No. 677,667. Patented July 2, 1901.

P. KIRSCHEN.

BOX FOR DISTRIBUTING POWDERY OR PASTY SUBSTANCES.

(No Model.) (Application filed Apr. 3, 1901.)

Fig. 1.

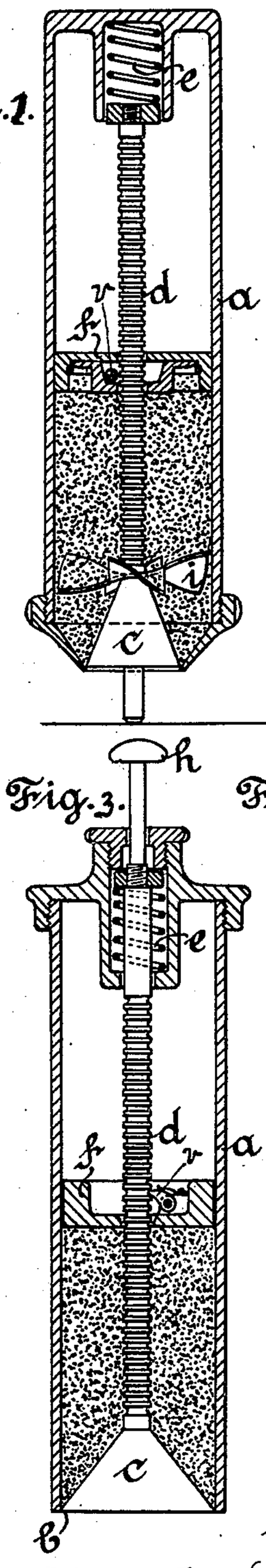

Fig. 2.

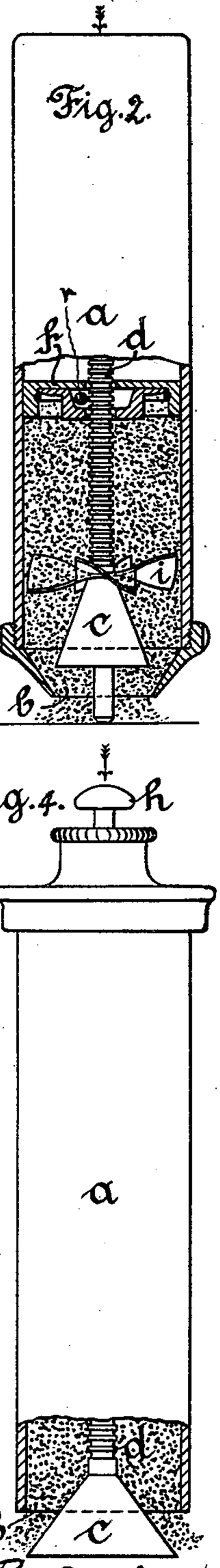

Fig. 3.

Fig. 4.

Witnesses
Henry Thieme
George Barry Jr.

Inventor: Paul Kirschen
by attorneys
Brown & Seward

UNITED STATES PATENT OFFICE.

PAUL KIRSCHEN, OF DRESDEN, GERMANY.

BOX FOR DISTRIBUTING POWDERY OR PASTY SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 677,667, dated July 2, 1901.

Application filed April 3, 1901. Serial No. 54,136. (No model.)

To all whom it may concern:

Be it known that I, PAUL KIRSCHEN, a subject of the King of Saxony, and a resident of Dresden, in the Kingdom of Saxony, German Empire, have invented a new and useful Improvement in Boxes for Distributing Powdery or Pasty Substances, of which the following is a specification.

This invention refers to boxes for containing powdery or pasty substances and for distributing such substances in desirable portions. Such substances may, for instance, be fine powders for cleaning the teeth, which it is desirable to distribute in such portion as is necessary for temporary use. It is well known that difficulties present themselves in the distribution of such fine powders in the desired quantity from an aperture or hole, which difficulties increase with the greater fineness of the powder, and especially in such cases in which in consequence of the addition of ethereal oils such powder has the tendency to stick, cohere, or conglomerate.

The object of this invention is to provide a box for such substances in which the above difficulty is overcome and from which the substances may be distributed or delivered freely in desirable portions or quantities.

The invention is illustrated in the accompanying drawings by two examples.

Figure 1 represents a central section of one example, showing the delivery-valve closed; Fig. 2, a side view, partly in section, of the same example with the valve open; Fig. 3, a central section of the other example with the valve closed; Fig. 4, a side view, partly in section, of the other example with the valve open.

Referring first to Figs. 1 and 2, *a* is the shell or socket of the box, which latter is represented as entirely closed at top and having an opening *b* in the bottom to be closed by the valve *c*, which is attached to the lower end of the central spindle *d*. Between the upper end of this spindle *d* and top of the shell or socket *a* a coiled spring *e* is inserted. The spindle on its entire length is provided with parallel peripherical grooves or indents constituting a rack or ratchet. A piston *f* is mounted loosely on the spindle *d* and is provided with an internal pawl or ratchet engaging device *v*, by which the piston is temporarily connected with the spindle.

The operation of the box described for the issue of a certain portion of the contained substance is as follows: If the shell or socket *a* of the box is seized by hand and the projecting end of the spindle *d* is placed against a resistance—such as a table, a plate, a vessel, or the like—the socket or shell may be pressed downwardly, the spring *e* being pressed together. Thus the valve *c* enters into the shell or socket, leaving a ring-shaped slit open for the issue of substance. In this movement of the shell or socket the latter has caused the piston to descend with it by friction, the ratchet device forming no hindrance, as it does not act. The ratchet device may be of any convenient construction. It is represented in Figs. 1 and 2 as consisting of a ball within a conical cavity around the grooved central spindle. If the shell or socket is released from its downward pressure, it will ascend by the expansion of spring *e*. In this movement the ratchet device will automatically act. The friction between the inner wall of the shell or socket and the peripherical surface of the piston will tend to take the latter along with the shell; but the ratchet device by the ball taking into a groove of the spindle and being retained in the lowest part of the conical cavity in the piston will prevent this and will retain the piston in its lower position, the latter thus assisting in the issue of substance in the upward movement of the shell or socket until the lower opening of the latter is entirely closed. The beginning of the upward movement of the shell or socket while the piston remains at rest is the position illustrated in Fig. 2.

The spindle *d* may be provided with fixed wings *i*, which in the descending movement of the substance cause a loosening of the latter; but these wings form no part of the present invention, and they may in some instances be dispensed with altogether.

In the modification shown in Figs. 3 and 4 of the above-described arrangement a movement of the central spindle in the shell or socket takes place. In this case the spindle projects through the upper part of the shell or socket *a* and is furnished with a push-

knob *h*, and the spring *e* is applied to draw up the spindle and so to close the valve. By pushing down the spindle, as shown in Fig. 4, the valve is opened, and the piston will by the ratchet engagement with the spindle be moved downward to expel the substance through the opening *b*. When the spindle is allowed to be retracted by the recoiling action of the spring *e*, the ratchet device will not act, and the piston in consequence will remain in its lowered position.

In the example Figs. 3 and 4 the ratchet device *v* is shown as composed of a spring-actuated pawl taking into the grooves or indents of the ratchet of the central spindle.

What I claim as my invention is—

A box for containing powdery or pasty substances and for delivering the same in desirable quantities, consisting of a shell having a delivery-outlet, a valve for opening and closing said outlet, a spindle within said shell carrying said valve, a spring applied to said spindle for closing said valve, and a piston fitted to said shell for assisting the delivery of the substance therefrom and having a ratchet engagement with said spindle, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of March, 1901.

PAUL KIRSCHEN.

Witnesses:
CARL KNOOP,
HERNANDO DE SOTO.