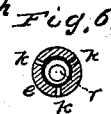
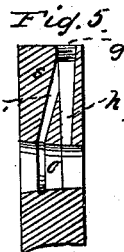
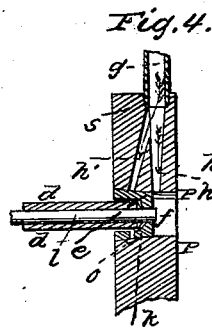
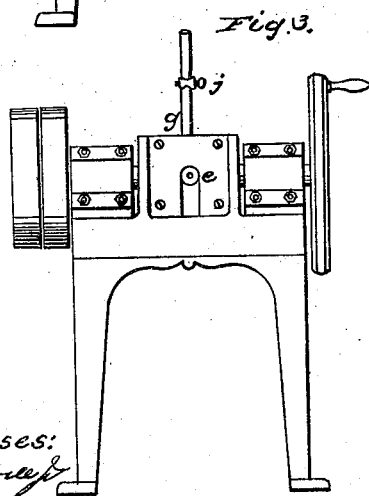
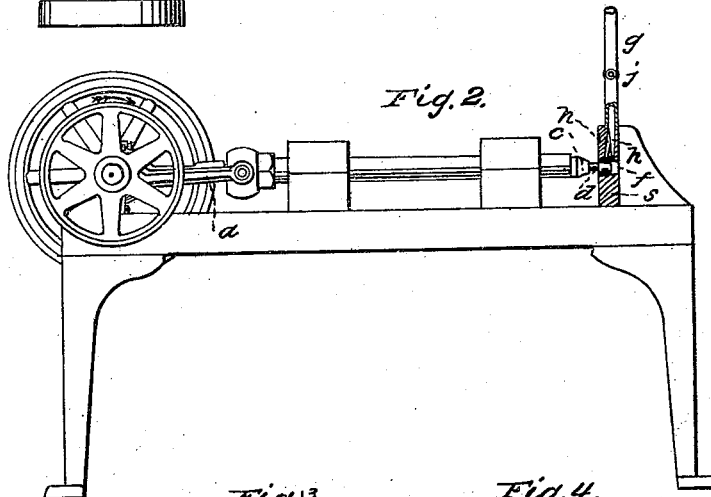
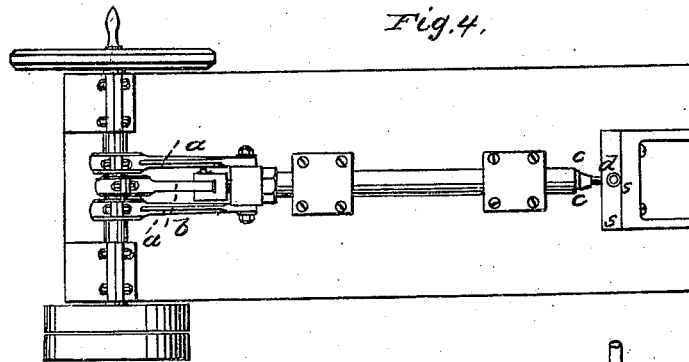


WILSON & LOWE.

Eyelet Machine.

No. 54,240.

Patented April 24, 1866.



Witnesses:  
*James C. Wilson*  
*Thomas L. Davis*

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# UNITED STATES PATENT OFFICE.

IRA E. WILSON AND JOHN LOWE, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN EYELET-MACHINES.

Specification forming part of Letters Patent No. 54,240, dated April 24, 1866.

*To all whom it may concern:*

Be it known that we, IRA E. WILSON and JOHN LOWE, both of Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement on Eyelet-Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon—

Figure 1 being a plan of the eyelet-machine on which we have made our present improvement; Fig. 2, a side elevation of the same machine with our improvement applied; Fig. 3, an end elevation of the machine with the improvement; Fig. 4, a section through the die-plate and die, showing the passage-ways into and partially through the die-plate; Fig. 5, a section through the die-plate, with an exterior view of the die, and Fig. 6 a transverse section of the die midway with its length.

The nature of our invention consists, first, in the forcible introduction into and application to eyelet-machines, under a sufficient pressure, of one or more blasts or currents of air or streams of water or of such other fluid as may accomplish the purposes herein described, for the purpose of removing from the end of the punch the circular piece of metal which is cut out at the bottom of the die by the punch after the metal has been partially formed into the shape of an eyelet, and also for the purpose of removing such other pieces of the metal from which the eyelets are made as may adhere to the end of the punch; secondly, in the forcible introduction into and application to eyelet-machines, under a sufficient pressure, of one or more blasts or currents of air or streams of water, or of such other fluid as may accomplish the purposes herein described, for the purpose of cooling the die, and for the further purpose of removing from the punch and from the die such pieces of the metal from which the eyelets are made as may still adhere to the punch or to the die and such other pieces of the same metal or such eyelets as may be dropped or become lodged within the die.

Before describing our invention we will describe the general construction and operation of the machine on which it is an improvement. *c c*, Fig. 1, is the stock-punch, worked by the

cams *a a*. *d* is a steel sleeve, which, together with the punch within it, and which is indicated by *l* in Fig. 4, is worked by the cam *b*. These two punches, with the sleeve, are worked alternately by their respective cams. The metal from which the eyelets are made is fed into the machine in strips about one-half of an inch wide. A circle of this metal is struck out by the stock-punch *c c*, Fig. 1. This circle of metal is immediately struck by the punch *l* and sleeve *d d*, Fig. 4, which force it into the die, forming it into the shape of an eyelet. When this piece of metal, so shaped, reaches the bottom of the die the punch *l*, advancing beyond the sleeve *d d*, which stops at the points *e e*, cuts out at the bottom of said piece of metal the circular chip *f*, all of which is represented in Fig. 4. The punch and sleeve then come out of the die, carrying the eyelet on the end of the punch. As soon as the punch emerges from the die it withdraws into the sleeve, thereby knocking off the eyelet from the end of the punch.

Our present invention is not of the machine as above described, or of any part thereof.

In the machine above described a serious difficulty has been experienced from the clinging or adhering to the end of the punch *l*, Fig. 4, of the circular chip *f*, which difficulty increased as the punch became heated from rapid working, so that in a very short time the chips accumulated on the end of the punch and became lodged within the die in such quantities or numbers as to prevent the production of perfect eyelets, so that the machine, for practical purposes, has been found nearly useless, while after the application of our invention it has worked smoothly and successfully.

We will now proceed to describe our invention, in order to enable others skilled in the art to make and use the same.

In Fig. 4, *s* is the die-plate, made of cast-iron, and *e* the die. *g* is a metallic tube, one-fourth of an inch in diameter, screwed into the die-plate; and *h h'* are holes drilled in the die-plate, which serve as channels or passage-ways, through which the air or water or other fluid is forced.

In the first part of our invention a blast of air or stream of water, or of such other fluid as may be used, entering the tube *g*, Fig. 4, is forced down the channel *h* in such a manner as to strike upon the end of the punch *l* and

knock off the chip *f* and throw it out at the aperture *p p*.

In the second part of our invention the blast or current of air or stream of water or other fluid entering the tube *g*, Fig. 5, is forced down the channel *h'* and into the channel *o*, which is a groove cut in the die-plate *s*, and surrounding and in contact with the die. From this groove *o* the air or water or other fluid is forced to the inside of the die through the passage-ways *k k k*, Fig. 6, which are holes drilled through the die from the outer to the inner surface of the same, about midway with its length.

The purposes of this part of our invention are, first, to cool the die; secondly, to remove the chip *f* in case it should still adhere to the end of the punch, and also to remove such other shavings or pieces of metal or such eyelets as may be dropped in the die or become lodged therein, forcing them out at the mouth or large end of the die.

We do not understand that the position of the tube *g* is essential, nor that it should be exactly one-fourth of an inch in diameter; nor do we understand that the position or number of the passage-ways *k k k*, Figs. 4 and 5, is essential, nor that each is essential to the

other; but we have described that arrangement, size, and number of the passage-ways *k k k* and that arrangement and size of the tube *g* which we have found to accomplish best the above-described purposes.

The fluid which we have found to accomplish best the above purposes is atmospheric air forced into the tube *g* by a blower or fan under a pressure of from three to five pounds to the square inch; but the same may be introduced by exhaustion. A stream or several streams of water will accomplish the same purposes, as will any other fluid of slight density.

What we claim as our invention, and desire to secure by Letters Patent, is—

The forcible introduction into and application to eyelet-machines of one or more blasts or currents of air or streams of water, or of such other fluid, under a sufficient pressure, as will accomplish the above-described purposes, substantially in the mode above described and for the purposes indicated.

IRA E. WILSON.  
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Witnesses:

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