

(No Model.)

G. O. SCHNELLER.

PUNCH AND DIE FOR EYELETING MACHINES.

No. 299,273.

Patented May 27, 1884.

Fig. 1.

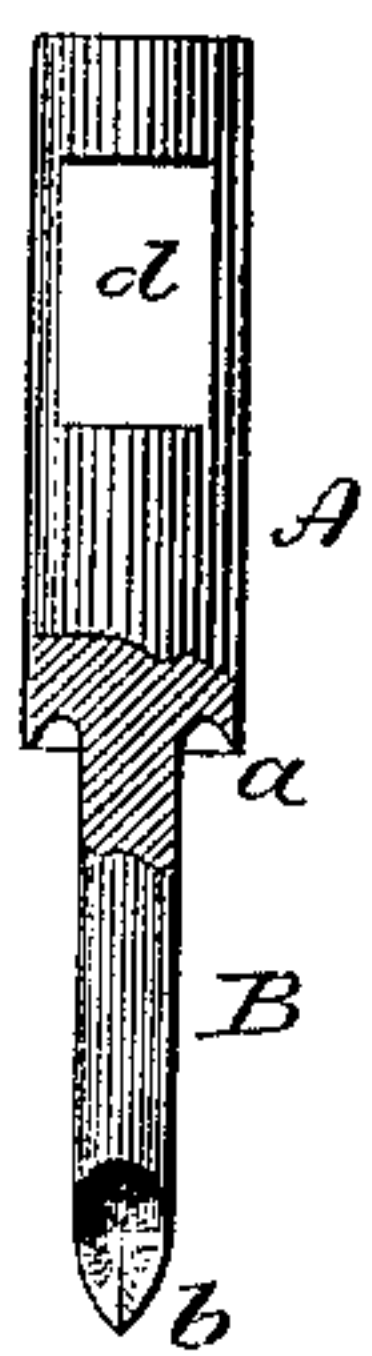


Fig. 2.

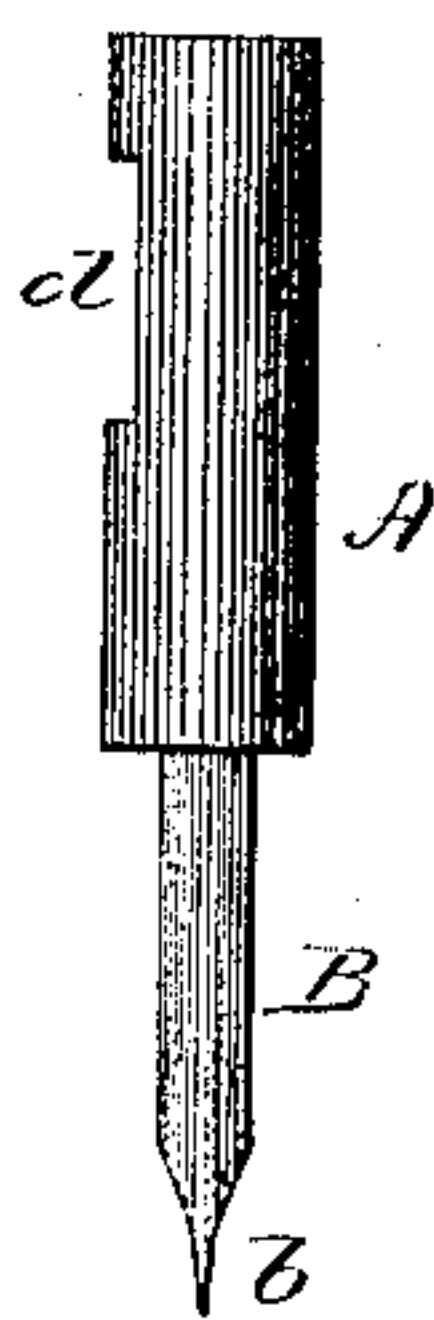


Fig. 3.

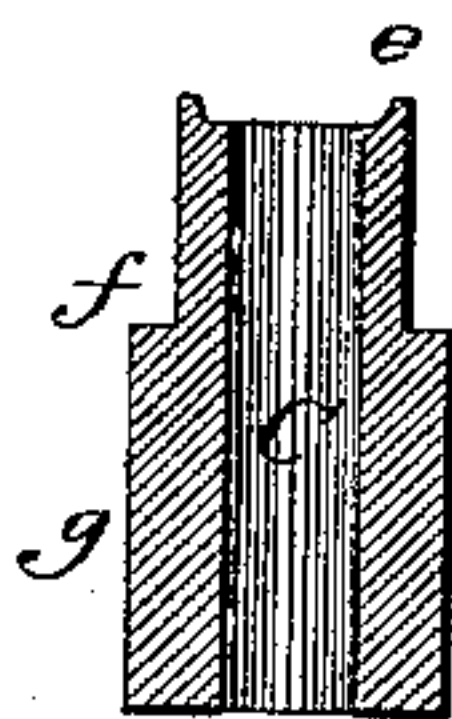
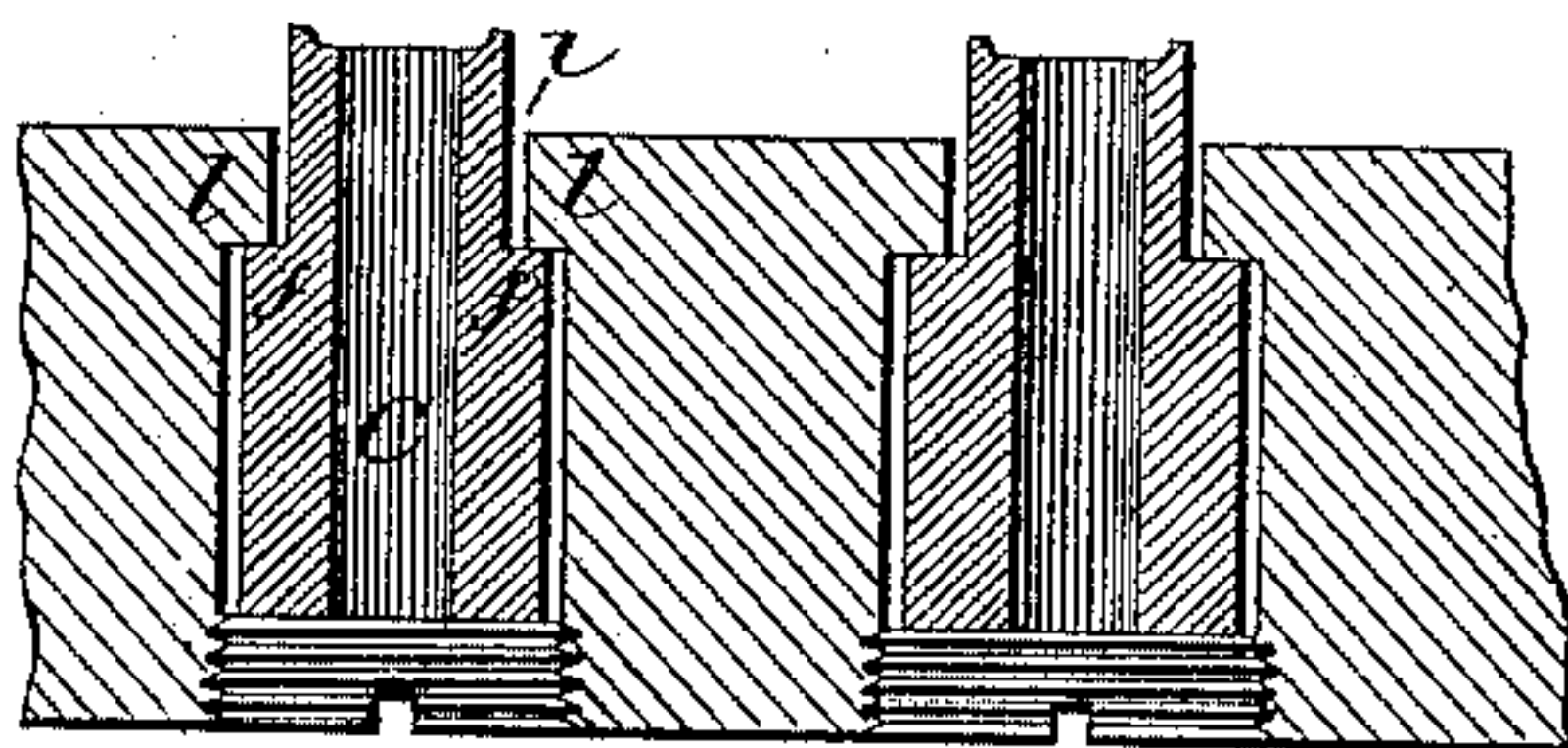


Fig. 4.



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PUNCH AND DIE FOR EYELETING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 299,273, dated May 27, 1884.

Application filed February 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE O. SCHNELLER, of Ansonia, in the county of New Haven and State of Connecticut, have invented a new Improvement in Punches and Dies for Eyeletting-Machines; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a sectional face view of the punch; Fig. 2, an edge view; Fig. 3, a vertical central section of the die; Fig. 4, a vertical section of the die-holder, showing the dies in place.

This invention relates to an improvement in the punch and die whereby eyelets are introduced and set, designed for use in eyeletting-machines for corset-work—such, for instance, as the machine of my invention for which I have filed application for Letters Patent, Serial No. 114,729. “Jean,” or fabric from which corsets are now generally made, is woven specially for that purpose, the warp-threads being very much stronger than the filling-threads. This is done in order that the threads upon which the strain comes—that is, around the body—may have sufficient strength, and yet the fabric be made light by introducing finer or lighter filling-threads, the part or sections being cut so that the threads will run substantially transverse of the sections—that is, in a line of direction around the body. In punching the holes for the eyelets in this fabric, if the common punch be employed, it passes between the threads, and while it will readily break the filling-threads, the warp-threads are so strong that they will be forced to one side; hence will “pucker” the fabric around the eyelet and make more or less uneven work. Again, in eyeletting-machines such as I have before referred to, the wear or breakage of punch and die is very great, and they frequently require renewing.

The object of my invention is to construct the punch and die so that they may be sold as an article of manufacture ready for introduction to the machine, and also to construct the punch so that as it enters the fabric it will cut the coarser threads, while it breaks the lighter threads, thereby making a round and even

hole, into which the eyelet may be set; and the invention consists in the construction of the punch and die as more fully hereinafter described, and particularly recited in the claims.

The punch represented in Figs. 1 and 2 consists of a body, A, forming a shank by which it is fixed in place in the machine, this body being in diameter corresponding to the hole in the punch-holder; *a*, a shoulder from which the punch proper, B, extends. The diameter of the punch corresponds substantially to the diameter of the eyelet. The face of the shoulder *a* is recessed, corresponding to the flange of the eyelet. Its point, instead of being made a sharp round point, as in the usual construction, is made of lancet shape, as shown—that is, it is cut away on opposite sides to produce a flat point, *b*, the face view making substantially a lancet shape, as seen in Fig. 1, while the edge view shows the point as thin and knife-like, as in Fig. 2.

On the face of the punch, in a plane parallel with the plane of the point, a flat surface, *d*, is formed, upon which the set-screw introduced into the holder will not only hold the punch in place, but will locate the point in its proper relation to the adjacent punches—that is, the several punches in a machine stand so that the flat surfaces of the points are in the same plane—that is, in a line up and down the back of the corset, where the eyelets are to be introduced; hence, as the punches pass through the fabric, the sharp edge will cut the warp or stout threads; then the inclined part of the punch above will force away and break the filling-threads, the punch acting after the warp-threads are cut, substantially as sharp-pointed punches.

As these punches and dies are used in series or groups in the machine, usually as many punches and dies as there are eyelets in one line, it is necessary that the dies have a certain amount of freedom, for the reason that it is impracticable, if not impossible, to set the dies so perfectly with relation to the punches that the punches, after passing through the material and the eyelet, will enter the dies without considerable friction. The punch proper necessarily enters the die almost its entire length, and any irregularity in the several dies with relation to their respective punches would create so great a friction as to interfere

with the proper working of the machine. The dies are therefore held loosely in the machine as to radial movement, but fixed as to vertical or axial movement. The die Fig. 3 is tubular—that is, has an opening, C, vertically through it, the diameter of this opening corresponding substantially to the diameter of the punch, and so that the punch may freely enter and recede therefrom. The upper end of the die is recessed, as at *e*, like the recess in the shoulder *a*—that is, substantially the shape of the flange of the eyelet.

The die is constructed with a shoulder, *f*, the portion or body of the die *g* below being of larger diameter than the part above. This shoulder serves to locate the die vertically in the machine—that is to say, the seat for the die is made as seen in Fig. 4—and so that the die is introduced from below. An opening, *i*, is made through the top of the die-holder a little larger than the upper part of the die, the opening or seat made larger below, and so as to form a shoulder, *l*, against which the shoulder *f* on the die will set, the opening below the shoulder being of a little larger diameter than the top of the die, so that while the die is prevented from moving vertically, or in an axial direction, it is substantially free in the radial directions, and so that the several dies of the series may adapt themselves to the punches.

By constructing the dies and punches as described I am enabled to furnish them to a standard size, and in quantities, as an article of manufacture, so as to supply breakage or injury which may occur to them in the machine where they are employed; hence, if a die breaks, it is only necessary to remove the die and reset a new one, and so with the punch.

The machines to which these devices are peculiarly adapted constitute the subject of an independent application for Letters Patent.

I claim—

1. As an article of manufacture, the herein-described die for eyelet-setting machines, consisting of the tubular die, its face corresponding in shape substantially to the flange of the eyelet, the body of the die enlarged from a point below its face, and so as to form a shoulder, *f*, substantially as described.

2. As an article of manufacture, the herein-described punch for eyelet-setting machines, consisting of the punch in diameter corresponding substantially to the internal diameter of the eyelet, having its point of lancet shape, and constructed with the shoulder *a*, corresponding substantially to the shape of the flange of the eyelet, substantially as described.

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