

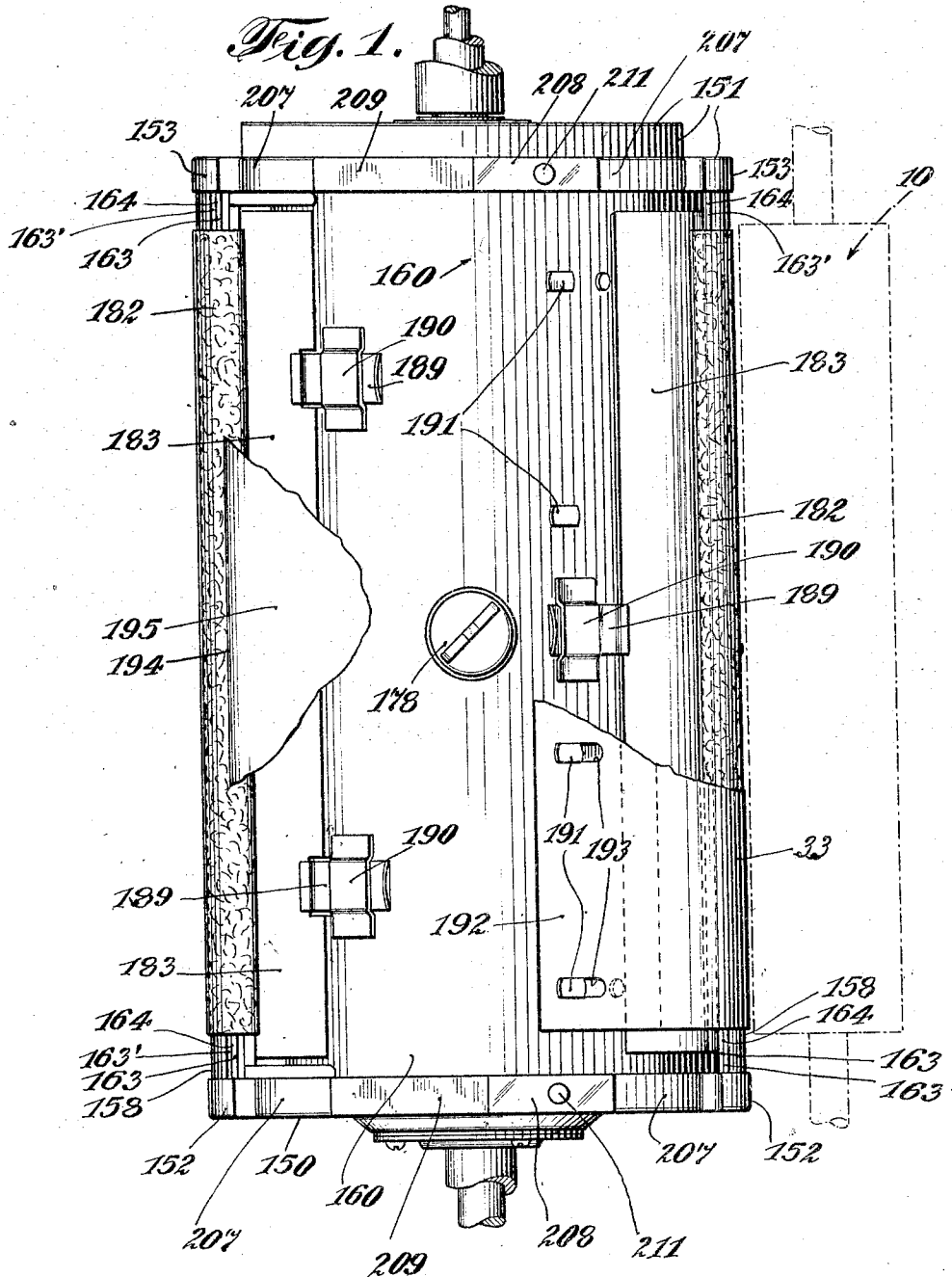
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E. J. BRASSEUR

STENCIL DUPLICATING MACHINE

Original Filed Oct. 8, 1925 3 Sheets-Sheet 1



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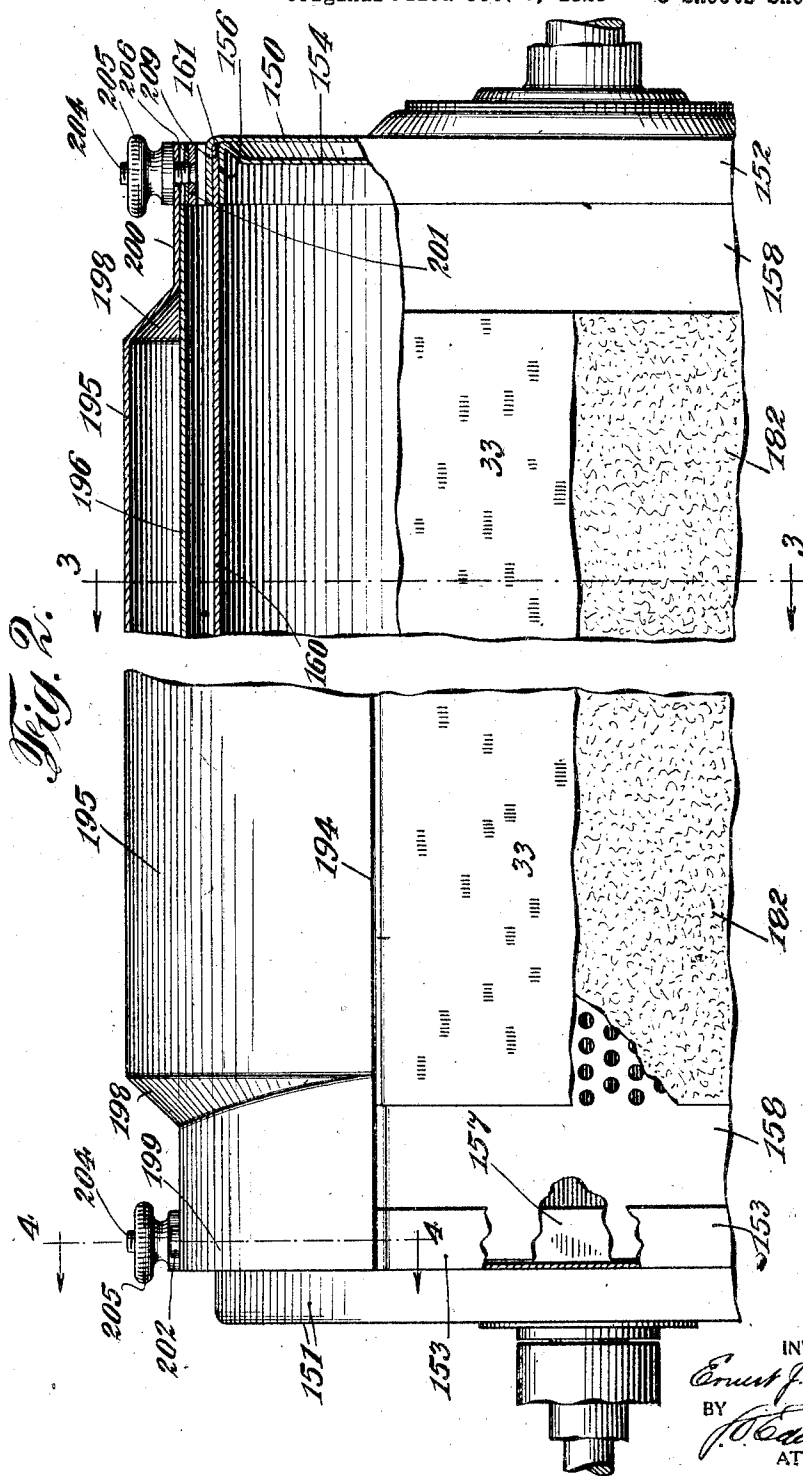
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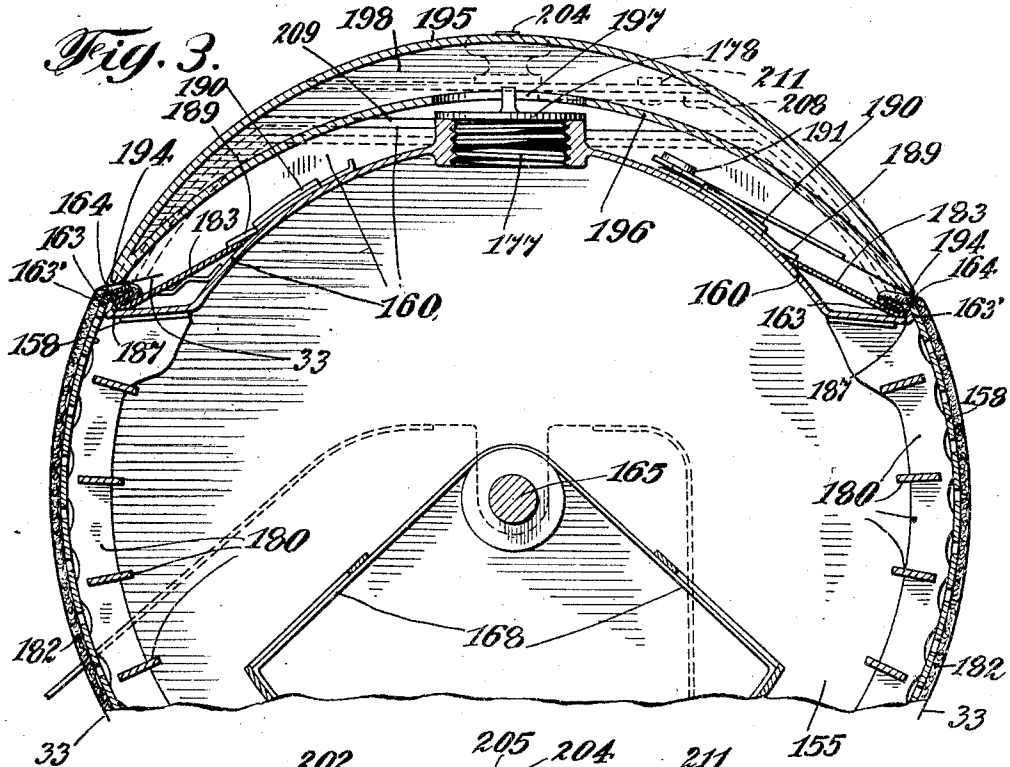
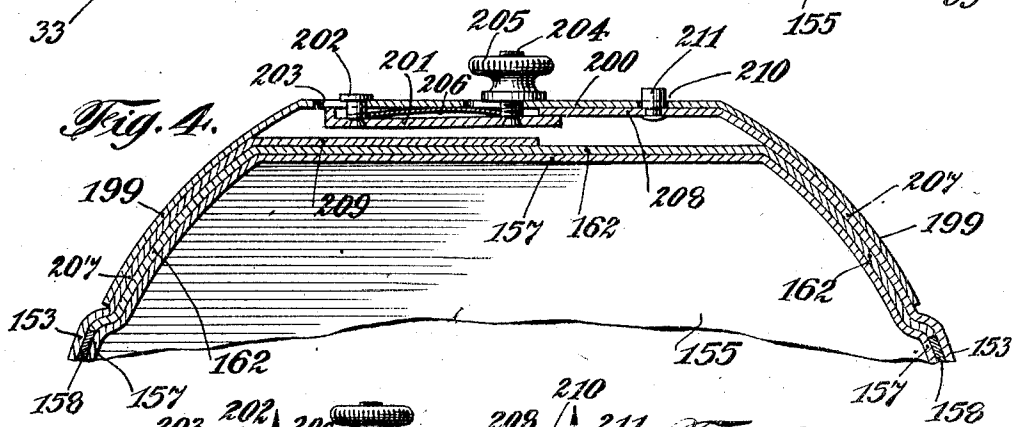
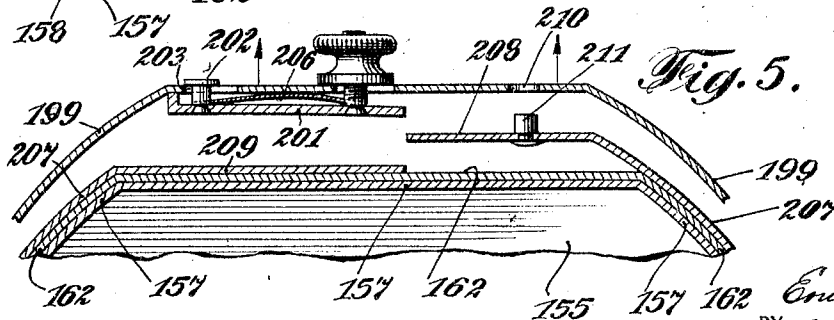
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STENCIL DUPLICATING MACHINE

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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STENCIL DUPLICATING MACHINE.

Original application filed October 8, 1925, Serial No. 61,172. Divided and this application filed November 2, 1926. Serial No. 145,760.

This invention relates to stencil duplicating machines, and more particularly to rotary stencil duplicating machines, wherein a sheet of paper fed into the machine is frictionally engaged between the rotatable cylinder and a free rubber roller so as to be drawn through the machine upon the rotation of the cylinder, and to receive the impression from the stencil sheet on the cylinder. The stencil sheet is supplied with printing ink from the interior of the cylinder, wherein is disposed an ink chamber or reservoir. In one form of construction there is a sealed ink chamber within the cylinder from which ink may permeate through a diaphragm on the cylinder to an ink pad covering the diaphragm, and thence to the stencil sheet which is laid over the pad; and there is within the ink chamber a tiltable ink trough from which the operator may spill ink to replenish the stencil sheet. The rubber roller presses each paper sheet to be printed upwardly against the inked, rotating stencil sheet to cause the stencil sheet to imprint an impression on the upper surface of the paper. Very often, however, the cylinder is rotated without a sheet being interposed between the cylinder and the rubber roller, and if during such rotation the rubber roller should contact the inked stencil sheet on the cylinder, this roller would receive ink therefrom, with the result that the machine could not be used until this ink has been completely cleaned from the roller. Otherwise paper sheets subsequently passed between the cylinder and roller would receive ink on their backs from the rubber roller, and the sheets would be spoiled.

This application is a division of an application filed by me October 8, 1925, for stencil duplicating machines, Serial No. 61,172.

In said application there is disclosed, among other features, mechanism which positively prevents the rubber roller from receiving ink from the surface of a stencil sheet on the cylinder, and at the same time operating automatically to press each sheet of paper to be printed against the rotating cylinder and inked stencil sheet thereon in such manner and with such pressure that each sheet receives the desired impression from the stencil sheet, and is positively drawn through the machine in the desired manner.

The principal object to which this divi-

sional application is directed is to the provision of means for rounding out the periphery of the printing cylinder so as to present a smooth and even cylinder surface for the rubber impression roller to roll on as the cylinder revolves in contact therewith, and at the same time permitting the presence of means whereby the ink pad and stencil sheet may be conveniently secured to and removed from the cylinder.

A further object of this invention is to provide improved means for attaching the ink- ing pad and stencil sheet to the machine, which means permit the pad to be reversed endwise; which clamp the stencil sheet to the cylinder in such a way as to relieve the strain of the stencil sheet stub against the hooks thereof; and which prevent ink from going beyond the ends of the fabric of the ink pad and stencil; and another object of this invention is to provide means of this character which are simple, compact, and durable, and which are readily and easily adjustable on and removable from the machine to permit replacement of a stencil sheet and inking pad.

Other objects of my invention will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, arrangement of parts and combinations of elements which will be described more fully hereinafter, and the scope of the application of which will be indicated in the claims that follow.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings forming part of this application and illustrating certain possible embodiments of this invention. Referring to the drawings, Fig. 1 is a top plan view of a cylinder embodying this invention, the stencil sheet mounted thereon being shown broken away, and the supplemental frame plate being absent; Fig. 2 is a front view, partly in section, of a fragment of the cylinder, broken away at the center, with the supplementary frame plate in position thereon; Fig. 3 is a fragmentary sectional view thereof, and is taken on the line 3—3 of Fig. 2; Fig. 4 is a sectional view of a fragment thereof, and is taken on the line 4—4 of Fig. 2, the supplementary frame being shown in place on the cylinder; and Fig. 5

is a view similar to Fig. 4 but showing the supplementary frame plate detached and raised from the cylinder.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring to the drawings, the cylinder includes two opposite side walls 150 and 151, having peripheral flanges 152 and 153. A sealed ink compartment is formed within the cylinder, the compartment having side walls 154 and 155, flanged at 156 and 157, beneath the flanges 152 and 153 of cylinder walls 150 and 151. Extending between walls 150 and 151, and embracing a major part of the circumference of the cylinder, is a perforated diaphragm 158, which has its side edges tightly secured between the flanges 152 and 156 on one side and between the flanges 153 and 157 on the other side. These seams or joints are leak-proof. Embracing the remainder of the circumference of the cylinder is a plate 160, the body of which is depressed below the surface of the cylinder. This plate has raised side flanges 161 and 162, flange 161 being secured between flange 156 of wall 154 and flange 152 of wall 150, and flange 162 being secured between flange 157 of wall 155 and flange 153 of wall 151, the joints being leak-proof.

The ends 163 of plate 160 are curved upwardly against the under surface of the adjacent edge portions 163' of the diaphragm 158 and are secured thereto along a leak proof joint. The ends of plate 163 and diaphragm 158 establish beveled surfaces or seats 164.

Plate 160 is provided with a filling opening 177 and a cap 178 therefor, to permit ink to be poured into the trough 168, suspended from the cylinder shaft 165 within the sealed ink compartment.

Behind the diaphragm 158 is a grille or grid structure 180 which aids in spreading over the diaphragm the ink spilled from trough 168.

The diaphragm 158 is covered by an ink pad, and the stencil sheet 33 is laid on this pad. The ink pad comprises a sheet of suitable fabric 182 to each end of which is secured a strip of metal 183. The ink pad is secured to the cylinder by engaging the inner edge of the plates 183 within the grooves 187 formed by the bent edges 163 of the plate 160, and moving slidable latches 189 over the opposite edges of plates 183. These latch plates 189 are slidably retained under straps 190 secured on the top of plate 160. Preferably the plates 183 are both alike so that the ink pad may be reversed, or turned over on the cylinder. By changing the pad around from time to time its life may be extended.

Also on plate 160, near the leading edge of the diaphragm, are secured hooks or buttons 191, with which the stub 192 of stencil sheet 33 may be engaged by placing the holes 193

in the stencil stub over the buttons. Both the ink pad and the stencil sheet lie across the beveled seats 164.

The ink pad and the stencil sheet are firmly clamped against these seats by a metal frame having edges 194 of complementary bevel to the seats 164 and arranged to align therewith. The frame comprises an outer plate 195, which rounds out the outer periphery of the cylinder, and an inner plate 196, secured together, plate 196 having a perforation 197 to avoid interference from filler cap 178. Toward each side edge, plate 195 is formed with a depressed portion 198 and with a raised flange, which is curved at each end, as at 199, and has a straight portion 200 intermediate these curved portions. On the underside of each straight portion 200 is a metal clamp strip 201 which has a pin 202 extending through a slot 203 in flange 200 and there is headed over. Toward its other end strip 201 carries a threaded pin 204 which penetrates a slot in flange 200 and is there engaged by a finger nut 205, whereby the strip may be pivotally moved toward and from flange 200. A spring 206 compressed between flange 200 and strip 201 urges the strip to move away from flange 200. The flanges 152 and 153 of the cylinder walls each form curved portions 207 corresponding with flange portions 199, and with a straight portion 208 which seats beneath that part of flange portion 200 which is not occupied by clamps 201, and with a lower straight portion 209 which rests on plate 160. The frame may be secured on the cylinder by loosening screws 205 to lower strips 201 from flanges 200, and then after placing the frame upon the cylinder, sliding the clamps 201 beneath members 208. At the same time perforations 210 in flanges 200 are engaged over pins 211 on cylinder flange portions 208. Now, by tightening nuts 205 the clamps 201 will be brought firmly against portions 208 and the frame will be clamped tightly downwardly, thus clamping the beveled edges 194 tightly against the beveled edges 164 and clamping the ink pad and stencil sheet tightly therebetween. To remove this frame, it is only necessary to loosen nuts 205, slide them, with the attached strips 201, on flanges 200 to disengage the strips from beneath portions 208, and then lift the frame upwardly. The removal leaves the stencil sheet and pad readily accessible for removal or replacement, as before described.

From the above it will be readily apparent that the frame plate construction 195 rounds out the cylindrical periphery of the cylinder between the side walls thereof and between the ends of the diaphragm 158. Thus, when the machine is of the type disclosed in my said copending application, wherein there is a rubber impression roller (shown at 10 in dot and dash lines in Fig. 1) which normally

contacts continuously with the cylinder as the cylinder revolves, the rubber roller will have a smooth, even surface to roll on, and the stencil sheet and ink pad attaching means, and the rubber roller will be shielded from contact with each other during the operation of the machine. It also will be noted that the frame is removable and attachable very readily, thus permitting easy access to the stencil sheet and ink pad attaching means, and to the ink port to the ink reservoir. By reason of the clamping action of the frame upon the ink pad and stencil sheet the operator in making a replacement or adjustment of a sheet or pad need not touch any surface which is soiled with ink, and need not soil his hands.

As many changes could be made in the above construction and as many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim is:—

1. In an apparatus of the character described, in combination, a printing cylinder including outside walls, interior walls, a diaphragm secured to said interior walls in a leak-proof manner, a plate secured to said interior walls and to the ends of said diaphragm in a leak-proof manner, and a supplementary frame covering said plate and removably secured to said outside walls.

2. In an apparatus of the character described, in combination, a printing cylinder including outside walls, interior walls, a diaphragm secured to said interior walls in a leak-proof manner, a plate secured to said interior walls and to the ends of said diaphragm in a leak-proof manner, and a supplementary frame covering said plate and removably secured to said outside walls, said plate being depressed below the circumference of the cylinder, and the outside of said frame being at the circumference of said cylinder.

3. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said walls having recesses and said frame having tongues slidable thereon into and out of engagement in said recesses, and means for securing said tongues tightly in said recesses to clamp said frame in place on the cylinder.

4. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and

to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said walls having recesses and said frame having tongues slidable thereon into and out of engagement in said recesses, and means for securing said tongues tightly in said recesses to clamp said frame in place on the cylinder, said frame and walls also having interengaging pins and apertures.

5. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said walls having recesses and said frame having tongues slidable thereon into and out of engagement in said recesses, threaded pins on said tongues extending through said frame, and nuts on said pins, whereby said tongues may be tightly clamped upwardly against the upper walls of said recesses.

6. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said walls having recesses and said frame having tongues slidable thereon into and out of engagement in said recesses, threaded pins on said tongues extending through said frame, and nuts on said pins, whereby said tongues may be tightly clamped upwardly against the upper walls of said recesses, said nuts also constituting handles whereby said plate may be lifted.

7. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said diaphragm having beveled edges presented toward the edges of said frame, and said frame having edges of complementary bevel seating on said beveled diaphragm edges.

8. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge.

9. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and

to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge, and an ink pad on the cylinder having an attachment plate engaged along one edge in one of said recesses.

10 10. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge, and an ink pad on the cylinder having at each end an attachment plate engaged along one edge in one of said recesses.

11. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge, an ink pad on the cylinder having an attachment plate engaged along one edge in one of said recesses, and means on said plate engaging said attachment plate at its other edge.

12. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge, an ink pad on the cylinder having at each end an attachment plate engaged along one edge in one of said recesses, and means on said plate engaging said attachment plates at their other edges.

13. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge, an ink pad on the cylinder having an attachment plate engaged along one edge in one of said recesses, and means on said plate engaging said attachment plate at its other edge, said

means including a latch bar slidably mounted on said plate, and having a portion engageable over the edge of said plate.

14. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said plate edges being flanged back where the edges are secured to the diaphragm and forming a rearwardly open recess at each said edge, an ink pad on the cylinder having at each end an attachment plate engaged along one edge in one of said recesses, and means on said plate engaging said attachment plates at their other edges, said ink pad being reversible, end for end on said cylinder, and said means being engageable with either attachment plate of said pad.

15. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, and a supplementary frame covering said plate and removably secured to said walls, said diaphragm having beveled edges presented toward the edges of said frame, and said frame having edges of complementary bevel seating on said beveled diaphragm edges, an ink pad, and means on said plate for securing the ink pad to the cylinder with the fabric thereof disposed between said complementary beveled edges of the diaphragm and frame.

16. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, a supplementary frame covering said plate and removably secured to said walls, said diaphragm having beveled edges presented toward the edges of said frame, said frame having edges of complementary bevel seating on said beveled diaphragm edges, a stencil sheet, and means on said plate for securing the stencil sheet to the cylinder with the fabric of the stencil sheet disposed between said complementary beveled edges of the diaphragm and frame.

17. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to said walls, a plate secured to said walls and to the ends of said diaphragm, a supplementary frame covering said plate and removably secured to said walls, said diaphragm having beveled edges presented toward the edges of said frame, said frame having edges of complementary bevel seating on said beveled diaphragm edges, an ink pad, means on said plate for securing the ink pad to the

cylinder with the fabric thereof disposed between said complementary beveled edges of the diaphragm and frame, and means for forcing said complementary beveled edges
5 tightly together to clamp said ink pad fabric tightly therebetween.

18. In an apparatus of the character described, a printing cylinder including, in combination, walls, a diaphragm secured to
10 said walls, a plate secured to said walls and to the ends of said diaphragm, a supplementary frame covering said plate and removably secured to said walls, said diaphragm having beveled edges presented toward the

edges of said frame, said frame having edges 15 of complementary bevel seating on said beveled diaphragm edges, an ink pad, means on said plate for securing the ink pad to the cylinder with the fabric thereof disposed between said complementary beveled edges of 20 the diaphragm and frame, and means for forcing said complementary beveled edges tightly together to clamp said stencil fabric tightly therebetween.

This specification signed this 28th day of 25 October, 1926.

ERNEST J. BRASSEUR.