(No Model.)

2 Sheets—Sheet 1.

M. L. HULL.

VAPOR STOVE.

No. 377,159.

Patented Jan. 31, 1888.

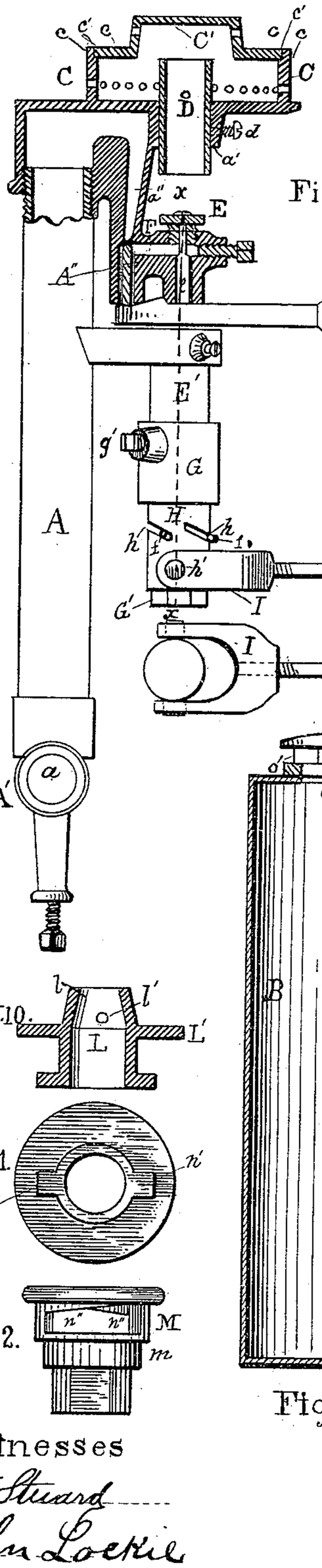

Fig. 1.

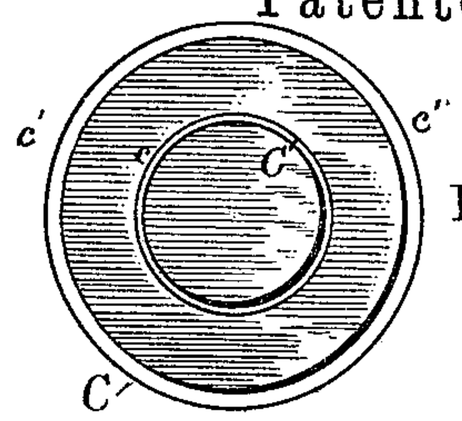

Fig. 9.

Fig. 2.

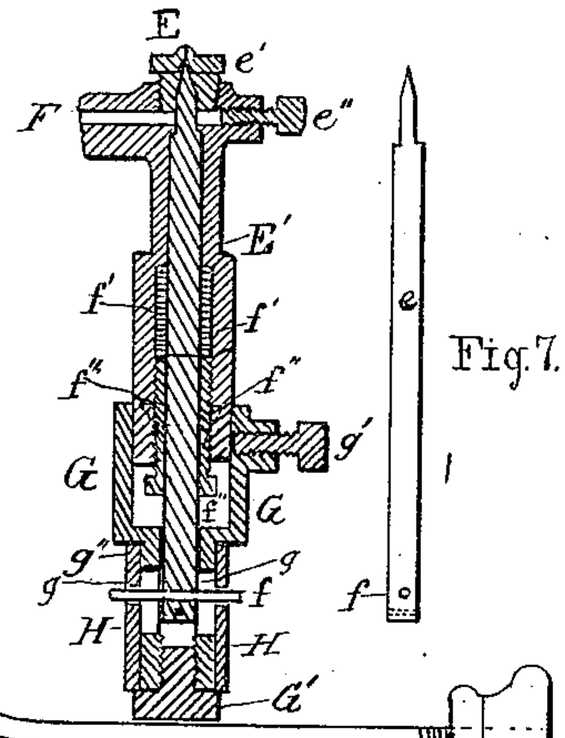

Fig. 8.

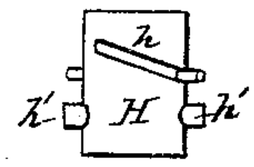

Fig. 7.

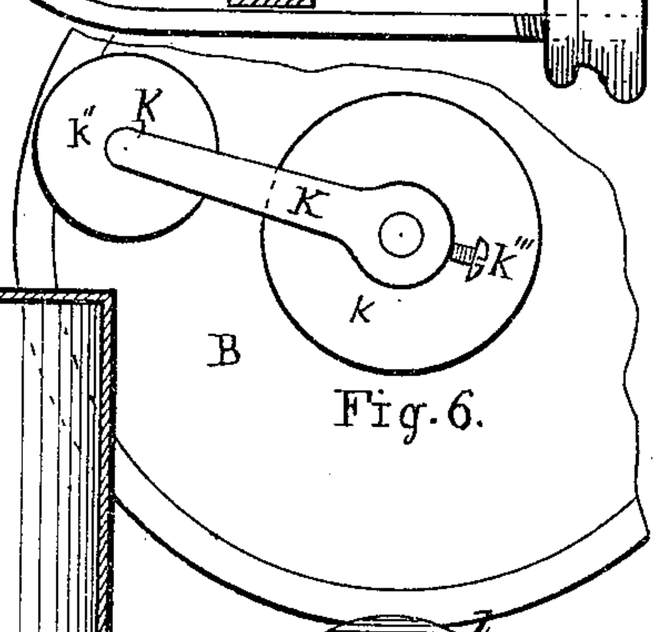

Fig. 6.

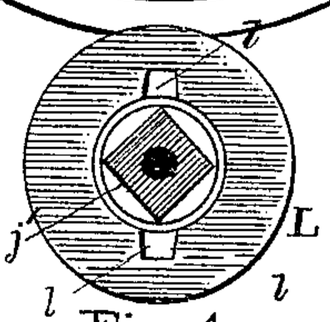

Fig. 4.

Fig. 10.

Fig. 11.

Fig. 12.

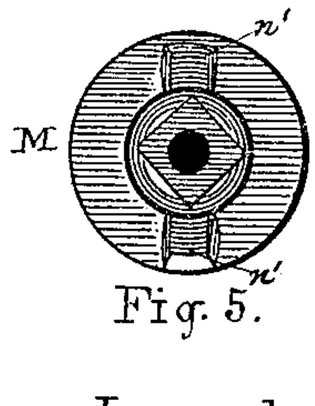

Fig. 5.

Witnesses

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Inventor

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Per Wm. R. Singleton

Atty

(No Model.) 2 Sheets—Sheet 2.

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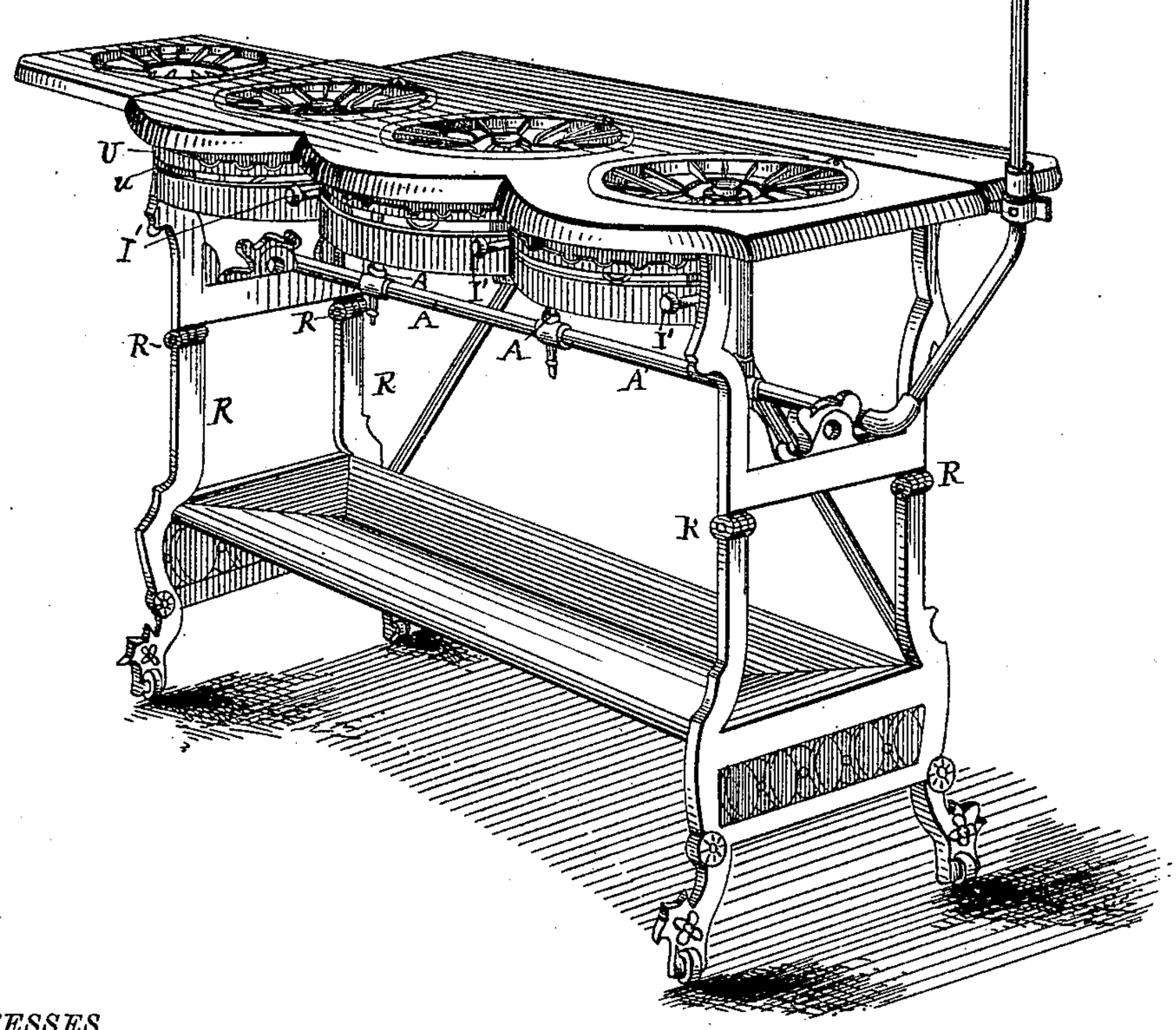
Fig. 13.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

MARTIN L. HULL, OF CLEVELAND, OHIO.

VAPOR-STOVE.

SPECIFICATION forming part of Letters Patent No. 377,159, dated January 31, 1888.

Application filed July 17, 1886. Serial No. 208,276. (No model.)

To all whom it may concern:

Be it known that I, MARTIN L. HULL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Vapor-Stoves, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in vapor-burner stoves and the apparatus supplying them with oil from a tank attached above the stove, whereby safety is insured from any danger by carelessness or accident to the tank when it becomes necessary to refill the same, all of which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is an elevation of the vapor-burner with the improvements thereon. Fig. 2 is a vertical section of the improvements on line *x x* of Fig. 1. Fig. 3 is a vertical section of the oil-tank. Figs. 4, 5, 6, 7, 8, 9, 10, 11, and 12 are details of different parts, which will be referred to in the general description. Fig. 13 is a perspective view of the stove and the reservoir attached thereto.

A is the oil-supply pipe, to which is attached at *a* the pipe A′ of the supply-tank B.

C is the burner-frame, having the usual appliances, but has in addition the cap C′. (Shown in section at the top of Fig. 1 and in plan in Fig. 9.) This cap C′ at its larger diameter or the flange *c* is exactly fitted within the recess *c′* of the burner-frame C. Within the frame C, centrally located, is a tube, D, made adjustable vertically, and secured by the screw *d* to the projecting arm *a′* of the supply-tube A. The arm *a′* has a dependent branch tube, *a″*, having a projection, A″, in which is sustained the needle-valve E in exact axial line with the center of the tube D in the burner. This valve E is constructed like all the needle-valves in use, and the stem *e* is seen at Fig. 7.

Fig. 2 shows the construction of the valve with my improvements for operating it, and which will now be described. E′ is the casing which forms the shell of the valve. The upper part, *e′*, has screw-threads and a cap by which the same can be adjusted in the casing E′, which is interiorly threaded also. *e″* is a screw for closing the tap-hole by which the tube F was drilled.

F is the tube leading from the supply-pipe A, which furnishes the gas for the needle-valve E.

G is a sleeve, having its interior diameter corresponding with the outside diameter of the lower end of the valve-casing E′ of the valve E. The sleeve G has its lower part reduced in diameter, to be inserted in a sleeve, H, and on opposite sides are vertical slots *g*, in which a pin, *f*, which passes through the lower end of the needle-valve stem *e*, is free to slide.

H is another sleeve having in its opposite sides spiral slots *h h*, through which slots the pin *f* also passes. The lower end of the sleeve G is closed by a screw-cap, G′, which also secures the sleeve H. *g′* is a set-screw in a lug attached to one side of sleeve G to secure it in position on the valve-casing. On the sides of sleeve H are trunnions *h′ h′*, on which is fastened the yoke I, in which yoke is screwed the bent handle I′.

f′ is the packing of asbestus in the casing E′.

f″ is the screw-cap for tightening the packing *f′*.

The operation of this improvement is as follows: When the sleeve G is properly set, so that the needle-valve stem *e* is adjusted, the movement of the handle I′ will open or close it, as may be required, by the yoke I turning the sleeve H, which, by means of the spiral slots *h h*, causes the pin *f* to move vertically up or down and carry with it the stem and needle-point, to close or open the valve E and regulate the flow of gas to the tube D. The handle I′ projects from the sleeve H and rests in the slotted plate U, as seen in Fig. 13, which has the groove *u*, and through which the handle I′ projects, and can be stopped at any point, according to the wants of supply of the fluid to the burner. The plate U is attached to the legs R beneath the top plate of the stove.

The section in Fig. 3 represents B as an oil-tank, which is attached to the upper end of a long tube, *j″*, to supply oil to the pipe A′, as seen in Fig. 13. Through the middle of this reservoir or tank B is a long rod, *j*, its upper end being screw-threaded, and having on it a washer, *k*, and a nut, *k′*, by which the valve is

tightened, the top plate of reservoir B acting as a spring, which, with rod *j* and washer *k*, regulates the tightening of the cock-valve, and also there is an index-arm, K, on which arm is a disk-cover, *k''*, at its outer end, and a set-screw, *k'''*, to fasten the arm at any angle on the rod *j*. The lower part of rod *j* has a swelled section, in which is long orifice *j'*, which communicates with the supply-pipe *j''*, leading to the supply-pipes A A', previously described. The lower end of rod *j* has a portion made conical, and which fits into a conical socket, *l'''*, of a coupling, L, which is secured to the bottom of the oil-tank B by the disk L', and which devices form a cock-valve. The rod *j* has its lower end squared; as seen in plan, Fig. 4, which is an under side view of the rod *j* and face of the coupling L and disk L', showing the arms *l l*, which first enter into the slots *n' n'* in the nozzle M below, and which is screwed onto the upper end of a supply pipe, *j''*, as seen in Fig. 3, and when thus entered the arms *l l* pass into the spiral slots *n'' n''*, Fig. 12, and from their inclination as the tank B is turned the arms *l l* pass around and force the square end of rod *j* into a square socket in the nozzle M, in which is embedded a packing substance, *m*. This makes a tight joint. At the upper part of the swelled end of rod *j* there is a hole, *l''*, opening into the orifice *j'*, and a corresponding hole, *l'*, in the socket *l'''* in the coupling L. Whenever the tank is properly adjusted upon the nozzle M, the holes *l' l''* become coincident, and the oil in the tank B will flow through these holes into the orifice *j'* and tube *j''* and into the supply-pipe A. The index-arm K is so placed and secured by the set-screw *k'''* to the rod *j* that whenever the tank B has been screwed down to its proper bearing by the means above described the disk-cover *k''* will exactly cover the opening *o* of the tank B, which opening is securely closed by the screw-cap *o'*, and the cap *o'* cannot be unscrewed for filling the tank B until the tank has been detached from the stove.

I claim—

1. The combination of the needle-valve E and its casing E', enlarged at its lower end, the sleeve G, having two vertical slots, *g g*, through its smaller end, the sleeve H, having spiral slots *h h*, the pin *f*, passing through the valve-stem and all the slots, the valve-stem *e*, and the lever I', attached to the sleeve H, by which the sleeve is rotated on the bearing *g''* of the sleeve G.

2. In a reservoir for vapor-stoves, the combination of the rod *j*, threaded at the top, having an enlarged lower end, the coupling L, which is attached to the bottom of the reservoir B, the screw-nut *k'*, and washer *k*, whereby the cock-valve formed by the enlarged lower end of the rod *j* and coupling L can be tightened.

3. The combination of the rod *j*, having an enlarged end, the coupling L, attached to the bottom of the reservoir, the feed-pipe *j''*, the orifice *j'* in the rod *j*, communicating with the feed-pipe *j''*, the coupling M, connecting the rod *j* and feed-pipe *j''*, the index-arm K and disk *k''*, attached to the rod *j*, the screw-cap *o'*, and opening *o* in the top of the reservoir B.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

MARTIN L. HULL.

Witnesses:

G. W. SHUMWAY,

FREDK. KINSMAN.