PATENT SPECIFICATION

Application Date: April 26, 1924. No. 10,352/24. **236,686**

Complete Accepted: July 16, 1925.

COMPLETE SPECIFICATION.

Improved Method and Means for Transmitting Impulses to a Distance, Specially Applicable for Actuating Gun Triggers.

I, GEORGE CONSTANTINESCO, of "Carmen Sylva," Beechwood Avenue, Oatlands Park, Weybridge, in the County of Surrey, a subject of the King of Great Britain and Ireland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to means for transmitting impulses over short distances and is particularly applicable to synchronising devices where blows have to be struck at a moderate distance from the apparatus by which the impulse is generated at definite intervals of time which may be extremely small. It is particularly applicable to synchronising devices whereby a machine gun, mounted on an aeroplane, is fired at definite intervals variable in accordance with the propeller speed so that the bullets pass between the blades.

The invention comprises a tube of brass or other metal having within it a wire urged by a spring in one direction only and adapted to transmit the impulses by pressure. The space between the wire and the tube is maintained full of a mixture of paraffin and oil or other non-freezing lubricating liquid through a branch in the tube, suitable stuffing boxes being provided at the two ends of the tube so that air is completely excluded.

The invention also consists in utilising in connexion with such apparatus a device for automatically advancing or retarding the blow struck in accordance with the speed as described in my Specification No. 236,657.

Referring to the accompanying drawings:—

Figure 1 shows my invention applied to the device described in my Specification No. 236,657 for synchronising the discharge of a machine gun with an aeroplane propeller. The figure shows a section of this device, but this does not call for special description.

Figure 2 shows the mode by which the trigger of a machine gun is actuated, and the means for introducing lubricant. Part of the device shown in Figure 1 is also shown.

A steel wire d of about $3^{m}/_{m}$ in diameter slides in a stout tube e preferably of brass, which can be bent as desired so as to accommodate it to different positions. The end of the tube is fastened into a connexion g which is secured by a screw cap f to the casing m. The connexion g forms the gland of a stuffing box h. The stuffing box with the assistance of a lubricant excludes air from the tube, as will be described hereinafter. The end of the wire is fastened into a socket c. The lower end of the socket is formed into a bearing for a ball which in the present instance rests on the rotating cam a of the synchronising device, as described in my former specification above mentioned, but any suitable means of conveying motion to the socket may be used. The ball is held in contact with the cam by a spring n. The opposite end of the tube (Figure 2) is fastened into a gland or connexion k similar to g which is secured by a screw cap l to a nozzle o, the nozzle being provided with a stuffing box p similar to h. This nozzle is adjustably screwed into a support q on the gun or other machine which it is desired to actuate, and the support is bored to receive the wire near its end, the wire protruding so as to reach the trigger or sear r. In this arrangement the inertia of the parts operating the trigger is practically limited to that of the wire, and a length of 10 feet or more of wire may be used.

It is found that when a device of this

kind is used at high altitudes, unless the air is excluded, the moisture which enters with it freezes, with the result that the whole gear becomes frozen up or rusted in time. In order to exclude the air as well as to provide for lubrication, a branch *s* is provided at some suitable point of the tube *e* through which branch a mixture of paraffin and oil or some other non-freezing lubricant is introduced from a reservoir *t* at a higher level or from some other source and keeps the clearance space between the wire and the tube and other surrounding parts full of oil, supplying the place of any oil which may drip away at the ends of the wire. Owing to the clearance being slight and on account of the stuffing boxes, this drip is very slow. Air is excluded by this constant supply of oil.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Mechanism for conveying impulses to a distance by pressure on the end of a wire, comprising in combination a wire slidably enclosed in a metal tube, air excluding stuffing boxes at each end of the wire, spring pressed means engaging with the wire at one of its ends only, the other end being free and delivering the impulses, a branch on the metal tube for introducing non-freezing lubricant into the tube, and means for applying pressure to the spring pressed end of the wire, substantially as described.

2. Apparatus as claimed in Claim 1, combined with a device for advancing or retarding the impulses in accordance with the speed of a rotating shaft as described in my Patent Specification No. 236,657.

3. The improved apparatus substantially as described and illustrated in the accompanying drawings.

Dated the 26th day of April, 1924.

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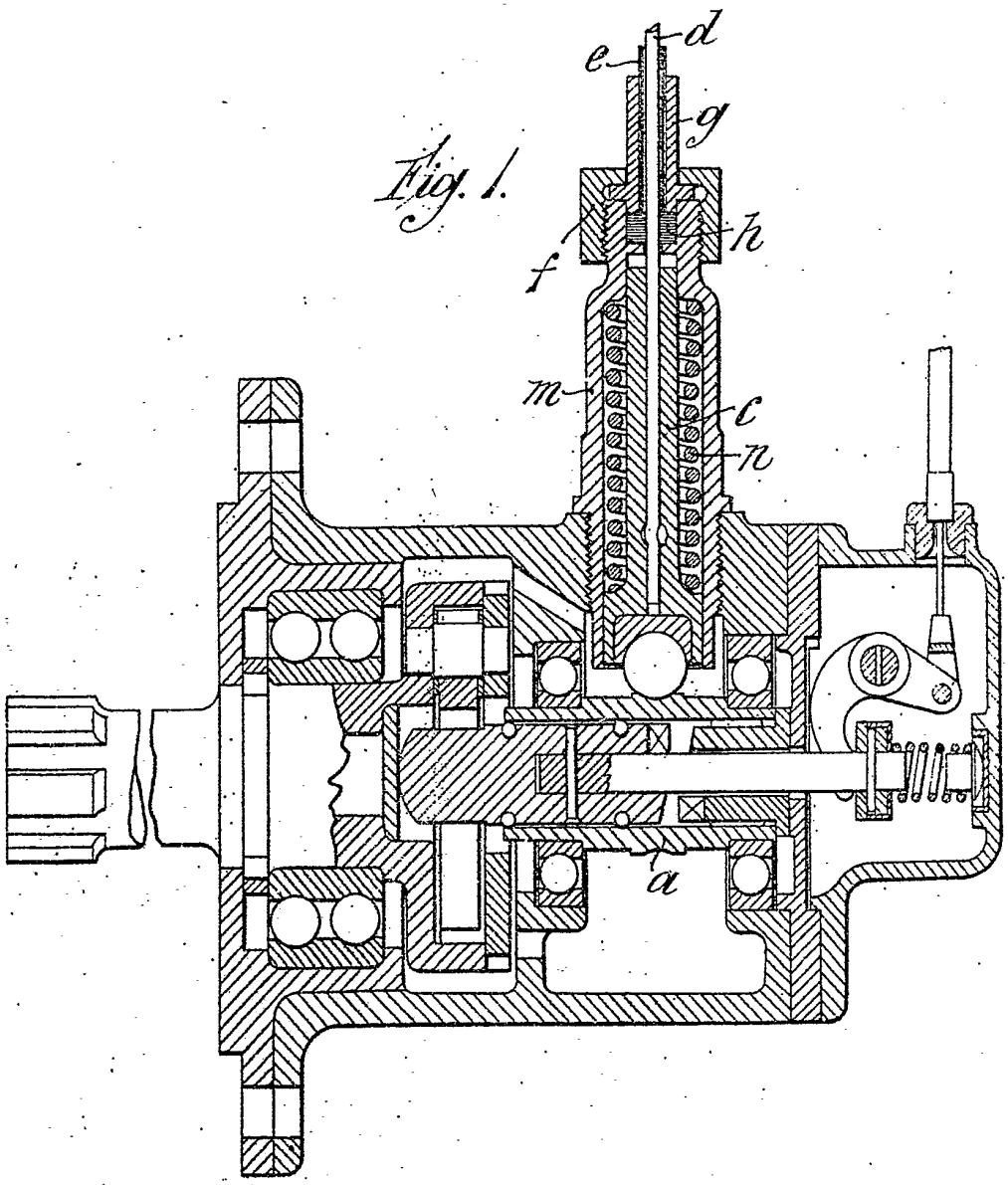
Fig. 1.



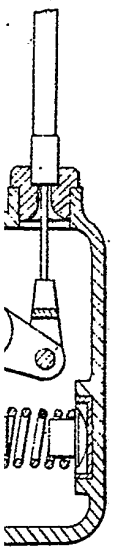
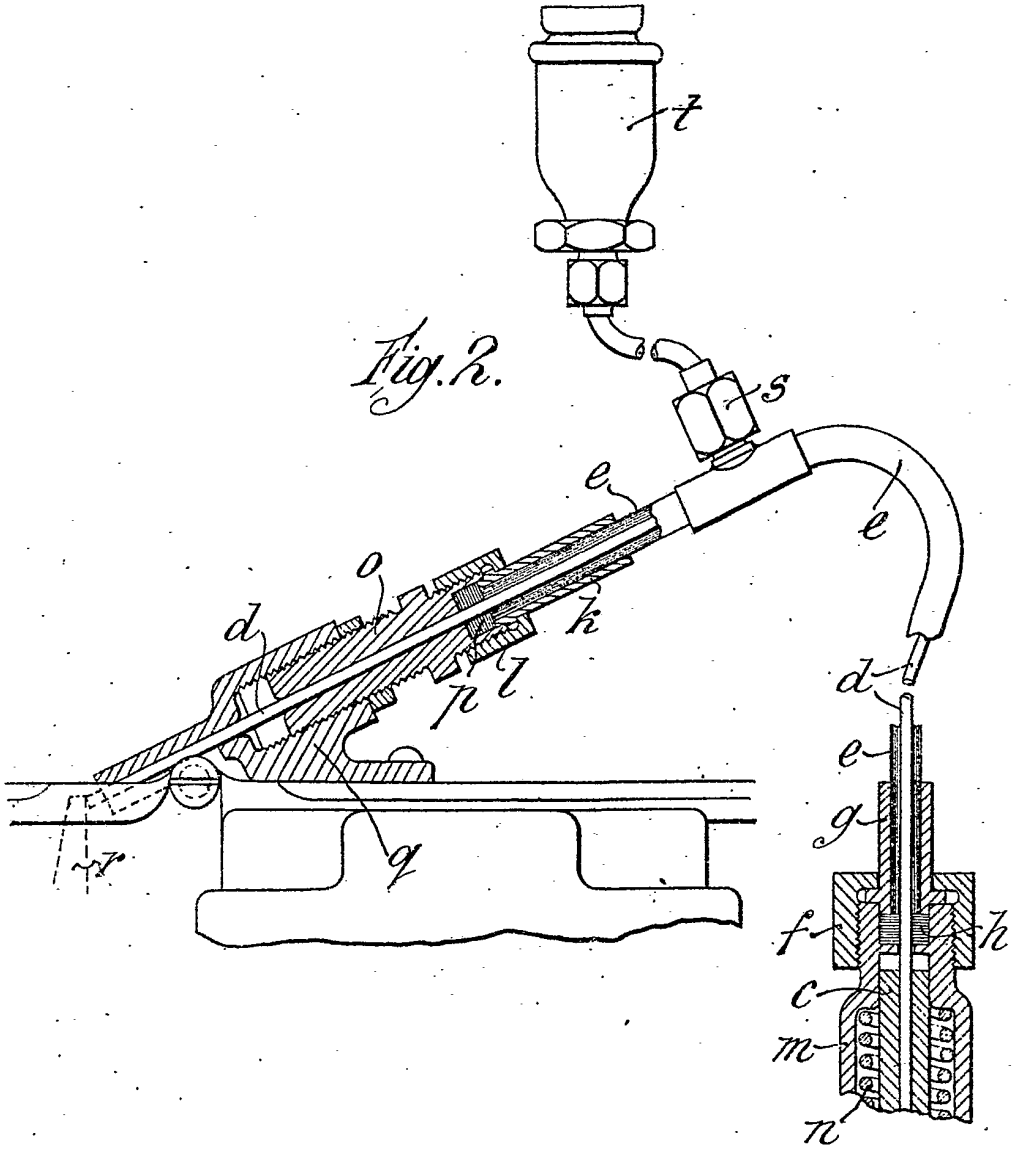


Fig. 2.



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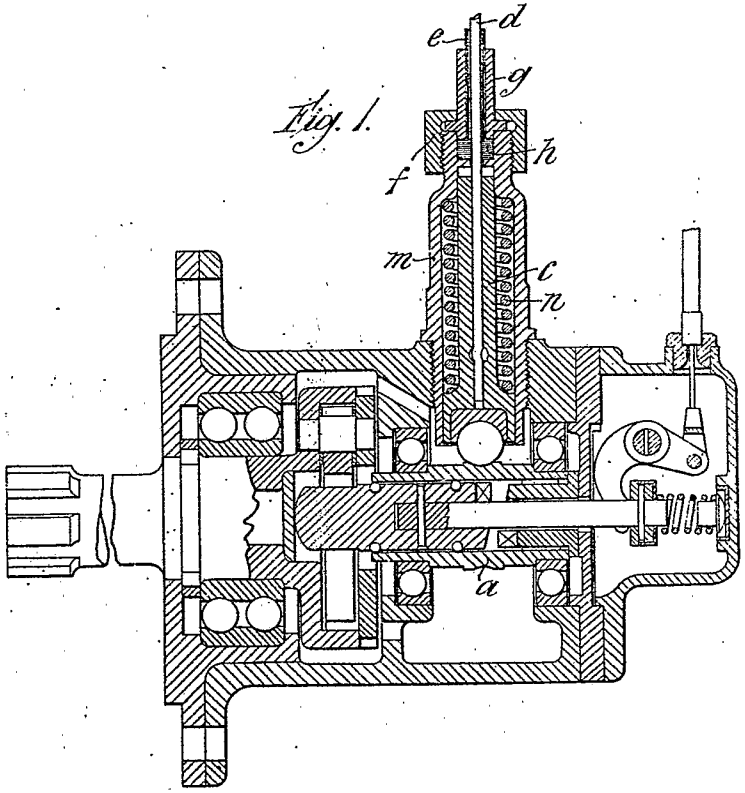
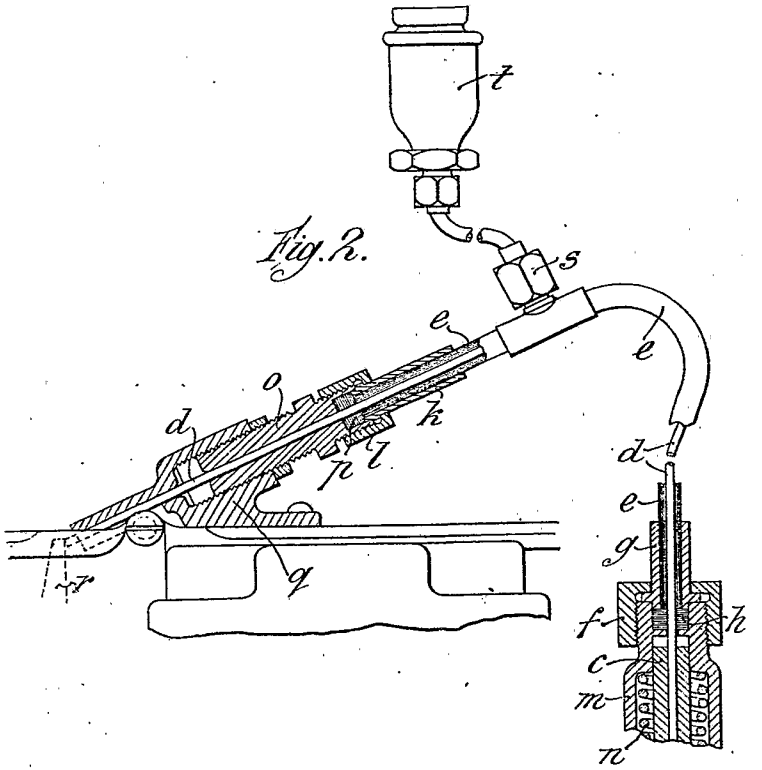
SHEET 1

Fig. 1.



SHEET 2

Fig. 2.



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