

Sept. 4, 1928.

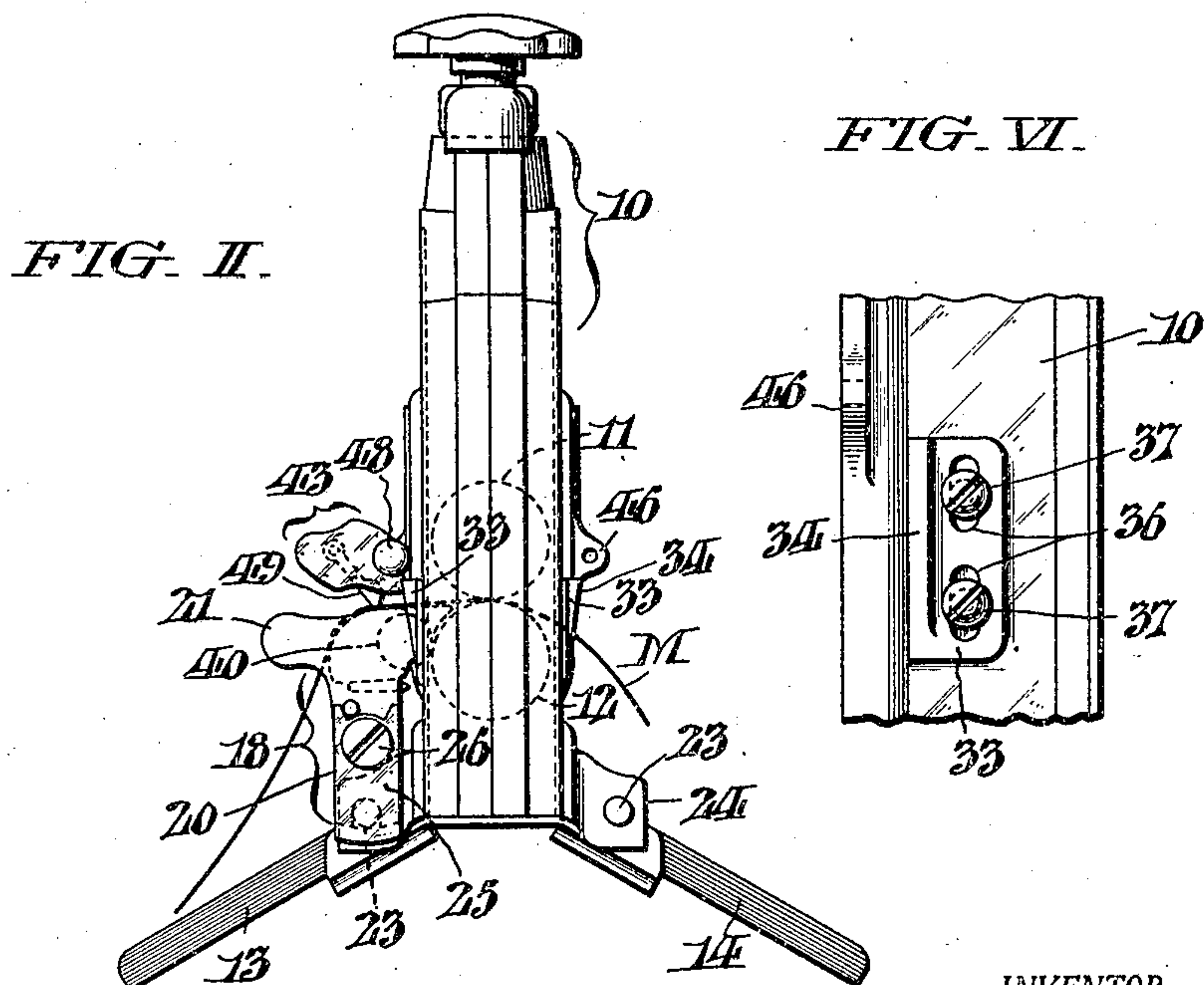
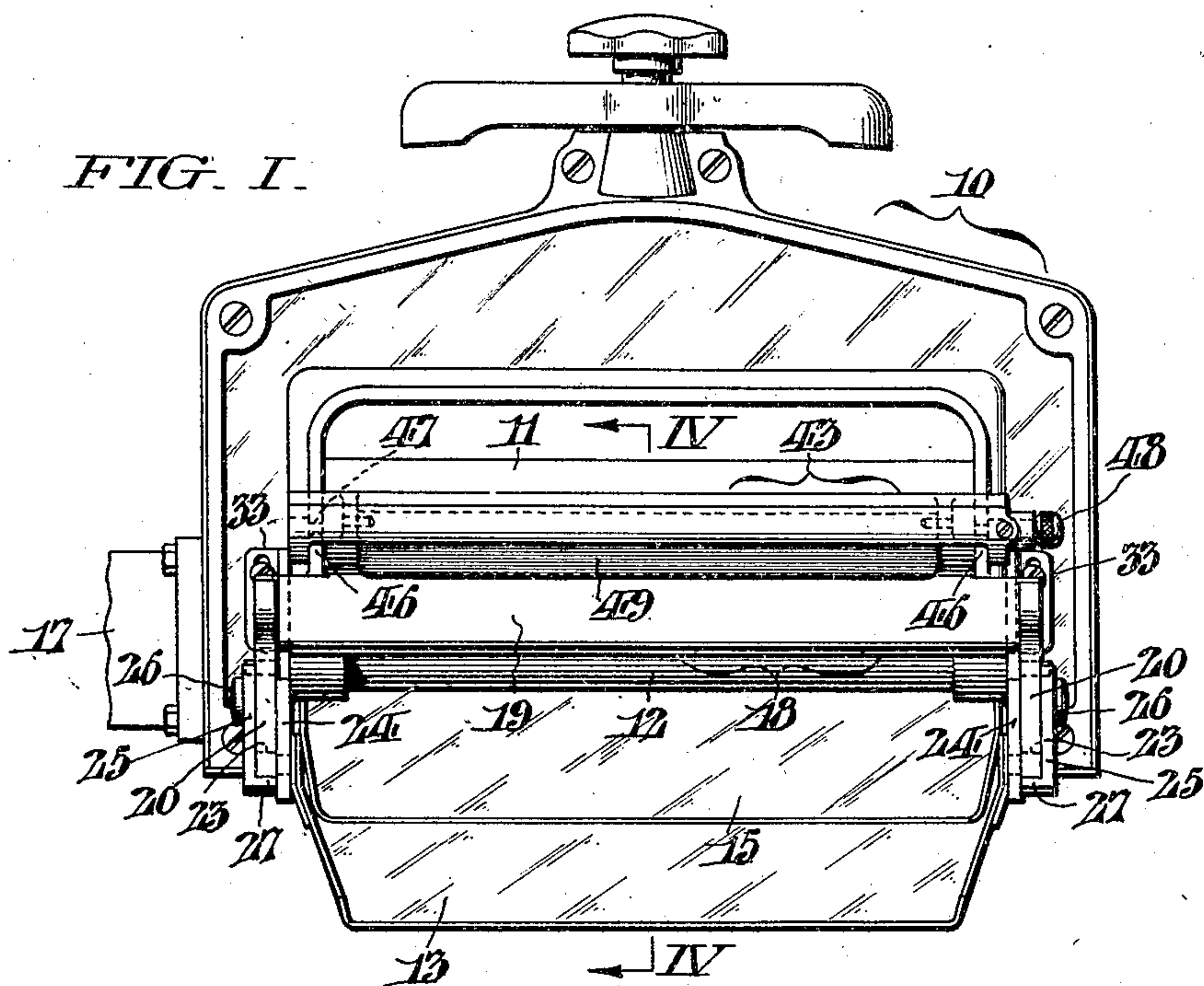
1,683,352

E. A. HIRNER

WRINGER

Filed Dec. 15, 1927

2 Sheets-Sheet 1



WITNESSES

John C. Berger.
Thomas W. Kerr, Jr.

INVENTOR:

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Emil A. Hirner,
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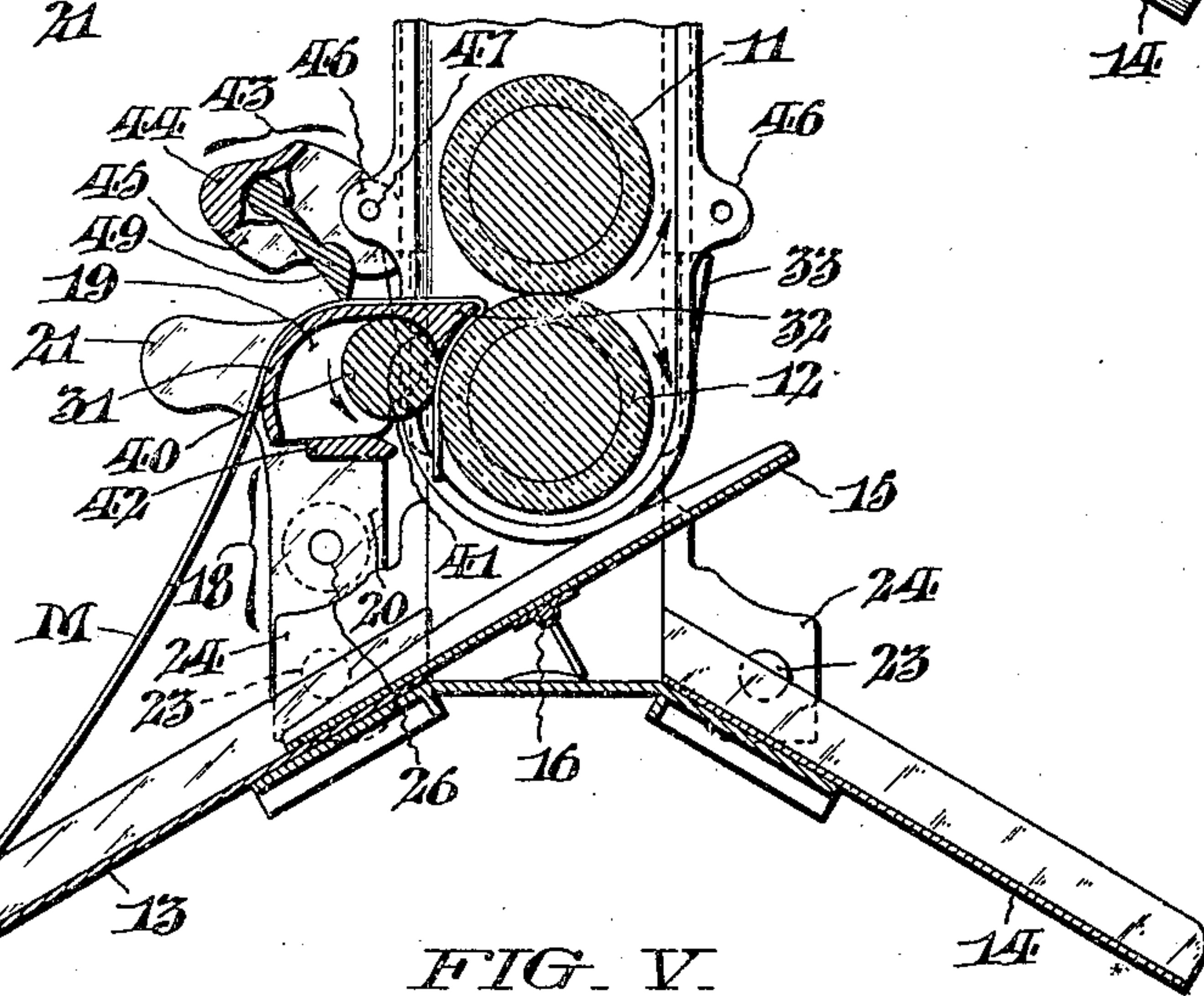
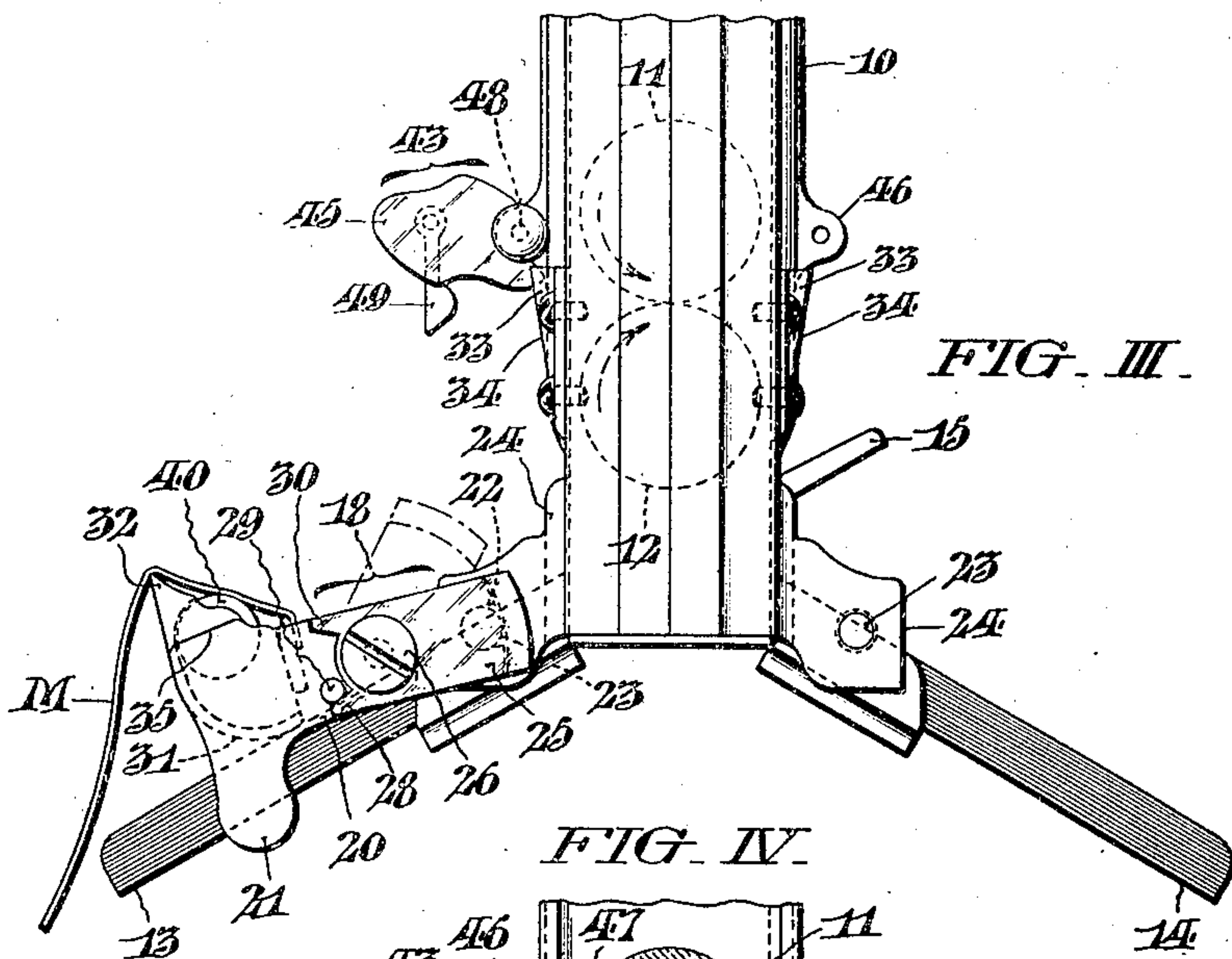
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E. A. HIRNER

WRINGER

Filed Dec. 15, 1927

2 Sheets-Sheet 2



WITNESSES
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UNITED STATES PATENT OFFICE.

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WRINGER.

Application filed December 15, 1927. Serial No. 240,089.

This invention relates to wringers, more particularly to power driven reversible wringers of the kind ordinarily associated with domestic washing machines.

5 In connection with such wringers I aim to facilitate rapid and successive feeding of pieces of material which are to be wrung without danger of the fingers or hands of operators being caught and mangled by the
10 squeeze rollers of the wringers. These ends I attain through provision of a very simple and efficient feeding means which is absolutely positive in operation, capable of attachment to any standard form of wringer
15 with capacity for transposal from one side to the other of the wringer, and embodying instrumentalities whereby the materials are first presented to the squeeze rollers, and thereafter advanced into the bight between
20 said squeeze rollers for passage through the wringer.

In the drawings, Fig. I is a front view of a wringer conveniently embodying my invention.

25 Fig. II is an end elevation of the wringer viewed from the right of Fig. I.

Fig. III is a fragmentary end view on a somewhat larger scale than the preceding illustration.

30 Fig. IV is a partial cross section of the structure taken as indicated by the arrows IV—IV in Fig. I.

Fig. V is a view similar to Fig. IV showing the manner in which the material is advanced between the squeeze rollers of the wringer; and

Fig. VI is a fragmentary view of one of the important details associated with my invention.

40 The wringer illustrated in Fig. I is, generally speaking, standard in construction, embodying a yoke-like frame 10 with suitable bearings in its vertical end portions to support the rubber-covered squeeze rollers 11, 12, and enclosing gearing to drive said
45 rollers. At opposite sides the wringer is equipped with sloping drain and guide chutes 13, 14, and between these is mounted an auxiliary drain plate 15 which is centrally pivoted at 16 so as to be tiltable for cooperation with either of the fixed drain
50 chutes as required for forward and reverse operation of the wringer. A bracket part-

ly shown at 17 in Fig. I serves, after the manner of a cantilever, to support the
55 wringer horizontally over the top of the washing machine, said bracket being hollow for passage of the driving connections (not shown) to the squeeze rollers 11, 12. In standard wringers of the kind briefly de-
60 scribed above, mechanism is also provided to enable reverse operation of the squeeze rollers, but since such mechanism is not concerned in the present improvements, a showing thereof has also been omitted from the
65 drawings.

The feed means to which this invention is more particularly directed comprises a member 18 which is manually swingable upward from the substantially horizontal loading
70 position of Fig. III to the active or vertical position of Figs. II and IV in presenting the material M to be wrung to the squeeze rollers 11, 12. As shown, the member 18 has the form of a hollow bar 19 with integral
75 side arms 20 and manipulating handles 21. The arms 20 are notched as at 22 for engagement with fulcrum studs 23 on lugs 24 whereof there is a pair projecting outward from each side of the wringer frame 10 to
80 enable transposal of the member 18 for use at either side of the squeeze rollers 11, 12. As a convenient means for detachably securing the member 18, I provide keepers 25 that are deflectable about pivot screws 26
85 and have inward projections 27 (Fig. I) at their free ends to bridge the notches 22 in the arms 20 over the fulcrum studs 23. The keepers 25 are normally held by gravity in the closed position illustrated through con-
90 tact of lugs 28 on them with stops 29 in the side arms 20. When the member 18 is to be removed for transfer, the keepers 25 are deflected upwardly about the screws 26 as far as permitted by engagement of lugs 30
95 with the opposite sides of the stops 29, the allotted movement being sufficient to clear the fulcrum studs 23 as will be obvious from the dot and dash line showing in Fig. III.

By reference to Figs. IV and V it will be
100 noted that the rear portion of the cross bar of the member 18 is rounded as at 31 while its forward portion has the form of a tongue 32 with a comparatively sharp frontal edge. Inward movement of the feed member 18
105 (toward the squeeze rollers 11, 12) is limited

by stops 33 whereof there is also a pair at each side of the wringer frame 10, said stops having sloping edges 34 (Figs II and III) adapted to be engaged by shoulders 35 on the side arms of said member 18. The stops 33 are slotted as at 36 (Fig. VI) for passage of securing screws 37, and are thus rendered adjustable vertically on the wringer frame 10. Within the hollow beneath the tongue 32, the member 18 carries a freely revolving auxiliary feed roll 40, which, when said member is in the active position shown in Fig. IV, receives motion from the lower squeeze roller 12. By adjusting the sloping stops 33 as above suggested it will be apparent that the proximity of the auxiliary feed roller 40 relative to the lower squeeze roller 12 may be regulated to a nicety in adapting the wringer for operation upon the thinnest materials without the tongue 32 ever actually contacting with said squeeze roller. It is to be especially noted from Fig. IV, that the inner surface of the tongue 32 is rounded as at 41 into close conformity with the surface of the auxiliary feed roll 40. This construction insures the material M against injury by precluding the possibility of its becoming wrapped around the auxiliary feed roll 40. Immediately below the roll 40, the member 18 is equipped with a supplemental tongue 42 which extends transversely between the arms 20 in parallelism with the cross bar 19. The supplemental tongue assists in retainment of the material M by the bar 19 as the member 18 is swung into active position as hereinafter more fully explained.

To prevent access of the fingers to the bight between the squeeze rollers 11, 12 incidentally to manipulation of the feed member 18, I provide a guard 43, which, in a general way, resembles the feed member 18 in that it comprises a transversely extending bar 44 with integrally formed side arms 45. Moreover, like the feed member 18, the guard 43 is transferable from one side to the other of the squeeze rollers 11, 12 through provision of pierced ears 46 at opposite sides of the wringer frame 10 to take pivot studs 47, 48 on said guard. Of these, the stud 48 is retractable to permit removal of the guard for the purpose mentioned. Beneath the cross bar 44 of the guard 43 is pivotally suspended an element 49 that has its lower edge chamfered and serves to check rearward slippage of the material on the feeding member 18 when the latter is in its active position.

The operation of my invention is as follows: Assuming the squeeze rollers 11, 12 to be rotating in the direction of the arrows (Figs. III, IV) and the feed member 18 resting in the lowered horizontal position on the drain chute 13, the leading margin of the material M is laid over the tongue 32

of said feed member as well as over the auxiliary feed roll 40 and the auxiliary tongue 42 after the manner shown in Fig. III. With this preparation, the member 18 is swung upwardly, through grasping of its handles 21, to the active position of Fig. IV against the stops 33 and the material thereby presented before the squeeze rollers 11, 12, the sharp edges of the tongues 32 and 42 acting in concert to prevent the material from dropping off incidentally to such movement of the member 18. With passage of the cross bar 19 of the member 18 beneath the guard 43, the element 49 is swung inward. As shown in Fig. IV, the element 49 finally comes to rest at an inclination with its lower chamfered end resting upon that portion of the material which lies directly over the bar 19 of the member 18, the inclination being such as to prevent rearward slippage of the material without however interfering with its forward progression under draft of the squeeze rollers. While the material is thus held in check, its lapping margin, caught between the lower squeeze roller 12 and the auxiliary feed roll 40, is urged upwardly and inwardly with attendant rolling and advancement of the leading folded edge of the material into the bight between the two squeeze rollers. When once gripped by the squeeze rollers, the material is carried forward without further assistance from the feeding means so that the hold on the member 18 may be released until its aid is again required. Functioning of the various parts of my feeding mechanism incidentally to reverse operation of the wringer is precisely the same as above described, the transposal of the member 18 and the finger guard 43 to the opposite side of the wringer being so obvious from what has already been said as to avoid necessity for repetitive description.

It is to be understood that my invention can be readily applied to existent wringers by separately attaching the fulcrum lugs 24 and the ears 46 instead of forming them integrally with the frame 10 as illustrated in the drawings.

Having thus described my invention, I claim:

1. In a wringer, a pair of cooperating squeeze rollers, a feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, and means to advance the folded edge of the material into the bight between said squeeze rollers.

2. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for pres-

entation of the material before the squeeze rollers, and means deriving motion from one of the squeeze rollers to advance the folded edge of the material into the bight between said squeeze rollers.

3. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material to the squeeze rollers, and an auxiliary feed roll deriving motion from one of the squeeze rollers to advance the folded edge of the material into the bight between said squeeze rollers.

4. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material to the squeeze rollers, and means to urge the lapping portion of the material forward for advancement of its leading folded edge into the bight between said squeeze rollers.

5. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, means to check rearward slippage of the material on the tongue, and means to concurrently urge the lapping portion of the material forward for advancement of its leading folded edge into the bight between said squeeze rollers.

6. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, means independent of the movable member for engaging the upper surface of the material to check rearward slippage on the tongue, and means carried by the movable member to concurrently urge the lapping portion of the material forward for advancement of its leading folded edge into the bight between the squeeze rollers.

7. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, a freely suspended element adapted to rest upon the upper surface of the material and to check rearward slippage of the same on the tongue, and means to concurrently urge the lapping portion of the material forwardly for advancement of its leading folded edge into the bight between said squeeze rollers.

8. In a wringer, a pair of cooperating squeeze rollers, feeding means including a relatively movable member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, a freely suspended element adapted to rest on the upper surface of the material and check rearward slippage thereof on the tongue, and an auxiliary roller deriving motion from one of the squeeze rollers to concurrently urge the lapping portion of the material forward for advancement of its folded leading edge into the bight between said squeeze rollers.

9. In a wringer, a pair of cooperating squeeze rollers, feeding means including a member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, said member being swingable toward the squeeze rollers into active position, a finger guard with a freely suspended element in the path of the feeding member adapted to check rearward slippage of the material on the tongue of said feeding member, and an auxiliary roll carried by said feeding member to urge the lapping portion of the material forwardly for advancement of its folded leading edge into the bight between said squeeze rollers.

10. In a wringer, a frame supporting a pair of cooperating squeeze rollers, a feeding member pivotally attached to the wringer frame for swinging movement toward and away from the squeeze rollers and formed with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, adjustable stops on the wringer frame to limit inward movement of the swinging member with prevention of direct contact of the tongue aforesaid with the squeeze rollers, and means to advance the folded leading edge of the material into the bight between said squeeze rollers.

11. In a reversible drive wringer, a pair of cooperative squeeze rollers, a feeding member with a tongue adapted to be overlapped by a margin of the material which is to be wrung for presentation of the material before the squeeze rollers, said member being movable toward and away from said rollers as well as capable of transposal from one side to the other of the wringer, and means to advance the folded leading edge of the material into the bight between said squeeze rollers.

12. In a reversible drive wringer a pair of cooperative squeeze rollers, a relatively swingable feeding member capable of transposal from one side to the other of the wringer and having between side arms a tongue adapted to be overlapped by a margin of the material which is to be wrung for

presentation of the material before the
squeeze rollers, said side arms being notched
for selective cooperation with fulcrum studs
at opposite sides of the wringer frame, re-
5 leasable keepers on said arms to maintain
them normally in engagement with the ful-
crum studs, and means to advance the folded

leading edge of the material on the tongue
of the feeding member into the bight between
said squeeze rollers.

In testimony whereof, I have hereunto
signed my name at Philadelphia, Pennsyl-
vania, this 13th day of December, 1927.

EMIL A. HIRNER.