

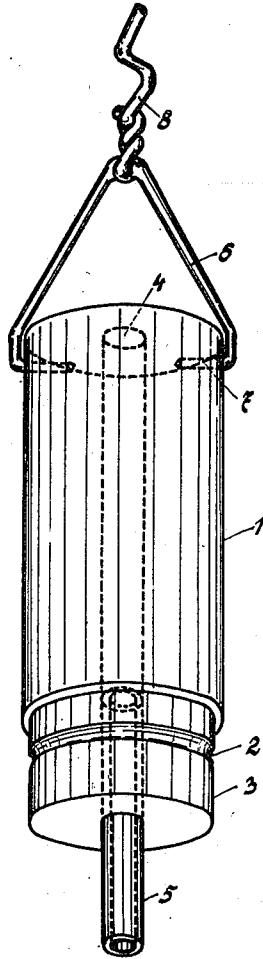
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E. KAROLLUS

SAFETY DEVICE FOR EXPLOSIVE CARTRIDGES

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Inventor  
Edmund Karollus.  
per *Korrollus*  
Attorney.

# UNITED STATES PATENT OFFICE.

EDMUND KAROLLUS, OF VIENNA, AUSTRIA.

## SAFETY DEVICE FOR EXPLOSIVE CARTRIDGES.

Application filed September 17, 1924, Serial No. 738,240, and in Austria September 28, 1923.

This invention relates to a safety device for explosive or blasting cartridges, particularly for use in mines, pits or the like, and has for its object to positively prevent the danger of an unintended explosion if the cap is removed from the cartridge or the latter from the bore-hole, in case the blasting charge has failed to explode.

According to the present invention the safety device comprises a plug or pin provided with a draw- or pull-wire or the like and with a hole for the passage of the igniter, preferably of such a cross section as to hold the detonating cap by friction, and a cap secured to the plug or pin, so that on pulling the wire the plug and thus also the cap are pulled out of the bore-hole, thereby pushing in front of it the tamping or stemming. In this manner it is possible to remove the cap from the cartridge in the bore-hole or even the cartridge itself without the danger of an explosion, as the cap and also the cartridge are held by the plug.

As also the tamping is removed to the extent of the cross-sectional area of the plug when pulling-out the latter it is possible to introduce, if desired, a fresh cartridge into the bore-hole and to repeat the shot.

With the above objects in view the invention consists of certain novel details of construction and combination of parts hereinafter fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claims.

One mode of carrying out the present invention is illustrated by way of example on the accompanying drawing.

1 designates a plug or pin of any suitable material, for instance wood, the lower end 3 of which is reduced or of a smaller diameter, so that the wrapper or casing of the explosive cartridge may be pushed over the reduced end of the plug and secured thereto by means of a string or the like which rests in a groove 2 provided in the said reduced end 3.

The plug is furnished with a centrally disposed bore 4, in which a cap 5 is secured with a tight fit. A wire-hook 6, for removing the entire device from the bore-hole, is attached to the plug 1 by means of its inwardly bent ends 7, and a long wire 8 is tied to the said wire-hook 6. The ignition wire or fuse is connected to the cap in any convenient and known manner and passes through the bore

4 and out of the bore-hole into the open. In order to secure the ignition wire or fuse in the proper position the same may be wound around the wire-hook 6.

For non-dangerous explosives the safety device is employed in such a manner, that the upper end of the cartridge-casing is pushed over the reduced end 3 of the plug and is secured thereto by a string or the like which is embedded in the groove 2. On pulling the wire 8 the cartridge and at the same time also the cap are pulled out of the bore-hole. In blasting cartridges which easily explode when subjected to friction, such as dynamite-cartridges in a frozen condition, the cartridge-casing is not fixed to the plug, and when pulling the wire 8 the cap is pulled out of the cartridge, while the latter remains in the bore-hole and may be exploded for instance by a cartridge pushed over the same.

I claim:—

1. A safety device for explosive cartridges comprising in combination a detonating cap, a plug provided with a longitudinally extending hole of such a cross section as to receive and hold the detonating cap by friction, and a pulling member attached to the plug.

2. A safety device for explosive cartridges comprising in combination a detonating cap, a plug provided with a longitudinally extending hole of such a cross-section as to receive and hold the detonating cap by friction, the detonating cap partly extending into the hole of the plug and secured therein with a tight fit and a pulling member attached to the plug so that on pulling the member the plug and also the detonating cap may be pulled out of the bore hole.

3. A safety device for explosive cartridges comprising in combination a detonating cap, a plug provided with a longitudinally extending hole of such a cross-section as to receive and hold the detonating cap by friction, a hook secured to the plug, a pulling member attached to the hook, the detonating cap partly extending into the hole of the plug and secured therein with a tight fit, so that on pulling the member the plug and also the detonating cap may be pulled out of the bore-hole.

4. A safety device for explosive cartridges, comprising in combination a plug provided with a reduced end for the attachment of the cartridge and with a longitu-

dinally extending hole, a pulling member attached to the plug, and a cap secured to the plug, so that on pulling the member the plug and also the cap may be pulled out  
5 of the bore-hole.

5. A safety device for explosive cartridges, comprising in combination a plug provided with a longitudinally extending hole and with a reduced end over which the  
10 cartridge-casing may be pushed, a groove provided on the said reduced end, a pulling member attached to the plug, and a cap secured to the said reduced end.

6. A safety device for explosive cartridges, comprising in combination a plug  
15 provided with a longitudinally extending hole and with a reduced end over which the cartridge-casing may be pushed, a hook secured to the plug, a pulling member attached to the hook, a groove provided on the  
20 said reduced end, and a cap secured to the said reduced end.

In testimony whereof I have signed my name to this specification.

EDMUND KAROLLUS.