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EXAMINER

No. 865,387.

A. HEIN.

PATENTED SEPT. 10, 1907.

PORTABLE DUST SUCTION APPARATUS WORKED BY MEANS
OF AN ELECTROMOTOR.

APPLICATION FILED FEB. 21, 1906.

Fig. 1

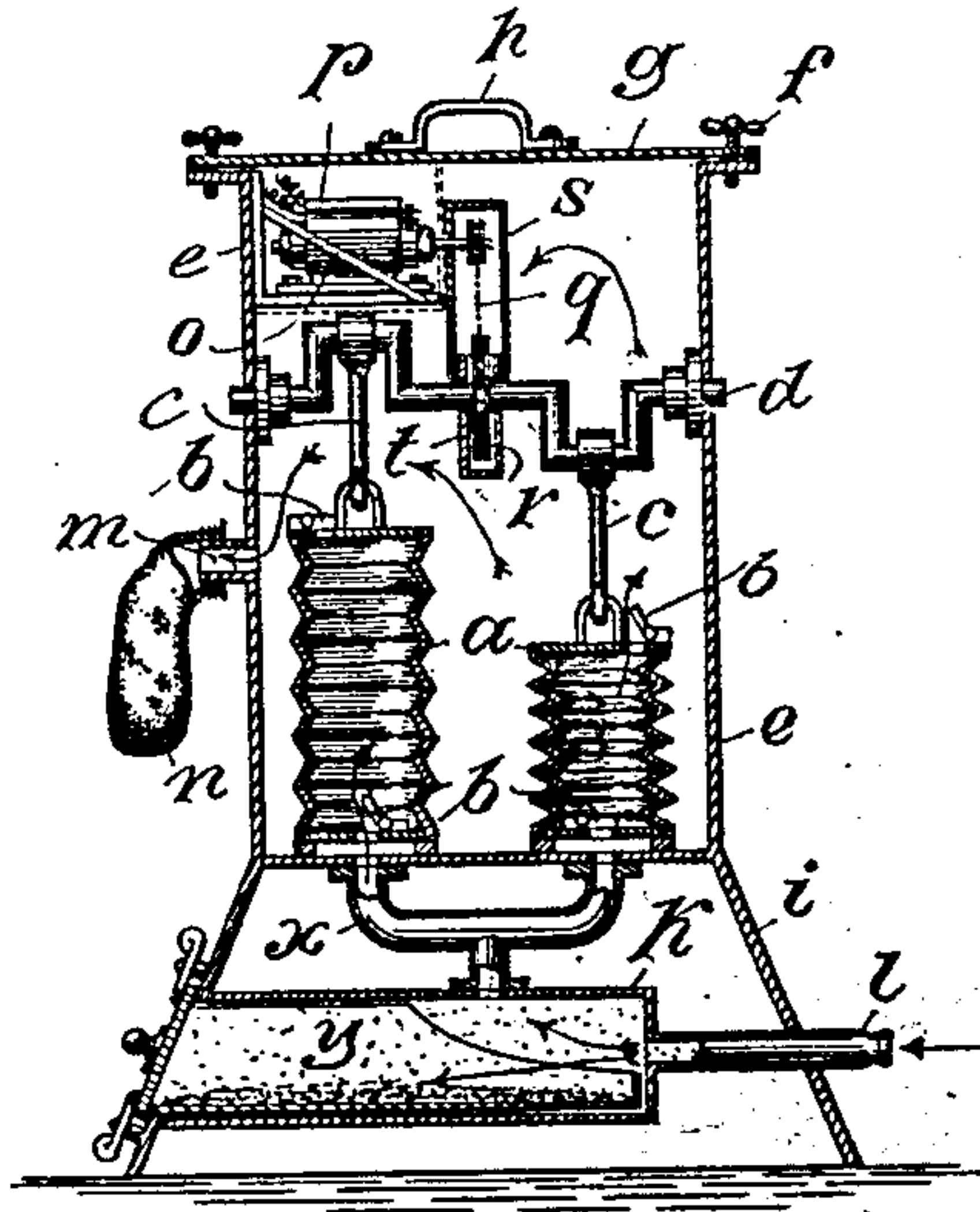
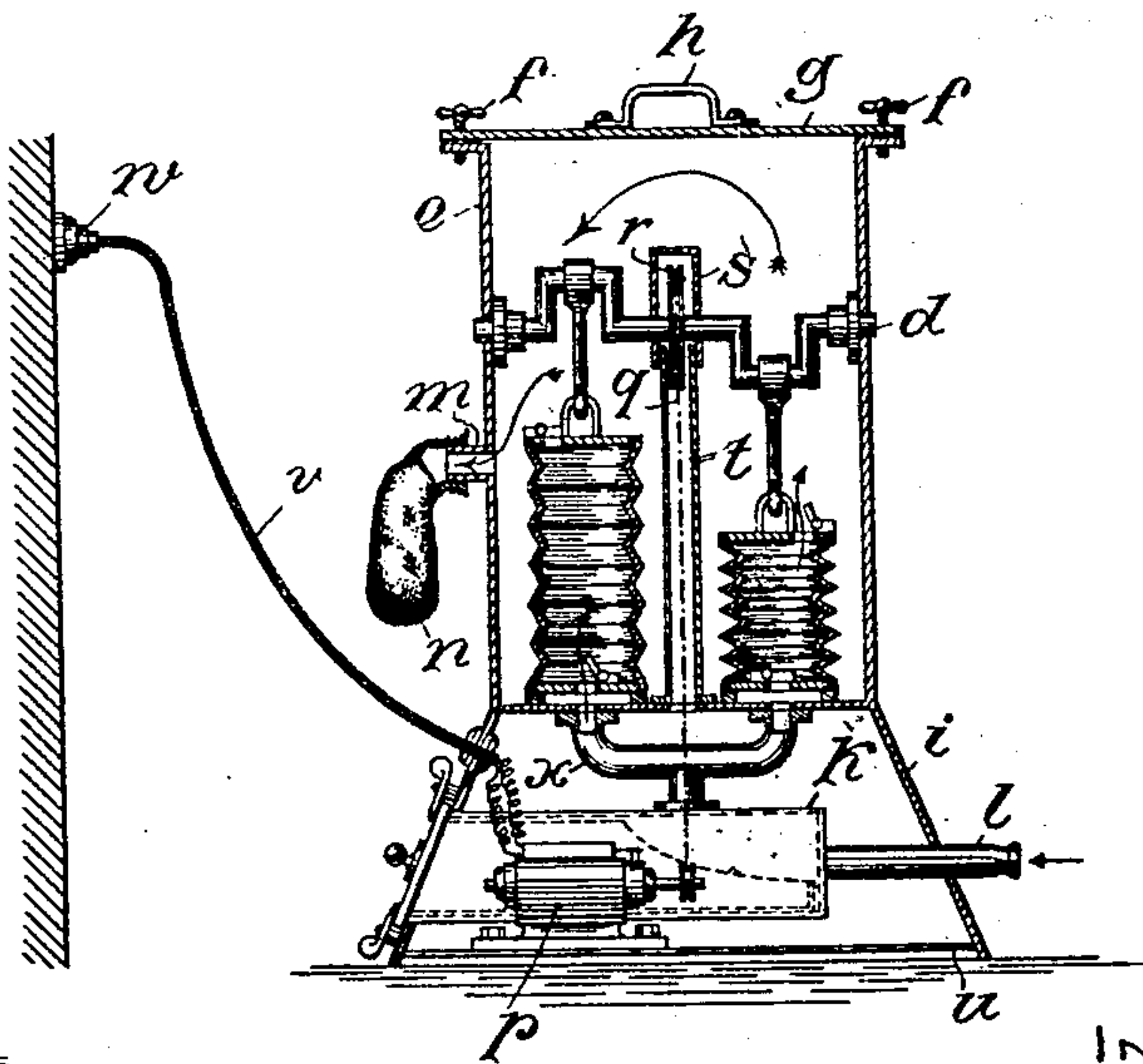


Fig. 2.



WITNESSES,

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PORTABLE DUST-SUCTION APPARATUS WORKED BY MEANS OF AN ELECTROMOTOR.

No. 865,387.

Specification of Letters Patent.

Patented Sept. 10, 1907.

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To all whom it may concern:

Be it known that I, ADOLF HEIN, a subject of the King of Prussia, and a resident of Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Improvement in Portable Dust-Suction Apparatus Worked by Means of an Electromotor, of which the following is a full, clear, and exact description.

This invention relates to improvements in portable apparatus for cleaning carpets, covers and the like by means of suction-air.

An important feature of the apparatus consists in connection whereby the air-pump which produces the suction-air, and which, in this case, consists of concertina-like bellows, is worked by an electric motor. As the apparatus of this construction are very small and light, a relatively small electromotor can be used for working the suction-air generator, so that the apparatus can be easily carried by one person. It is thus possible to easily carry the dust-suction apparatus from room to room, and the apparatus can be connected with the lead-wire of an electric light current.

In the drawings; Figure 1 shows the arrangement of the electric motor, within the upper part of the apparatus itself, and Fig. 2 shows the electromotor can be arranged in the lower part or foot of the apparatus, and the connection of the motor, by means of a cable, with an electric lead in the house.

The dust suction apparatus worked by an electromotor consists (see Fig. 1) of two suction-bellows *a* of the form of concertinas, provided with return-valves *b*, inlets and outlets respectively. By connecting-rods *c* the bellows are connected with a crank-shaft *d*, journaled in a receptacle or shell *e*, which incloses the bellows *a*. The latter has a cover *g*, which can be removably fastened by screws *f*, and on which may be provided a handle *h* for carrying the apparatus. The receptacle *e* stands on a hollow stand *i*, in which there is arranged a box *k*, which is air-tightly closed and connected through a socket *l* with a leather-pipe of the well-known suction-nozzle which sucks up the dust. In the wall of the receptacle *e* is provided in any suitable place an outlet socket *m* to which is connected with a filter-bag *n* consisting of air-tight fabric.

In Fig. 1, the electromotor *p* is placed into the upper part of the shell *e*, and it rests here on a bracket *o*. Preferably the motor is however placed into a casing which completely surrounds it, and which is in the drawing (Fig. 1) indicated by dotted lines. The cord-pulley of the motor with the cord *q* and cord pulley *r* of the crank-shaft *d* are also shown inclosed in a casing consisting of two parts *a* and *t*, and which can be easily opened by taking off the upper part *s*. The

motor is put into a casing for the reason that when the space *e* gets filled the dust cannot get at the motor or the cord-gear and thereby interfere with the working of the same.

In Fig. 2 the electromotor is placed into the stand or foot *i* of the dust-suction apparatus, the transmission from the motor to the crank-shaft by means of a cord *q* is also incased and in a manner that the casing consists of a shell *t* open at the top and bottom, the upper opening being closed by a hood *s* which can be taken off and the lower opening of which is inside of the stand *i* of the apparatus. As the stand *i* is, as a rule, open at the bottom, the motor *p* rests on a cross-piece *u* fastened in the stand. As will be seen from the drawing (Fig. 2) the motor *p* is connected here through a cable *v* and plug-contact *w* with an electric circuit. The cable *v* can likewise be connected through a plug-contact with the apparatus. In order to better explain the working of the apparatus I will add that the box *k* is connected through a branch-pipe *x* with the suction bellows *a*. In the case *k* is also arranged a second drawer *y*, which can be removed, and in which is deposited the dust sucked up, into the apparatus and which can, if required, be thus removed.

On starting the motor, the suction-bellows *a* commence work, the box *k* is evacuated and the dust sucked up into the well known nozzle, which is connected through a leather pipe with the socket *l*. The dust is thus first conveyed to the box *k* in which are deposited the coarser particles of the same, while the suction air still containing the finer particles passes through the branch-pipe *x* and the lower valves *b* into the suction-bellows *a*, from which, through the upper valves, they are ejected into the receptacle *e*. As in the receptacle *e* the air is compressed to a certain degree, it has the tendency to pass out, which it does through the outlet socket *m* and the filter-bag *n*. While the air passes out through the fine meshes of the filter-bag *n* into the open air the fine dust still contained in it is deposited in the filter bag *n*, so that the air passes out perfectly purified into the open air. The filter-bag *n* can be detached from the socket *m* and be cleaned if desired, also the drawer *y* can, as already said, be drawn out of the box *k* to be emptied when necessary.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent is:—

1. In a portable dust suction apparatus, the combination of two suction bellows, a shell inclosing said bellows, a double throw crank shaft for working said bellows and mounted within said shell, an electric motor, pulleys carried by said motor and by said crankshaft, flexible transmission means connecting the pulleys referred to, and a dust-tight casing inclosing the pulley gear, substantially as described.

2. In a portable dust suction apparatus, the combination of two suction bellows, a shell inclosing the same, a double throw crankshaft for working said bellows and mounted within said shell, a bracket carried by said shell, an electric motor supported by said bracket, pulleys carried by said motor and by said crankshaft, flexible transmission means connecting the pulleys referred to, and a dust-tight casing inclosing the pulley gear, substantially as described.
3. In a portable dust suction apparatus, the combination of two suction bellows, a shell inclosing the same, a double throw crankshaft for working said bellows and mounted within said shell, a bracket carried by said shell, an electric motor supported by said bracket, pulleys carried by said motor and by said crankshaft, flexible transmission means connecting the pulleys referred to, and a dust-tight casing inclosing the pulley gear and consisting of a lower part and an upper part detachable therefrom, substantially as described.
4. In a portable dust suction apparatus, the combination of two suction bellows, a shell inclosing the same and divided into top and base compartments, a double throw

crankshaft for working said bellows and mounted within the top compartment of said shell, an electric motor, pulleys carried by said motor and by said crankshaft, flexible transmission means connecting the pulleys referred to, and a dust-tight casing inclosing the pulley gear, substantially as described.

5. In a portable dust suction apparatus, the combination of a plurality of suction bellows, a shell inclosing said bellows, a shaft for working said bellows successively and mounted within said shell, an electric motor, operating connections from said motor to said shaft, and a dust-tight casing inclosing said operating connections, substantially as described.

In witness whereof I have hereunto signed my name this 29th day of January, 1906, in the presence of two subscribing witnesses.

ADOLF HEIN.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.