Sargent & Townsend.

Eyeleting Machine.

No. 42146. Patented Mar. 29, 1864.

Fig. 1.

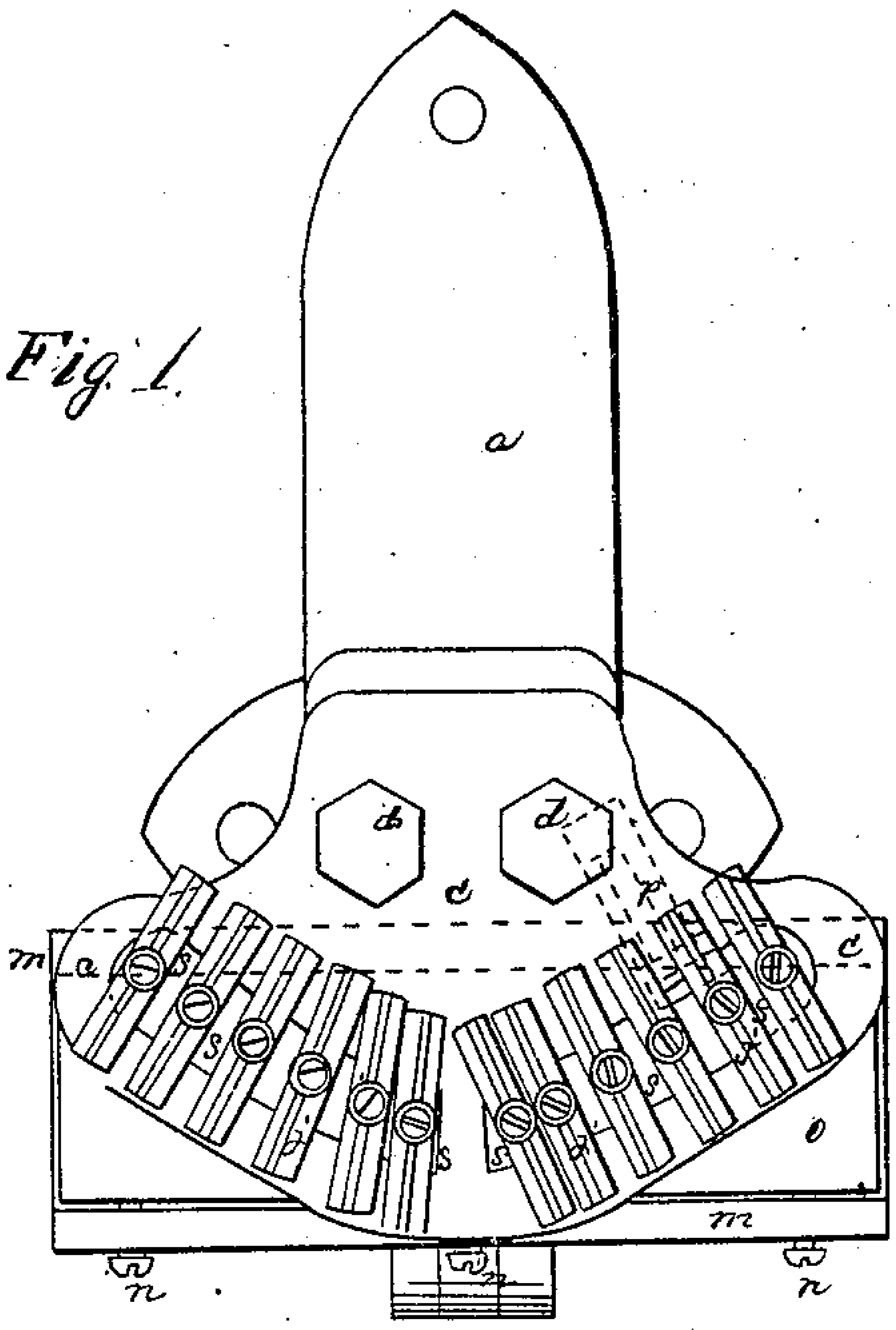


Fig. 4

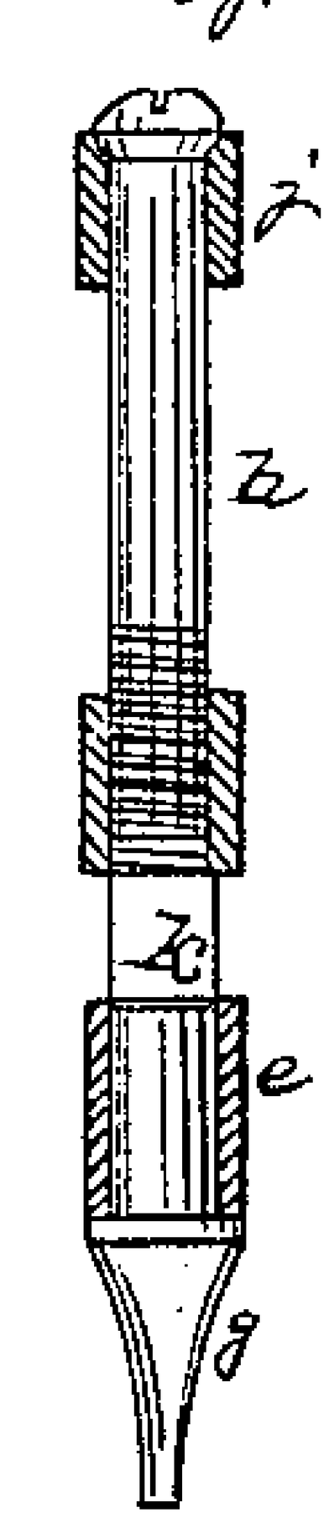


Fig. 2.

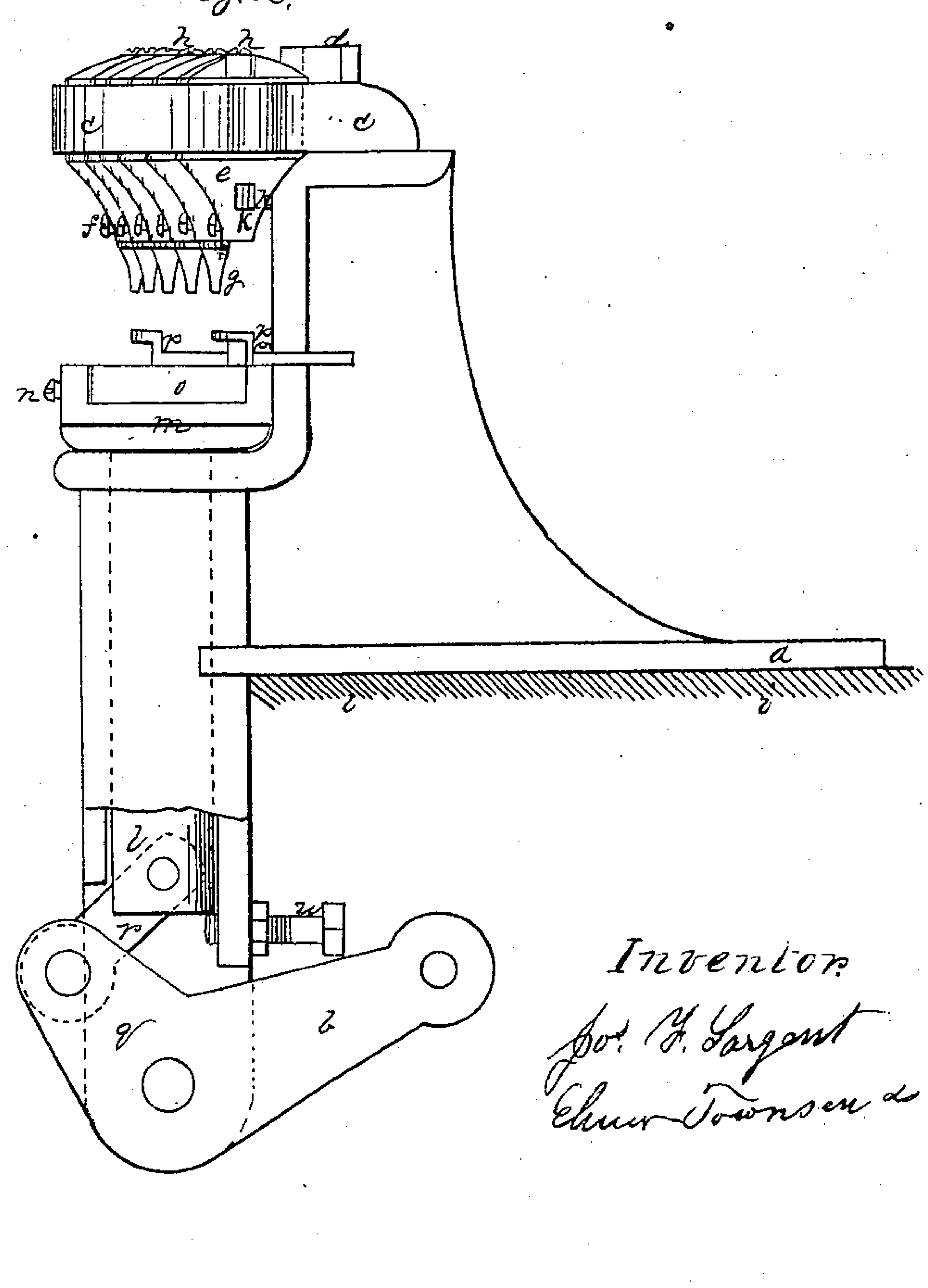
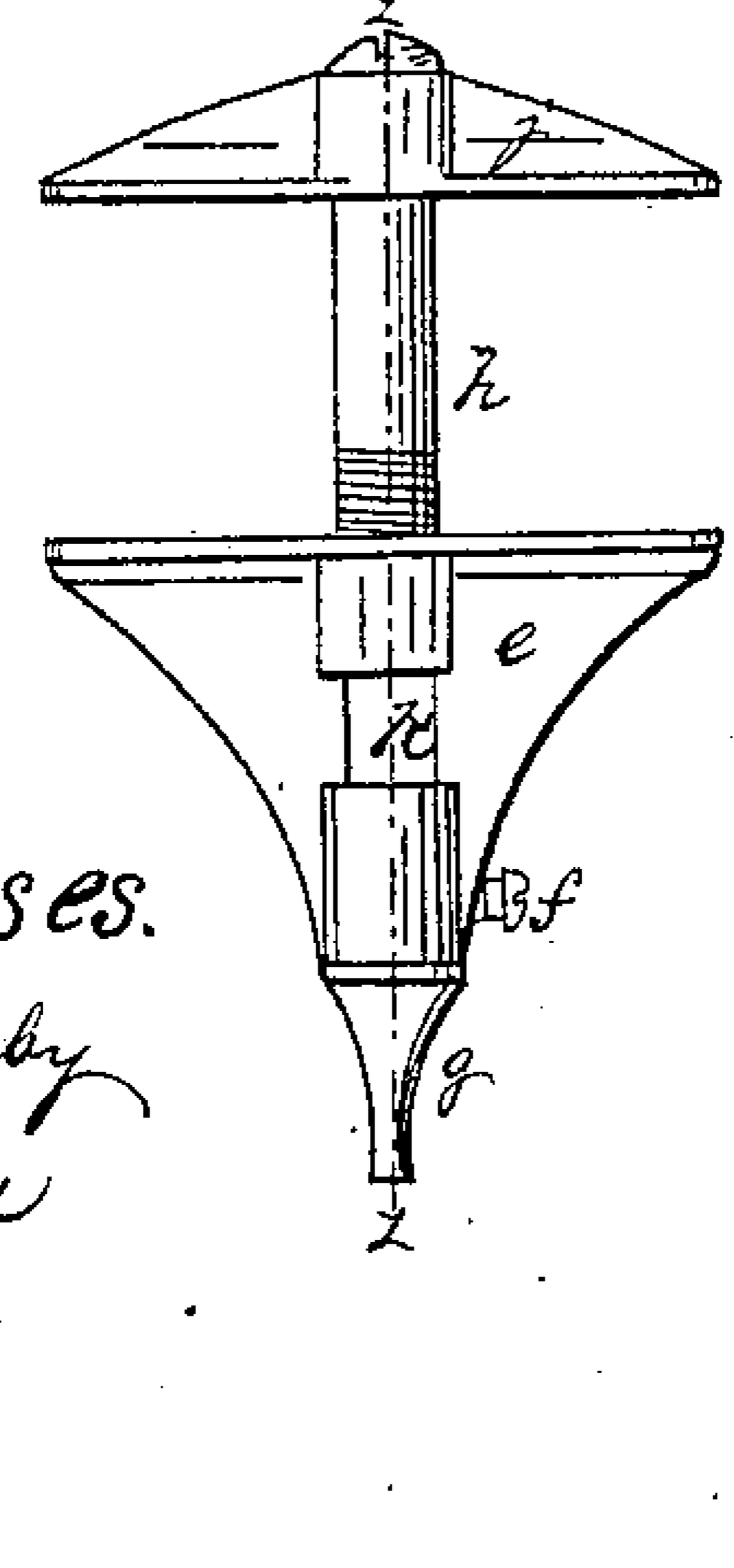


Fig. 3



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH F. SARGENT AND ELMER TOWNSEND, OF BOSTON, MASSACHUSETTS, ASSIGNORS TO ELMER TOWNSEND.

IMPROVEMENT IN PUNCHING-MACHINES.

Specification forming part of Letters Patent No. **42,146**, dated March 29, 1864.

To all whom it may concern:

Be it known that we, JOSEPH F. SARGENT and ELMER TOWNSEND, both of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Punching-Machine; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

In many branches of the mechanic arts, and in the manufacture of shoes especially, a considerable number of holes have to be punched, in which holes eyelets are often inserted and clinched. These holes have heretofore been made by successive operations with a single punch. This consumed a great amount of time, and the work done was irregular in its appearance. To avoid these objections, gangs or sets of punches were permanently fixed in a holder to any desired line, curvature, or pattern; but this is objectionable on account of the expense of such fixed sets or gangs of punches, one being required for each different size or style of articles to be punched.

To avoid the objections against each of the aforesaid kinds of punching apparatus, we have devised the machine herein to be described; and the invention in said machine consists, first, in that the punches are so mounted or arranged in a holder that they are capable of adjustment horizontally therein in all directions, so that within certain practical limits they are easily made to conform to any desired size or style of work.

Our invention also further consists in the details of the construction of the machine.

In the drawings illustrating our machine, Figure 1 is a plan, and Fig. 2 a side elevation, of a machine embodying our invention. Fig. 3 is an elevation of a single punch and the clamping mechanism connected therewith, represented of a size large enough for practical work; and Fig. 4 is a sectional elevation of the same, the section being taken in the line *z z*, seen in Fig. 3.

The machine is fixed by its flange *a*, forming part of its body, to a table or bench, *i*, and thus is conveniently placed for manipulations by the operator and for connection of the lever *b* to a treadle arranged in any convenient manner beneath.

The part *c* of the machine, to which the punches are clamped, is made with openings *s* through it of any convenient size and form, said openings being so made as to permit of the lateral movement therein to a considerable extent of the screws *h*, which fasten the punches where desired. The piece *c* is made so as to be readily changeable for others, having therein other openings *s*, of such size and form as to suit any peculiar requirement. The bolts *d* serve to confine *c* in its place to the body of the machine. The pieces *e* are the immediate holders of the punches *g*, and, together with the screws *h* and the washers *j*, form the mechanism by which the punches are held in any desired position. The screws *h* pass freely through the washers *j*, and are tipped into *e*, both *j* and *e* being made narrow where they bear against *e*, to admit of close grouping of the punches, and long enough to rest in any position which *h* can be made to assume in the opening *s*, with their ends bearing on *e* on each side of the opening. In the lower end of *e* a socket is formed to receive the punch *g*, which, when its shoulder is brought to bear against *e*, is secured in place by the set-screw *f*. At the top of the punch, which is hollow throughout its length, a mortise or opening, *k*, is formed through *e*, connecting with the punch-socket and forming a mouth through which the punching or chips are discharged. In the lower part of the machine a long socket is formed, which receives the slide *l*, to which the bed *m* is attached. The bed *m* is provided with set-screws *n*, by which a punch-block, *o*, of wood or other suitable material is secured to the bed, on which are gages *p*, made adjustable and designed to gage the position of the work relative to the punches. Depression of lever *b* raises the bed and the work thereupon placed by bringing the two arms *q* and *r* of the toggle-joint (seen in Fig. 2) toward a right line. The throw of the bed toward the punches is regulated by the position of the set-screw *u*, and the punches are thereby kept from embedment in the bed. It is obvious that the punches may be variously grouped in the piece *c*, the limit of the grouping being determined by the re-

lation of the size of screws *h* to the size and form of the openings *s* in *c*, and also by the width of the pieces *e* and *j*, and that the same punches may be detached from one piece *c* and used in any other with different sizes and shapes of openings *s*. While each punch is adjustable with regard to the others, each may be removed from its socket to be sharpened and can be returned without change in its position, as the socket to which it belongs remains unchanged, or any of the punches can by such removal be made inoperative till replaced. While the bed is forced upward in the act of punching by the mechanism described, it descends by the gravity of its parts and those connected therewith, and its descent may be aided by the action of a spring applied for that purpose.

We do not claim an arrangement of a series of punches by which they can be adjusted to variable curves or otherwise by imparting to each punch movements in one vertical plane but

We claim—

1. Constructing a punching-machine so that its punches may be adjusted in any direction in their plane of action, substantially as described.

2. Working the movable bed with reference to fixed punches by means of slide *l* and levers *r*, *q*, and *b*, operating together as described.

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