

(No Model.)

2 Sheets—Sheet 1.

G. O. SCHNELLER.

EYELETING MACHINE.

No. 299,019.

Patented May 20, 1884.

Fig. 1.

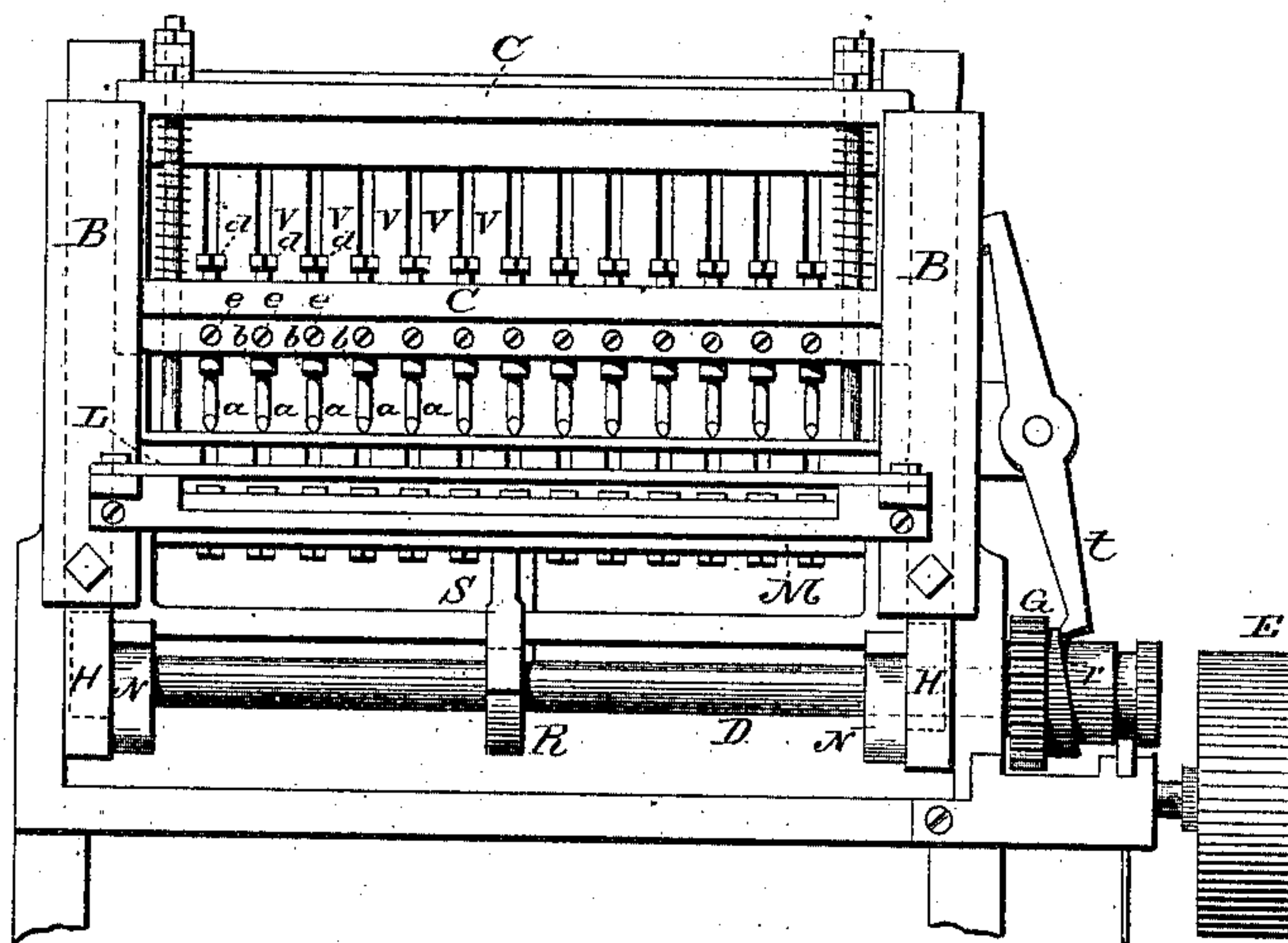


Fig. 2.

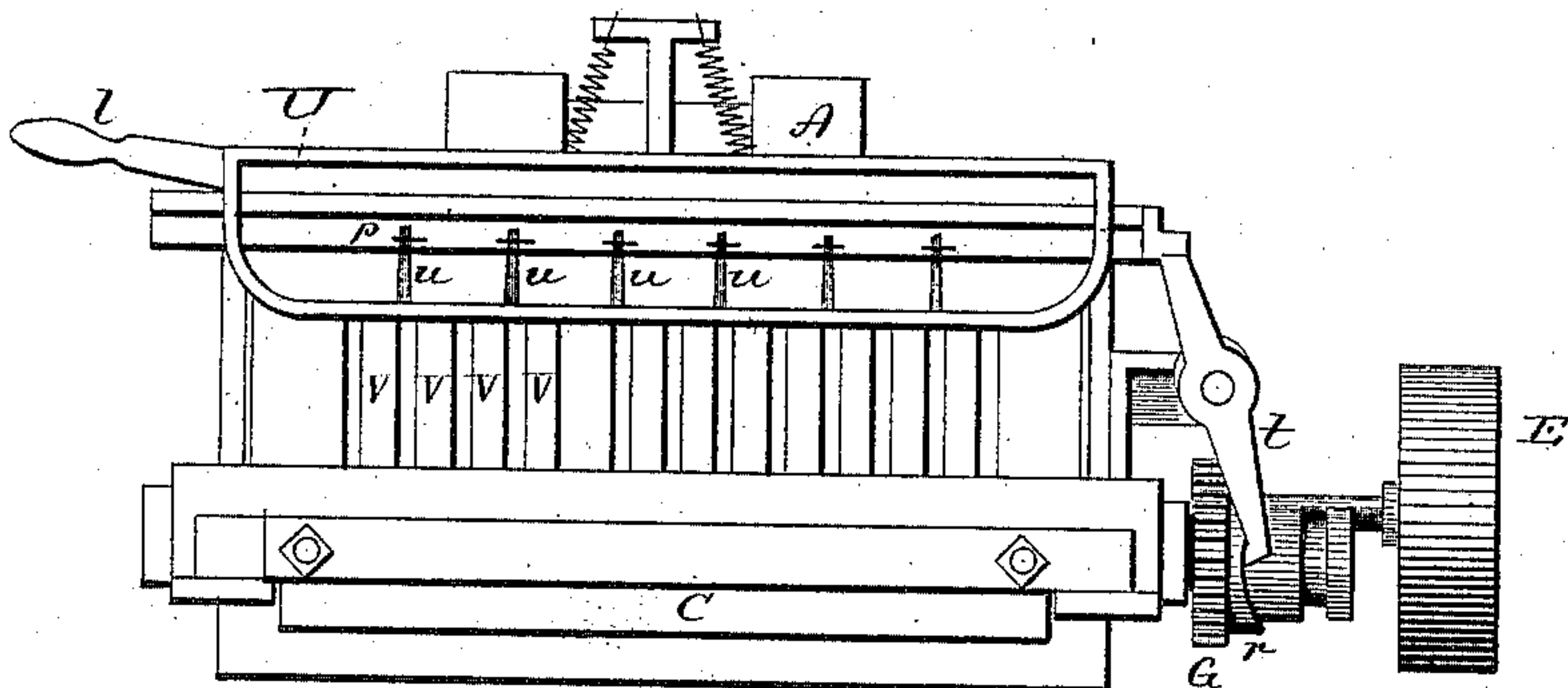
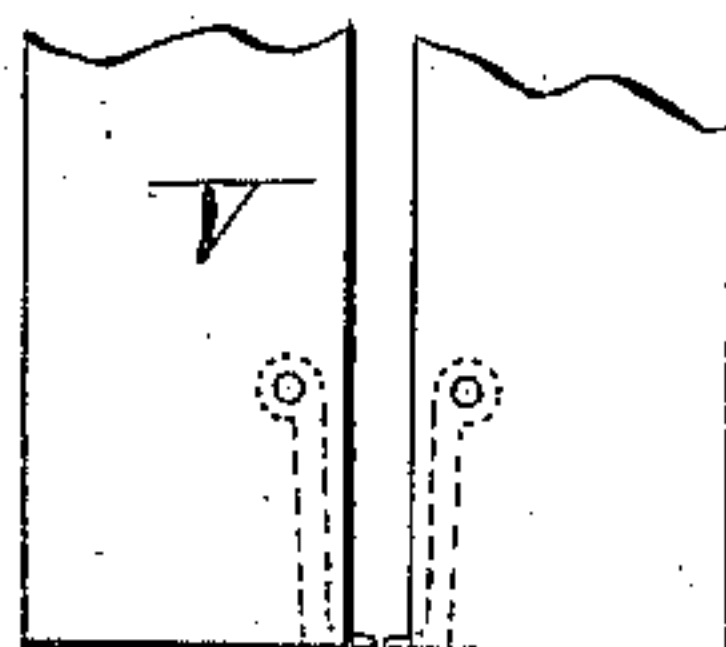


Fig. 10



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

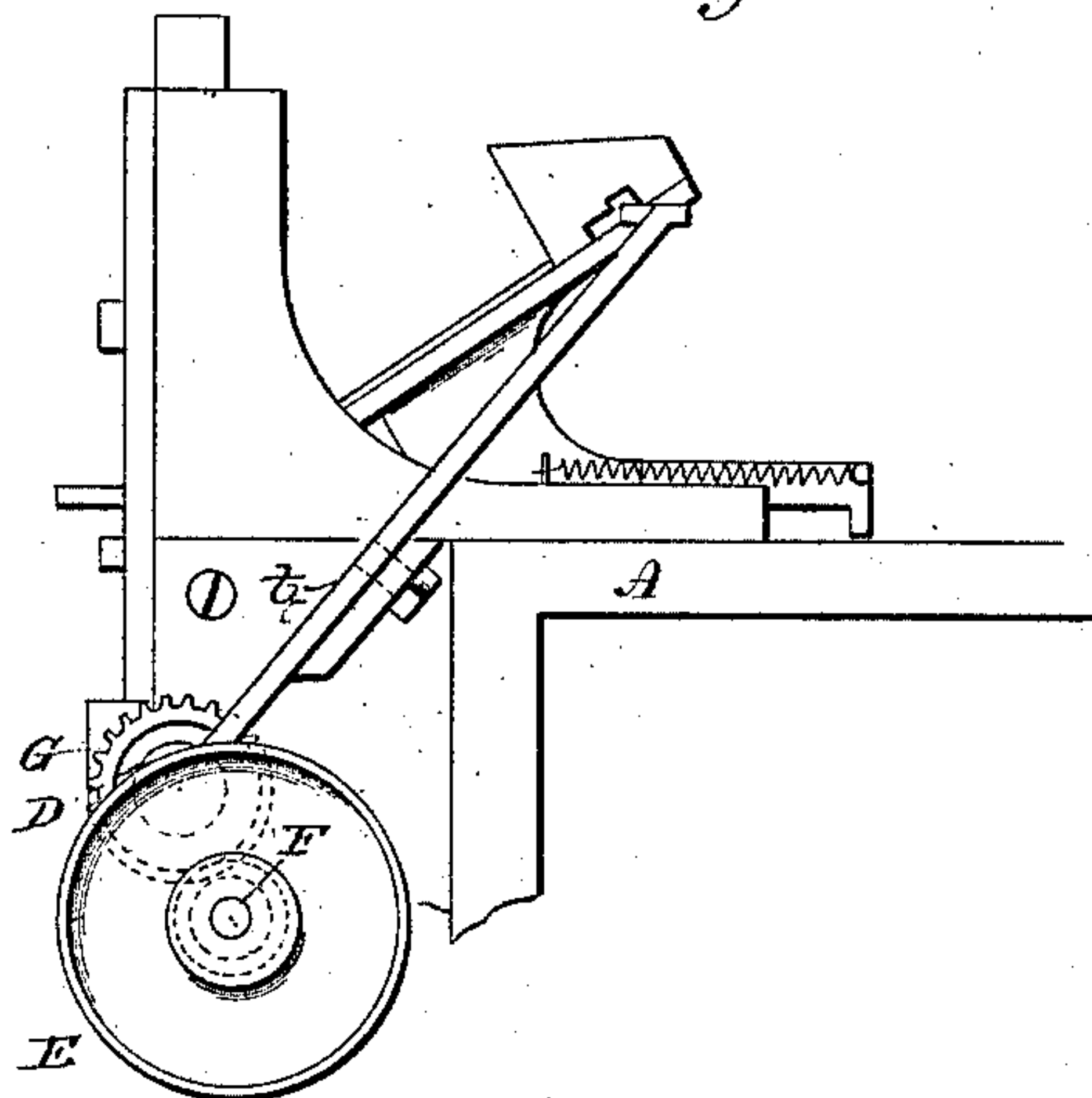


Fig. 4.

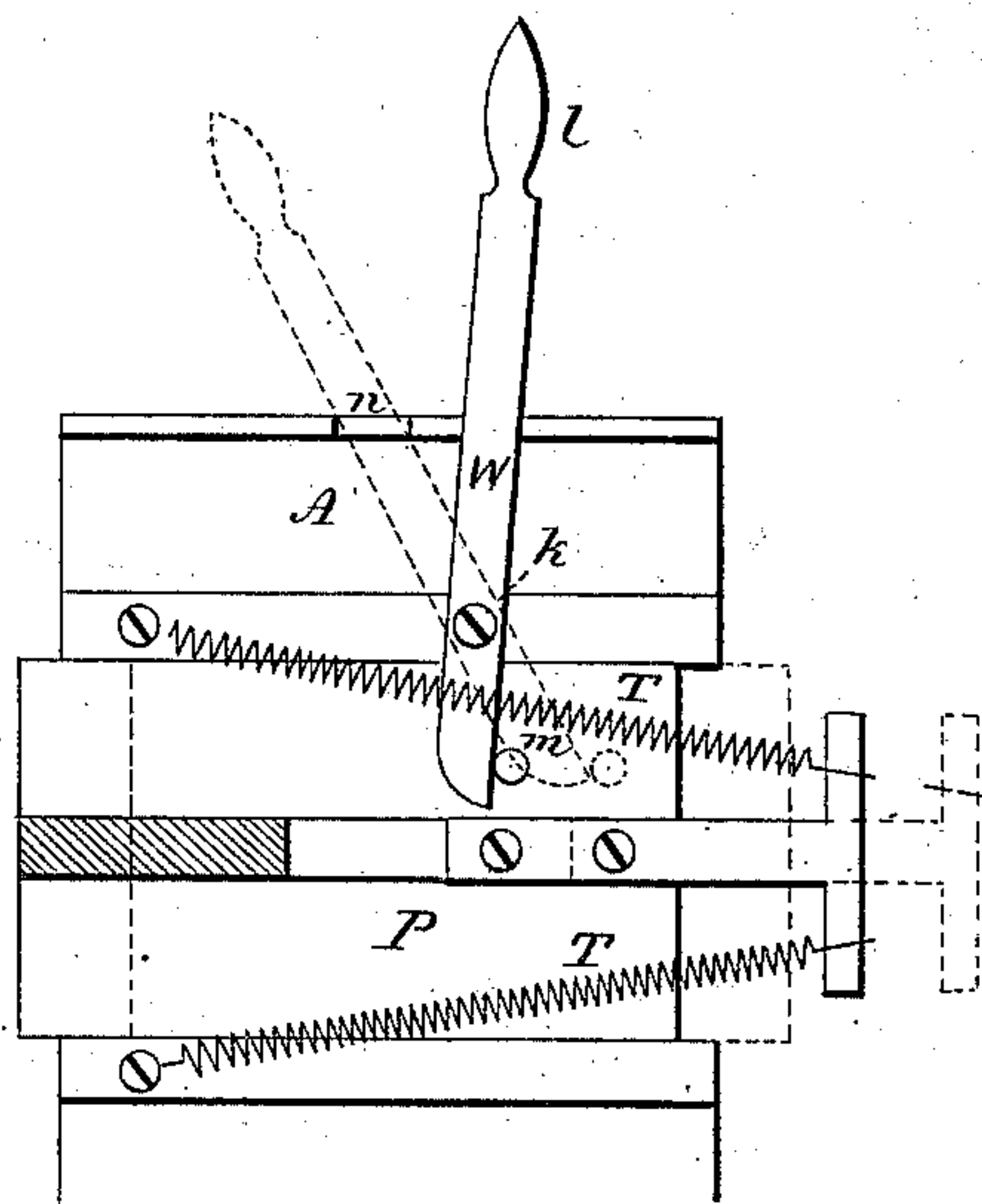


Fig. 7.

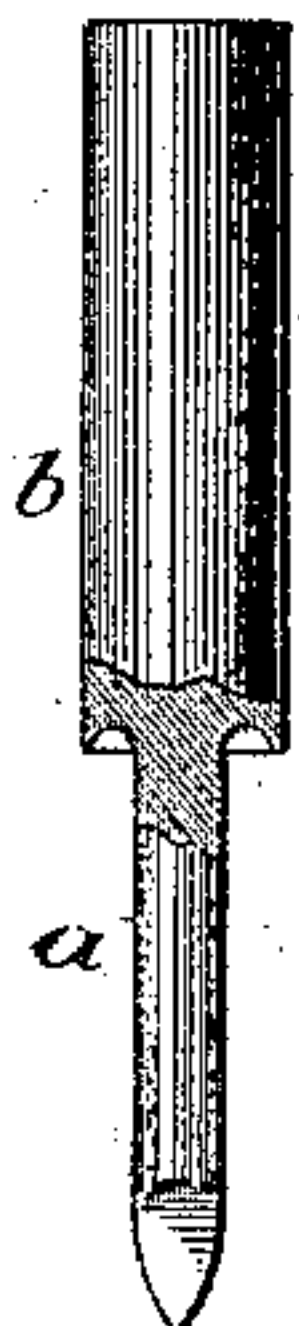


Fig. 8.



Fig. 5.

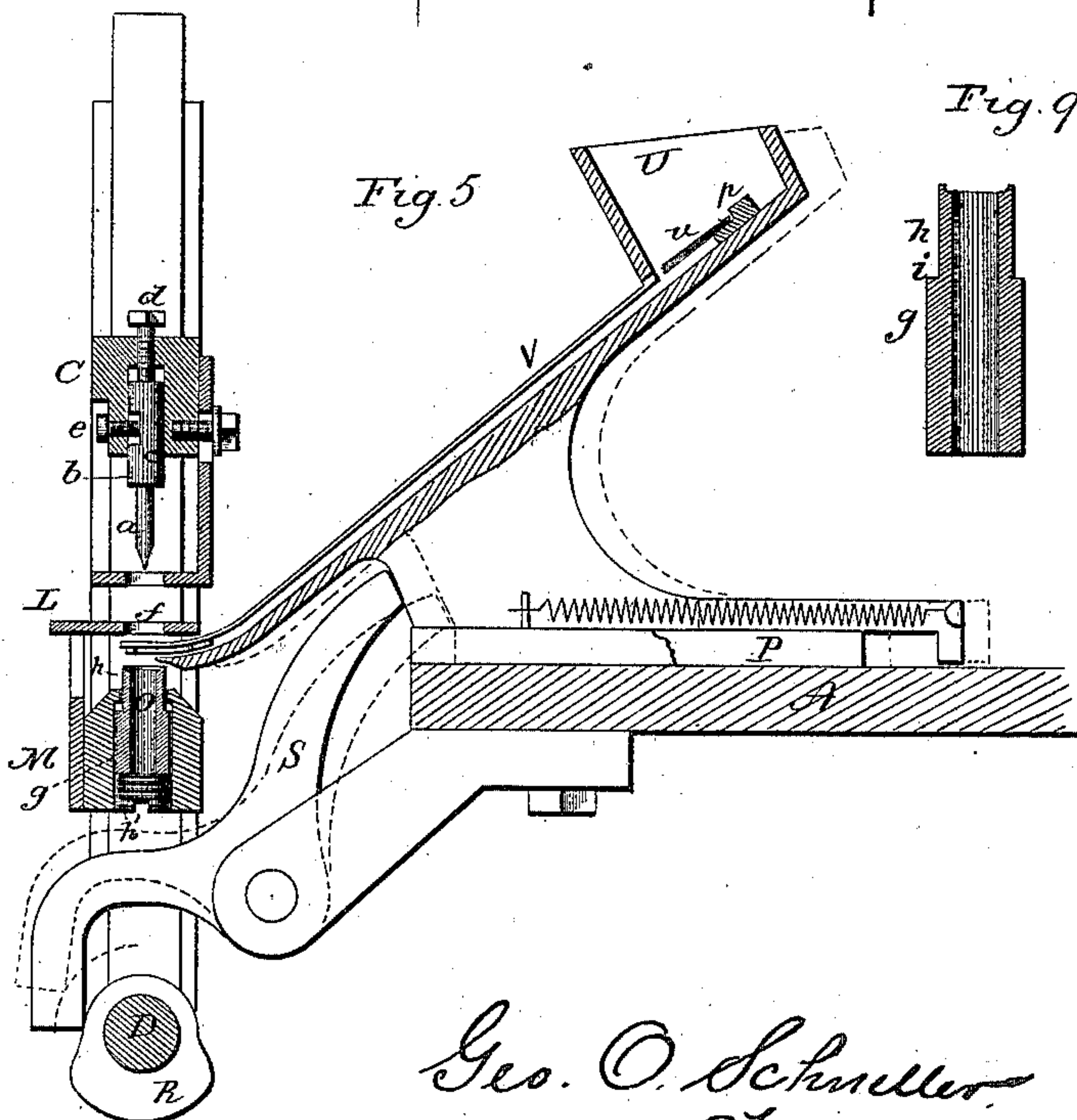


Fig. 9.

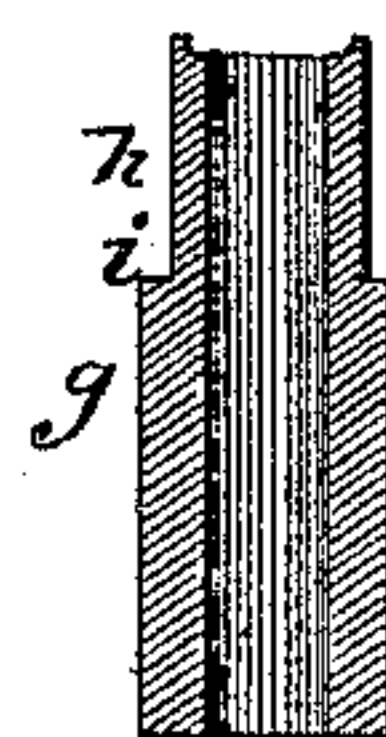
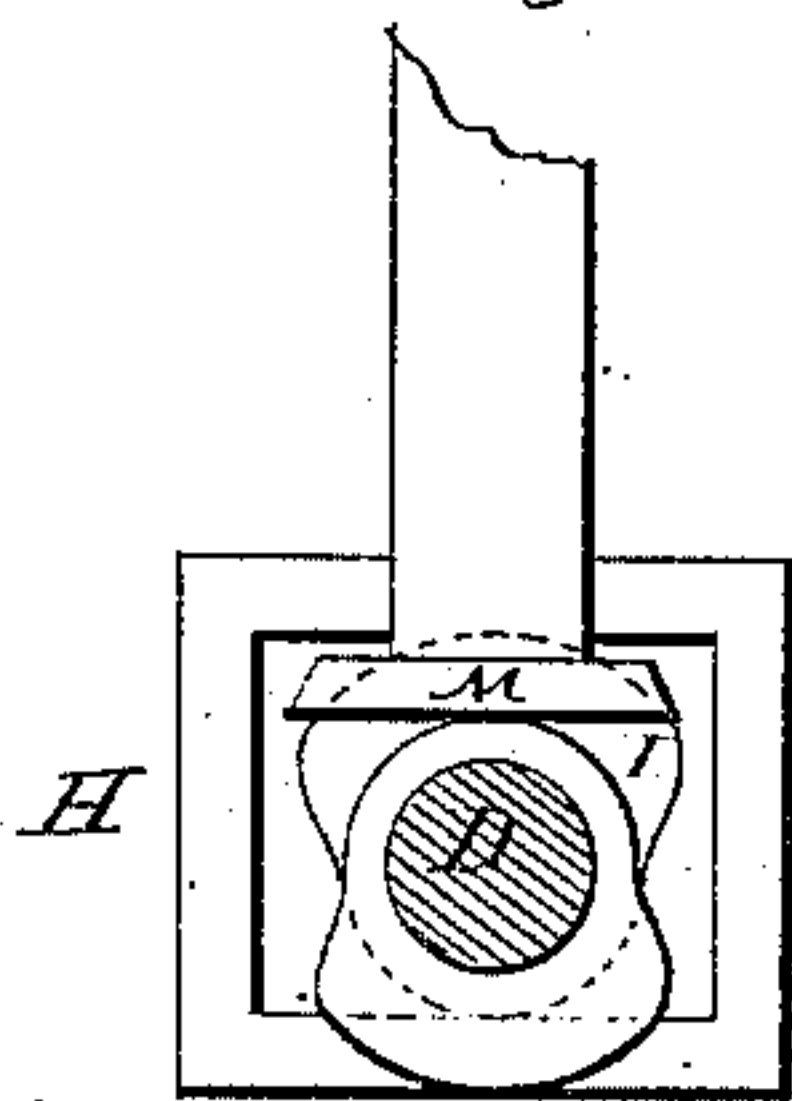


Fig. 6.



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# UNITED STATES PATENT OFFICE.

GEORGE O. SCHNELLER, OF ANSONIA, CONNECTICUT.

## EYELETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 299,019, dated May 20, 1884.

Application filed December 17, 1883. (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 Eyeletting-Machines; and I do hereby declare the following, when taken in connection with the 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 front view; Fig. 2, a top or plan view; Fig. 3, a partial end view; Fig. 4, a top view, looking down upon the bed-plate, to show the channel-carrying slide enlarged; Fig. 5, a vertical transverse sectional view, enlarged; Fig. 6, a detached view showing the cams for operating the two slides; Figs. 7 and 8, two views of the punch, full size; Fig. 9, a vertical section of the die, full size; Fig. 10, the eyelet-holding fingers, full size.

This invention relates to an improvement in machines for introducing and setting the eyelets in corsets.

Previous to my invention the more general method of introducing eyelets in corsets was by the employment of a machine in which one vibrating lever carries a punch to punch the hole in the corset to receive the eyelet, and a second vibrating lever carrying one part of the setting-die, the setting-die distant from the punch of the first equal to the distance required between the eyelets to be set, these levers having also oscillatory motion, so that while the punch that first makes the hole is still in the corset a transverse movement is imparted to the lever to move the corset one step, or so as to present the hole into a position above the under part of the setting-die, where the eyelet is introduced and set, and in order to present the eyelet between the setting-dies an inclined channel is arranged leading from a supply-hopper down toward the setting-dies, terminating in a pair of fingers which receive and hold the lowermost eyelet, and at the proper time these fingers are presented between the setting-dies, and then the lower die, carrying a loose follower or pin, rises, the pin enters the eyelet between said fingers, and then the channel is withdrawn, leaving the eyelet upon that pin. Then the

setting-dies are brought together. The point of the upper punch passes through the hole previously made in the corsets, meets the pin in the lower part of the die, and forces that pin downward and so as to bring the lower die up upon the under side of the corset. The barrel of the eyelet is forced through the hole in the corset and set upon the upper side by the complete closing of the dies. In the use of this machine, the step-by-step operation of the machine, whereby first the hole is punched, then the eyelet set in that first hole while the second hole is punched, and so on, produces a series of eyelets equally spaced. Any unequal spacing requires hand manipulation independent of the machine, and because of the transverse or oscillatory movement necessary in the punch and die levers, and the rapid blows which they are called upon to make, the wear of the machine is very great, and its disorganization frequent.

The object of my invention is to produce a machine in which all the eyelets of a series may be set at a single operation and without movement of the article into which they are to be set; and the invention consists in the construction and combination of mechanism, as more fully hereinafter described, and particularly recited in the claims.

The machine is constructed to be set upon a bench, or may be provided with legs.

A represents the bed, which rests upon the bench, and from which hangers extend downward to support that part of the operative mechanism which is below. At the front are two vertical guides, B B, distant from each other according to the number of punches which are to be set. Between these guides is a vertical slide, C, arranged to be moved up and down, and to which a vertical reciprocating movement is imparted. D is the driving-shaft, arranged in suitable bearings below, and to which rotation is imparted by the application of power thereto through a pulley, E, on a counter-shaft, F, provided with a pinion working into a corresponding gear on the driving-shaft D. At each end the vertical slide C is constructed with a stirrup, H, surrounding the shaft D, within each of which on the shaft is a cam, I. (See Fig. 6.) This cam is of the proper shape to impart an up-



and-down movement to the slide C and give to it the requisite rests or time, as hereinafter described.

In the slide C a series of punches are arranged, in number corresponding to the number of eyelets to be set. These punches are constructed as seen in Figs. 7 and 8. Their lower parts, *a*, are in diameter slightly larger than the internal diameter of the eyelet to be set. The shoulder *b* above is made of usual shape for the closing-die—that is, so as to cause the end of the barrel of the eyelet to turn over outward and down onto the fabric and form a rounded bead-like surface. The body *c* of these punches is cylindrical, and the slide constructed with corresponding recesses, into which the body of the punch will set, as seen in Fig. 5. Above the punch is an adjusting-screw, *d*, by which it may be adjusted up or down, and so that the shoulders on the several punches may be brought into the same plane. A set-screw, *e*, is provided through the front of the slide to bear upon a flattened surface on the body to prevent its rotation and hold it in its proper position, and as seen in Fig. 5.

L is the work-plate, through which are openings *f*, corresponding to the position of the punches, but considerably larger than the eyelets; or, instead of openings, the plate may be formed with a longitudinal slot. Below this work-plate is a second vertical slide, M, which rides upon cams N on the driving-shaft, as seen in Figs. 1 and 6. This cam is timed corresponding to the cams I, and so that at the proper time the lower slide, M, will be raised. The lower slide carries the setting-dies O. These dies are constructed as seen in Fig. 9—that is, with a body, *g*, the head *h* extending upward from a shoulder, *i*. Vertically through the die is an opening somewhat larger than the part *a* of the punch. The extreme upper end of the die is shaped corresponding to the flange of the eyelet, and as in the die of other eyelet-setting machines. The slide M is constructed with recesses from the under side upward, a little larger in diameter than the diameter of the body *g* of the die. Through the upper side of the slide M, and concentric with the recesses below, an opening is made somewhat larger than the head *h* of the dies, and as seen in Fig. 5. These recesses correspond substantially in position to the position of the punches above. The dies are introduced from below and held in place by screws *h'* or otherwise, but so as to permit more or less freedom of the dies—that is to say, the shoulder of the dies does not quite bring up against the shoulder in the recess, and as the recesses are larger in diameter than the diameter of the die they have a freedom to the extent of this difference.

On the bed A is a horizontal slide, P, to which a reciprocating movement is imparted by a cam, R, on the driving-shaft through a lever, S, hung to the bed, as seen in Fig. 5, the action of which cam is to force the slide

rearward, as seen in broken lines. Then when the cam releases the lever S springs T return the slide. On this slide the hopper U is arranged, from which inclined channels V lead downward, their lower end terminating in a pair of fingers, as seen in Fig. 10, each in line with respective punches and dies—that is, the number of channels and their positions correspond to the number and positions of the punches and dies. Because of being arranged upon the slide P the channels and the hopper move forward and back—that is, toward and from the punches and dies. In the forward position the fingers stand below the work-plate and directly over the dies O, as seen in Fig. 5. If the channels be supplied with eyelets, the pair of fingers of each will present one eyelet over each of the dies O, (it being understood that the eyelets pass down the channels riding upon the flange with the barrel upward.) The edge of the corset into which the eyelets are to be set is placed in proper position upon the work-plate L. Then the slide C, with its series of punches, is forced downward. The punches, passing through the material, enter the respective eyelets held in the channels. At the same time the lower slide, M, gradually rises. The lower part, *a*, of the punches enters the respective dies, and after they have so entered the slide P is forced backward to withdraw the fingers which hold the respective eyelets, thus leaving the eyelet upon the part *a* of the punch with its flange upon the lower die. Continuing the movement, the punches descend, and the dies rise until they are brought together. The die O upon the one side bears the flange of the eyelet against that side of the corset, forcing the barrel of the eyelet through the hole made by the punch, and the shoulder on the punch, meeting the end of the barrel, turns that end over and down upon the upper side of the corset. Each of the several punches performing this operation, it follows that the whole series are set at once, and when the series has been thus set, the other edge of the corset is presented in like manner, and a series set in that edge. By thus setting the whole series at once—that is, employing a series of punches and dies corresponding to the series of eyelets—the punches and dies may be set at varying distances, and so as to set the eyelets accordingly—a result which cannot be accomplished in the ordinary step-by-step feeding-machines.

The wear upon the punches and dies is very great, and they are frequently broken or injured in use, so that new punches and dies are correspondingly required. By making the dies O loose in their seats, as described, I avoid, to a considerable extent, the injury which occurs to the dies, but the wear cannot be avoided.

It is frequently desirable to operate the punches and dies without supplying eyelets thereto. To this end I hang a latch-lever, W, upon the bed, as at *k*, the outer end of which is fitted with a suitable handle, *l*, and the in-



ner end stands in front of a stud or shoulder, *m*, on the slide *P*. By drawing the lever from the position seen in Fig. 4 forward to the position seen in broken lines, and there engaging it with a notch, *n*, the slide, with the hopper and channels which it carries, will be forced rearward, and there held, and when so held the other parts of the machine may be operated without eyelets being fed thereto.

To agitate the eyelets in the hopper in order that the eyelets may properly enter and keep their respective channels constantly supplied, I arrange a horizontal bar, *p*, within the hopper and impart reciprocating movement thereto by means of a cam, *r*, through a lever, *t*, (see Figs. 1 and 2,) the cam moving the bar in one direction, and a spring (not shown) returning it. This bar is provided with several brushes, *u*, arranged to pass within the eyelets and over the channels. This movement of the bar and the brushes serves to constantly change the position of the eyelets, so that choking of the channels is avoided.

While I prefer to employ the work-plate *L* as a convenient device for locating the corset, it may be omitted, the operator simply placing the corset or article in proper position between the eyelets and the punch.

I make no claim in this application to the peculiarly-constructed punch and die, as they constitute the subject of an independent application.

I claim—

1. In an eyeleting-machine, the combination of two slides arranged to reciprocate toward and from each other, the one carrying a series of dies and the other a corresponding series of punches, each series corresponding to the series of eyelets to be set, a work-plate between said dies and punches, and through which the said punches will pass, and a corresponding series of channels leading from a supply-hopper, said channels having a reciprocating movement imparted thereto, and each channel terminating in holding-fingers, whereby the lowermost eyelet in each channel will be presented over a corresponding die, the several punches constructed to pass through the fabric and eyelet, and also constructed with an upsetting-shoulder, whereby a series of eyelets will be set through the series of holes made by said series of punches, substantially as described.

2. The combination of two slides arranged to reciprocate toward and from each other, the one carrying a series of punches, the other a corresponding series of dies, the said dies arranged loosely in their seats, a work-plate between said punches and dies, and through which the said punches work, and a corresponding series of channels terminating in fingers, whereby a series of eyelets will be presented between the said punches and dies, substantially as described.

3. In an eyeleting-machine, the combination of two slides arranged to reciprocate toward and from each other, the one carrying a series of punches, the other a corresponding series of dies, the punches constructed to enter said dies, and with a shoulder corresponding to the face of the respective dies, a series of channels corresponding to said series of punches and dies, and mechanism, substantially such as described, for imparting to said series of channels a reciprocating movement, said channels terminating in holding-fingers, which, by said reciprocating movement, are presented in a position between said punches and dies and then withdrawn therefrom, a hopper from which said channels lead, and a horizontal bar in said hopper, with mechanism, substantially such as described, for imparting reciprocating movement to said bar, substantially as and for the purpose described.

4. The combination of the two slides arranged to reciprocate toward and from each other, the one carrying a series of punches, the other a corresponding series of dies, a work-plate between said punches and dies, and through which the punches may pass, a slide arranged in guides at substantially right angles to the plane of the punch and die-carrying slides, mechanism, substantially such as described, to impart reciprocating movement to said slide, said slide carrying a series of channels corresponding to said punches and dies, through which eyelets are fed and presented between said punches and dies, and a locking-lever whereby said slide and the channels which it carries may be held out of feeding position or permitted to feed when required, substantially as described.

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Witnesses:

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