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Patented Feb. 4, 1902.

H. H. UCKOTTER.

APPARATUS FOR MAKING DESIGNS IN CAKES OF SOAP.

(Application filed May 3, 1900.)

(No Model.)

2 Sheets—Sheet 1.

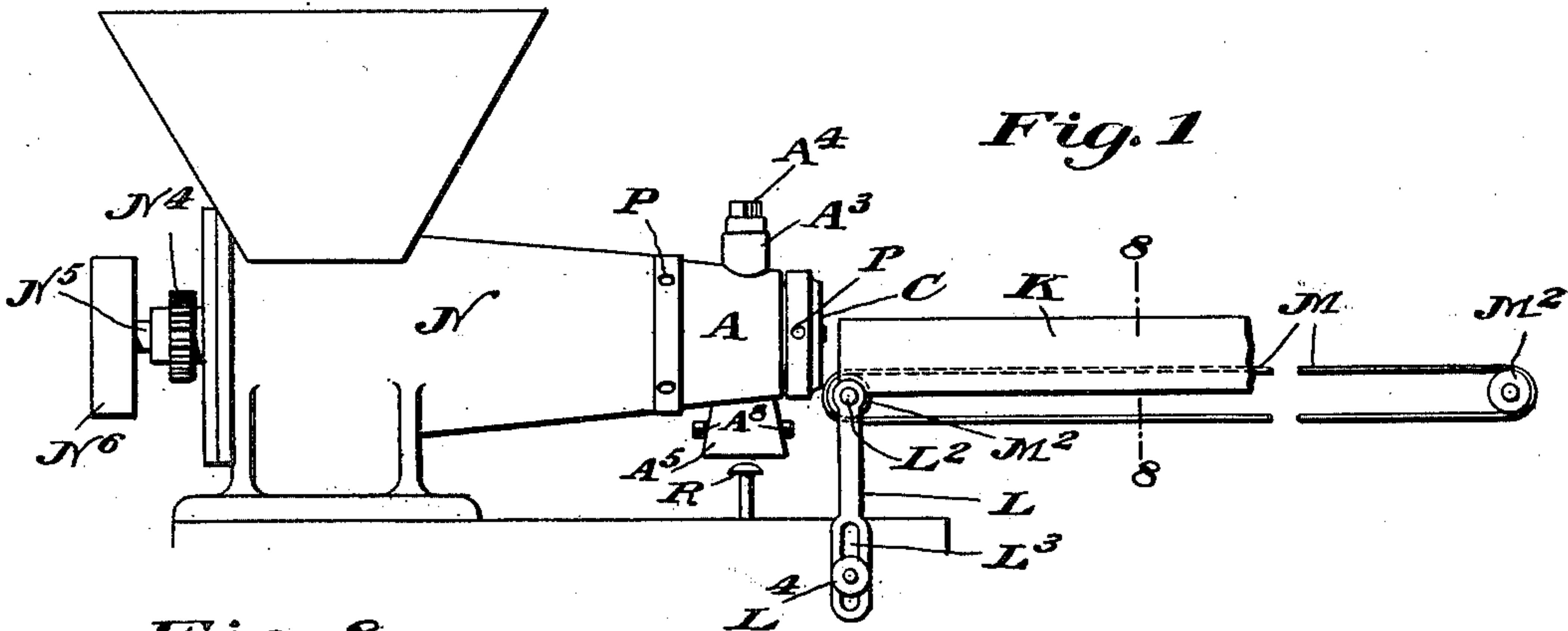


Fig. 8

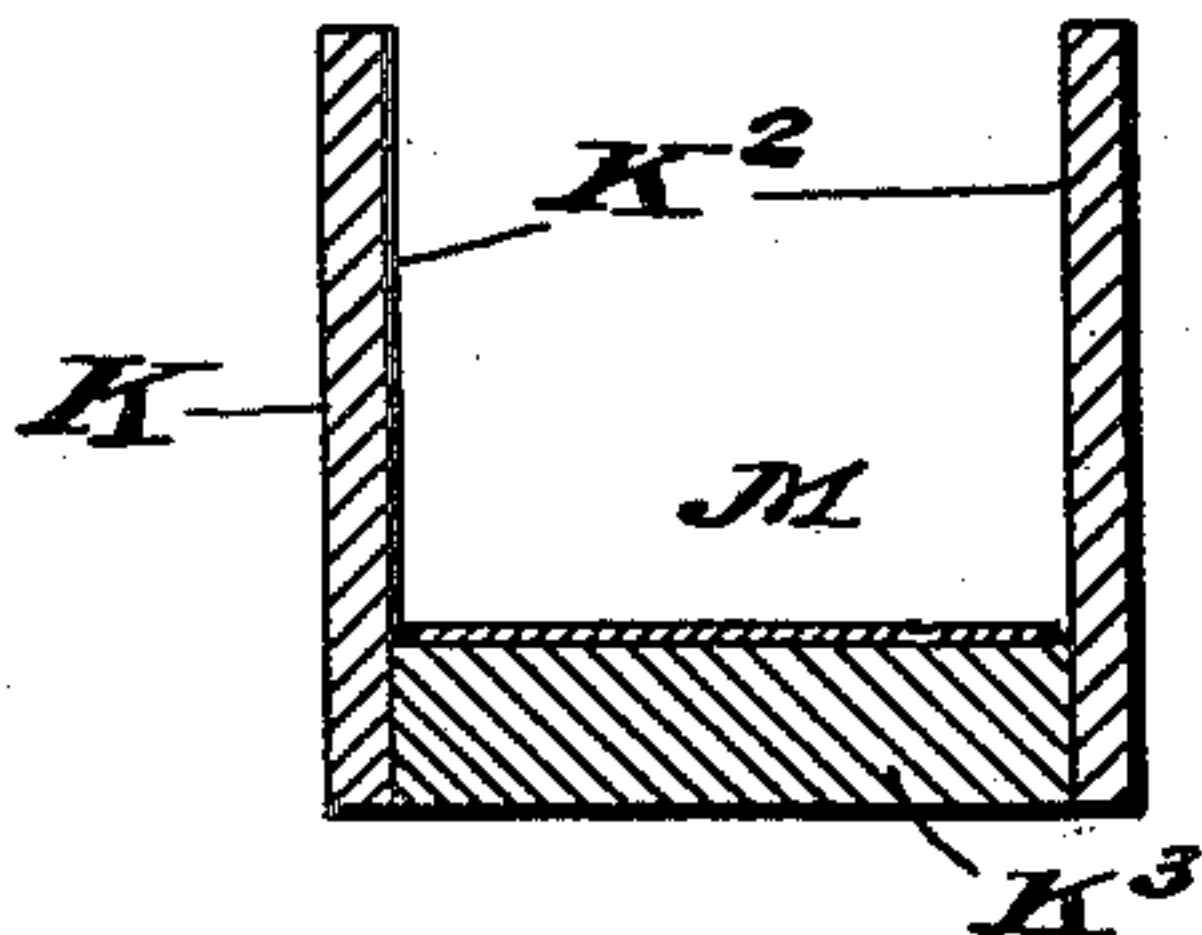


Fig. 3

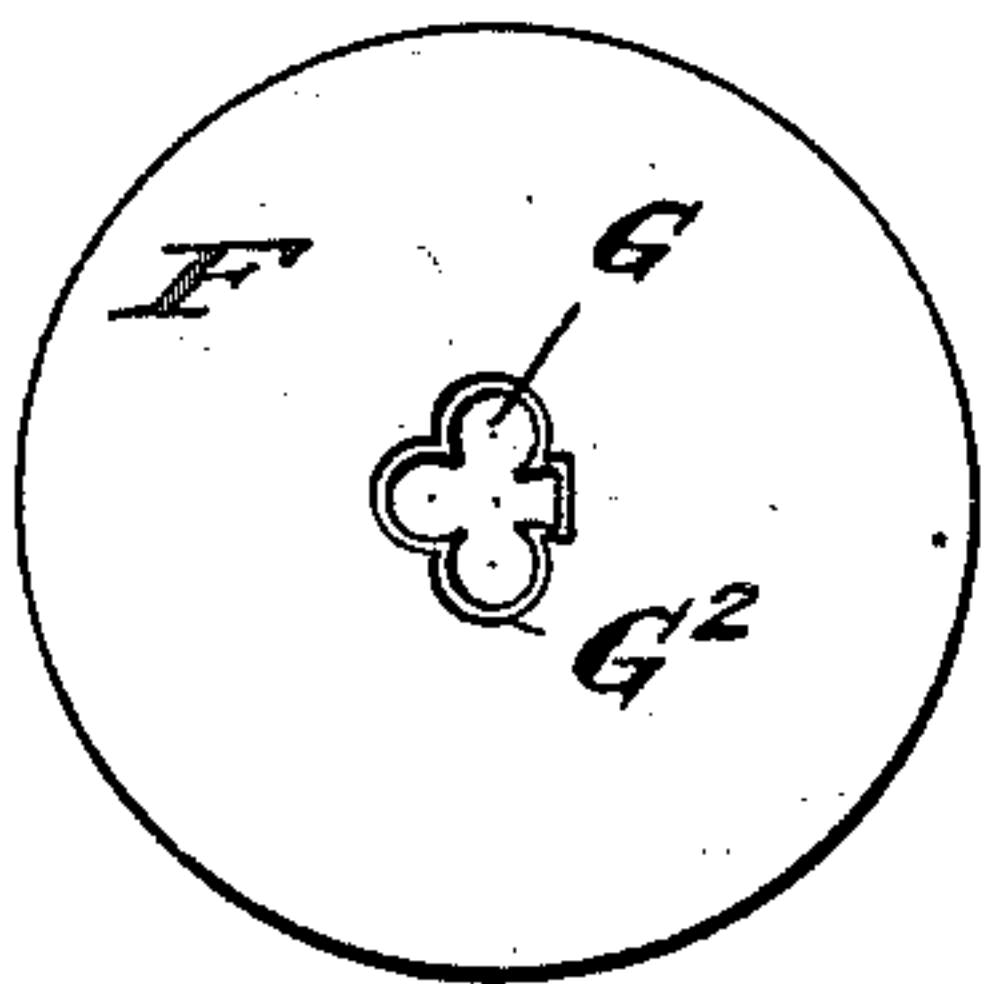
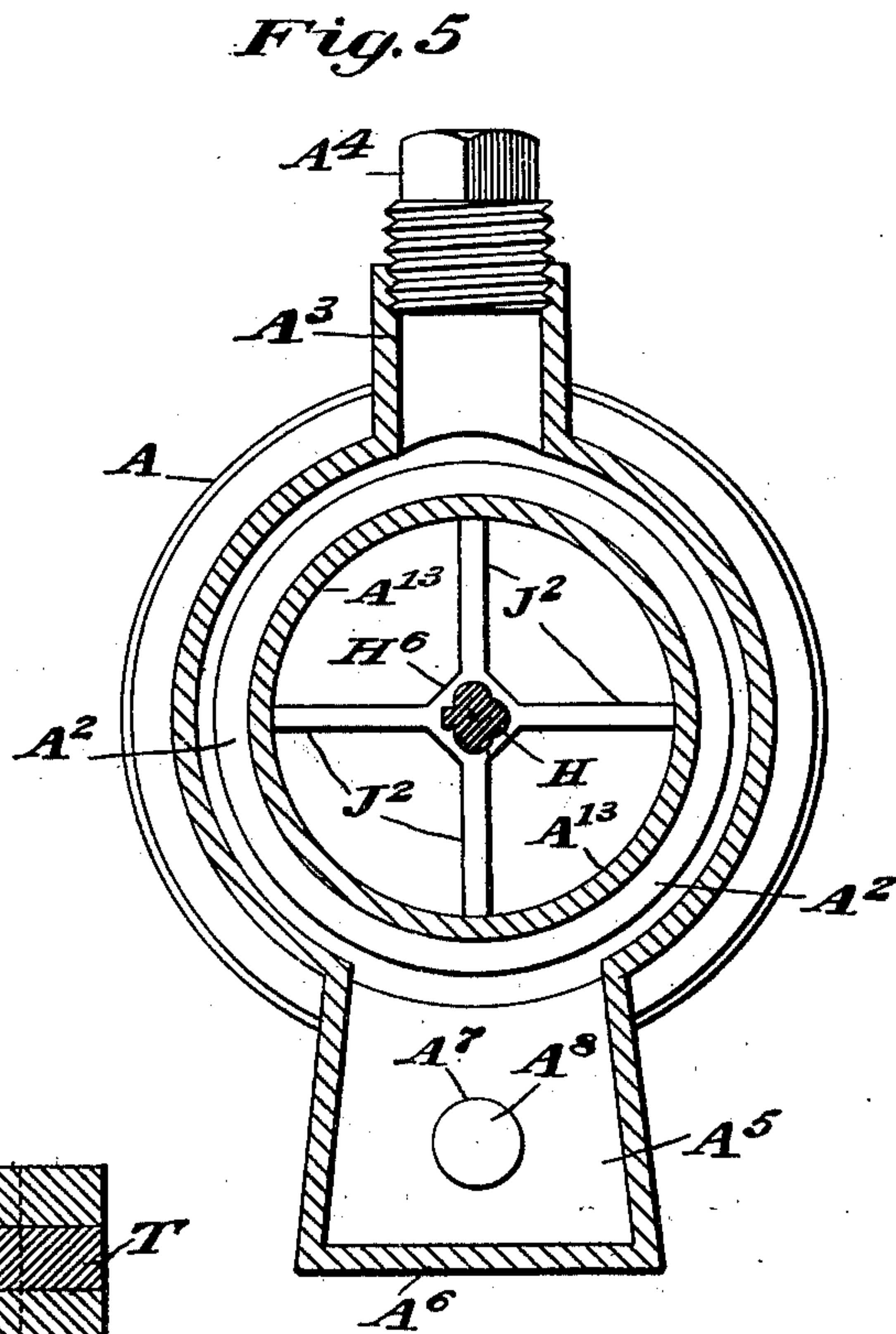
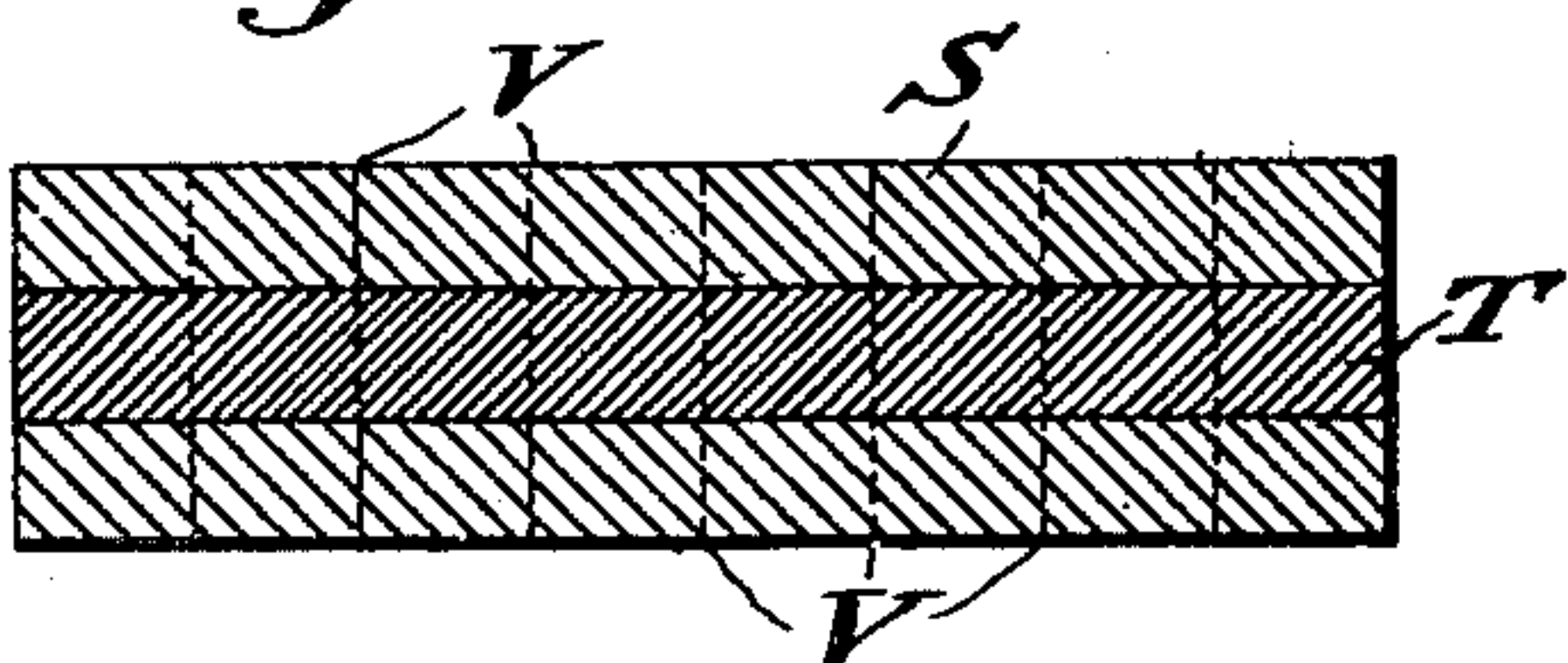


Fig. 9



Witnesses
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2 Sheets—Sheet 2.

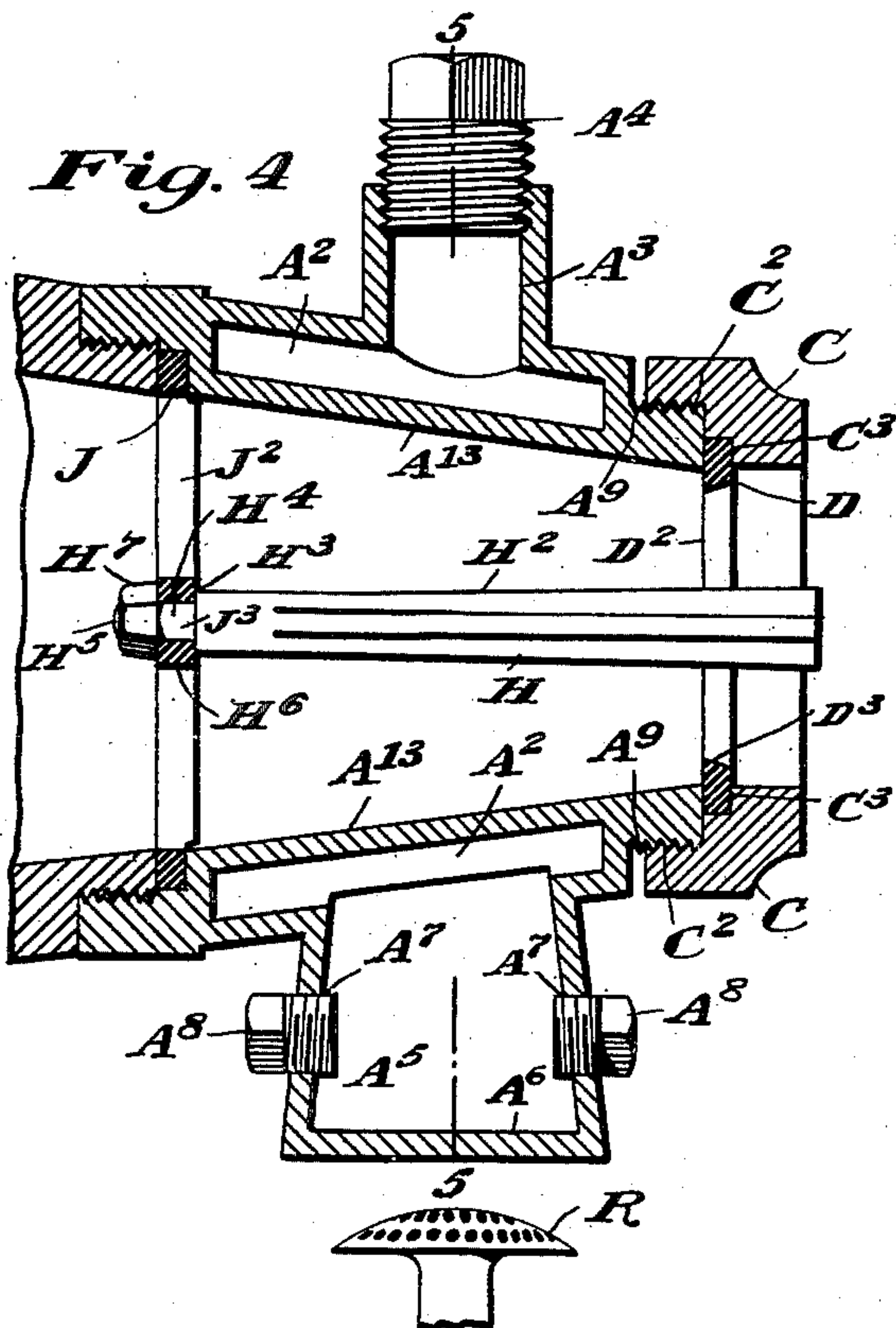


Fig. 4

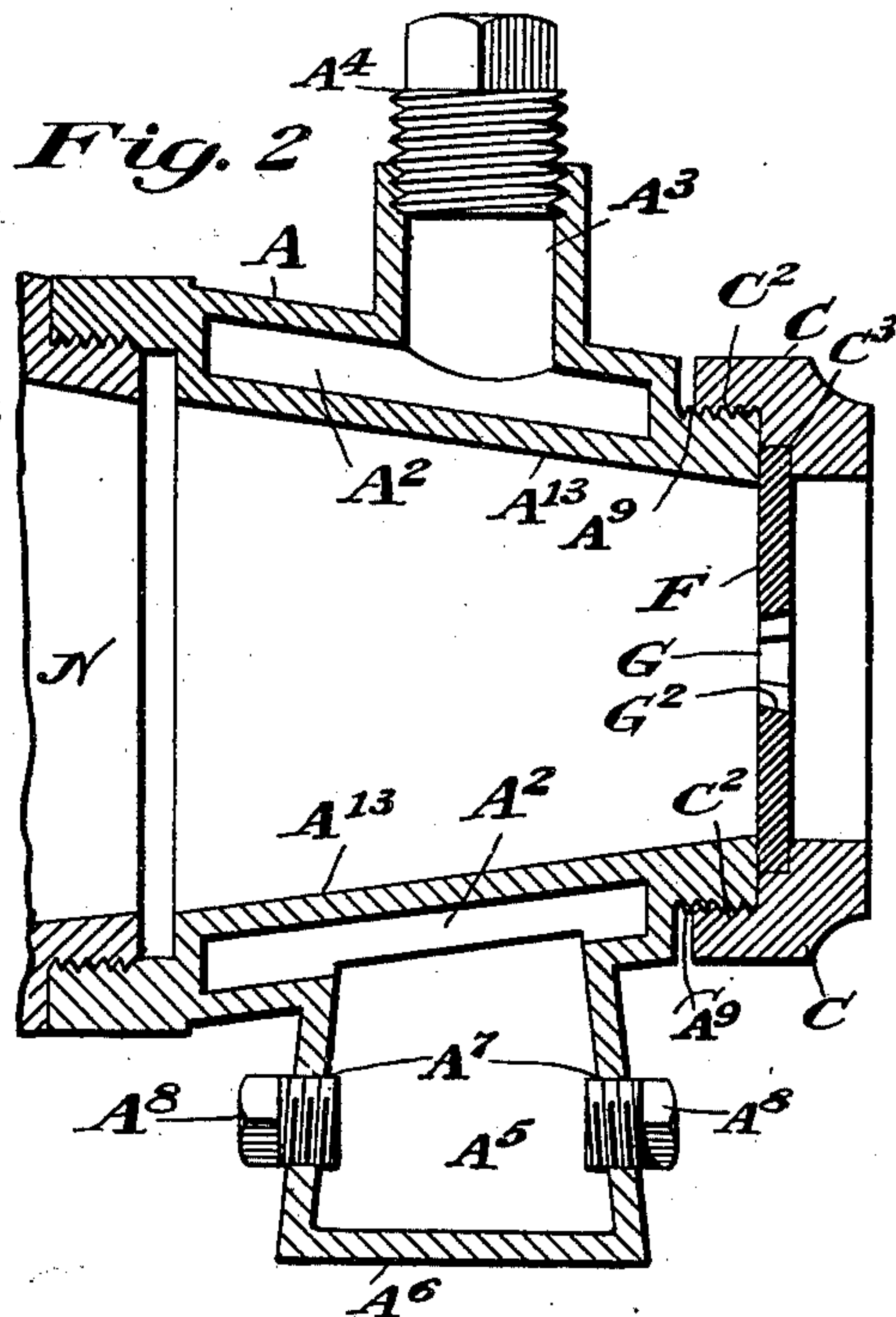


Fig. 2

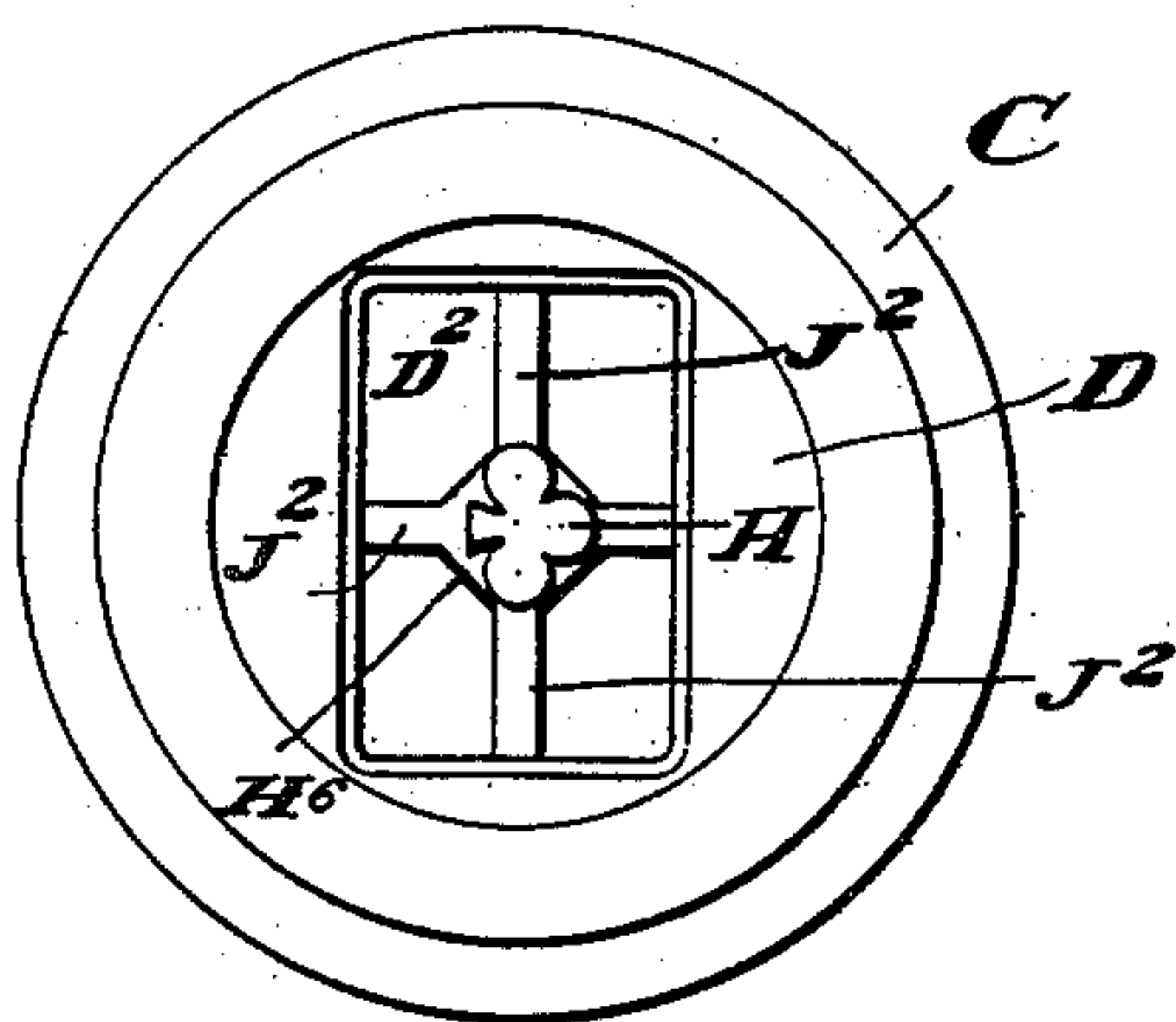


Fig. 6

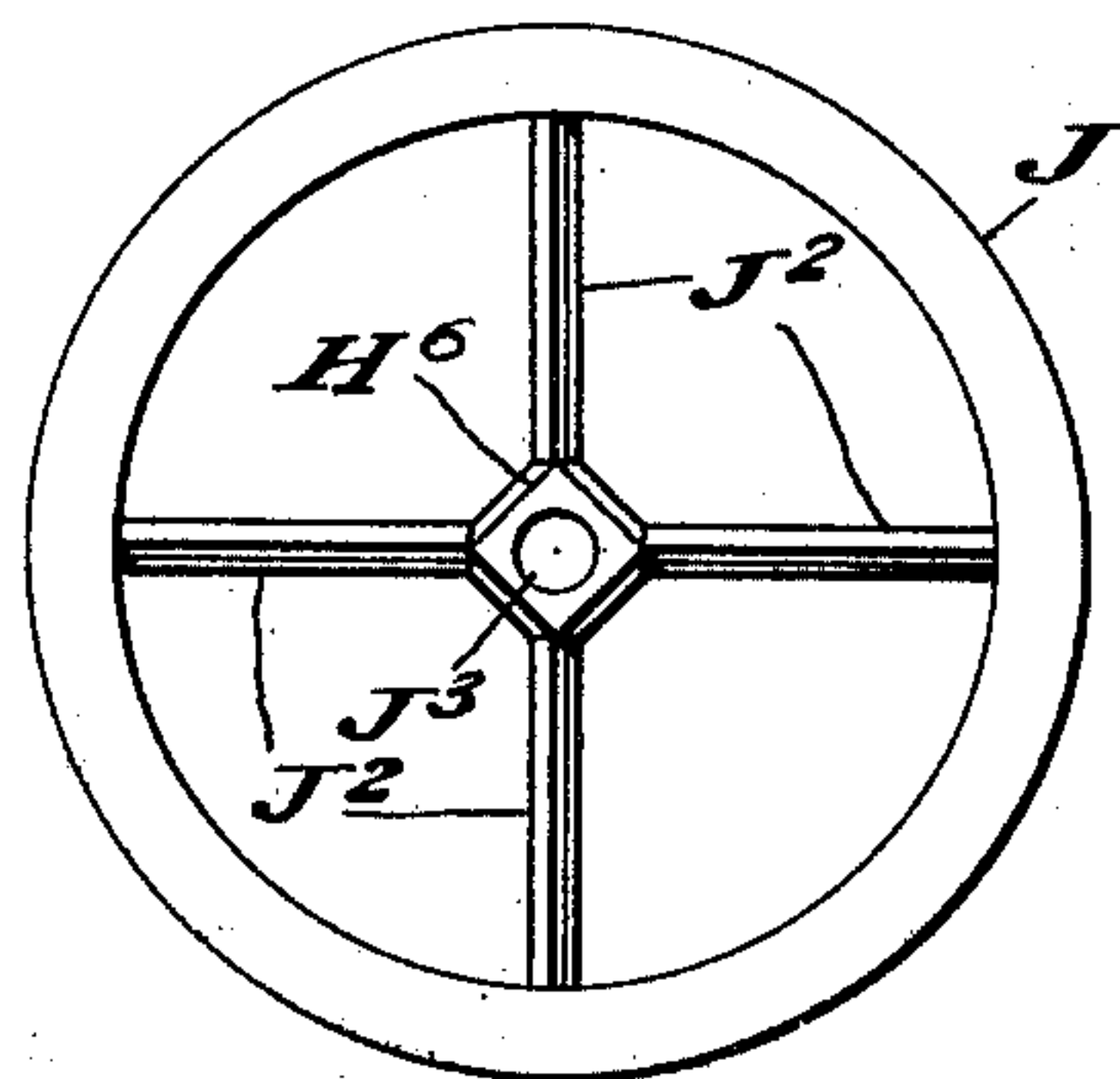


Fig. 7

Witnesses

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MAKING DESIGNS IN CAKES OF SOAP.

SPECIFICATION forming part of Letters Patent No. 692,493, dated February 4, 1902.

Application filed May 3, 1900. Serial No. 15,300. (No model.)

To all whom it may concern:

Be it known that I, HERMAN H. UCKOTTER, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Means Relative to Making Designs in Cakes of Soap and Similar Articles, of which the following is a specification.

One feature of my invention has reference to making what may be termed a "core" or "inset" of any chosen design, which is to be inserted in or combined with a cake of soap.

Another feature of my invention relates to the formation in the cake of soap or the bar of which it is made of an aperture such as hereinafter described for combination with the design aforementioned.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1, Sheet 1, represents a side elevation of an apparatus illustrating my invention. Fig. 2, Sheet 2, illustrates a central vertical longitudinal section of a plotter constructed to effectuate that feature of my invention which enables me to manufacture the above-named core of a given design, the screw-stopples being left in elevation. Fig. 3, Sheet 1, represents in elevation an illustration of a former whereby in proper combination with the plotter, &c., the core can be quickly formed and of the design desired. Fig. 4, Sheet 2, illustrates a vertical central longitudinal section of a plotter constructed to produce that aperture in the soap which is to receive the design-core, certain portions being left in elevation. Fig. 5, Sheet 1, represents a transverse vertical section of the mechanism shown in Fig. 4, such section being taken in the plane of the dotted line 5 5 of Fig. 4. The heating apparatus below the bottom of the plotter in Fig. 4 is omitted from Fig. 5, certain parts being left in elevation. Fig. 6, Sheet 2, represents an elevation of the front end of the plotter and its interior accompanying mechanism shown in Figs. 4 and 5. Fig. 7, Sheet 2, represents an elevation

of the back end of the device, which in combination with the plotter operates to form that aperture in the bar of soap which is to receive the design-core. Fig. 8, Sheet 1, is a transverse vertical section taken in the plane of the dotted line 8 8 of Fig. 1, the return or lower portion of the pulley-band being omitted from the drawing. Fig. 9, Sheet 1, is a horizontal central longitudinal section of a bar of soap having a central aperture for the reception of the design-core, the dotted lines showing the locations where the divisions of it (the bar) into cakes might be made.

It is to be noted that Fig. 1 is on a given scale, that Figs. 2 to 7, inclusive, and Fig. 9 are on a larger and uniform scale, and that Fig. 8 is on a still larger scale.

I will now proceed to describe my invention in detail, together with its application.

A indicates the plotter, being a shell or hollow body whose inner wall is embraced by a jacket including a space A^2 , in which water or other suitable liquid is held for circulation to keep every portion of the plotter equally hot. The jacket is provided at the top with an inlet A^3 for admitting the liquid. This inlet is closed by a screw-stopple A^4 . The under side of the jacket is provided with an extension in the shape of a chamber A^5 for holding additional liquid and is provided with two screw-stopples A^8 , engaging screw-orifices A^7 in this chamber. These stopples are for enabling the liquid to be withdrawn from the jacket and the latter to be cleaned. In practice the bottom A^6 of the chamber A^5 is subjected to a flame, preferably that coming from a burner R of a construction shown in Figs. 1 and 4. The liquid in the jacket being thus continually heated rises and circulates rapidly in a well-known manner throughout the chamber, heating and keeping hot all parts of the plotter and the metal parts connected interiorly directly therewith. The plotter is in connection with proper mechanism for feeding the soap into it and forcing the soap through it. One form of such feeding mechanism is shown in Fig. 1 and consists of a cylinder N, containing two worms, (not shown, but well understood in the art,) one a right-hand and the other a left-hand worm. These are arranged and rotated in the well-known manner and receive the shredded soap fed

down to them through the hopper and feed it forward through the narrowing (funnel) terminal portion of the shell N into and through the plotter A. It is to be observed that the interior space of the plotter is also funnel-shaped and narrower at its delivery end than at its inlet end, thus compressing and solidifying the soap as it passes through it. In the feeding-machine illustrated a couple of intermeshing gear-wheels, such as N⁴, respectively located on the shafts of the respective worms, keep the latter turning at a given speed. A power-pulley N⁶ on the shaft N⁵ of one of the worms operates both. The delivery end of the plotter is provided with a cap C, having an interior screw-thread C², adapted to engage a screw-thread A⁹ on the front end of the plotter. This cap is further provided with a recess C³, adapted to receive a disk. When the cap is screwed up on the plotter, it will hold the edge portion of the cap firmly against the end of the plotter, substantially as shown. This front disk is usually cut out in a square form—that is, has a large rectangular opening D², through which the soap after passing through the plotter passes this orifice, shaping the exterior of the soap into a long rectangular bar, which is subsequently divided at regular intervals into portions S, which are next placed in a die and stamped into shape and are then, commercially, cakes of soap. Indicated intervals of such a description are shown by dotted lines V of Fig. 9.

Having thus described what is old, I will now proceed to describe the various features of my invention and their application respectively to the plotter described and to the manufacture of soap of a given design.

For the manufacture of the core of the given design I provide a disk F, adapted to be held in the delivery end of the plotter and there held in place by the cap C. In this disk I make a central aperture and form the latter in the shape of the design which the core in cross-section is to assume. For example, in the illustrative drawings, Figs. 2 and 3, I have shown in the disk F a design of a clover-leaf, which upon inspection will be readily understood. I bevel the edge of the design, so that the design-opening increases in size toward its delivery side. In these figures the bevel is indicated by the character G². This beveled formation allows the core to clear itself as it leaves the discal plate F and prevents any fins or roughness forming on the core.

The operation of the device is as follows: The plate is duly located in the delivery end of the plotter, substantially as shown. Then soap of the desired kind and color is forced through the plotter and through the opening G. As it thus passes through the opening G it is formed into a long core of the proper design. To prevent the core from turning out of a straight line, it passes into a guideway K, located on a suitable support. This guideway has walls K² and a bottom K³. In order

to carry the core forward without friction against this bottom, the latter is provided with an endless band M, which latter passes over pulley M² at or beyond the delivery end of the guide and returns beneath the bottom K³ and around a second pulley M² at the receiving end of the guide. When the core is of a desired length, it is cut off, and the core thus continually issuing from the plate F is cut off at proper times into desired lengths and preserved for insertion into a bar of soap of substantially the same length.

The mechanism for simultaneously forming the soap bar and an aperture therein of a given design to receive a core of a like design is as follows: I provide a spider or wheel-shaped device having a circular rim J and a hub H⁶, connected to the rim J by braces or spokes J². (See Figs. 4 and 7.) The hub H⁶ has a central aperture J³, adapted to receive the former H. This former in general consists of a rod shaped so that in cross-section near its delivery or rear end and at such end it is of the design which the longitudinal aperture in the long soap bar is to be. The rear end of the former is shouldered at H³, and its diminished shank H⁴ is adapted to enter the opening J³ and also project rearwardly beyond this hub. There it is provided with a screw-thread H⁵, on which is screwed a nut H⁷. The latter holds the former H securely to the spider. One object in making the former H separable from the spider and attachable thereto is to enable me to use one spider for a number of formers. These formers may each be for forming a different design. The former shown in the drawings is for forming in the long soap bar an aperture of the shape (in cross-section) of a clover-leaf. In shape the former tapers down from its delivery end toward its end, (where it is connected with the spider,) or, conversely, the former from a point near its end next the spider increases in size to its discharge end. At the latter it is of full size. The object of such a formation is to the better form the aperture in the soap as the latter passes out from the plotter and to leave the surfaces of this aperture free from fins and roughness. There is present at the delivery end of the plotter a plate D, having an aperture for shaping the exterior of the bar, as aforementioned. The mode in which this part of my invention operates is as follows: The soap in the forcing-machine N is pressed forward into the plotter-head, being forced through the openings in the spider, is compressed, and conforms closely to the shape of the former. Being propelled forward, it (the soap) passes out of the plotter. The general exterior conformation will in cross-section be that of a parallelogram, this shape, however, being determined by the forming-plate D, already described. The former H will cause an aperture T to be present, and this will extend the entire length of the soap bar as the latter is formed and passes out from the plotter. Such formation is indi-

eated in the sectional view, Fig. 9. This bar
 of soap passes out onto a table or equivalent
 support and is kept within side guides, and
 in practice there is preferably an endless
 5 band or apron on the table. Onto this band
 the bar of soap runs. A suitable device for
 such purpose is that shown in Fig. 8. When
 such a device is used as a guide for the soap
 bar, the sides K^2 are farther apart than when
 10 used for the transmission of the design-core.
 These guides are preferably adjustable to and
 from each other to suit the width or shape of
 the bar and also of the core. As a matter of
 convenience the table or support on which
 15 the design-core and the soap bar K^3 are
 received is vertically adjustable. Various
 modes of elevating and lowering the table
 may be employed. One mode of elevating
 and dropping such table is indicated in Fig.
 20 1 and consists of a support or supports L,
 slotted at L^3 and held to the table by a set-
 screw L^4 , passing through the slot L^3 and into
 the framework. The other end of the table
 is duly supported and may be vertically ad-
 25 justable, if desired. The openings P are for
 enabling a suitable wrench to screw the cap
 on or off the plotter and the plotter on or off
 the machine N. The bar of soap when of
 suitable length is severed. Into the clover-
 30 leafed aperture of this bar is passed the clo-
 ver-leaf core. The core fills this aperture.
 Then the soap bar may be cut transversely,
 forming small cakes of substantially the
 proper size for commercial use. These cakes
 35 are then finished in the usual manner.

It is to be understood that the soap bar is
 of one color and the core-design of another
 color, thereby locating in the soap cake or
 bar a design making a pleasing contrast and
 40 also in certain cases, when desired, making a
 trade-mark. The designs and the colors may
 be varied at will, the conformation of the de-
 signs being changed by altering the formation
 of the opening G in plate F and the conforma-
 45 tion in cross-section of the former H.

I desire to have it understood that this in-
 vention is not limited to its use for forming
 bars of soap, but may be employed in connec-
 tion with other plastic material.

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

1. In mechanism for forming bars out of
 plastic material, a tapering shell, and a cen-
 tral former consisting of a rod, longitudinally
 55 formed so as in cross-section to represent the
 design to form the aperture in the soap bar,
 and supported at or near the receiving end of
 the plotter, and having a taper increasing
 from the receiving end toward the discharge-
 60 shell, substantially as and for the purposes
 specified.

2. In mechanism for forming bars out of
 plastic material, the combination of a con-
 verging shell, and a rear plate containing the
 65 opening of a given design for the formation
 of the design-core, and a table and means for

moving the table vertically, substantially as
 and for the purposes specified.

3. In mechanism for forming bars out of
 plastic material, a tapering shell and a form- 70
 er centrally and axially located therein, and
 having a taper, increasing from the receiving
 end toward the discharge-shell, substantially
 as and for the purposes specified.

4. In mechanism for forming bars out of 75
 plastic material, a tapering shell and a form-
 er centrally located therein, and longitudi-
 nally so as in cross-section to represent the
 design to form the aperture in the soap bar,
 and tapered, increasing in diameter toward 80
 the delivery end, substantially as and for the
 purposes specified.

5. In mechanism for forming bars out of
 plastic material, a tapering shell and a form- 85
 er centrally located therein, and longitudi-
 nally so as in cross-section to represent the
 design to form the aperture in the soap bar,
 and tapered, increasing in diameter toward
 the delivery end, and a spider connectible to
 the shell, and supporting centrally the former, 90
 substantially as and for the purposes speci-
 fied.

6. In mechanism for forming bars out of
 plastic material, a tapering shell and a form- 95
 er centrally located therein, and longitudi-
 nally so as in cross-section to represent the
 design to form the aperture in the soap bar,
 and tapered, increasing in diameter toward
 the delivery end, and a spider connectible to
 the shell, having a hole in its hub, the former 100
 provided with a shouldered terminal and
 screw-thread thereon, this terminal adapted
 to be received in the spider, and secured
 thereto, substantially as and for the purposes
 specified. 105

7. In mechanism for forming bars out of
 plastic material, a tapering shell and a form-
 er centrally located therein, and longitudi-
 nally so as in cross-section to represent the
 design to form the aperture in the soap bar, 110
 and tapered, increasing in diameter toward
 the delivery end, and a spider connectible to
 the shell for supporting the former, the lat-
 ter and the spider being adapted to be united
 or separated at will, substantially as and for 115
 the purposes specified.

8. In mechanism for forming bars out of
 plastic material, a tapering shell, a former
 centrally located therein, and shaped so as,
 in cross-section, to represent the design to 120
 form the aperture in the soap bar, and ta-
 pered, increasing in diameter toward the de-
 livery end, a disk or plate located at the dis-
 charge end of the plotter, and provided with
 a large opening having a bevel so that the 125
 opening enlarges in the direction of the dis-
 charge of soap, the discharge end of the
 former being located in the field of the open-
 ing of the said plate, substantially as and for
 the purposes specified. 130

9. In combination, a converging shell, and
 a former therein for forming a central aper-

ture in the material discharged therefrom, and a table having guides, and means for elevating or depressing the table, substantially as and for the purposes specified.

5 10. In combination, a converging shell, and a former therein for forming a central aperture in the material discharged therefrom, and a table having guides, and means for elevating or depressing the table, and a sliding
10 support on the said table, substantially as and for the purposes specified.

11. An apparatus for molding plastic materials, comprising a converging shell, having

means to form a bar of plastic material, and provided with a former supported within it 15 and arranged to produce an opening in the plastic bar, and a plate adapted for attachment to the shell, and having an opening corresponding in contour to the cross-sectional shape of the former, to produce a design-core 20 for insertion in the plastic bar, substantially as and for the purposes specified.

HERMAN H. UCKOTTER.

Attest:

CHAS. PHARES,
K. SMITH.