

No. 864,725.

PATENTED AUG. 27, 1907.

C. DAVIS.

ENVELOP FOR POWDER CHARGES.

APPLICATION FILED MAY 26, 1904. RENEWED JULY 25, 1907.

Fig. 1.

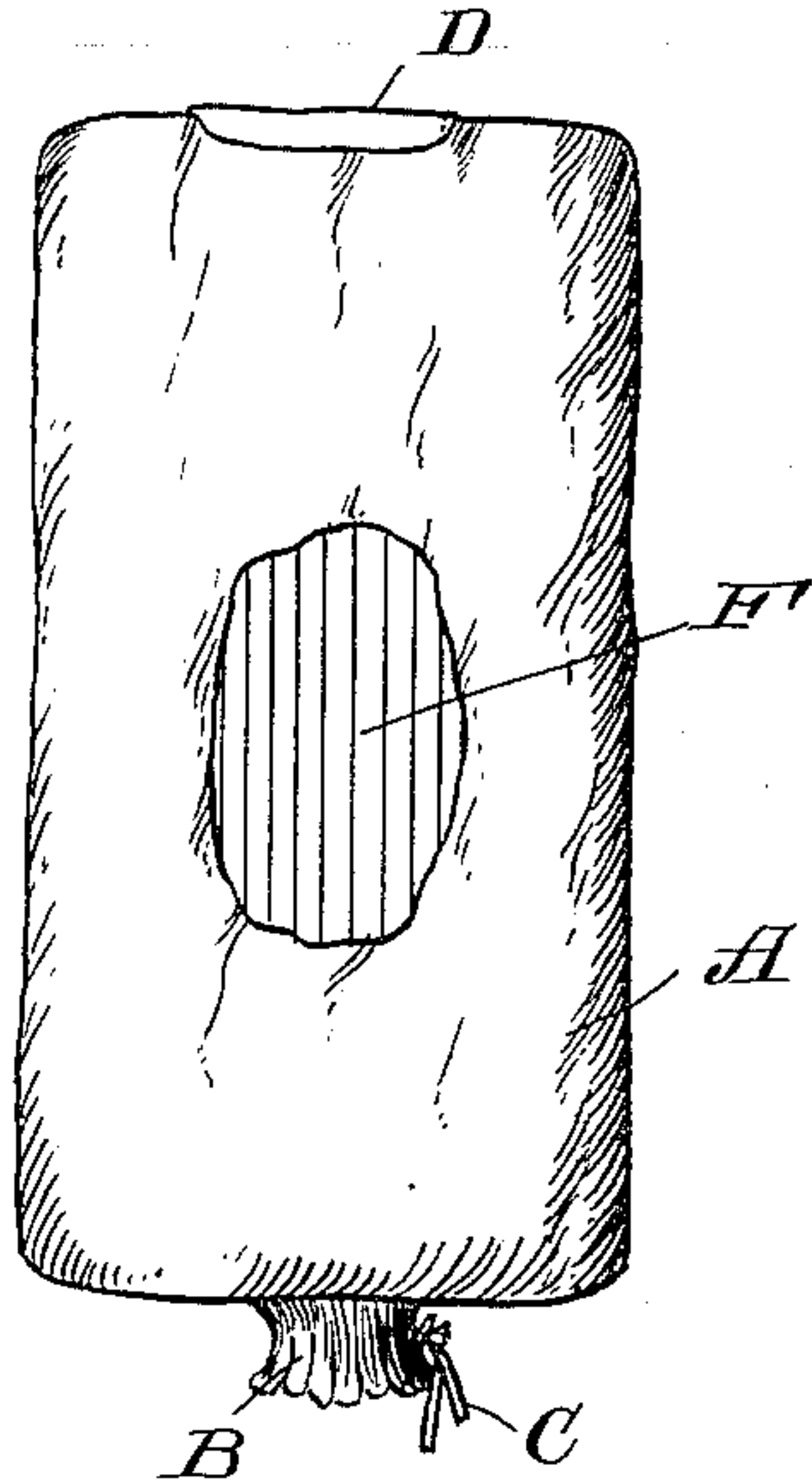


Fig. 2.

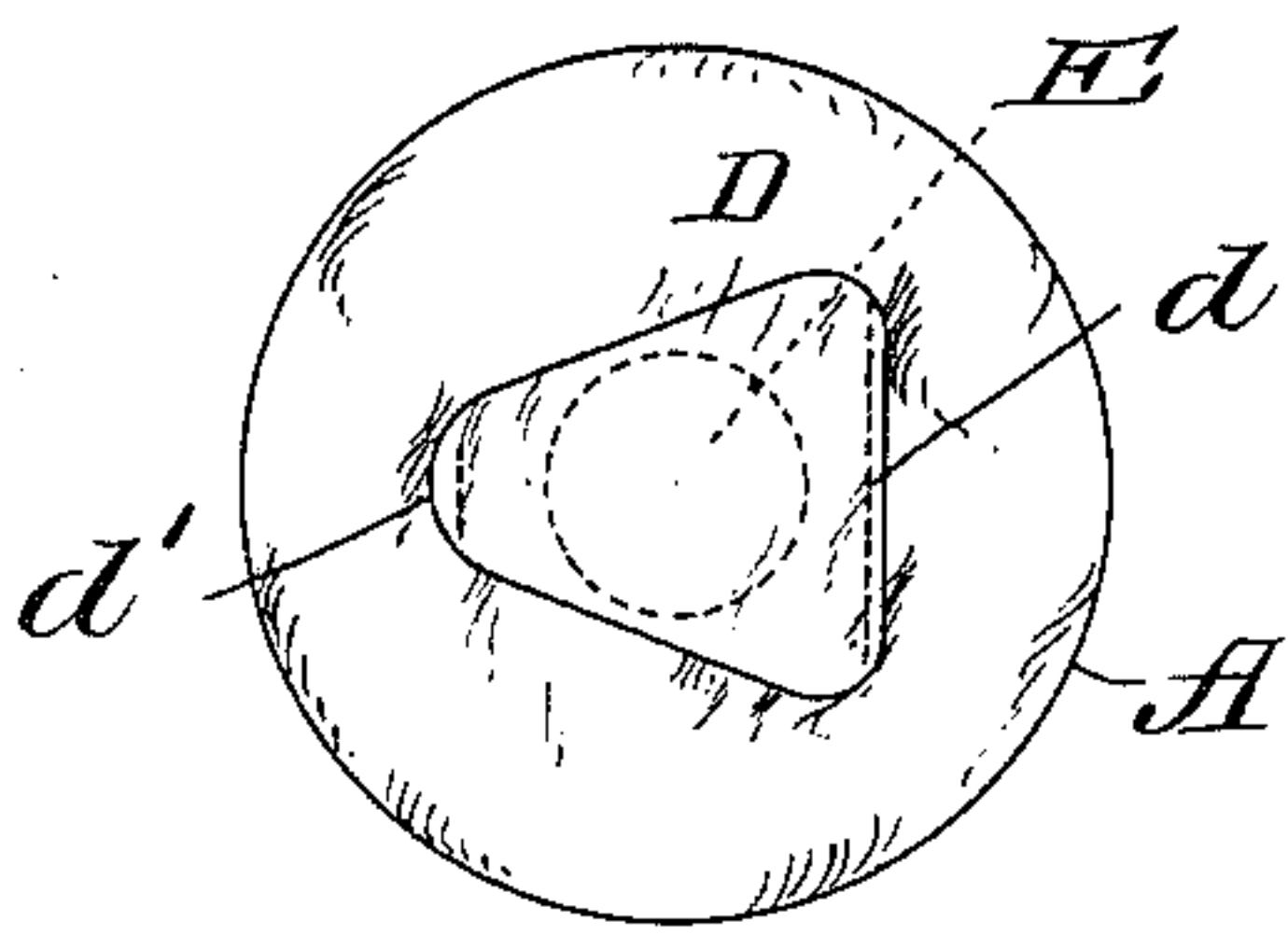
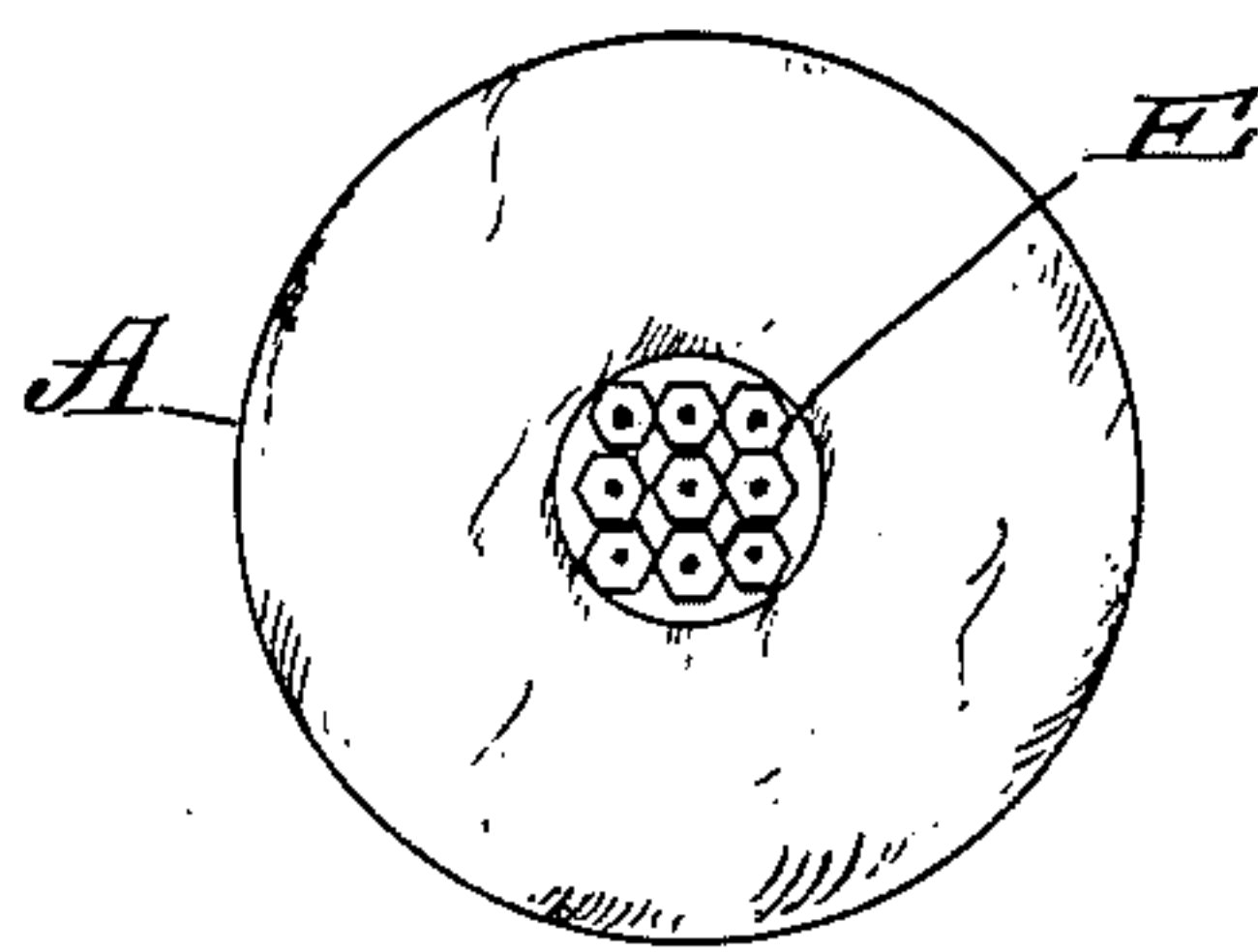


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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ENVELOP FOR POWDER CHARGES.

No. 864,725.

Specification of Letters Patent.

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Application filed May 26, 1904, Serial No. 209,958. Renewed July 25, 1907. Serial No. 385,516.

To all whom it may concern:

Be it known that I, CLELAND DAVIS, a citizen of the United States, and lieutenant in the United States Navy, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Envelops for Powder Charges; 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.

My present invention relates to improvements in the manner of putting up powder charges.

In all guns in which the powder charge is not inclosed in a metallic casing, it is the custom to inclose the grains or sticks of powder in a bag of textile fabric, or one woven from material similar in composition to that of the powder itself, the object being for ballistic purposes to have a material that will be consumed with the powder charge. I am of the opinion, however, that instead of being an advantage, the use of a highly inflammable envelop for the powder charge is a positive danger, and I believe for reasons hereinafter stated that the powder charge should be inclosed in a non-combustible envelop having low conductivity for heat.

In the development of modern gunnery practice on board vessels of war, not only have new and high powered explosives been adopted, but new and improved mechanisms have enabled the attainment of great rapidity of fire; and the new conditions have introduced certain elements of danger in the service of the guns, not hitherto considered as material.

The two principal conditions which relate to the subject of my invention are first the heating of the gun, due to long sustained and rapid firing, and second, the presence in the bore of hot residual gases that sometimes burst into flame with danger of igniting the newly inserted powder charge before the breech is closed. Furthermore non-consumed but burning portions of the envelop might remain in the gun after discharge which might ignite the charge before the breech is closed. Furthermore in order to maintain the desired rapidity of fire, it is necessary to keep a number of exposed powder charges in transit from the magazines to the guns, and especially in the case of battle ships having what is known as continuous batteries, a comparatively large number of charges must be exposed at the same time. Thus should one charge be ignited by an enemy's shell, or from any other cause, the whole battery might be put out of action, or even more disastrous results might ensue. What I purpose then is

to inclose the charge in a covering of non-combustible material of low conductivity for heat, and impervious to ordinary flames or sparks and especially to burning powder grains. For this purpose asbestos cloth, or spun glass, or any textile material, coated with glass, or water glass, may be used.

It is desirable to have the material disintegrated in the gun, but if there should be particles remaining in the gun, they can be readily removed by the means adopted for clearing the bore after the discharge of the gun.

If desired, the envelop may be of woven cloth made of a tough colloid of smokeless powder, and then coated with water glass (silicate of soda), which may be done by dipping the bag before filling with powder into a strong solution of silicate of soda, and then drying the same. When the charge is exploded, the glass will be disintegrated and the fabric of the bag consumed. I purpose further to cover the ignition charge in rear of the powder charge with a flap of the same material as that used for the covering, that can be quickly removed after the charge is inserted in the gun.

My invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 shows a powder charge inclosed in a bag constructed according to my invention, parts being broken away. Fig. 2 is an end view of the bag shown in Fig. 1, with the cap on, and Fig. 3 is a similar view of the bag, after the cap has been torn off.

A represents the bag made of asbestos cloth, spun glass, or any suitable fiber, coated with water glass, or made of any suitable material which is non-combustible and has a low conductivity for heat. This bag may be closed in any convenient way, as by the casing B and the draw string C. In the opposite end of the bag the igniting charge E is inserted, which is preferably composed of a number of grains of black powder, and this igniting charge is covered by a patch D, preferably of the same material as the bag, which is lightly sewed to the bag as at *d* and *d'*, and which may be readily torn off after the charge is inserted in the gun. The charge F may be of any suitable form of smokeless powder, as composed of a series of strips, but any suitable form of grain or strip may be used, as my invention relates not to the nature of the charge, but to the means for packing the charge and for protecting the same against accidental ignition.

For the smaller calibers, a single package of the explosive may be used, while for the larger calibers, the charge may be made up of two or more sections.

I do not mean to limit the invention to the specific material or materials stated in the specification, but

I claim broadly as new:—

An envelop for use in packing powder charges made wholly or in part of substantially incombustible material

having a low conductivity for heat, having an opening in one end thereof and a detachable cap normally closing said opening, substantially as described. 10

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

CLELAND DAVIS.

Witnesses:

B. ERWIN LOCKWOOD, Jr.,
LOUIS A. CLEAVE.