

July 23, 1940.

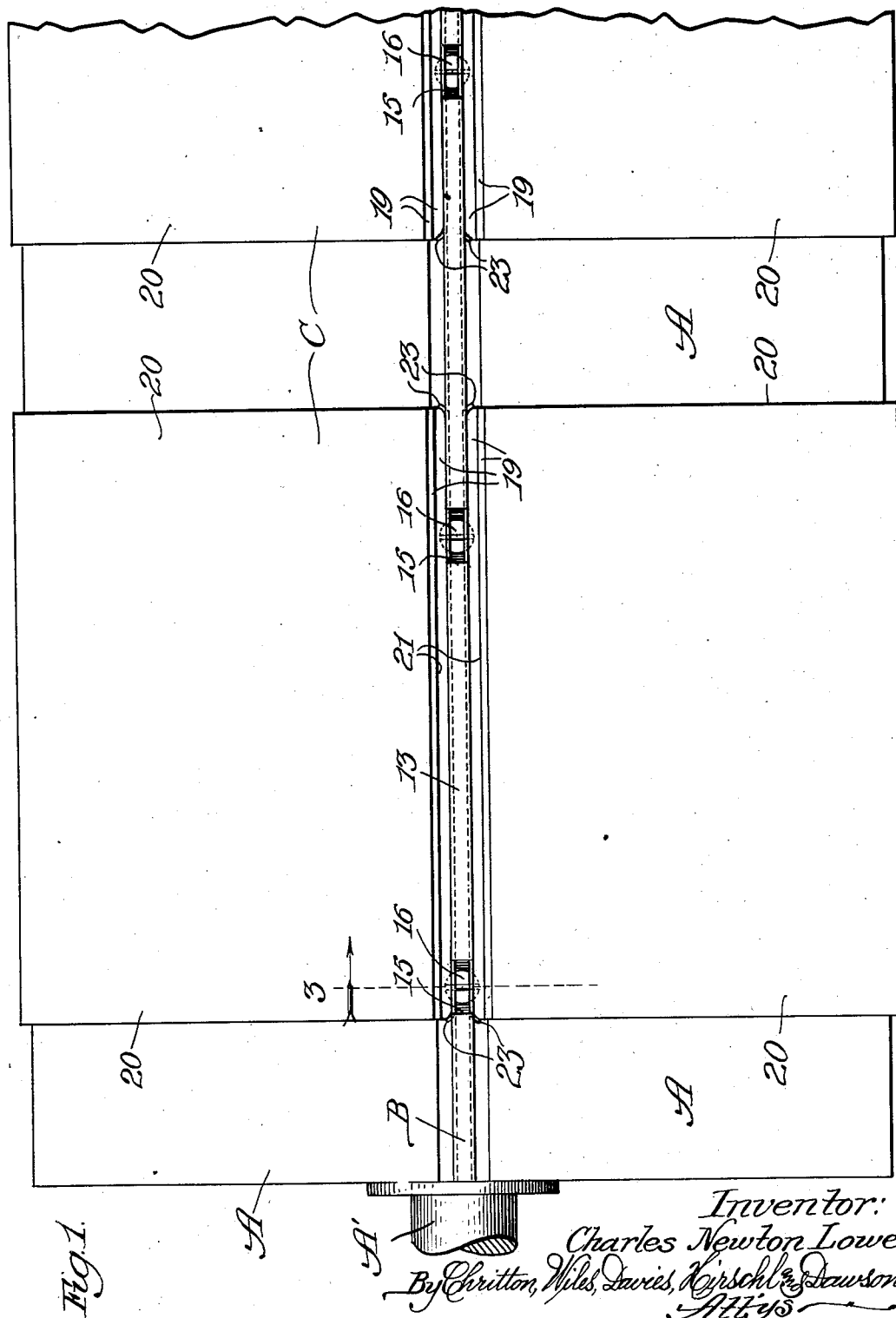
C. N. LOWE

2,209,127

APPARATUS FOR ATTACHING PRINTING PLATES TO A CYLINDER

Filed Dec. 19, 1938

4 Sheets-Sheet 1



July 23, 1940.

C. N. LOWE

2,209,127

APPARATUS FOR ATTACHING PRINTING PLATES TO A CYLINDER

Filed Dec. 19, 1938

4 Sheets-Sheet 2

Fig. 2.

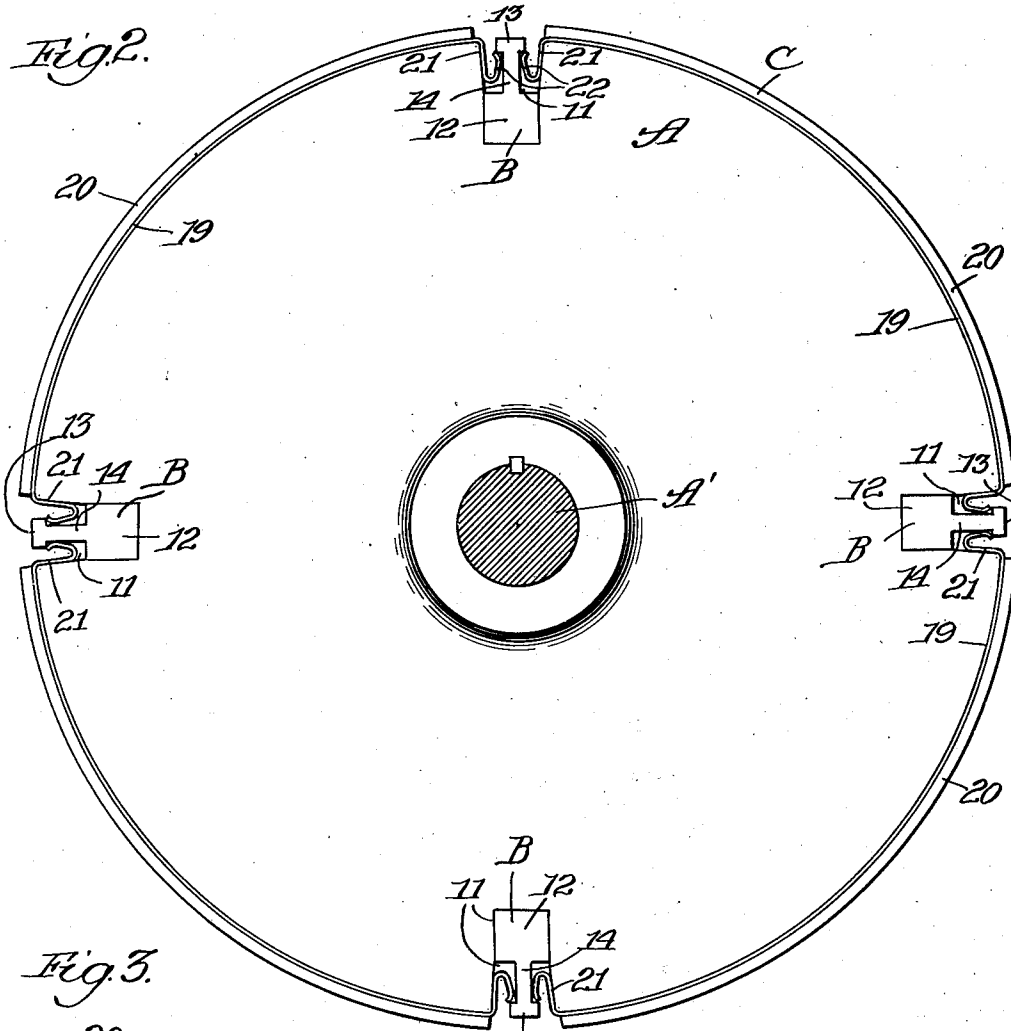
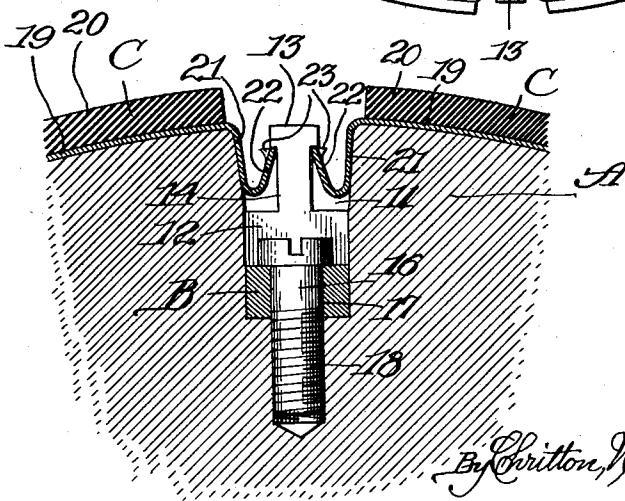


Fig. 3.



Inventor:
Charles Newton Lowe,
By Critton, Wild, Davies, Kirsch & Dawson,
Attys

July 23, 1940.

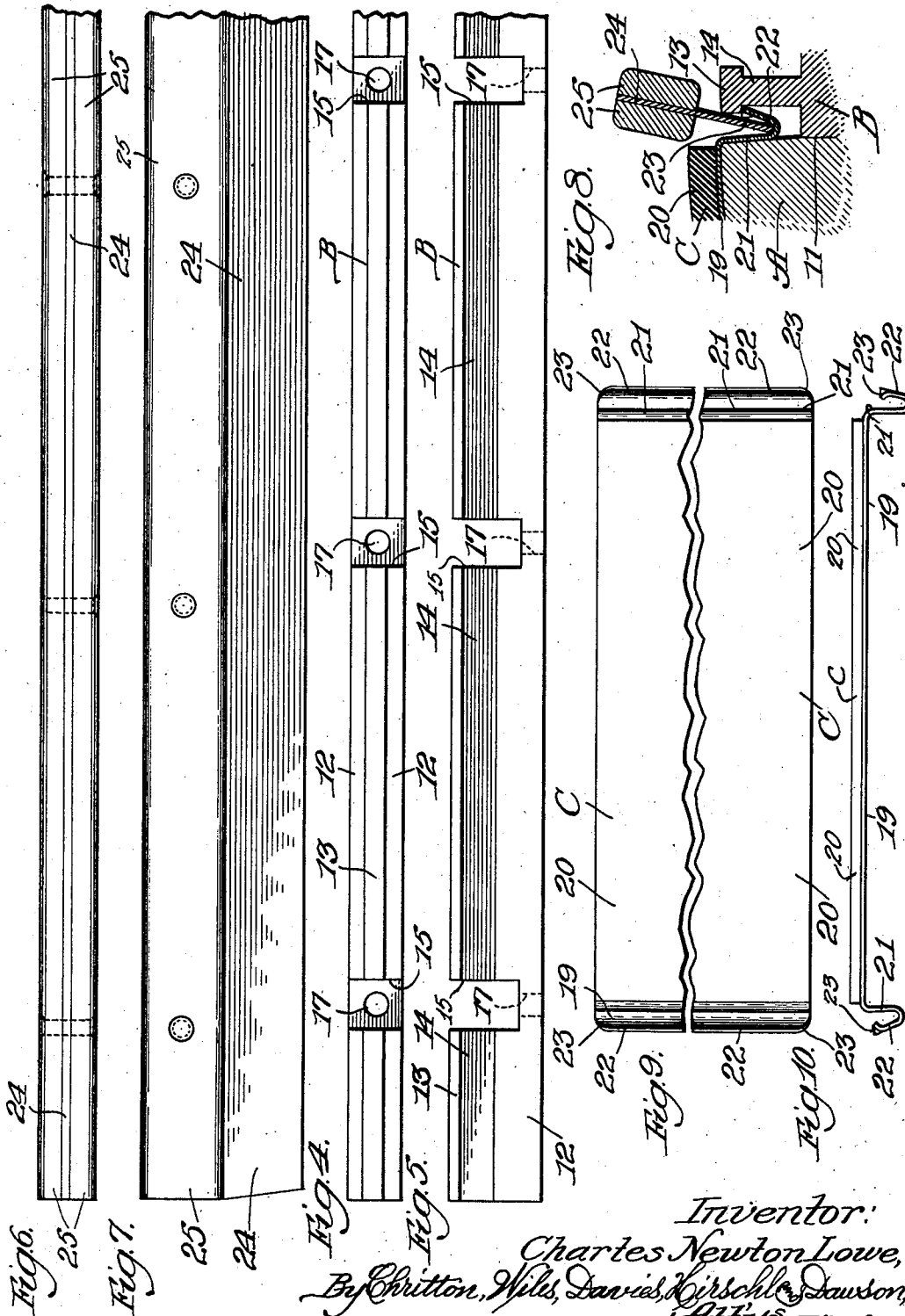
C. N. LOWE

2,209,127

APPARATUS FOR ATTACHING PRINTING PLATES TO A CYLINDER

Filed Dec. 19, 1938

4 Sheets-Sheet 3



July 23, 1940.

C. N. LOWE

2,209,127

APPARATUS FOR ATTACHING PRINTING PLATES TO A CYLINDER

Filed Dec. 19, 1938

4 Sheets-Sheet 4

Fig. 11.

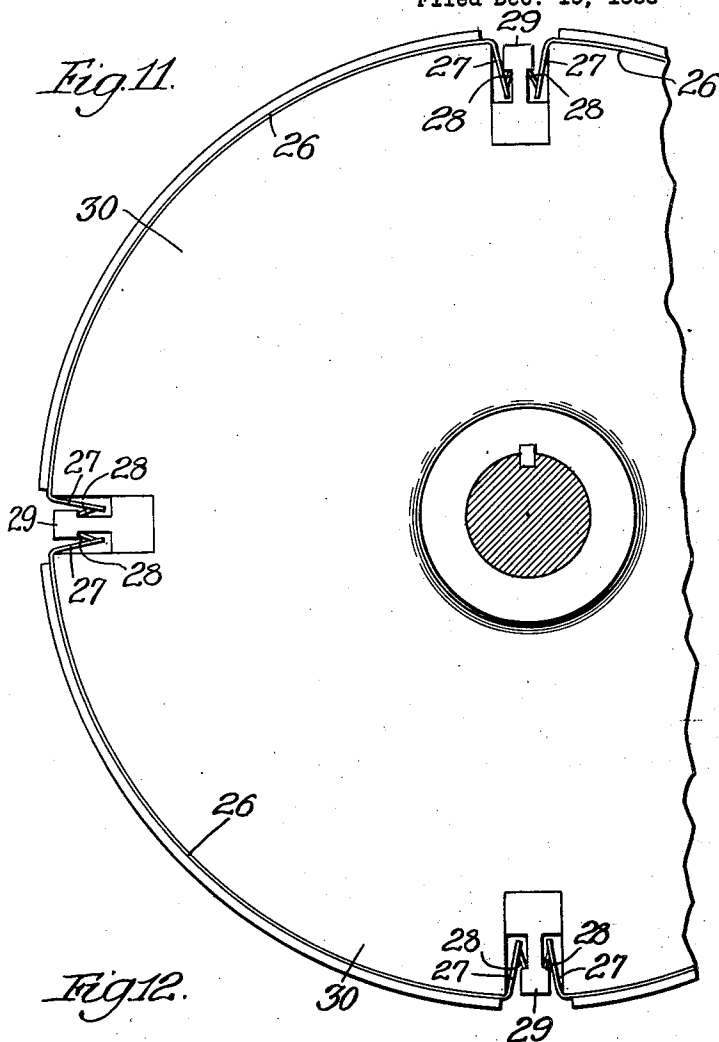


Fig. 13.

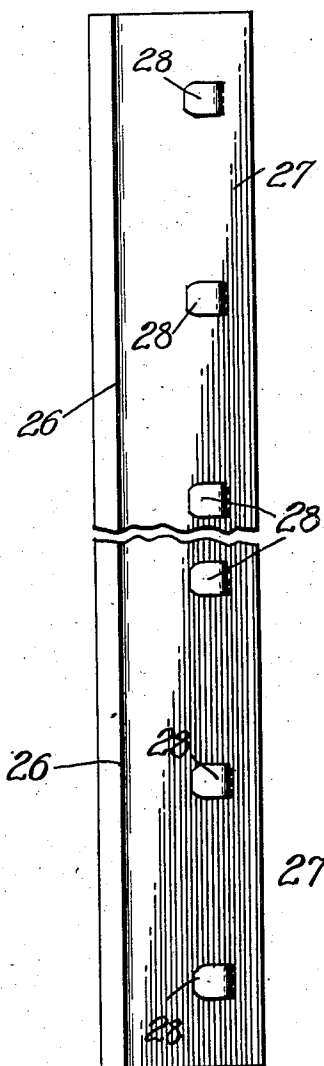
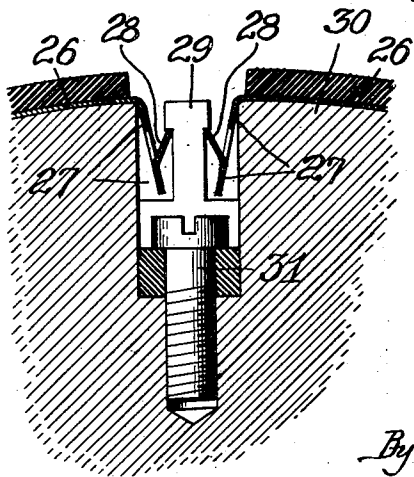


Fig. 12.



Inventor:
Charles Newton Lowe,
By Critton, Hiles, Davies, Kirsch & Dawson,
Attorneys

UNITED STATES PATENT OFFICE

2,209,127

APPARATUS FOR ATTACHING PRINTING
PLATES TO A CYLINDER

Charles Newton Lowe, Cleveland, Ohio, assignor
to United Autographic Register Co., a corpora-
tion of Illinois

Application December 19, 1935, Serial No. 246,686

10 Claims. (Cl. 101—415.1)

This invention relates to improved means for attaching resilient printing plates to a cylinder.

The primary object of the invention is to provide a simple method and apparatus for quickly attaching or detaching flexible printing plates to a printing cylinder of a press, in properly stretched and aligned position without the use of clamping plates, screws, or the like.

The present application is a continuation in part of my patent application Serial No. 160,313, filed August 21, 1937, relating to Apparatus for attaching printing plates to a cylinder.

The invention is illustrated in a preferred embodiment, in the accompanying drawings, in which:

Fig. 1 is a broken plan view of a printing cylinder equipped with printing plates which are attached in accordance with the present invention; Fig. 2, an elevational view of the same; Fig. 3, a fragmentary sectional view, on an enlarged scale, taken as indicated at line 3 of Fig. 1; Fig. 4, a broken plan view of a plate-holding bar; Fig. 5, a broken elevational view of the same; Fig. 6, a broken plan view of a tool used in attaching and detaching the plates; Fig. 7, a broken elevational view of the same; Fig. 8, an enlarged fragmentary sectional view showing how the end of the printing plate is forced into interlocking relation with the recesses by means of a tool; Fig. 9, a broken plan view of a flexible printing plate; Fig. 10, an end elevational view of the same; Fig. 11, a view similar to Fig. 2 wherein the plates are attached to the printing cylinder by a slightly modified fastening means; Fig. 12, a fragmentary sectional view, on an enlarged scale, of the modified form of fastening for a plate attached to a cylinder; and Fig. 13, a broken end elevational view of the fastening leg illustrated in Figs. 11 and 12.

In the embodiment illustrated in Figs. 1-3, inclusive, A designates a printing cylinder mounted on a shaft A'; B, a plate-holding bar mounted in axial slots provided in the printing cylinder A; and C, a resilient printing plate removably secured to the cylinder.

The printing cylinder may be of any desired size and is shown keyed to the driving shaft A' in the well known manner. In order to have a better understanding of the relative proportion of the various parts, it may be stated that in the embodiment illustrated the cylinder A has a diameter of 8 inches. Its periphery is provided with a series of axially extending slots 11 whose upper side walls are radial of the cylinder to facilitate insertion of the plate-holding bar B. The slots

shown are approximately $\frac{3}{4}$ of an inch in depth and $\frac{3}{8}$ of an inch in width.

The plate-holding bar B has an enlarged base portion 12 adapted to fit snugly in the bottom of the slot 11 and has a T-shaped head portion 13 whose undercuts 14 provide recesses within which ends of the plates may be interlocked. Preferably, the bars have cut-away portions 15 to provide space for the heads of machine screws 16 which extend through apertures 17 into tapped holes 18 provided in the cylinder. In making up the cylinder the plate-holding members are secured in the slots and the top of the heads are ground in place so as to form segments in the peripheral line of the cylinder. Thus if a printing plate of double length is used, it may bridge the slot and receive proper support from the otherwise unused plate-holding member.

The printing plate C comprises a resilient metallic mounting plate of sheet metal 19, preferably brass, of approximately $\frac{1}{4}$ of an inch in thickness. A rubber compression surface 20, approximately $\frac{1}{8}$ of an inch in thickness, is vulcanized to the top face of the metal. The end portions of the plate are bent downwardly and upwardly so that the legs 21 and 22 form an angle of approximately 30° . The upwardly extending leg 22 is shorter than the leg 21 so that it may properly interlock beneath the head 13. As will be readily apparent the plates must be accurately made to fit the spacing of the plate-holding members. Preferably, the corner portions of the legs 22 are bent inwardly, as indicated at 23, to facilitate insertion of a tool.

In Figs. 6, 7, and 8 is shown a hand tool which is very useful in mounting and dismounting the plates. It comprises a thin blade 24 of spring steel, approximately $\frac{1}{4}$ of an inch in thickness, and has a suitable wooden handle 25.

In order to mount one of the plates on the cylinder it is merely necessary to insert the blade 24 in one of the V-shaped end portions of the plate and force it into one of the recesses 14. The end portion of the plate is sufficiently resilient to permit this movement and will form an interlocking connection with the recess. The plate is then bent around the cylinder and the opposite end forced into the proper recess by means of the blade. This results in interlocking connection with both ends and the plate will not become loose when the printing device is operating. When it is desired to remove the plate, the blade 24 is inserted between the intumed corner 23 and the side wall of the plate-holding member so that the blade may be slid along

between the leg 22 and the bar. This action will enable the plate to be lifted out of the slot and the opposite end may be disconnected in the same manner.

In Figs. 11, 12, and 13 is illustrated a modified form of fastening device which has been found thoroughly satisfactory in operation. In this form, metallic mounting plates 26 are provided at their opposite end portions with a downwardly extending leg 27 from which are struck offset upwardly extending legs 28 which are resilient and biased so as to engage under the head 29 of the plate-holding bar which is secured to the cylinder 30 by means of screws 31.

One advantage of the modified construction is in the fact that less clearance is required between the head 29 and the side walls of the slot in the cylinder, to permit insertion of the fastening leg. This enables more of the periphery of the cylinder to be utilized as a printing surface. In attaching a plate of this character the leg 27 is forced down into the slot, and, in the same manner as with the first described type of fastener, the plates 26 are tensioned and drawn tightly about the cylinder. To remove the plates, the nose of a tool is inserted to force the arms 28 from beneath the overhanging shoulder of the head 29.

As indicated above, it is essential that the plates accurately fit the spacing of the plate-holding members. In practice it has been found convenient to vulcanize printing plates to metal backing plates before forming the attaching legs on the ends of the backing plate.

As will be readily understood one printing plate may embrace an entire cylinder or a plurality of independent plates may be mounted so as to operate during each revolution of the cylinder. Also, as will be understood by reference to Fig. 1, a lateral series of independent plates may be mounted on the same roll.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

I claim:

1. A printing device comprising: a cylinder provided in its periphery with an axially extending slot affording an undercut recess having an overhanging fixed shoulder; and a resilient printing plate flexed and tensioned about a portion of said cylinder and anchored thereto, at least one end of said plate having a downwardly extending leg provided with an upwardly extending resilient arm adapted to be forced into said slot to snap the upper end of said arm under the lower face of said fixed shoulder and form a locked connection therewith.

2. A device as specified in claim 1, in which a plate-holding bar having an undercut head is removably mounted in the slot to provide the undercut recess and fixed shoulder.

3. A device as specified in claim 1, in which the side walls of the slot are substantially radial of

the cylinder and a plate-holding bar having a T-shaped head is secured in said slot to provide a pair of undercut recesses and fixed shoulders.

4. A device as specified in claim 1, in which a plate-holding bar having an undercut head is mounted in the slot to provide the undercut recess, the top of said head being curved circumferentially of the cylinder and forming a segment of its periphery.

5. A printing device comprising: a cylinder provided in its periphery with an axially disposed slot; a plate-holding bar having a T-shaped head fixed in said slot to provide undercut recesses; and a resilient printing plate flexed and tensioned about said cylinder, the ends of said plate being turned downwardly and upwardly to form V-shaped resilient fastening members adapted to be forced into the recesses and interlock with said head to hold the plate on the cylinder.

6. A device as specified in claim 5, in which the corner portions of the fastening members are biased inwardly to facilitate insertion of the plate removing tool.

7. A device as specified in claim 5, in which the plate-holding bar has sections of its head cut away to facilitate removal of the printing plate and to receive the heads of machine screws which anchor the bar to the cylinder.

8. A printing device comprising: a cylinder provided in its periphery with an axially extending slot affording an undercut recess having an overhanging fixed shoulder; and a resilient printing plate flexed and tensioned about a portion of said cylinder and anchored thereto, at least one end of said plate having a downwardly extending leg which is slotted to provide a plurality of offset, upwardly extending, resilient arms adapted to be forced into said slot to snap the upper ends of said arms under the lower face of said fixed shoulder and form a locked connection therewith.

9. A mounting for printing plates comprising: a thin resilient metallic plate to which a printing plate may be attached, said plate having on its opposite end portions beneath the face of the plate, a downwardly extending leg provided with an upwardly extending, resilient arm adapted to be forced into a slot in a printing cylinder and be snapped beneath an overhanging fixed shoulder in said slot so as to tension the plate around the cylinder and interlock it thereto.

10. A mounting for printing plates comprising: a thin resilient metallic plate to which a printing plate may be attached, said plate having its opposite end portions bent sharply downwardly and upwardly to form resilient V-shaped fasteners having a free continuous resilient lip disposed beneath the face of the plate and adapted to snap beneath overhanging fixed shoulders in axially extending slots provided in a printing cylinder, a corner portion of said resilient lips being biased inwardly to facilitate insertion of a tool between the lips and overhanging fixed shoulders.

CHARLES NEWTON LOWE.