

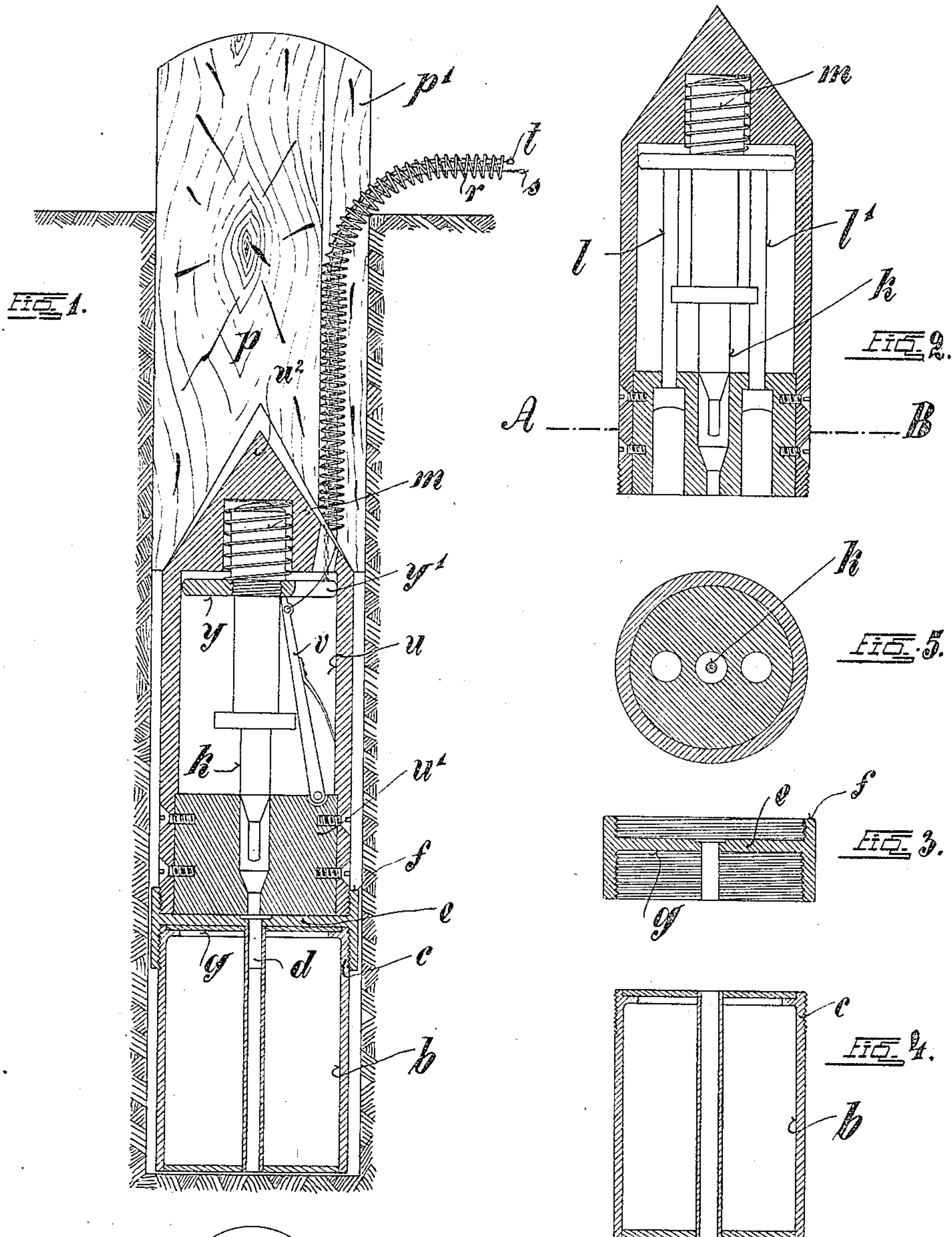
No. 731,499.

PATENTED JUNE 23, 1903.

J. REINELT & J. NOWARRA.
APPARATUS FOR INFLAMING ROCK POWDER.

APPLICATION FILED JULY 21, 1902.

NO MODEL.



WITNESSES:

Harry Adams
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y^1 **FIG. 6.**
y

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UNITED STATES PATENT OFFICE.

JOHANN REINELT, OF ZAWODZIE, NEAR KATTOWITZ, AND JOSEF NOWARRA, OF BORSIGWERK, GERMANY.

APPARATUS FOR INFLAMING ROCK-POWDER.

SPECIFICATION forming part of Letters Patent No. 731,499, dated June 23, 1903.

Application filed July 21, 1902. Serial No. 120,511. (No model.)

To all whom it may concern:

Be it known that we, JOHANN REINELT, molder, of Zawodzie, near Kattowitz, and JOSEF NOWARRA, locksmith, of Borsigwerk, Upper Silesia, Germany, have invented certain new and useful Improvements in Apparatus for Inflaming Rock-Powder, of which the following is a specification.

The accompanying drawings represent the invention.

Figure 1 shows a section through the complete apparatus introduced into a bore. Fig. 2 is a cross-section through the body *u*, showing the arrangement of both pistons on the sides of the striking-bolt. Fig. 3 is a longitudinal section through the bottom *e*, into which are screwed the cartridge below and the apparatus-frame above. Fig. 4 is a longitudinal section through the cartridge with a central tube. Fig. 5 is a cross-section on line A B of Fig. 2. Fig. 6 is a plan of disk *y* screwed upon the striking-bolt.

The cartridge *b*, which always may be kept in reserve, is screwed into the under part *c* of the box *e*, and then the percussion-cap *d* is guided into the center of the disk *g*. Into the upper thread *f* of the box *e* the cylindrical casing *u* is screwed, in which the needle *k* has its place. The frame *u* has a thick bottom *u'*, in whose center is guided the striking-bolt *k*. The head *u²* of the frame *u'* is conical and has the spiral spring *m*, which surrounds the upper part of the striking-bolt. In the bottom *u'* are, besides the central bore for the striking-bolt *k*, two other side bores, in which are guided the rods *l l'*. The heads of these rods are shaped like pistons, which by the explosive pressure are shifted in the bores of the bottom *u'*. Hereby they lift the plate *y*, which supports the striking-bolt *k*, and strain spring *m*. The plate *y*, and therewith the striking-bolt *k*, are stayed in their highest position by lever *v*, actuated by a spring. To the cone *u²* is joined a spiral spring *r*, through which a thin wire *s* and a

chain *t* are conducted. At their ends *s* and *t* are provided with hooks or other adapted elements to which a lace can be fixed.

After the apparatus has been introduced into the bore the latter is closed by a wood plug *p*, whose under part possesses a cone-shaped excavation. The top *u²* penetrates from below into the part *p* and cleaves same. The cone *p* is provided with a lateral groove *p'*, through which the spiral *r*, with the chain *t* and the wire *s*, are conducted. When the whole apparatus is in the bore and the needle *k* is kept by the lever *v* in the firing position, (represented in Fig. 1,) it is only necessary to draw the wire *s*. Then the lever *v* is drawn back, and it sets free the plate *y* by means of the cut *y'*. The spring *m* drives the needle against the percussion-cap and explodes the cartridge. The explosion does not injure the apparatus, but forces up the pistons in the base *u'* and returns the firing-pin to its normal position. In case the percussion-cap misses fire the firing-pin may be raised by means of the chain *t*, acting through the plate *y*, which may be operated from a safe distance.

Having now particularly described the nature of our said invention and in what manner the same is to be performed, what we claim is—

1. In an apparatus of the class described, the combination with the cartridge of a casing secured thereto, a firing-pin within said casing, a spring for actuating the same, a plate secured to said pin, pistons carried by said plate and adapted to be actuated by the explosion of the cartridge and means for retaining the firing-pin in its raised position, substantially as described.

2. In an apparatus of the class described, the combination with the cartridge of a casing secured thereto, a firing-pin within said casing, and spring for actuating the same, a plate secured to said pin and means secured to said plate and extending without the cas-

ing for raising the same to its normal position, substantially as described.

3. In an apparatus of the class described, the combination with the cartridge of a casing having a conical head and thick base, parallel openings extending through said base, a firing-pin moving in one of said openings, a plate carried by said firing-pin, pistons moving in the other openings and secured at their upper ends to said plate and adapted to be

operated by the explosion of the cartridge, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

JOHANN REINELT.
JOSEF NOWARRA.

Witnesses:

RUDOLF FLIESS,
FRITZ THIEL.