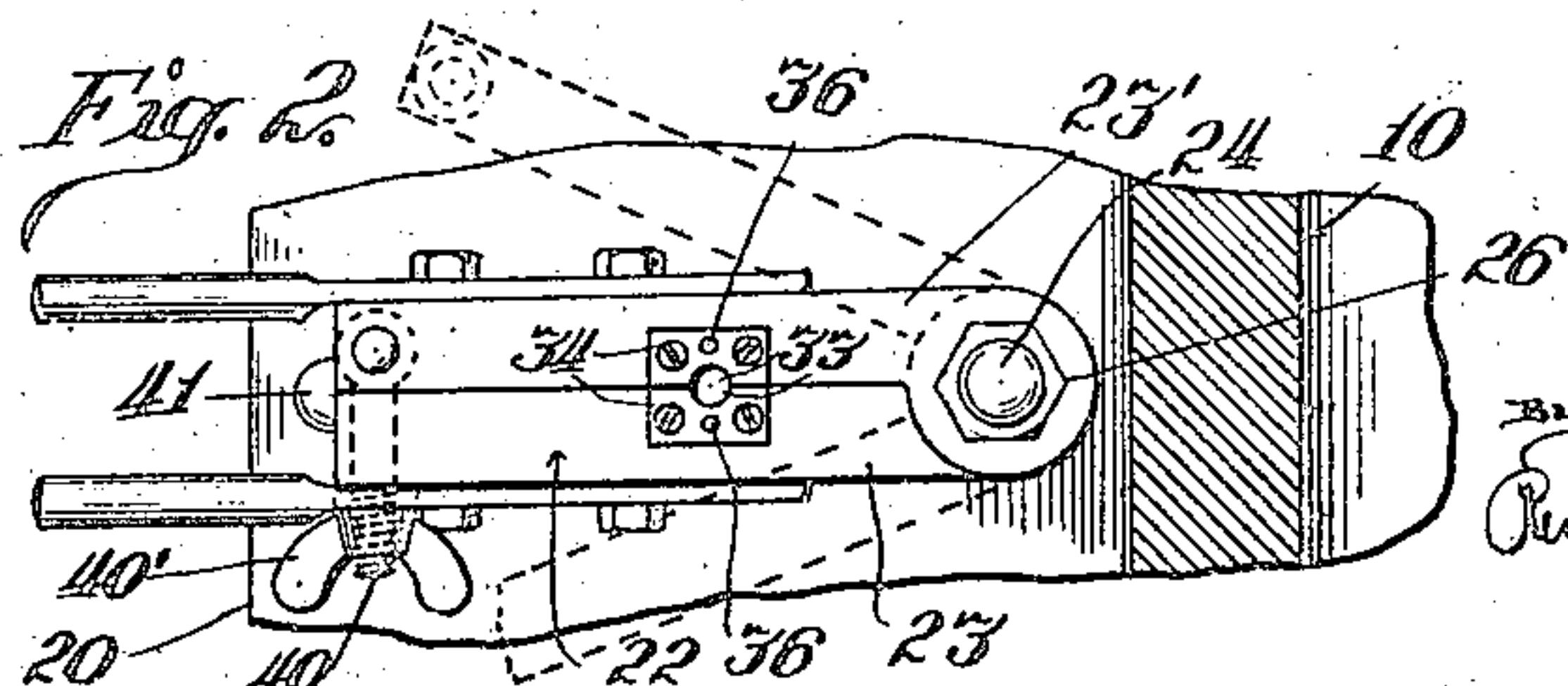
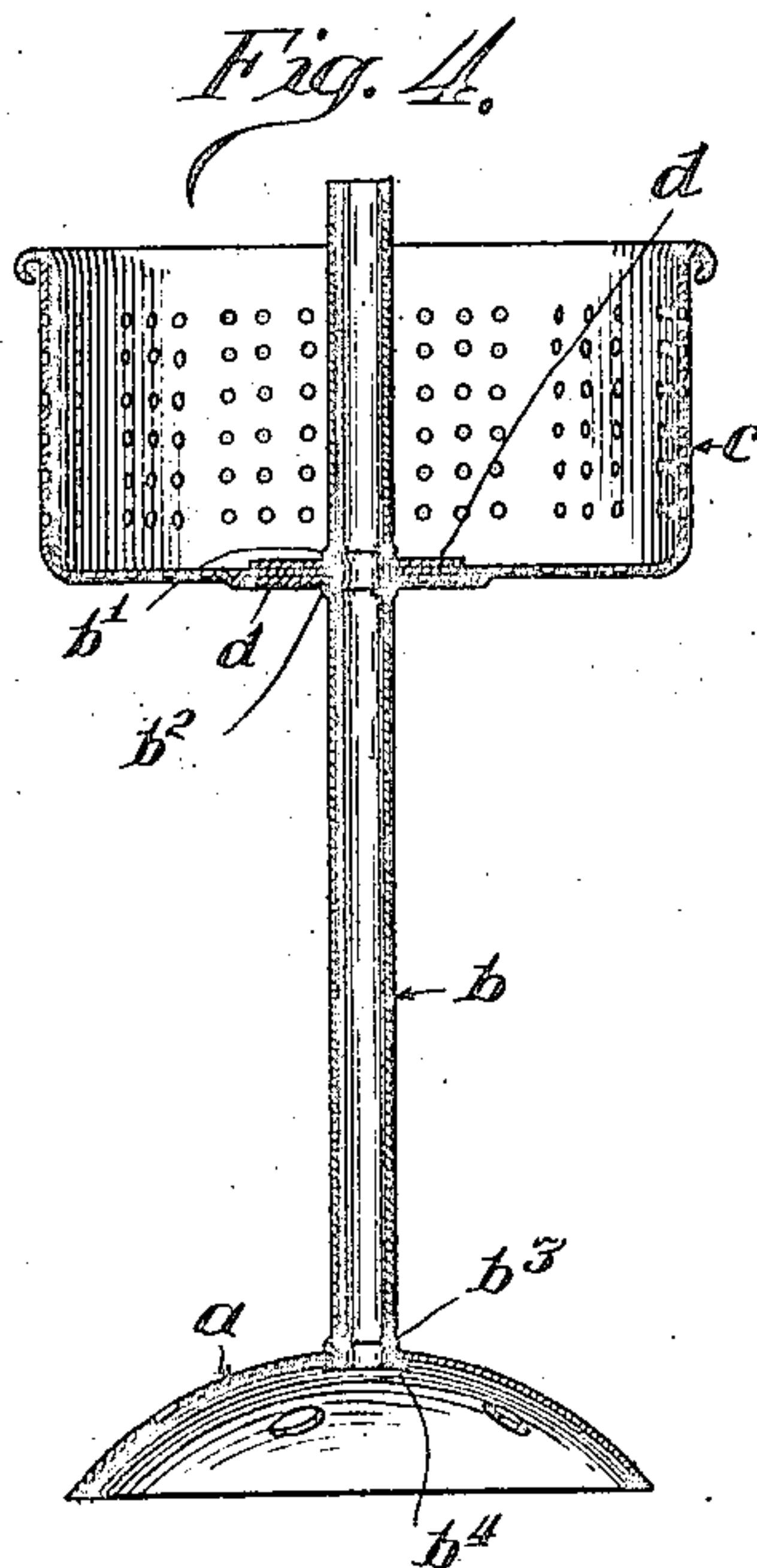
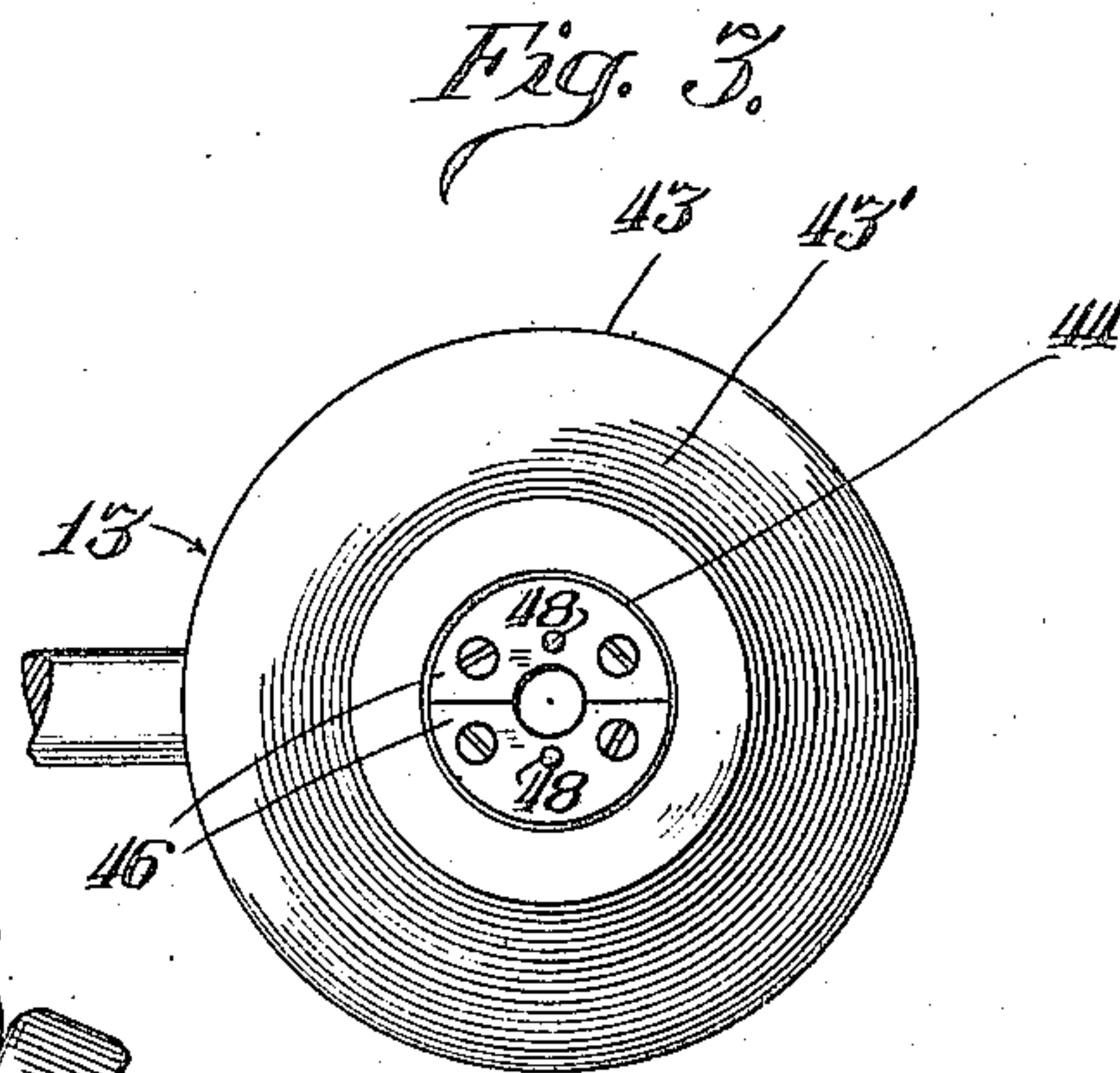
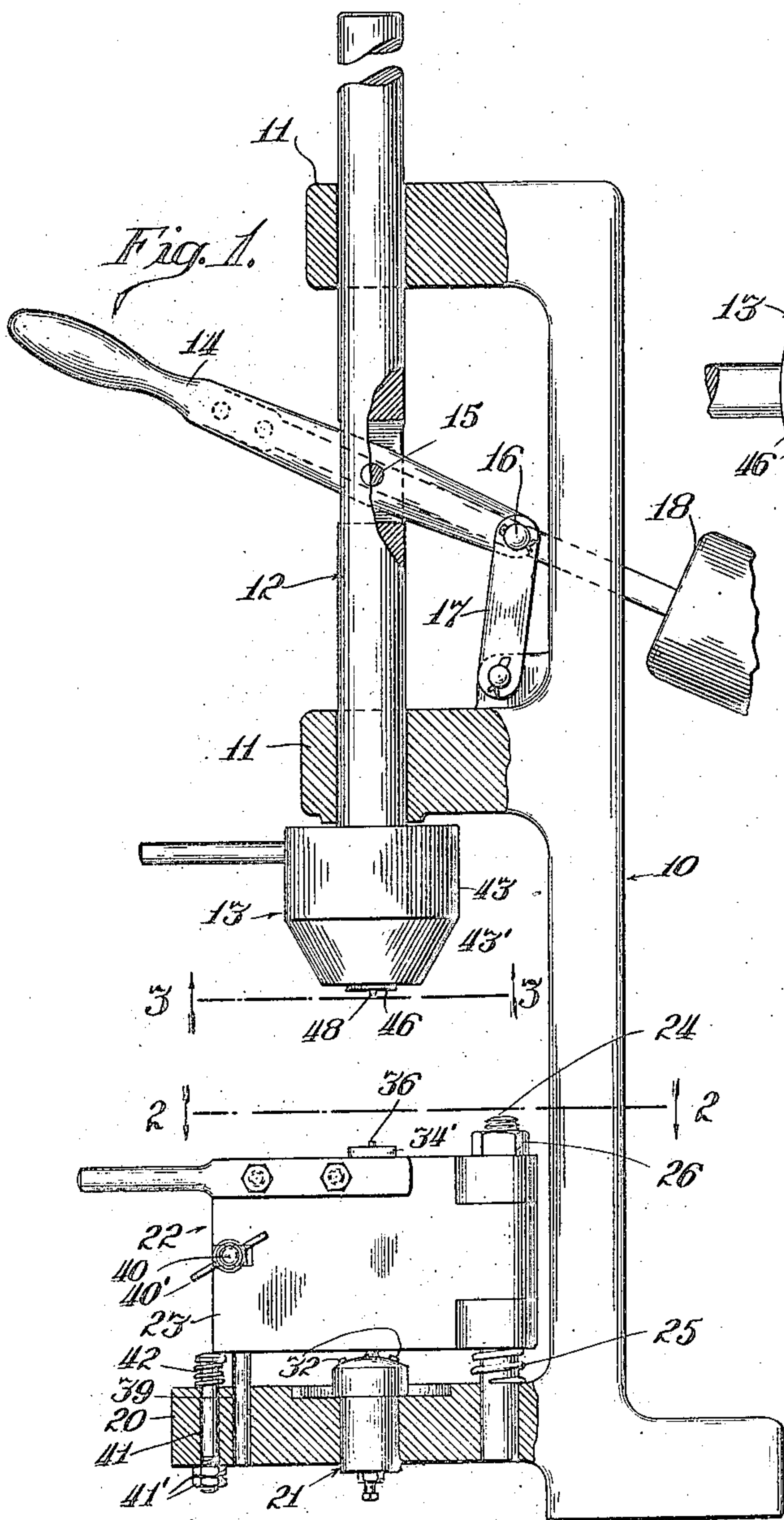


Jan. 2, 1923.

1,440,493.

J. L. REED.  
ASSEMBLING PRESS.  
FILED APR. 30, 1921.

2 SHEETS—SHEET 1.



Inventor  
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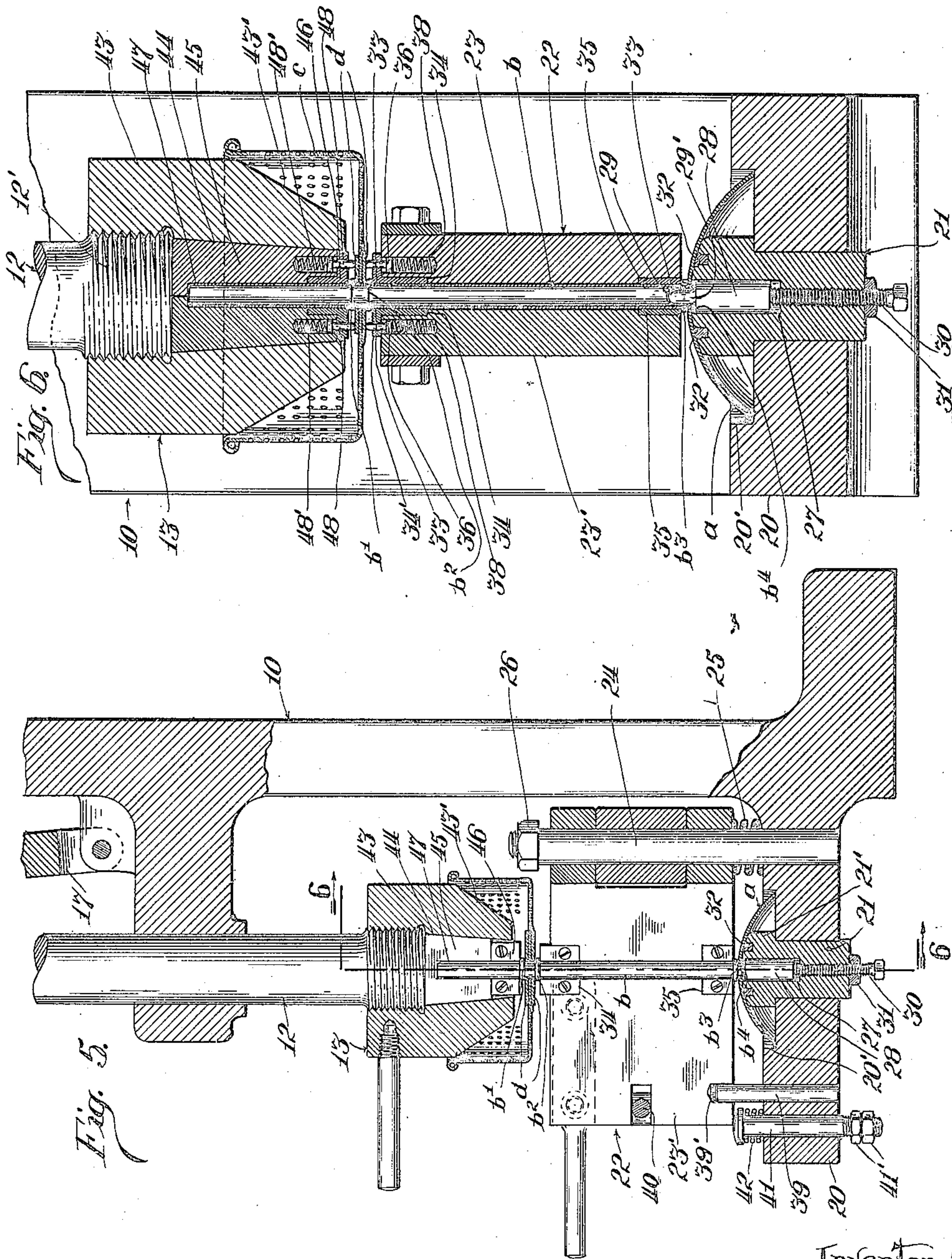


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Inventor  
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# UNITED STATES PATENT OFFICE.

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## ASSEMBLING PRESS.

Application filed April 30, 1921. Serial No. 465,753.

*To all whom it may concern:*

Be it known that I, JOHN L. REED, a citizen of the United States, residing at Lemont, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Assembling Presses, of which the following is a specification.

My invention relates to a machine for assembling perforated parts in securely attached relation to a carrying tubular part, and in some of its features has to do more particularly with assembling and securing together the parts of a percolator liner.

In coffee percolators it is common to provide a liner comprising a spherically arched foot opening to and attached to the lower extremity of a vertical stem or tube and to attach to the tube below the upper end thereof a perforated coffee-basket of cup-shape. By the mechanism hereinafter described one may, with a single operation of the press, fix the several parts in desired assembled relation, beading the tube above and below the bottom of the coffee-basket and above and below the metal of the foot.

In general the object of my invention is to provide an assembling machine or press that is simple, efficient and durable, in which press the several parts of the liner may easily and quickly be placed in loosely assembled relation and securely and adequately held in position for the succeeding operations; and by the operation of which press through a single rapid stroke the tube may be re-shaped to throw out the retaining beads that will permanently and firmly attach the basket and foot thereto in precisely the desired relation, all with minimum possibility for error or failure to produce a perfect assembled product.

With a view to attaining these and other objects which will become apparent to those skilled in the art from the following description, my invention consists in the features of construction and combinations and arrangements of parts hereinafter set forth and claimed.

In the drawings, wherein I have illustrated a single embodiment of my invention, Fig. 1 is a side elevation, with parts broken away, showing the assembly press; Fig. 2 is a fragmentary section on line 2—2 of Fig. 1; Fig. 3 is a fragmentary view taken on line 3—3 of Fig. 1; Fig. 4 is a ver-

tical section through a complete percolator liner in the assembling of the parts whereof the press is employed; Fig. 5 is a central vertical section, from front to rear, through the press in condition of use; and Fig. 6 is a vertical section in a transverse plane, on a somewhat enlarged scale, taken generally on line 6—6 of Fig. 5.

The vertical frame 10 carries in its guides a plunger 12 having a head 13 to cooperate with the upper end of the liner-tube. Any simple means may be provided for forcibly depressing the head, such as hand lever 14 pivoted at 15 to the plunger and fulcrumed at 16 on the swinging link 17 that finds bearing in the frame, a counterweight 18 being suitably connected with the handle normally to hold the plunger and head in raised position.

On the over-hung base portion 20 of the frame are arranged the foot-blocks 21 and a pressure clamp structure 22, the former to receive the prepared foot of the liner and the bottom extremity of the tube on which said foot will loosely be assembled, and the pressure clamp to receive the mid-portion of the tube and properly position it, together with the basket elements loosely strung thereon ready for the operation of the plunger head.

The structure comprises two gates or jaws 23 and 23' jointly pivoted on and slidable on hinge-bolt 24 that is encircled by spring 25 normally raising the hinged end of the jaws to a height determined by the adjusting nut 26 on the bolt. When swung open these jaws expose the foot-block 21 the cylindrical stem of which extends through the base 20 and the head of which, rounded for substantial conformity with the underside of the percolator foot extends, as at 21', above the base in which is cut a recess 20' neatly to receive the margin of the liner foot. In the center of this block is a recess 27 in which is snugly mounted a centering pin 28 having a shaper-point 29 protruding through the orifice of the recess, the vertical position of the pin being variable by adjusting bolt 30 having a lock nut 31. When one loosely assembles a liner foot *a* on the bottom of a suitable section of stock for tube *b* and places the two on the foot-block, the tube-end encircles the shaping pin 29 down to the line where the latter begins its shap-



ing-flare 29', while the foot-blank is elevated slightly above the surface of the foot-block by resilient means such as the small rubber posts 32 that normally protrude slightly above the spherical top surface of the block. One may then close the gates or jaws of the pressure clamp 22 to retain these parts in the stated loosely-assembled relation.

Each pressure jaw has therein a groove forming half of the vertical stem-receptive aperture 33, lipped at top and bottom by detachable wear plates 34 and 35, the upper plate 34 being preferably flanged as at 34' to extend above the top of the jaw and afford guidance for positioning pins 36 protruding upwardly through suitable apertures in these flanges, the bottom heads of the pins 36 being arranged in cylindrical recesses formed in the respective jaws and held normally elevated by recess-contained springs 38. Neither jaw may be closed or moved inward beyond the intended tube-positioning position because of the provision of a stop-pin 39 intervening between the jaws, which are suitably recessed as at 39' to receive it. When closed the jaws may be locked together by the lock bar 40 pivoted in one of them, entering a recess in the other and provided with a locking thumb-nut 40'. The jaws, thus locked together, preferably receive spring support at their front or free ends on a round headed bolt 41 that passes through the base 20, is sustained by spring 42 and carries adjusting nuts 41' at its bottom to limit its vertical, spring-impelled movement.

If one slips on the upper end of the tube stock a preformed coffee-basket *c* and preferably its strengthening-washers *d*, these parts are initially supported, in position somewhat spaced above the plates 34, by the spring-pressed pins 36, ready for the operation of the plunger-head.

The plunger head 13 preferably includes a head-ring 43 the conical lower end 43' of which will just enter, at its base, the basket *c*, this ring being threaded onto the lower portion 12' of the plunger 12 with its tapered bore 44 holding together two plunger end members 45 that meet in a vertical plane and that are thus made separable for convenience in attaching the wear plates 46 at their ends. In these plunger jaws is made a bore 47 to receive the upper end of the tube *b* so that the end of the bore may, when the plunger is depressed, thrust vertically downward on the tube. The wear plates 46 surround the mouth of the bore and these are preferably flanged and are arranged to afford guidance for positioning pins 48 pressed downward by springs 48' seated in recesses in the jaws.

When, with the parts of the liner, *a*, *b*, *c* and *d*, loosely assembled as heretofore de-

scribed and accurately positioned in their preliminary positions by the closed and locked jaws of the vertically-yieldable pressure clamp 22, one forces down the plunger 12 by means of handle 14, the recess 47 receives the free upper end of the tube until it reaches the bottom of the recess, and then the vertically and uniformly applied pressure on the tube causes the tube to tend to bulge outwardly at every point where it is free from circumferential restraint. Where a bulge-tendency is thus manifested between the wear-plates or die-lips 34 and 46 of the pressure clamp and plunger, respectively, the metal in the center of this bulge-zone is restrained by the encompassing basket *c* that is accurately positioned, initially, mid-way between these two active pressure members. Hence the bulge-tendency at this point manifests itself in the formation of two beads,  $b^1$  and  $b^2$  respectively above and below the basket-parts, and as the pressure is continued these bead-bulges are pinched as snugly as the setting of the device may permit, the basket-positioning pins 36 and 48 yielding as the action goes forward. At the bottom of the tube a generally-similar action takes place, the extreme bottom lip of the tube extending to expand around the shaping-base of the pin-point 29 until it meets the wall of the recess 27 in the foot-block, forming a bottom flange or bead  $b^4$ , while above the yieldingly-upheld foot *a*, a bead  $b^3$  is formed. The yielding mounting of the pressure clamp enables it to move vertically to accommodate the formation of the bottom-beads simultaneously with the formation of the basket-retaining beads.

The association of press-parts enabling and compelling the formation of retaining-beads in pairs at spaced intervals along the stock, the operative certainty of the machine, and the simplicity of its functioning to permit assembly and its single-stroke final operation all contribute to the desired results that a deft operator can permanently assemble the liner-parts with great rapidity and with minimum possibility of spoilage.

It will be understood that while I have fully described in some detail a particular embodiment of my invention for use in the assembly of the parts of a particular article of manufacture, I do not intend thereby to limit my invention in its broader aspects to the specific construction and particular use of the mechanism, but that many departures in specific embodiments of the invention may be made without departure from its spirit, within the scope of the appended claims.

I claim:

1. In an assembly press, opposed means for applying endwise pressure on a tube, circumferential restraining means for acting on portions of said tube separated by a space to be beaded, and means for posi-



tioning an apertured part that is to be bead-secured to said tube in a zone approximately intercepting the center of said space, whereby to occasion the formation of double beading, above and below said zone.

2. In a machine for permanently assembling apertured parts on a single tube at spaced intervals, relatively movable opposed means for exerting endwise pressure on the tube, an endwise movable pressure clamp for circumferentially restraining the tube between the transverse planes of parts-attachments, and means for normally positioning parts to be attached in their loose-assembly relation to the tube in planes somewhat spaced from the extremities of said pressure clamp.

3. In a machine of the character described, the combination of a plunger having its end formed for engagement with a tube, an opposing base having a part formed for engagement with the tube, an intervening spring-sustained pressure member having a bore for tube-reception, and yielding means for supporting a part that is to be attached to the tube in position initially-spaced above said pressure member.

4. A machine as set forth in claim 3 wherein the pressure member comprises a pair of gates separated on a plane intersecting the tube-bore, said gates being pivotally mounted to permit their opening to expose the tube-receptive part of the base.

5. The structure defined in claim 4, wherein means are provided for locking the gates together in tube-embracing position.

6. The structure as defined in claim 5,

wherein stop means is provided on the base to define the locked position of the gate.

7. In a device of the character described, the combination of a frame having a base below and plunger-guides above, tube-receptive means on the base, a plunger in said guides having tube-receptive means aligning with the means on the base, means for depressing said plunger to tube-engaging position and further to tube-compressing position, and, between said base and plunger, a tube-receptive pressure structure normally spring-sustained in position affording, between it and the tube-receptive portions of the base and plunger when the latter is in tube-contacting position, spaces for the reception of parts to be attached to the tube and clearance for the extrusion of beads above and below such parts to be attached.

8. A structure as defined in claim 7, wherein the tube-receptive means of the base includes a pin for centering and shaping the lower end of the tube.

9. A structure as set forth in claim 7, wherein the base structure and the pressure structure are provided with yielding means for supporting parts to be attached to the tube in position substantially mid-way of the height of the clearance spaces for bead-extrusion.

10. A structure as defined in claim 7, wherein the tube-receptive pressure structure comprises a pair of complementary gates meeting in a plane intersecting the tube-bore, and means for latching the gates in closed position.

JOHN L. REED.