

No. 725,261.

PATENTED APR. 14, 1903.

J. C. LAKE.  
SELF HEATING SAD IRON.  
APPLICATION FILED JAN. 23, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

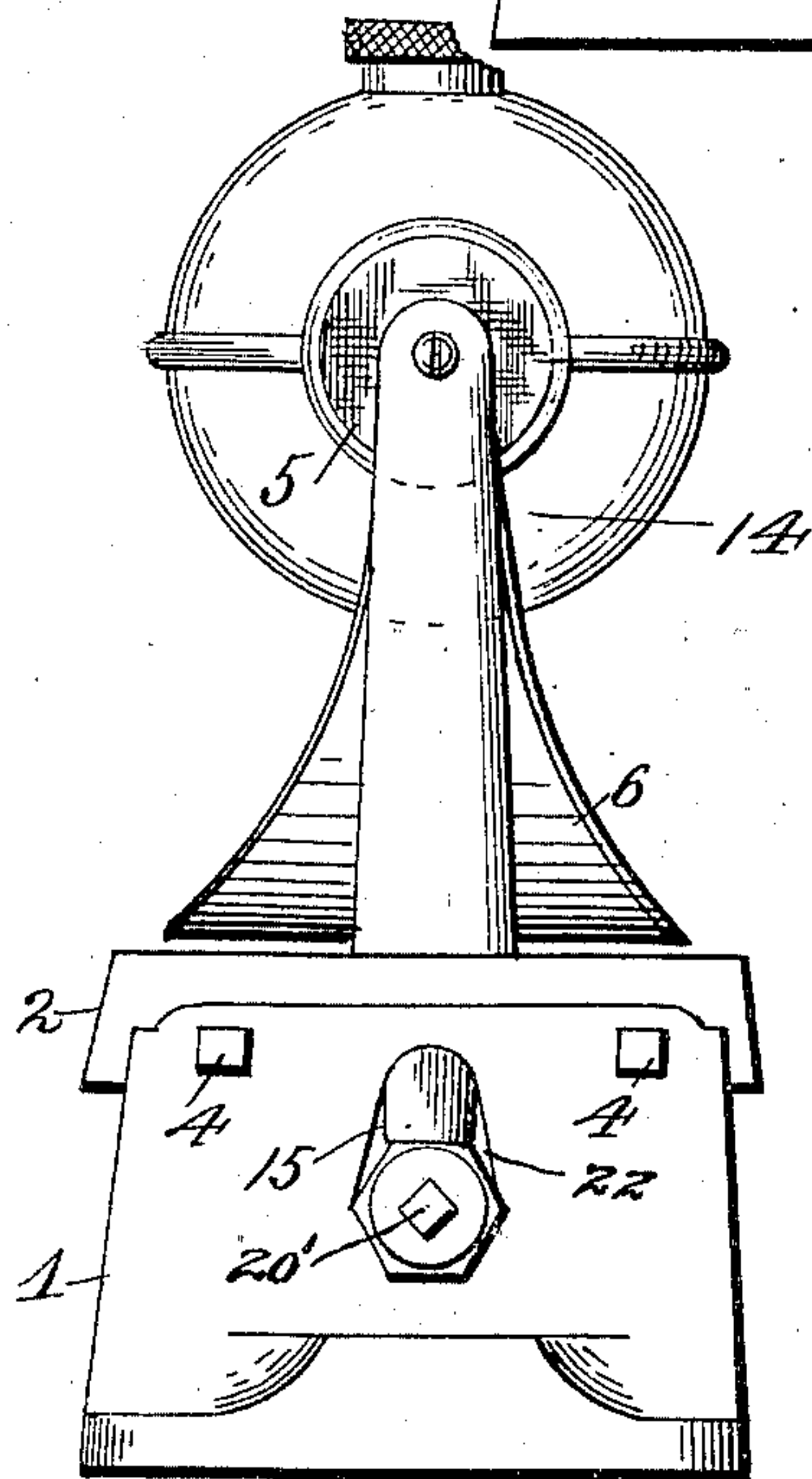
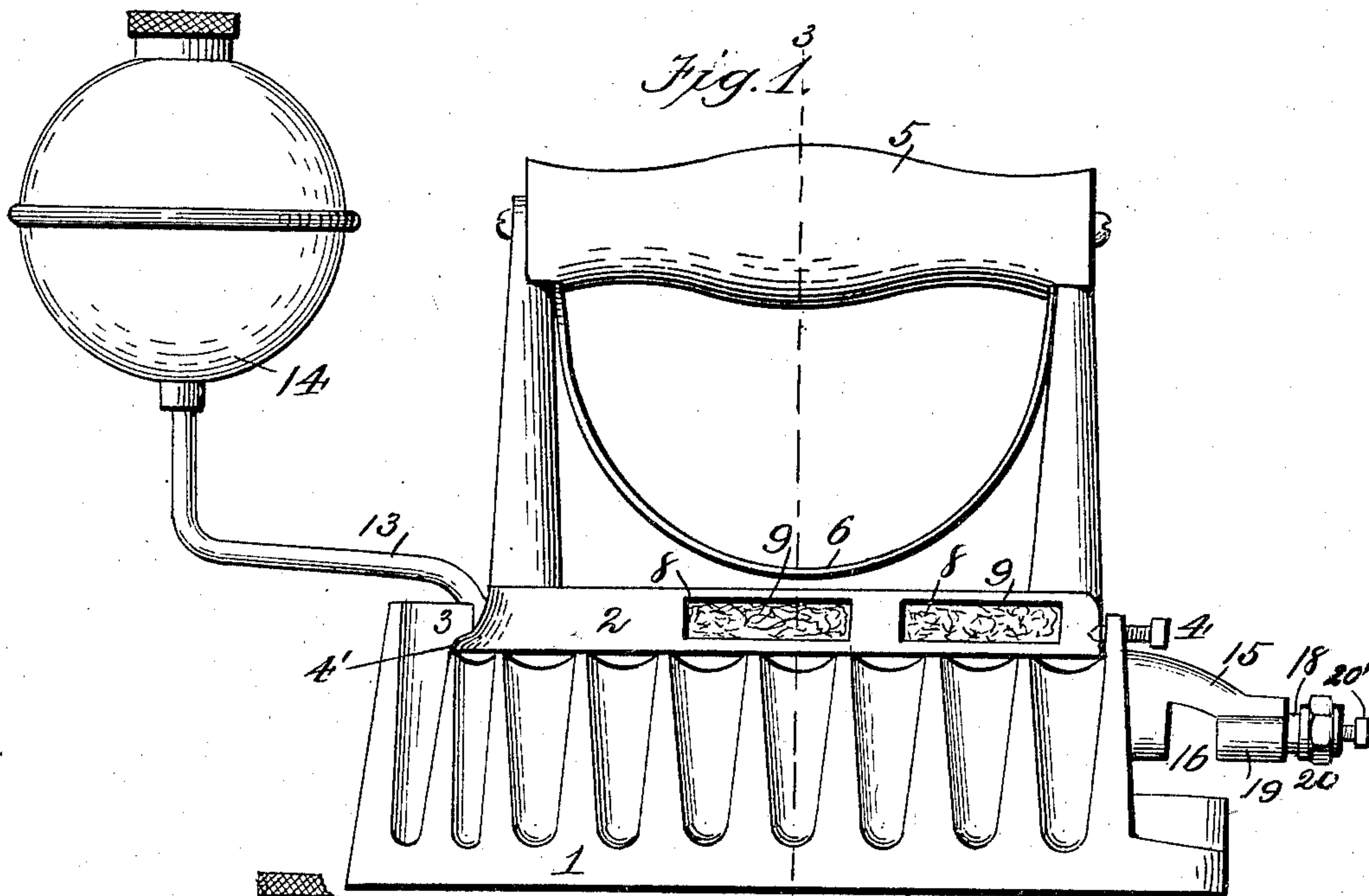


Fig. 2

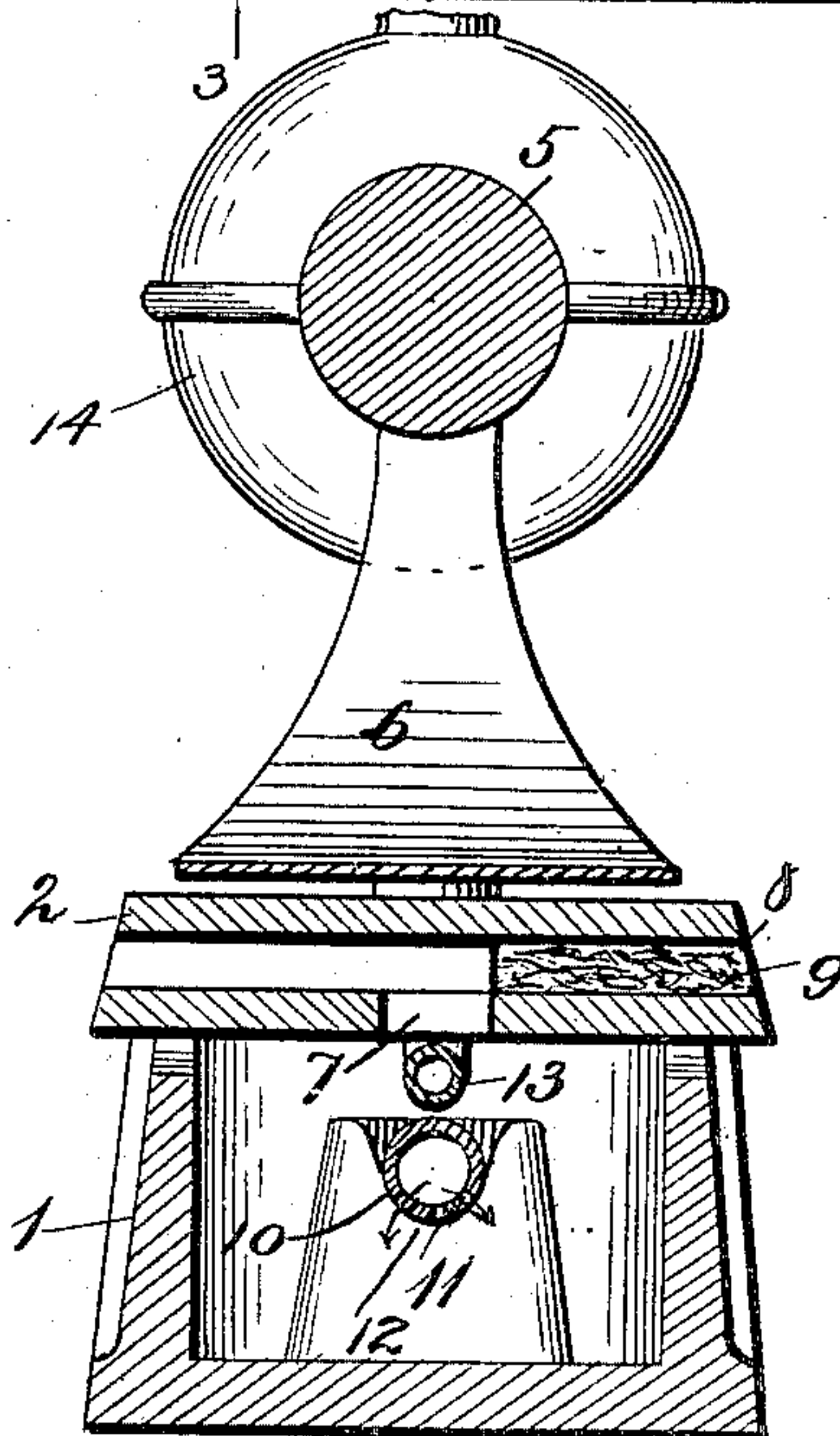


Fig. 3. John C. Lake.

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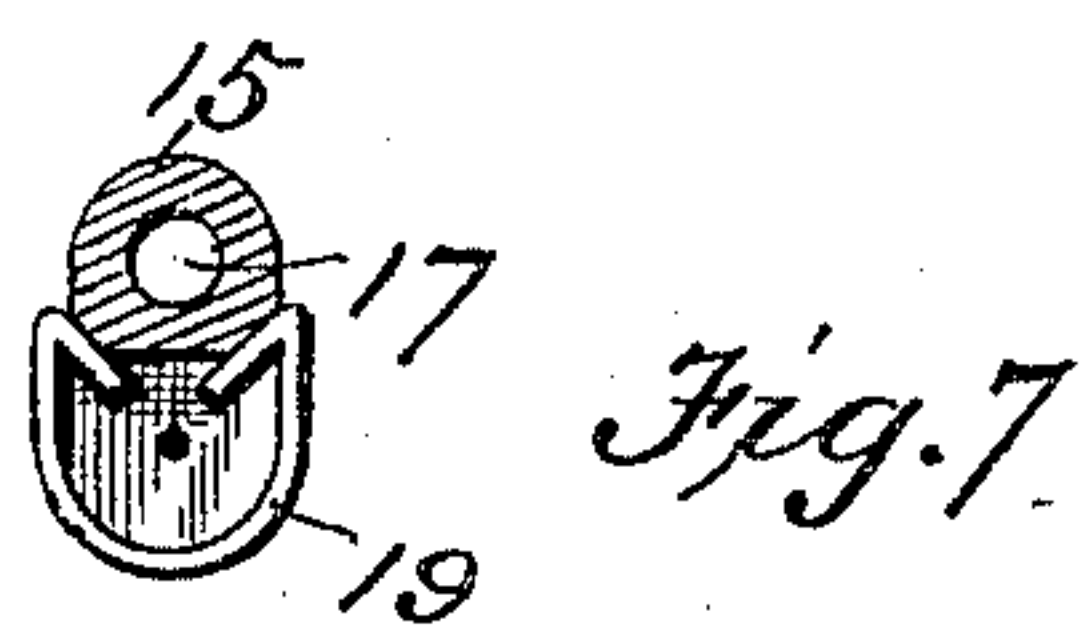
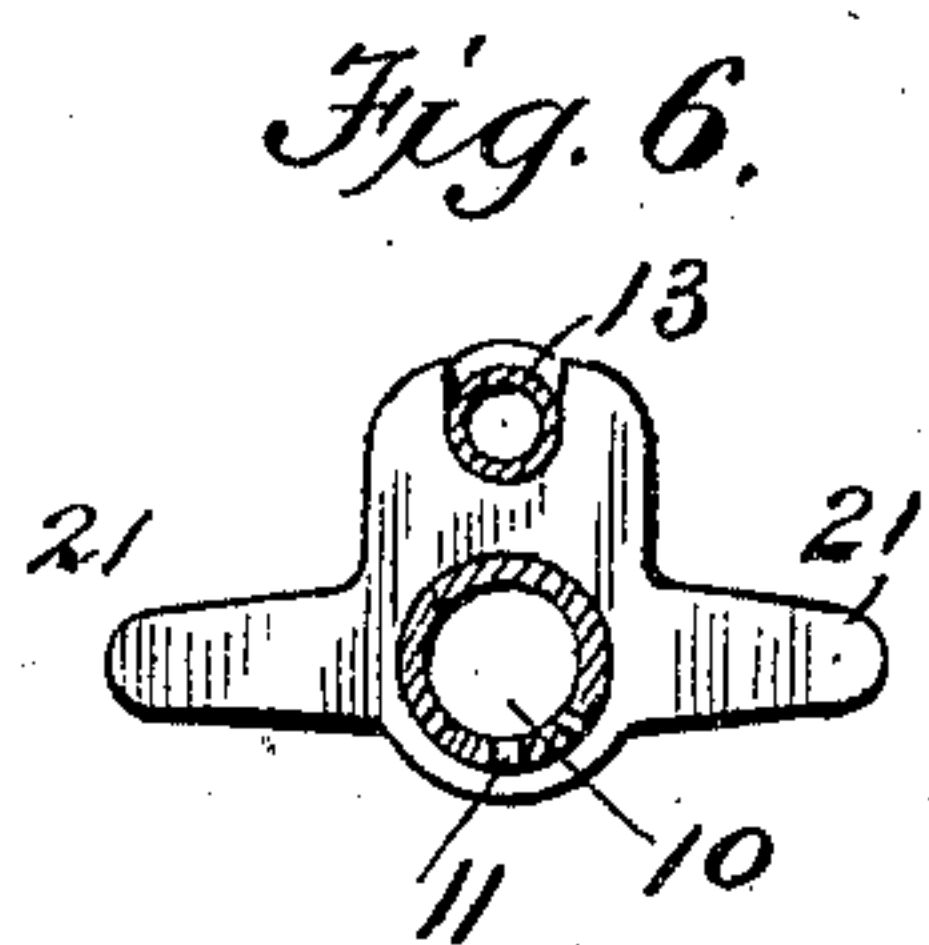
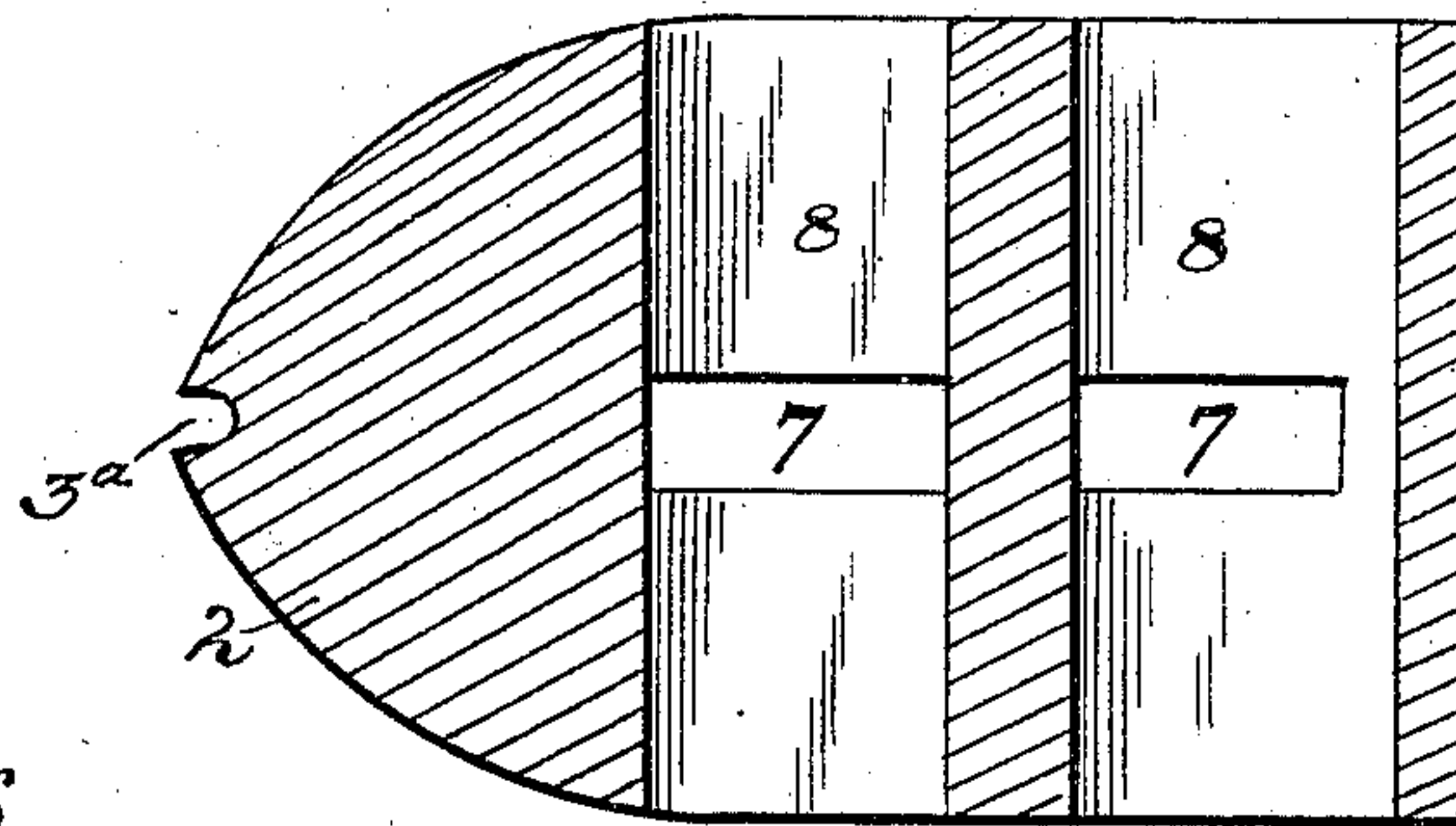
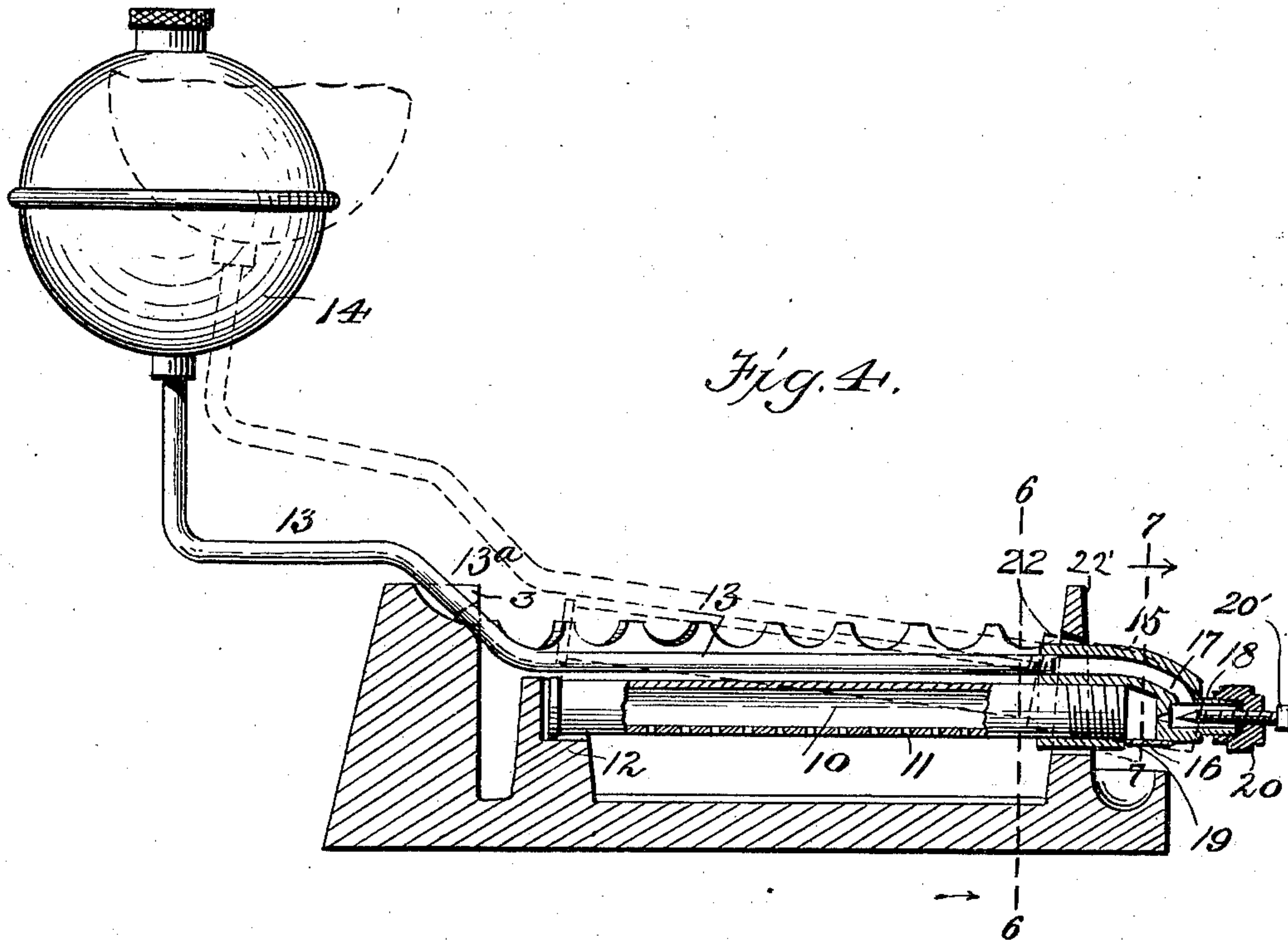
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# UNITED STATES PATENT OFFICE.

JOHN C. LAKE, OF MANSFIELD, OHIO.

## SELF-HEATING SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 725,261, dated April 14, 1903.

Application filed January 23, 1902. Serial No. 90,968. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. LAKE, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Self-Heating Sad-Irons; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in self-heating sad-irons of that kind using a liquid-hydrocarbon fuel, such as gasolene.

The objects of the invention are to provide simple and efficient means to regulate ventilation and the discharge of the products of combustion, so that a large proportion of the heat and odors may be conducted away from the person using the iron, to construct the burner and generating apparatus in such manner as to permit of their ready detachment for cleaning or refilling of the reservoir, while obviating all liability of these parts falling out of the chambered body of the iron and becoming injured when the cover of the body is removed, and to generally simplify and improve the construction and increase the practical efficiency of sad-irons of this character.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in certain novel features of construction and combination and arrangement of parts, which will be hereinafter fully described, defined in the appended claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a sad-iron embodying my invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a cross-section. Fig. 4 is a vertical longitudinal section, the cover being removed, showing in broken lines the manner of removing the burner and generator. Fig. 5 is a horizontal section through the cover. Fig. 6 is a cross-section on the line 6 6 of Fig. 4. Fig. 7 is a detail cross-section on the line 7 7 of Fig. 4.

Referring now more particularly to the drawings, the numeral 1 represents the chambered body of the iron, which consists, as usual, of a base, side walls connected at the front to form the point or nose of the iron, and a rear wall, the whole being preferably

formed integral in a single casting. This chamber is closed at the top by a cover 2, which rests upon the upper surface of the side walls and fits at its forward end beneath a notched shoulder or extension 3 upon the nose of the iron, and is secured at its rear end by one or more screws 4, passing through the upper end of the rear wall and having conical ends to fit within recesses or indentations in the rear end of said cover.

The nose or front end of the cover is preferably tapered to fit under the wings of the notched nose or extension 3 of the body, which notched nose or extension is undercut, as shown at 4', to receive the said tapered nose of the cover, whereby the forward end of the latter is fastened securely in position.

As shown, the side walls preferably terminate below the nose or extension 3 and the rear wall of the body and may be recessed or fluted to form side ports or passages through which a part of the heat and products of combustion may be allowed to escape.

The cover 2 has applied thereto a suitable handle 5, and a shield 6 is interposed between this handle and the body to protect the hand of the operator from the heat rising therefrom. Formed in the body of the cover are one or more outlet-passages 7, which communicate with transverse passages 8, through which the heat and products of combustion from the chamber of the body 1 pass out to the atmosphere. The outlet-passages 7 are preferably formed at the center of the body in order to cause the heat and products of combustion to exhaust equally through all of the transverse passages 8. If desired, the lateral branches of the transverse passages on either side of the central passages 7 may be closed by plugs or fillings 9, of asbestos, to prevent the discharge of the heat and products of combustion from said passages on the side facing the person who uses the iron and so that a large proportion of the heat and odors will be discharged upon the opposite side and away from said person.

The cover is necessarily made of increased depth to provide for the formation of the said passages 7 and 8 therein, and thus gives increased weight to the iron. The plugs 9 are applicable to the transverse passages 8 on either side of the passages 7, and thus may



be transferred from one side of the iron to the other to regulate the discharge of the heat and products of combustion to suit an operator using either the right or the left hand at will.

The burner 10 is in the form of a tube provided upon its under side with jet-orifices 11 and resting at its forward end in a seat or socket 12, formed upon the interior of the base of the iron. This seat or socket may, however, be dispensed with, as the forward end of the tube will be supported by the coupling hereinafter described.

Arranged above the burner is a conducting and vaporizing tube 13, which leads from a font or reservoir 14, which contains a liquid fuel or hydrocarbon. The outer end of this tube supports the reservoir and is vertically disposed, while the vaporizing portion of said tube is horizontally disposed and extends parallel with the burner 10. Intermediate these two portions of the tube said tube is curved or bent, as shown at 13<sup>a</sup>, to fit within the notch or recess of the nose 3 and a corresponding recess 3<sup>a</sup> in the nose portion of the cover 2. By this construction as the nose of the cover fits within the undercut portions of the nose or extension 3 of the body the forward end of the conducting and vaporizing tube will be clamped in place and hold the hydrocarbon-reservoir against movement.

The rear ends of the vaporizing-tube and burner-tube are connected to and in open communication with a casting 15, which forms a coupling to connect them together and a support to hold the rear ends thereof connected with the body 1. This coupling is formed with a passage 16 for the inlet of air into the burner-tube 10 to commingle with the vapor produced from the hydrocarbon fluid to form a combustible gas. The coupling is also formed with a passage 17, which connects the vaporizing-tube 13 with a nozzle 18, lying a short distance in rear of the passage 16 and adapted to discharge thereinto. By this construction the oil flowing from the reservoir 14 is vaporized by the heat from the burner 10 and is conducted rearwardly through the passage 17, and thence discharges from the nozzle 18 through the passage 16, by which it is conducted to the burner 10, the vapor being commingled with a suitable proportion of air on its flow from the nozzle into said passage 16. The outer surface of the coupling above the nozzle is grooved to receive tongues on a sliding valve or cut-off 19, which is movable back and forth to regulate the size of the said port or passage to admit more or less air to commingle with the vapor to secure perfect combustion.

The rear end of the nozzle 18 is closed by a screw-cap 20, which carries a needle-valve 20' to regulate the size of the orifice in the nozzle and the flow of the vaporized oil.

The forward end of the coupling or casting 15 is provided with a flange or a series of flanges 21, constituting a head to hold the

generating apparatus against rearward movement. As shown in the drawings, the coupling projects beyond the rear of the body through a slot 22, formed in the rear wall of said body below the top of said rear wall, and the head or flange 21 abuts against said rear wall to limit the rearward movement of said coupling and the parts carried thereby. By this construction that part of the rear wall of the body which lies immediately above the slot 22 forms a stop and bridge piece 22', which holds the coupling 15 against upward movement and coacts with the head 21 to prevent the generator and burner from becoming displaced and falling out of the body when the cover 2 is removed. Thus if the body of the iron should be knocked over when the cover is removed the burner mechanism will be held from dropping out and becoming injured. In order to remove the burner and generating apparatus, the same must be tilted up at its forward end until it clears the front wall of the iron body, as shown in Fig. 4, whereupon it may be readily withdrawn by a forward endwise movement from slot 22 and removed from the iron body. By this mode of mounting the parts the necessity of employing fastening means for the generator and burner is avoided.

In the operation of the device the burner is preliminarily started by the use of alcohol or other suitable heating medium, and when the burner and vaporizing-tube have been heated to a sufficient extent the generation of vapor ensues and the valve 20' is opened to allow this vapor to pass through the nozzle 18 and thence through the passage 16 to the burner. A suitable proportion of air is admixed with this vapor as it enters the passage 16, thus forming gas containing sufficient oxygen to insure perfect combustion. Upon the ignition of this gas jets of flame are produced which impinge against the bottom surface of the iron and effectively heat the interior of the iron. The waste heat and products of combustion pass outwardly through the spaces between the side walls of the body and the cover and the remainder exhausts through the outlet-passages 7 and the transverse passages 8, as will be readily understood.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my improved self-heating sad-iron will, it is thought, be readily apparent without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a self-heating sad-iron, the combination of a chambered body provided in its rear



5 wall with a slot, the upper portion of which  
is closed by an integral part of the wall, which  
forms a stop and bridge piece, a detachable  
cover for the body, and burner mechanism  
10 extending longitudinally within the body and  
projecting at the rear through the slot and  
provided with a head abutting against the  
rear wall of the body to limit its rearward  
movement, the said burner mechanism being  
15 held from upward movement by the bridge-  
piece, whereby said mechanism is securely  
retained against displacement, the parts be-  
ing so disposed however that the front end of  
the burner may be elevated to tilt the burner  
20 to an inclined position, whereupon the burner  
mechanism may be withdrawn by an end-  
wise forward movement, substantially as de-  
scribed.

2. In a self-heating sad-iron, an iron body  
25 adapted to contain a heater, a comparatively  
deep cover closing the top of the body, giv-

ing increased weight to the iron, said cover  
having formed therein central vertical flues  
communicating with the iron body and trans-  
verse horizontal flues opening through the 25  
sides of the cover and communicating with  
said central flues, and asbestos plugs closing  
the ends of the horizontal flues on one side  
of the central flues and adapted to be trans-  
ferred to close the opposite ends of the hori- 30  
zontal flues, whereby said horizontal flues  
may be closed on either side of the central  
flues, allowing the products of combustion to  
escape from either side of the iron as desired,  
substantially as described. 35

In testimony whereof I have hereunto set  
my hand in presence of two subscribing wit-  
nesses.

JOHN C. LAKE.

Witnesses:

ROBT. L. MCCREADY,  
GRACE S. GRANER.