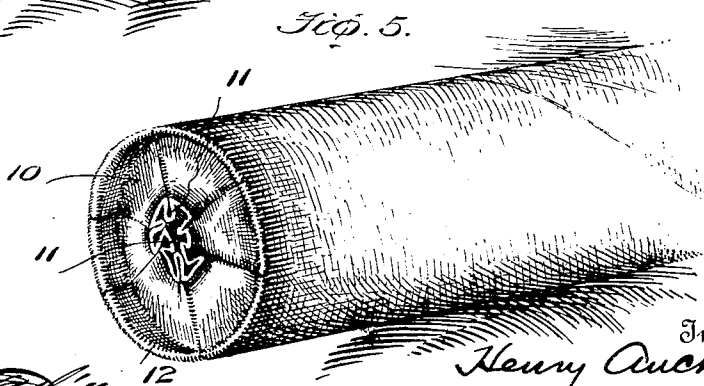
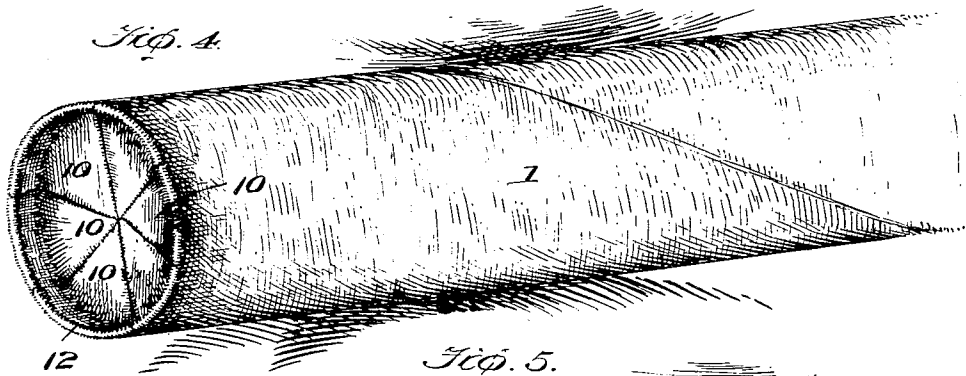
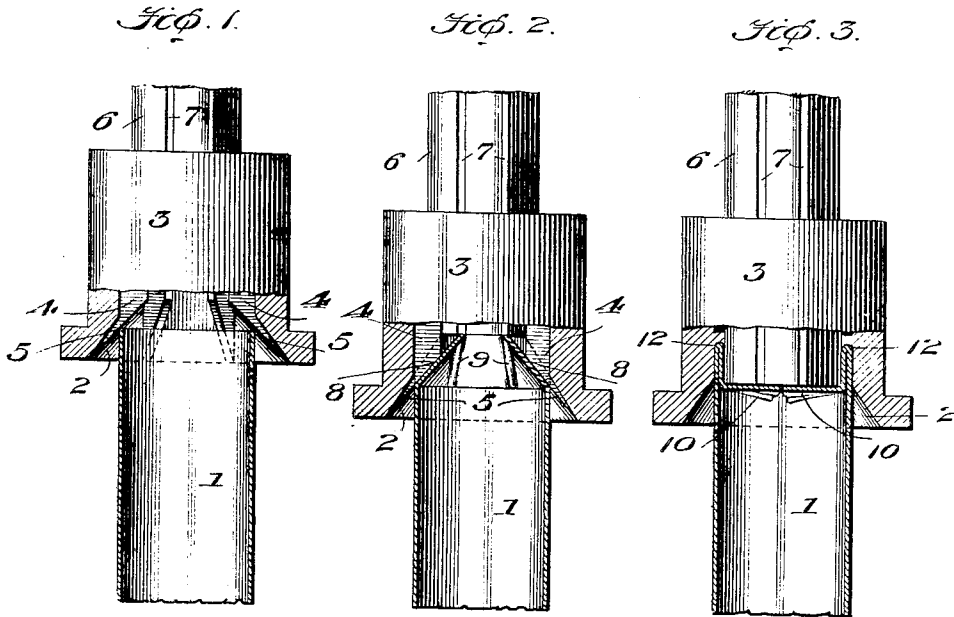


H. AUCHU.
METHOD OF PRODUCING CLOSURES ON SHELLS.
APPLICATION FILED OCT. 13, 1911.

1,123,976.

Patented Jan. 5, 1915.



Witnesses
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by

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UNITED STATES PATENT OFFICE.

HENRY AUCHU, OF EMPORIUM, PENNSYLVANIA.

METHOD OF PRODUCING CLOSURES ON SHELLS.

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Specification of Letters Patent.

Patented Jan. 5, 1915.

Application filed October 13, 1911. Serial No. 654,507.

To all whom it may concern:

Be it known that I, HENRY AUCHU, a citizen of the United States, residing at Emporium, county of Cameron, and State of Pennsylvania, have invented certain new and useful Improvements in Methods of Producing Closures on Shells, of which the following is a specification.

This invention relates to methods for producing closures on shells.

The present invention contemplates the provision of a novel method for forming a closure for paper shells or cartridges, especially those adapted to contain dynamite and other explosives which are put up in cartridge or stick form, and it aims to effect a closure which will be strong, present no exposed parts or flaps tending to become opened or loosened and one wherein the end of the shell will be strengthened by the new closure which I have devised.

The shell closure provided by carrying out my method embodies a bead and flaps or folds located inwardly beyond the plane of the bead, in depressed or sunken arrangement, whereby the folds are protected and they overlap and close tightly against the end of the explosive contained within the shell, or, when the closure is provided on the shell before the explosive is introduced therein, a suitable arbor or spindle may be disposed within the shell for the formation thereagainst of the closure which thus constitutes the end of the shell.

In carrying out my new method the end of the shell is provided with a plurality of creases as it is bent inwardly in making the initial fold, such creases preferably extending in a general radial direction, and, thereafter, the initially bent and creased part is pushed inwardly to form the shell end, such operation producing a plurality of folds which overlap each other and lie in the same general plane, by preference, the end of the shell thus formed being located inwardly of the bead which is provided in making the closure.

The devices or apparatus consisting of a crimper having folders to form the creases, and a plunger having grooves receiving said folders and which serve to push in the end of the shell and form the folds in overlapped arrangement, as also the bead, are set forth and claimed in another application Serial No. 654,505, filed October 13, 1911.

The shell or tube itself may be of any preferred construction as my invention relates to the method of forming the closure on the end of a tubular shell, however the shell may be constructed.

In the accompanying drawings:—Figure 1 represents the parts ready for the first or bending in operation; Fig. 2 discloses the operation of bending in and creasing the end of the shell; Fig. 3 represents the final operation of pushing in the flaps, compressing them, and forming the bead; Fig. 4 is a perspective of the end of a shell having my new closure; and Fig. 5 is a view like Fig. 4, but showing the ends of the completed closure or flaps bent back or distorted to illustrate how the flaps overlap each other.

The shell 1 as shown in Fig. 1, is entered in the bell shaped or conical mouth 2 of the crimper 3, ready for the performance of the method used in producing the closure shown in Fig. 4. The crimper 3 is provided with inwardly extending but separated, preferably radially arranged thin folders 4 extending lengthwise of the crimper and whose lower edges 5 are inclined or beveled so that, collectively, they converge inwardly and upwardly in Figs. 1 and 2.

Slidable within the crimper 3 is a plunger 6 having longitudinal grooves or channels 7 corresponding in number to and loosely receiving the folders 4.

In carrying out my method and in producing my new closure, the shell 1 may move toward the crimper 3 and plunger 6 or the crimper and plunger may move toward the end of the shell, the latter being the preferred method of operation. The crimper 3 being relatively moved lengthwise of the shell 1, the lower inclined edges 5 of the folders collectively bend or taper the end of the shell as shown at 8 and collectively and individually form the creases 9, Fig. 2, therein, thus taking up, as it were, the surplus part of the folded end 8 and defining the places where the folds of the closure subsequently overlap. The next step is the longitudinal movement of the plunger 6, pressing in the end of the shell, as shown in Fig. 3, thus forming the folds 10 which are in the nature of flaps, and causing them to overlap as will be clear from Fig. 5, where the creased parts 9 of Fig. 2 have become the underfolded parts 11 which results from the overlapping of the flaps 10. The operation shown by

Fig. 3 also forms the bead 12, the continued movement of the crimper 3, as well as the plunger 6, causing the infolding or pushing in of the end of the closure and the formation of the bead, resulting in the finished closure which appears as shown in Fig. 4.

The shell 1 may be held in any preferred manner and the folding devices operated through any desired means. When the shell 1 is nearly filled with explosive, the stick of explosive forms an abutment against which the plunger and crimper act, but when the end is being formed on an empty shell, an arbor, mandrel, or the like will be inserted within the shell.

As many or as few of the creases 9 and folds 10 may be provided as may be found desirable or convenient.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is:—

The method of forming a closure on a shell or tube, consisting in contracting the end of the shell or tube and simultaneously with such contraction forming at different points in said contracted end, by a single operation, the plurality of creases necessary to define all the flaps subsequently provided, and then pushing inwardly and compressing said contracted and creased end to form a raised bead and a depressed closure composed of flaps.

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

HENRY AUCHU.

Witnesses:

H. A. Cox,

W. S. SWARTWOOD.