

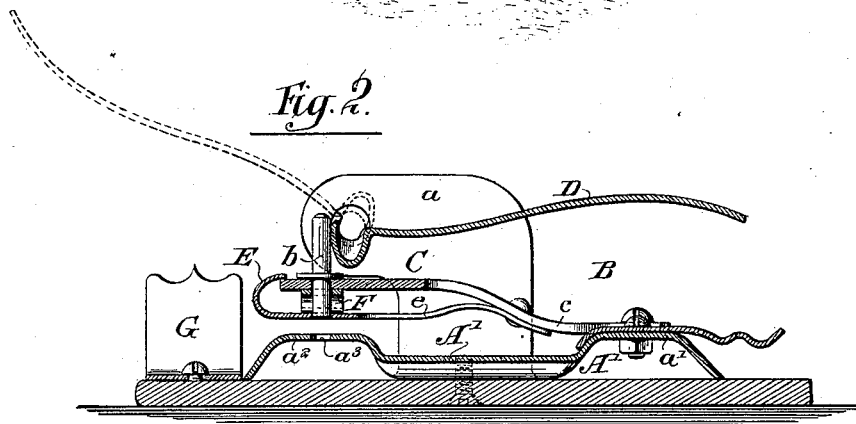
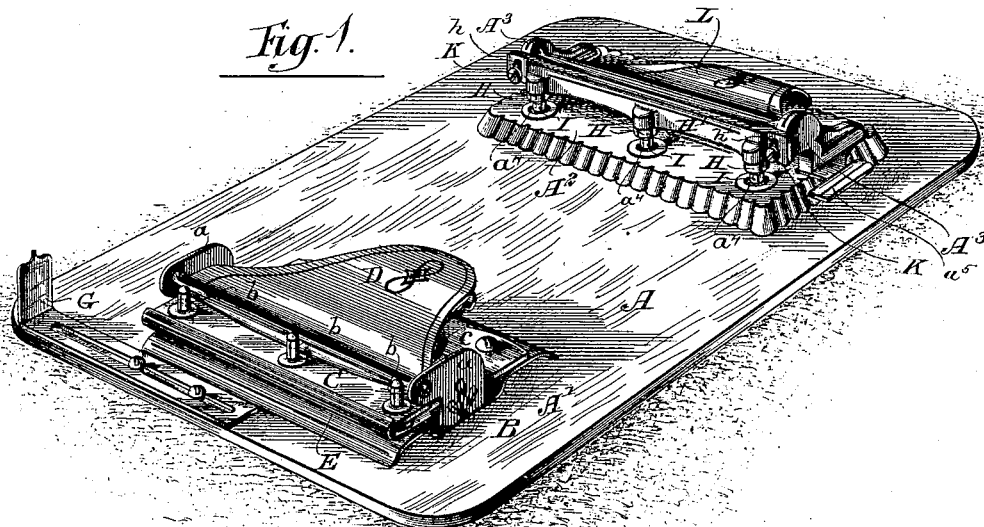
(No Model.)

2 Sheets—Sheet 1.

J. S. SHANNON.
EYELETING APPARATUS.

No. 344,996.

Patented July 6, 1886.



Witnesses:-

Louis M. F. Whitehead.

C. C. Poole.

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James S. Shannon
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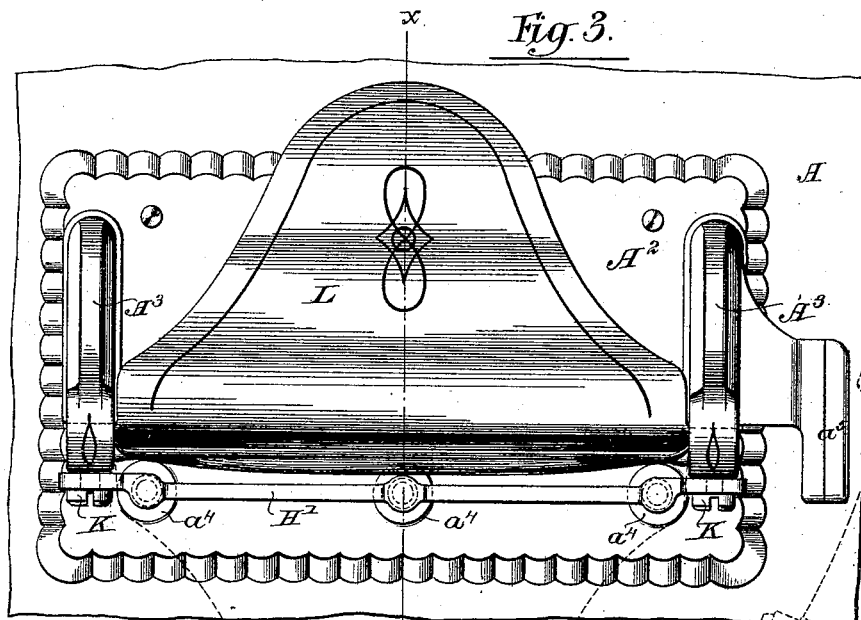
Attorney.

2 Sheets—Sheet 2.

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Fig. 3.



∞ Fig. 4.

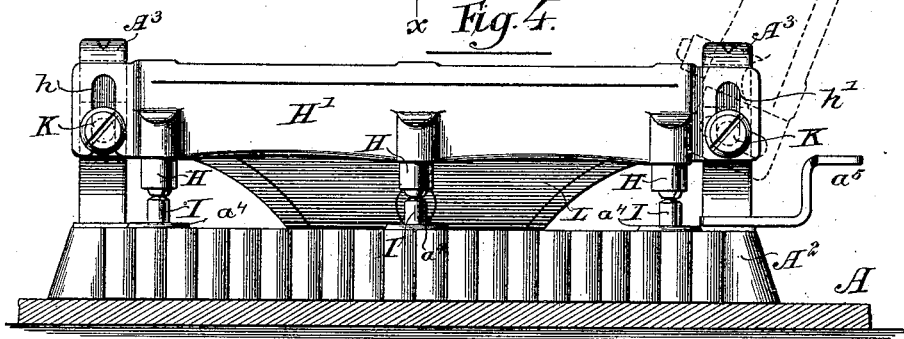
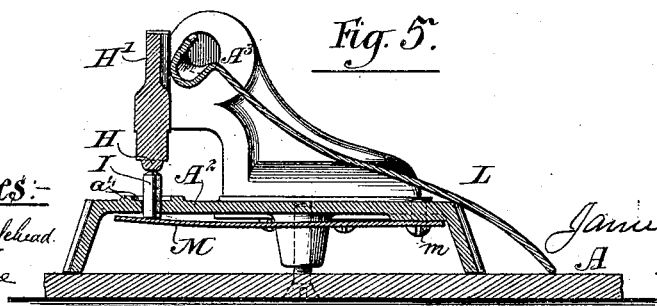


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES S. SHANNON, OF CHICAGO, ILLINOIS.

EYELETING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 344,996, dated July 6, 1886.

Application filed October 12, 1885. Serial No. 179,027. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. SHANNON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Eyeletting Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Prior to my invention the common and most approved construction of eyeletting apparatus or machine has been that of a punch for cutting out an eyelet-hole, and a plunger for clinching an eyelet, both extending downwardly from the upper end of a goose-neck support and alternately operated by a common lever pivoted to said support. In operating a machine or apparatus of such character for the purpose of eyeletting or securing together by metal eyelets a number of sheets of paper, the method necessarily observed has been to punch through a collection of sheets, so as to provide a single eyelet-hole, and to then flatten down and clinch an eyelet introduced into the eyelet-hole thus prepared for its reception, in which way, where three eyelets, for example, are employed as a means for securing together a number of sheets, six operations have been rendered necessary—namely, three eyelet-clinching operations alternating with and succeeding three separate and distinct punching operations.

One object of this invention is to avoid the necessity of a multiplicity of operations in securing together a number of sheets by means of two or more eyelets, and to reduce the number of operations to two, the first consisting in simultaneously punching out two or more eyelet-holes, and the next consisting in simultaneously clinching two or more eyelets which have been introduced into the eyelet-holes thus prepared for their reception, in which way the general operation of eyeletting papers can be greatly simplified and expedited. To such end I provide a tablet or base with a double or multiple punch, to simultaneously punch out two or more eyelet-holes, and a set of plungers corresponding in number and relative distance apart from each other to the number and relative distance apart of the punches, and operating to simultaneously

clinch two or more eyelets introduced into the eyelet-holes which have thus been formed, in which way, as soon as the double or multiple punching portion of the apparatus has been operated to simultaneously punch out two or more eyelet-holes, the eyelets can be introduced into such holes, and then simultaneously clinched by one operation common to all of the plungers.

A further object is to provide simple and efficient means for simultaneously flattening down or clinching two or more eyelets.

These objects are all attained by the devices hereinafter described and claimed, and illustrated in the annexed drawings, in which—

Figure 1 is a perspective view of an eyeletting apparatus embodying the features of my invention. Fig. 2 is a transverse section taken through that portion of the apparatus which is designed for punching out the eyelet-holes. Fig. 3 is a top plan view of that portion of the apparatus which is designed for clinching the eyelets. Fig. 4 is a front elevation of the eyelet-clinching portion of the apparatus. Fig. 5 is a transverse section through the same, taken on the line *x x*, Fig. 3.

In the drawings, A indicates a tablet or base, which is provided at or near one end with the punching devices, and at or near its opposite end with the eyelet-clinching devices, all of which, taken as a whole, constitute an eyeletting apparatus, in which provision is made for simultaneously or at one operation punching out several eyelet-holes, and for simultaneously and at one operation clinching several eyelets which have been received through the eyelet-holes thus formed through the sheet or sheets to be eyeleted.

In Figs. 1 and 2, B refers to the punch as a whole. This punch has distinctly novel features which form the subject of another application for Letters Patent of even date herewith, and I do not, therefore, claim the same, except as forming a part of the eyeletting apparatus.

In place of the ordinary single punch, I provide a double or multiple punch—that is to say, a punch comprising two or more dies or cutters, *b*, arranged to have a simultaneous operation in order that at one operation two or more eyelet-holes can be punched through the papers which are to be secured together

by eyelets. The cutters *b* extend through and are rigidly secured to a spring-plate, *C*, formed with a pair of rearwardly-extending spring-arms, *c*, which are secured to a hollow bed, *A'*. This bed is in turn seated upon and secured to the tablet or base *A*, and is provided with end standards or bearings, *a*, between which the lever *D*, for depressing the cutters, is pivoted.

The stripper *E* consists of a spring-plate provided with rear arms, *e*, which are secured against the under sides of the arms *c* of the plate carrying the cutters. The cutters pass through perforations formed through the stripper, and the said cutters also pass through perforations formed through a flat bent spring, *F*, which is interposed between the stripper and the plate which carries the cutter. The bed *A'* is somewhat raised at the point *a'*, where the arms of the cutter-carrying plate are secured to it; and it is likewise correspondingly raised at a point, *a''*, along and under the set of cutters, at which said point it is provided with perforations *a'''*, adapted to receive the lower ends of the cutters after the latter have been forced down through the sheets of paper, which will be placed upon the bed at the point below the cutters. The cutters, of which three will be the preferred number, are arranged in a line transversely across the spring-plate, and the perforations are formed in the base so as to register with the cutters.

In connection with the punching device a gage, *G*, is preferably employed. This gage consists of an angular plate arranged to slide on the base *A*, and serving to aid in bringing the sheets in proper position relatively to each other and to the cutters.

To operate the cutters the lever will be swung forward, as in Fig. 2, and then depressed against the top ends of the cutters. The free end of the spring-plate *C* is depressed by and with the downstroke of the cutters, and the stripper-plate is likewise carried down with the spring-cutter-carrying plate until it rests upon the top of the sheet or collection of sheets, at which point it is arrested by the resistance. The cutters pass through the sheet or sheets while the latter are held firmly down by the stripper.

On swinging the lever back the spring-plate *C* is moved up by its inherent elasticity, as well as by the action of the spring *F*, which during the downstroke will have been bent against its inherent spring-resistance. This spring serves to keep the stripper down on the paper until the cutters have been drawn out from the paper and raised slightly above the plane of the bottom side of the stripper. In this way several eyelet-holes are formed by one operation, thereby preparing the sheets for several eyelets, which can either be fitted in their allotted eyelet-holes as soon as the punched sheets have been removed from under the cutters, and preparatory to placing the sheets under the eyelet-clinching plunger *H* at the opposite end portion of the base *A*; or the eyelets can be placed on spring-seated

pins *I*, arranged below said plungers, and the sheets then passed under the plungers, so as to bring their eyelet-holes over the eyelets thus located.

The devices for clinching the eyelets are arranged on tablet or base *A* in convenient proximity to the punching devices, and are constructed and adapted for operation as follows: A hollow cast-metal bed, *A''*, is seated and secured upon the base or tablet *A*, which latter, as hereinbefore described, is also provided with the punching devices. The flat top of this hollow bed *A''* is adapted to provide suitable rests, *a''*, in which the eyelets are supported and held in position to be clinched against the body of papers which are to be eyeleted together.

The plungers *H*, for spreading out and flattening down the smaller ends of the eyelets, are rigid with and depend from the lower edge of a plunger-bar, *H'*, which latter, when in an operative position, is maintained horizontally over the base *A''* and guided in a vertical plane. The plunger-bar forms a rigid connection between the several plungers, and is guided in its up and down movements alongside the vertical edges of a pair of standards or bearings, *A'''*, which rise from and are either formed with or secured upon the hollow bed *A''*. The plungers correspond in number to the number of punches or cutters in the double or multiple punch, and are also set and maintained at a distance apart from each other corresponding to the distance at which the several cutters are set apart from each other, in which way the plungers have a direct relation to the cutters, since the latter serve to punch a series of holes corresponding to the number of plungers, and the plungers serve at one operation to clinch each and all of the eyelets inserted in each and all of the eyelet-holes thus formed by the cutters.

The sliding connection between the plunger-bar and the bearings is attained by means of pins *K*, which pass through slots in the plunger-bar, and are secured to the said bearings, whereby during operation the plunger shall be free to slide up and down on the pins and between the heads of the latter and the vertical edges of the standards or bearings. The slots *h* and *h'* for these guide-pins are formed transversely through the plunger-bar, one at each end thereof, and are designed to permit the plunger-bar to be swung up from one end when it is desired to place the papers and eyelets for fastening the same in proper position upon the base preparatory to bringing down the plunger-bar, and also to permit the plunger-bar to be raised after the eyelets have been clinched, so as to admit of the ready removal of the eyeleted papers. For this purpose the slot *h* at one end of the plunger-bar extends to and opens at the lower edge of the latter, thereby permitting the plunger-bar to be lifted at this end and turned about the pin which passes through its other end, as in Fig. 4, in which the plunger-bar is illus-

trated in dotted lines as having been swung up and to one side of the machine out of the way, at which said side an arm, a^5 , extending from the base will serve as a rest for the plunger-bar when the latter is allowed to swing down farther from the position indicated. It will be seen that by such construction and arrangement the plunger-bar has at one end both a sliding and a pivoted connection with one of the standards or bearings, and at its other end a temporary sliding connection with the remaining bearing. The sliding plunger, which is thus hung or hinged at one end by a sliding connection, is depressed, when required, by means of a lever, L, which is at one end pivoted between the standards or bearings at a point back of the plunger-bar. This lever is conveniently formed of a stiff metal plate provided at each of the two corners at one end with a pivot supported in one of the two bearings A^3 . This plate is preferably narrowed from its pivoted to its free end, so as to provide a convenient handle end for the lever, which, when not in use, can be swung back and allowed to drop into the position shown in full lines in the several figures.

When it is desired to depress the plunger-bar in order to force the plungers into and down upon the eyelets, the lever L can be swung forward and over the plunger-bar, as shown in dotted lines in Fig. 3, and then brought down against the plunger-bar, so as to force down the latter. The eyelets are held on the bed or top of the hollow bed A^2 by means of the yielding spring-seated pins I, one of which is provided for each plunger. These pins are arranged vertically in the plane occupied by the operating plunger-bar and plungers, and each work through one of a line of perforations provided through the top of the hollow bed. The upper ends of the pins are normally projected to a suitable extent above the top of the hollow bed by springs M, one of which is illustrated in Fig. 5.

As herein shown, the construction of spring is that of a spring-plate secured at one end to the under side of the top of the hollow bed, as at m , and arranged with its free end against the lower end of one of the pins I. Obviously, other forms of springs or spring-seats could be employed, and, if desired, one spring could be made to serve as a seat for two or more pins. The pins I yield to the pressure of the plungers when the latter are brought down to clinch the eyelets upon the paper, and rise to their normal positions when the plungers are raised.

The eyeleting device herein shown is provided with three plungers, which are rigidly connected together, so as to have a simultaneous operation. It will be evident that, if desired, a pair of plungers could be employed in place of the three plungers illustrated. Three plungers, and also three dies or cutters, are, however, preferable, since in eyeleting together sheets of legal cap, for example, three eyelets are almost invariably employed

as a means for securing together the sheets. The sheets will be perforated by the cutters b at such distances apart as will permit their perforations to be brought into register with the pins I when the sheets are properly placed over the same, and the eyelets can be either first fitted in the eyelet-holes through the sheets and the latter then manipulated so as to bring the eyelets over and upon the ends of the pins I, projecting above the bed A^2 , or the eyelets can be fitted on said upper ends of the pins, and the sheets then brought down upon the eyelets.

I claim as my invention—

1. An eyeleting apparatus consisting of a base, A, an eyelet-clinching device secured to said base, and comprising a series of eyelet-supports, a corresponding series of plungers, H, and a single lever acting upon all of said plungers, and a punching device also secured to said base, and comprising a series of punches corresponding in number and relative location with the plungers H, and a single lever operating said several punches, said punching and clinching devices being arranged for successive operation, substantially as described.

2. An eyeleting apparatus consisting of a base, A, beds A' and A^2 , secured to said base, a sliding plunger-bar, H' , provided with plungers H, standards upon the bed A^2 , sustaining the said plunger-bar, a lever pivoted upon the said standards and operating the said plunger-bar, a series of punches corresponding in number and relative position with the said plungers H, a spring-plate sustaining the said punches attached to the bed A' , and a lever pivotally connected with the said bed A' , and bearing upon the said punches, substantially as described.

3. An eyelet-clinching device comprising a bed or base sustaining the eyelets to be clinched, a series of vertically-movable plungers, a bar rigidly connecting the plungers constructed to move in a vertical plane, standards upon the base affording sliding support for the said bar, and a lever bearing upon the bar for actuating the plungers, substantially as described.

4. The combination, with a series of plungers, of a vertically-movable plunger-bar rigidly connecting the plungers, a bed sustaining the eyelets, and a series of spring-seated pins located in the bed below the plungers, and sustained by the springs normally above the upper surface of the bed, substantially as described.

5. The combination, with a bed sustaining the eyelets, of a series of plungers, a bar rigidly connecting the plungers, and standards sustaining the bar, said bar having at one end a pivotal and sliding connection with one of said standards, substantially as described.

6. The combination, with a bed sustaining the eyelets to be clinched, of a horizontally-arranged and vertically-movable plunger-bar, H' , provided with a series of pendent plungers, and a series of spring-seated pins, I, corre-

sponding in number and location with the plungers, and passing through the said bed, substantially as described.

7. The combination, with the plunger-bar 5 H', provided with a series of plungers, and having slots *h h'*, of standards for sustaining the said plunger-bar provided with pins passing through the said slots, one of said slots being open at the lower edge of the plunger-bar, 10 to permit the latter to be swung up from said end, substantially as described.

8. The combination, with the horizontally-arranged and vertically-movable plunger-bar provided with a set of plungers, of a pair of 15 standards, A³, affording sliding support for said plunger-bar, and a lever pivoted between the standards adjacent to the bar, whereby said lever may be swung forward to engage the bar, and may be thrown back clear of the 20 latter, substantially as described.

9. An eyeletting apparatus comprising a hollow bed, A², a vertically-movable plunger-

bar provided with a series of plungers, and with vertical slots near its ends, standards A³ 25 upon the bed affording sliding support for the plunger-bar, and provided with pins engaging the slots of the latter, a lever pivoted between the standards adjacent to the plunger-bar, and a series of spring-seated pins, I, passing through the hollow bed below the plungers, substan- 30 tially as described.

10. The combination, with a hollow bed, of a plunger-bar, H', provided with a series of plungers, H, a series of pins extending through perforations in the said bed, and a series of 35 springs, M, located within the bed and sustaining the pins, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JAMES S. SHANNON.

Witnesses:

M. E. DAYTON,
H. N. HIBBARD.