(No Model.)

J. SCHLINGER.

POWDER CHARGER FOR BLAST HOLES.

No. 535,174. Patented Mar. 5, 1895.

Fig. 1

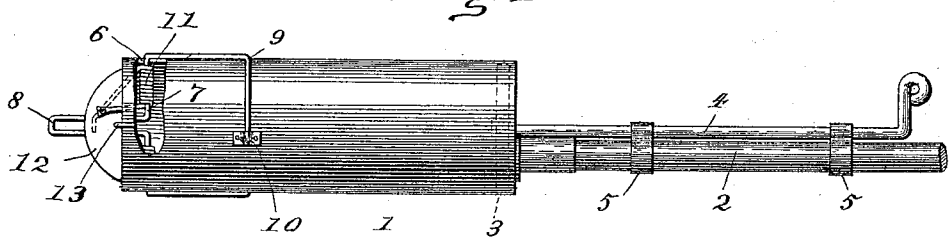


Fig. 2.

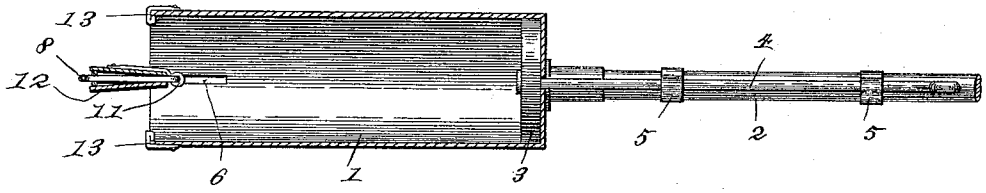


Fig. 3.

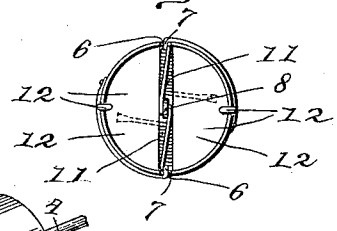


Fig. 5.

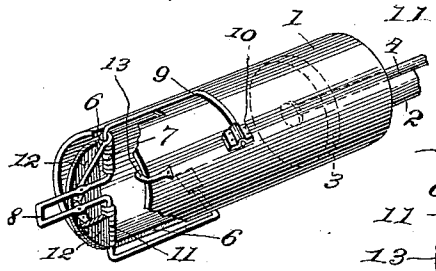
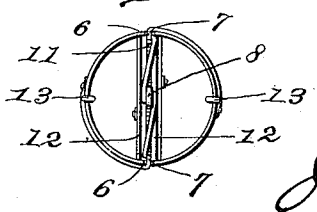


Fig. 4.



Witnesses

Thos. L. Gatchell.

L. G. Randall.

Inventor

Jules Schlinger

by John Wedderburn

his Attorney.

UNITED STATES PATENT OFFICE.

JULES SCHLINGER, OF BROAD FORD, PENNSYLVANIA.

POWDER-CHARGER FOR BLAST-HOLES.

SPECIFICATION forming part of Letters Patent No. 535,174, dated March 5, 1895.

Application filed November 19, 1894. Serial No. 529,242. (No model.)

To all whom it may concern:

Be it known that I, JULES SCHLINGER, a citizen of the United States, residing at Broad Ford, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Powder-Chargers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices adapted to charge blast holes in rock or other places, with powder or other explosive material, the same having for its object to provide a device of this character that is very simple in construction, effective in operation and one which will do away with the old method of using cartridges for the insertion of powder in the blast hole or the very crude method of throwing the powder in by hand.

The invention consists of a tubular magazine portion having a long arm or handle attached to one end thereof and a piston mounted therein having a piston rod which extends out through the bottom of the cylindrical magazine, by means of which it may be operated. The forward end of the cylinder is provided with two closing doors which are pivoted to a transverse bar extending across the end of the cylinder, the same being held closed by spring pressure and adapted to be released or opened by forcing the same against an abutment formed by the end of the blast hole.

The invention also consists in other details of construction and combinations of parts which will be hereinafter more fully described and claimed.

In the drawings forming a part of this specification, Figure 1 is a side view of my device. Fig. 2 is a vertical, central, longitudinal section through the same. Fig. 3 is an end view showing the spring operated doors in their closed position. Fig. 4 is a similar view showing the same open. Fig. 5 is a perspective view of the device partly broken away.

Like numerals of reference indicate like parts in the various views.

By reference to the drawings, it will be seen that my device consists of a cylindrical magazine 1 having a closed rear end with a long handle 2 secured thereto. Inside the cylinder is a piston 3 which is adapted to be moved back and forth therein by means of the rod 4 connected at the center thereof and extending through the bottom of the cylinder, moving between guides 5 on the handle, and formed at its end with a projecting flange by means of which it may be conveniently manipulated. The cylindrical magazine 1 is adapted to hold powder or other material to be inserted in the blast hole and is formed at its forward end with two oppositely disposed longitudinal slots 6. Passing transversely of the end of the cylinder 1 and located in the slot 6 is a shaft 7, formed at its center with a forwardly extending loop 8 extending rearwardly along the outside of the cylinder, bent at right angles as shown at 9 and permanently secured in any suitable manner as shown at 10. This shaft is preferably made of wire or other spring metal so that slight backward and forward movement in the slot 6 is permissible. The forwardly extending projection 8 acts as a trigger. Secured to this trigger 8 at one end and passing around the shaft 7 and each side of the trigger are two coiled springs 11, 11, which have secured to their other ends the doors 12 at the forward end of the cylinder. These doors are substantially semi-circular in shape and are made of tin or other suitable sheet metal and when in place form a complete or almost complete closure of the end of the cylinder. In their closed position they are held by spring pressure against two inwardly projecting stops 13. It will thus be seen that the tendency of the springs 11 is to open the doors 12. These are kept closed, however, by reason of the outward pressure of the spring arms of which the shaft 7 is composed. By forcing the shaft 7 inwardly in the slot 6, the doors 12 are thrown out of engagement with the stop 13 and the springs 11, being thus free to act, operate to throw open said doors 12.

In using my device, the same is filled with powder or other charging material, through its upper end, the piston 3 being withdrawn to its lowest point by means of the piston rod 4 projecting therefrom. The doors 12 are then closed by hand by inserting them beneath the stops 13. In this condition the

charge is inserted in the blast hole, and when it reaches the inner point thereof, the trigger 8, engaging therewith is forced inwardly, thereby releasing the doors 12 from engagement with the stops 13 and opening the same. When this is done the piston 3 is forced outward thereby discharging the contents of the charger into the innermost point of the blast hole.

My invention has been described in its preferred form, but it is obvious that many minor changes might be made therein without departing from the spirit or nature of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is—

1. A charger for inserting powder into blast holes, consisting of a cylindrical magazine for holding the powder or other explosive material having a long arm or handle thereto, a piston moving therein and adapted to be operated by a rod extending along said handle and doors in the outer end thereof which are released and thrown open by contact with the end of the blast hole, substantially as and for the purposes specified.

2. A charger for inserting powder into blast holes, consisting of a cylindrical magazine for holding the powder or other explosive material having a long arm or handle thereto, a piston moving therein and adapted to be operated by a rod extending along said handle and doors at the forward end thereof pivoted to a transverse shaft which is adapted to be moved back and forth in slots in the side of said cylindrical magazine, springs for normally holding said doors open and stops for said doors, substantially as and for the purposes described.

3. A charger for inserting powder or other explosive material into blast holes, consisting of a cylindrical magazine and handle connected to the bottom thereof, a piston therein and a piston rod extending through the bottom thereof, a spring rod secured at its ends to the outside of the cylindrical magazine, extending transversely across the end thereof, moving in vertical slots therein and formed at its center with a forwardly extending loop or trigger, coiled springs secured to and surrounding said spring rod, doors for the opening in the end of said magazine, secured respectively to the ends of said coil springs and stops for said doors, whereby the same may be held in closed positions, and whereby upon the depression of the said spring rod the doors are released and thrown open, substantially as and for the purposes described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JULES SCHLINGER.

Witnesses:
JOHN R. BYRNE,
WILL HENNESSEY.