(No Model.)

T. W. HOUCHIN.

INSECT POWDER GUN.

No. 263,337. Patented Aug. 29, 1882.

Fig. 1

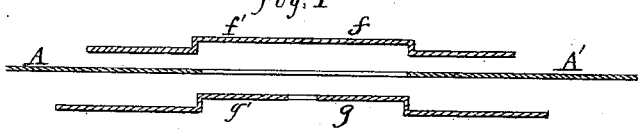
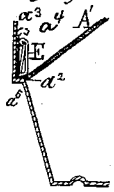


Fig. 5.



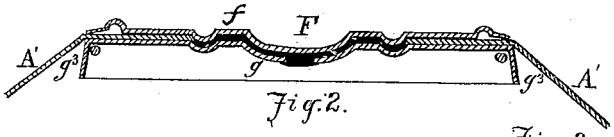


Fig. 2.

Fig. 3.

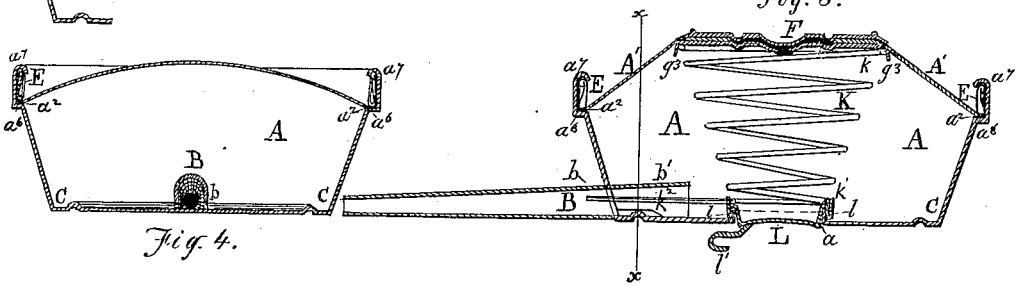


Fig. 4.

Fig. 6.

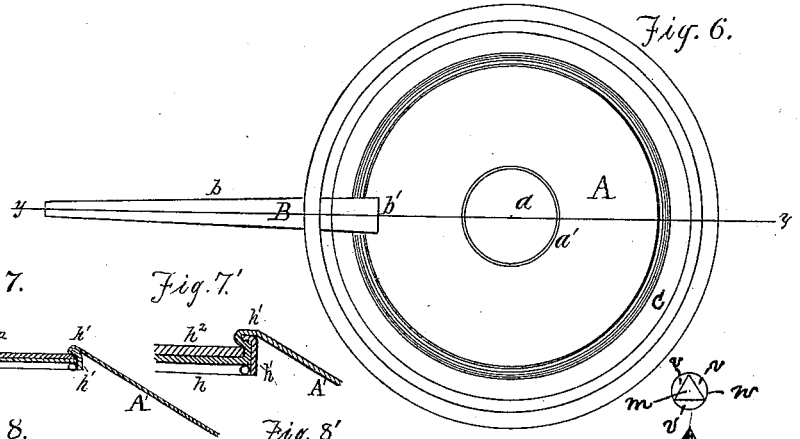


Fig. 7.

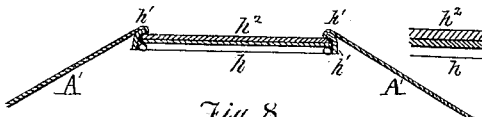


Fig. 7'

Fig. 8.

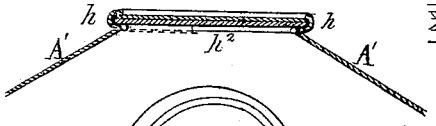
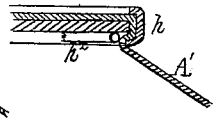


Fig. 8'



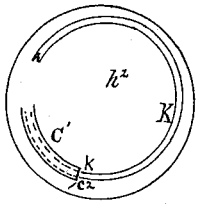


Fig. 11.

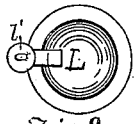


Fig. 9.

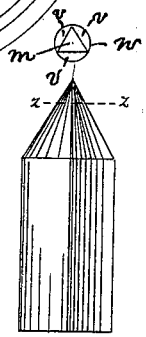


Fig. 12.

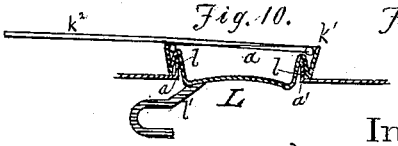


Fig. 10.

Witnesses

Wm. R. Singleton.

W. H. Steward

Inventor

Thomas W. Houchin.

per Voorhees & Singleton

Attys.

UNITED STATES PATENT OFFICE.

THOMAS W. HOUCHIN, OF MORRISANIA, NEW YORK.

INSECT-POWDER GUN.

SPECIFICATION forming part of Letters Patent No. 263,337, dated August 29, 1882.

Application filed April 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. HOUCHIN, of Morrisania, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Insect-Powder Guns; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 represents a sectional view of the plates of the thumb-piece, with the elastic diaphragm in exaggerated size, as they are being put together. Fig. 2 is a similar view of the completed thumb-piece in place. Fig. 3 is a sectional view through the tube of the powder-gun. Fig. 4 is a section of Fig. 3, taken on line x x, showing the shape of the inner portion of the tube. Fig. 5 is a detail section, showing the construction as the diaphragm is being put in place. Fig. 6 is an inside view of the bottom. Fig. 7 is a section of a modification of the thumb-piece. Fig. 8 is a section of still another modification thereof. Figs. 7′ and 8′ show enlarged details of Figs. 7 and 8. Fig. 9 is a bottom view of the stopper. Fig. 10 is an enlarged detail section of a portion of Fig. 3, showing the construction of the stopper. Fig. 11 is a bottom view of the thumb-piece, showing the method of securing the spring. Fig. 12 represents a carton which is used for filling the gun.

This invention relates to improvements in powder-guns used for destroying insects, &c.

The object of the invention is to render their construction stronger, make them easier to manipulate, and certain of action.

The invention consists in a powder-gun having the peculiarities of construction and arrangement hereinafter set forth.

In the annexed drawings, the letter A represents the reservoir, having in its bottom the central filling-hole, a, with the flange a' around it.

Leading into the reservoir A is the discharge-tube B. This tube, instead of being round and closed its entire length, as is usual, is only closed at its exterior portion, b, its interior portion, b', being open at the bottom, so that such portion b' is in cross-section like an inverted U, as shown in Fig. 4. Around the extreme circumference of the bottom is made a groove, C, which I term a "double channel," as it is arranged so that there shall be two eduction-passages coming under the tube B at the wall of the reservoir.

At the top the reservoir A has the seat a^2, in which the elastic diaphragm A′ is held. To secure the diaphragm in place the cloth or other material for forming the same is placed over a die-ring having an interior diameter equal to the exterior diameter of the holding-annulus E. The latter is then placed on the cloth over the ring and the drop forces both down into the ring, when the cloth is trimmed off all around the top of the annulus. The reservoir is then placed under the ring, and the annulus and cover are forced down through the said ring and into place in the seat a^2, the die-ring being at the same time removed. The edge a^3, Fig. 5, is then turned over, as shown at a^4, Fig. 5, and completed by pressure applied under the shoulder a^6, taking the shape as shown at a^7, Figs. 3 and 4.

At the center of the cover is secured the thumb or center piece, F, consisting of exterior and interior plates, g and f. These plates are first made, as shown in Fig. 1, with the central bosses, f' g', the latter of a size to fit within the former. The diaphragm A′ is put between the two, having a hole to fit over the boss g'. The two plates, with the diaphragm between them, are soldered together. After soldering, the plates are then stamped together, so as to bind the parts, and corrugations of any shape are also made, so as to better hold them. At the same time the flange g^3 is made so as to form a seat for the spring and give an extra strength to the plate. By this soldering of the parts all necessity for riveting is avoided, and a compact and firm union is made.

In Fig. 7 is shown another kind of center piece. This consists of an annulus, h, having a narrow rim, h', and a plate, h^2, between which plate and the rim of the annulus the diaphragm is held. The latter is first placed over the plate, like covering a button, and then the loose edges are slipped through the annulus, the

plate is seated against the rim, and the diaphragm pulled tight. The more it is pulled the tighter it is held. In Fig. 8 is shown another form. In this the plate h^2 comes on the inside of the diaphragm, and the annulus h is spun around its edge, as shown.

In all the different forms the thumb-piece is put in place before the diaphragm is put on the reservoir.

The flange g^3 and the annulus h, each in its own form, make a seat in which the upper portion, k, of the spiral spring K is secured. For better security a rib, c', may be made in the inner plate of the cover, having at its sharp end a hole, c^2, into which the end k of the spring is inserted, and it rests under such rib.

To the bottom k' of the spring is secured the stopper L, the extreme end k^2 of said spring extending into the tube B, as shown. The stopper L has an inverted-V-shaped groove, l, into which the flange a' fits, the shape of the groove insuring a tight joint. This stopper may be provided with a handle, l'. The spring K holds the stopper in place, closing the hole a, and when it is desired to fill the reservoir it is only necessary to push on the handle l', when the stopper will be moved to one side; and when the reservoir is filled, by touching the handle, the spring will force the stopper into place.

In the use of this device, in case the tube B should become clogged, the air, being forced into it at the place where the double channel C comes, would force the accumulation out. At the same time the constant movement of the extension k^2 of the spring acts as a cleaner, keeping the powder loose, and, together with the action induced through the double channel, effectually preventing accumulation.

In Fig. 12 is shown a new and improved carton for containing the powder, and which can be used for filling the gun. This carton can be made of any form, the triangular form being preferred, having a triangular-pointed end, which will allow the air to escape out of the gun, the filling-hole being round, and facilitate the powder entering the gun. The powder is put up in this receptacle, and when the carton is used for filling the gun the point is cut off at the dotted line z z.

Just above the carton in Fig. 12 is a diagram which demonstrates the use of the carton in filling the gun. The letter m indicates the point of the carton, and n the circumference of the filling-hole. Between the two are the three spaces v, through which the air escapes as the powder is poured in; but I lay no claim to this carton in this case, reserving it as the subject of another application.

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

1. A powder-gun provided with the double channel or groove at its bottom and a tube having its inner portion open at the bottom, as set forth.

2. In a powder-gun, a reservoir having a seat around its top, as described, in combination with the diaphragm or cover, the edge of which is held in the seat, and a securing-annulus which rests upon the edge of the diaphragm, the edge of the reservoir being turned over the annulus, as set forth.

3. The stopper L, having the groove l, in combination with the spring K and the reservoir A, as set forth.

4. In a powder-gun, a diaphragm, in combination with a center piece consisting of an inner and an outer plate, the two plates being soldered and stamped together, whereby riveting is dispensed with, as set forth.

5. In a powder-gun, a center piece consisting of an inner and an outer plate, the two soldered and stamped together, with the diaphragm between, and the inner plate provided with a seat for the spring, as set forth.

6. In a powder-gun, the discharge-tube, in combination with the spring having an extension which is located in the inner portion of said tube, as set forth.

7. In a powder-gun, the reservoir and the diaphragm or cover, in combination with the thumb-piece in which the diaphragm is secured, and which is provided with a seat, and the spring having its upper end secured in the seat, as set forth.

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

THOS. W. HOUCHIN.

Witnesses:
WM. M. SMITH,
JNO. BOWLES.