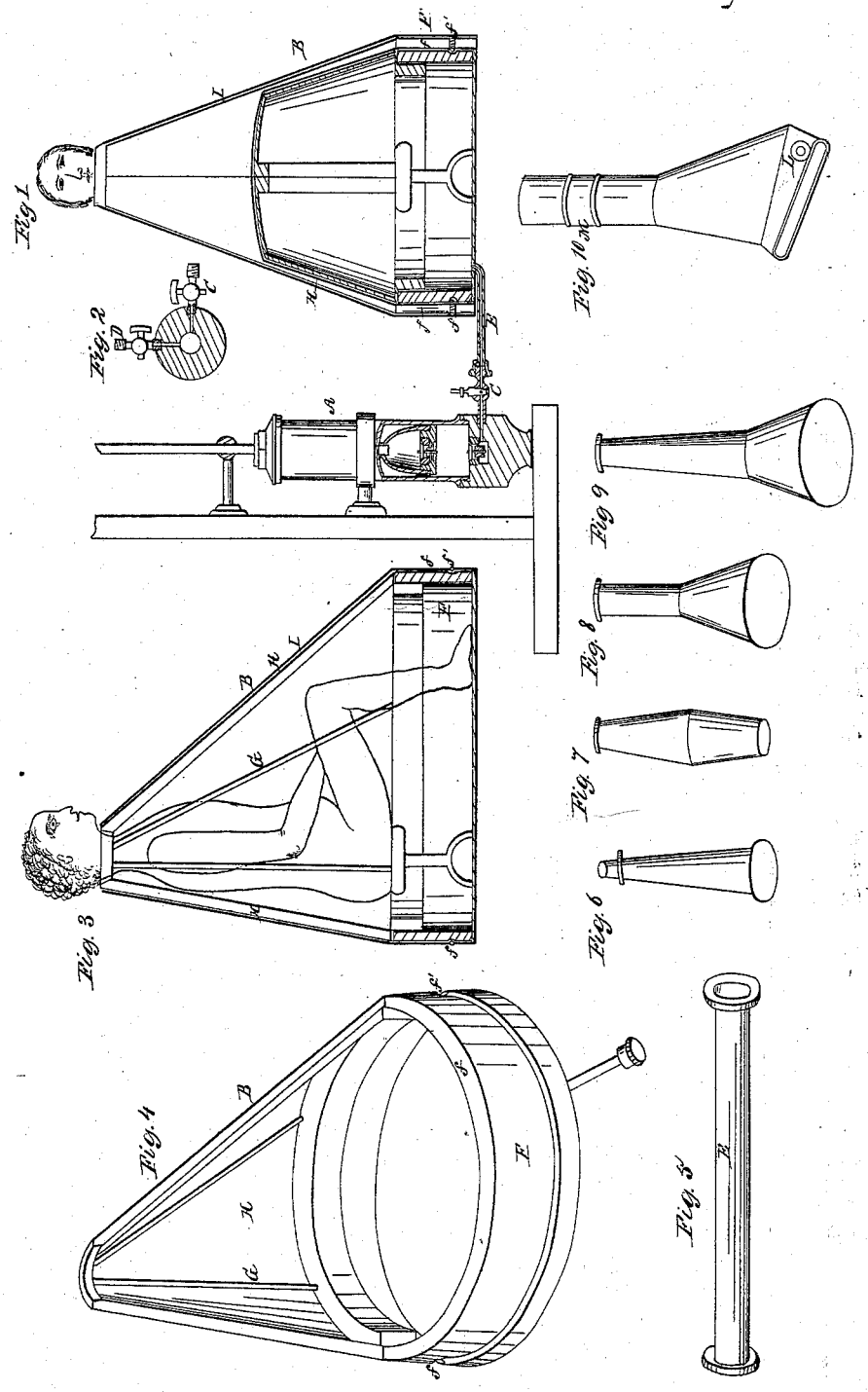
G. Hadfield,

Depurator,

No. 54,530, Patented May 8, 1866.



UNITED STATES PATENT OFFICE.

GEORGE HADFIELD, M. D., OF CINCINNATI, OHIO.

IMPROVEMENT IN MEDICAL APPARATUS FOR TREATING DISEASES BY VACUUM.

Specification forming part of Letters Patent No. **54,530**, dated May 8, 1866.

To all whom it may concern:

Be it known that I, GEORGE HADFIELD, of Cincinnati, in the county of Hamilton and State of Ohio, have invented an improvement—which I call a "Portable Equalizer"—in the mode of applying exhaustion of the air as a mode of treating diseases, of which the following is a specification.

The beneficial results of treating certain disorders by exhaustion of air over the surface of the skin of the patient has long been recognized by the medical profession.

My invention consists in constructing a light portable apparatus, easily put together and taken apart, by which the inconvenience of applying the treatment by the bulky and inconvenient apparatus heretofore employed is obviated.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The following is a full and exact description thereof, reference being had to the accompanying drawings, which are made a part of this specification, in which the same letters refer to identical parts.

Figure 1 is a view of the entire apparatus when fitted for use, parts being cut away to show the internal structure. Fig. 2 is a section of the air-pump, showing the arrangement of the pipes and stop-cocks for exhausting the air and readmitting it. Fig. 3 is a vertical section of the receiver. Fig. 4 shows the mode of constructing and putting together the receiver. Fig. 5 shows the pipe connecting the air-pump with the receiver. Figs. 6 to 10, inclusive, show various small receivers, intended to be employed in local applications.

A is the air-pump, of ordinary construction, except that it has two pipes, C and D, opening into one another and closed by stop-cocks. The pipe C communicates with the receiver by means of a screw-coupling and pipe E. The pipe D opens into the air, and by opening its stop-cock the air is permitted to re-enter the receiver when desired.

B is a large receiver, intended to accommodate the entire body of the patient. This receiver is composed of several parts or sections. F, the base, is made of wood or metal. It is oval, and has a rim, about four inches high, raised above and around it, in which is cut a small groove, *f'*. Into the bottom, with an air-tight joint, is inserted the pipe E, the base being raised on blocks to permit this pipe to pass under it, or it may be inserted in the side. On this base sits the conical case B, which is made in two parts, as shown in Fig. 4. It has a base sitting upon, and having a rim fitting within, the base *f*. The framework G is covered with tin H, concluding with a collar fitting around the neck of the patient. Over the whole is fitted an india-rubber cloak, I, having an elastic collar, which fits closely around the chin and face of the patient, as shown in Figs. 1 and 2, and, coming down to the base, is bound close by a cord tied around the groove *f'*, thus rendering the entire receiver perfectly air-tight.

The instruments for local applications, as shown in Figs. 6 to 10, inclusive, are made of thin metal, having india-rubber rims where they are to be fitted against the skin, and attached by a flexible tube to the air-pump. Fig. 6 shows the form proper for attachment to the ear; Fig. 7, to the penis; Fig. 8, to the spinal column or other part of the body; Fig. 9, to the testicles, and Fig. 10 to the limbs. In Fig. 10 the exhaust is attached at L. The case is drawn over the limb, either arm or leg, and the elastic band M fits it closely to the limb, preventing the entrance of the air.

In operating with my improved portable apparatus, it may be taken apart for convenient transportation to the room of the patient. The air-pump being connected with the base, the patient is seated upon an adjustable stool, the two parts of the conical case B are fitted upon the base, and over the whole is stretched the india-rubber cloak, made fast at *f'*, and fitted accurately about the face. The air is then gradually exhausted by means of the pump. Experiment can alone show the extent to which this exhaustion should be carried. One patient can bear far more than another, and with the same patient it varies with atmospheric changes. Should it be carried too far, the attendant, by opening the stop-cock D, at once affords the requisite relief.

I do not claim the employment of exhaustion as a mode of treating diseases, for this is as old as the science of medicine; nor do I claim the employment of an apparatus sufficient to inclose the entire body of the patient, for that, too, is old; but

What I claim as my invention, and seek to secure by Letters Patent, is—

1. In a portable apparatus for treating dis-

eases by exhaustion of the atmosphere, the arrangement of a receiver with a base, F, the adjustable conical frame G, and sides H, and cloak I, all constructed substantially as and for the purposes set forth.

2. The arrangement of an air-pump, A, with two pipes, C and D, the pipe E, and a receiver, B, composed of several separable parts, F G H, and cloak I, all constructed and combined, substantially as and for the purpose set forth.

GEORGE HADFIELD, M. D.

Witnesses:

THOMAS BASSERT,

WM. DOLGEN.