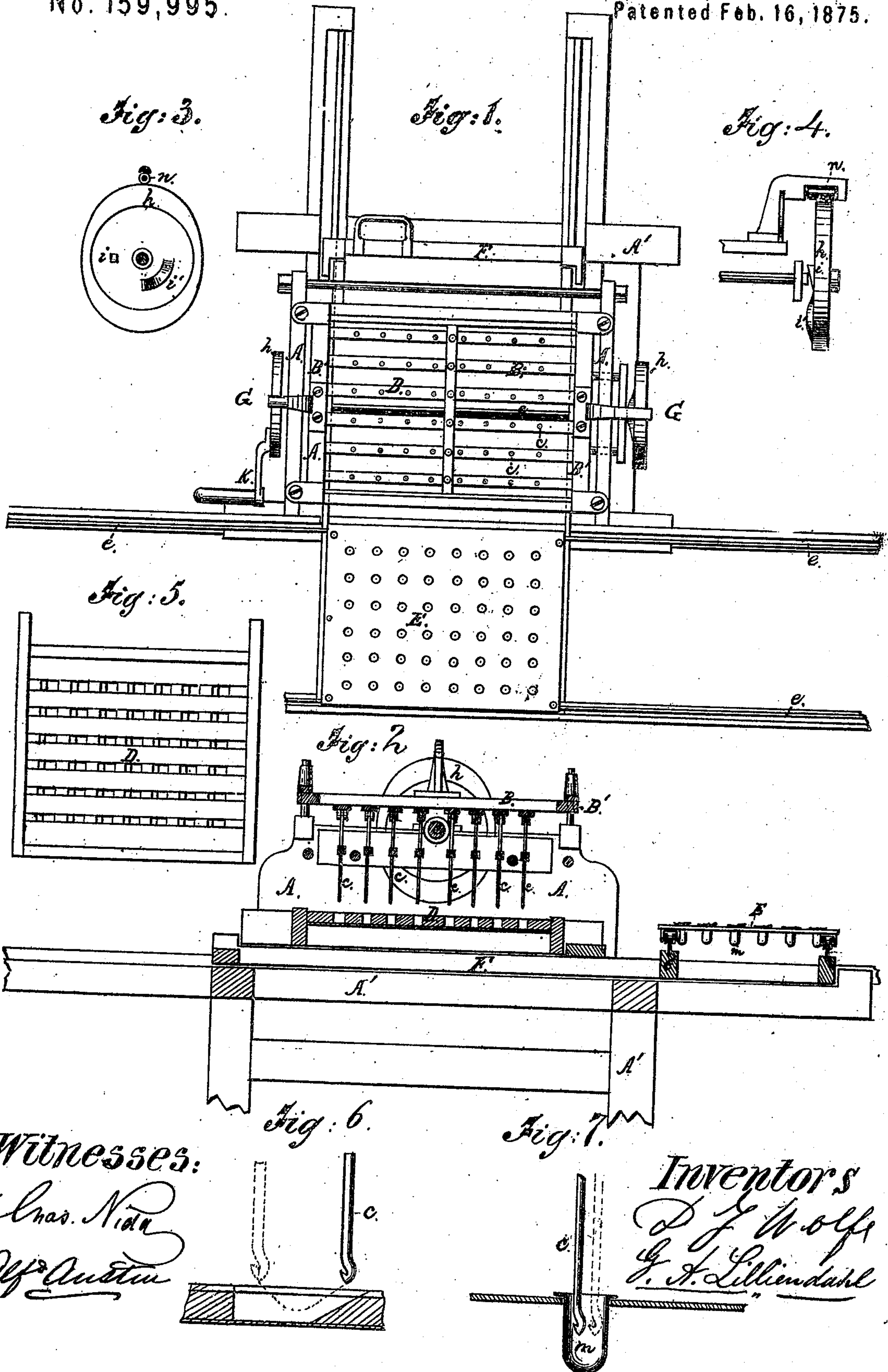


D. J. WOLFE & G. A. LILLIENDAHL.
Torpedo-Filling Machine.

No. 159,995.

Patented Feb. 16, 1875.



Witnesses:

Chas. N. Allen
Alfred Austin

Inventors
D. J. Wolfe
G. A. Lilliendahl

UNITED STATES PATENT OFFICE.

DANIEL J. WOLFE AND GUSTAVUS A. LILLIENDAHL, OF JERSEY CITY, N. J.

IMPROVEMENT IN TORPEDO-FILLING MACHINES.

Specification forming part of Letters Patent No. 159,995, dated February 16, 1875; application filed August 19, 1874.

To all whom it may concern:

Be it known that we, DANIEL J. WOLFE and GUSTAVUS A. LILLIENDAHL, both of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Priming-Machine for Charging Percussion-Torpedoes with Fulminate, of which the following is a specification, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention appertains to the manufacture of percussion-torpedoes which are so extensively used by children as a means of amusement.

In the manufacture of these torpedoes heretofore the paper envelope which contains the explosive compound has been charged or primed entirely by hand, one only at a time, by means of a quill or stick. This invention facilitates the operation of priming, and consists in a novel machine whereby a large number of the paper bags or envelopes are charged with fulminate at one operation in a safe manner, and at the same time insure an exact amount to each charge.

In the accompanying drawings, Figure 1 represents a top or plan view of a machine embodying my invention. Fig. 2 illustrates a cross-section of the same. Fig. 3 is a side view of the cam-wheel detached. Fig. 4 is a face view of the cam-wheel, showing the manner of giving or imparting the desired motion to the machine. Fig. 5 is a plan view of the tray which contains the percussion-compound. Fig. 6 is a full-size sectional view, showing one of the chambers in the tray, and the manner in which the priming-rod takes up the charge of fulminate. Fig. 7 is a full-size sectional view, showing a portion of the perforated plate which holds the paper envelopes, and the manner in which it is charged with fulminate.

Similar letters of reference in the several figures indicate like parts.

In the drawings, A represents the sides of the machine, A' the support or table on which it rests. B represents strips, which are secured together at their ends to a frame, B'. *c c* are wire priming-rods, one end of which is secured to the strips B. At the lower end of the rods *c* is a notch made on one side, and so constructed

ed that it will just hold the exact amount of percussion-compound necessary to charge one torpedo, as shown in Figs. 6 and 7. D is a tray having chambers or pits *n*, which hold the percussion-compound. The bottom of the chambers or pits is made by pasting a sheet of paper over the bottom face of the tray to insure safety. (See Fig. 6.) E is a perforated plate, made of sheet iron and mounted upon small wheels, so as to move upon the tracks *e'*. These tracks form a tramway which extends from the torpedo-envelope or bag-machine to the priming-machine, and from the priming-machine to the gravel-charger and twisting-machines, which machines form the subject of separate applications. This plate E holds the paper envelopes. F is a frame or slide, on one end of which is the tray D, and on the other end the plate E, resting upon a section of the track *e'*, which is part of the frame F. The whole is so arranged that when the slide-frame is moved, either the tray D or the plate E may be forced into or out of the machine. *h* and *h'* are cam-wheels, mounted at either end of a shaft, *e*. A crank, K, is attached at one end, by turning which the machine is put in motion. G G are arms attached to the frame B', and resting upon the cam-wheels *h h'* in such a manner that when the cam revolves the frame B', together with the strips B and rods *c*, are raised and lowered twice in one revolution of the cam-wheels. On the arms G are friction-rollers S. On the inner side of the cam-wheel *h* are spurs *i* and *i'*, which cause the rods to take up and throw off the percussion-compound.

The operation of this invention is as follows: By means of the crank, the cam-wheels are turned one-half a revolution, which causes the frame containing the priming-rods to be lowered, the notched ends of the rods entering the chambers or pits in the priming-tray, while the frame B' and the priming-rods are moved at the same time, in the direction indicated by the dotted lines in Fig. 6 of the drawings. This is caused by the spur *i* coming in contact with a projection on the frame B'. The frame is then raised to its position as at first, the priming-rods being each loaded with a charge of fulminate. The sliding frame F is then moved so as to withdraw the tray D

and to insert the plate E. Then the cam-wheels are turned the other half a revolution, which causes the frame and priming-rods to be lowered as before, but this time into the paper envelopes, and as the spur *i* strikes the frame B', the charge of fulminate is caused to fall from the rods *c* into the envelopes, when the frames B and rods *c* are raised up into the position they at first occupied. The sliding-frame F is then moved so as to force the plate E out and tray D into the machine. The operation may then be repeated.

By the use of this invention, torpedoes can be made much cheaper, better, and safer than when made by hand, as in the old or present method.

Having thus fully described the nature, construction, and operation of our invention, what we claim as new, and desire to secure by Letters Patent, is —

1. The priming-rod C, provided with a notch at or near its lower end, for the purpose of holding or carrying the proper quantity or charge of detonating compound, substantially as and for the purpose herein set forth.

2. The safety fulminate-tray D, having small chambers or compartments, the bottom of which are made of thin paper-cloth or other suitable material, substantially as and for the purpose herein specified.

3. The plate E having rollers or wheels, in combination with the tramway *e'* and the sliding frame F, substantially as and for the purpose herein specified.

4. In combination with a machine for priming torpedoes, the sliding frame F, arranged so as to carry the fulminate-tray D into the machine when the plate E is withdrawn from the machine, and to carry out from the machine the tray D when the plate E is inserted, substantially as and for the purpose set forth.

5. The spurs *i* and *i'* on the cam *h*, in combination with the frame B', arranged and operating substantially as and for the purpose herein specified.

D. J. WOLFE.

G. A. LILLIENDAHL.

Witnesses:

R. R. MOFFATT,

W. A. TURNER.