

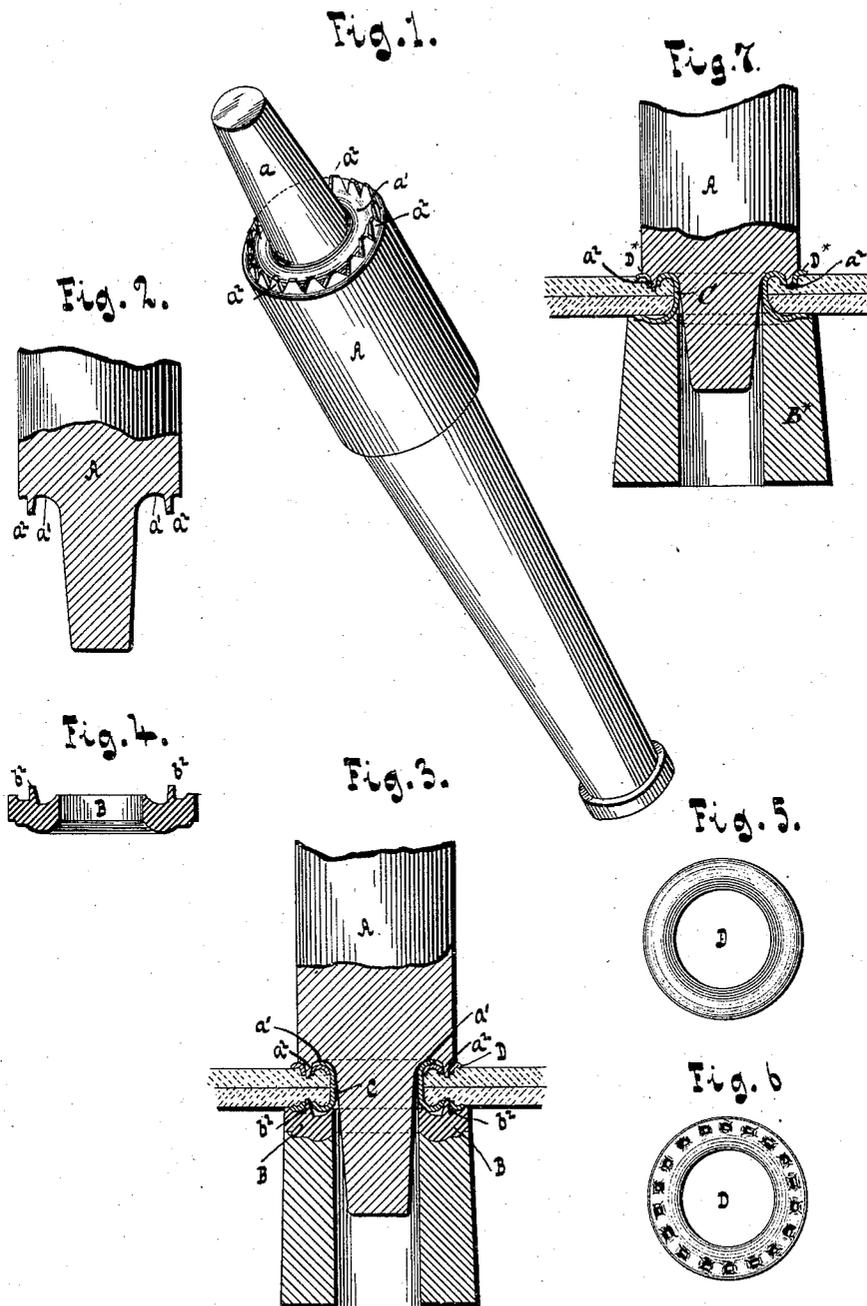
(No Model.)

W. W. WILCOX.

PUNCH AND DIE FOR SAIL GROMMETS, &c.

No. 382,924.

Patented May 15, 1888.



WITNESSES:

Richard du Puy
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UNITED STATES PATENT OFFICE.

WILLIAM W. WILCOX, OF MIDDLETOWN, CONNECTICUT.

PUNCH AND DIE FOR SAIL-GROMMETS, &c.

SPECIFICATION forming part of Letters Patent No. 382,924, dated May 15, 1888.

Application filed March 8, 1888. Serial No. 266,518. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WILCOX, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented new and useful Improvements in Punches and Dies for Sail Grommets and Eyelets, of which the following is a specification.

This invention relates to a punch and die for securing grommets and eyelets, said punch being provided with teeth or points which serve to penetrate the washer of the grommet or the flange of the eyelet formed by setting the same, and form projections or burrs which take a firm hold of the material to which the grommet or eyelet is to be attached. The die is also formed with teeth or points which act upon the flange of the eyelet, all of which is fully described in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of my punch. Fig. 2 is a vertical section of the punch. Fig. 3 is a vertical section of the punch and die, illustrating their action upon a sail-grommet. Fig. 4 is a section of the die detached. Fig. 5 is a face view of a grommet-washer before it has been exposed to the action of the punch. Fig. 6 is a similar view of said washer after the same has been exposed to the action of the punch. Fig. 7 is a vertical section of my punch, illustrating its application to an eyelet after the latter has been set.

Similar letters indicate corresponding parts. In the drawings, the letter A designates a punch which is provided with a nipple, a , and with a shoulder, a' . Outside of the shoulder are teeth or points a^2 .

B is my die, which is bored out to receive the nipple a of the punch, and the face of which is provided with teeth or points b^2 , similar to the teeth a^2 of the punch. In order to adapt my die to an old die, B*—such as generally used in the operation of setting grommets or eyelets—I make the same in the form of a disk, as shown in Figs. 3 and 4, the lower face of which fits the upper face of the old die B*; but my die may be made integral with its support.

In using my punch for the purpose of more firmly securing an eyelet in its position I first set the eyelet by the ordinary inserting-tools.

Then I introduce my punch A, Fig. 7, and by a blow of a hammer this punch is driven down so that its teeth a^2 penetrate the flange D*, formed on the eyelet in the previous operation of inserting the same, and by these means projections or burrs are formed on the inner surface of this flange, which extend into and take a firm hold of the material to which the eyelet is to be attached. If the eyelet, after having been set by the ordinary inserting-tools, is placed upon my die B and then exposed to the action of my punch A, the teeth b^2 of the die act upon the flange of the eyelet, as shown in Fig. 3, and the projections or burrs produced by these teeth give to the eyelet an additional hold on the material.

In using my punch and die for setting a grommet I proceed as follows: I pass the barrel of the eyelet C through the cloth or other material. Then I place upon the projecting end of said barrel the washer D and place the eyelet upon the die, (see Fig. 3,) and then I bring down the punch A. By the action of this punch the eyelet C is clinched, and at the same time the teeth a^2 of the punch indent or penetrate the metal washer D of the grommet, so as to produce burrs which extend into the body of the cloth or other material, and to cause the washer to grip the same tenaciously. At the same time the teeth b^2 of the die D indent or penetrate the flange of the eyelet C, so that the cloth or other material is firmly retained.

In some cases it may be desirable to clinch the grommet with the ordinary setting punch and die, as shown in Fig. 7, and afterward expose it to the action of my punch A and die B. This proceeding may be necessary if the eyelet C of the grommet projects so far through the material that in attempting to clinch the same with my punch the edge of the eyelet, when turned over to the position shown in Fig. 7, would strike against the inner faces of the teeth a^2 of my punch.

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

1. The combination, with a die having a central orifice, of a punch having a central projecting nipple, a , and a series of outwardly-projecting teeth, a^2 , around the inner end portion of the nipple, substantially as described.
2. The combination, with a die having a

central orifice, of a punch having a projecting nipple, *a*, and a clinching-shoulder, *a'*, and outwardly-projecting teeth *a''* around the inner end portion of the nipple, substantially as described.

5 3. The combination, with a punch having a nipple, *a*, of a die consisting of a disk having a central orifice, and provided with a series of outwardly-projecting teeth, *b''*, arranged
10 around the orifice, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

WILLIAM W. WILCOX. [L. S.]

Witnesses:

W. C. HAUFF,
E. F. KASTENHUBER.