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J. J. HALLIWELL

STEREOTYPE PLATE

Filed Dec. 14, 1926

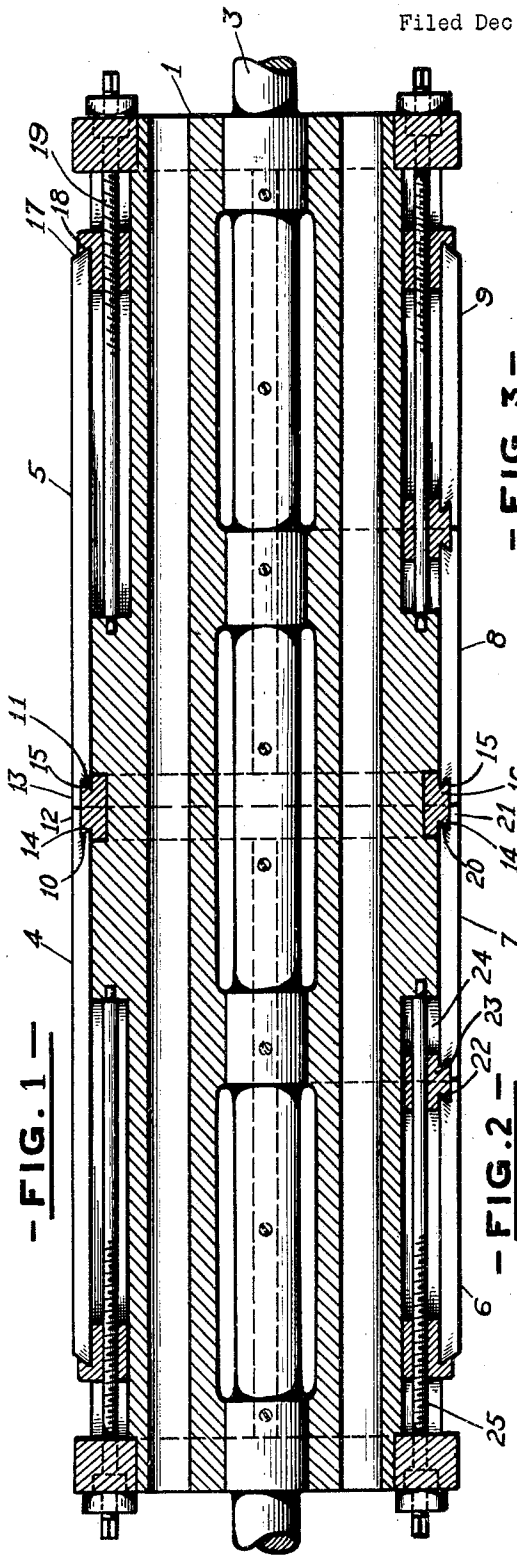


FIG. 1.

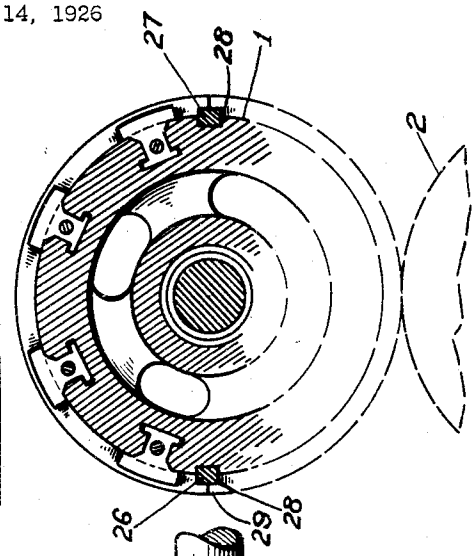


FIG. 3.

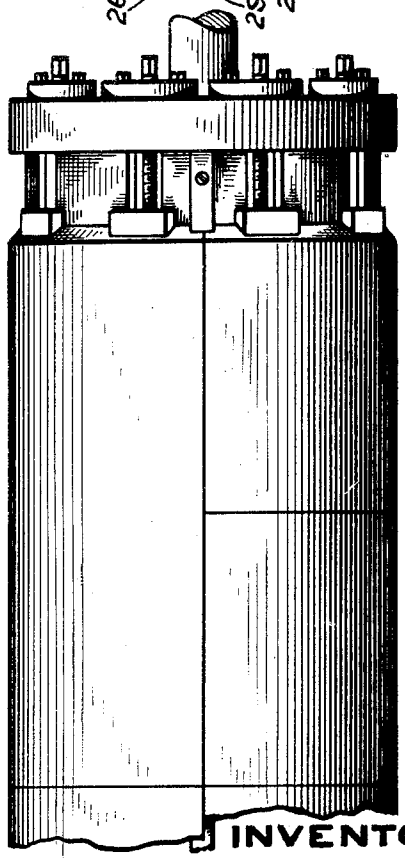


FIG. 2.

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ATTYS.

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UNITED STATES PATENT OFFICE.

JOHN J. HALLIWELL, OF TUCKAHOE, NEW YORK, ASSIGNOR TO R. HOE & CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

STEREOTYPE PLATE.

Application filed December 14, 1926. Serial No. 154,666.

This invention relates to certain improvements in printing machines for printing on a web with a continuous pattern.

In printing certain classes of products, it is desirable to have a printing mechanism which will print a continuous pattern, as for instance in printing wrappers for various articles such as bread wrappers, soap wrappers, etc., the usual margin spaces being omitted. It is further desirable in this class of printing that the pattern as a whole or a part of the pattern may be changed without changing the whole printing surface or removing the printing cylinder from the machine.

It is the especial object of the present invention to provide an improved mechanism for printing a continuous pattern on a web in which there is employed an improved arrangement of plates and means for holding the plates in position so that a part of the pattern or all of the pattern may be changed without removing the plate support or without it being necessary to remove the entire printing surface.

A further object of the invention is to provide an improved construction for supporting the plates so that the plates may be readily placed in position and removed therefrom, and one which may be capacitated to carry two printing plates wide or more than two printing plates wide.

With these and other objects not specifically referred to in view, the invention consists in certain novel parts, arrangements and combinations which will be described in connection with the accompanying drawings and the novel features pointed out in the claims hereunto annexed.

In these drawings,—

Figure 1 is a longitudinal sectional view of a plate cylinder showing one embodiment of the invention;

Figure 2 is a partly broken side view of the cylinder shown in Fig. 1, and

Figure 3 is a sectional view, the section being taken on line 3—3 of Fig. 1.

Referring now to these drawings, the invention will include a printing plate support shown in the form of a cylinder 1, with which cooperates an impression cylinder 2, these cylinders being supported on suitable shafts, the shaft of the printing cylinder being shown at 3, which are suitably mounted in proper framing, not shown.

In accordance with the invention, there is provided a plate arrangement for this cylinder in which the plates are so formed and supported on the cylinder as to leave no margin spaces either around the cylinder or widthwise thereof so that these plates will print a continuous pattern. In constructions embodying the invention, furthermore, there will be provided a plurality of these plates so that by removing all the plates from the cylinder the design to be printed may be changed as a whole, or by removing one or more plates any desired part of the design may be changed, thus doing away with the necessity of removing the entire printing surface or removing the entire printing surface from its supporting cylinder. The plates may be of any desired number and may be arranged in various ways on the cylinder. Referring to Figs. 1 and 2, there is shown on the upper half of the drawing a construction in which there are two plates 4, 5 used widthwise of the cylinder, and in the lower half a construction in which four narrower plates 6, 7, 8 and 9 are employed. With this arrangement, it will be seen that the pattern to be printed may be varied within wide limits without removing all the plates from the cylinder, or the entire pattern can be changed by the removal of all the plates and the substitution of others without, however, necessitating the removal of the cylinder.

These plates, it will be observed, are trimmed so that their meeting edges closely abut both widthwise of the cylinder and around the cylinder. In order to support the plates, a novel arrangement of clamping bars is provided, in which the bar projects above the surface of the cylinder a distance less than the thickness of the plate. The plates are all supported in a similar manner, and the support shown for plates 4, 5 is illustrative of the arrangement. As shown, the plates 4, 5 are undercut to form beveled recesses 10, 11 and projecting ledges 12, 13, which are trimmed to closely abut. These are formed, as shown, on the inner edges of the plates, and the beveled recesses 10, 11

receive the beveled sides 14, 15 of a clamp ring 16 arranged centrally of the cylinder, by which the inner edges of the plates are secured to the cylinder. It will be observed that the central ring 16 projects beyond the cylinder a distance less than the thickness of the plate, thus permitting the ledges 12, 13 to overlap on the bar with their adjacent edges abutting. The outer ends of the plates are beveled, as indicated at 17, to receive the usual shouldered plate clip 18, which is operated by means of the usual screw rod 19 to clamp the plates against the clamp ring 16.

This construction will be adopted on the other side of the cylinder where the cylinder is arranged to carry two plates wide and two plates around.

Under some circumstances, it may be desirable to print four plates wide on the cylinder and a construction by which this may be effected is shown in the drawings. As there shown, the cylinder is provided with four plates wide on one half and two plates wide on the other half. It will be understood, however, that this is only illustrative and that the plates may be arranged either two plates wide on both sides of the cylinders or four plates wide on both sides of the cylinder. As shown, referring to the lower half of Fig. 1, the inside edges of the inside plates 7, 8 are provided with undercut shoulders 20, which engage the projections 14, 15 on the clamp ring 16 and with ledges 21, the meeting edges of which abut on top of the bar in the same way as do the inside edges of the plates 4, 5, before referred to. The outer edges of the inner plates 7, 8 and the inner edges of the outer plates 6, 9 are similarly formed. These plates, however, engage projections 22 on sliding clamps 23 which slide in recesses 24 formed in the cylinder walls, the outer edges of the outer plates 6, 9 being engaged and being locked by the usual clips, similar to the clips or clamps 18, before referred to, these latter clamps being operated by the usual screw rods 25. In plating the cylinder with four plates wide, the inner plates are first positioned against the central ring 16, and the outer plates then positioned against the clips 23. When the rods 25 are manipulated, therefore, the outer plates move inwardly, thus clamping all four plates solidly in position on the cylinder.

Means are provided for preventing a movement of the plates around the cylinder, which means may be of various characters. In the particular construction shown, the cylinder has set therein a pair of oppositely disposed straight sided bars 26, 27, which extend lengthwise of the cylinder. These bars, as shown in Fig. 3, project above the surface of the cylinder so as to form a stop for the plates, but project only a portion of the thickness of a plate. The long edges of the plates are formed with straight sided shoulders 28, which engage the bars 26, 27, and with projections or ledges 29, which project over the top of the bars, the adjacent edges of two plates meeting, as shown in Fig. 3.

With this construction, it will be seen that a printing surface has been provided which covers the entire circumference of the cylinder so that a continuous pattern can be printed. Furthermore, with the arrangement of the plates described, all the plates may be removed without removing the cylinder, or any one of plates may be removed for changing the pattern without requiring the remainder of the plates to be removed from the cylinder.

While the invention has been shown and described in its preferred form, it will be understood that certain variations in the arrangement and number of the plates may be employed, and that various constructions may be used for locking the plates in position, so that the invention is not to be restricted to the specific form and arrangement of the parts illustrated and described.

What I claim is:

1. In a printing machine, the combination of a plate cylinder, a clamp bar extending around the cylinder and projecting above the surface thereof less than the thickness of a plate, a plurality of printing plates arranged on the cylinder and provided with adjacent shoulders engaging the bar and with abutting projections beyond the shoulders so as to form a continuous printing surface, and straight sided bars projecting above the cylinder less than the thickness of plate and extending longitudinally of the cylinder for preventing a movement of the plates around the cylinder.

2. In a printing machine, the combination of a plate cylinder, a plurality of printing plates arranged widthwise thereof on one side of the cylinder so that there is no margin space between the plates, a greater number of plates arranged widthwise on the other side of the cylinder so that there is no margin space between the plates, the plates on both sides of the cylinder being arranged so that there is no margin space between the plates longitudinally of the cylinder, and straight sided bars extending longitudinally of the cylinder for preventing peripheral movement of the plates.

3. In a printing machine, the combination of a plate cylinder, a clamp bar extending around the cylinder and projecting above the surface thereof less than the thickness of a plate. a plurality of plates arranged on the cylinder and provided on their short edges with adjacent shoulders engaging the bar

and with abutting projections beyond the shoulders so as to form a continuous printing surface, said plates also being formed on their long edges with straight shoulders and abutting projections extending beyond the shoulders, and straight sided bars projecting above the cylinder less than the thickness of a plate with which the straight shoulders of the plates engage for preventing a movement of the plates around the cylinder.

In testimony whereof, I have hereunto set my hand.

JOHN J. HALLIWELL.