W. C. BECKWITH.

METHOD OF MANUFACTURING TORPEDOES.

APPLICATION FILED APR. 9, 1915.

1,154,164. Patented Sept. 21, 1915.

Fig. 1.

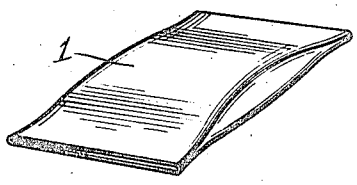


Fig. 2.

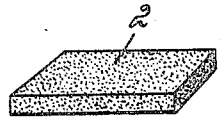


Fig. 3.

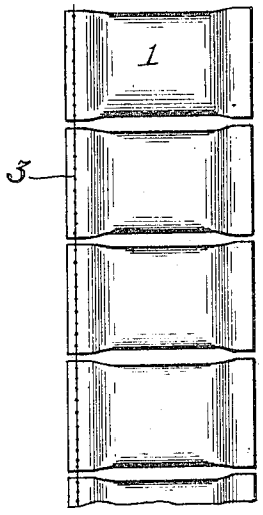


Fig. 4.

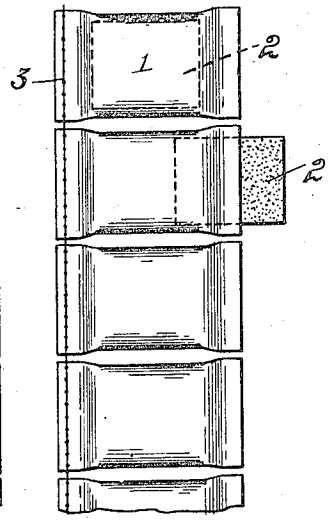
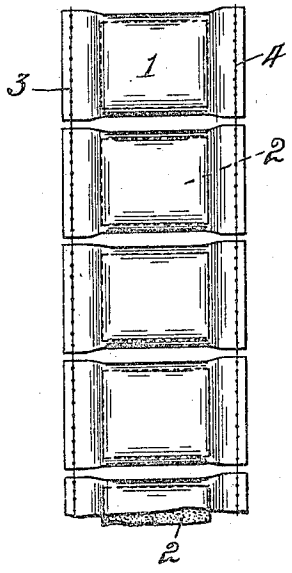


Fig. 5.



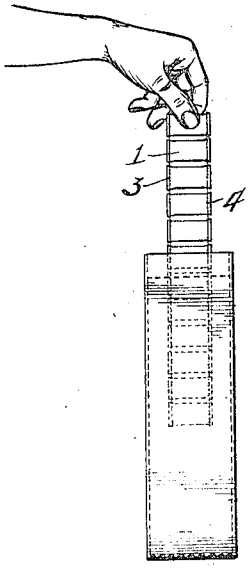
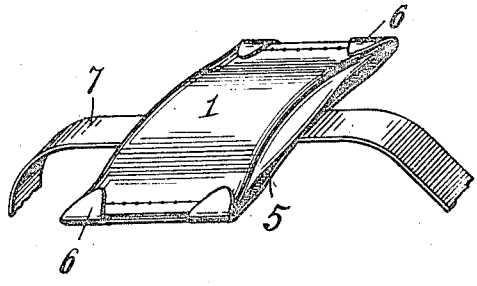


Fig. 6.

Fig. 7.



INVENTOR

Walter C. Beckwith,

By Owen, Owen & Crampton,

His attys.

UNITED STATES PATENT OFFICE.

WALTER C. BECKWITH, OF FOSTORIA, OHIO.

METHOD OF MANUFACTURING TORPEDOES.

1,154,164. Specification of Letters Patent. Patented Sept. 21, 1915.

Application filed April 9, 1915. Serial No. 20,318.

To all whom it may concern:

Be it known that I, WALTER C. BECKWITH, a citizen of the United States, and a resident of Fostoria, in the county of Seneca and State of Ohio, have invented a certain new and useful Improvement in the Method of Manufacturing Torpedoes; 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to the manufacture of railway torpedoes and particularly to those of the fiber top type.

The object of my invention is not only to provide a simple and efficient means for closing the ends of the fiber tubes or shells of torpedoes of this character to retain the explosive therein, but also to cheapen, simplify and improve the method of manufacture of torpedoes of this character heretofore employed.

The invention is fully described in the following specification, and illustrated in the accompanying drawings, in which,—

Figure 1 is a perspective view of the explosive containing tube or case of a torpedo manufactured in accordance with my invention. Fig. 2 is a perspective view of a tablet form of explosive used in the torpedo. Fig. 3 is a plan view of a plurality of the tubes or cases closed at one end by stitching and connected together at such ends by a continuation of the stitching from one case to another, and illustrating the first step in the assembling process embodying the invention. Fig. 4 is the same as Fig. 3 except that one explosive tablet has been placed in a case and another one is partially placed within the next case in order, and illustrates the second or case filling step of the process. Fig. 5 is a view similar to Fig. 3 with all of the tubes filled and closed at the filling end thereof by stitching, which stitching is continued from one to another of the cases to connect the same, and illustrates the third step in the process. Fig. 6 shows a chain of filled and stitched cases in the act of being submerged in a waterproofing solution, and illustrates the fourth step in the process, and Fig. 7 is a perspective view of a completed torpedo, the explosive containing tube or case of which has been closed at its ends and filled in accordance with my invention.

Referring to the drawings, 1 designates a case or tube for containing the explosive, and 2 an explosive made up in tablet or plastic form. The case or tube 1 is of fibrous material, such for instance, as paper, and has its ends open to facilitate the insertion of an explosive therein. The cases or tubes are customarily made by rolling a sheet of paper in tube form on a mandrel of the desired size, then cutting the tube into sections of a length corresponding to the desired length of the cases. The short tube sections are then placed in a shaper, which flattens the ends of the sections and bulges the centers thereof in suitable form to receive the explosive tablets 2, as shown by the cases in the drawing.

The cases having been made, one end of each is first closed by stitching across such end, as indicated at 3, and such stitching is continued across the corresponding ends of successive cases until a desired number of cases have been closed at one end and connected together in chain form, as indicated in Fig. 3, thus completing the first step of my invention. The next step in the operation consists in placing an explosive tablet 2 into each case of the chain through the open end thereof, as indicated in Fig. 4.

When all of the cases in a chain have been filled with explosive material or tablets in this manner the open ends thereof are closed by stitching across the same, as indicated at 4 in Fig. 5, such stitching being continued from one case to another until they have been connected at such ends in chain form the same as by the stitching 3. The chain of filled cases is now dipped as a unit in a suitable waterproofing material, such for instance, as shellac or paraffin, which dipping is facilitated by reason of the cases being connected together in chain form, as it is only necessary for the person dipping to take hold of one end of the chain and lower it into the dipping solution until each tube is successively immersed in the solution, as illustrated by Fig. 6, the chain of tubes being then drawn out of the dipping solution and hung up to dry. After the waterproofing solution on the cases has dried the cases are separated by cutting the stitching

at points between the cases, after which the filled cases are ready to be attached to the holding clip.

In Fig. 7 a filled case is shown as being attached to a metal clip 5, the ends of which are provided with flanges or lugs 6 that are turned over the respective ends of the case to securely hold it to the clip. 7 designates a metal strap which is interposed centrally between the clip and case and is used to secure the torpedo to a rail, as is well understood in the art.

It is evident that the stitching of the ends of the cases not only provides a simple and inexpensive means of closing such ends, but also enables a plurality of cases to be connected together in chain form, thereby materially facilitating and lessening the work incident to the filling, dipping and drying of the cases. The waterproofing material coöperates with the stitching to effectually seal the case ends to exclude moisture from the interior of the case.

It will be understood that the invention is not restricted to the use of tablet form of explosive in the cases as loose powder may be used if desired; and also that the invention is not restricted to the use of any particular form or construction of case or to any particular form or construction of clip or holding means for the case, but resides more particularly in the idea of closing the ends of the cases by stitching, which is continued from one case to another to successively connect a series of the same in chain form, whereby the handling of the cases in connection with the filling and waterproofing operations is facilitated.

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

1. The closing of an end of each of a plurality of railway torpedo cases by stitching across such end and continuing the stitching from one case to another to connect the cases in chain form, then filling each of the connected cases through the open end thereof with an explosive compound and then closing the open ends of the cases.

2. The closing of an end of each of a plurality of railway torpedo cases by stitching across such end and continuing the stitching from one case to another to connect the cases in chain form, then filling each of the connected cases through the open end thereof with an explosive compound, then closing the open ends of the cases and afterward dipping the chain of filled cases into a waterproofing solution.

3. The closing of the end of each of a plurality of railway torpedo cases by stitching across such end and continuing the stitching from one case to another to connect the cases in chain form, then filling the cases through the open ends thereof with an explosive material, and then closing the open ends of the cases by stitching.

4. The closing of the end of each of a plurality of railway torpedo cases by stitching across such end and continuing the stitch from one case to another to connect them in chain form, then filling the cases through the open ends thereof with an explosive compound, then closing the open ends of the cases by stitching, and then dipping the chain of filled cases into a waterproofing solution.

5. The closing of the end of each of a plurality of railway torpedo cases by stitching across such end and continuing the stitch from one case to another to connect them in chain form, then filling the cases through the open ends thereof with an explosive compound, then closing the open ends of the cases by stitching, then dipping the chain of filled cases into a waterproofing solution, permitting them to dry and then severing the stitching connection between the cases preparatory to securing the cases to holding members.

In testimony whereof, I have hereunto signed my name to this specification.

WALTER C. BECKWITH.