(No Model.) 2 Sheets—Sheet 1.

S. D. TUCKER.

STEREOTYPE PLATE HOLDER FOR CYLINDER PRINTING MACHINES.

No. 568,054. Patented Sept. 22, 1896.

Fig. 2.

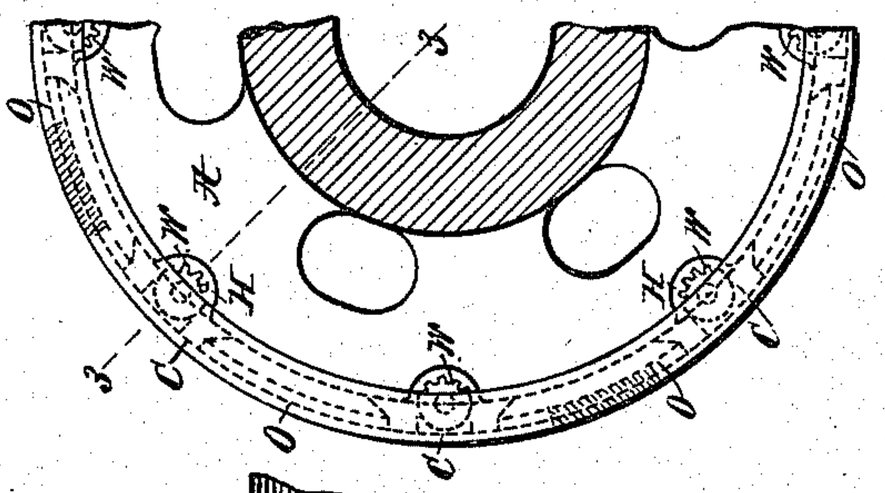


Fig. 3.

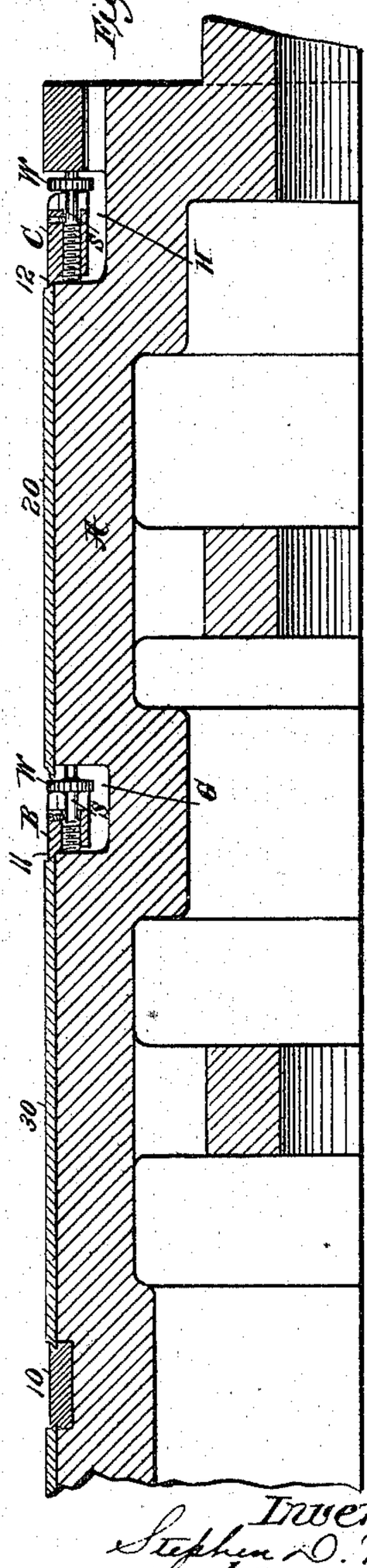
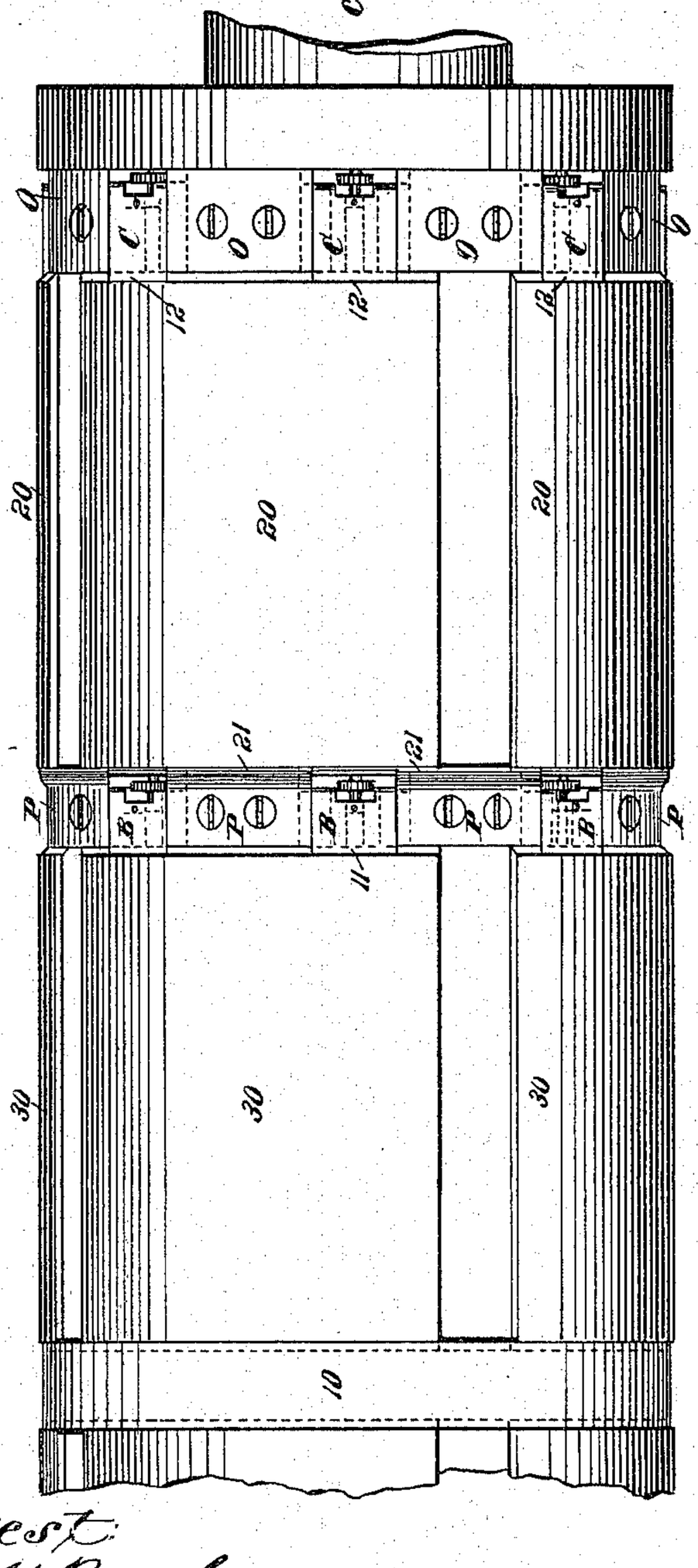


Fig. 1.



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Inventor:
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by
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Attys

(No Model.) 2 Sheets—Sheet 2.

S. D. TUCKER.

STEREOTYPE PLATE HOLDER FOR CYLINDER PRINTING MACHINES.

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Fig. 6

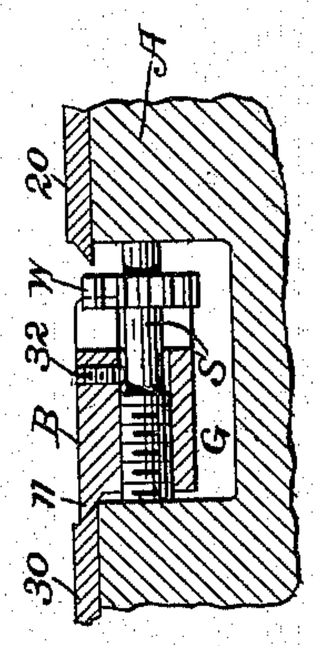


Fig. 7.

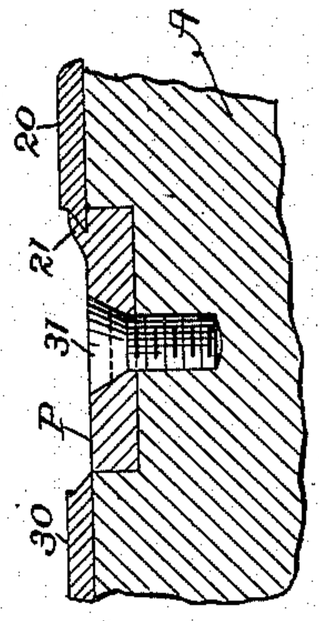


Fig. 5.

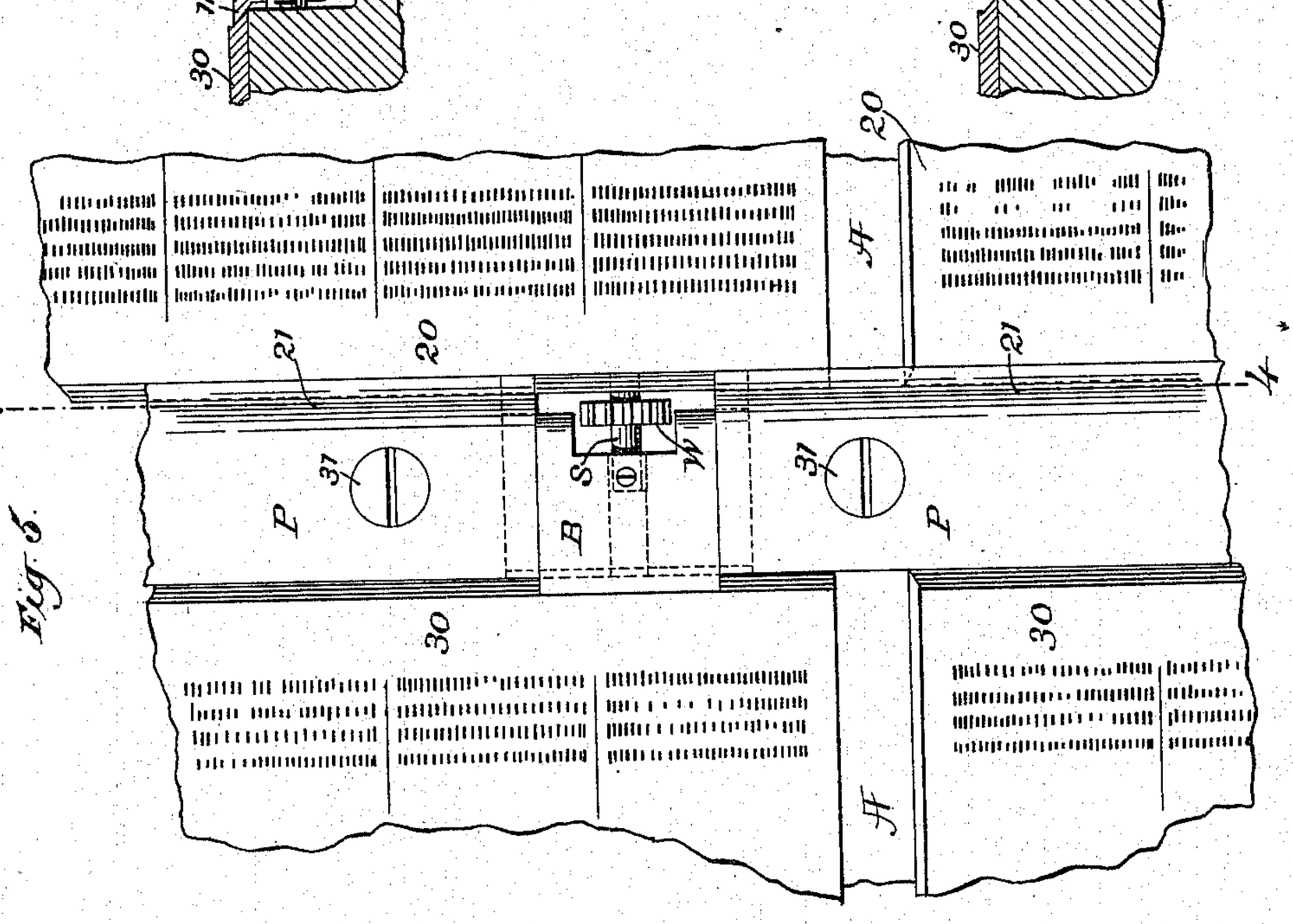
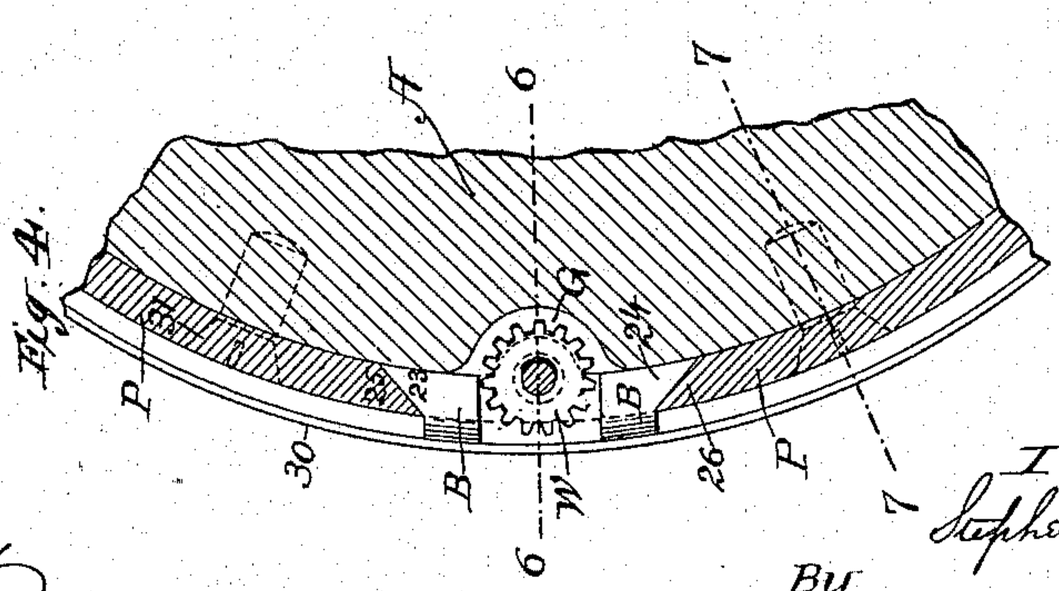


Fig. 4.



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UNITED STATES PATENT OFFICE.

STEPHEN D. TUCKER, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE, THEODORE H. MEAD, AND CHARLES W. CARPENTER, OF SAME PLACE.

STEREOTYPE-PLATE HOLDER FOR CYLINDER PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 568,054, dated September 22, 1896.

Application filed December 1, 1892. Serial No. 453,707. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN D. TUCKER, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Stereotype-Plate Holders for Cylinder Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to the means whereby stereotype or other printing plates are held in place upon the so-called "type-cylinder" of a printing-machine.

The invention consists in a novel construction of clips and means for securing the same to the cylinder, whereby abutting plates with narrow-margin spaces between them may be securely held upon the cylinder and be capable of independent removal, no matter how many sets of plates the cylinder carries, considered lengthwise.

The novel construction of these clips and the appliances whereby they are secured to the type-cylinder will be so specifically set forth and claimed in the following description as to require no preliminary explanation.

A practical embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is an elevation of one-half of the type-cylinder provided with my improvements. Fig. 2 is an end view of the said cylinder, one-half of which is broken away for convenience of illustration. Fig. 3 is a longitudinal sectional elevation of the same on line 3 3 of Fig. 2. Fig. 4 is an enlarged transverse sectional elevation on the line 4 4 of Fig. 5. Fig. 5 is a plan view of the parts shown in Fig. 4. Fig. 6 is a longitudinal sectional elevation on the line 6 6 of Fig. 4. Fig. 7 is a similar view taken on the line 7 7 of Fig. 4.

Ordinarily in securing the curved stereotype-plates upon the type or printing-plate carrying cylinder said cylinder is provided with a central circumferential band having its opposite sides undercut to present holding-lips, beneath which the beveled edges of the plates are entered, said plates being long enough, no matter how many pages of matter they contain, to reach nearly to the end of the cylinder, where their outer edges are secured by clamps forced over them. Such an arrangement serves very well in newspaper-work, for the reason that when the matter is once composed and the plates therefrom are made great speed in the production of the printing therefrom is requisite, and corrections of errors are therefore rarely attempted, and hence the plates, whether carrying one or more pages, are coupled together lengthwise of the cylinder and are secured in place by fastenings at the end of the cylinder; but in finer or book work, in which the pages are small and the plates are generally electrotyped, the edition is deliberately produced, and corrections of errors are more necessary, it is desirable that each plate shall be composed of but one or, perhaps, two pages, and be capable of independent removal from the cylinder for adjustment or the substitution of a new plate.

In consequence of the narrowness of the margins which must exist between the printed portions of the pages in bookwork, and the consequent limited width of the space in which the mechanical plate-holders must be housed and operated, so as to have a throw that will admit of the attaching and removing of each plate independently, I have devised the novel construction and arrangement of parts comprehended by the present improvements now to be particularly described.

Assuming, as is herein shown, that the plates are to be four in number, considered lengthwise of the type or printing cylinder A, I provide said cylinder centrally with a steel band or ring 10, with edges undercut to provide engaging lips for receiving the beveled front ends of the inner plates 30.

About midway or at an appropriate point between its center and outer ends the body of the printing-cylinder A is provided with a circumferential groove G, wide and deep enough not only to receive and support the clips, but provide for their adjusting movements. Each such clip consists of a carrier B, say of steel, which is provided with a lip or jaw 11, projecting at one side, that is adapted to engage the beveled rear end of a stereotype-plate, as 30, and this carrier is re-

ciprocated to engage its lip 11 with and release it from a plate, as 30, by means of a propelling screw-shaft S, which is of a length equal to the width of said groove G, so that its ends snugly fit therein and rest against the opposite side walls of said groove G, as bearings for said shaft, as it is turned to move the carrier B in either direction. This shaft S has one end screw-threaded to engage with a tapped hole in said carrier B, and its opposite end is provided with a toothed wheel W, whereby the shaft may be rotated to cause the carrier B to travel back and forth upon it. The carrier B is not only held within the groove against radial or outward displacement, but is guided in its reciprocations by means of holding-blocks P, which fill the spaces within the groove G between the clips or carriers B, one or more of which are provided for the holding of each plate. For this purpose the carriers B of the clips are provided at each side with projecting wings 23 24, beveled or of other suitable form for the purpose, upon which wings 23 24 the correspondingly-shaped ends 25 26 of the blocks P bear, thus not only holding the clips in place, but forming true guideways in which the carrier or block B of the clips may be moved to and fro. These blocks P, preferably of steel, are secured to the printing-cylinder A by means of screws 31, tapped into the body of the cylinder, as shown. While their sides adjacent thereto do not abut against the plates 30, their opposite sides are provided with projecting lips, as 21, which are undercut to receive the beveled front ends of the outer stereotype-plates 20, which are entered beneath them. The carriers B of each of these clips is provided with a set-screw 32, tapped through it and bearing upon a reduced portion of the shaft S, the object and purpose of which is to secure the said shaft in place when it has been rotated into proper position to secure the plate 30 and prevent it from being thereafter displaced or loosened by even a slight movement of the screw caused by the vibration of the machine.

As has been intimated, there may be one or more clips for each of the stereotype-plates, and there will consequently be a series of alternating clips and holding-blocks filling the groove G circumferentially, thus providing for the holding of a circumferential series of inner plates 30. The outer plates 20, which we have seen have their front ends held by the lips 21 of the block P, have their rear or outer ends held by means of clips constructed and operating as do the clips which have just been described for holding the plates 30; that is to say, the carriers C of these clips have holding-lips, as 12, that engage the plates 20, and their operating-shafts abut against the side walls of the circumferential groove H, and said carriers C have side wings that are embraced by the projecting ends of holding-blocks O, which blocks O, while operating as holders for clips in like manner as do the blocks P, are devoid of projecting lips, as 21, for the reason that there are no stereotype-plates to be held by them, but these clips and blocks O at the end of the cylinder are alternately arranged to fill the groove H circumferentially, as will be readily understood. By this construction of clips and intervening holding-blocks a strong and secure means is provided for holding adjacent stereotype-plates in place upon the printing-cylinder, especially at points midway of said cylinder within confines limited by the width of the narrow-margin spaces between small pages, and consequently between the plates for printing such pages, and such fastenings, by reason of being made as added parts to said printing-cylinder, may be constituted of strong metal or steel and thus not be liable to rupture, as would be the case if their holding jaws or lips were constructed with and as a part of the iron cylinder itself.

By this construction of plate-holders for printing-cylinders each individual plate may be attached to and removed from said cylinder without disturbing any of the other plates, and thus a convenient means is provided for the interchange of plates or the perfect adjustment thereof, which arrangement may be duplicated to any extent throughout a printing-cylinder and be combined with a flat type-bed, if desired, as will be readily apparent.

What is claimed is—

1. The combination with a plate-carrying bed or cylinder, of a series of alternating plate-holding clips, and holding-blocks supported in a groove in said bed or cylinder, each clip consisting of a clamping-carrier actuated by a rotating screw-threaded shaft, the ends of which abut against the sides of said groove, and said holding-blocks operating to secure said clips in place and guide the movements of their jaw-carriers, substantially as described.

2. The combination of a plate-carrying bed or cylinder, of a series of alternating plate-holding clips and holding-blocks supported in a groove in said bed or cylinder, said clips each having a clamping-carrier actuating by a rotating screw-threaded shaft the ends of which abut against the sides of said groove, said holding-blocks operating to secure and guide said clips into engagement with the rear end of one printing-plate and having lips for engagement with the front end of an adjacent printing-plate, substantially as described.

3. The combination of a plate-carrying cylinder, as A, a series of alternating plate-holding clips and holding-blocks supported in a circumferential groove in said cylinder, each clip having a clamping-carrier provided with a rotating actuating screw-shaft, the ends of which abut against the sides of said groove, and said holding-blocks having projections that overlap guiding-wings extending from the carriers, substantially as described.

4. The combination of a plate-carrying cyl-

inder, as A, a series of alternating plate-holding clips and holding-blocks supported in a circumferential groove in said cylinder, each clip having a clamping-carrier provided with a rotating actuating screw-shaft, the ends of which abut against the sides of said groove, said holding-blocks having projections that overlap guiding-wings extending from the carriers which hold an inner series of plates and being provided with lips that are engaged by a series of outer plates, together with a series of end clamps for said outer plate, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

STEPHEN D. TUCKER.

Witnesses:
F. W. H. CRANE,
E. L. SPEIR.