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M. E. THOMAS.

ELECTRICAL GUN.

APPLICATION FILED NOV. 1. 1905.

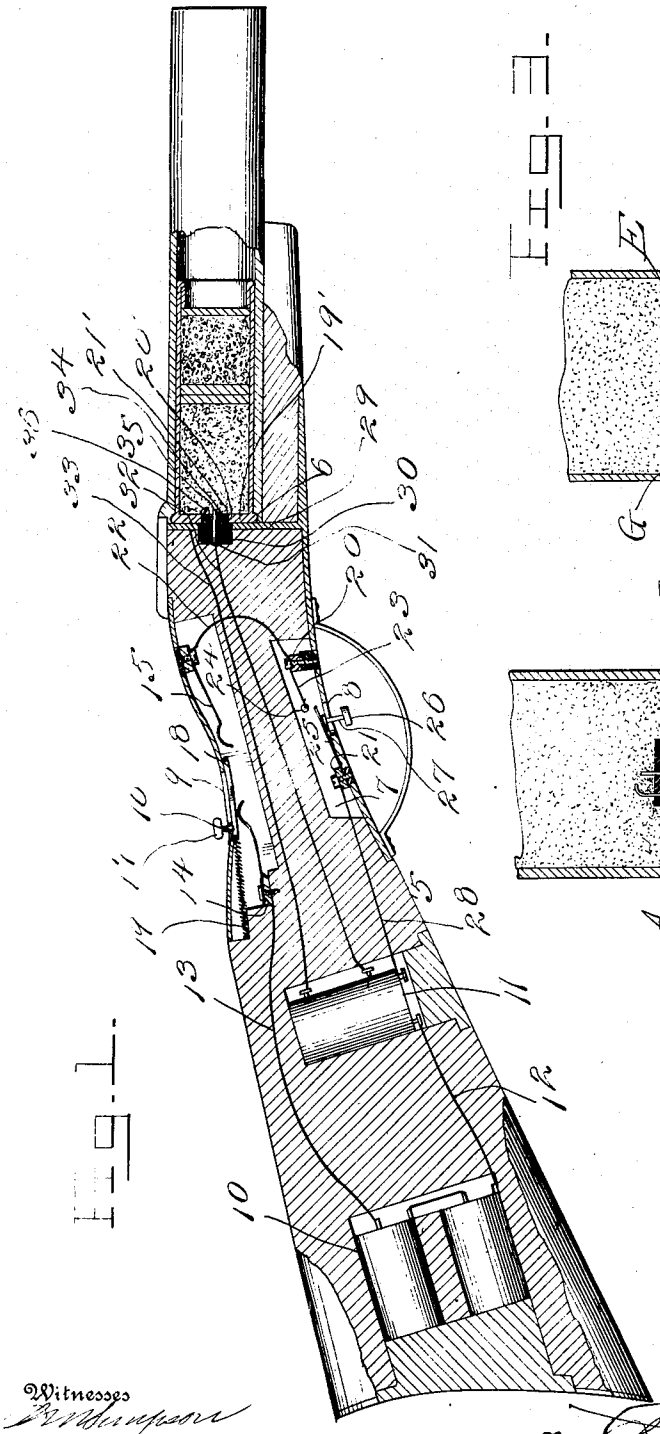


Fig. 1.

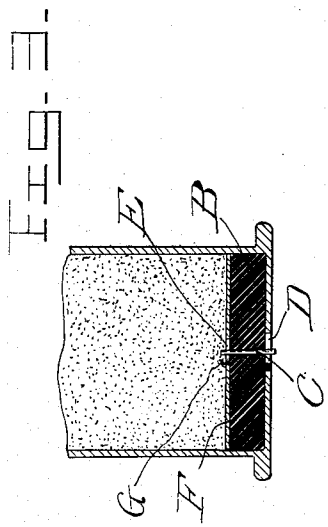


Fig. 3.

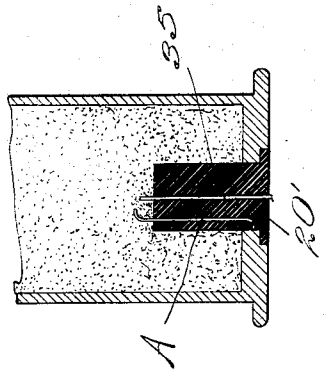


Fig. 2.

Witnesses

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ELECTRICAL GUN.

No. 815,490. Specification of Letters Patent. Patented March 20, 1906.

Application filed November 1, 1905. Serial No. 285,418.

To all whom it may concern:

Be it known that I, MARTIN E. THOMAS, a citizen of the United States, residing at Batavia, in the county of Jefferson, State of Iowa, have invented certain new and useful Improvements in Electrical Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to guns, and more particularly to electrical guns, and has for its object to provide a gun equipped with an electrical apparatus including a novel arrangement of parts constructed to ignite a charge of powder within a gun.

Another object is to provide a gun equipped with a safety-stop movable to lie at times in position to prevent premature discharge of a gun.

Other objects and advantages will be apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a longitudinal section of the gun. Figs. 2 and 3 show different forms of the cartridges adapted for use in the gun.

Referring now to the drawings, there is shown the stock 5 and breech 6 of a gun, the former having a chamber 7 therein and a passage 8 communicating with the chamber and corresponding to the usual trigger-opening, this passage being located at the under side of the stock. In the upper portion of the stock there is a longitudinally-extending slot 9, lying somewhat rearwardly of the vertical plane of the passage 8, as shown.

Located within the stock there is a battery 10, including one or more cells, and adjacent to this battery there is disposed within the stock an induction-coil 11, which is connected with the battery by one wire of a primary circuit 12. The other wire 13 of the primary circuit extends from the battery to a spring-plate 14, secured within the stock, this plate extending longitudinally of the stock and lying with its free end adjacent to the slot 9. A second spring-plate 15 is secured within the stock forwardly of the slot 9 and extends rearwardly thereover, and slidably engaged in this slot there is the shank 16 of a thumb-button 17, which lies exteriorly of the stock, the inner end of this shank carrying a metallic plate 18 of a length to lie at times in engagement with the free end portions of both the spring-plates 14 and 15.

A helical spring 19 is secured to the rearward end of the plate 18 and to the stock and holds this plate yieldably at the rearward limit of its movement and out of engagement with the plate 15, though it will be seen that the plate 18 may be moved forwardly by pressing upon the thumb-piece 17 to establish electrical connections between the plates 14 and 15.

Secured within the lower portion of the stock forwardly and rearwardly of the passage 8 are blocks 20 and 21, respectively, the former being connected with the spring-plate 15 by means of a wire 22, and extending rearwardly from this block 20 there is a finger 23, having a spherical rearward end 24.

A spring-plate 25 is secured to the block 21 and extends forwardly over the passage 8, the free end of this plate lying normally beneath and in spaced relation to the end 24 of the finger 23. A finger-button 26 has its stem 27 engaged in the passage 8 and may be pressed upwardly to engage the plate 25 and move the latter initially into engagement with the rearward end of the finger 23 and then beyond this finger, thus making and breaking contact therewith, and the block 21 is connected, by means of a wire 28, with the induction-coil 11, the blocks 20 and 21 being electric conductors, as will be readily understood.

In the breech-block 29 of the gun there is a piece of insulating material 30, having a contact-piece 31 therein, to which there is electrically connected a wire 32, which is also connected with the induction-coil 11, and thus forms a portion of the secondary circuit. The contact-piece 31 extends to the outer face of the insulator 30, and grounded in the metallic breech-block 29 there is a wire 33, which is also connected with the induction-coil and forms the other portion of the secondary circuit.

A cartridge of peculiar construction is used in connection with the present gun; and it consists of a metallic heel-piece 19′, having an opening 20′ therein communicating with the interior of the shell and corresponding to the usual cap-opening. Frictionally engaged in this opening there is a metallic sleeve 21′, within which there is tightly disposed an insulating-core 34, having a central electrode

35 extending through the inner and outer ends of the core and in position to rest against the contact-piece 31 when the cartridge is in the barrel of the gun.

A finger 36 is carried by the sleeve 21′ and extends inwardly toward the electrode 35, thus forming a second electrode, and in view of the fact that this seleeve 21′ lies in engagement with the metallic heel-piece 19′ and the latter in engagement with the metallic breech-block 29, making and breaking of the circuit through the medium of the elements 24 and 25, contact between the plates 15 and 18 having been established, will cause a spark to occur between the electrodes and ignite the powder or other explosive with which it will be understood the shell is charged.

It will be understood that in use when the gun is to be fired the thumb of the user is pressed against the thumb-piece 17 to move the plate 18 forwardly and into contact with the plate 15, after which the button 26 is pressed upwardly with the forefinger to make and break the circuit as mentioned above. It will be seen that a wiping contact is formed in both instances and cleanness of the contacting surfaces is thus insured.

In Fig. 2 there is shown a different form of the invention, in which a second electrode A is embedded in the insulating-core 20′ adjacent to the central electrode 35, its rearward end being turned outwardly to rest against the heel-piece of the cartridge, while its inner end is turned in the direction of the inner end of the central electrode.

In Fig. 3 there is shown a form of shell in which an insulating-disk B is disposed within the shell and has a central electrode C, which extends outwardly through an opening D in the heel-piece for contact with the contact-piece 31, the inner end of the electrode extending through a central opening E, formed in a metallic plate F, disposed against the disk B at the inner side thereof and resting at its outer periphery against the heel-piece. A finger G extends inwardly from the disk F toward the electrode C, the spark arcing between the finger and the electrode. It will be understood that the stock of the gun is formed of suitable insulating material to prevent the passage of the current from any of the conductors attached to the stock to the breech-block 29.

What is claimed is—

1. In a gun, the combination with a stock having a chamber therewithin and having a longitudinal slot in its upper portion communicating with the chamber, of contact-plates disposed at opposite ends of the slot, a plate slidably mounted for movement into and out of position to contact with both of the first-named plates simultaneously, a shank secured to the slidable plate and extending outwardly through the slot, means for holding the sliding plate yieldably out of operative position, a make-and-break, electrical connections between one of the stationary plates and a member of the make-and-break, a battery, electrical connections between said battery and the other of the stationary plates, an induction-coil carried by the stock, electrical connections between said coil and the battery, electrical connections between said coil and the other member of the make-and-break, means for operating the make-and-break, a metallic breech-block for the gun, an insulating-body in the breech-block, a contact-piece in the insulating-body and extending through the forward face of the breech-block, electrical connections between the contact-piece and the induction-coil, and electrical connections between the breech-block and the induction-coil.

2. In a gun, the combination with a stock having a chamber therewithin and having a longitudinal slot in its upper portion communicating with the chamber, of contact-plates disposed at opposite ends of the slot, a plate slidably mounted for movement into and out of position to contact with both of the first-named plates simultaneously, a shank secured to the slidable plate and extending outwardly through the slot, means for holding the sliding plate yieldably out of operative position, a make-and-break, electrical connections between one of the stationary plates and a member of the make-and-break, a battery, electrical connections between said battery and the other of the stationary plates, an induction-coil carried by the stock, electrical connections between said coil and the battery, electrical connections between said coil and the other member of the make-and-break, means for operating the make-and-break, a metallic breech-block for the gun, an insulating-body in the breech-block, a contact-piece in the insulating-body extending through the forward face of the breech-block, electrical connections between the contact-piece and the induction-coil, electrical connections between the breech-block and the induction-coil, a cartridge disposed against the breech-block, said cartridge including a metallic heel-piece contacting the breech-block, and having a passage formed therethrough communicating with the interior of the shell, an insulating-core in the passage, an electrode in the insulating-core, said electrode contacting the contact-piece and extending into the shell, and a second electrode disposed with one end in the shell and in spaced relation to the first-named electrode, said second electrode being electrically connected with the heel-piece.

In testimony whereof I affix my signature in presence of two witnesses.

MARTIN E. THOMAS.

Witnesses:
J. E. ALFRED,
P. C. KITCHEN.