(No Model.)

J. H. HOLSEY.

BLASTING PLUG.

No. 414,540. Patented Nov. 5, 1889.

Fig. 1.

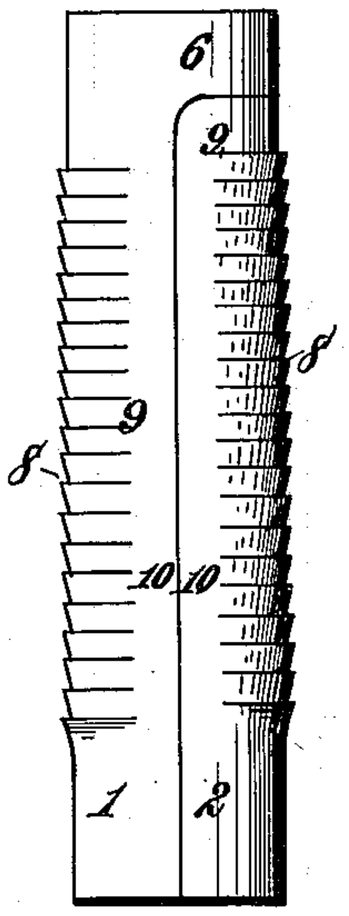


Fig. 2.

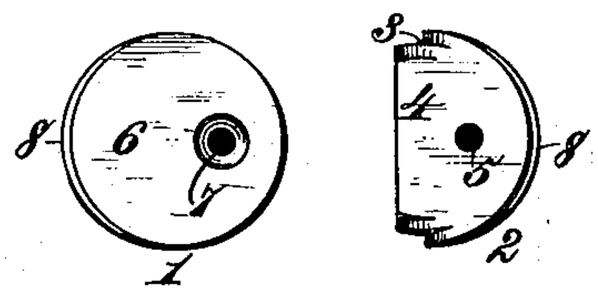


Fig. 3

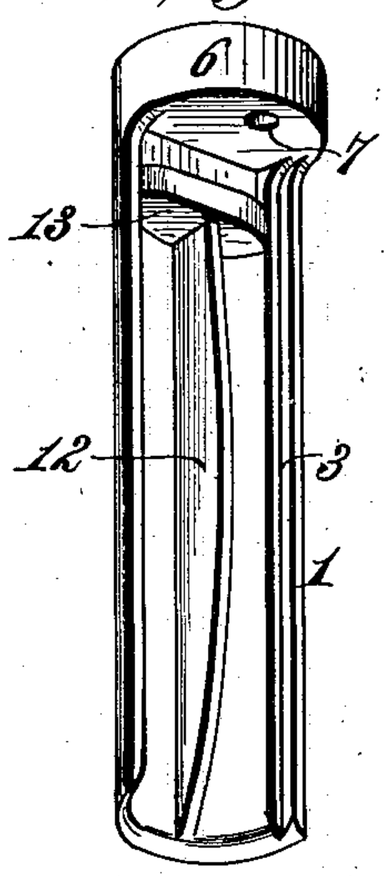


Fig. 4.

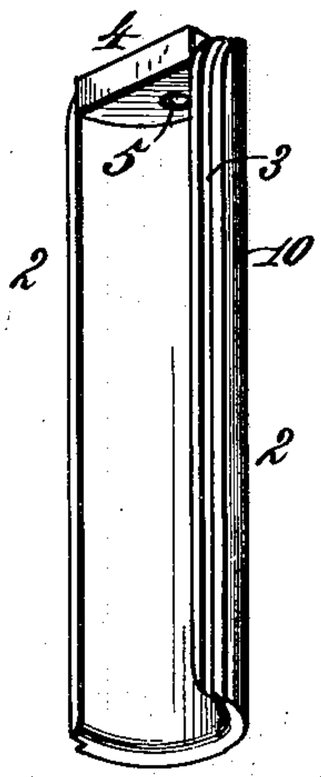
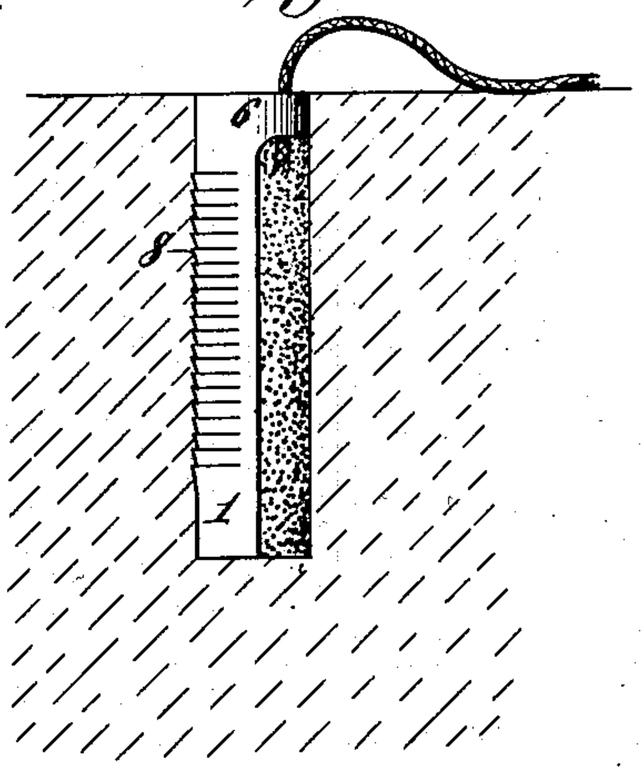


Fig. 5.



Witnesses.
Robert Ewett.
J. A. Rutherford

Inventor.
Julius H. Holsey.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

JULIUS H. HOLSEY, OF CORSICANA, TEXAS.

BLASTING-PLUG.

SPECIFICATION forming part of Letters Patent No. 414,540, dated November 5, 1889.

Application filed July 31, 1889. Serial No. 319,244. (No model.)

To all whom it may concern:

Be it known that I, JULIUS H. HOLSEY, a citizen of the United States, residing at Corsicana, in the county of Navarro and State of Texas, have invented new and useful Improvements in Blasting-Plugs, of which the following is a specification.

The invention relates to the blasting-plugs for which Letters Patent were issued to me October 31, 1871, and July 8, 1873, and numbered, respectively, 120,438 and 140,628.

The objects of my present invention are to improve the efficiency and usefulness of the device, to render it capable of more general application, to provide a construction whereby a given charge is rendered more powerful and effective, and to provide a divided blasting-plug, whereby one section can be practically employed in a drill-hole where it is desired to sliver the timber or where one side of the object to be blasted is liable to fall over a precipice or into water and be lost.

The invention consists more particularly in a cylindrical blasting-plug divided longitudinally into two separate or independent sections, one of which is formed with a disk-head having a vent-orifice and made coextensive with the external caliber of the plug when the two sections are placed together in such manner that the disk-carrying head-section can be employed alone for blasting purposes by reason of its head accurately filling the drill-hole and acting as a tamp.

The invention also consists in other features of construction, which are hereinafter described and specified in the claims, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of a blasting-plug embodying my invention. Fig. 2 is a top plan view showing the two sections separated; Fig. 3, a perspective view looking at the inside of the main plug-section; Fig. 4, a similar view of the outer section; and Fig. 5 is a view, on a reduced scale, showing the main plug-section alone in a drill-hole.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, where it will be seen that the hollow blasting-plug is divided longitudinally into two separate or independent sections 1 and 2, which are tongued and grooved or rabbeted together along their adjoining edges, as at 3, the object of which is to prevent the escape of the blast until it has in a measure expanded its force.

The plug is formed as a cylinder to enter a drill-hole, and the section 2, which is of less length than the main section, is formed at one extremity with a diaphragm or head-piece 4, having a vent-orifice 5, while the main section is formed at its upper or outer end with a disk-head 6, whose dimensions are coextensive with the external caliber or diameter of the complete plug. The disk-head overlies the diaphragm or head-piece of the short section, and when the parts are in correct position the vent-orifice 5 coincides with a like vent-orifice 7 in the disk-head. The two sections are each furnished externally below the disk-head with a series of circular ridges or ribs 8, extending transversely round the plug, and those on each section having their extremities 9 vanishing in the body of the section, all in such manner that the ridges or ribs engage the wall of the drill-hole and at the time of the explosion retard any tendency of the plug to fly inward or outward. By having the ends of the circular ridges or ribs vanish in the bodies of the sections near the rabbeted edges the sides of the plug along the joint are left smooth, as at 10, to fit the wall of the drill-hole. The ridges or ribs are square at the top and beveled inwardly at the sides, the vanishing-point being at the square top of the adjacent ridge or rib. This construction provides for the easy insertion of the plug, but offers great resistance to explosion.

The entire plug may be used to effect the blasting operation, and in practice a hole is drilled in the timber, rock, or other object and the plug inserted therein. The blasting-charge of powder or other explosive is then introduced through the vent-orifices, a fuse or slow match is applied and ignited, and the person retires to a place of safety. The gases of explosives exert a certain pressure to the square inch, and by reason of this there will be little tendency of the plug to fly upward or outward lengthwise; but any such tendency is counteracted by the circular transverse ridges. The disk-head, being

coextensive with the external caliber or diameter of the plug, accurately fits and fills the drill-hole, thereby subserving the function of a tamp; but in addition to this the disk-head permits the main section to be used alone in a drill-hole when desired, which is frequently the case where the timber is to be slivered or where one side of the object to be blasted is liable to be thrown over a precipice or into water and lost. It will be observed that when the main section is used alone, as indicated in Fig. 5, its disk-head accurately fits a drill-hole formed of the same size as would receive the entire plug.

By my invention there is no danger in the preparation of the blast, for there is no friction or tamping after the explosive has been introduced.

The section of the plug which carries the disk-head is braced and strengthened by an internal rib 12, extending lengthwise and joined to a transverse rib 13 near the upper or outer end of the plug. This is desirable for the employment of the one section alone in a drill-hole. The plugs are made of any size and of material suitable for the conditions required. I have repeatedly and successfully used plugs of malleable iron and found them safe, effective, and durable.

By the peculiar construction of the vent end of the plug herein described and shown a longer time is required to separate the two sections and the vent is closed for a longer period, whereby a given charge is rendered more powerful in its effect, this being caused by the closure of the vent during the blast, which produces a perfect confinement of the force for a considerable time in comparison to prior constructions.

What I claim is—

1. A hollow blasting-plug divided longitudinally into two sections and one section having a disk-head coextensive with the external caliber of the plug, substantially as described.

2. A hollow blasting-plug divided longitudinally into two sections having their adjoining edges rabbeted together and one section provided with a disk-head coextensive with the external caliber of the plug, substantially as described.

3. A hollow blasting-plug divided longitudinally into independent sections, each having external transverse ridges or ribs, and one section provided with a disk-head coextensive with the external caliber of the plug, substantially as described.

4. A hollow blasting-plug divided longitudinally into two sections of unequal length, the short one having a perforated diaphragm at one extremity and the other having a perforated disk-head overlying said diaphragm and coextensive with the external caliber of the plug, substantially as described.

5. A hollow blasting-plug having a vent and divided longitudinally into independent sections, one of which is provided with an internal brace-rib, substantially as described.

6. A hollow blasting-plug divided longitudinally into two independent sections, and one having an internal brace-rib and a disk-head coextensive with the external caliber of the plug, substantially as described.

7. A hollow blasting-plug having a vent and divided longitudinally into two independent sections, each having a series of transverse beveled ribs or ridges extending in a circle round the same, and the ends of which vanish in the body of the section adjacent to the longitudinal dividing-line, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JULIUS H. HOLSEY.

Witnesses:
J. H. BATES,
W. H. MALLOY.