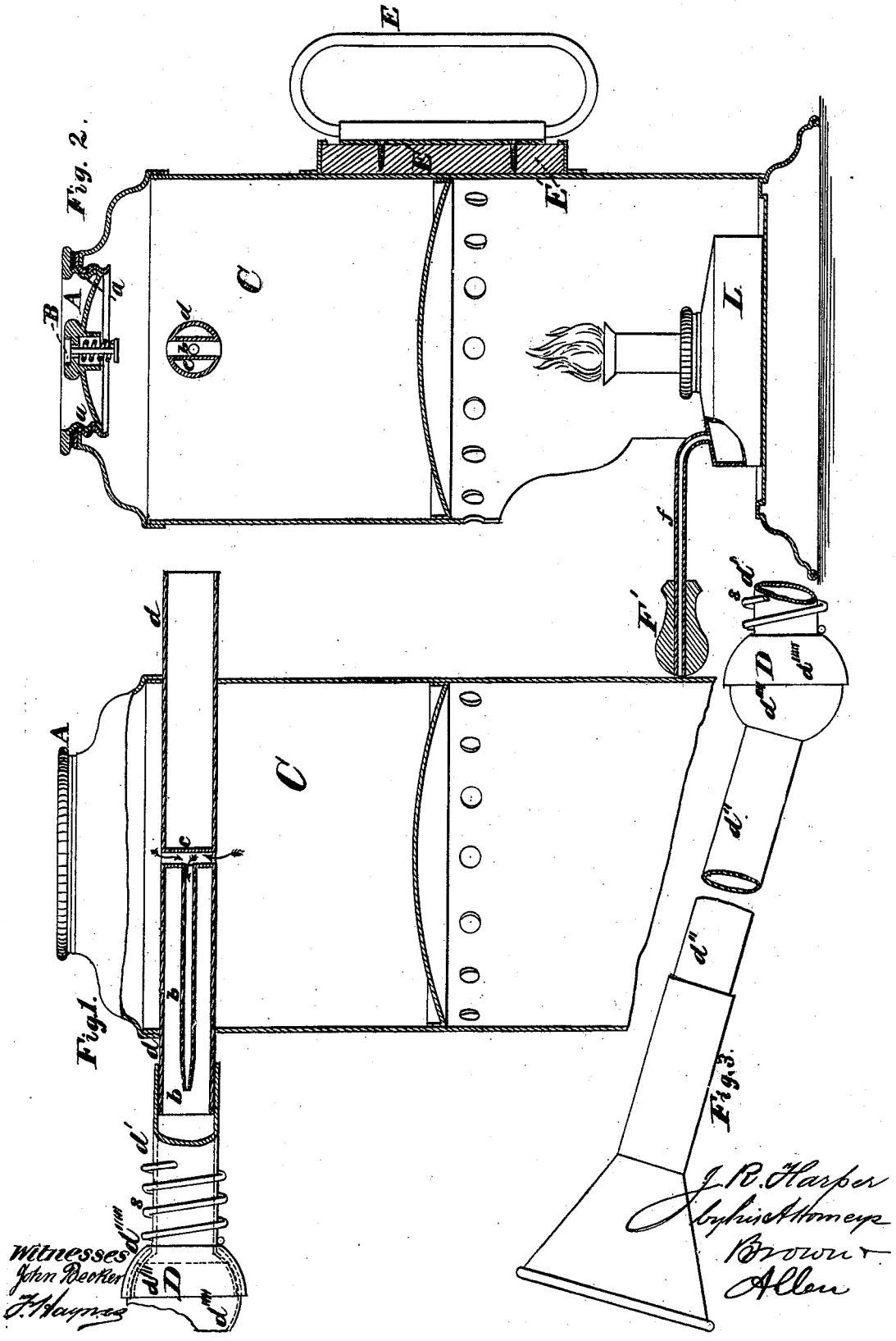
J. R. HARPER.

INHALING AND DISINFECTING APPARATUS.

No. 180,024. Patented July 18, 1876.



UNITED STATES PATENT OFFICE.

JOHN ROBERT HARPER, OF CLERKENWELL, ENGLAND.

IMPROVEMENT IN INHALING AND DISINFECTING APPARATUS.

Specification forming part of Letters Patent No. **180,024**, dated July 18, 1876; application filed May 4, 1876.

To all whom it may concern:

Be it known that I, JOHN ROBERT HARPER, of Clerkenwell, in the county of Middlesex, England, have invented new and useful Improvements in Inhaling, Disinfecting, and Ventilating Apparatus, applicable also to medicated and vapor baths; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this specification.

The invention has for its object to supply a simple, convenient, and cheap means for generating vapors for inhalation, and mixing the same with air in proper quantity for breathing, or for use in medicated vapor-baths; and it consists in peculiarly-constructed apparatus which gives greater convenience and efficiency than has hitherto been attained.

Figure 1 in the accompanying drawing is partly a vertical section and partly a side elevation of a portion of my improved inhaling and ventilating apparatus. Fig. 2 is a central vertical section, made at a right angle to the section shown in Fig. 1. Fig. 3 is a detailed view of a portion of the apparatus.

In the apparatus of this kind heretofore used for the purposes named, the safety-valve was combined with a screw-stopper, which was liable to set fast and cause much difficulty in its removal by hand, to obtain access to the interior of the boiler and jet-pipe for filling, cleaning, or other purposes; and one feature of my improvements consists in combining the safety-valve with a spun or stamped metal cover, A, (shown in section in Fig. 2, and of considerable size when compared with the ordinary screw-stopper safety and supply valve B of the boiler C.)

A quick-threaded screw, *a*, Fig. 2, is formed on the screw-stopper, by which means the cover A and safety-valve B can be readily removed or replaced when required; or the cover may be secured by projections and slots, or fixed like an ordinary man-hole plate, or in any other manner desired to facilitate the removal and replacement of the said cover when required.

Another part of my improvements consists in soldering or otherwise attaching the interior jet-pipe *b* to a transverse pipe, *c*, attached to and in the air-pipe *d*, in order to render the jet readily accessible for cleaning or other purposes.

Another improvement consists in forming the external jet or conducting-pipe *d'* with a universal joint, D, Figs. 1 and 3. The said joint D is formed in semi-spherical parts, in such manner that when combined the parts of the conducting-pipe on each side of said joint will move in any desired direction, and maintain themselves in the position required.

The inner semi-spherical part *d'''* of the joint D is fixed on the end of the pipe *d'*, the semi-spherical part *d''''* being fixed on the end of the pipe *d''*, and the two parts, are kept together by the outer semi-spherical part *d'''''*, which is kept in position by the spiral spring *s*, one end of which is fixed to the pipe *d'*.

Another feature of my improvements consists in the improved method of attaching the handle E to apparatus of this character by interposing a block of wood or other non-conducting material, E', which slides or fits into a socket attached to the apparatus.

I also apply a handle, F', of wood or other non-conducting material, to the spirit-lamp L, the stem *f* being a metal pipe for carrying off any excess of vapor generated in the oil or spirit vessel of the lamp.

Apparatus of this character may be employed for generating medicated and other vapors for inhaling purposes, for medicated and vapor baths, or for disinfecting and ventilating purposes, by exhausting or discharging air from rooms, ships' holds, or other places.

What I claim, and desire to cover by Letters Patent, is—

1. The safety-valve B, in combination with the cover A, fitted to the vessel with a spun screw-thread, *a*, substantially as and for the purpose specified.

2. The jet-pipe *b*, in combination with the pipe *c*, passing entirely through the air-pipe *d*, substantially as and for the purposes specified.

3. The universal joint D, composed of the

semi-spherical parts d''', d'''', and d''''', in combination with the spring s, attached to the air-pipe d', for clamping and holding the said universal joint, substantially as and for the purpose specified.

4. The attachment of the handle E to the boiler C by means of an interposed piece, E′, of non-conducting material inserted in a socket attached to said boiler, substantially as and for the purpose specified.

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