

(No Model.)

G. W. BILLINGS.
VAPOR BURNING SOLDERING FURNACE.

No. 287,901.

Patented Nov. 6, 1883.

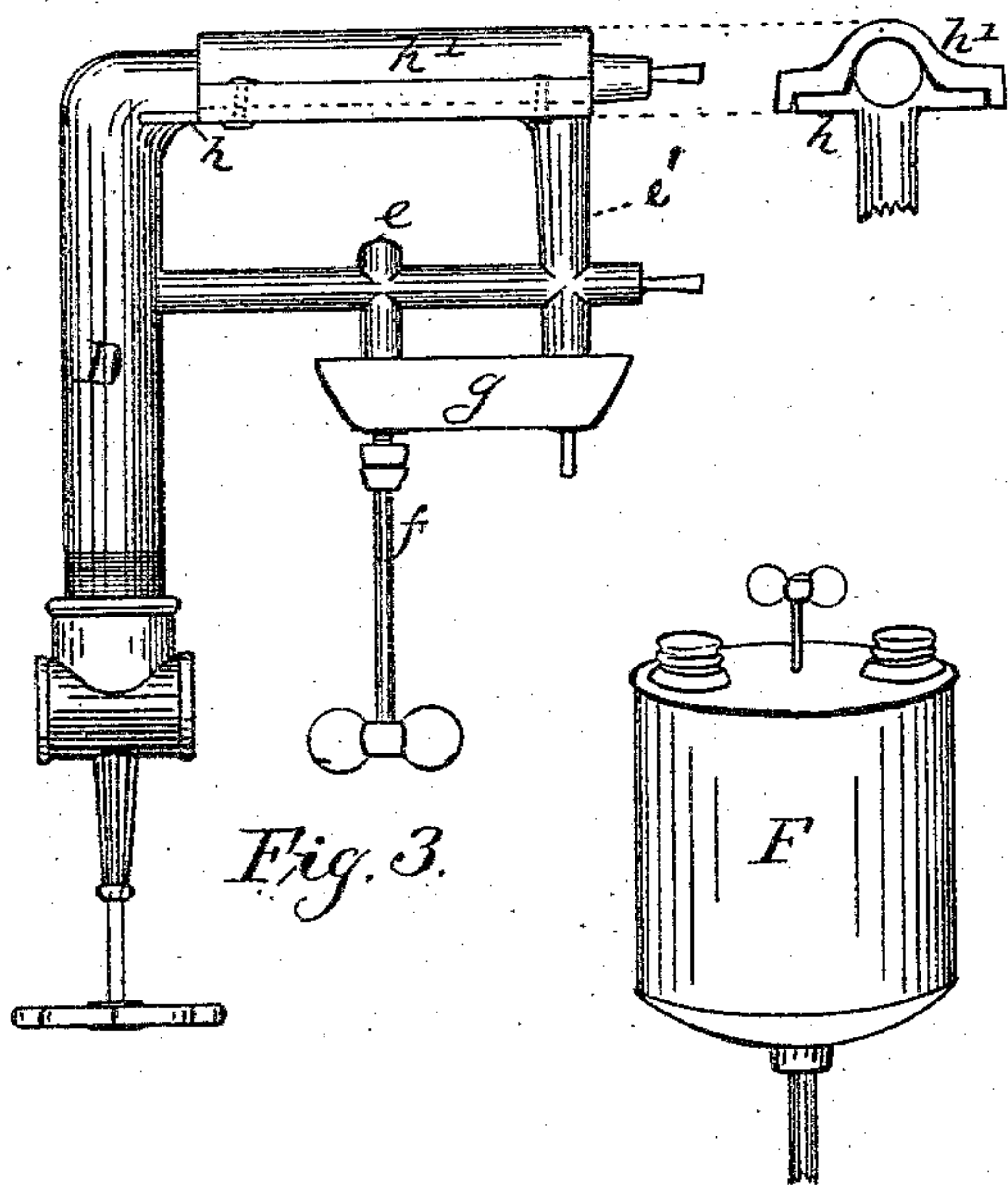


Fig. 3.

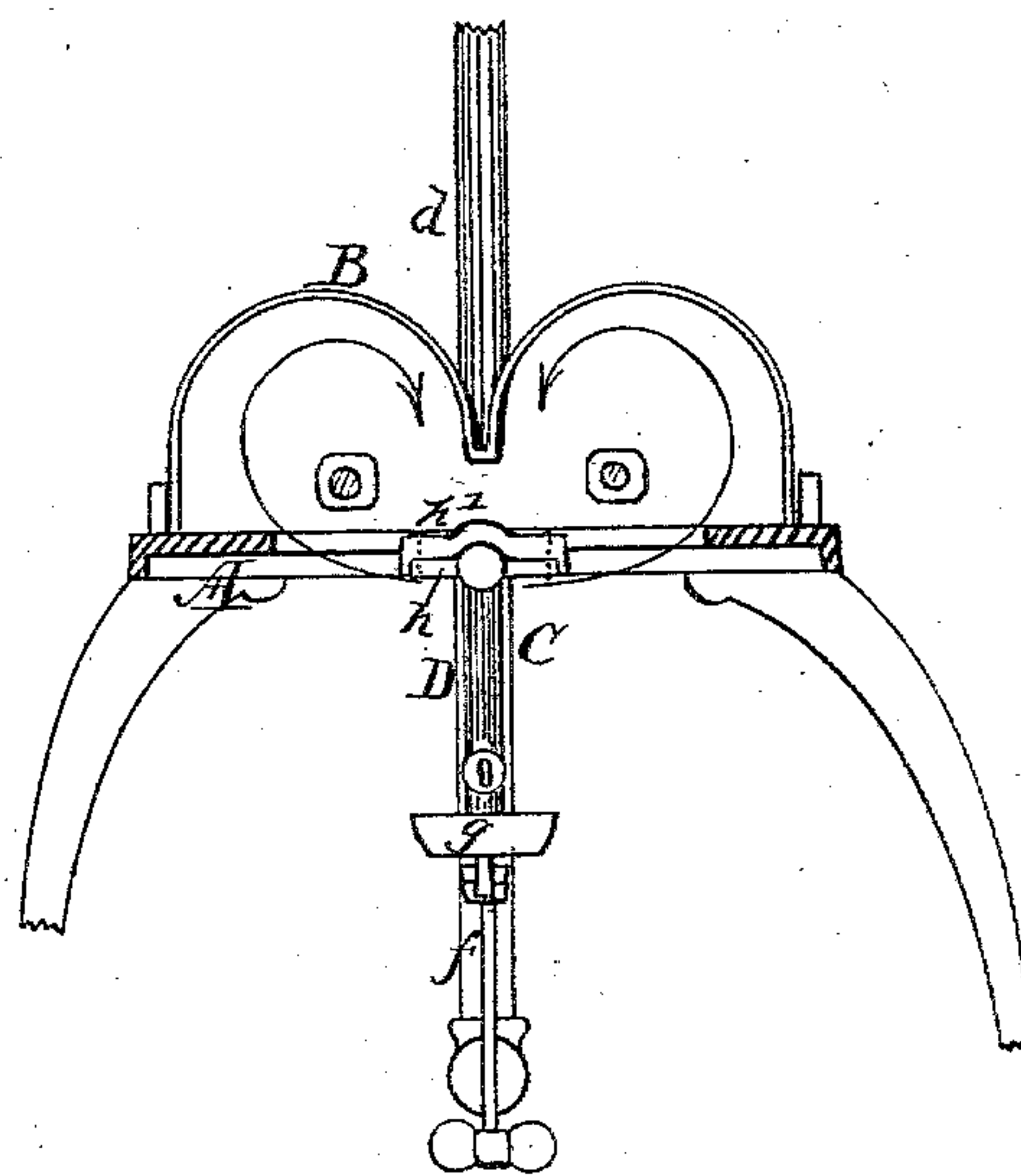


Fig. 2.

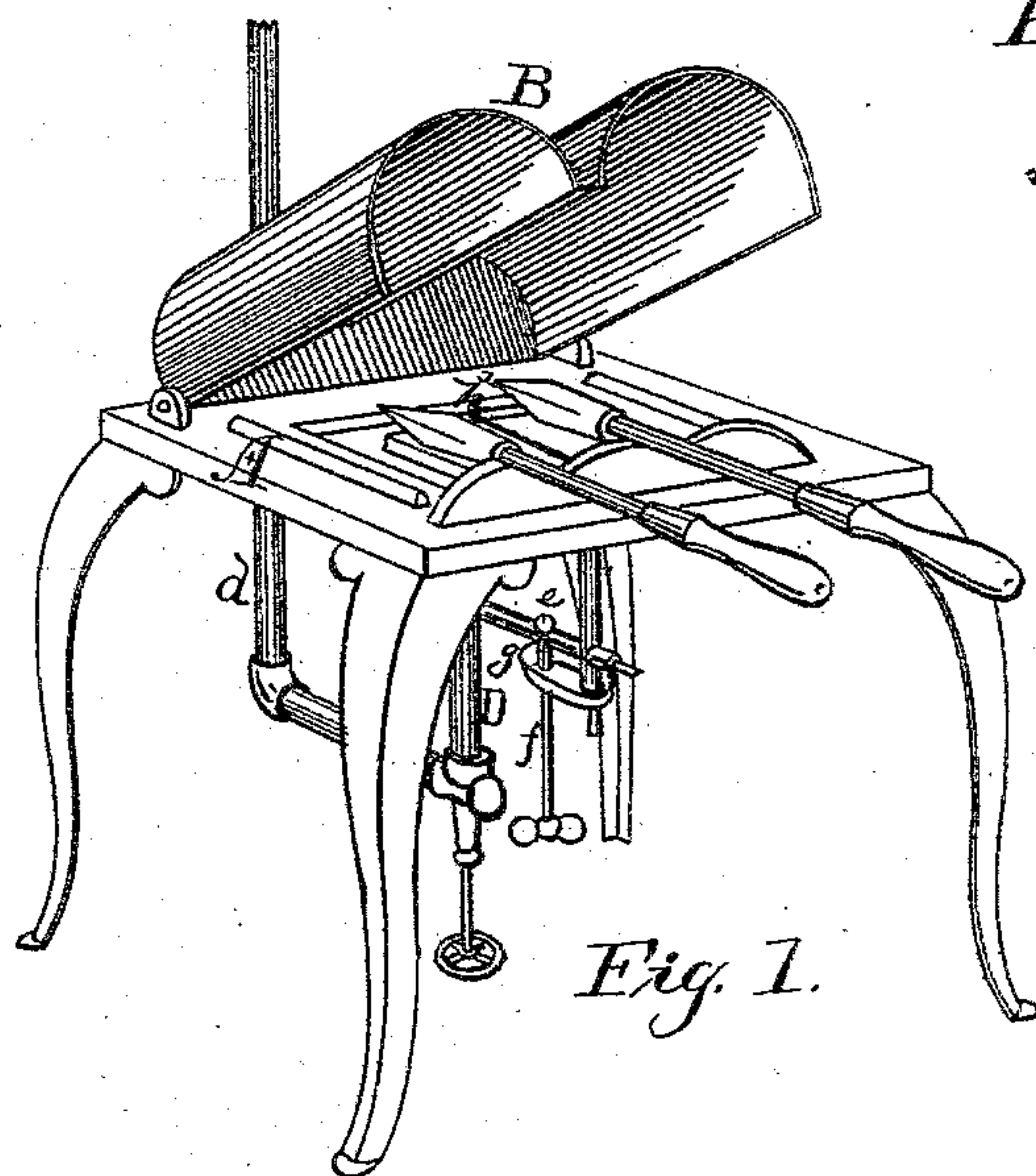


Fig. 1.

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By Geo. W. Tibbitts, Atty.

UNITED STATES PATENT OFFICE.

GEORGE W. BILLINGS, OF CLEVELAND, OHIO, ASSIGNOR TO DAVID A. DAUGLER, OF SAME PLACE.

VAPOR-BURNING SOLDERING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 287,901, dated November 6, 1883.

Application filed May 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BILLINGS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vapor-Burning Soldering-Furnaces, of which the following is a specification.

The nature and objects of this invention will fully appear from the subjoined description, when considered in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of my new soldering-furnace, having the hood raised for showing the position of the soldering-coppers in relation to the burner. Fig. 2 is a cross-sectional view, showing the currents of flame within the hood as they surround the coppers. Fig. 3 is a side elevation of the burner.

A is a table provided with a central opening, in which the burner is located, and with suitable supports for holding the soldering-coppers, and is supported on legs to raise it to a convenient height.

B is a double-arched hood sitting over the aforesaid central opening in the table. The front of said arches is made open for the insertion of the coppers, and their rear is closed by a wall. Said hood is also attached at rear corners by hinge-joint, for the convenience of turning it up when desired, as seen in Fig. 1.

C is a burner, consisting of a pipe, D, attached by a T-joint to the supply-pipe *d*, leading from the fount F. Said pipe D is made in the form of a rectangular frame, and has a jet-orifice, *e*, controlled by a needle-valve, *f*, and is provided with a heater-cup, *g*. The upper horizontal arm of said pipe D has cast with it a plate, *h*, extending nearly its full length and along its under side, whose sides are straight and parallel to each other. This plate is situated directly over the jet-orifice, and is for the

purpose of spreading the flame which issues up into the arches at each side, and is thus divided into two sheets of flame. The said upper arm of the burner and its plate *h* are covered by an iron plate, *h'*, secured thereto by rivets or other suitable means. The object of this covering-plate *h'* is to re-enforce the pipe and plate *h*, to prevent the warping or sagging of the burner by the intense heat to which it is exposed. The brass of which burners, of necessity, are made is incapable of withstanding the amount of heat which these burners produce. Therefore I provide this re-enforce plate of iron, and thereby furnish ample protection. I also make the arm *e'* connect with the upright part of pipe D, to furnish additional support, and also to serve to conduct heat to said pipe in the initial starting of the burner.

The operation of this furnace is as follows: The coppers being in place, as shown, the two sheets of flame issuing through the opening in the table are directed by the arched top of the hood into curved sheets, as shown by the arrows, which completely surround the coppers, enveloping them in their folds, very quickly and thoroughly heating them.

Having described my invention, I claim—

In a vapor-burning soldering-furnace, the burner C, consisting of the quadrangular pipe D, provided with jet-orifice *e*, controlled by needle-valve *f*, and parallel-sided spreader-plate *h*, re-enforced with plate *h'*, in combination with the table A, having central opening, and provided with double-arched hood B, constructed to operate as and for the purpose specified.

GEO. W. BILLINGS.

Witnesses:

E. W. LAIRD,
GEO. W. TIBBITTS.