

(No Model.)

J. O. KELLER & D. D. WEISELL.  
DENTAL VULCANIZER.

No. 411,449.

Patented Sept. 24, 1889.

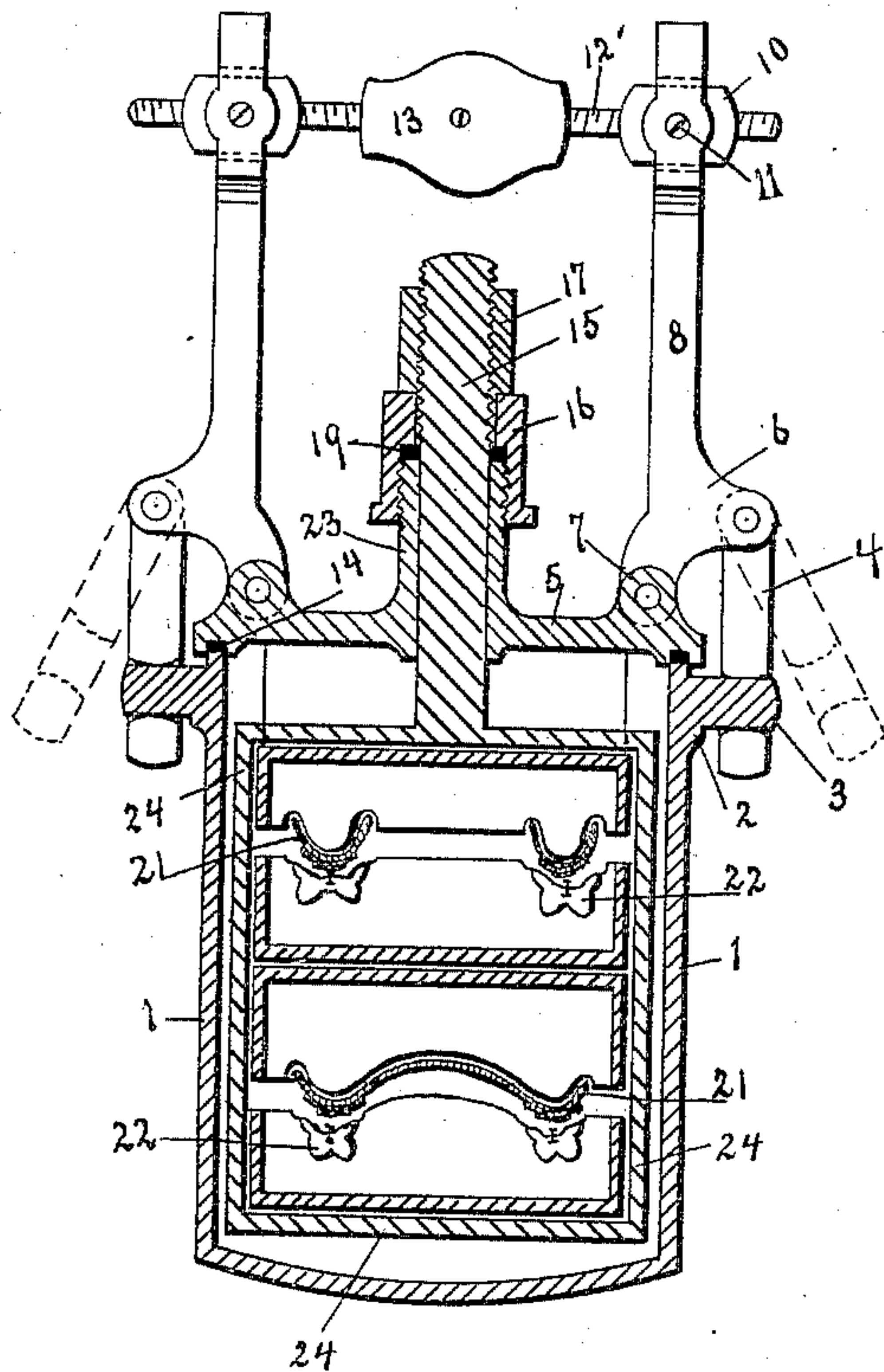


Fig. 1.

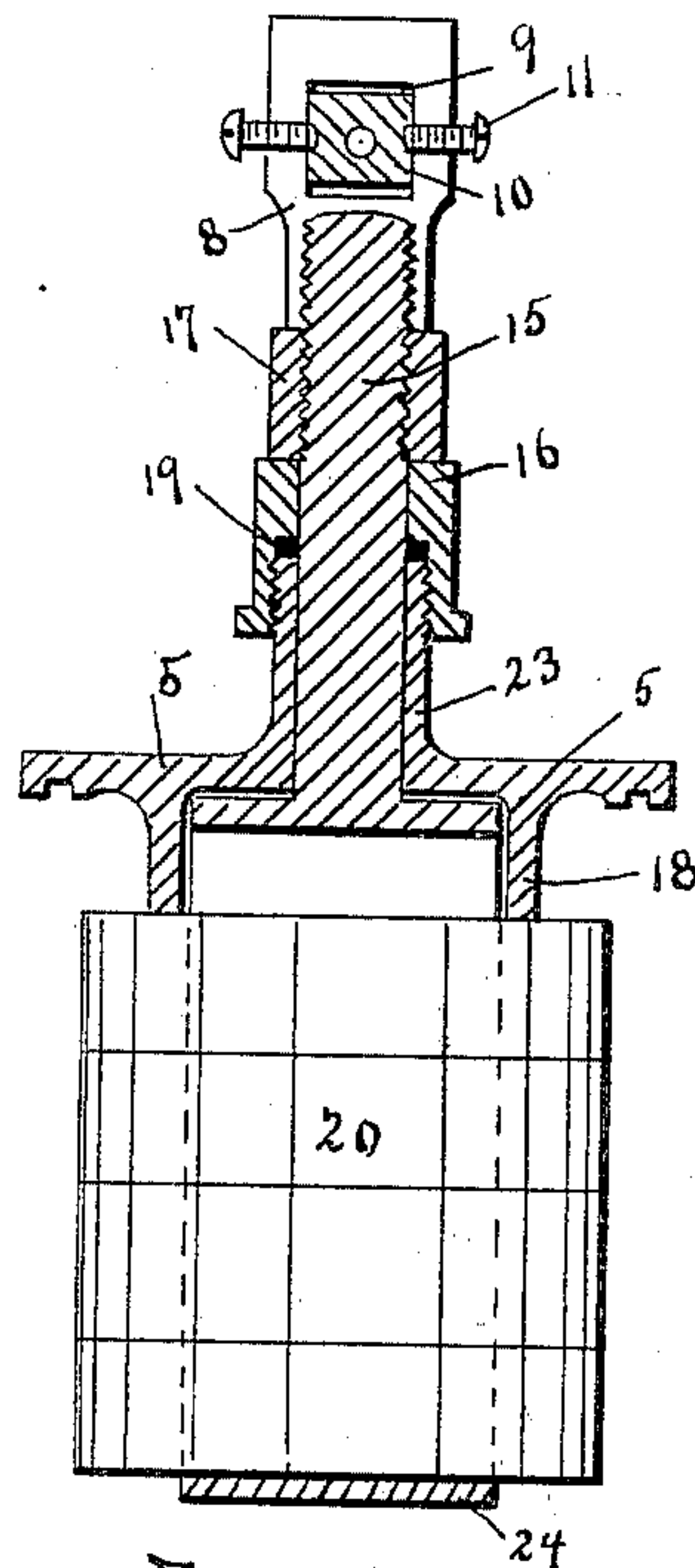
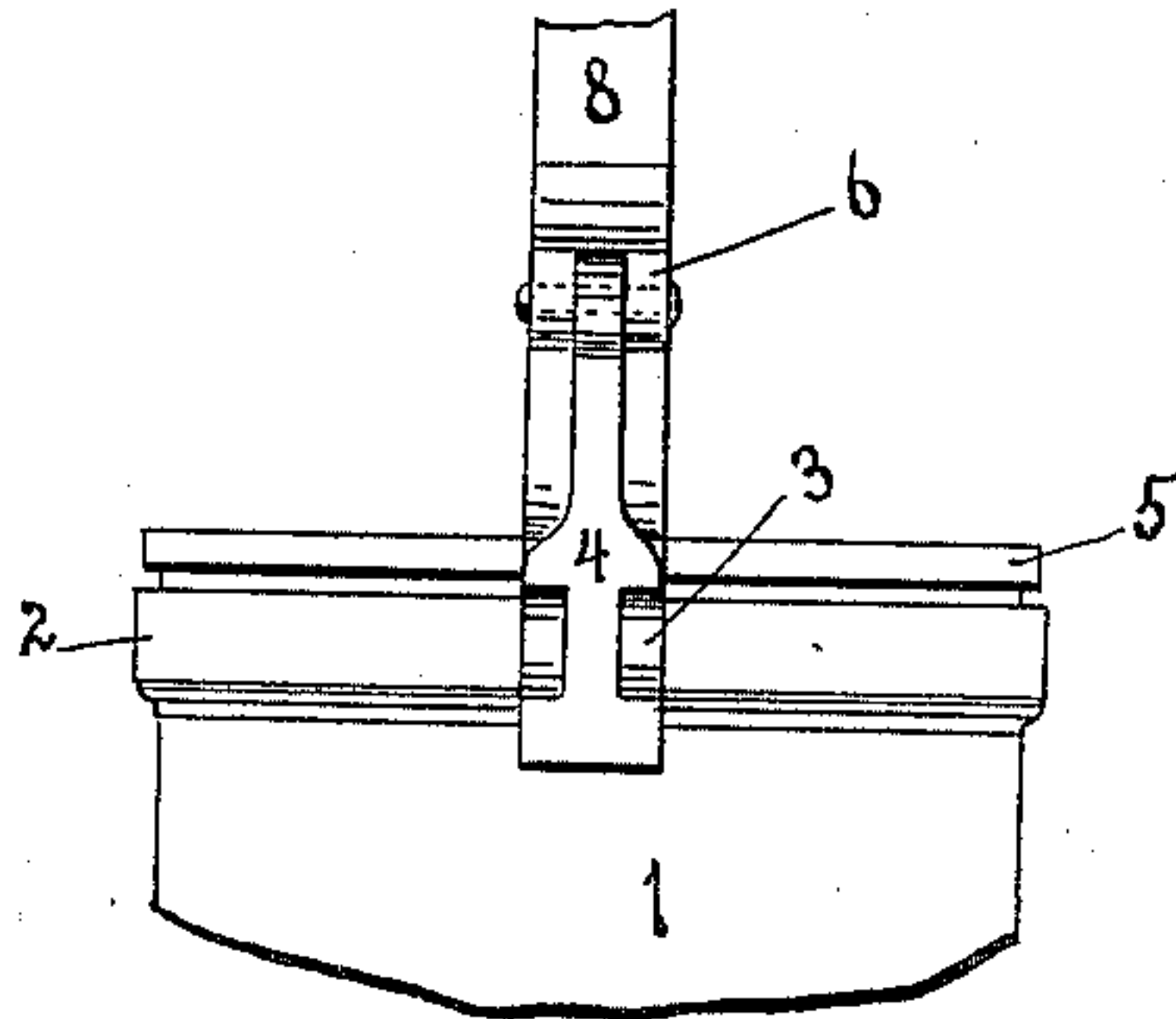


Fig. 2.

WITNESSES:

*Wm. Ellin Weisell.*  
*W. Quibell*

INVENTORS

*Josiah O. Keller*  
*David D. Weisell*



# UNITED STATES PATENT OFFICE.

JOSIAH O. KELLER AND DAVID D. WEISELL, OF FORT WAYNE, INDIANA.

## DENTAL VULCANIZER.

SPECIFICATION forming part of Letters Patent No. 411,449, dated September 24, 1889.

Application filed May 3, 1889. Serial No. 309,542. (No model.)

*To all whom it may concern:*

Be it known that we, JOSIAH O. KELLER and DAVID D. WEISELL, citizens of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Dental Vulcanizers, of which the following is a specification.

Our invention relates to improvements in dental vulcanizers; and it consists in certain novel features hereinafter described and claimed.

The formation of vulcanizable rubber into plates for artificial dentures consists, essentially, in the following process: A sheet of gutta-percha, wax, or other plastic substance of the desired thickness of the plate is fitted upon a plaster model of the mouth. Upon this the teeth are mounted and secured with wax in the desired position for the artificial denture, the gutta-percha and wax conforming in shape and occupying the space of the finished vulcanite plate. The case thus prepared is then flaked or molded in such manner that when the flasks are parted the teeth remain in one side of the flask and the model of the mouth in the other side. The gutta-percha and wax plate is then removed and the space filled with loosely-packed pieces of vulcanizable rubber. The case thus prepared is now ready for closing the flasks. This is usually accomplished by heating the case in boiling water, at which temperature (212° Fahrenheit) the rubber is softened, so that by pressing the parts of the flask together it may be made to conform to the space left vacant by the removal of the gutta-percha and wax plate. The flasks are then held closed by bolts or other device and placed in a steam-tight vulcanizer and the heat raised to 320° Fahrenheit and held at that temperature for fifty or sixty minutes, at the expiration of which time the rubber is hardened or "vulcanized." This latter process is, however, much better and more quickly and conveniently accomplished by a vulcanizer so constructed that the flasks can be closed within the vulcanizing steam-chamber. Within such steam-tight chamber the rubber can be heated to a temperature (240° Fahrenheit) at which it is at its softest consistency, and in closing the

flasks at this temperature the fine lines or rugae of the model are not broken down or destroyed and the fit of the plate impaired, as is so frequently the case when the flasks are closed outside of the steam-tight vulcanizing chamber and necessarily at a much lower temperature.

The object of our invention is to produce such a vulcanizer, with novel features of construction for closing and opening the steam-tight chamber and also closing the flasks within the same. Such construction is shown in the accompanying drawings, in which—

Figure 1 is a side elevated section view of the entire device, taken on its central line, showing the steam-chamber closed and the position of the unclosed flasks, with teeth, models, and unvulcanized rubber packed loosely therein before commencing the vulcanizing process. Fig. 2 is a section view taken on a central line at right angles with Fig. 1, with steam-pot and locking-rod removed, showing the position of the other parts of the device when the vulcanizing flasks are closed. Fig. 3 is a detail plan of the locking-link, with the lower end engaged within the slotted lugs formed on the flange of the steam-pot.

Similar numerals refer to like or similar parts throughout the different views.

The steam-pot 1 has formed upon its outer surface, near its rim, an annular flange 2, which is provided with slotted lugs 3, for the reception of the lower ends of locking-links 4. The lid 5 has an annular space or groove on its under surface which fits over the upper rim of the steam-pot and contains a packing 14, which, when pressed down upon said rim with sufficient force, forms a steam-tight joint. Upon the top of the lid, and formed integrally therewith, are lugs 7. Secured to these lugs by a hinge-joint are the actuating-levers 8. Near the lower end of these levers are formed laterally-projecting lugs 6, to which are secured by a hinge-joint the upper ends of the locking-links 4. Within slots 9 in the upper part of levers 8 are pivoted the locking-nuts 10 by set-screws 11. Pivoting the nuts thus upon the ends of set-screws 11 allows their self-adjustment at a right angle with the right-and-left-threaded



locking-rod 12, that passes through them at any angle in which said levers may be placed. On the central part of the locking-rod 12 is secured an insulated handle 13, by which the locking-rod is turned, and which also serves as a handle to the vulcanizer, or to the lid when detached from the steam-pot.

Upon the central part of the lid 5 is formed a sleeve 23, on the upper end of which is fitted a collar-nut 16. Between these is an annular space for a steam-packing 19. Upon the under side of the lid 5 are formed downwardly-projecting lugs 18, against which the flasks are forced in closing. Within the steam-chamber is a stirrup 24, for the reception of and closing of the molding or vulcanizing flasks 20. Upon the upper part of this stirrup 24, and formed integrally therewith, is a piston-rod 15, which passes through the lid 5, sleeve 23, collar-nut 16, and rubber packing 19, and is secured at its top by closing-nut 17. Within this stirrup, Fig. 1, with the cover of the upper flask impinged against lugs 18, are placed flasks 20, packed with rubber 21, ready for the closing and vulcanizing process.

To close the vulcanizer, place lid 5 on the steam-pot 1 so that the projecting rim of the latter is in contact with the packing 14 in the annular groove, and adjust the lower ends of the locking-links 4 in the slots of lugs 3. By the insulated handle 13 turn the locking-rod 12 in such direction that the upper ends of levers 8 are made to approach each other. This movement of the levers, acting through the locking-links 4, brings the rim of the steam-pot up against the packing 14 in the cover and secures the lid to the pot with a steam-tight joint. Heat is then applied, and when the thermometer indicates 240° Fahrenheit with a suitable wrench turn the closing-nut 17. This raises the piston and stirrup holding the flasks and forces the latter upward against the lugs 18 on the under side of the cover, thereby closing the flasks, as shown in Fig. 2. The heat is then continued until the thermometer indicates 320° Fahrenheit, and is held at this temperature until vulcanized. The heat is then withdrawn, and when the vulcanizer is sufficiently cooled it is opened by turning the locking-rod 12 in a reverse direction from the one used in closing. This forces the upper end of the levers 8 apart, the locking-links 4 acting as a fulcrum to the levers, forces the steam-pot down, and breaks the packing-joint. The locking-links 4 are then thrown out of the slots in lugs 3, as indicated by the dotted lines, and the lid, with

the stirrup and flasks, is lifted by the handle 13 from the steam-pot. By unscrewing the closing-nut 17 the stirrup loosens its grasp upon the flasks and they are readily removed.

Having fully described our invention and manner of constructing and using the same, what we claim as new, and wish to secure by Letters Patent of the United States, is—

1. In a dental vulcanizer, the combination, with the steam-pot 1 provided with lugs 3, and a lid 5, provided with lugs 7 and 18, of the locking-link 4, and the actuating-levers 8, hinged to the lid 5, as and for the purposes set forth.

2. In a dental vulcanizer, the combination, with the steam-pot 1, provided with lugs 3, lid 5, provided with lugs 7 and 18, and locking-link 4, of the actuating-levers 8, hinged to the lid 5 and provided with lugs 6 and slots 9, as and for the purposes set forth.

3. In a dental vulcanizer, the combination, with the steam-pot 1, provided with lugs 3, lid 5, locking-links 4, and levers 8, provided with lugs 6 and slots 9, of the locking-nuts 10, pivoted in slots 9 by set-screws 11, as and for the purposes set forth.

4. In a dental vulcanizer, the combination of a steam-pot 1, provided with lugs 3, lid 5, provided with lugs 7 and 18, actuating-levers 8, provided with lugs 6 and locking-nuts 10, locking-rod 12, provided with insulated handle 13, and locking-link 4, all formed substantially as described, as and for the purposes set forth.

5. In a dental vulcanizer, the combination, with a steam-pot 1, provided with lugs 3, and a cover 5 provided with upwardly-projecting lugs 7 and downwardly-projecting lugs 18, and a sleeve 23, provided with a collar-nut 16 and rubber-packing space 19, of the stirrup 24, provided with a piston 15, said piston passing through the lid 5, sleeve 23, rubber packing 19, and collar-nut 16, and secured therein by a closing-nut 17, as and for the purposes set forth.

6. In a dental vulcanizer, the combination of the pot 1, the lid 5, provided with lugs 7 and 18, and sleeve 23, levers 8, locking-rod 12, locking-links 4, and stirrup 24, provided with a piston-rod 15, secured in position by nuts 16 and 17, as and for the purposes set forth.

JOSIAH O. KELLER.  
DAVID D. WEISELL.

Witnesses:

WM. ELLIS WEISELL,  
H. J. SEIBOLD.