.

13. In combination, a bed, a type holder arranged thereon, said holder including relatively movable type-engaging elements having projections arranged to overlap the type to lock the latter in said holder, and means carried by said bed and arranged to keep said type-engaging elements in type-locking position and to lock said holder to said bed.

14. In combination, a bed, a stereotype plate arranged thereon, means carried by said bed and arranged to lock said plate to said bed, and a printing device arranged to be held against said bed by said plate and means conjointly.

15. The combination with a rotary bed of a printing machine, of a stereotype plate having a recess, means arranged to lock said plate to said bed, a type holder formed to enter said recess by movement toward the

axis of said bed, said type holder having a projection arranged to be moved under an edge of said plate defining said recess, said means being arranged to engage said type holder to keep said projection under said plate.

16. The combination with a rotary bed of a printing machine, of a stereotype plate having a recess, means arranged to lock said plate to said bed, a type holder formed to enter said recess by movement toward the axis of said bed, said type holder having a projection arranged to be moved under an edge of said plate defining said recess, said type holder including relatively movable type-engaging members arranged to clamp the type mounted therebetween, said means being arranged to engage one of said type-engaging members to cause clamping action thereof and to keep said projection under said plate.

In testimony whereof I have affixed my signature.

GEORGE B. GAVIN.

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