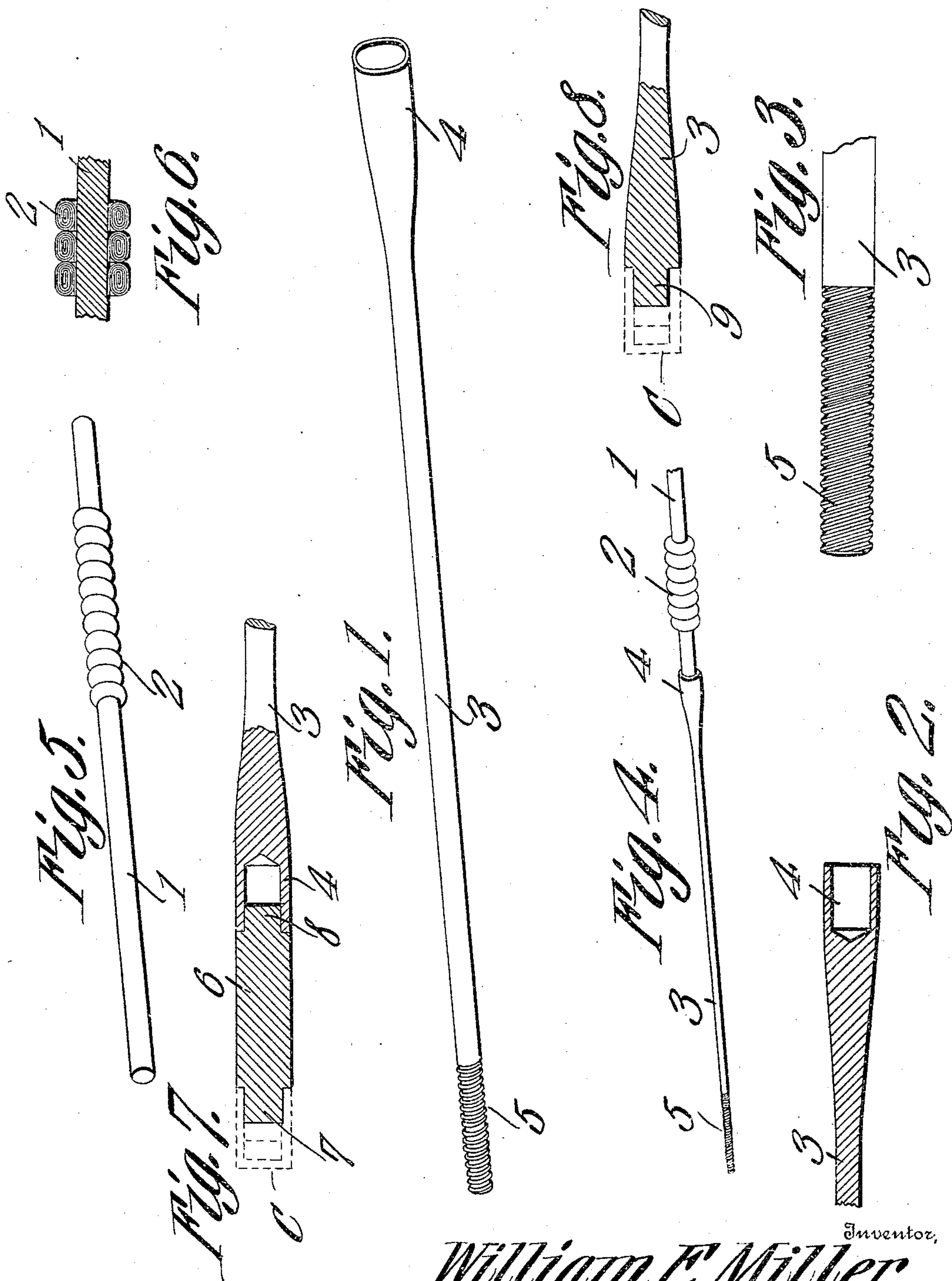


W. E. MILLER.
 DEVICE FOR APPLYING PROTECTORS TO FULMINATING CAPS.
 APPLICATION FILED MAR. 28, 1908.

931,454.

Patented Aug. 17, 1909.



Witnesses:

E. J. Hewitt

R. M. Elliott

William E. Miller.

By C. Snow & Co.
 Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM E. MILLER, OF SALT LAKE CITY, UTAH.

DEVICE FOR APPLYING PROTECTORS TO FULMINATING-CAPS.

No. 931,454.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed March 28, 1908. Serial No. 423,936.

To all whom it may concern:

Be it known that I, WILLIAM E. MILLER, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and useful Device for Applying Protectors to Fulminating-Caps, of which the following is a specification.

This invention relates to devices for applying protectors to fulminating caps.

The present invention is designed as an improvement on an article of the above character for which Letters Patent of the United States were granted me Nov. 14, 1899, #636,919, and has for its object to facilitate the rolling of the protectors, and their positioning either on the holder or staff, or their transference from the roller or former directly to the caps.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists, generally stated, in a protector roller or former embodying a shank having one end arranged to engage a holder or staff to facilitate transferring the protectors from the roller to the holder, and its other end provided with ridges, circumferential corrugations, or threads that constitute the means for giving the initial roll to the protector. The temporary assemblage of the roller and holder may be accomplished in any preferred manner, that herein shown being secured by providing the holder at the end opposite that bearing the threads with an externally tapered socket designed to fit on the holder and to be retained in place by frictional contact therewith. The corrugations or threads are preferably, though not of necessity, flat and shallow, so as not to take a positive hold on the protector which might result in injuring it, and the shank is of substantially the same diameter throughout its length, and merges into the socket on curved lines, thus to obviate the presentation of a shoulder, which would be objectionable, as it would tend to interfere with the forming of the rolls.

As a further feature of novelty, the holder or staff may, in some instances, be dispensed with, and in lieu thereof a bridge or plug may be employed in conjunction with the roller and with the caps to permit transference of the protectors from the former to the latter; or, if preferred, the roller may be

so constructed that the protectors may be transferred directly therefrom to the caps.

Further features of novelty will be hereinafter described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts:—Figure 1 is a view in perspective, on an enlarged scale, of the roller or former. Fig. 2 is a sectional detail view of one end of the roller. Fig. 3 is a view, in elevation, of a portion of the roller. Fig. 4 is a perspective detail view displaying a holder assembled with the roller, and also a series of rolled protectors on the holder. Fig. 5 is a perspective detail view of a holder, showing a series of the protectors thereon. Fig. 6 is a view in vertical longitudinal section through a portion of the holder and several of the protectors. Fig. 7 is a vertical longitudinal sectional view through a modified form of the invention. Fig. 8 is a similar view of a further modification.

Referring to the drawings, 1 designates the holder which may consist of a length of wood, metal, or any other material suited to the purpose, but, from a standpoint of economy and lightness, it is generally preferred to construct the holder of wood of cylindrical form. The holder is of the same diameter throughout its length, and adapted to contain any desired number of protectors 2, which, as fully set forth in the patent above referred to, are constructed of tubes of highly elastic rubber.

One feature of novelty of the present invention resides in the roller or former upon which the protectors are rolled and from which they are transferred to the holder. The roller, which is shown in detail in Fig. 1, comprises a shank 3 of any suitable transverse diameter, and provided at one end with a socket 4 to receive one end of the holder and at its other end with ridges or circumferential threads or corrugations that operate to give the initial roll to the protectors. The shank is preferably of the same diameter throughout its length and merges into the socket on curved lines in order to obviate the presentation of a circumferential shoulder which would be objectionable as it would interfere with the proper forming of the protectors. The roller may be made of any suitable material, preferably of steel, and will have its ex-

posed surfaces smoothly finished in order to prevent any injury to the protectors when being rolled.

The threads or ridges 5 are flat, and relatively shallow, in order not to take too strong a hold upon the projector which might injure it and render it inefficient in service.

In the use of the roller above described, after it has been assembled with the holder, and with which it is held by frictional contact with the walls of the socket, a tube of rubber, which forms the protector, is passed over the threaded end of the former and its inner end is grasped by the thumb and forefinger, and upon a longitudinal movement being imparted to the tube in the direction of the socket, the inner end of the tube, by reason of the threads or corrugations, will be turned inward and thus give the initial roll or turn to the protector. As the movement of the tube is continued, the complete rolling is consummated, and from the former the roll is transferred to the holder in a manner that will be readily understood.

The invention contemplates, broadly, means for rolling a protector and means for transferring the same to a suitable receiver. In the form of the invention shown in Figs. 1 to 6, the holder 1 designates the receiver. In the form of the invention shown in Fig. 7, a bridge or plug 6 constitutes the receiver. This bridge is constructed of any suitable material, preferably of wood, and is of the same external diameter as the like portions of the cap C, indicated by dotted lines in Figs. 7 and 8, and the socket. The terminals of the bridge are reduced to provide two teats 7 and 8, the former of which is adapted to fit within the cap, and the latter within the socket, of the roller. In using this form of the invention, the protectors are rolled directly from the roller onto the bridge and thence onto the cap. This form of the invention will be of advantage in some instances, as it will render unnecessary the storing of the protectors upon the holder.

In the form of the invention shown in Fig. 8, the cap C constitutes the receiver, and, in order to establish a coaction between the cap and the roller to accomplish this result, the socket is provided with a teat 9 of a size to fit within the cap, and by this arrangement it will be seen that the protectors may be transferred directly from the roller onto the caps, thereby dispensing with the employment of the holder shown in Fig. 4 and the bridge shown in Fig. 7.

It has been found in practice that not only is the rolling of the protectors materially

facilitated by the employment of the roller, but also a large saving ensues, as there will be no danger of splitting or tearing the protectors in the act of rolling them.

The improvements herein described are simple, will be found thoroughly effective for the purposes designed, and will result in the saving of time and material to the user.

I claim:—

1. A roller for fulminating cap protectors comprising a shank having one end provided with means for engaging a protector holder, and its other end provided with means for retarding the movement of a cap protector when the latter is placed upon and moved longitudinally of the shank in the direction of the holder, thereby to impart the initial roll to said protector.

2. A roller for fulminating cap protectors comprising a shank having one end provided with a socket for engaging a protector holder, and its other end provided with means for imparting the initial roll to a protector when the latter is placed upon and moved longitudinally of the shank in the direction of the holder.

3. A roller for fulminating cap protectors comprising a shank having one end provided with means for engaging a protector holder, and its other end provided with threads or corrugations for imparting the initial roll to the protector when the latter is placed upon and moved longitudinally of the shank in the direction of said holder.

4. A roller for fulminating cap protectors comprising a cylindrical shank having one end provided with a socket for engaging a protector holder, and its other end provided with a roughened surface.

5. A roller for fulminating cap protectors comprising a shank having one end enlarged and provided with a socket, the exterior walls of which gradually merge into the shank and its other end provided with a roughened surface.

6. A roller for fulminating cap protectors comprising a shank having one end provided with means for imparting the initial roll to a protector when the latter is placed upon and moved longitudinally of the shank, and its other end provided with an externally tapered socket that merges into the shank on curved lines, thus to obviate the presentation of a shoulder.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM E. MILLER.

Witnesses:

C. H. CAMPBELL,
W. E. COULAM.