G. K. LARRIMORE.

COMBINATION TOOL.

APPLICATION FILED DEC. 22, 1919.

1,373,138. Patented Mar. 29, 1921.

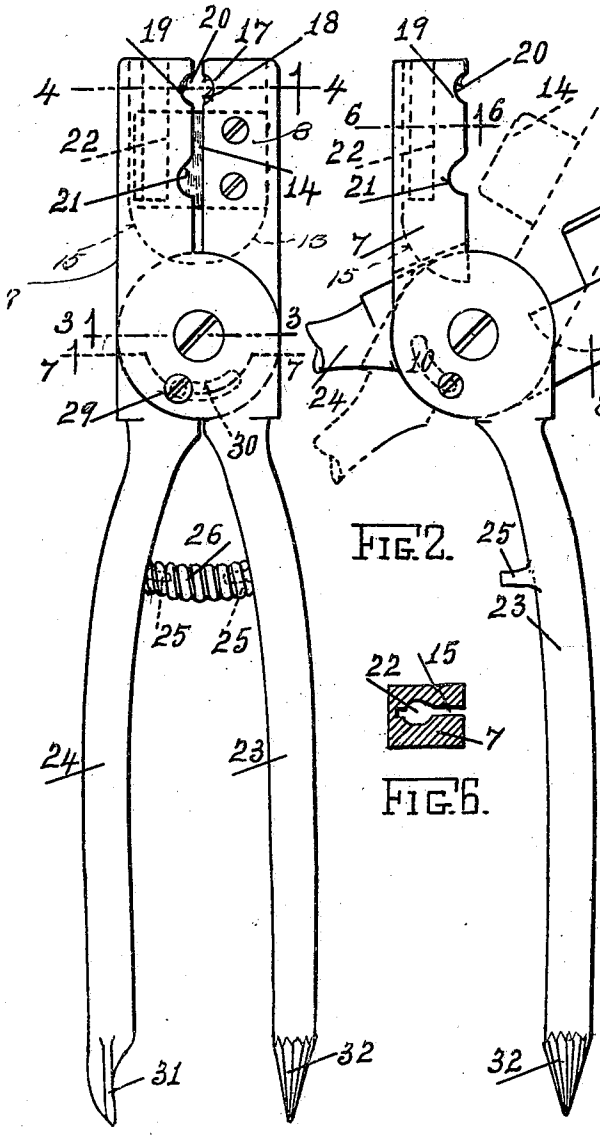


FIG. 1.

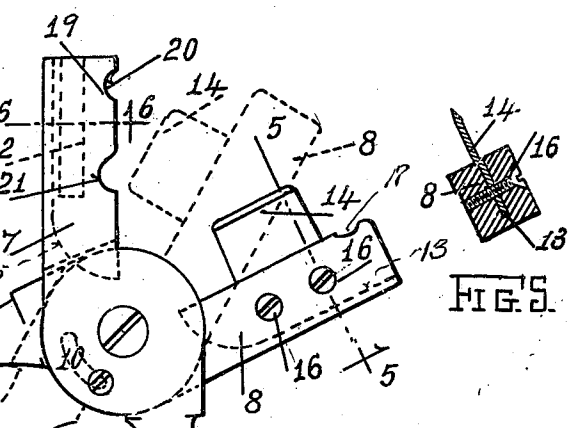


FIG. 2.

FIG. 5.

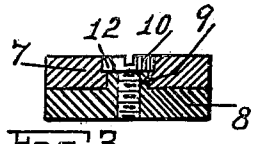


FIG. 3.

FIG. 6.

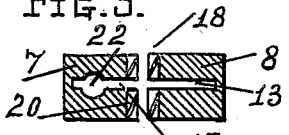


FIG. 4.

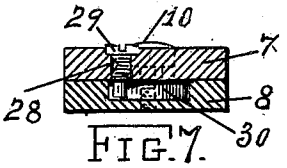


FIG. 7.

Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE K. LARRIMORE, OF SPRINGFIELD, ILLINOIS.

COMBINATION-TOOL.

1,373,138. Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed December 22, 1919. Serial No. 346,480.

To all whom it may concern:

Be it known that I, GEORGE K. LARRIMORE, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Combination-Tool, of which the following is a specification.

The instrument is designed for use by miners, blasters or others having occasion to cut and split fuses and crimp a fulminating cap on each fuse, preparatory to blasting coal, or the like.

The purposes of the invention are to provide an instrument which may be easily and effectively operated; to provide improved means whereby the fuse may be quickly and easily placed in position for cutting; to provide means for securely holding the fuse while it is being split; to provide a detachable blade serving both to cut and to split the fuse; to provide an instrument so constructed and arranged that the blade may be readily sharpened without detaching it from the instrument and without marring or otherwise injuring other parts of the instrument; to provide means for opening boxes or the like containing supplies of fuse or explosives or other material; and to provide means for making a hole in a cartridge to receive the cap and fuse.

The invention is illustrated in the annexed drawing, to which reference is hereby made and will now be fully described and the novel features thereof will be recited in the claim.

Figure 1 is a top plan of an instrument embodying my invention, shown in closed position; Fig. 2 is a top plan of the same instrument shown widely open in position for sharpening the blade; Fig. 3 is a vertical transverse section on the line 3.3. of Fig. 1; Fig. 4 is an enlarged vertical transverse section on the line 4.4. of Fig. 1; Fig. 5 is a vertical transverse section on the line 5.5. of Fig. 2; Fig. 6 is a vertical transverse section on the line 6.6. of Fig. 2 and Fig. 7 is a vertical section on the arc 7.7. looking toward the center of the arc. The same reference numerals designate the same parts in all the views.

The instrument comprises a holding member 7 and a cutter member 8. The member 8 has a boss 9. The member 7 has a central hole 12 accommodating the boss 9 and the head of the screw 10. The screw 10 screws into the boss 9 and holds together the members 7 and 8 in such manner that the member 7 will be oscillative on the boss 9.

There is a central longitudinal saw-cut 13 in the member 8, in which the blade 14 is stationary. A similar longitudinal saw-cut 15 in the member 7, in the same plane with the blade, admits of free entry and free retraction of the blade and also guides inward and outward movement of the blade.

Screws 16 detachably connect the blade 14 with the member 8. In case the blade becomes broken or disabled, the screws may be retracted, the broken or damaged blade may be withdrawn from the slit 13, and another blade may be inserted and the screws may then be tightened to secure the inserted blade in place.

Adjacent to one end of the member 8 is a crimper notch 17; spiral crimpers 18 are preferably integral with the wall of the notch. A similar notch 19 in the member 7 has a spiral crimper 20.

The notches 17 and 19 are complemental to each other and coöperate to hold the cap therein when the instrument is closed as shown in Fig. 1; and the crimpers 18 and 20 serve to crimp the cap on the fuse to make a water tight union of the cap with the fuse.

In the member 7 is an elongated sloping notch 21 in such relation to the blade that when the instrument is partly open, as indicated by dotted lines in Fig. 2 the fuse may slide from the forward end of the instrument into the notch without striking the blade. Prior to my invention the practice has been to insert the end of the fuse in a suitably placed transverse hole in the holding member and catch the end and pull the fuse until the right length for cutting has been pulled through the hole, and then cut the fuse. My improved construction obviates the necessity for inserting the fuse in a hole, catching the end of the fuse and pulling the fuse through the hole.

A longitudinal bore 22 in the member 7 receives the cut fuse and holds it so that upon closing the instrument the blade 14 will split that part of the fuse which is in the bore.

The member 7 has a handle 23 and the member 8 has a handle 24. Studs 25 on the respective handles support a spring 26 which acts to move the handles away from each other and the spring normally keeps

the members 7 and 8 in the relation to each other shown by dotted lines in Fig. 2, in readiness for immediate placing of the fuse in the sloping notch 21.

In the member 7 is a screw-threaded hole 28 in which a stud screw 29 engages. In the member 8 is an arcuate channel 30 which is traversed by the stud of the screw 29 during the opening or closing of the instrument. The channel is of such length that the stud will strike against the end wall of the channel when the instrument is opened by the spring 26 to the extent indicated by dotted lines in Fig. 2. Upon retracting the screw 29 to withdraw its stud from the channel 30 the instrument may be completely opened as shown by full lines in Fig. 2.

At the free end of the handle 24 is a box-opener 31 useful for opening boxes containing fuse and cartridges, etc., also useful as a screw driver.

At the free end of the handle 23 is a fluted bit 32 used to bore holes in cartridges to receive fulminating caps crimped on the respective cut-off fuse.

Operation.

The box-opener 31 will be used to open the receptacles containing fuse, cartridges, etc.; the instrument being held partly open by the spring 26, a fuse will be inserted between the forward ends of the members 7 and 8 and will be slid along the inner edge of the member 7 until the fuse stops in the sloping notch 21; the handles 23 and 24 will be pressed toward each other to cause the blade 14 to cut off a fuse-section of the desired length; upon discontinuance of the pressure on the handles the spring 26 will act to spread the handles apart from each other to again open the instrument; the fuse-section will be inserted in the bore 22 and the handles will be operated to cause the blade to split that part of the fuse-section which is in the bore; the fuse-section will be withdrawn from the bore and the cap will be placed around the whole end of the fuse-section; the cap will be placed in the notch 19 and the handles will be operated to cause the crimpers 18 and 20 to crimp the cap on the fuse-section; a cartridge will be taken in hand and the bit 32 will be used to bore a hole in the cartridge to receive the cap; and the cap will then be inserted in the bored hole in the cartridge.

If it be desired to sharpen the blade or to remove a defective blade, the screw 29 will be retracted to withdraw its stud from the channel 30 to permit wide opening of the instrument, and when the instrument is fully opened, the blade may be ground, or the defective blade may be detached and another blade substituted.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

Claim.

The combination tool comprising a cutting and splitting member having a handle provided with a terminal box-opener, a jaw having a crimping notch, a longitudinal saw cut, a cutting and splitting blade secured in said saw cut; a holding member having a handle equipped with a terminal fluted bit, a jaw having a forwardly sloping guide notch, a crimping notch complemental to the crimping notch of said cutting and splitting member, a longitudinal bore adapted to receive and hold a cut fuse, a saw-cut extending longitudinally through said bore and adapted to permit free movement of said blade in said last named saw cut; and a pivot connecting said holding member with said cutting and splitting member.

In witness whereof I have hereunto signed my name at Springfield, Illinois, this 29th day of Nov., 1919.

GEORGE K. LARRIMORE.

Witnesses:
W. S. TROXELL,
KATHRYN J. HALLAHAN.