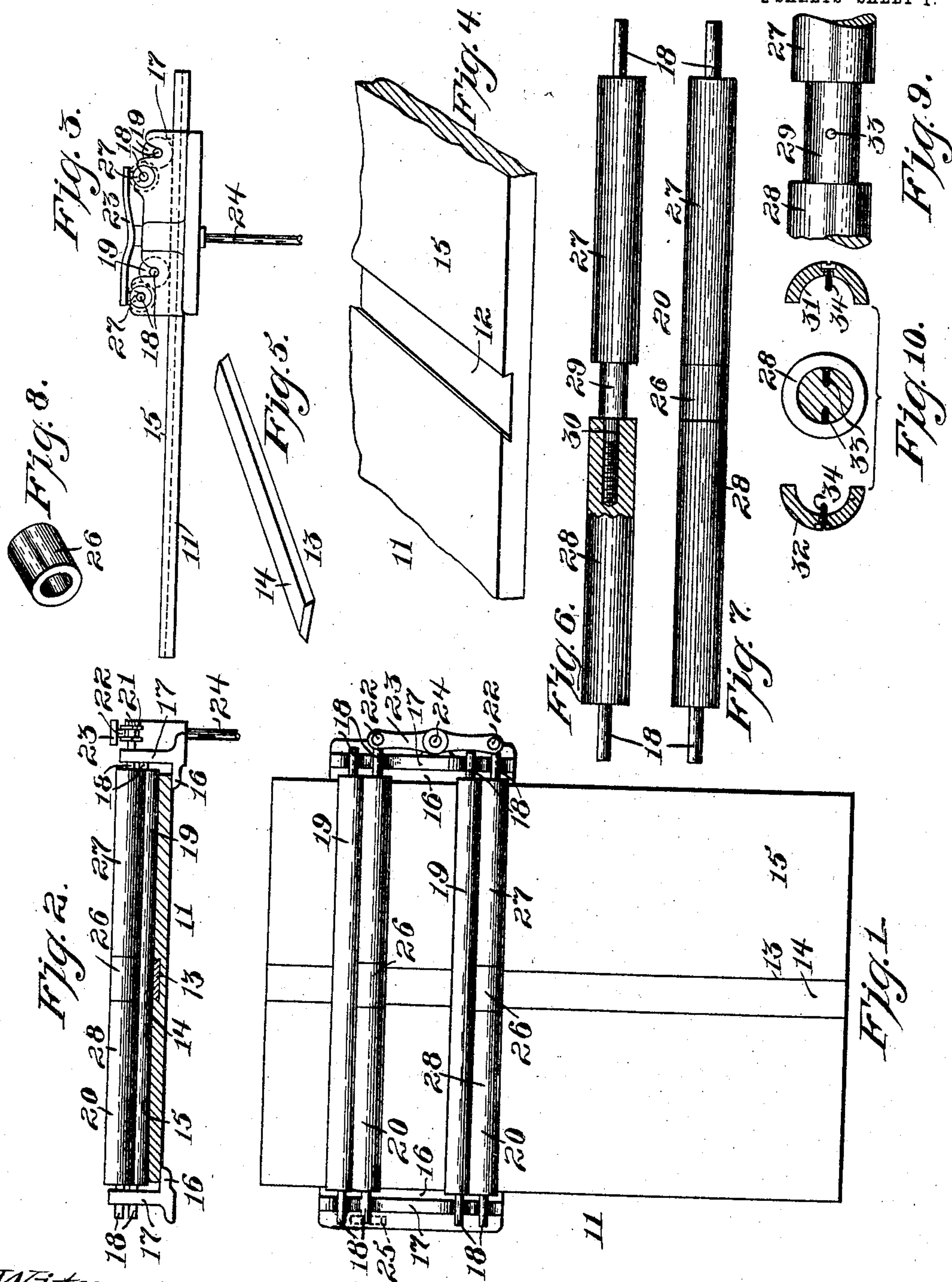


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PATENTED AUG. 1, 1905.

J. J. RAFTER.  
PRINTING PRESS.  
APPLICATION FILED APR. 4, 1904.

2 SHEETS—SHEET 1.



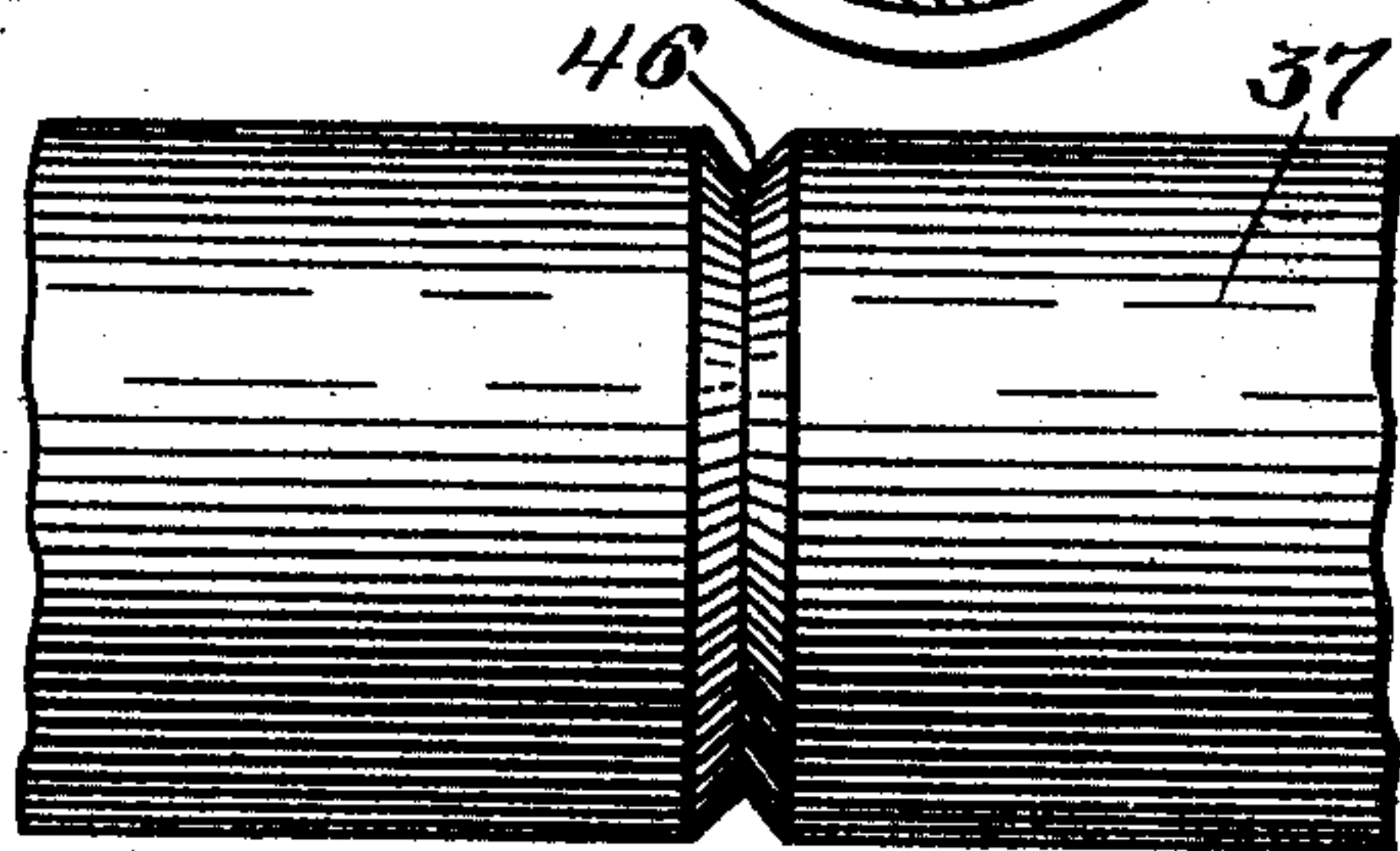
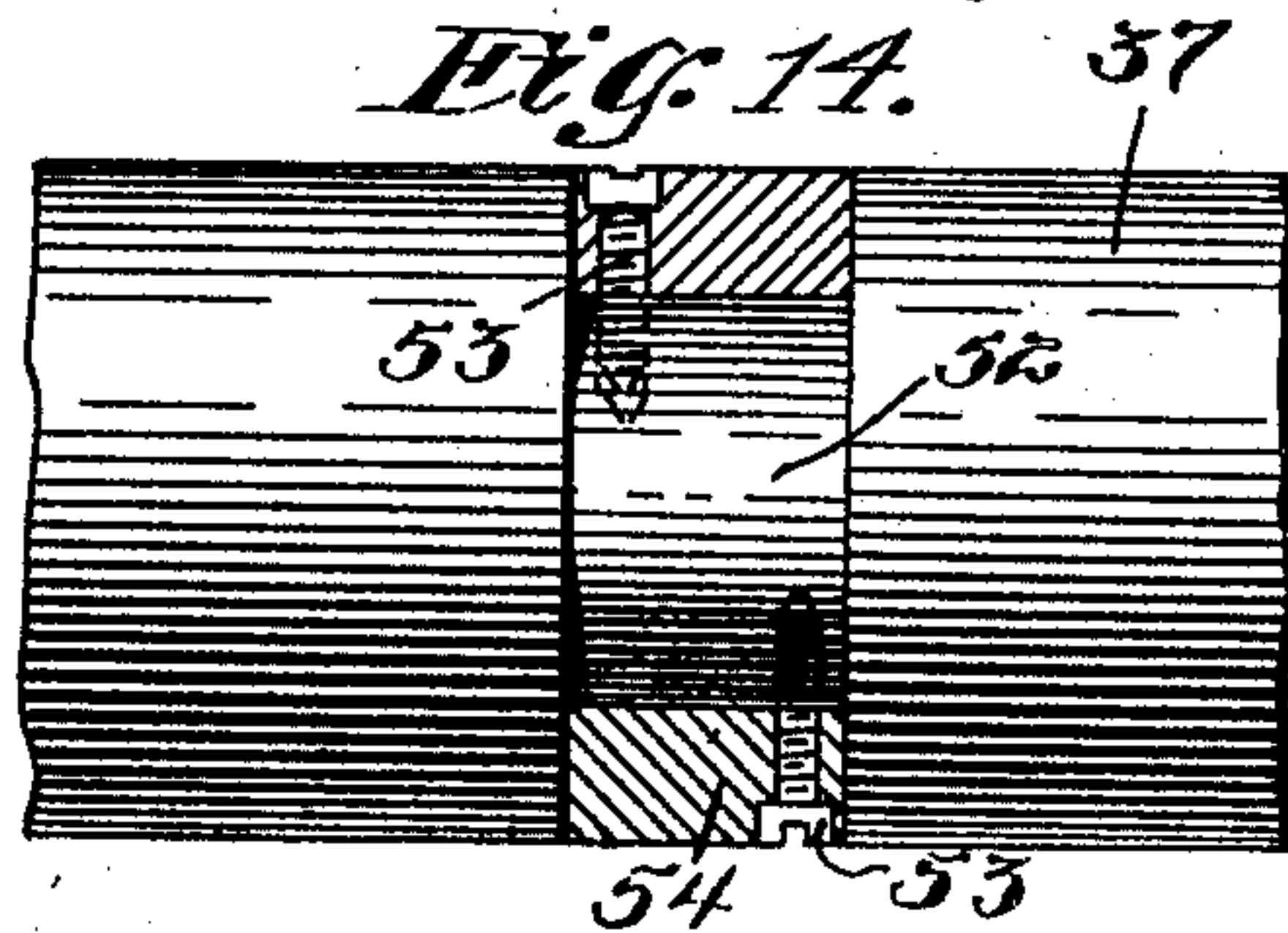
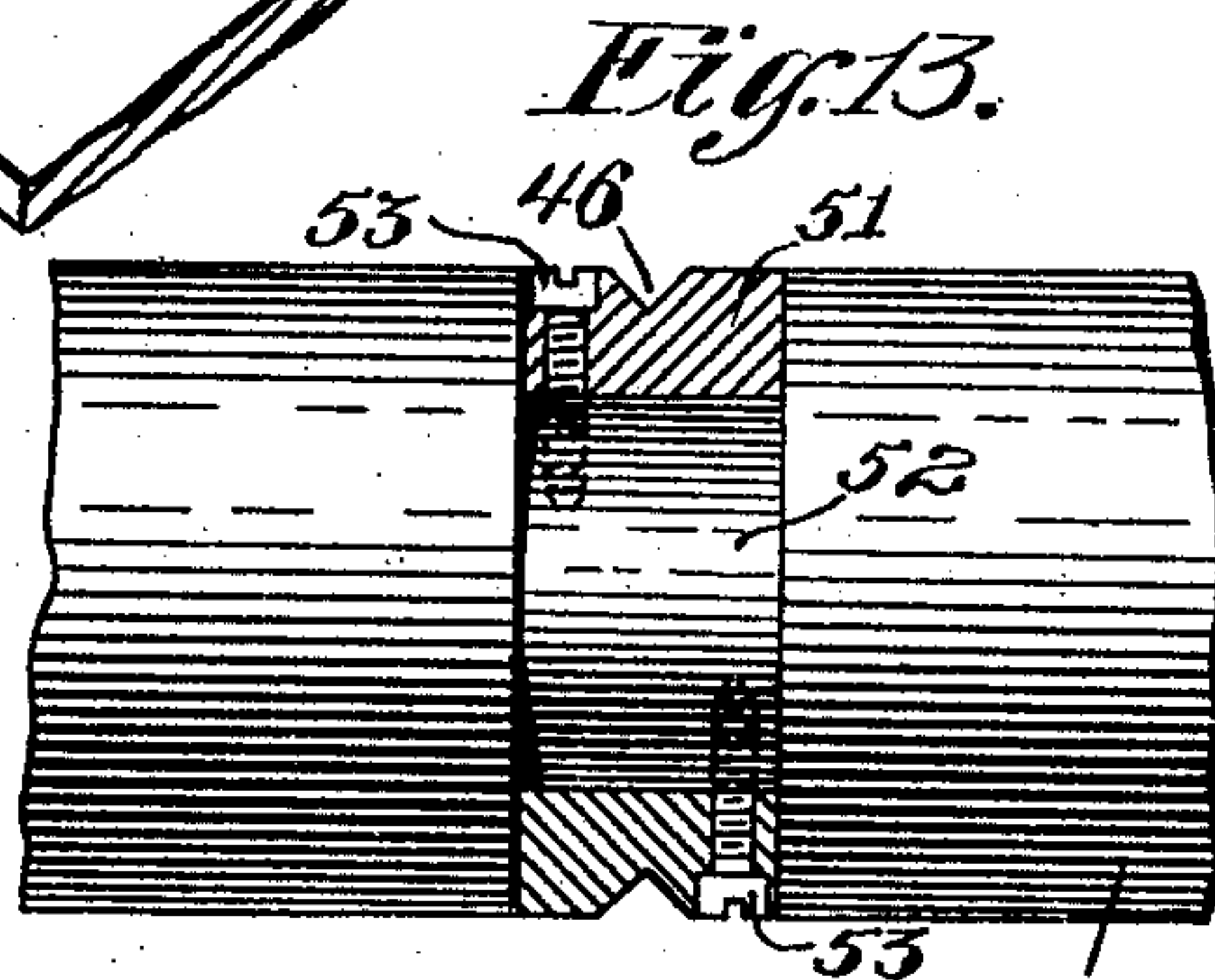
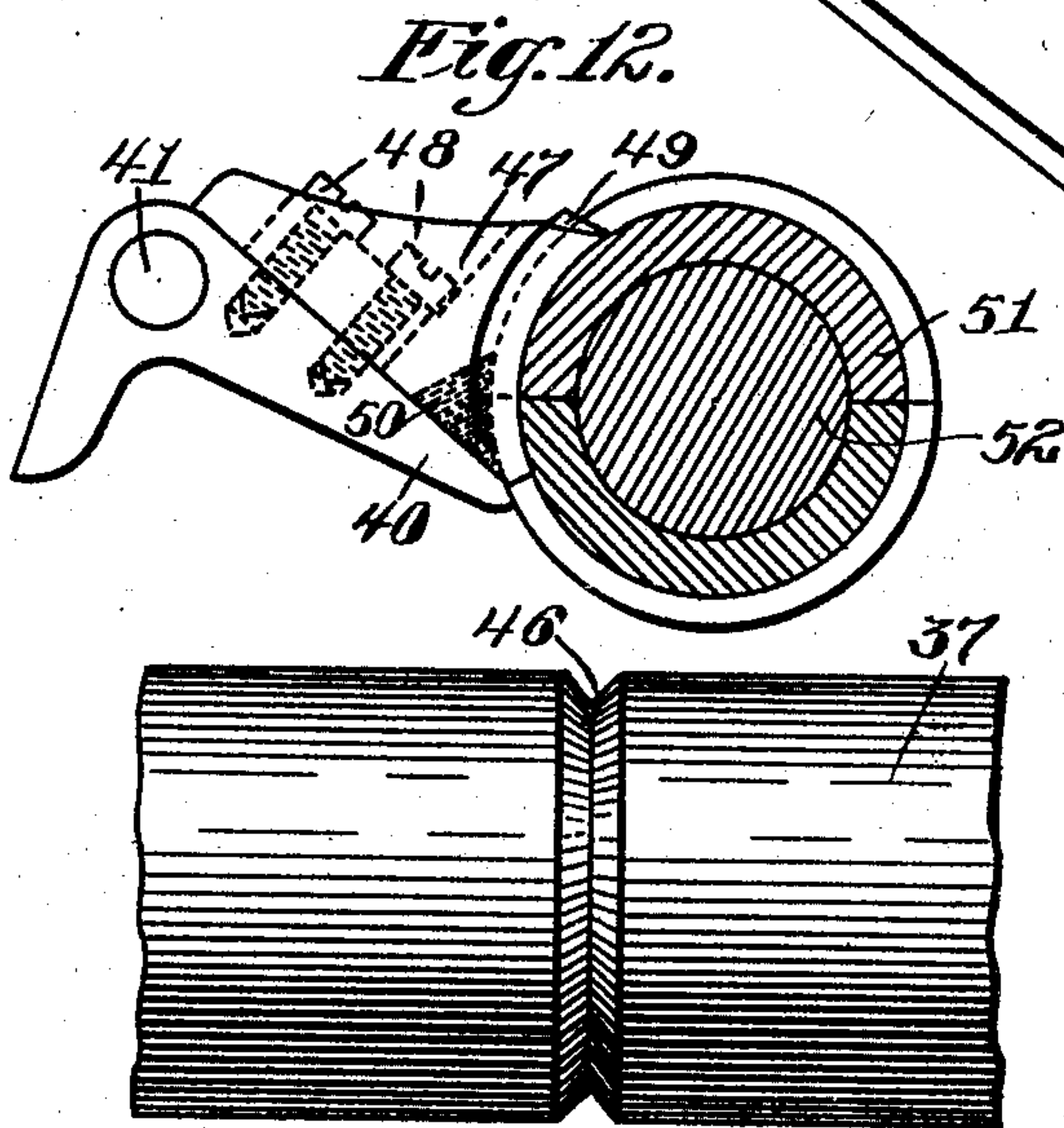
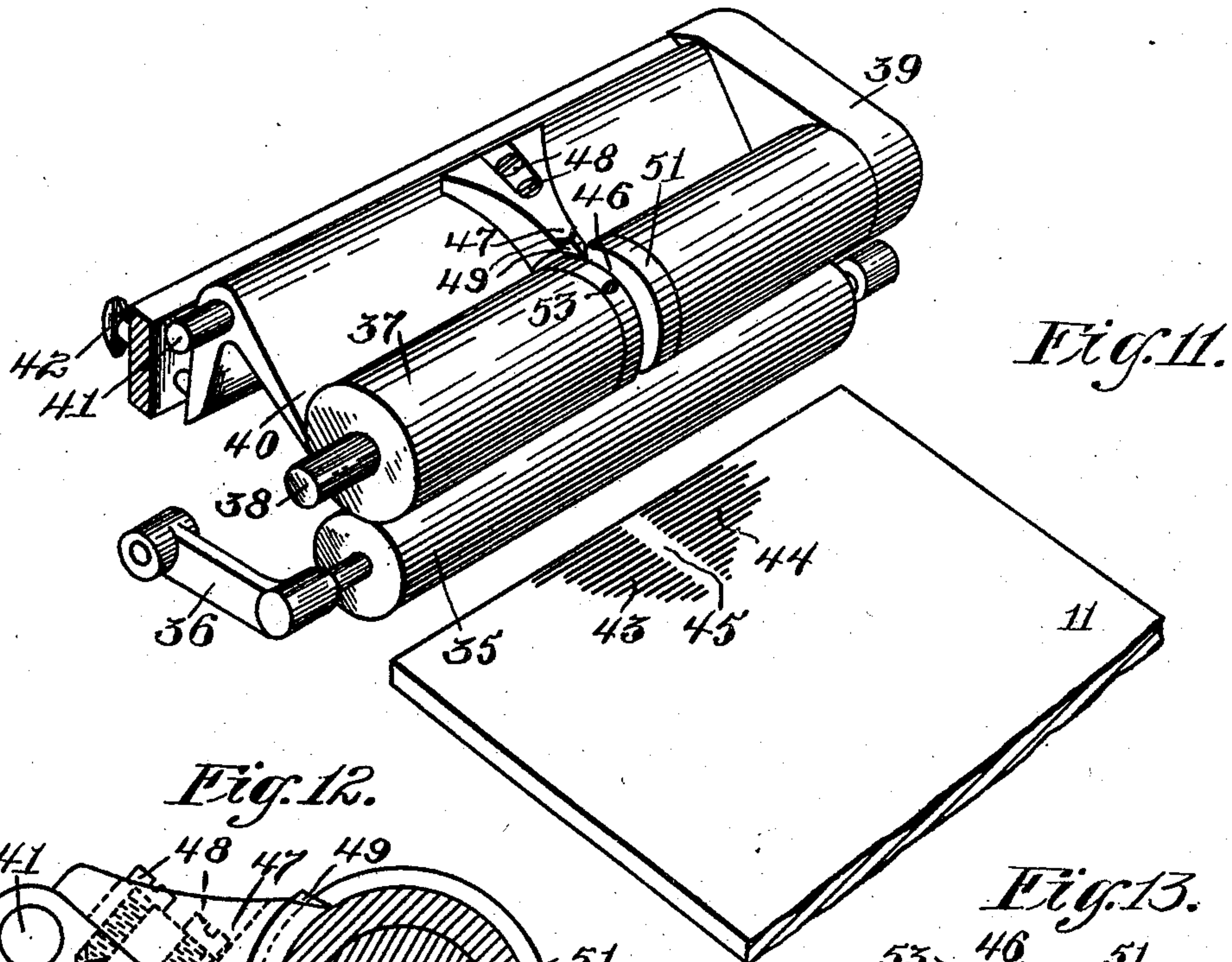
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*Inventor:*  
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*By his Attorney,*  
*J. H. Richards.*

J. J. RAFTER.  
PRINTING PRESS.

APPLICATION FILED APR. 4, 1904.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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RAFTER TWO-COLOR ROLLER COMPANY, OF BOSTON, MASSACHU-  
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## PRINTING-PRESS.

No. 795,858.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed April 4, 1904. Serial No. 201,366.

*To all whom it may concern:*

Be it known that I, JOSEPH J. RAFTER, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

This invention relates to and has for an object to provide an improved printing-press, and particularly one wherein the inking devices may be readily adapted for use either in single color or in multicolor work, as may be demanded.

It is frequently desirable to have a printing-press so constructed that it may be readily equipped for multicolor-work, and that without complete disorganization or substitution of many parts, and when it is desirable to again use the press for one-color work to be able to do so without throwing into idleness parts of the mechanism. In one form of carrying out my invention the same may be applied to a roller-press wherein the ink is applied to the distribution-table having a reciprocatory movement, and having resting upon it a set of ink-distributing rolls, and intermittently resting upon it a set of form-inking rolls, it of course being well understood by those skilled in the art that the table or ink-plate moves in unison with the form and that the form and table will alternately engage with the form-rolls, whereby ink will be supplied as occasion may demand. To get the best results in color-work wherein the matter for one color will be set up on one side of the form and the matter for the other color set up on the other side of the form to apply ink of the respective colors to the respective sides of the plate and for preventing their spreading and blending upon the rolls, a channel may be provided in the table and a channel or groove may also be provided in a corresponding portion of one of the rolls, preferably the vibrating roll. This system may be carried out in the set of ink-distributing rolls and in the set of form-rolls. When it is desired to use the press for one-color work, a closely-fitting member may be inserted into the plate and closely-fitted members be inserted into the grooves or channels upon the rollers. These members will of course be normally constituted for disassemblage from the parts by which they are carried and will

when in their assembled position make the parts substantially normal—that is, so they will perform their function the same as if they did not carry the members constituted for disassemblage, but were solid in construction. The separation of the colors may be further increased by the fountain-roll having a groove in which a scraper may be run to keep a clean division between the colors at the fountain. In some presses and for some kinds of work the ink-plate may be of solid formation and in others the grooved fountain-roll and the scraper will give sufficient separation of colors to prevent blending.

In the drawings accompanying and forming a part of this specification a form of my invention is illustrated, wherein—

Figure 1 is a plan view of an embodiment of my invention wherein a set of rolls, either form-rolls or distributing-rolls, are mounted upon a plate. Fig. 2 is a front view thereof, the plate being shown in cross-section. Fig. 3 is a side view thereof. Fig. 4 is a perspective of a portion of the plate, showing the channel therein open. Fig. 5 is a perspective of a member for filling such channel. Fig. 6 is a side view, partly broken away, in the form of roller for use in the press, the collar being removed to reveal the channel. Fig. 7 is a side view of a roll carrying a collar, the roll there being in the form for solid-color work. Fig. 8 is a form of collar which may be used. Fig. 9 is a side view of the central portion of a roll wherein the collar-neck is solid with the roll portions. Fig. 10 is a cross-section of such roll through the region of the screw-holes and a cross-section of a separable collar disassembled from the roll. Fig. 11 is a perspective view of a fountain, one end being removed, and the end of the distribution-table. Fig. 12 is a central cross-section of a fountain and fountain-roll and side view of a scraper. Fig. 13 shows a section of a roll having a collar to give a circumferential groove to the roll. Fig. 14 shows the same having a collar to give the roll an even uninterrupted surface, and Fig. 15 is a section of a roll having a groove directly in its circumference.

Like characters of reference refer to similar parts in the various views.

The distribution-table (designated in a general way by 11) is herein illustrated for the purpose of convenience in describing the in-



vention and is shown as having a channel 12 parallel with the line of movement of such distribution-table relative to the rolls. The channel in the present instance is shown as undercut and adapted to receive a member (designated in a general way by 13) which is in the present instance adapted to dovetail with such undercut channel, and the ink-receiving face 14 of such member will when the parts are assembled be substantially flush with the face 15 of the table. This channel will prevent the intermingling of the ink from the respective sides thereof when two-color work is being run on the press and will prevent the ink from the respective portions of the rolls working toward each other and blending. Other means of producing and closing the channel may be resorted to as the exigencies of particular employments may demand.

The table in the present instance is shown as resting upon tracks 16, whereon it may be moved in any suitable or well-known manner. The members embodying the tracks have side portions 17, affording bearings for the spindles 18 of the rolls. According to the present illustration rolls which according to the present general practice of printing will be composition rolls are designated in a general way by 19 and are shown as having contact with the surface of the table. Such rolls are uninterrupted from end to end in the present illustration, although in practice it may be found expedient to employ a roll having a groove at the region of the groove in the plate. The upper rolls, or the rolls out of contact with the table, are designated in a general way by 20, and according to the present system of organizing printing-presses such rolls are made of metal, either iron or steel, and carry at the ends of the spindles collars 21, which collars are engaged by a pin 22, depended from a lever 23, carried by a rod 24, oscillated in some suitable manner, which lever causes the rolls 20 to reciprocate back and forth across the surface of the other rolls described, whereby the ink is distributed upon the perimeters of such rolls and the distribution is caused upon the distributing-table in the case of the rolls for the distribution of ink, and an even distribution of the ink upon the form-inking roll is had. Cog-wheels (indicated by dotted lines 25) may be employed for rotating the metal rolls, which by contact with the composition rolls will cause their movement. Generally the composition rolls, or whatever rolls happen to be in contact with the table, will have the same surface speed as such table during the relative movement of the rolls and table. The metal rolls are shown as divided into sections, and one of such sections is removable, whereby a space may be provided mating with the space formed by the removal of the member from the table. In certain lines of work good results may be accomplished by either using the channeled

table or by using the grooved rolls; but in cases where considerable work is to be done it will render the operation more simple and insure greater freedom from liability of blending of colors to have the rolls and table provided with channels.

The rolls may be provided for the production of the channels with readily-removable collars, (designated in a general way by 26.) In Fig. 6 a roll is shown wherein the roll perimeter is divided into two rolls 27 and 28 and a neck 29 of smaller diameter, which neck has a screw-threaded stem 30 protruding therefrom, which stem will take into a suitable screw-thread in the other portion of the roll, and the two may be securely united. When it is desired to change from a continuous to a divided roll or the reverse, it is simply necessary to unscrew the members and remove or insert the collar, as the case may be. In Fig. 9 a form of roll is shown wherein the neck 29 is fast upon both of the sections 27 and 28, which neck is adapted to receive a divided collar, the halves 31 and 32 of which are seen in Fig. 10, which halves may carry screws 34, adapted for insertion into screw-holes 33 in the neck, although other means of securement may be used in practice.

The several colored inks may all be taken from the same fountain by a fountain-roller having its ink-receiving faces for the several colors separated, and in Fig. 11 the distribution-table is supplied by ink by a contact-roll 35, supported on rock-arms 36, actuated by some suitable mechanism and adapted to take the inks from the fountain-roll 37 and convey them to the plate for distribution by the distributing-rolls. The fountain-roll has a spindle 38, carried by the ends 39 of the fountain. The bottom of the fountain is shown as the plate or scraper 40, bearing on the fountain-roll and carried by trunnions 41, carried by the ends 39. The pressure of the plate on the roll may be regulated by set-screws 42, impinging on an extension of the scraper. The parts may of course be differently arranged in other forms of press. The ink is shown applied to the plate and the colors are designated in a general way by the tints 43 and 44, respectively, a clean divisional space 45 separating them. The fountain-roll may be provided with a circumferential groove 46, (shown in the present instance as V-shaped,) in which the nose of a scraper 47 will rest. The scraper 47 may be adjustably carried by the scraper-plate 40. Screws 48 entering the latter and traversing a slot in the former will provide a convenient means to so adjust and secure the scraper relatively to the roll. The scraper may have faces 49 on its upper side to direct the ink which it has removed away from the groove and onto the portion of the roll carrying the ink. The ink (designated in a general way by 50) will be scraped from the roll in a well-known manner and there will be as many sepa-



rated faces as there are colors. The grooves may be directly turned into the roll, as seen in Fig. 15, or may be put upon a split collar 51, held to a neck 52 of the roll by screws 53. The grooved collar may be replaced by a plain collar 54 when it is not desired to use the groove-scraper.

It will thus be apparent that when one-color work is to be run on the press the press will be assembled substantially in the form illustrated in Fig. 1, and when it is desired to print two-color work the channels will be opened in the table and in the rolls and the groove-scraper applied, so that the colors will be maintained separate and isolated, whereby good results may be obtained upon the press.

The form of press adopted in the present drawings is merely for the purpose of illustration, and it will be obvious to those skilled in the art that my invention may be used upon other and different presses without departing from the spirit and scope thereof.

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

1. A roll for a printing-press comprising end portions, a neck uniting the same, and a removable collar carried by such neck, the end portions and collar constituting a continuous roll.

2. A roll for a printing-press comprising two roll-sections, a neck carried by one of them, and screw-threaded means to fasten the neck to the other of them and a collar carried by such neck.

3. A roll for a printing-press having two roll-sections, a neck uniting the same, and a split collar carried by such neck and having its perimeter coincident with the perimeters of the roll-sections.

4. A roll for a printing-press having two roll-sections, a neck uniting the same, a split collar carried by such neck and having its perimeter coincident with the perimeters of the roll-sections, and means to fasten such collar to the neck.

5. In a printing-press, the combination with a distribution-plate, of a pair of rolls running thereon; a pair of vibrator-rolls in engagement with such rolls respectively, and portions of

the vibrator-roll surface normally constituted for disassemblage therefrom.

6. In a printing-press, the combination with a distribution-plate, of a pair of rolls running thereon; a pair of vibrator-rolls in engagement with such rolls respectively, and portions of the vibrator-roll surface normally constituted for disassemblage therefrom, and part of the surface of the table normally constituted for disassemblage therefrom.

7. In a printing-press, the combination with an ink-distributing table, of a system of rolls in engagement with each other and one of which is adapted to run upon such table, a channel in one of such rolls, a fountain having a system of rolls, a channel in one of such rolls, and a scraper to maintain such channel free from ink and divert the surplus ink to the immediate supply therefor.

8. A fountain-roll for a printing-press comprising a cylindrical body having a neck intermediate its ends, and a set of interchangeable collars for such neck, the perimeters of the respective collars having dissimilar formation.

9. In a printing-press the combination with a distribution-table, of an ink-roll adapted to have surface engagement therewith, a fountain having a plurality of compartments, a fountain-roll to receive ink therefrom and in surface engagement with said former roll and having a portion of its perimeter out of engagement with said roll, and means to remove the ink from such portion and return it to the respective compartments of the fountain.

10. In a printing-press the combination with a distribution-table, of a fountain having a number of compartments each adapted to contain a separate ink, a fountain-roll to receive ink therefrom and having channels about its perimeter, and means to remove the ink from such channels and to direct the removed ink toward the portion of the roll running in the fountain supplied with such ink.

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Witnesses:

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