

C. A. SCHADE-ERLANDSEN.
 SIGNALING CARTRIDGE.
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1,018,632.

Patented Feb. 27, 1912.

Fig. 1.

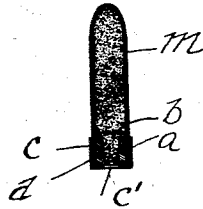


Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



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SIGNALING-CARTRIDGE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CARSTEN ALBERT SCHADE-ERLANDSEN, subject of the King of Sweden, residing at Eskilstuna, Sweden, have invented new and useful Improvements in Signaling-Cartridges, of which the following is a specification.

This invention relates to an improvement in signaling cartridges comprising a cartridge case of the usual form with inserted percussion cap and a suitably proportioned charge of powder and also a rocket composition provided with a metal casing and resembling externally the projectile adapted for the particular fire arm.

In the signaling cartridges hitherto in use, a short prime match was provided in order to prevent the rocket projectile from failing to act, whereas in the present improvement, the arrangement as shown in Figure 1 of the accompanying drawing has been provided for insuring the ignition.

In the drawing: Fig. 1 is a longitudinal vertical section of a signaling cartridge case adapted for insertion into a cartridge shell. Fig. 2 is a view in elevation of a cartridge with the device of my invention attached thereto. Figs. 3 and 4 are like views provided with grooves to distinguish them as different colored projectiles. Fig. 5 is a view in elevation of the device of my invention attached to a small sized cartridge.

In the rear end of the open projectile casing *m* is inserted a lead tube *a* having a slightly tapered channel or bore, having its smaller end opening rearwardly, which is pressed full with black powder or a suitable composition *d*, a small layer *b* of powder or composition being pressed on to the front end of said tube. In order to secure this lead tube with the internally pressed black powder or composition *d* at the rear end of the projectile, a sleeve *c* is mounted thereon, which is provided with a corresponding bore *c'* in the bottom for passage of the fire of the driving charge of the cartridge to the priming charge of the signaling projectile. The arrangement of the lead tube *a* with the internally pressed priming charge of black powder or composition *d* for the transmission of the fire from the driving charge of the cartridge to the lighting composition of the projectile has the main advantage of effecting a more reliable ignition than is possible by the quick match. Moreover, the interior of the barrel is pro-

ected from the action of the noxious lighting gases, because the charge in the lead tube is so proportioned that it is only completely burned when the projectile has left the barrel of the fire arm and therefore the lighting composition is only ignited when the projectile has flown for a distance of about 100 meters. The lead tube *a* affords a further advantage in that it imparts to the signaling projectile a greater weight, so that it can overcome the air resistance more easily and attain a greater height. Moreover, as the lead tube *a* constitutes a rigid abutment, it is possible for the projectile to be firmly clamped within the cartridge case by means of center marks or other depressions, without loosening the priming or lighting composition. The ammunition thus gains in transporting capacity and no damage can occur when the cartridges are properly handled. Finally, it is possible to use smokeless powder as driving medium, which may hardly be possible in the case of the projectile construction with quick or priming match. The projectile casing *m* may also be made of any hard or soft material, such as copper, nickel, steel, copper-nickel or any other alloy of metals and eventually also an inflammable alloy. If it is made of tin or of an easily inflammable alloy, it may be burned before it reaches the ground.

The improved signaling cartridge operates in the following manner: The priming charge consisting of black powder or of a suitable composition *d* and pressed into the base of the projectile is ignited by the driving charge of the cartridge and the projectile thrown upward. After it has flown for about 150 meters, the short sleeve *c* with the burned out lead tube *a* drops off and the flame is visible. The projectile rises to a height of about 200 meters and the composition becomes extinguished when the projectile is about 50 meters above the ground so that there can be no fear of fire originating from sparks or flame. The lighting effect is so intensive that the colors can be easily distinguished even at a distance of about 3 kilometers. Moreover, the improved signaling cartridge is preferably made in three types for producing white, red and green light. In order that the cartridges, which give different color signals, may also be easily distinguished in the dark, the cartridges are now preferably pro-

vided with annular transverse grooves, according to Figs. 2, 3 and 4, for example, according to Fig. 2 with one transverse groove for white light, according to Fig. 3 with two transverse grooves for red light and according to Fig. 4 with three transverse grooves for green light. Signaling cartridges with filling may however also be made for producing other colors.

10 As is the case with the known signaling cartridges, these improved cartridges may also be used not only in the infantry gun but they can also be discharged from other small arms, revolvers or pistols. Fig. 5 shows by way of example a small cartridge provided with a lighting projectile for hand fire-arms. The signaling cartridges as well as sharp ammunition may be arranged on loading strips or frames; the same packing as for sharp ammunition may also be employed.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:—

25 1. In combination with a cartridge shell provided with an explosive projectile charge, of a hollow casing in the form of a projectile closed at one end and open at the other end and having its open end inserted into the shell, a plug of heavy material in the open end of said casing provided with a bore opening toward the charge in said shell, the greater portion of the interior of said casing being filled with an ignitable signaling substance and the remainder of the interior and said bore being filled with an explosive for igniting said substance and adapted for ignition by the cartridge charge when the latter is exploded, substantially as and for the purpose set forth.

40 2. In combination with a cartridge shell

provided with an explosive projectile charge, of a hollow casing in the form of a projectile closed at one end and open at the other end and having its open end inserted into the shell, a plug of heavy material in the open end of said casing provided with a bore opening toward the charge in said shell, a cap secured to the open end of said shell, covering said plug and provided with an opening therein, the greater portion of the interior of said casing being filled with an ignitable signaling substance and the remainder of the interior and said bore being filled with an explosive for igniting said substance and adapted for ignition by the cartridge charge through said opening in the cap, substantially as and for the purpose set forth.

3. In combination with a cartridge shell provided with an explosive projectile charge, of a hollow casing in the form of a projectile closed at one end and open at the other end and having its open end inserted into the shell, a plug of heavy material in the open end of said casing provided with a bore opening toward the charge in said shell, the greater portion of the interior of said casing being filled with an ignitable signaling substance and the remainder of the interior and said bore being filled with an explosive for igniting said substance and adapted for ignition by the cartridge charge, said hollow casing being made of inflammable material.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARSTEN ALBERT SCHADE-ERLANDSEN.

Witnesses:

SIGURD HASLUM,
JÖRGEN HASLUM.