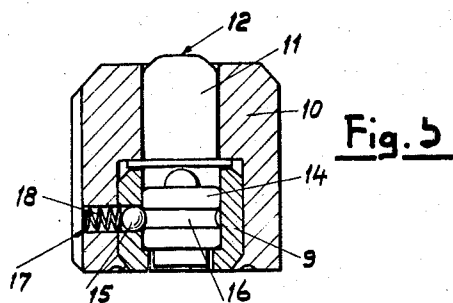
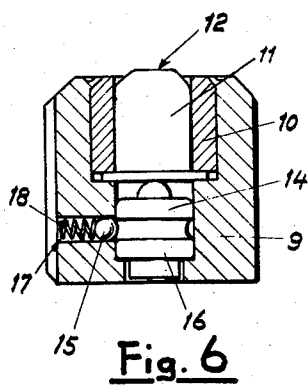
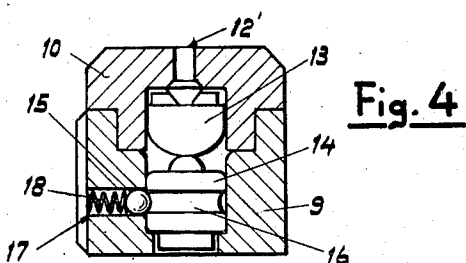
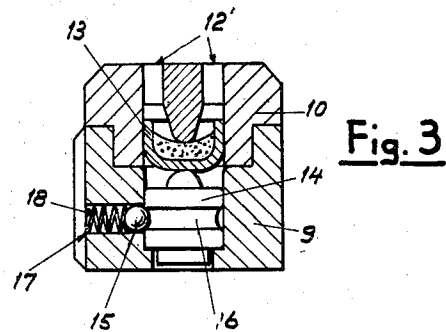
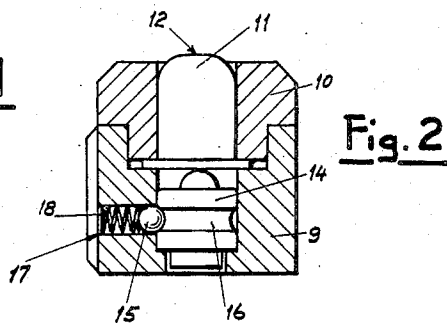
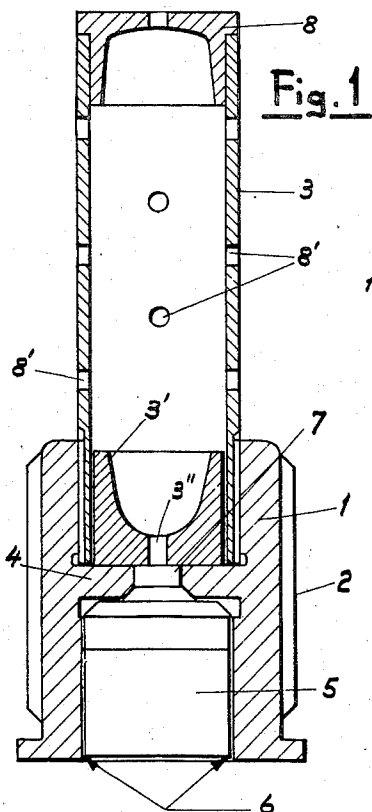


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G. VERGA CASATI
COMBINED PRIMING AND IGNITION TUBE
FOR FIRING ORDNANCE OR EXPLOSIVES
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1

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COMBINED PRIMING AND IGNITION TUBE FOR FIRING ORDNANCE OR EXPLOSIVES

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1 Claim. (Cl. 102—45)

The present invention relates to a combined priming device and ignition tube suitable for the percussion firing of artillery cartridges and any other firing or explosive means such as bombs, mines, fuses and the like.

The said device is characterized by the fact that the primer, which can be inserted by screwing or forcing, if desired in a detachable way, into a primer body connected to an ignition bushing to form the firing tube, comprises at least four elements, i. e. percussion cap, cap holder, striker and head, detachably interconnected.

Thus, in respect to the devices used up to now, in which the component pieces are so interconnected that the firing tube cannot be inserted into the shell or the like unless complete and charged, and therefore, provided with the priming device, the firing tube according to this invention has the advantage of being able to be provided with the priming device after insertion into the shell of the supporting body preferably with the ignition tube already in place, and after the shell has already been charged.

This not only renders safer the operation of inserting the firing tube into the shell or the like, but also the operation of charging and handling the shell, because said operation can be effected in the absence of the priming device, which represents the delicate and dangerous member of the firing tube.

Furthermore, thanks to the particular structure of the priming device, the latter can very well operate with low priced current series priming caps, whilst the firing tubes used up to now require the employment of special priming caps of difficult manufacture, charged with very sensitive explosives.

According to a further feature of the invention a safety device can be combined with the priming device, said safety device being apt to prevent the accidental operation of the priming device in case of shocks or falls thereof, and being preferably constituted by a ball housed within a hole in the head of the priming device in an annular groove of the striker into which said ball is pushed by suitable spring means.

The object of the invention is shown in embodiments thereof illustrated in the annexed drawing, in which:

Fig. 1 is a schematic axial section of a firing tube;

Figs. 2 to 6 are axial sections of modifications of the priming device.

As shown in Fig. 1, the device comprises a support body 1 provided in the represented example with an outside thread 2 for its application by screwing into the shell or the like and an ignition tube 3 which can be fixed to the body 1 also by screwing until it abuts a bored partition 4 integral with or screwed into it. At the side opposite the partition 4, the body 1 has the seat for a priming device 5 which can be fastened in the body 1 by screwing and successive caulking 6 in correspondence to the outer periphery border of the device. The body 1 is preferably made of brass or other suitable metal and the partition 4 has a hole 7 for the passage of the flame generated in the priming cap at the moment of the explosion produced

2

in the ignition tube 3, in which the end looking towards the partition 4 is open and possibly provided with a plug 3' with a center hole 3'', said tube being closed at the opposite end, for instance by means of a plug 8. At its peripheral wall said tube 3, which can be made of brass, plastics, impregnated paper or other suitable material, is provided with a series of cross holes 8'.

The priming device indicated as a whole in Figs. 2 to 6, comprises a head 9 and a priming cap holder 10, of which Figs. 2, 3 and 4 show an assembly arrangement with reciprocal fitting of the priming cap holder and of the head 9 and Fig. 5 shows another arrangement with the head inserted in the cap holder, and Fig. 6 represents another arrangement with the cap holder inserted in the head. In the case of Figs. 2, 5, and 6 in which the explosive element is constituted by a priming device 11 the flame comes out through holes 12 at the top of the priming device. In the case of Figs. 3 and 4 in which the explosive element is a cap 13, the flame comes out through holes 12', which are made in the priming cap holder. Inside the head 9 is freely housed the striker 14, the safety device of which consists in a ball 15 partially engaged in an annular groove 16 of said striker and housed in a hole 17 of the head 9, within which is also arranged a spring 18 tending to keep the ball 15 in said groove.

The priming device is made water proof by means of varnishing at the flame hole end. The connection between the striker 14 and the head 9 is sealed with a slightly adhesive, water repellent and inalterable time and climate proof material.

It is clear that the constructional particulars of the combined priming device and ignition tube can vary from those shown in the drawing and above described, without departing from the scope of the invention. Thus, for instance, the support body 1 could be made at the outside so as to be applied by a forcing fit instead than by screwing into the shell or the like, and could be integral with the ignition tube, or the latter could be fixed therein as well as the priming device, by means of a force fit. At the right side of Figs. 2 to 6, the priming device is shown as made for this force fit system of mounting.

At any rate, no matter how its constructional particulars may vary, the combined priming device and ignition tube of the invention distinguishes itself by a simple construction that makes easy the manufacture thereof and by the following essential advantages that can be achieved by its use:

A surely centered quick and efficacious percussion, thanks to the auxiliary striker;

Possibility of adjusting at will, by a suitable choice of the spring means acting upon the striker, the sensitivity and safety of the percussion;

Possibility of substituting the priming device without removing the body of the firing tube from the shell, when necessary;

Full safety against accidents during the insertion of the firing tube into the shell or the like, thanks to the above mentioned possibility of effecting the insertion in two steps, i. e. of applying the priming device when the body and the ignition tube are already in place;

Full safety during the handling of the priming device which forms an autonomous group.

Possibility of utilizing in the priming device a common percussion cap, for instance of the Boxer or Berdan type, or other primer of a simple and safe design and low cost.

What I claim is:

A primer percussion device for a cartridge comprising a cylindrical support body, said support body defining first and second cylindrical receptacles, a partition in said support body separating the receptacles and provided with an aperture connecting the receptacles, an ignition tube detachably positioned in said first receptacle, a plug in

said ignition tube adjacent said support body and having an aperture in registration with the aperture in said support body, a plug in said ignition tube spaced from said support body, a priming cap holder supporting a priming cap, a striker for contacting said priming cap, and a head for positioning said striker adjacent said priming cap; said priming cap, priming cap holder, striker and head constituting a unit detachably positioned in said second receptacle; said priming cap holder and head being the members of a cylindrical sub-assembly of said unit, one of the members engaging said support body and supporting the other member.

5

10

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