D. J. WOLFE & G. A. LILLIENDAHL.

Torpedo-Envelope Machine.

No. 167,814. Patented Sept. 14, 1875.

Fig: 1.

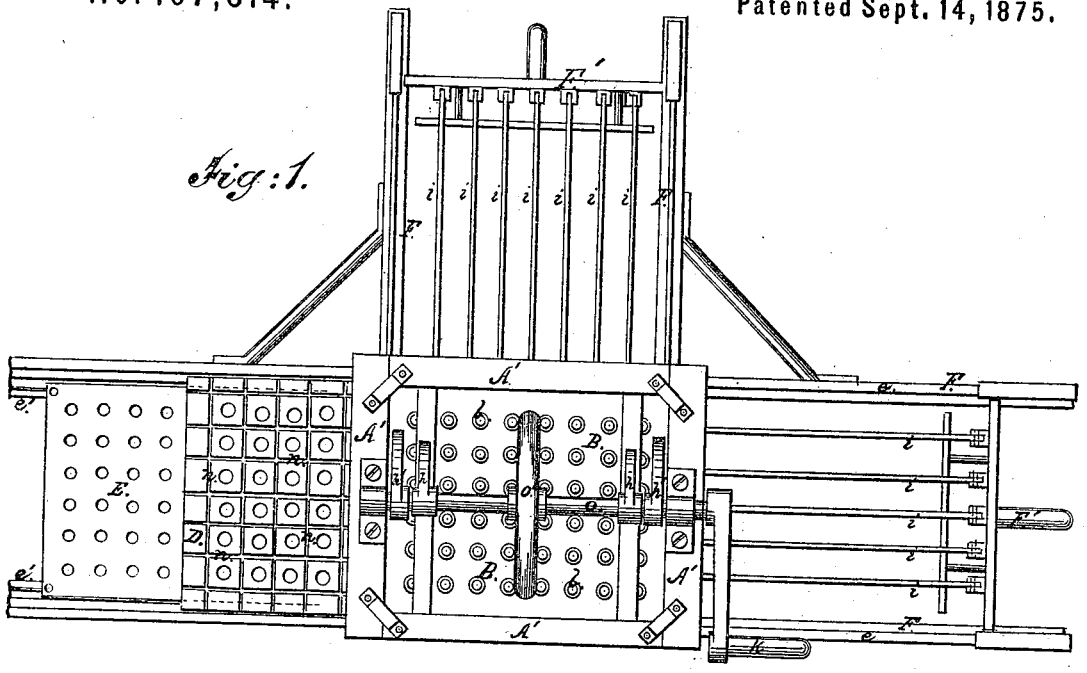


Fig: 2.

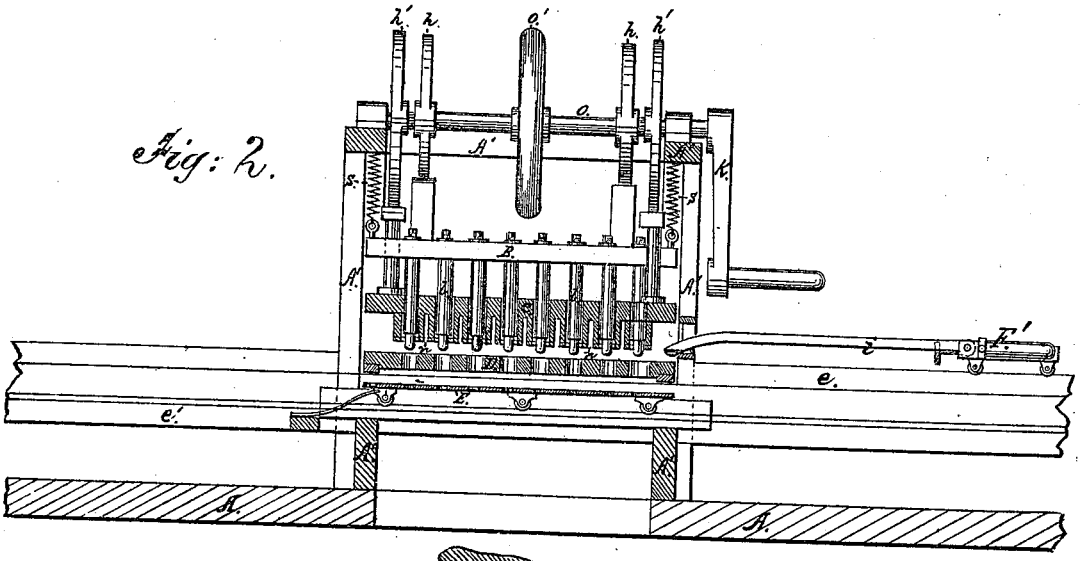
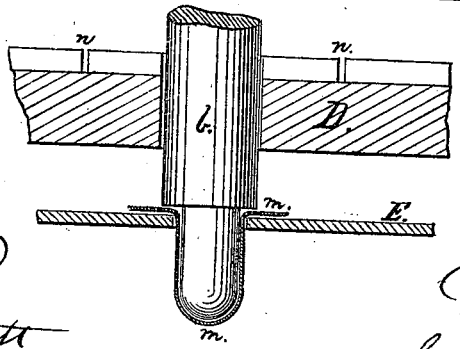


Fig: 3.



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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN TORPEDO-ENVELOPE MACHINES.

Specification forming part of Letters Patent No. **167,814**, dated September 14, 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 Improvement in Torpedo-Envelope Machines, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to the manufacture of the small percussion-torpedoes so popular with children as a means of amusement. Heretofore the paper bags or envelopes for these torpedoes have been made one at a time by means of a board containing holes and a hand-pin.

Our object in this invention is to facilitate this operation. It consists in a novel apparatus or machine, whereby a number of paper bags or envelopes are simultaneously made, the paper being cut and formed into bags or envelopes in the same machine.

In the accompanying drawings, Figure 1 represents a top or plan view of a machine constructed on our plan. Fig. 2 is an elevation or side view of the same, part of which is shown in section. Fig. 3 is a full-size view of a cupping-pin and perforated plates detached from the machine.

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

In the drawings, A represents the foundation or table on which is the machine-frame A′. Within this frame are plates B, C, D, and E, the three last-named being perforated. The plate B contains pins *b*, arranged in such a manner as to enter the perforations in the plates C, D, and E. The plates B and C remain within the frame, in which they operate and move in an upward and downward direction. The plates D and E are so arranged that they can be moved into and out of the machine, the plate D sliding upon the track *e*, and the plate E, which is mounted on wheels, rolls upon the track *e′*. On the upper face of the plate D are grooves *n*, which extend from side to side and end to end, in such a manner as to divide the face of the plate into squares, with a hole or perforation in the center of each, as shown in Fig. 1. *i i* are knife-blades, secured in a frame, F F, and arranged so that they can be moved into the machine in such a manner that the cutting-edge of the knife will be in the groove *n* as it is withdrawn. The lower surface of the grooved plate C is provided with an elastic or flexible rubber cushion, which holds the paper in position after it has been cut, and on account of its flexible properties it permits the paper to move evenly into the perforations in the plate D as the pins *b* are forced downward. On the upper part of the machine is mounted a shaft, *o*, having a heavy balance-wheel, *o′*, also cam-wheels *h h* and *h′ h′*, which give, when revolved, the desired motion to the plates B and C, these plates being firmly held against the cams by the spiral springs *s s*. The machine is operated by the hand-crank K, or in any other desirable manner.

In the operation of our machine a sheet of paper is spread upon the grooved face of the plate D, which is then slid into the machine. The crank K is then turned so as to force downward the plate C upon and against the plate D, which thus holds the paper sheet, so that it cannot move or slip. The knives are then forced into the machine, and as they are withdrawn the blades or cutting-edges of the knives enter the grooves *n* in the plate D, and cut the paper. The crank is then turned again, which (through the form of the cam) loosens the plate C from its pressure upon the paper; at the same time the cams *h h* force the plate B and pins *b* down, so that the pins *b* pass through the plates C, D, and E. At the same time the pins force the paper through the plate D and into the plate E, as shown in Fig. 3, *m* representing the paper bag or envelope. The plate is then rolled out from the machine, and the paper bags or envelopes are ready to be primed, charged, and twisted into shape. The plate D is also withdrawn from the machine, so as to receive another sheet of paper, when it and a plate, E, are returned to the machine again, and the operation described may be repeated.

By the use of this invention torpedoes can be made much better and cheaper than when made by hand.

In the construction of our machine any desired material may be used, but we prefer to

make the whole machine from metal. Various parts of the machine may be modified and changed without departing from the nature of our invention.

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

1. The combination of the plate B, having pins *b*, with the perforated plates C, D, and E, operating substantially as and for the purpose specified.

2. In combination with a machine for cutting and forming paper torpedo-envelopes, the perforated holding-plate E, operating as and for the purpose herein specified.

3. The combination of the gang-knives *i i*, the grooved perforated plate D, and the pins *b*, arranged to cut and form the paper into envelopes, substantially as described.

4. The combination of the perforated plate D with the perforated grooved plate C, which is provided with rubber bearing-surfaces, for the purpose of holding the paper in position when being cut and formed into paper torpedo-envelopes, substantially as described.

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