March 19, 1946. B. H. SMITH 2,396,896

BLANK CARTRIDGE FIRING DEVICE FOR CANNONS, GUNS, ETC

Filed March 16, 1944 2 Sheets-Sheet 1

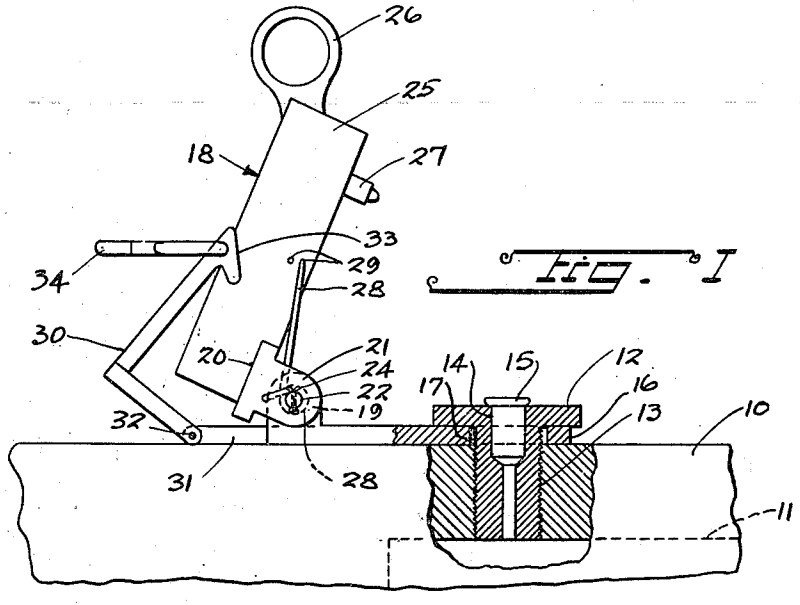


Fig. 1

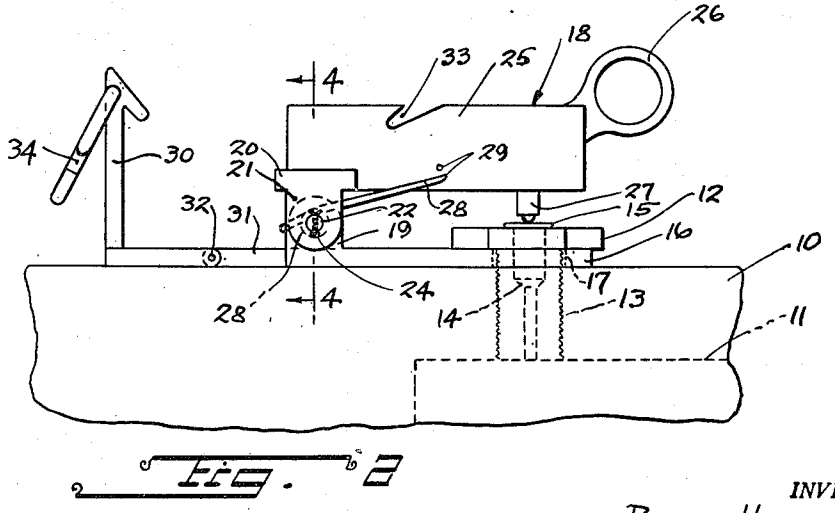


Fig. 2

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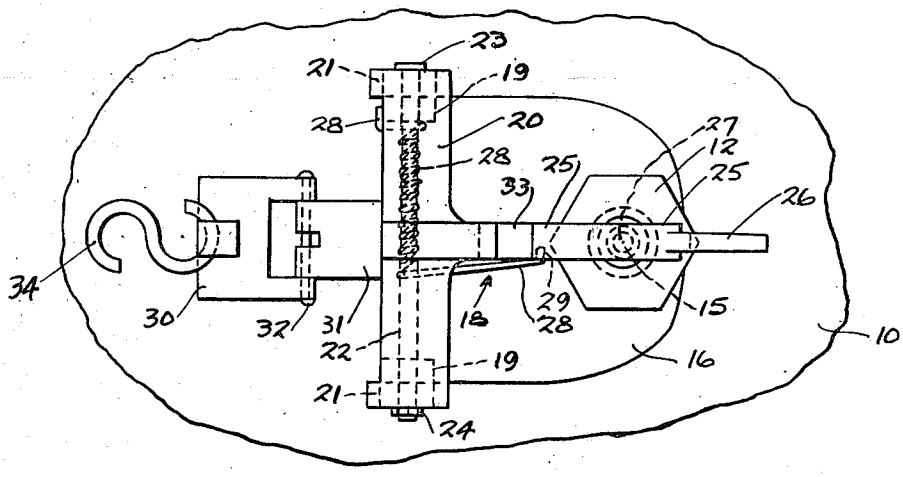


Fig. 3

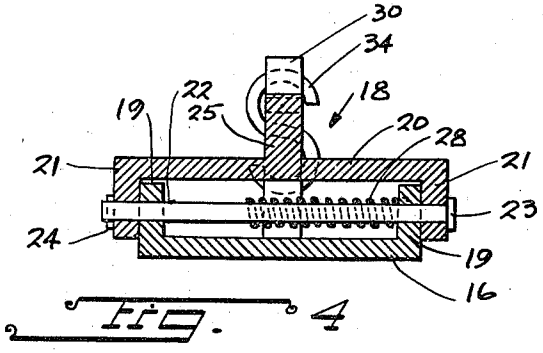


Fig. 4

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UNITED STATES PATENT OFFICE

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BLANK CARTRIDGE FIRING DEVICE FOR CANNONS, GUNS, ETC.

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Application March 16, 1944, Serial No. 526,718

2 Claims. (Cl. 89—27)

This invention relates to new and useful improvements in a blank cartridge firing device for cannons, guns and the like.

More specifically, the invention proposes certain improvements in firing devices adapted to be used in connection with guns in general and particularly with guns used on ships for firing life lines between ships and ship and shore. Heretofore, it has been common practice to use primers for this purpose, but it has been found that these primers are highly unreliable and often require the use of several primers before a primer that will actually fire is found. Primers of this type are generally carried on ships at sea for long periods at a time and the undeterminable effects of unfavorable climatic conditions, and time affect the operation of these primers to the point where it has been found that whole groups of them are rendered useless for their intended purposes. This uselessness is generally not apparent, requiring that the primers be actually used under firing conditions to determine their utility.

It is the object of this invention to construct a firing device which may be mounted upon a cannon or gun for firing purposes, and which employs conventionally constructed blank cartridges for achieving the firing of the explosive charge within the barrel of the gun. Since such cartridges are generally weather-proof in character and do not readily deteriorate, it becomes apparent that these blank cartridges will not be affected by unfavorable climatic conditions and time, and each will fire when employed in this new and improved firing device.

It is proposed to characterize the blank cartridge firing device by a bushing adapted to be threadedly mounted through the side wall of a cannon or gun in alignment with the firing charge thereof. It is proposed to place a blank cartridge within the hollow of the bushing in a manner so that its explosive material when exploded will contact the firing charge and ignite the same.

Still further, it is proposed to provide the bushing with a base member designed to pivotally support a firing pin member carrying a firing pin alignable with the tubular opening of the bushing. A resilient means is arranged between the base and the firing pin member in a novel manner to urge the firing pin member towards the bushing to cause its firing pin to smartly hit the head of the cartridge and explode the same when the firing pin member comes down into position upon the cartridge.

Still another object of the invention proposes the provision of a latch member upon the base for holding the firing pin member in a loaded condition so that when the latch is released the resilient means will be free to urge the firing pin member into its firing position.

Still further, the invention proposes to slidably engage the blank cartridge into the bushing in a manner to cause its explosive repercussion force to eject the exploded cartridge from the bushing. The arrangement is such that the repercussion will throw the firing pin member backwards. Moreover since the resilient means tends to urge said firing pin member forwards into an operative position, if said resilient means should become broken its rearward motion under the influence of the ejected cartridge, will move it to its rearward inoperative position where it will remain and give visible notice that the resilient means has become broken.

It is a further object of this invention to construct a blank cartridge firing device for cannons and guns which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevational view of a portion of a cannon provided with a blank cartridge device constructed in accordance with this invention and shown partly in vertical section to reveal interior constructions.

Fig. 2 is a view similar to Fig. 1 but illustrating a different position of the parts.

Fig. 3 is a plan view of Fig. 2.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2.

The blank cartridge firing device for cannons, guns and the like, according to this invention, is intended to be used in combination with a cannon, gun or similar device 10 which has not been disclosed in detail on the drawings, only a portion of its side wall being shown. The cannon 10 may be of the type generally used on ships at sea for shooting life lines between a ship and a second disabled vessel which is adapted to be used in connection with a breeches buoy for rescuing persons from the disabled ship or said cannon may be of any other type. The cannon

includes an internal bore 11 within which a firing charge is adapted to be engaged. The blank cartridge firing device includes a bushing 12 which is threadedly engaged through the side wall of the cannon or gun 10 in alignment with the firing charge thereof. The bushing 12 is threadedly engaged into an opening 13 formed in the side of the cannon or gun 10. The bushing 12 is formed with an axial passage 14 for receiving and supporting a blank cartridge 15 in a position so that when it is exploded its explosive charge will pass through the passage 14 of the bushing 12 and enter the bore 11 of the cannon 10 and ignite the firing charge.

A base member 16 is formed with an opening 17 through which the bushing 12 extends. Engaging the bushing 12 through the opening 17 of the base member 16 causes the base member to be securely clamped in position upon the barrel of the gun or cannon 10 when the bushing 12 is threadedly engaged into said opening 13.

The base member 16 supports a firing pin member 18 in a novel manner to be used when exploding the cartridge 15. The base member 16 is provided with a pair of spaced upwardly extending lugs 19. The firing pin member 18 is characterized by a yoke portion 20 having a pair of spaced downwardly extending lugs 21. The lugs 21 of the yoke 20 extend downwards along the outside faces of the lugs 19 of the base member 16. A pivot pin 22 is freely extended through aligned openings formed in the overlapped portions of the lugs 19 and 21. One end of the pin 22 is formed with a head 23 and the other end is provided with a cotter pin 24. The head 23 and the cotter pin 24 cooperate to retain the pin 22 against being accidentally displaced from the openings of said overlapped lugs 19 and 21.

The firing pin member 18 further includes a heavy rib 25 which extends from the yoke member 20 and which is provided at its outer end with a handle 26. The handle 26 provides a convenient means by which the firing pin member 18 may be gripped and moved for loading it. This will become clear as the specification proceeds. The outer end of the heavy rib 25 is further formed with a downward extended firing pin 27. This firing pin 27 is located on the rib 25 in an aligned position with the center of the opening in the bushing 12 to strike the head of the cartridge 15.

A resilient means is provided for urging said firing pin member 18 against the blank cartridge 15. This means comprises a coil spring 28 wound around the pivot pin 22. One end of the coil spring 28 is engaged behind one of the lugs 19 of the base member 16. The other end of the spring 28 is projected and is selectively engageable with one of a pair of openings 29 formed in one side of the rib 25 of the firing pin member 18. This end of the spring 28 is engaged with the rib 25 when the spring 28 is under tension so as to be capable of urging the firing pin member 18 towards the cartridge 15 with sufficient force to cause the firing pin 27 to smartly strike the blank cartridge 15. Providing the side of the rib 25 with the pair of openings 29 provides an adjustment for varying the tension of the spring 28, as the end of the spring is moved from one opening to the other.

A latch is provided for holding the firing pin member 18 in an inoperative position as shown in Fig. 1 against the action of the spring 28. This latch comprises a hook member 30 pivotally supported upon the rear portion of the base member 16. The hook member 30 has a yoke portion straddling a rearward extending lug 31 from the base 16. A pin 32 engages through the overlapped portion of the lug 31 and the hook member 30 forming a pivot support of the hook member 30 upon the base 16. The rib portion 25 of the firing pin member 18 is formed with a keeper opening 33 into which the end of the hook member 30 is adapted to be engaged as shown in Fig. 1 for holding the firing pin member 18 in a rearward inoperative position. It should now be understood how the handle 26 provides the convenient grip heretofore referred to, for tilting the firing pin member 18 into its rearward position so that the hook member 30 may be engaged with the keeper opening 33.

The hook member 30 of the latch is provided with a rearward extending S-shaped link 34 to which a length of rope (not shown on the drawings) may be attached to be used for pulling the hook member 30 to free it from the keeper opening 33 to free the firing pin member 18 so that it may be pivoted to its operative position shown in Fig. 2, by the spring 28.

The operation of this device is as follows:

Assume that the blank cartridge firing device is in the position shown in Fig. 2, the person desiring to use the blank cartridge firing device first places the required firing charge and other material into the barrel of the gun or cannon 10. He then grips the handle 26 and pulls the firing pin member 18 rearwards and engages the hook member 30 with the keeper opening 33 to retain the firing pin member 18 in its rearward inoperative position as shown in Fig. 1. A blank cartridge 15 is then dropped into the top portion of the bushing 12. A length of rope which is attached to the S-shaped member 34 is now ready to be pulled. A person standing at a considerable distance from the gun or cannon 10 with the end of the length of rope in hand pulls upon this end to draw the hook 30 out of its engaged position with the keeper opening 33. This will release the firing pin member 18 and the tension of the spring 28 will urge the firing pin member 18 back to the position shown in Fig. 2, and the firing pin 27 will smartly strike the head of the cartridge 15, exploding it. The explosion will pass through the opening 14 of the bushing 12 and contact the firing charge within the barrel of the gun or cannon 10, discharging it.

Since this blank cartridge firing device employs conventionally constructed and very reliable blank cartridges, it becomes apparent that the device will operate unfailingly each time it is loaded to discharge the firing charge within the barrel of the gun or cannon 10 and eliminate the objections commonly found in cannon priming devices in general use today.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A blank cartridge firing device for cannons, guns, and the like, comprising a base for engaging upon the outside of a cannon or gun and having at one end an opening for alignment with an

opening through the side of said cannon or gun for communicating with the firing charge and having a pair of upwardly directed spaced lugs spaced from said opening, a threaded bushing for threaded mounting in said opening in the side of said cannon or gun and engaging through said opening in said base for clamping the base upon said cannon or gun and having a passage for receiving and supporting a blank cartridge for firing said charge, a firing pin member having a keeper opening and a side opening and also having a pair of lugs adjacent said spaced lugs, a pivot pin extending through all of said lugs for pivotally mounting said firing pin member, a hook member pivotally connected with the rear of said base and engageable with said keeper opening in said firing pin member for holding said firing pin member in cocked position, and a spring coaxially mounted upon said pivot pin at a point between said lugs and having one end fixedly held relative to said base and having its other end extending radially and engaging in said side opening in said firing pin member for urging said firing pin member into firing position.

2. A blank cartridge firing device for cannons, guns and the like, comprising a base for engaging upon the outside of a cannon or gun and having at one end an opening for alignment with an opening through the side of said cannon or gun for communicating with the firing charge and having a pair of upwardly directed spaced lugs spaced from said opening, a threaded bushing for threaded mounting in said opening in the side of said cannon or gun and engaging through said opening in said base for clamping the base upon said cannon or gun and having a passage for receiving and supporting a blank cartridge for firing said charge, a firing pin member having a keeper opening and a side opening and also having a pair of lugs adjacent said spaced lugs, a pivot pin extending through all of said lugs for pivotally mounting said firing pin member, a hook member pivotally connected with the rear of said base and engageable with said keeper opening in said firing pin member for holding said firing pin member in cocked position, and a spring coaxially mounted upon said pivot pin at a point between said lugs and having one end fixedly held relative to said base and having its other end extending radially and engaging in said side opening in said firing pin member for urging said firing pin member into firing position, and said firing pin member having another opening into which the end of said spring may engage for changing the tension of said spring.

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