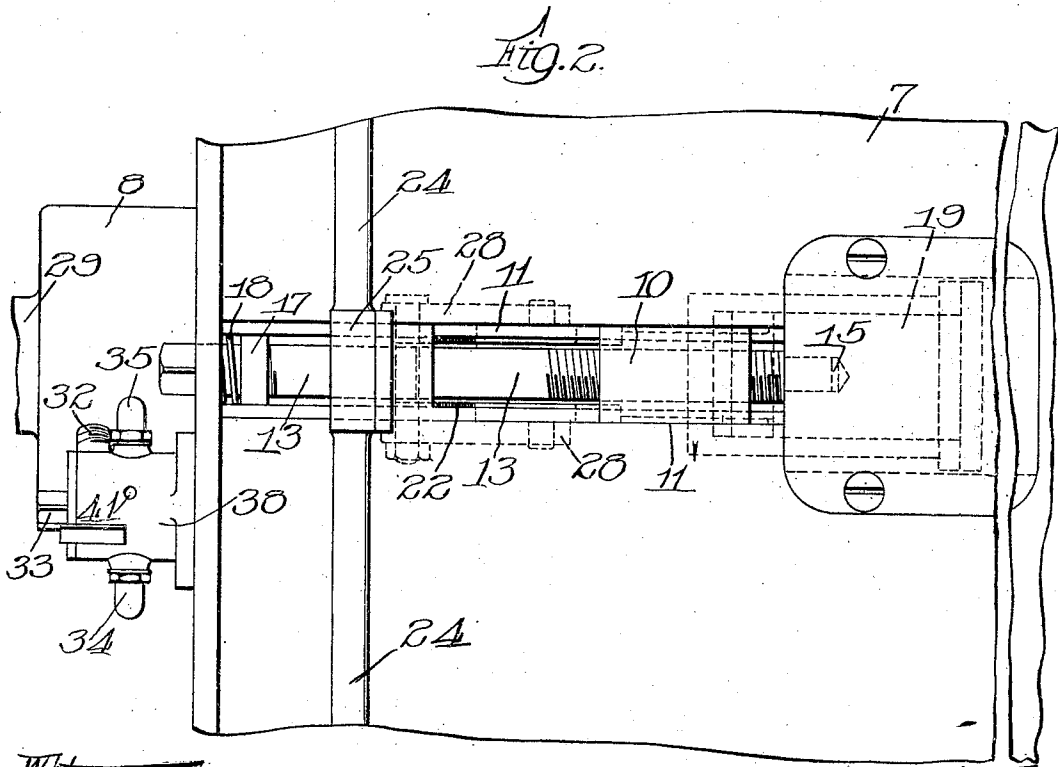
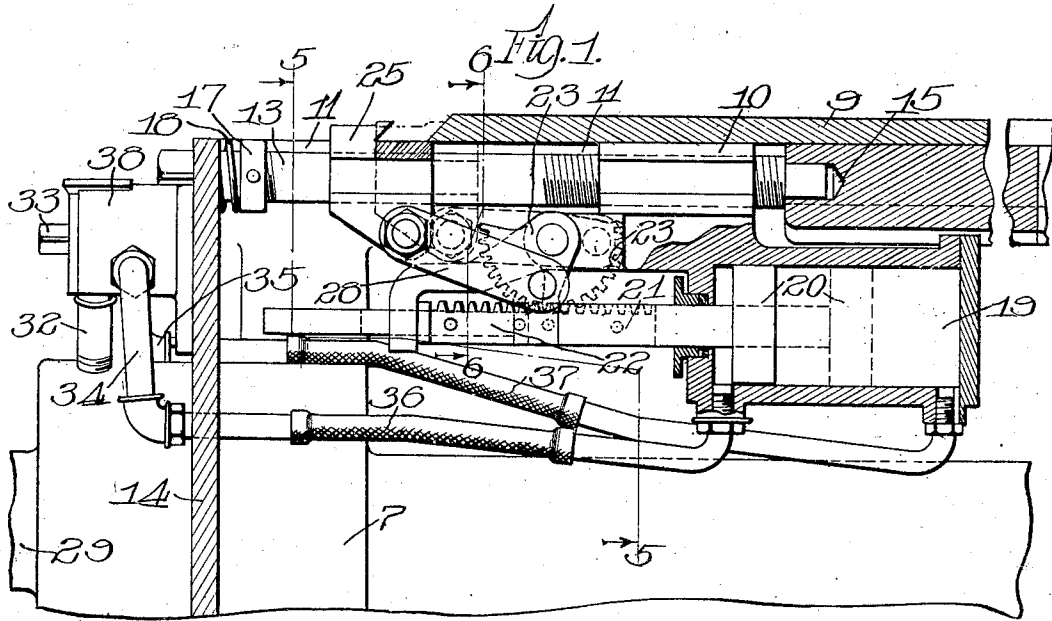


S. G. GOSS.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED JUNE 14, 1909.

954,091.

Patented Apr. 5, 1910.
 3 SHEETS—SHEET 1.



Witnesses:
 Geo. D. Perry
 Geo. D. Farnsworth Jr.

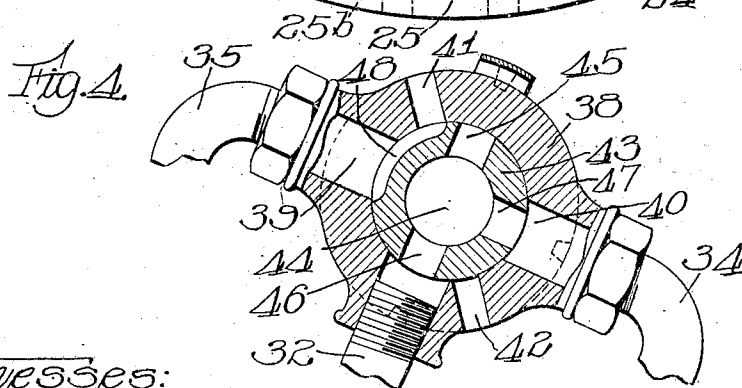
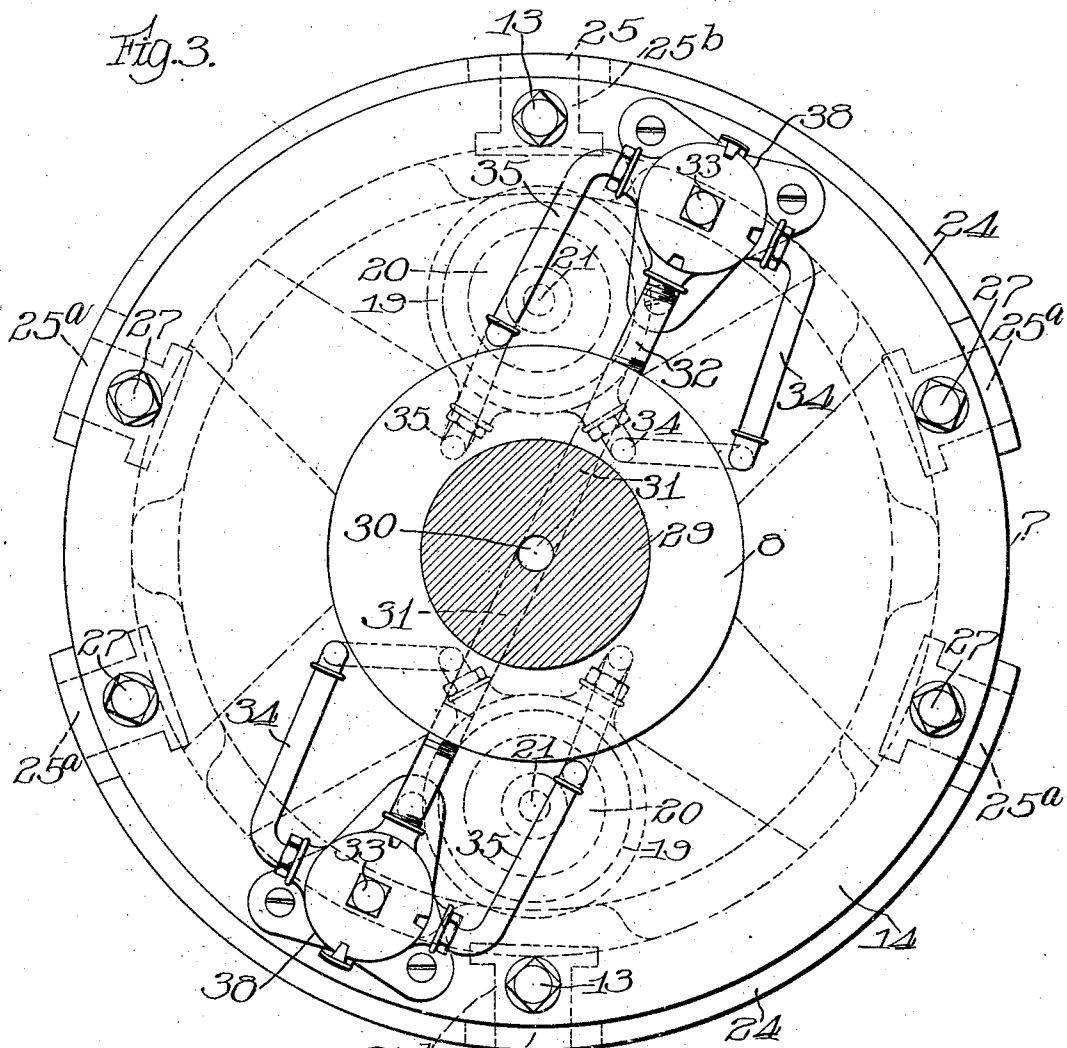
Inventor:
 Samuel G. Goss
 By Adam Smith & Son

S. G. GOSS.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED JUNE 14, 1909.

954,091.

Patented Apr. 5, 1910.

3 SHEETS—SHEET 2.



Witnesses:
Ed. D. Perry
W. D. Marston

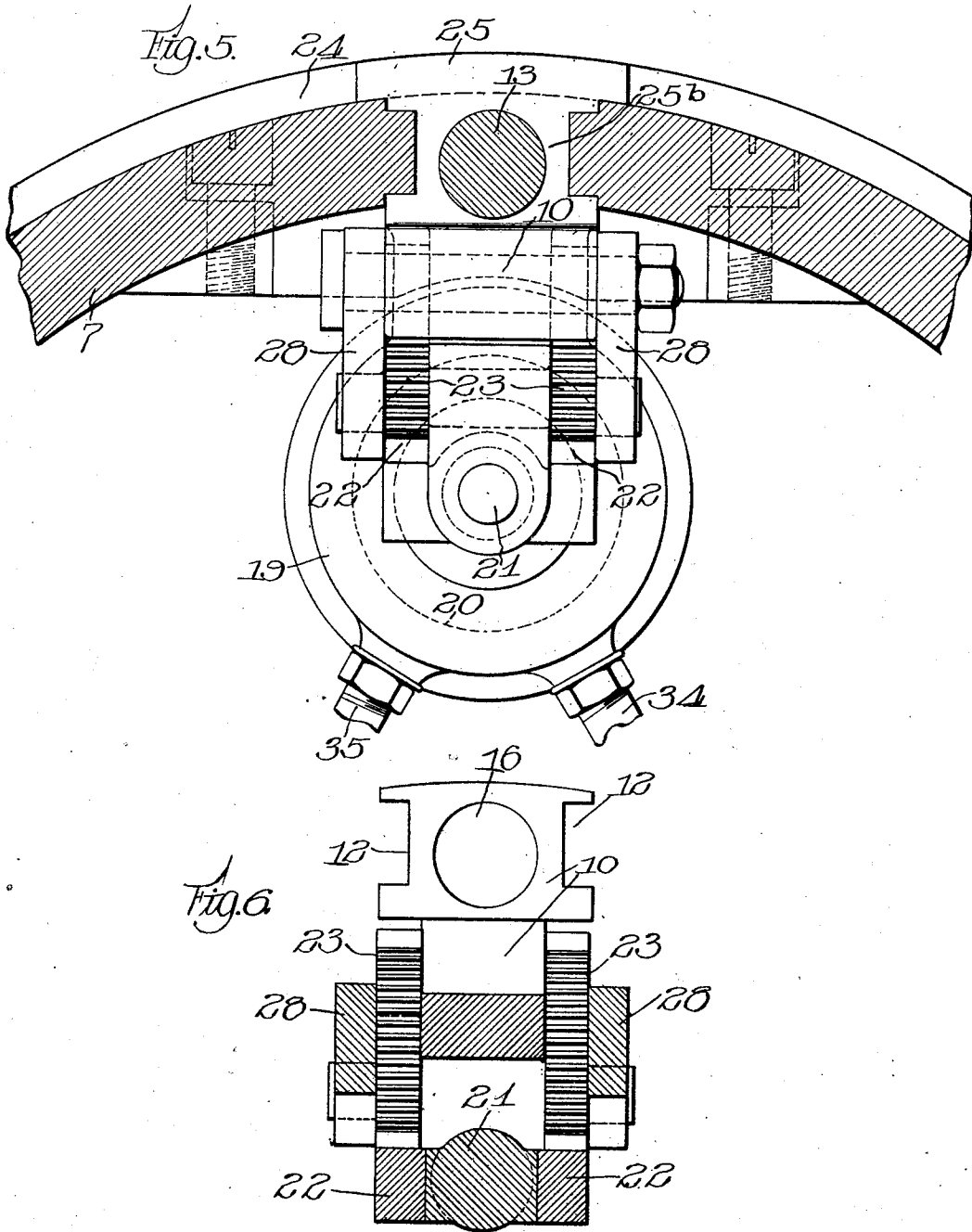
Inventor:
Samuel E. Goss
By Andrew Graham

S. G. GOSS.
 PLATE CLAMPING MECHANISM FOR PRINTING PRESSES.
 APPLICATION FILED JUNE 14, 1909.

954,091.

Patented Apr. 5, 1910.

3 SHEETS—SHEET 3.



Witnesses:
Ed. D. Long
G. D. Dumas Jr.

Inventor:
Samuel G. Goss
By Adam Rexard Jackson
att'y

UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PLATE-CLAMPING MECHANISM FOR PRINTING-PRESSES.

954,091.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed June 14, 1909. Serial No. 502,131.

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Plate-Clamping Mechanism for Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to mechanism for clamping stereotyped plates upon their beds on printing cylinders, and particularly for clamping curved stereotyped plates upon the cylinder, and its object is to provide new and improved pneumatically-operated mechanism by means of which the clamps, after having been separately adjusted to the width of the plate to be used, may be simultaneously moved to engage the edge of the plate to clamp the same, and automatically locked in position, and may be simultaneously unlocked and moved away from the plate when desired. I accomplish this object by the means shown in the drawings and herein-
after specifically described.

That which I believe to be new will be pointed out in the claims.

In the drawings:—Figure 1 is a vertical section through a portion of the plate cylinder showing my mechanism. Fig. 2 is a top or plan view of a portion of one end of the top of the plate cylinder, with the plate removed. Fig. 3 is an end view of the same, with a portion of the hub of the plate cylinder cut away in vertical section. Fig. 4 is an enlarged detail, being a view of the valve used for controlling the pneumatically-operated mechanism. Fig. 5 is an enlarged detail, being a section upon line 5—5 of Fig. 1. Fig. 6 is an enlarged detail, being a section on line 6—6 of Fig. 1.

7 indicates the plate cylinder having a hub. 8. 9 indicates one of the plates thereon.

10 indicates carriages each of which is slidably mounted in a suitable slot 11 in the cylinder so as to move longitudinally therein. The carriage is preferably mounted in the slot by means of grooves or rabbets 12 shown in Fig. 6, which engage the sides of the slot.

13 indicates a screw the outer end of which is journaled in the end plate 14 of the cylinder and the inner end of which is journaled in a cylindrical boring 15 in the body of the

cylinder. The screw 13 engages with a screw-threaded opening 16 (see Fig. 6) in the carriage, and is provided near its outer end with a collar 17 removably secured thereto.

18 indicates a spiral spring interposed between the collar 17 and the inner side of the end plate 14 and is adapted to yieldingly hold the screw seated at its inner end in the cylindrical boring 15.

19 indicates cylinders each of which is mounted upon or formed integral with one of said carriages 10.

20 indicates a piston moving air-tight in the cylinder 19 and provided with a piston-rod 21.

22 indicates ratchet-bars which are mounted one upon each side of the piston rod 21.

23 indicates segments which are pivotally mounted upon each side of the carriages 10 below the screw 13 and which are adapted to engage with the ratchet bars 22 so that when the piston rod 21 is moved in either direction the segments 23 may be rocked correspondingly.

24 indicates yokes which are curved to conform to the shape of the cylinder and slide upon the surface of the cylinder near one end thereof and are of a length equal to somewhat less than one-half of the circumference of the cylinder.

25—25^a indicate plate clamps which are secured to or preferably formed integral with the yokes 24, and, as is best shown in Fig. 5, are provided with a slotted body-portion 25^b which slides in the slot 11. The body portions 25^b of the plate clamps 25 are each provided with a central opening through which the screw 13 freely passes so that the plate clamps may slide freely to and fro thereon.

27 indicates screws or bolts which are seated in the end plate 14 at their outer ends and at their inner ends in the body of the cylinder, and which pass through openings in the plate clamps 25^a on the end of the yoke 24, serving to properly support the said clamps and yokes in the slots on the cylinder, but permitting the plate clamps to slide on said bolts.

28 indicates links which are pivotally connected at one end with the plate clamp 25 and at their other ends with the segments 23. The radius of the segment 23 is so pro-

portioned with reference to the space between the clamps 25 and 25^a and the space which, when they are in position, comes between them and the adjacent edge of the stereotyped plate, that when the segment is swung through a little over a quarter of a revolution into the position shown in dotted lines in Fig. 1, the plate clamps will be brought firmly against the edge of the plate and the link 28, passing centers with the pivotal point of the segment 23, and, coming into the position shown in dotted lines in Fig. 1, will lock the clamps against the edge of the plate.

It will be obvious from the above description that when the screw 13 is rotated, the carriage 10 will be moved longitudinally of the cylinder in one direction or the other according to the direction of rotation of the screw. This movement of the carriage, through the medium of the links 28, will carry with it the plate clamp 25, the yoke 24, and the plate clamps 25^a, whose position upon the cylinder may be thus adjusted to plates of different widths longitudinally of the cylinder. This adjustment being made,—say to the position shown in Fig. 1,—and the plate being placed upon the cylinder, a movement of the piston 20 inward in the air-cylinder 19,—that is, to the right in Fig. 1,—will, by the rack-bars 22, rock the rack segments 23, moving the links 28 into the position shown in dotted lines in Fig. 1. This movement will cause the yoke and the several plate clamps secured thereto to move inward simultaneously, engage the edge of the plate, and, locking the plate clamps against the edge of the plate, secure the plate firmly in position.

The pneumatically-operated mechanism by which the piston 20 is operated is as follows:—The shaft 29 of the cylinder is provided with a central or axial boring 30 which is adapted to be connected in any suitable way with a source of compressed air. As these connections may be made in any well-known way and of themselves form no part of my present invention, I have not shown them in the drawings, in order to avoid encumbering the drawings by unnecessary illustration. The central opening 30 branches at its inner end into two diametrically-opposite rotary borings 31 which open from the central opening 30 to the outer surface of the hub 8.

32 indicates tubes which are screw-threaded into the openings 31 and are connected at their outer ends with suitable valves 33.

34—35 indicate pipes which lead from the valves 33 and which are respectively connected by means of flexible pipes 36—37 inside the cylinder with the outer and inner ends, respectively, of the cylinder 19.

The valves 33 may be of any suitable construction adapted by their operation to al-

low compressed air, introduced into the central opening 30, to pass through the pipes 32 into either the pipe 34 or 35 as may be desired and thence into one or the other of the ends of the cylinder to operate the piston and to permit the air forced ahead of the piston in the cylinder to escape through the other pipe into the air. I have shown in Fig. 4 such a valve in which 38 indicates the valve casing provided with openings 39—40 adapted to open respectively into the pipes 35—34, and with openings 41—42 opening into the air. Within the valve casing 38 is a rotary valve 43 having a central air passage 44, diametrically disposed openings 45—46 leading from the exterior of the valve into the central opening 44, and an opening 47 leading from the interior opening. The valve is also provided upon its surface with a recess 48, which is adapted to connect the openings 39 and 41 or the openings 40 and 42. The diametrically disposed openings 45—46 are so placed that by rotating the valve a half turn, as shown in Fig. 4, they may be brought into register with the openings 39—40 in the casing and are so located that when the parts are in the position shown in Fig. 4 the opening 46 will register with the pipe 32 and the recess 48 with the openings 39—41. When in this position, the opening 47 will register with the pipe 40 and the opening 45 be brought against the closed surface of the casing. When the valve is in the position shown in Fig. 4, it is obvious that the compressed air passing into the central opening 30 will flow out through the openings 31, pipes 32 and opening 46, into the central opening 44 and from thence through the openings 47 and 40 into the pipe 34. From thence it will pass through the flexible pipe 36 into the forward end of the air cylinder 19, and will force the piston to the right in Fig. 1, carrying with it the plate clamps in the manner above described. The air ahead of the piston flowing out through the flexible pipe 37 into the pipe 35, will pass into the opening 39, through the recess 48 and opening 41 into the outer air. A half-turn of the valve, bringing the opening 45 into register with the pipe 32, will bring the opening 47 into register with the opening 39 and the recess 48 into register with openings 40—42. In this position, the compressed air will flow into the pipe 35, through the flexible pipe 37, into the inner end of the cylinder 19, forcing the piston in the other direction and moving the plate clamps away from the plate. The flexible pipes 36—37 permit the movement of the air cylinders 19 longitudinally of the plate cylinder above described.

I have shown in the drawings two air-cylinders, yokes, and accompanying sets of plate clamps, one upon each semi-circumference of the plate cylinder. This, it will

be understood, is because in the usual construction of printing presses the plate cylinders are adapted to hold a plate upon each semi-circumference. The two sets of plate-operating mechanism are therefore used, one to engage each plate and lock it upon the cylinder. It will be understood, of course, that if a larger plate cylinder were used, or if the plates were relatively smaller so that they occupied in their circumferential length say one-third or one-fourth of the circumference of the plate cylinder, the number of the operating mechanisms would of course be correspondingly changed.

I have also in the drawings shown only one end of the plate cylinder. It will of course be understood that the mechanisms which I have shown may be duplicated at the other end of the plate cylinder, each mechanism being operated to lock the plates upon one longitudinal half of the plate cylinder. I have not shown both ends of the plate cylinder, therefore, as the construction at one end will be readily understood from the description of the construction at the other end.

What I claim as my invention and desire to secure by Letters Patent is,—

1. The combination with a plate cylinder adapted to hold stereotype plates, of a carriage mounted in said plate cylinder and movable longitudinally thereof, a screw mounted in said cylinder and adapted by its rotation to move said carriage longitudinally in said plate cylinder, an air cylinder carried by said carriage, a piston in said air cylinder, a plate clamp mounted in said plate cylinder and movable longitudinally thereof independently of said carriage, connections between said plate clamps and said piston, and mechanism adapted to admit a supply of compressed air to said air cylinder to operate said piston.

2. The combination with a plate cylinder adapted to hold stereotype plates, of a carriage mounted in said plate cylinder and movable longitudinally thereof, a screw carried by said plate cylinder engaging said carriage and adapted by its rotation to move said carriage longitudinally of said cylinder, a yoke carried on said cylinder and movable longitudinally thereof, plate clamps carried by said yoke, pneumatically-operated mechanism carried by said carriage, means for operating the same, and connections between said pneumatically-operated mechanism and said yoke, whereby by the operation of said pneumatically-operated mechanism said yoke and plate clamps may be moved

longitudinally upon the cylinder to lock the plate thereon.

3. The combination with a plate cylinder adapted to carry stereotype plates, of a carriage mounted on said plate cylinder and movable longitudinally thereof, mechanism for moving said carriage longitudinally of the cylinder, an air-cylinder mounted on said carriage, a piston in said air-cylinder, a yoke mounted on said plate cylinder and movable longitudinally thereof, plate clamps carried by said yoke, connections between said piston and said yoke, and means for pneumatically operating said piston in said air-cylinder.

4. The combination with a plate cylinder adapted to hold stereotype plates, a carriage on said cylinder and movable longitudinally thereof, means for moving said carriage longitudinally of said cylinder, a yoke mounted on said cylinder and movable longitudinally thereof, and plate clamps carried by said yokes, of an air-cylinder carried by said carriage, a piston in said air-cylinder, a piston-rod secured to said piston, a rack-bar carried by said piston-rod, a segment carried by said carriage and adapted to be engaged and operated by said rack-bar, a link pivotally connected with said segment and with said yoke, and means for admitting compressed air into said cylinder to operate said piston.

5. The combination with a plate cylinder adapted to hold stereotype plates, a carriage mounted on said cylinder and movable longitudinally thereof, means for moving said carriage longitudinally of said cylinder to adjust the same thereon, a yoke slidingly mounted on said cylinder and movable longitudinally thereon, and plate clamps on said yoke, of an air-cylinder carried by said carriage, a piston in said air-cylinder, means for admitting compressed air to said cylinder upon either side of said piston to operate the same, a piston-rod connected with said piston, rack-bars connected with said piston-rod, toothed segments pivoted on said carriage and adapted to engage said rack-bar, and links pivotally connected with said segments and with said yoke and adapted when said piston is operated to move said yoke and plate clamps into engaged position to pass centers with said segments and automatically lock said yoke with the plate clamps in engaging position.

SAMUEL G. GOSS.

Witnesses:

C. E. PICKARD,
W. H. DE BUSK.