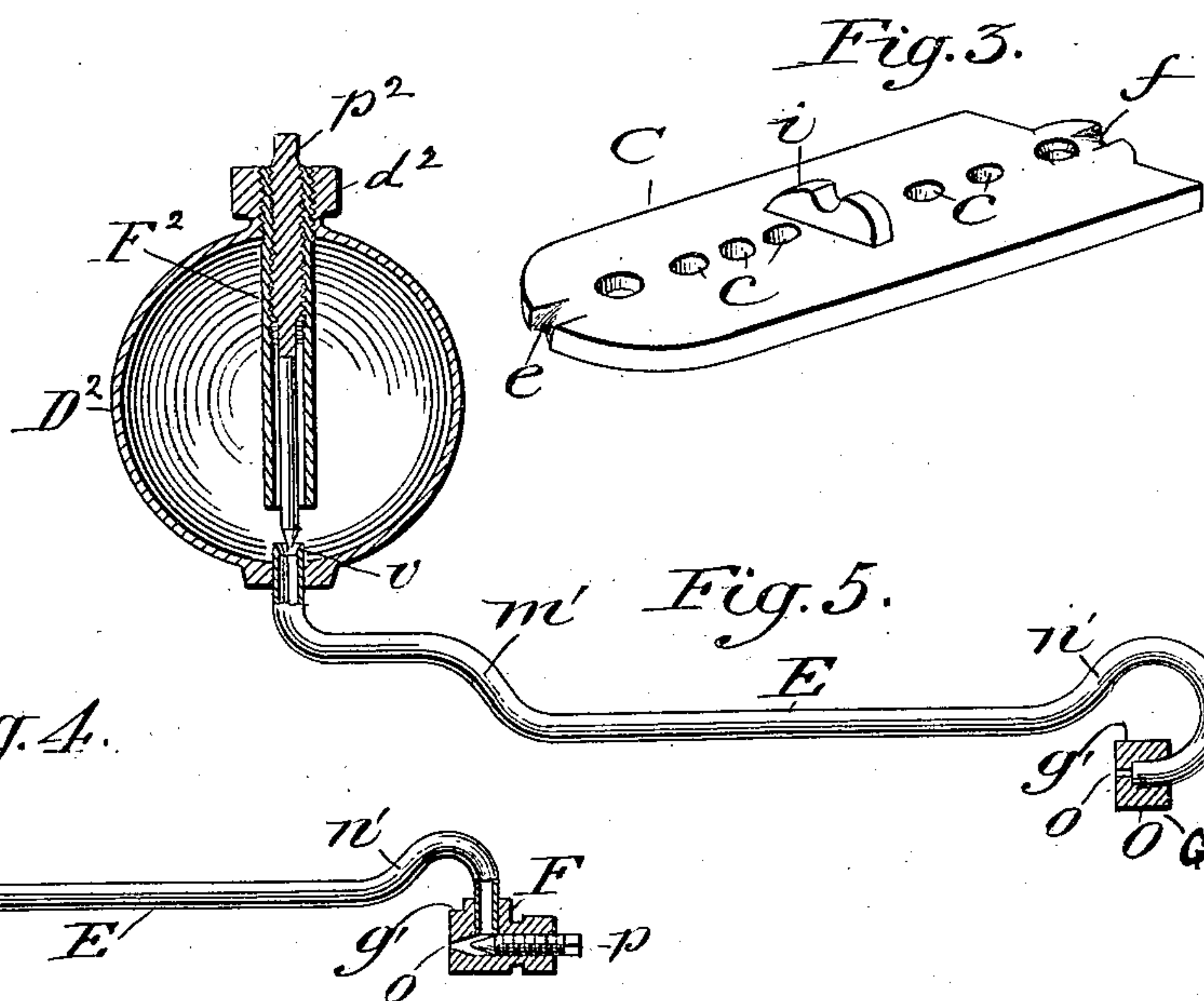
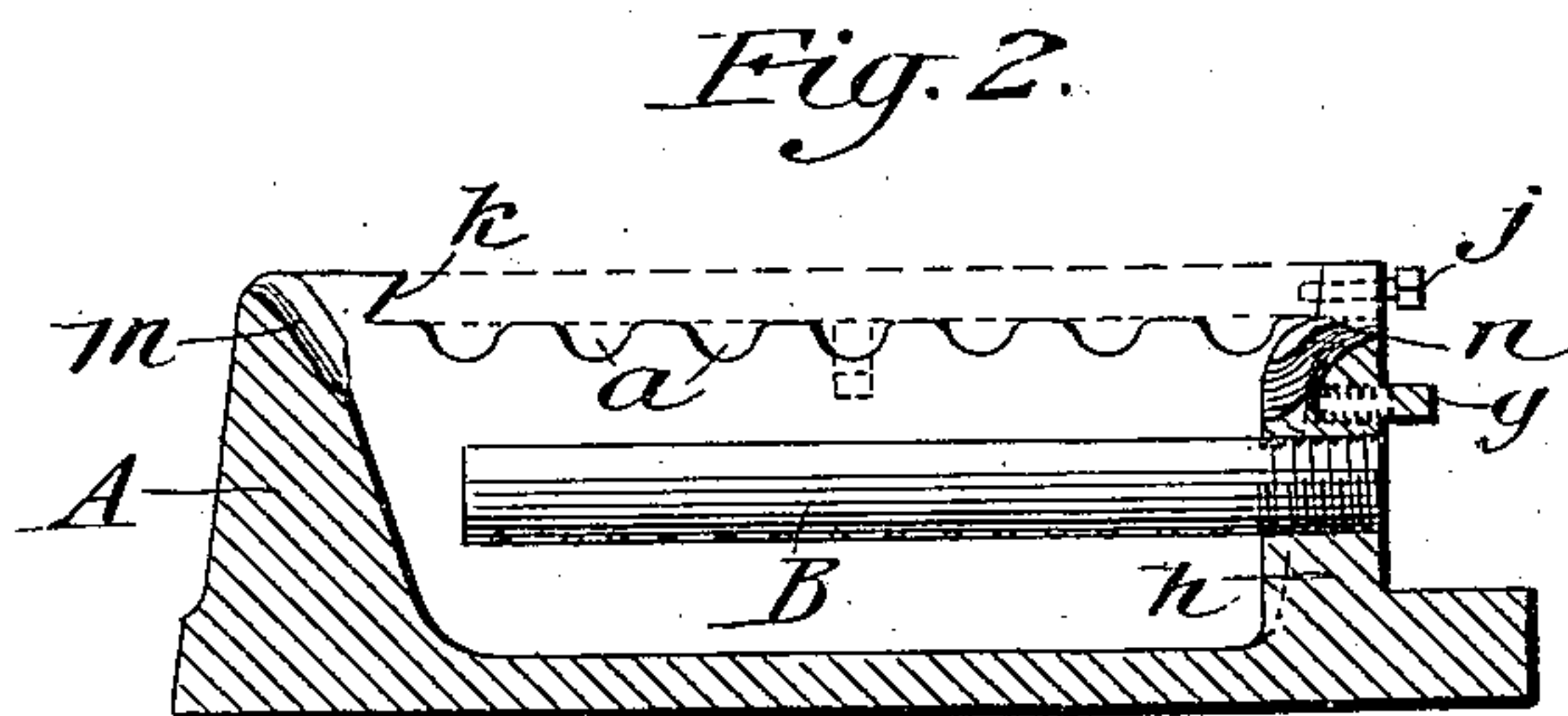
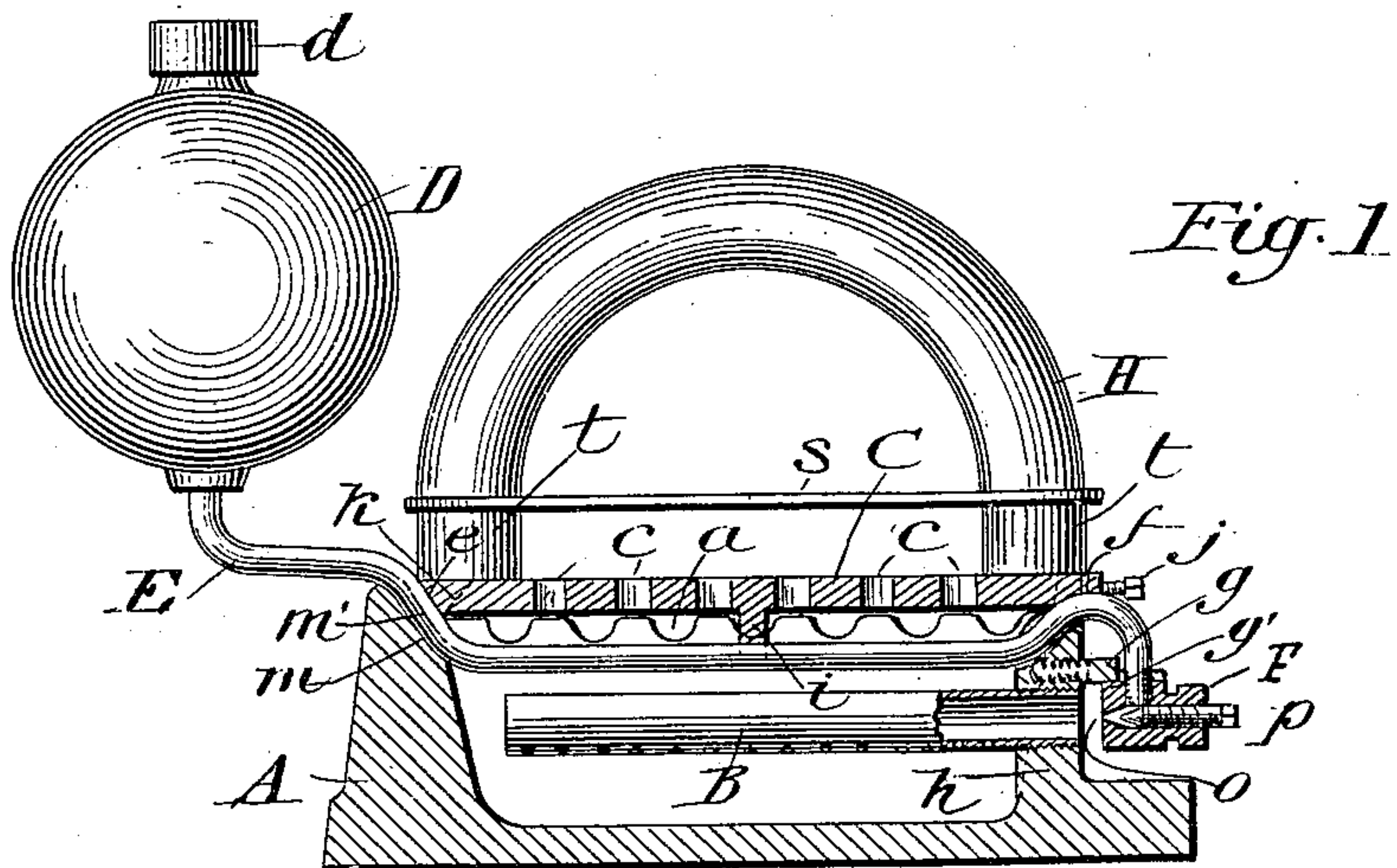


No. 698,757.

Patented Apr. 29, 1902.

H. B. SWARTZ.  
SELF HEATING SAD IRON.  
(Application filed Apr. 29, 1901.)

(No Model.)



Witnesses:  
Mary Davies Swartz  
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# UNITED STATES PATENT OFFICE.

HIRAM B. SWARTZ, OF WOOSTER, OHIO.

## SELF-HEATING SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 698,757, dated April 29, 1902.

Application filed April 29, 1901. Serial No. 58,076. (No model.)

*To all whom it may concern:*

Be it known that I, HIRAM B. SWARTZ, a citizen of the United States, residing at Wooster, in the county of Wayne and State of Ohio, have invented a new and useful Self-Heating Sad-Iron, of which the following is a specification.

My invention relates to improvements in self-heating sad-irons; and it consists in the peculiar construction, arrangement, and combination of the several parts, as hereinafter fully described and claimed.

It is illustrated by the accompanying drawings, in which similar letters of reference indicate like parts.

Figure 1 is a vertical and longitudinal section view of a self-heating sad-iron embodying my invention. Fig. 2 is a similar view of the body of the sad-iron detached. Fig. 3 is a view of the under side of my removable cover. Fig. 4 is a detached view of my separable gas-generating apparatus. Fig. 5 is a modification of same as to valve and cap with terminal orifice.

In the drawings, A represents the body of the sad-iron, which is made hollow and open at the top.

B is a burner-tube such as heretofore used for like purposes. It is solidly threaded into the rear wall *h* of the sad-iron and opens outwardly through the same rearwardly. This method of securing the burner-tube in position avoids the admission of air between it and the wall of the opening therefor, which is desirable, and also separates the burner-tube from the gas-generating apparatus, so that the latter is independently removable in the use of the sad-iron.

C is my removable cover for the sad-iron. It is provided with a handle H, which is preferably supported upon projections *tt* at each end of the cover, and a shield S is located between said handle and cover to protect the hand from heat and also to form with the cover a draft-flue for the escape of the products of combustion.

The combined parts D E F constitute my independently-removable gas-generating apparatus, of which D, having the filling-orifice *d*, is the fluid-reservoir. E is a small gas-conducting pipe leading downward therefrom to extend lengthwise through the body A and

beyond the rear wall thereof, *h*, to a point immediately opposite the open end of the burner-tube B and there terminate with a screw-cap or a valve-case having a small orifice *o* for the escape of gas therefrom into said burner-tube. F is a valve-case threaded upon the end of said pipe E, with screw-pin *p* to regulate the flow of gas. If preferred, the valve-case and screw-pin may be transferred to the filling-orifice *d*<sup>2</sup> of the fluid-reservoir D<sup>2</sup> to operate directly against the upper end of the gas-conducting pipe at *v*, as shown, Fig. 5. In such case the screw-cap G, with small orifice *o*, is secured to the lower end of said pipe for the escape of gas therefrom. In such case I use a valve-case F<sup>2</sup> to receive the threaded valve-pin *p*<sup>2</sup>. The particular location or manner of constructing the valve-case and valve-pin is not very material; but I prefer to locate the same at the outer terminus of the pipe, as shown in Fig. 4.

Heretofore the gas-generating apparatus in such sad-irons has been solidly connected with the burner-tube or with the body of the sad-iron, either by forming the gas-conducting pipe and burner-tube integral with the cover or indirectly by means of an intermediate body, to which both said members are solidly connected. It is desirable to have such gas-generating apparatus readily and at pleasure separable from said burner-tube and also from the body of the sad-iron for the double purpose of refilling the fluid-reservoir when the iron is hot and to facilitate the removal of any obstructions that may happen to obstruct the flow of the gas through said small terminal orifice and to avoid the use of a gas receiver and reservoir intermediate between said gas-conducting pipe and said burner-tube. I accomplish these objects by constructing a fluid-reservoir and a gas-conducting pipe with valve therefor united together in one piece, so arranged as to be separable at pleasure from all the other parts of the sad-iron, as shown, Figs. 4, 5. To removably secure my said gas-generating apparatus in position within and upon the body of the sad-iron, I form the conducting-pipe with suitable downward and upward bends *m' n'* therein, adapted to fit and hang, as in a saddle, within and against corresponding hollow formations *m n*, which slant inwardly



and downwardly along the upper and inner edges of the opposite ends of said iron-body, respectively. I thereby also bring the said pipe into closer proximity to said burner-tube, and thus secure to it more heat. I also extend said pipe beyond said rear wall *h* and connect it with a terminal valve-case or screw-cap, having a small orifice for the escape of gas, as aforesaid, and supply the pipe-terminus with a suitable catch or shelf *g'*, fitted to engage and bear underneath the corresponding end catch or brace *g*, which projects from the outside of said rear wall, as shown, Fig. 1. Said end catch may, if preferred, be made by a projecting pin threaded into the end of the iron-body and also serves to regulate the distance between the gas-orifice *o* and the mouth of the burner-tube *B*. By these means the fluid-reservoir is held erect and the said pipe rests securely in position, with its terminal orifice *o* directly opposite the open end of the burner-tube, without any other fastening or any solid junction with the burner-tube or its connections or with the body of the sad-iron. Said apparatus is more firmly held in position while the sad-iron is operated by means of the cover *C*, which is provided on its under side and at each end with suitable bearings *e f i* to rest against and upon the upper side of said pipe. Other or additional bearings may be employed for the same purpose, if desired. Said cover is securely fastened down and held rigidly upon said body and said conducting-pipe by means of a threaded bolt *j*, which engages the upper edge of the rear end of the cover and forces the front end against and under the beveled gains *k* in the usual well-known way. When the parts of the heating apparatus are thus united and secured, they may be readily separated by detaching the cover and said gas-generating apparatus lifted out of its rests by elevating the fluid-reservoir with the hand, thereby disengaging the same from the catch at the rear end of the body of the sad-iron, and this may be effected while the sad-iron is hot. After the gas-generating apparatus has been removed it may be instantly replenished with gasolene or the like or may be transferred to different sad-iron bodies to suit the convenience of the user without delay in operation or loss of heating power.

A further object of my invention is to provide improved means for ventilation and combustion over those heretofore employed. This I accomplish by constructing air-vents *c c c* along at or near the longitudinal center of the cover for the ready escape of the products of combustion from within the iron-body through the open space between the shield *S* and cover *C*, which serves as a draft-flue therefor, in combination with like air-vents along at or near the top of the opposite sides of the iron-body for the admission of external air into the body. Heretofore ventilation has been attempted by air-vents along the respective sides and ends. In other cases in-

gress air-vents have been made in the cover of the iron-body in combination with a chimney at one end thereof to carry off the gases of combustion, and in still others air-vents have been made at or near the edges of the cover, in combination with ingress air-vents at or near the central or the lower part of the respective sides or ends. I am also aware that a horizontal plate partition situate within the iron-body below the cover thereof having apertures therein for the escape of the products of combustion into an air-space between said partition and said cover has been heretofore used in combination with apertures for the admission of external air along at or near the bottom of the sides of the iron-body, and such I do not claim. I have found that the ingress of external air at or near the bottom or at or near the longitudinal center of the sides or ends of the sad-iron tends to prevent the flame of the burner-tube from passing downwardly and that the said heated products do not readily escape through vents made at or near the upper part of the sides. I accomplish the creation of the necessary circulation of air-currents without disturbance of the flame and greatly increase combustion and heat by the use of my improved system, whereby the escape-vents are located directly above the ascending current of the heated products of combustion at or near the longitudinal center of the cover, as aforesaid, and like vents for the admission of external air along and at or near the top of the respective sides, so that the descending current of external air will not interfere with the ascending current of the products of combustion and so that the descending current of air moves in the direction of the flame, thereby increasing its heating power, and thus the mutual action of the two currents within the iron-body maintains a free and coacting circulation therein, whereby combustion is better accomplished and objectionable odors from want of it are entirely avoided. By this arrangement of air-vents, in combination with the lowering of the gas-conducting pipe by the bends thereof, the outflow movement of the heated products, and thereby the inflow of external air to take their place, is greatly facilitated. The gas-conducting pipe is taken out of the way of the escape-vents for such heated products and located nearer the burner-tube, as aforesaid, thereby obtaining a greater degree of heat.

I do not limit myself to the particular form of the several parts described, and the same may be varied in detail of manufacture.

I am aware that a heating apparatus formed of a gas generator and burner united in one body and comprising an intermediate gas-receiver with a gas-reservoir therein and an open recess integral therewith leading to a burner-tube attached to such receiver is old and also that a heating apparatus having connected with it and as a part thereof a gas-receiver, with means of attaching the same to



the iron-body to secure such heating apparatus therein, has been heretofore used, and such I do not claim.

Having thus fully described my invention in connection with incidental features, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hollow sad-iron, having a burner-tube lengthwise within it, opening outwardly, the independently-removable gas-generating apparatus comprising a fluid-reservoir, and a valve-regulated gas-conducting pipe leading therefrom to the open end of said burner-tube, and means for adjustably and removably securing said apparatus in position independently of said burner-tube and connections, substantially as set forth and for the purpose specified.

2. The combination with a hollow sad-iron, having a burner-tube extending lengthwise therein, opening outwardly through, and solidly connected with the rear wall of said sad-iron; of a separable gas-generating apparatus adjustable thereon, having a gas-conducting pipe adapted by bends therein, to hang removably suspended in seats therefor, upon and over the opposite ends of said iron-body; and a removable cover, fitted to inclose said body, and rest upon, and removably fasten said pipe therein by bearings on said cover, substantially as shown and described, and for the purpose specified.

3. In a hollow sad-iron, having a burner-tube lengthwise within it, opening rearwardly, the independently-removable gas-generating apparatus comprising a fluid-reservoir and a valve-regulated gas-pipe leading therefrom to the mouth of said burner-tube—said pipe bent and shaped to hang upon and over, and extending beyond the opposite ends of said sad-iron respectively, said ends provided with rests as a saddle to receive the downwardly-bent portions of said pipe fitted thereto, and removably hold said apparatus in position to convey gas through and from said pipe directly into said burner-tube, substantially as shown and described and for the purpose specified.

4. The combination with a hollow sad-iron, having a burner-tube extending lengthwise therein, opening outwardly; of the independently-removable gas-generating apparatus—comprising a fluid-reservoir and a valve-regulated gas-conducting pipe leading therefrom to the open end of said burner-tube—said pipe bent and shaped to hang upon and over, and extending beyond the opposite ends of said sad-iron respectively, said ends provided with seats as a saddle, to receive the downwardly-bent portions of said pipe fitted thereto; and a projecting catch or brace at the rear end of said iron, adapted to engage the lower end of said apparatus, to adjustably and removably hold the same in position to convey gas from said pipe directly into the open end of said burner-tube, substantially as set forth, and for the purpose specified.

5. The combination with a hollow sad-iron, having a burner-tube extending lengthwise therein, opening outwardly; of the independently-removable gas-generating apparatus comprising a fluid-reservoir and a valve-regulated gas-conducting pipe leading therefrom to the mouth of said burner-tube—said pipe having bends adapted to hang upon and over the opposite ends of said iron-body, said ends provided with seats as a saddle, to receive the downwardly-bent portions of said pipe fitted thereto; and a projecting catch or brace, to adjustably engage the lower end of said apparatus; and a removable cover detachably secured upon the body of said sad-iron, having a bearing at each end adapted to rest upon and removably fasten said apparatus for operation, substantially as set forth, and for the purpose specified.

6. The combination with a hollow sad-iron having a burner-tube extending lengthwise therein, and a gas-generating apparatus connected therewith; of means for ventilation and combustion comprising ingress air-vents along, at or near the upper part of the respective sides of said sad-iron body, and egress-vents for the gases of combustion through, and along, at or near the longitudinal center of the cover of said sad-iron, a shield S, attached, with intervening open space, above said cover; and a handle, H, above said shield, substantially as set forth, and for the purpose specified.

7. The combination with a hollow sad-iron, having a burner-tube extending lengthwise therein, and ingress air-vents along, at or near the upper part of the sides thereof; of the separable gas-generating apparatus comprising a fluid-reservoir and a valve-regulated gas-conducting pipe leading therefrom to the mouth of said burner-tube by suitable bends in said pipe, and by said bends removably secured in position separate and separable from said burner-tube and connections; and a removable cover for said iron-body, provided with egress-vents therein for the escape of the gases of combustion, along at or near the longitudinal center of said cover; a shield above said cover adapted to form therewith a flue for draft outwardly from said egress-vents, and a handle above said shield, substantially as set forth and for the purpose specified.

8. The combination with a hollow sad-iron, having a burner-tube extending lengthwise therein, opening through, and solidly connected with the rear end of said iron-body, and separate from the gas-generating pipe and connections—said body having air-vents at each side thereof at or near the top, and provided with rests slanting downwardly toward each other at each end, as a saddle; of the independently-removable gas-generating apparatus—comprising a fluid-reservoir and gas-conducting pipe with valve, leading therefrom in bends adapted to fit and hang in said saddle, and terminating with a small orifice;



an external brace or support for said pipe at  
the rear end of said body; and a removable  
cover with handle thereon, fitted to rest upon  
and removably fasten down said gas-con-  
5 ducting pipe, and having air-vents therein,  
substantially as shown and described, and for  
the purpose specified.

In witness whereof I hereto set my hand, in  
presence of witnesses, this 16th day of March,  
1901.

HIRAM B. SWARTZ.

Witnesses:

CHARLES C. JONES,  
CHARLES M. LOVETT.