E. E. Marsh.

Making Eyelets.

No. 54,468. Patented May 1, 1866.

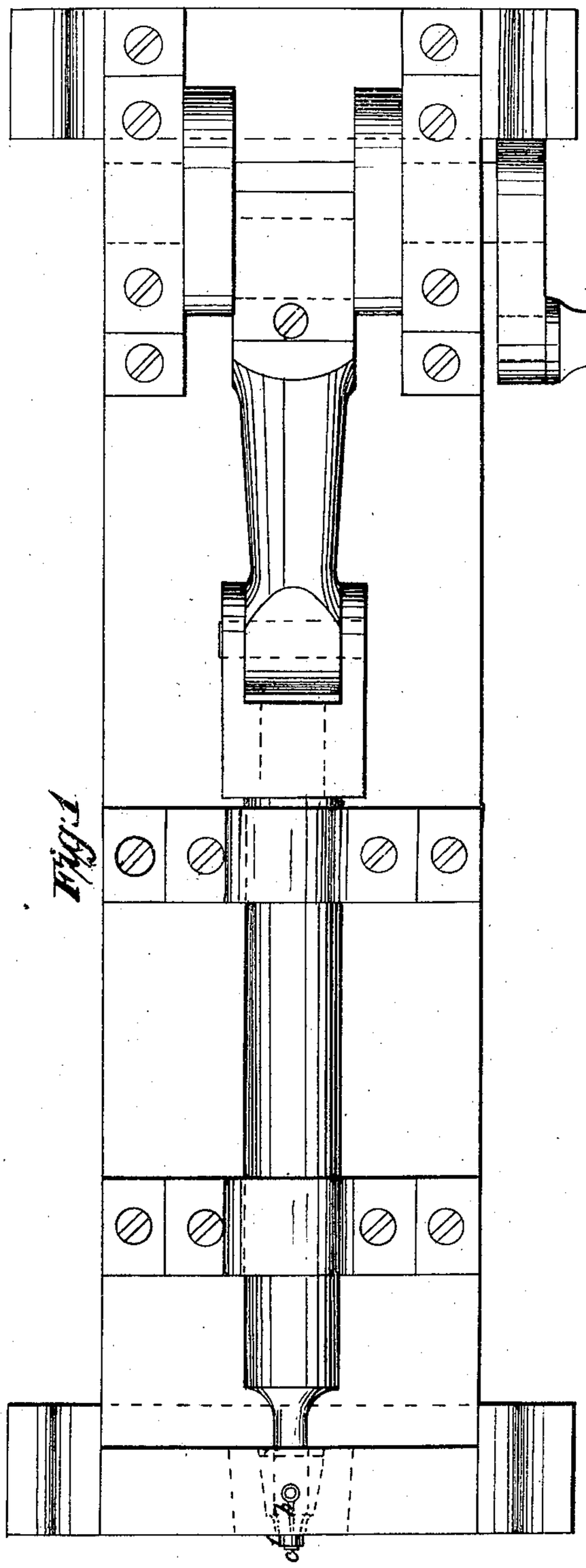

Fig. 1.

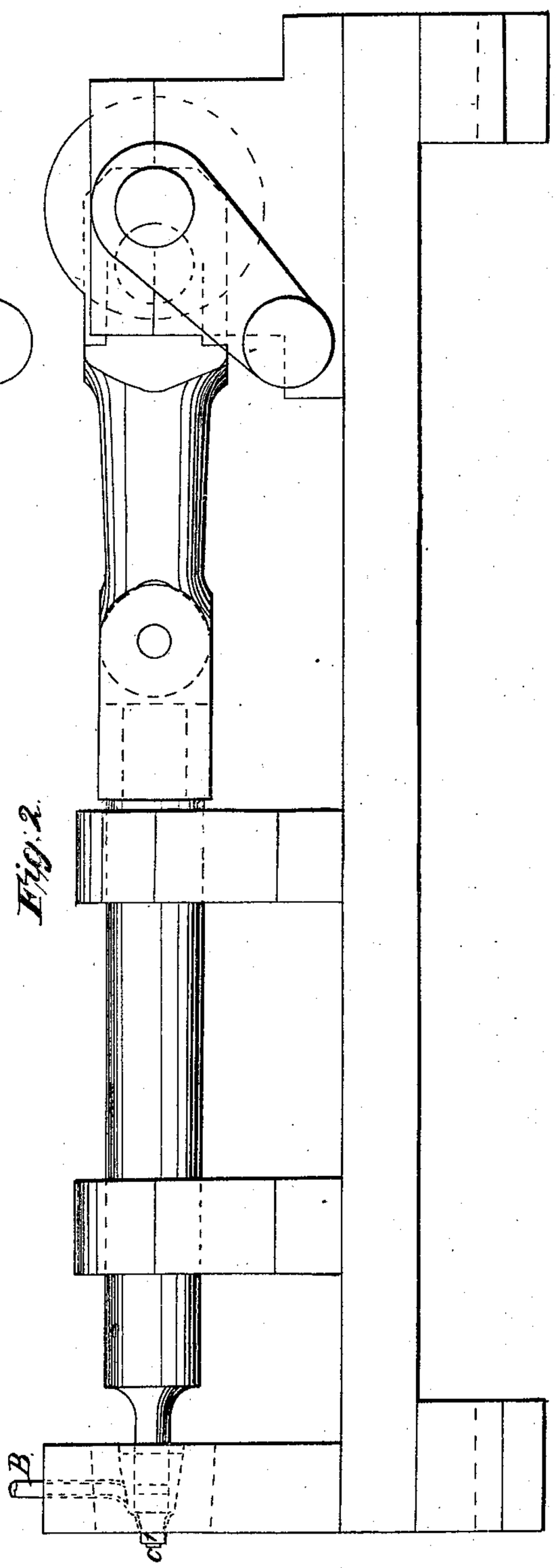

Fig. 2.

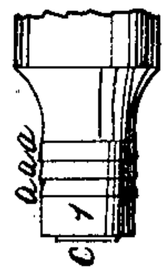

Fig. 3.

Witnesses;
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UNITED STATES PATENT OFFICE.

EDWIN E. MARSH, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO AMERICAN EYELET COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING EYELETS.

Specification forming part of Letters Patent No. **54,468**, dated May 1, 1866.

To all whom it may concern:

Be it known that I, EDWIN E. MARSH, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Machines for Making Eyelets; and I do hereby declare that the following specification, taken in connection with the drawings, making part of the same, is a full, clear, and exact description thereof.

The invention which is the subject of this patent has reference particularly to that class of machines for making eyelets which are operated substantially upon the principle embodied in the machine of Jesse F. Richards, of Providence, Rhode Island, for which Letters Patent were granted to him on the 4th day of October, A. D. 1864.

The improvements hereinafter described have been suggested by the difficulties which were encountered in the course of putting into practical operation some machinery upon the principle of the said Richards, and they relate, first, to a means for more fully drawing out or elongating the barrel of the eyelet; second, to a device for insuring the withdrawal of the eyelet from the die wherein it has been formed.

The accompanying drawings are intended to exhibit only the improvements which have been made for the above purposes with such other parts of the machine as will be sufficient to make their operation intelligible, and it must be understood that in all other particulars except as herein specified the machine is intended to be constructed upon the principle and is to possess the mode of operation substantially as described in the said patent of Richards, to the schedule accompanying which for a particular description reference is to be made. While, however, I prefer to make use of the machinery described by the said Richards, my improvements are equally well adapted to other machines for making eyelets which employ dies, formers, and cutters in combination for the purpose of performing all the operations necessary in making an eyelet from sheet metal.

Figure 1 is a plan. Fig. 2 is a side elevation. Fig. 3 is an enlarged view of the tip of the plunger.

The first one of my improvements relates to the means employed for more readily elongating the barrel of the eyelet during the process of forming it. By referring to the patent of the said Richards it will be seen that by the machinery there described a circular planchet of metal is first drawn into the shape of a bell-shaped cup by means of a die and former; and, secondly, the top of the same is cut out by the thrusting action of a plunger in combination with a stationary female cutter. (This plunger and die are designated in the description by the numbers 1 (one) and 6 (six) respectively.) The tendency of the action of the plunger is to draw out the metal composing the barrel of the eyelet as an effect of the resistance which the end of the same meets with in cutting out the top of the cup; but it has been found desirable to increase this tensile strain in order to give greater length to the barrel of the eyelet. For this purpose I have provided so much of the cylindrical portion of the plunger as passes through the barrel with a roughened surface, which may consist in the use of a series of shallow but sharp-edged grooves *a a*, as shown in Fig. 3, or may be of any other preferred character, which will have the effect to gripe the metal and draw it out in the direction in which the plunger travels.

The second feature of my invention relates to a means for insuring the withdrawal of the eyelet from the die in which it is formed. It is intended that the eyelet shall be taken out of the die by the plunger 1 upon the return movement of the latter, and in the majority of cases such will be the fact by reason of the adhesion of the inner surface of the eyelet to the outer surface of the plunger; but it occasionally happens that the plunger will return and leave the eyelet within the die, in which case the machine must be stopped until it has been removed. To do this not only involves delay, but, as is likely to be the case, the accident is not discovered until the machine has made several revolutions and the eyelet so left with the succeeding ones attempted to be formed so foul the die as to cause the machine to break down in some of its parts.

To prevent this difficulty I make use of a spring-plunger, as shown in Fig. 1—that is to say, a longitudinal slit, *b*, is made in it, and the plunger made correspondingly larger than it otherwise would be, so as to require its two

halves to be compressed in performing its functions within the die. As the die is tapering in form, it follows that upon the return movement of the plunger it will naturally expand and increase the friction between its surface and the inner surface of the barrel of the eyelet. This plan, too, of constructing the plunger assists, in combination with roughened surface given to it, before described, to gripe the sides of the barrel and draw it out while being formed.

Although my improvements above described have special reference to machinery for making eyelets, it is obvious that they can with advantage be applied to machines for making other similar articles which involve the use of instruments for forming articles from sheet metal similar to those used in this class of eyelet-machines.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The use of a plunger, 1, having a roughened surface, as described, in combination with the die in which the eyelet is formed, for the purposes specified.

2. The use of a plunger capable of lateral contraction and expansion, in combination with the die within which the eyelet is formed, substantially as described, for the purposes specified.

EDWIN E. MARSH.

Witnesses:
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