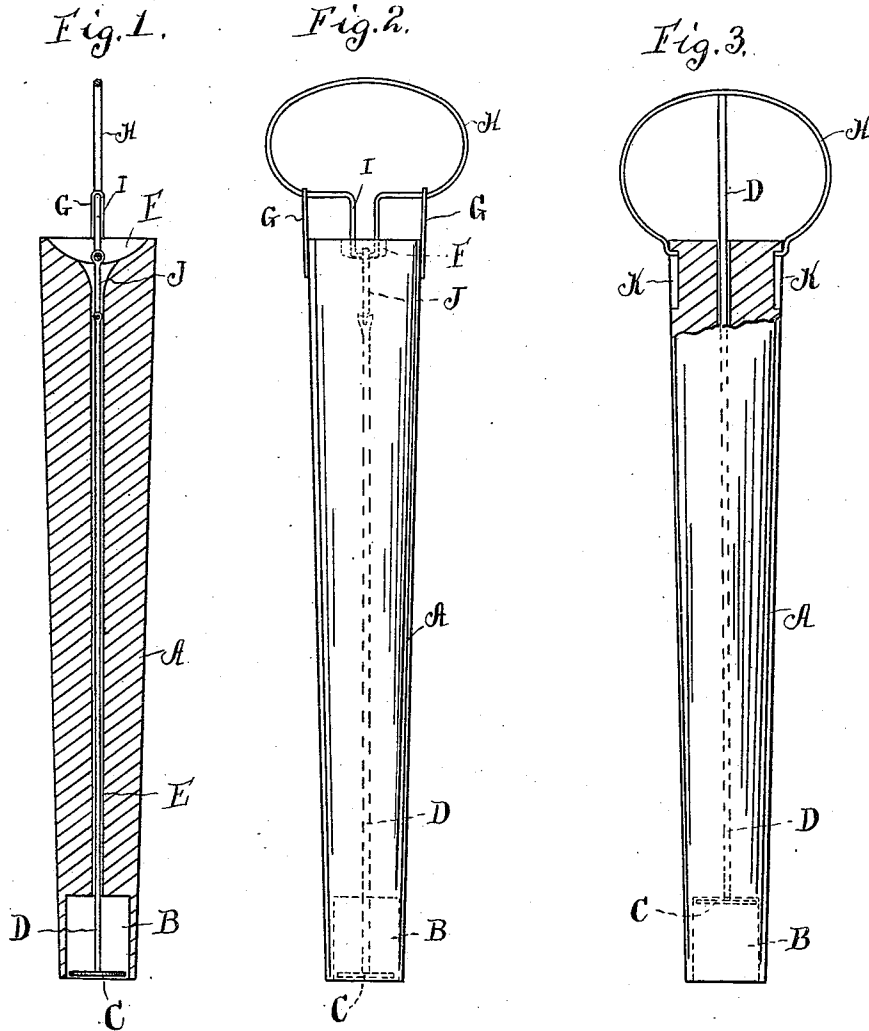


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MINING NEEDLE.
APPLICATION FILED FEB. 2, 1910.

977,275.

Patented Nov. 29, 1910.

2 SHEETS—SHEET 1.



WITNESSES

W. W. Williamson
S. M. Gallagher

INVENTOR

Patrick F. Costello

BY

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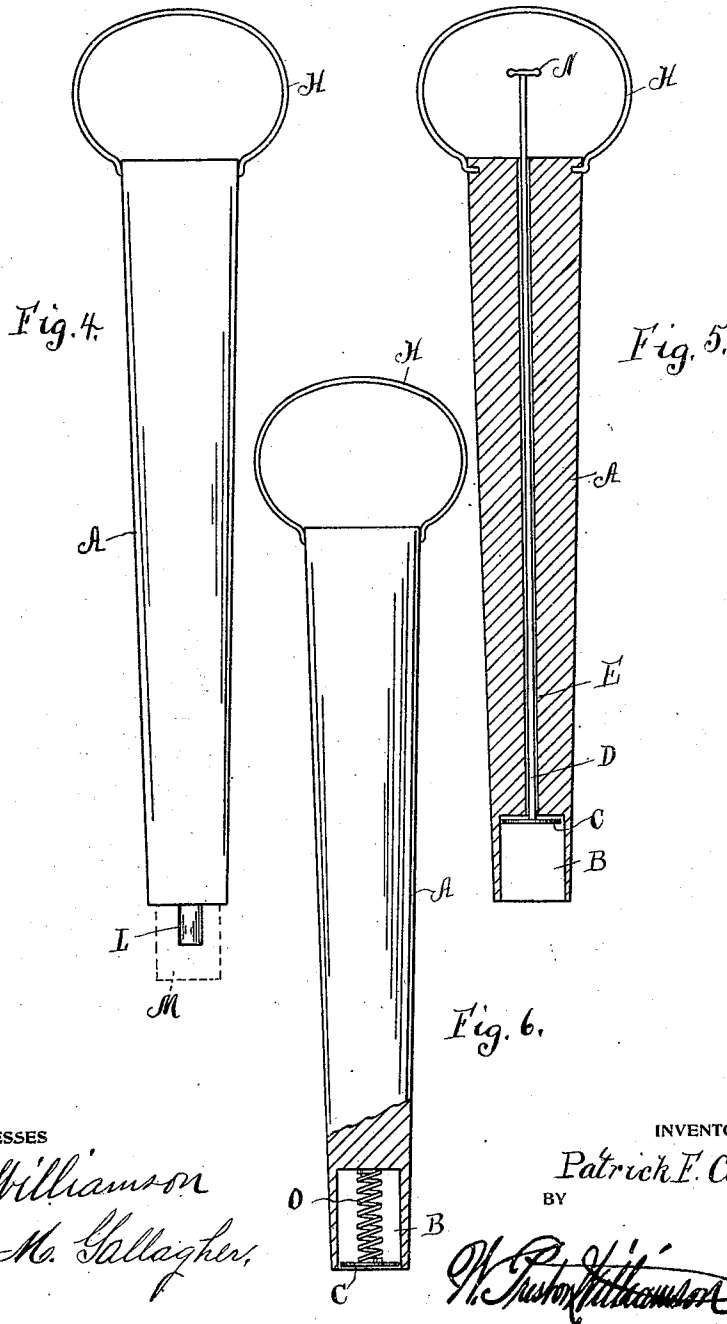
ATTORNEY

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UNITED STATES PATENT OFFICE.

PATRICK F. COSTELLO, OF VINTONDALE, PENNSYLVANIA.

MINING-NEEDLE.

977,275.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Application filed February 2, 1910. Serial No. 541,554.

To all whom it may concern:

Be it known that I, PATRICK F. COSTELLO, a citizen of the United States, residing at Vintondale, in the county of Cambria and State of Pennsylvania, have invented a certain new and useful Improvement in Mining-Needles, of which the following is a specification.

My invention relates to a new and useful improvement in mining needles, and has for its object to provide an exceedingly simple and effective device of this character whereby the concussion cap may be inserted into the explosive before being fired.

At the present time a safety powder is being used which is known as permissible explosive and by using my improved mining needle therewith the electric powder and fuse are dispensed with, and in place thereof the common squib is used for firing the charge.

In accomplishing the above named objects, I employ a body portion preferably of wood, having means for carrying the cap while the needle is being inserted into the explosive and another means for removing the cap from the needle.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a vertical sectional view of my improved mining needle. Fig. 2, a side elevation thereof at right angles to Fig. 1. Fig. 3, a similar view of a slightly modified form of my invention, a portion of the body being shown in section. Fig. 4, a side elevation of another form showing the concussion cap in dotted lines. Fig. 5, a vertical sectional view of another form of needle, and Fig. 6, a side elevation of a still further modified form, a portion of the lower end of the body being shown in section.

In carrying out my invention as here embodied, A represents the body, which is preferably formed of wood tapering inward

from the top toward the bottom, and if found desirable the lower end may be tipped with copper.

In the form shown in Figs. 1 and 2, I form an aperture B in the lower end thereof, which acts as a pocket to receive the concussion cap, said cap being placed in this aperture while the plunger C is at the top thereof, said plunger having a stem D leading therefrom upward through the central opening E, at the top of which is formed the aperture F. To the sides of the body, at the top thereof are secured suitable brackets G, which act as bearings for the handle H, said handle being bent to form the crank I, to which is attached one end of the link J, the opposite end of said link being pivoted to the upper end of the stem D. In using this form of the device, the handle H is turned over until it rests against the outside of the body, which causes the plunger C to be drawn to the top of the pocket B, allowing the concussion cap to be inserted in said pocket, at which time the needle is placed in the hole which has been made for blasting purposes, then by taking hold of the handle and raising it upward, said handle will cause the plunger C to force the cap from the needle, and when said handle is in a vertical position the needle may be withdrawn.

In the form as shown in Fig. 3, I employ a body A, having a pocket B, in which is placed a plunger C, having a stem D passing upward through the body, but the upper end of this stem is extended upward or lengthened and is secured to the handle H, the ends of which slide in the slots K, so that when the handle is pushed downward the cap will be ejected, and to remove the needle the handle is drawn upward until its ends contact with the upper side walls of the slots K when the needle will be withdrawn.

In Fig. 4 I have shown a further modified form of my invention, in which the handle H is stationary and the body is without holes or apertures of any kind. At the lower end of the body is mounted a plug L, which is inserted into the concussion cap M until said cap abuts the lower end of the body, at which time the needle may be placed in the holes, forcing the cap downward until it is

in position, when said needle may be withdrawn.

In Fig. 5 I have shown my device in which the stem D is allowed to extend a reasonable distance above the top of the body, and on the top of this I mount a small handle N whereby the same may be operated vertically. To use the style here shown the plunger is drawn up by hand, the cap inserted, then the needle placed in the hole, at which time the handle N is pressed downward so that the plunger will eject the cap, and after this is done the handle H may be taken hold of to withdraw the needle.

In Fig. 6, I have shown a still further modified form in which I insert a coil spring O between the plunger C and the top of the pocket B, said spring being secured to both the plunger and the top of the pocket, which will normally hold the plunger downward. To use this form of my device the cap is placed in the pocket B, forcing the plunger C upward against the action of the spring O. The needle A is then inserted in the dynamite cartridge and when the cartridge or charge is in place, by withdrawing the needle the spring will force the cap into position, at which time it may be fired with the safety squib.

Of course I do not wish to be limited to the exact details of construction here shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention, as for instance, the means employed for ejecting the cap may be a pump or a bulb at the top of the body connecting with the central opening E

so that by forcing the air through the opening E the cap would be ejected.

Having thus fully described my invention, what I claim as new and useful, is—

1. In a mining needle, a body, the side walls of which taper inward toward the lower end thereof, a handle mounted at the top of said body, means for holding a dynamite or concussion cap, and means for automatically ejecting said cap.

2. In a device of the character described, a tapering body having a pocket formed in its lower end, a central opening leading upward from the pocket entirely through the body, a plunger, a stem passing through the central opening, brackets secured to the sides of the body, a handle swingingly mounted in said brackets, and means for connecting the handle to the stem.

3. In a device of the character described, a tapering body having a pocket formed in its lower end, a central opening leading upward from the pocket entirely through the body, a plunger, a stem passing through the central opening, brackets secured to the sides of the body, a handle having a crank bent therefrom swingingly mounted in said brackets, and a link for connecting the crank portion of said handle with the upper end of the stem.

In testimony whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses.

PATRICK F. COSTELLO.

Witnesses:

DEMPSTER NOLEN,
F. CHOLOR.