

(No Model.)

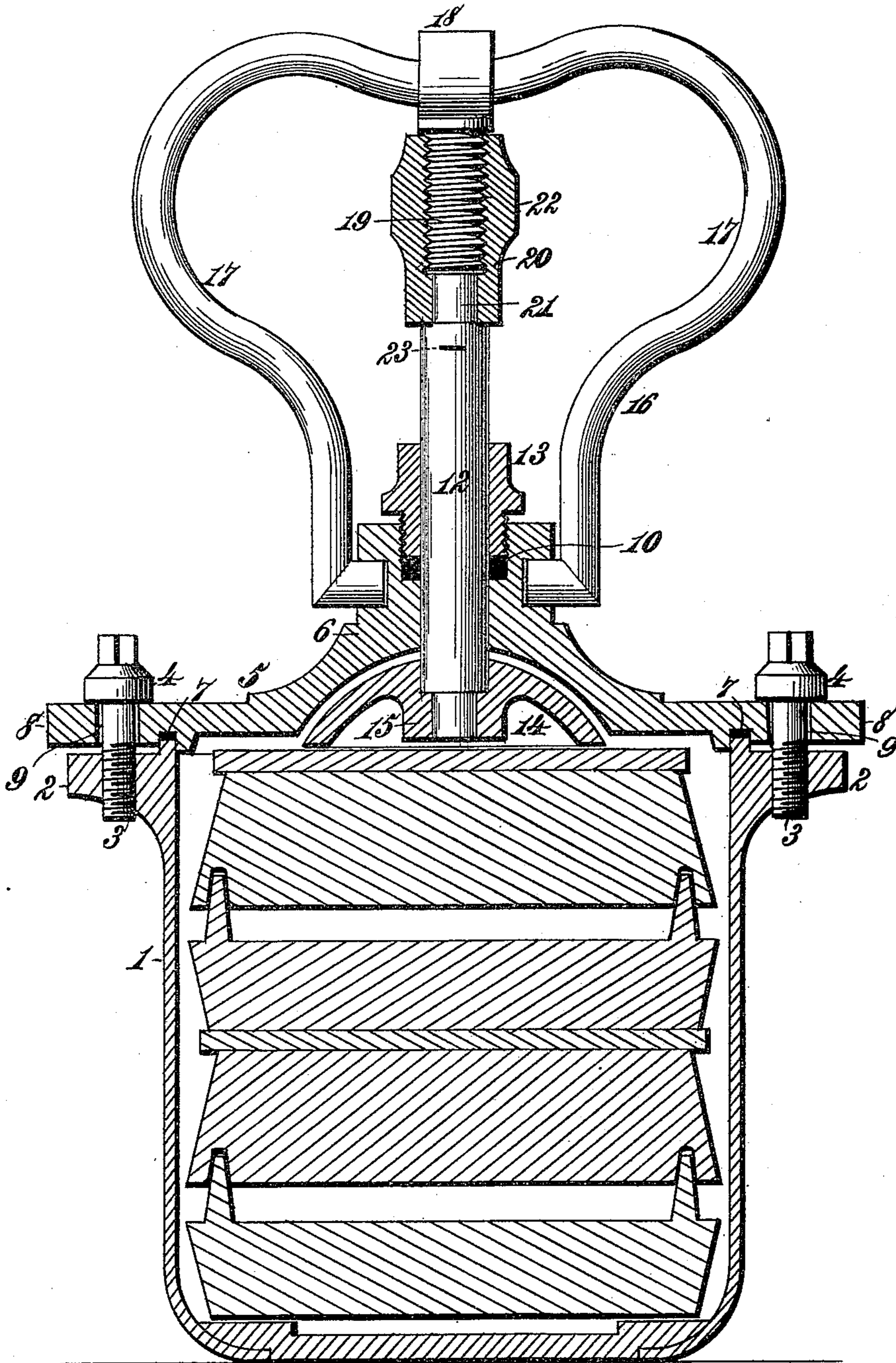
2 Sheets—Sheet 1.

W. E. HATHAWAY.
VULCANIZING APPARATUS.

No. 459,632.

Patented Sept. 15, 1891.

Fig. 1.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

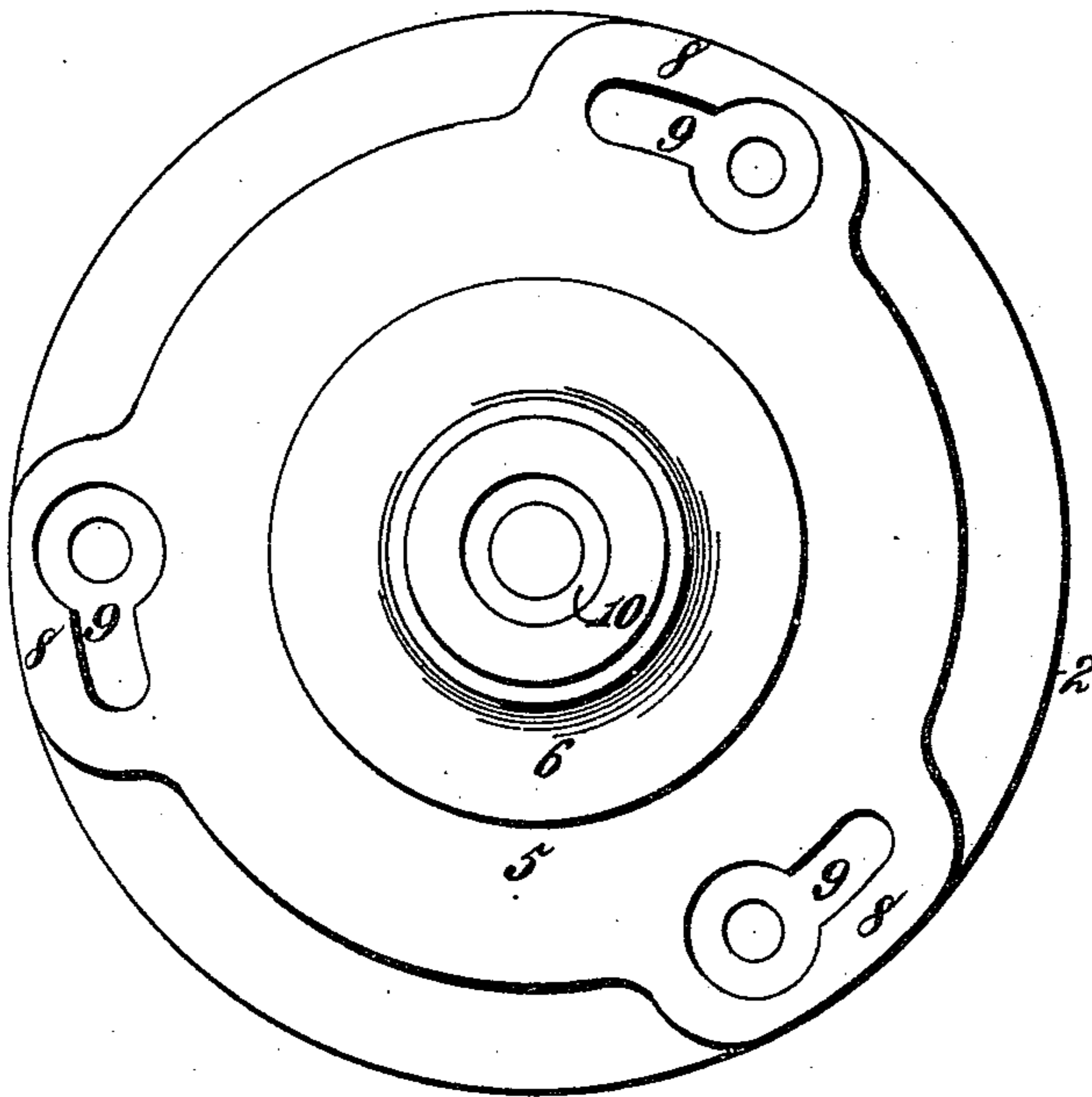


Fig. 3.

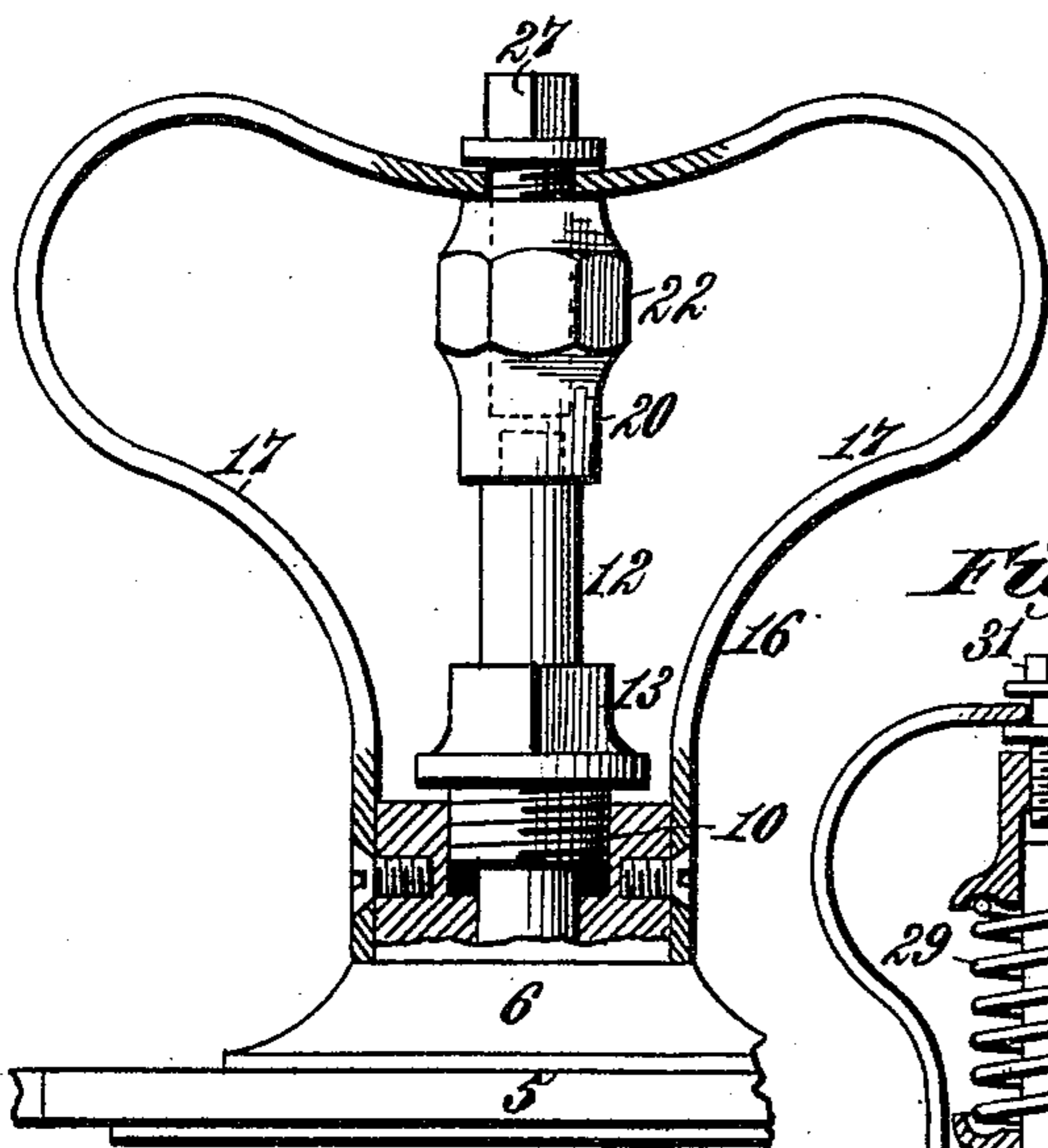


Fig. 4.

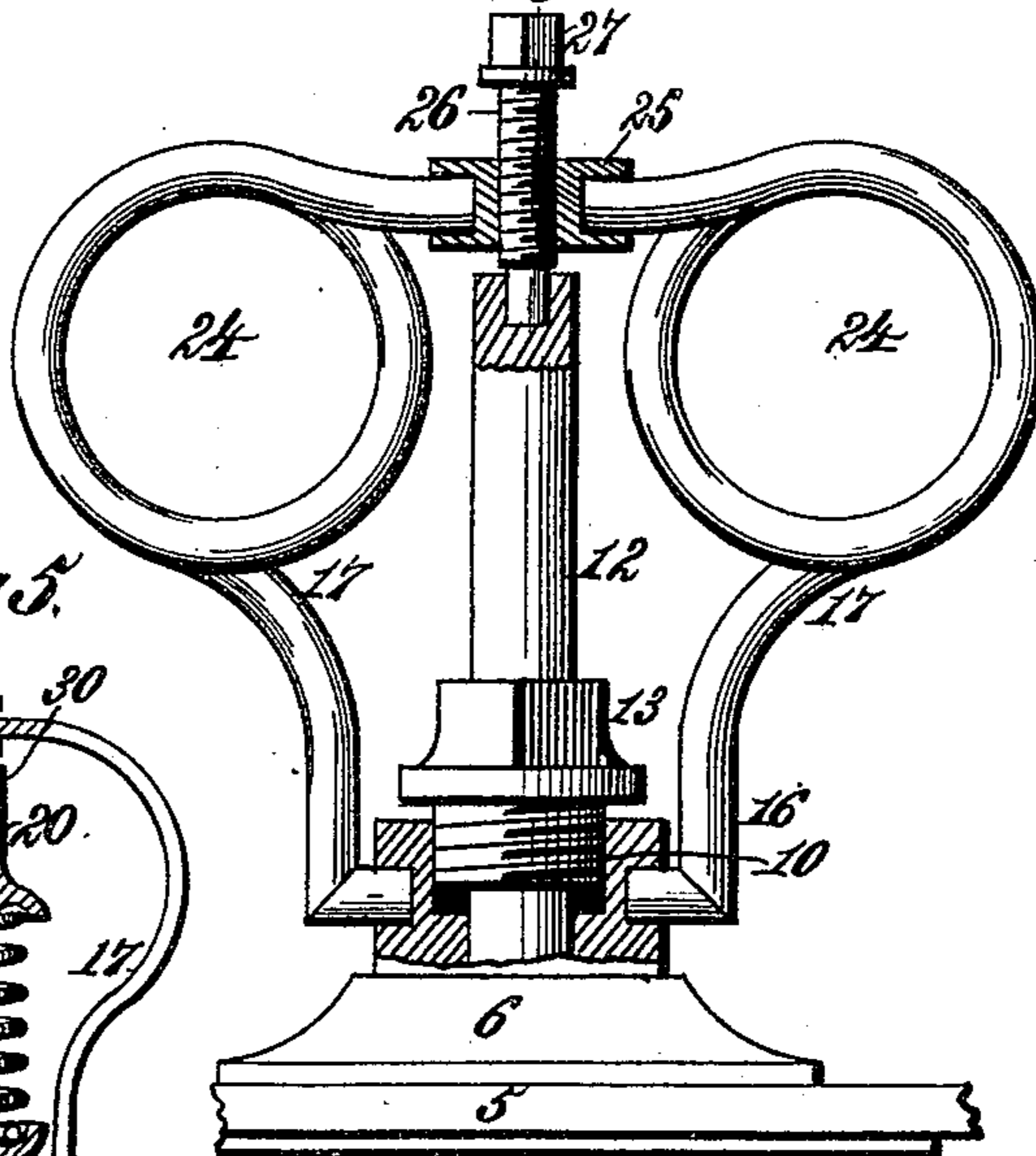
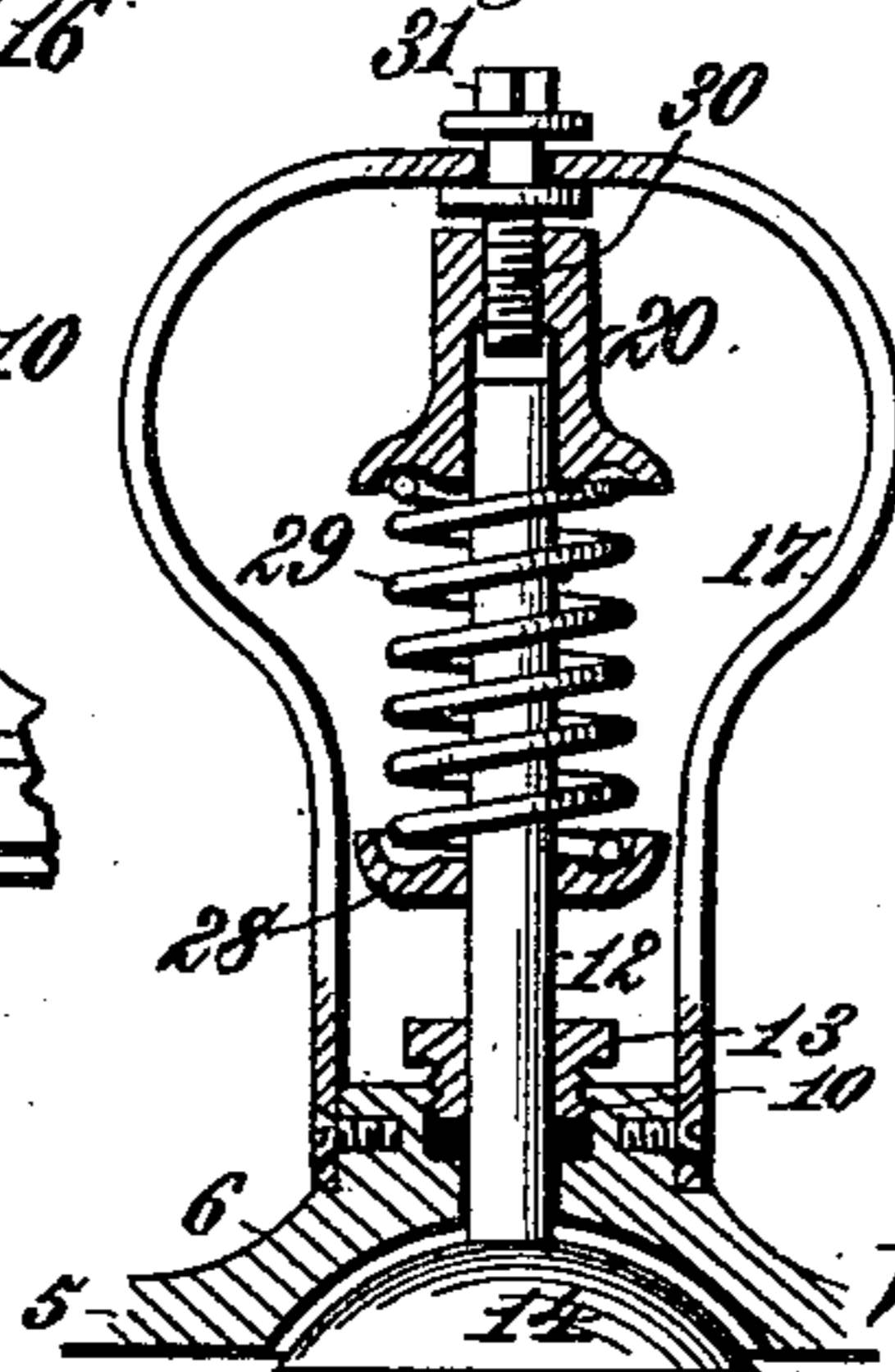


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM E. HATHAWAY, OF HORNELLSVILLE, NEW YORK.

VULCANIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 459,632, dated September 15, 1891.

Application filed October 28, 1889. Renewed February 19, 1891. Serial No. 382,018. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. HATHAWAY, a citizen of the United States, residing at Hornellsville, in the county of Steuben and State of New York, have invented new and useful Improvements in Vulcanizing Apparatus, of which the following is a specification.

My invention relates to that class of vulcanizing apparatus ordinarily employed by dentists; and the purpose thereof is to combine with the top or cover of the vulcanizing-vessel a follower carried by a shaft or piston packed through the said cover and having a screw connection with an elastic yoke mounted on the cover, whereby a permanent elastic pressure of any desired degree may be exerted upon the vulcanizing-flasks when first placed in the vessel or heater, said pressure being increased or diminished to any extent desired and maintained until the flasks are completely closed, which is indicated by a graduated scale or other suitable mark affixed to the piston or shaft, the arrangement of parts being such as to remove the screw entirely from any possible contact with the steam, whereby its threads might be rusted.

The invention consists in the several novel features of construction and new combinations of parts hereinafter fully set forth, and then defined in the claims following this specification.

To enable those skilled in the art to make and use my said invention, I will now describe the same in detail, reference being made to the accompanying drawings, in which—

Figure 1 is a central vertical section of a vulcanizer embodying my invention, showing the flasks in place and partly closed. Fig. 2 is a plan view of the top or cover. Fig. 3 is a sectional elevation of a part of the cover, showing a modified construction. Fig. 4 is a similar view showing a further modification. Fig. 5 is a view showing a modification.

In the said drawings, the reference-numeral 1 denotes the body of the flask or vulcanizing-vessel, which is provided at its top with a circumferential flange 2, having apertures at suitable intervals provided with female threads which receive threaded bolts 3. These bolts are provided at their upper ends with

enlarged heads 4, surmounted by squared ends adapted to receive a wrench.

The numeral 5 designates the top or cover of the vulcanizing-vessel, having a central dome-shaped portion 6. Upon the lower face of this cover and near its periphery is formed a groove or channel in which is inserted a packing-ring 7, which lies upon the edge of the vessel 1. Projecting from the periphery of the cover 5, at intervals which correspond with the intervals between the bolts 3, are lugs or projections 8, each of which is provided with a key-hole slot or opening 9, the larger portion thereof being capable of admitting the enlarged heads 4 of the bolts, while the narrower part of said slot allows the shank or body of the bolt to pass. In securing the cover upon the vessel it is brought into such position as to enable the heads of the bolts to enter the enlarged ends of the key-hole slots, after which, by a limited rotary movement of the cover, the bolts are caused to pass into the narrower portions of said slots, thereby bringing their enlarged heads 4 into position to bear upon the lugs. A turn of the bolt will now force the cover down and clamp the packing-ring 7 tightly against the edge of the vessel, the pressure being readily adjusted by the several bolts to give substantial uniformity and make a perfectly-tight joint. Upon the dome-shaped portion 6 of the cover is formed a packing-chamber 10, through which passes a central vertical piston or shaft 12, surrounded by a gland 13, which is threaded and screws into the packing-chamber to compress the packing against the piston. Upon the lower end of the latter is mounted a follower 14, having the form of an inverted cup, which enables it to be provided with a strong central boss 15 to receive the end of the shaft or piston. Upon the dome 6 of the cover is mounted an elastic yoke 16, formed of any suitable metal or other material and expanded laterally in opposite directions to form spring-arms 17. Upon the central cross portion of this yoke, which is slightly depressed for the purpose, is placed an eye or loop 18, forming part of a short threaded shaft or hanger 19. The threaded portion of this shaft or hanger engages the female thread of a turn-buckle 20, which is

swiveled upon the reduced end 21 of the shaft or piston. This turn-buckle is provided with an angular portion 22 to receive a wrench, by which a downward thrust may be communicated to the piston by revolving the turn-buckle upon the shaft or hanger 19.

When the flasks are placed in the vessel 1 in the usual manner with the cover clamped down by the bolts 3, as described, the follower 14 is brought down by revolving the turn-buckle until a proper degree of elastic pressure is exerted upon the upper flask. As the heat increases and the contents of the flasks are softened a further compression may be made until the flasks are entirely closed, which is indicated by a scale or mark 23 upon the piston. I may vary the form of the yoke 16 by forming coils 24 of one or more convolutions in the lateral arms 17. I may also connect the ends of these arms to a block or bearing 25 and tap an adjusting-screw 26 through said block, its end being swiveled in the upper end of the piston. Again, I may form the yoke of a single piece or flat strip of spring metal screwed upon the dome 6 of the cover by its two ends and having a central aperture in which the head of the adjusting-screw is swiveled, as shown in Fig. 3, said screw being provided with a squared end 27 to receive a wrench holding the screw while the turn-buckle is operated. In other respects the construction is similar to that shown in Fig. 1.

I may use a coiled wire spring or a spring of other form and material between the shaft 12 and the turn-buckle 20. This modification is shown in Fig. 5, in which the body of the heater, its top, and the general form of the yoke are the same as already set forth. I mount, however, upon the piston or shaft 12 a collar 28, which forms a seat for a spring 29, coiled around the shaft, and in the lower end of the turn-buckle 20, which is expanded for the purpose, I form a seat for the other end of said spring. With this construction the yoke 17 need not be elastic, unless it is preferred, and I use a screw 30, swiveled in the yoke and having a head 31 to receive a wrench or key. This construction is equally efficient and convenient with the forms shown in Figs. 1 to 4, inclusive.

I may interpose the elastic connection between the shaft and the yoke, either in the arms of the yoke itself, in which case the spring plates or coils form lateral extensions of the yoke, or I may avoid this extension by inserting the spring as shown in Fig. 5, the elastic action on the yoke being the same in both cases.

What I claim is—

1. In a vulcanizing apparatus, the combination, with a suitable vessel or heater, of a cover, a shaft packed through said cover and having a suitable follower on its end, an elastic yoke mounted on and overhanging the cover, a threaded shaft or hanger having support on said yoke, and a turn-buckle swiveled on the reduced end of the shaft and engaging said hanger, substantially as described.

2. In a vulcanizing apparatus, the combination, with the removable cover of the heater, of a shaft or piston passing centrally through the same and through a packing-chamber therein, a gland surrounding the piston and compressing the packing, a yoke mounted on the cover and having laterally-extended elastic arms curved or coiled to increase their elasticity and united above the piston, a hanger mounted centrally on said yoke and having a depending threaded portion, and a turn-buckle swiveled on the end of the piston and engaging the threaded part of the hanger, the piston being provided with a scale, mark, or index denoting the closed position of the flasks, substantially as described.

3. In a vulcanizing apparatus, the combination of the cover having an orifice containing a packing, a yoke having two arms connected at their lower extremities with the cover, and a lengthwise-movable externally-spring-pressed shaft extending steam-tight through the packing and having its upper end adjustably connected by a screw connection with the cross part of the yoke between its two arms, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM E. HATHAWAY.

Witnesses:

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S. H. CRANE.