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A. J. GRANDY ET AL
REMOTE CONTROL DEVICE

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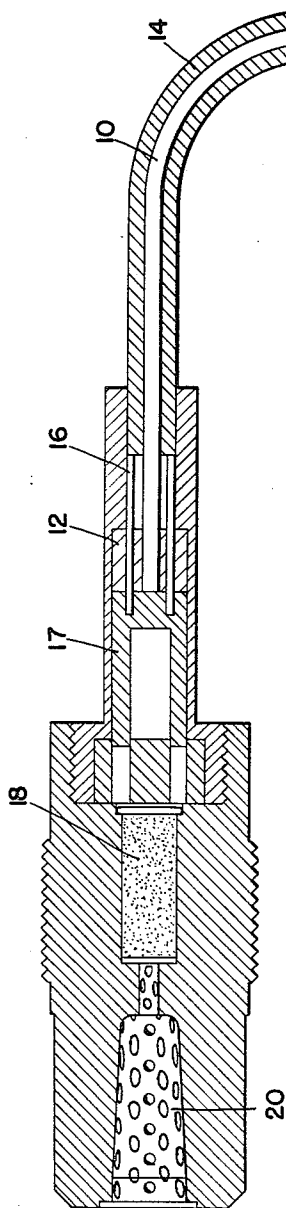


FIG. 5.

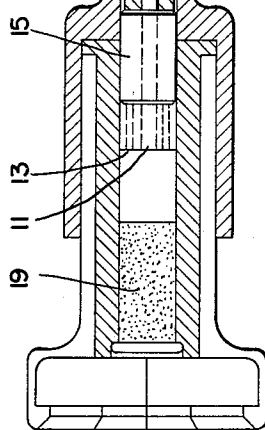
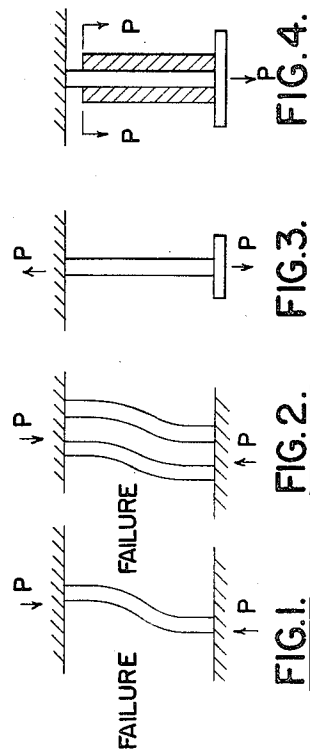


FIG. 6.



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REMOTE CONTROL DEVICE

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2 Claims. (Cl. 89—27)

(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to use of any royalty thereon.

This invention relates to devices such as are controllable from a remote point to trigger a gun, and has for its principal object the provision of an improved gun triggering device which is of simple construction and is operable in response to the gas generated by the firing of a small explosive charge.

In its preferred form, the invention utilizes the shield of an armored cable to transmit the force by which the gun is triggered. This is different from normal usage in accordance with which the inner member transmits force while the shield is maintained stationary. As hereinafter explained in connection with certain figures of the drawing, this change is no mere reversal of parts but results in an entirely new functional relation which makes it possible to transmit a much larger force through the cable.

The invention will be better understood from the following description when considered in connection with the accompanying drawings and its scope is indicated by the appended claims.

Referring to the drawings:

Figs. 1 to 4 are explanatory diagrams illustrating how the herein disclosed use of the armored cable differs from the prior art.

Fig. 5 depicts a preferred form of the invention, and Fig. 6 illustrates a modification.

Fig. 1 indicates how a piece of material, such as the inner member of an armored cable, buckles when subjected to a compressive force. With this member inside the shield as indicated by Fig. 2, the same thing happens because the shield affords little or no support in the plane of the failure of the inner member.

With the inner member subjected to a tensile force as

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indicated in Fig. 3, however, there can be no failure by buckling. This is also true with the sheath around the inner member as indicated in Fig. 4. In this case, the inner member is in tension, and the sheath will carry a relatively large compressive force without failure by buckling.

Thus with the inner member in compression and the sheath in tension, the armored cable is a relatively poor force transmitter because (1) the length to diameter ratio of the inner member is large and (2) the flexible wind of the sheathing is unreliable in tension. With the inner member in tension and the sheath in compression, however, the sheath is supported by the inner member so that a much greater force can be transmitted through it.

Advantage is taken of this arrangement in the cartridge actuated remote control triggering device of Fig. 5. This device includes a cable having an inner member 10 which is fixed at one end to a plug 11 and at the other end to a plug 12. Extending through the plug 11 are openings 13. The sheath 14 of the cable is fixed at one end to a piston 15 and at the other end to pins 16 which are movable through plug 12 and are fixed to a firing pin 17 arranged to detonate a cartridge 18.

Operation of the device is initiated by the firing of a cartridge 19. The resulting gas pressure is applied through openings 13 to the piston 15, thus tensioning the member 10, moving the sheath with respect to this member and firing the cartridge 18. The cartridges 18 and 19 may be cal. .30 primer or .22 cal. blank. They are effective to fire a charge 20 by which the propellant of a projectile is ignited.

While a piston shaped member 17 is shown as interposed between the pins 16 and the cartridge 18, it will be apparent to those skilled in the art that this member may be omitted and a pin 16 arranged for direct contact with the primer of the cartridge 18 as indicated by Fig. 6.

We claim:

1. The combination of a cable having a flexible sheath and an inner member extending therethrough and fixed at its opposite ends, a piston fixed to one end of said sheath, a firing pin fixed to the other end of said sheath, an explosive cartridge, and means for applying to said piston a pressure whereby said sheath and firing pin are moved to fire said cartridge.

2. A combination according to claim 1 wherein said pressure applying means includes means for generating a gas pressure.

No references cited.