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VULCANIZING APPARATUS.

APPLICATION FILED SEPT. 21, 1907.

923,772.

Patented June 1, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

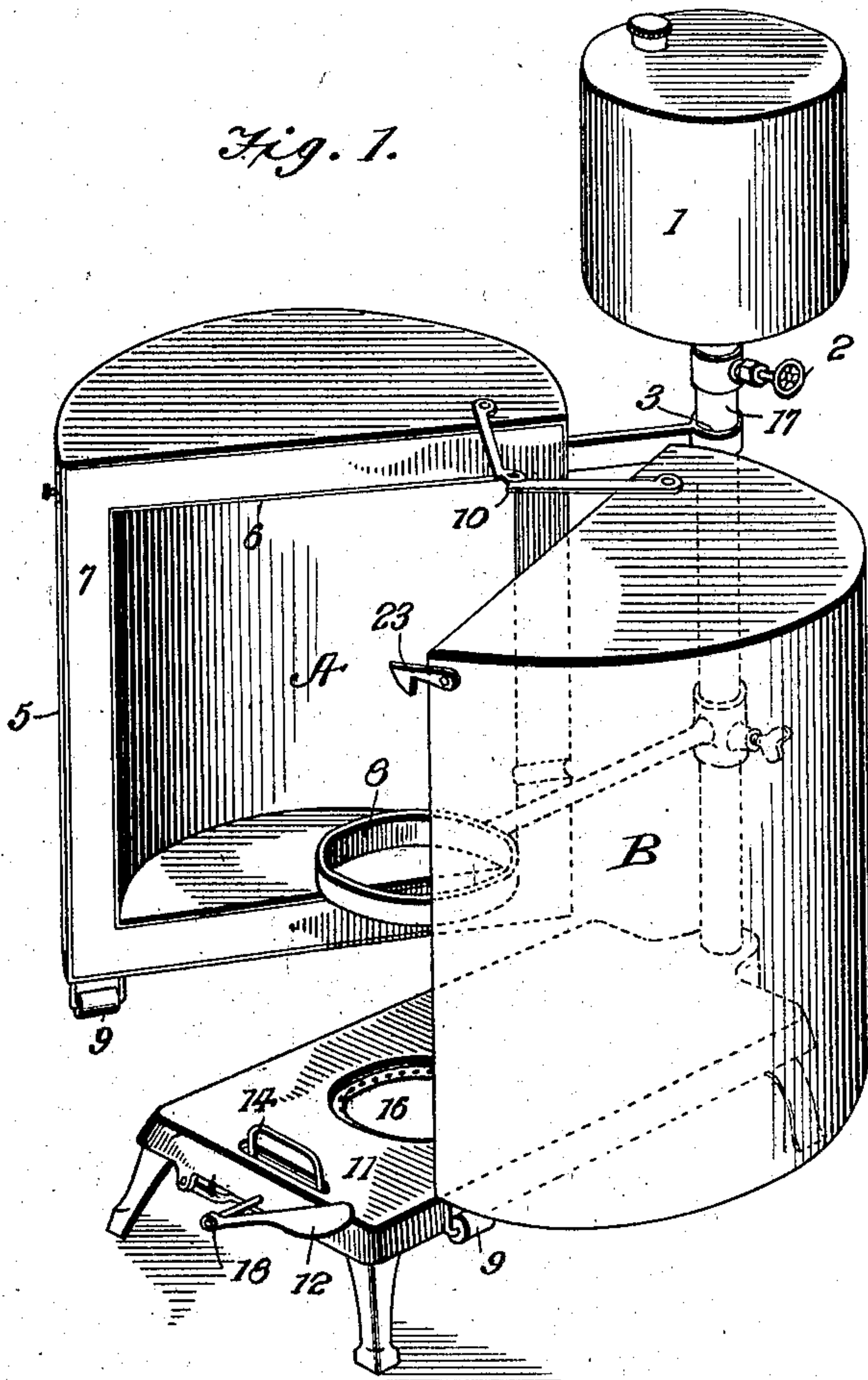
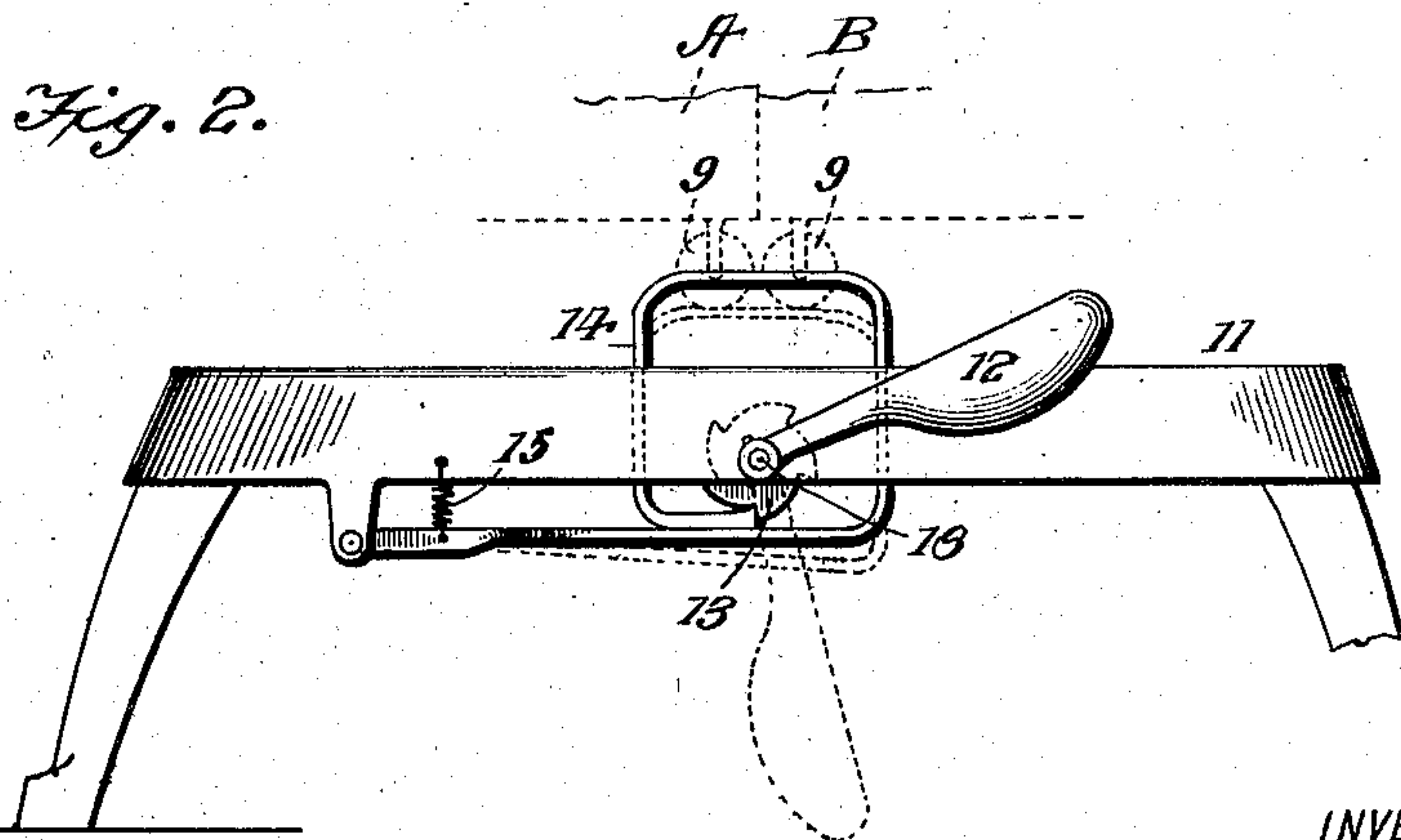


Fig. 2.



WITNESSES

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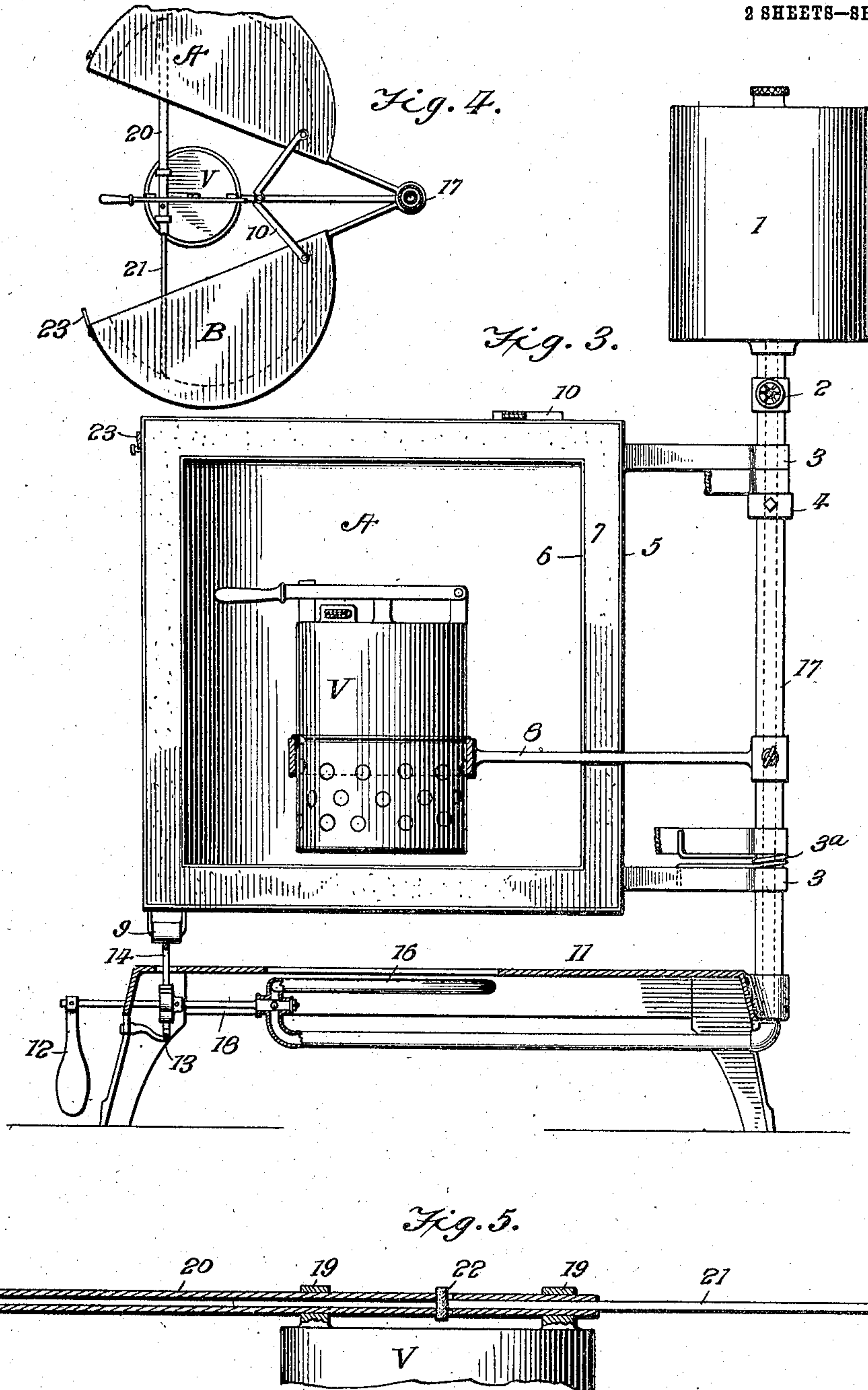
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# UNITED STATES PATENT OFFICE.

ASA FERRIS COGSWELL, OF PRETTY PRAIRIE, KANSAS, AND JONATHAN WESLEY PUCKETT,  
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## VULCANIZING APPARATUS.

No. 923,772.

Specification of Letters Patent.

Patented June 1, 1909.

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*To all whom it may concern:*

Be it known that we, ASA F. COGSWELL, a citizen of the United States, residing at Pretty Prairie, in the county of Reno and State of Kansas, and JONATHAN W. PUCKETT, a citizen of the United States, residing at Geneva, in the county of Fillmore and State of Nebraska, have invented a new and useful Improvement in Vulcanizing Apparatus, of which the following is a specification.

In the manufacture of artificial dentures requiring the use of rubber and gutta percha, the usual method is to bring the vulcanizer up to the required temperature, which takes about thirty minutes, and then hold it at that temperature without variation for one hour, then slowly cool the vulcanizer and open it; and any variation of temperature during this one hour results in imperfect vulcanization, causing the product to be too hard, or too soft, or porous from air bubbles, and often warping the plate and causing a misfit. This requires a very careful and prolonged attention from the dentist and a very large percentage of the vulcanite dentures are ill-fitting from this one cause, for the reason that the average dentist has not the time or inclination to sit and watch a vulcanizer, so as to keep the heat perfectly regulated for the required time. Our vulcanizing furnace is designed to overcome these difficulties, and to automatically control and regulate the process without attention from the dentist, and it consists in the novel construction and arrangement of parts in which the vulcanizer when brought to the proper temperature automatically closes a sectional oven about the same, so as to maintain the even and prolonged heat and at the same time shuts off the supply of fuel-oil, gas, or heating agency, thus saving fuel, saving the dentist's time, avoiding all mistakes, insuring uniformity in every case, and doing the work surely and perfectly without any attention from the dentist.

Figure 1 is a perspective view from the front with the oven partly opened. Fig. 2 is an end view of the shut-off devices for the burner. Fig. 3 is a vertical central longitudinal section. Figs. 4 and 5 are details of the thermostat prop for holding the oven sections open.

In the drawing, 11 is the stove having a burner 16. This may be any kind of a heater, such as a gas or gasoline burner, or

an electric heater. Said stove has a flat table surface supported upon legs and from the back end of the stove there rises an upright standard 17 which is made of a metal pipe of suitable size to allow the supply pipe which conducts fuel to the burner to pass through said standard, from the gasoline tank 1 mounted on the top of said standard. On the standard 17 is adjustably supported an offsetting vulcanizer support 8, consisting of a circular ring on the end of an arm attached to a collar embracing the standard 17 and rigidly connected thereto by a set screw. Upon the standard 17 is also supported two semi-cylindrical oven sections A B connected by hinges 3 to the standard and arranged when closed together to form a closed oven around the vulcanizer within, or be opened as in Fig. 1, the oven being thus divided into two separable halves. This oven may occupy a position directly above the burner, or it may be swung to either side of the same to allow the stove to be used for other heating purposes when it is not in use for heating the oven the burner or heating device being wholly external to and outside of the oven. The oven is made vertically adjustable on the standard and its position is regulated by a sliding collar 4 with set screws to hold the oven hinges at the proper height. Said oven is made of an outside metal casing 5, an inside lining 6, and a packing or filling 7 of asbestos or other fire proof and non-conducting material for retaining the heat the required time. The hinges 3 of the oven are provided with a coil spring 3<sup>a</sup> of sufficient strength to cause the oven sections to swing tightly together when not positively held open.

The vulcanizer arm 8 holds the vulcanizer V directly over the burner of the stove and in a position suspended near the center of the oven, as seen in Fig. 3, when the oven is closed, the rear meeting edges of the oven sections being grooved to fit around the said arm so as to allow it to pass from the exterior to the interior of the oven. The oven is designed to be set as close to the burner as convenient to clear the burner when the oven is closed, and the two halves of the oven have on their lower ends rollers 9 that cooperate with a cut off device for the fuel which is described as follows.

A valve stem 18 controls the flow of gasoline from the tank and has on its outer end



a weighted and rigidly attached shut-off lever 12 and at a point beneath the stove top has a rigid ratchet wheel 13. A yoke-shaped detent 14 is curved around the ratchet wheel and is strained upwardly by a spring 15 so as to hold the tooth of the detent against the ratchet wheel with the weighted arm 12 in elevated position. The yoke portion of the detent passes through a slot in the stove table and is directly in the path of the rollers 9 on the oven section, so that when the oven sections swing to the closed position, the rollers, acting on this yoke as a presser foot, depress it and remove the tooth of the detent from the ratchet, leaving the ratchet free to turn from the gravity of the weighted arm 12, which, in falling, shuts off the supply of fuel by turning the valve stem and closing the valve in the supply pipe. A valve 2 near the tank serves to cut off the flow entirely.

The vulcanizer V used in the oven is provided on its lid with guide sockets 19, 19 which hold the two sections 20, 21 of a telescopic prop. One section, 20, is a flat tube and the other, 21, is a flat bar passing freely into the tube. This telescopic prop lies flat on the top of the vulcanizer lid and extends across the oven in position to come in contact with the inner walls of the two halves of the oven and when extended serves to prop said halves open just enough to admit the full heat of the burner to come in contact with the bottom of the vulcanizer as seen in Figs. 4 and 5. This position of parts is maintained up to a requisite temperature by a fusible plug 22 which is inserted in a hole in the flat tube 20 in front of the flat bar 21, so that the latter cannot move endwise into the tube, but when the requisite temperature has been reached this fusible plug melts or softens and then the spring hinges of the oven sections cause the telescopic prop to slide up and shorten and the oven sections then close tightly around the heated vulcanizer, maintaining its temperature through the requisite period of time. When the half sections of the oven come together the rollers 9 depress the yoke 14 to close the oil feed and a snap catch 23 locks the halves A B of the outer casing together in closed position.

To the top of each oven section is pivotally connected the outer ends of a knuckle jointed brace 10 which, when straightened out, will hold the two sections of the oven open in convenient position while the vulcanizer is being placed in position and the automatic shut-off is being adjusted, and while the vulcanizer is being removed. When the vulcanizer oven is set for automatic closing, this knuckle-jointed brace is bent on its middle hinge, so that it does not interfere with the automatic closing.

With our vulcanizer, all the time that is

required of the dentist is to get the vulcanizer in position, extend the telescopic prop, place the fusible plug in it, which acts as a thermostat, then light the fire and turn it on strong enough to run up the required temperature in any time from five to thirty minutes, no matter how fast or slow, and as soon as the fire is lighted the dentist is through. When the heat reaches the proper temperature the fusible plug softens and the oven closes and simultaneously extinguishes the flame of the burner.

We claim—

1. A vulcanizing furnace comprising an oven made in two hinged and separable parts, a heating device external to the oven and devices for automatically closing the oven when a predetermined temperature is reached.

2. A vulcanizing furnace comprising an oven made in two hinged and separable parts, a heating device external to the oven, devices for automatically closing the same when a predetermined temperature is reached, and means for automatically turning off the heat when the oven is closed.

3. A vulcanizing furnace comprising an oven made in two equal and simultaneously moving hinged sections, devices for automatically closing the same when a predetermined temperature is reached and a heating device external to the oven.

4. A furnace comprising a heating device and an oven with devices for automatically closing the same when a predetermined temperature is reached, said oven being made in two equal and simultaneously moving sections hinged about a vertical axis.

5. A vulcanizing furnace comprising an oven made in two separable parts, a thermostat prop for holding the oven open, a spring for closing the same, a heating device external to the oven and means for cutting off the heat supply by the closing of the oven.

6. A furnace comprising a heating device, a vertical standard, a divided oven arranged above the heating devices to swing upon the vertical standard, a supporting arm attached to the standard and bearing a vulcanizer support, a vulcanizer mounted thereon and having a thermostat prop to hold the oven sections open and a spring for closing the oven.

7. A furnace comprising a heating device, a vertical standard, a divided oven arranged above the heating devices to swing upon the vertical standard, a supporting arm attached to the standard and bearing a vulcanizer support, a vulcanizer mounted thereon and having a thermostat prop to hold the oven sections open, a spring for closing the oven, and a fuel supply valve arranged to be closed by the closure of the oven.

8. A furnace comprising a heating device, oven sections hinged about a vertical axis



above the heating device, a presser foot arranged below and acted upon by the oven sections and having a detent, a valve stem with ratchet wheel restrained by said detent,  
5 and means for turning the valve stem when its detent is released.

9. A furnace comprising a burner, having an upright tubular standard, and having its fuel supply pipe extend down through the tubular standard, and a two-part oven hinged  
10 about the upright standard, the oven being

of nonconducting material to retain the heat after the fire is extinguished.

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