

(Model.)

3 Sheets—Sheet 1.

C. A. CORMAN.
EYELETING MACHINE.

No. 259,100.

Patented June 6, 1882.

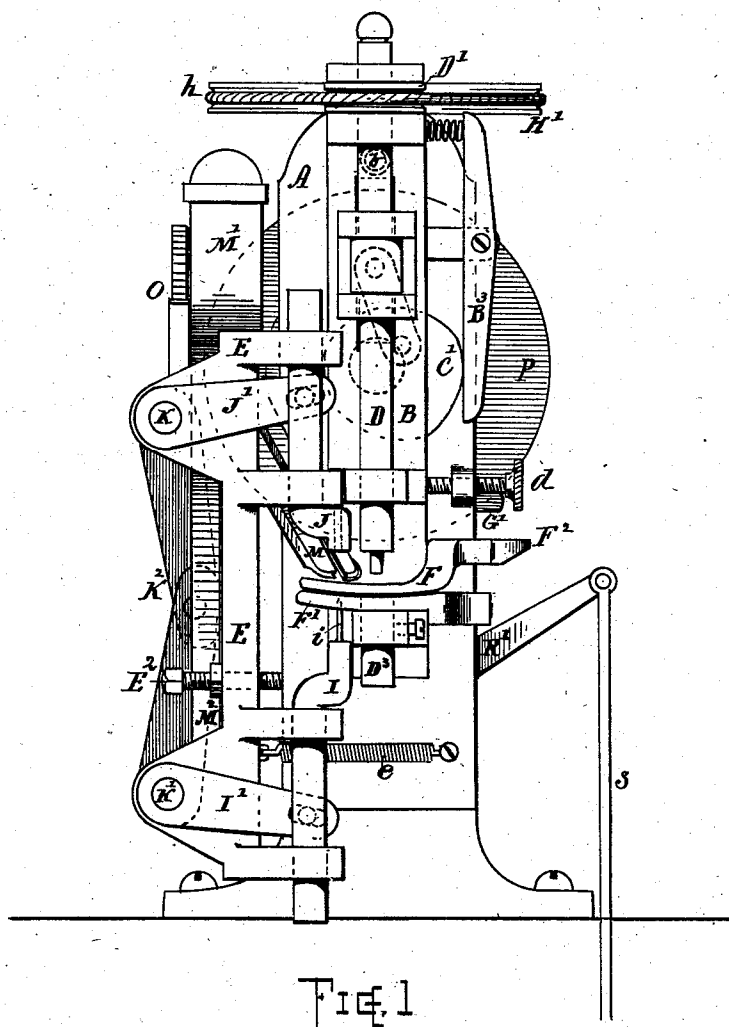


Fig. 1



Fig. 5.

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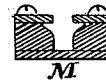
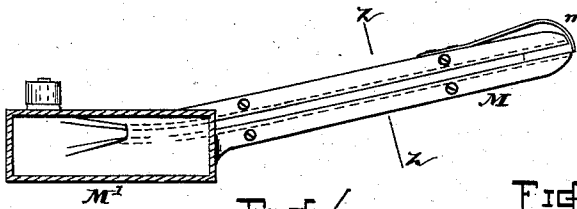
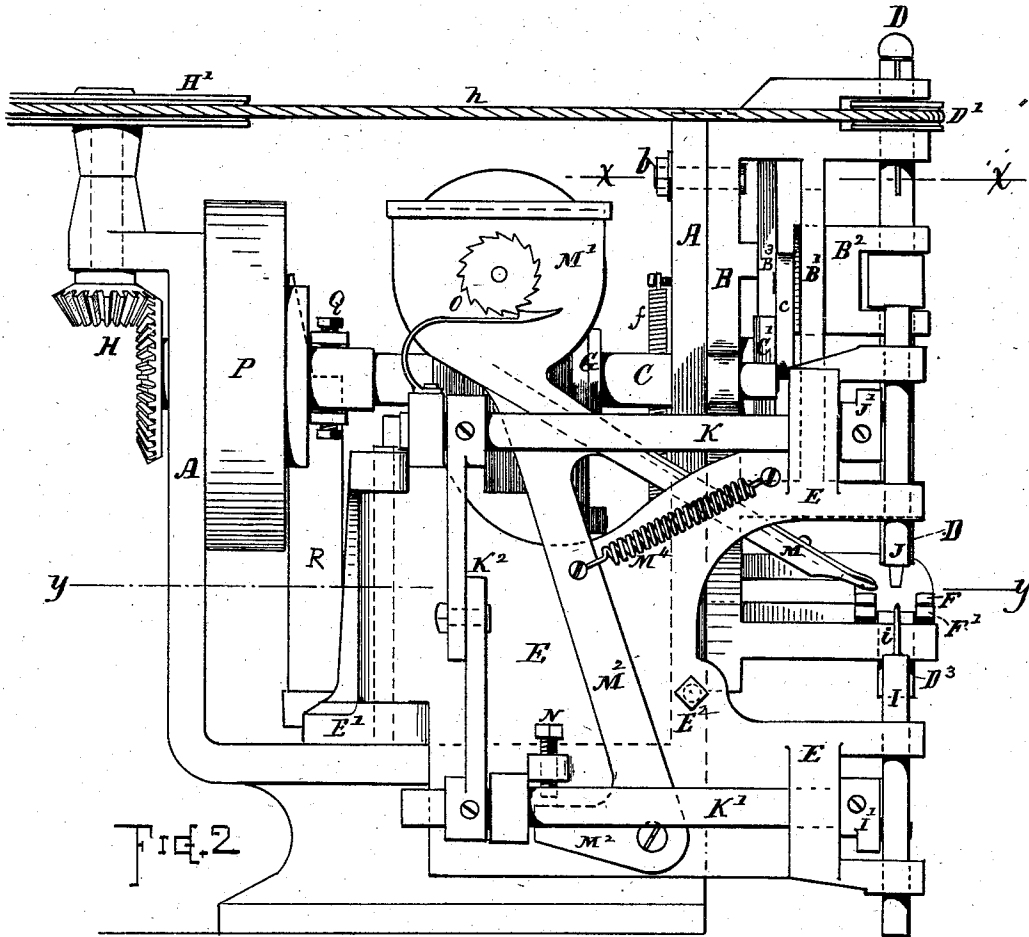
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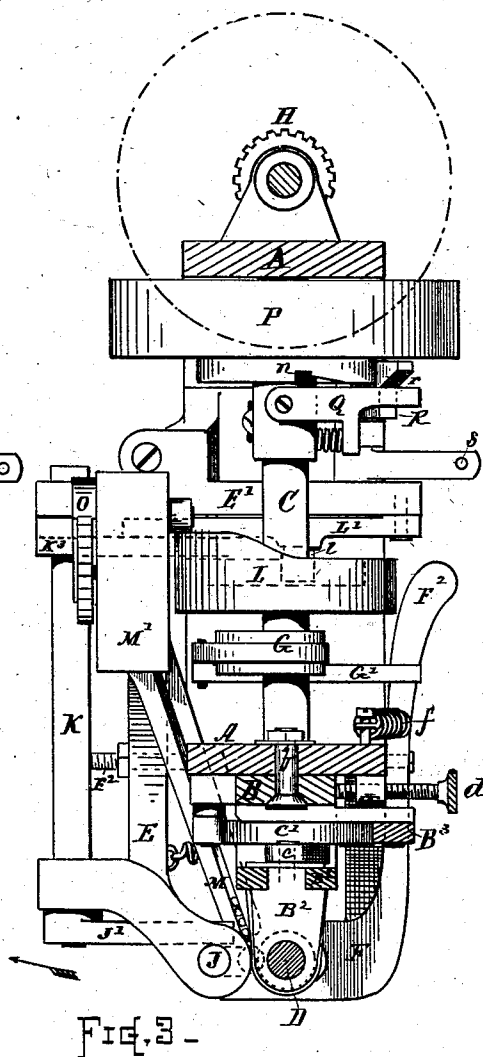
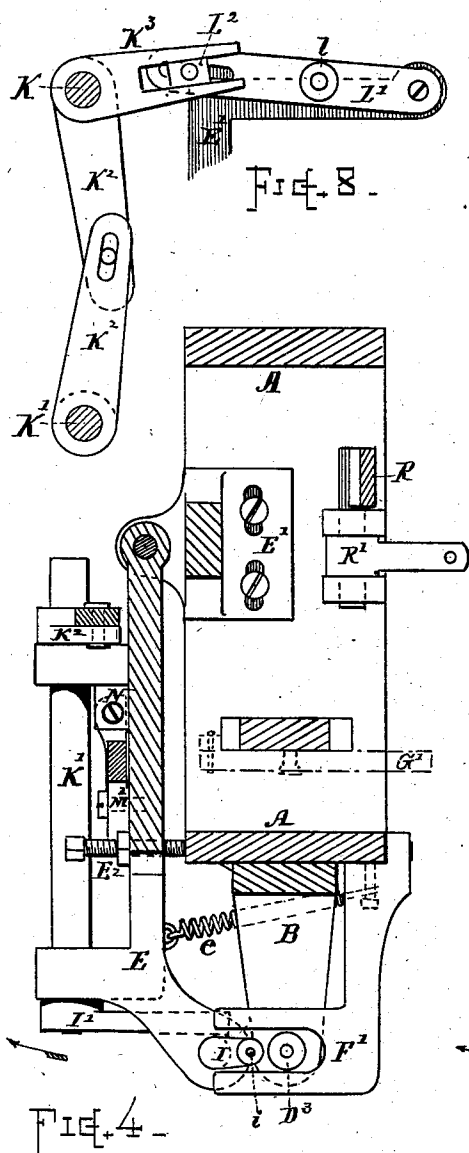
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UNITED STATES PATENT OFFICE.

CHARLES A. CORMAN, OF COCHITUATE, MASSACHUSETTS.

EYELETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 259,100, dated June 6, 1882.

Application filed February 27, 1882. (Model.)

To all whom it may concern:

Be it known that I, CHARLES A. CORMAN, of Cochituate, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Punching, Eyeletting, and Beading Machines; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The objects of my present invention are, first, to provide a convenient and practical machine adapted for punching holes, embossing or beading the leather about the openings, and inserting the eyelets at a single operation; second, to afford means for delivering the eyelets with their flanged ends uppermost and inserting them from the top of the work; and, third, to afford facilities for the ready and convenient adjustment of the mechanism to various lengths of movement or spacing of the holes and to cause the eyelet-setting devices to accurately follow the punching devices.

I attain these objects by mechanism constructed and organized for operation substantially as illustrated, the several essential features of my invention being set forth and explained in the following description, and the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 represents a front view of my punching, eyeletting, and beading machine. Fig. 2 is a side view of the same. Fig. 3 is a plan or sectional view at line *x x*. Fig. 4 is a horizontal sectional view at line *y y*. Fig. 5 is an end view of the punch-bar. Fig. 6 is a plan view of the eyelet box or hopper and the delivering-run for conveying the eyelets to the setting devices. Fig. 7 is a transverse section of the eyelet-run at line *z z*, enlarged. Fig. 8 is a view of the operating-levers for working the eyelet-sets.

In the reference to drawings, A denotes the main frame, of suitable form for supporting the operating devices.

B indicates a swinging head-frame, pivoted to the main frame at *b*, and provided with suitable bearings for carrying the punch-spindle D, which latter is arranged to have a reciprocating and a rotating action.

C indicates the operating-shaft, mounted in bearings on the frame A, and provided with suitable cams for operating the several parts. 55

E indicates a horizontally-swinging frame, upon which the eyeletting mechanism is supported, said frame being hinged to swing the eyelet-sets toward and from the punch devices. 60

The head B is made with a guide-bar, B', in which works the slide B², operated by a crank and pitman, *c*, at the end of the shaft C, by means of which the punch bar or spindle D is reciprocated up and down, while a swinging or oscillative action is imparted to the head B by means of a cam, C', which works against a friction-roll attached at one side of said head and against a spring-lever, B³, at the other side thereof, the roll and lever causing the head B, with its punching mechanism, to swing from side to side by the action of the cam C', while all looseness or backlash is avoided by the action of the spring-lever hugging the face of the cam. An adjusting-screw, *d*, is provided for regulating the side throw or movement of the head and punch-spindle. Rotary action is imparted to the punch-spindle by pulleys D' H', band *h*, and gears H, arranged substantially as illustrated. The punch-bar D is made with a molded or figured end of any desired shape for embossing or beading the surface of the leather around the opening formed by the punching die or cutter. 80

F and F' indicate jaws or guides for holding the work in proper position to receive the punching and eyeletting mechanisms. Said jaws are curved to correspond with the swing of the head B, and the upper jaw, F, is attached to a lever or arm, F², fulcrumed to the side of the frame A, and provided with a spring, *f*, for pressing the jaw with a yielding force upon the top of the work. By depressing the rear end of the arm F² the work is released from between the jaws. 85

The presser-jaw F is automatically raised at the proper moment of feeding forward the work by means of an eccentric or cam, G, on the shaft C, which operates a lever, G', that engages with and depresses the arm F². The lower or supporting jaw, F', is fixed or stationary in position. 90

D³ indicates the bed-piece or lower punching-die, which is formed as shown, and adjustably secured in its supporting-bracket at 100

the lower part of the swinging head B, said head moving in concert with the punch for carrying forward the work.

The frame E, which supports the eyeletting mechanism, is hinged at its rear end to the main frame A, the bracket or standard E', which supports the hinge, being connected so as to afford forward or rearward adjustment of the eyeletting devices to bring the clinching-dies into accurate alignment with the punching-dies.

A spring, *c*, is provided for drawing the forward part of the frame E toward the head B, and an adjusting-screw, E², is arranged through said frame E, the end of which strikes the side of frame A and forms a stop for arresting the movement of the parts at the proper position in relation to the head B and punch-rod D.

The eyeletting sets or dies I and J are supported in suitable bearings on the forward part of the frame E, and are operated up and down for clinching or setting the eyelets by means of a pair of rocker-shafts, K K', to which the die-bars are connected by arms I' J'.

The shafts K K' are connected together by arms K², and are operated by a cam, L, on the shaft C, from which they receive motion through the train of arms or levers illustrated in Fig. 8, where L' is a lever pivoted to an extension of the bracket E', and provided with a pin or roll, *l*, which runs in the groove of the cam L, and K³ is an arm connected with the rocker-shaft K and operated by said arm L'.

The connection between the arms L' and K³ is formed by an adjustable sliding fulcrum-block, L², whereby the relative length of leverage can be varied for regulating the movement of the eyelet-setting dies I and J, as desired.

The lower eyeletting-die, I, is provided with a fixed pin or picker-stud, *i*, for receiving and supporting the eyelets, which latter are fed to the dies with their flanged ends upmost and above the work, the picker or receiving pin *i* passing through the hole in the leather or fabric before it takes the eyelet from the end of the run M, the work being operated upon with the finished side upward and in view of the operator.

The upper eyelet-set, J, is provided with a hole in its end for the reception of the picker-pin *i* when the dies are brought together.

By dispensing with a movable picker-pin and setting the eyelets directly on the fixed picker *i* perfect clinching of all the eyelets is insured. The eyelet-receptacle M' is mounted at the upper end of an arm, M², pivoted on the swinging frame E near its lower edge, so that the receptacle or hopper M' and delivery-chute M can swing back and forth for bringing its end over the picker-pin *i*, the arm being drawn forward by a spring, M⁴, and forced backward by an incline or projection on the side of the cam L, acting against a friction roll or lug on the side of the eyelet-box.

An adjusting-screw, N, is arranged, in con-

nection with the arm M², for regulating its forward movement and stopping the end of the chute or guide M in proper relation to the setting-dies. The chute or guide for feeding or delivering the eyelets is made as indicated in Figs. 6 and 7. Side grooves are formed therein to carry the eyelets by their flanges or with their broad end upmost, the lower end of the eyelet hanging free above the bottom of the channel. The channel has a V-shaped entrance at the bottom of the box M', and a small spring, *m*, at the point of delivery prevents more than a single eyelet being discharged at each operation of the setting-dies.

An agitator is arranged within the receptacle, which may be operated by a ratchet and pawl, O, or otherwise, as preferred.

The driving-pulley P is mounted to run loose on the shaft C, and is connected thereto for operating the mechanism by an automatic stop-clutch arranged to throw off after the shaft has made one revolution. This clutch is in the present instance formed of a spring-dog, Q, pivoted on the shaft and arranged to engage with a notch or recess, *n*, formed in a suitable rim or hub of the pulley P.

A swing-arm, R, having an incline and shoulder, *r*, acts to throw the end of the dog-piece out from the notch *n* and arrest the motion of the shaft C. The arm R is operated or swung outward from the dog Q by a rod, S, connecting the rocker R' of the arm R with a suitable treadle. By holding the treadle depressed the motion of the machine can be continued.

The parts of the machine being properly adjusted and the driving-belt running on the pulley P, the operation of the mechanism is as follows: The operator, by pressing down the arm F², raises the presser-jaw F and inserts the work between the jaws F F'. He then depresses the treadle mechanism to release the clutch and put the shaft into action. The punch-spindle D descends, forcing the punching-die through the leather. The upper jaw, F, is then raised by the action of the eccentric G and lever G', and the head B and punch-spindle swing toward the left by the action of cam C', carrying forward the work with it, and also forcing outward the swing-frame E. At the end of this movement the jaws F close together and hold the work, while the head B, with punch D, recedes to its former position, and the eyeletting mechanism moves up to the position lately occupied by the punch, the pin *i* is raised through the hole in the leather or fabric and passes through an eyelet, picking it from the end of the chute M, which latter immediately moves back out of the way, and the eyelet is set into the hole and clinched as the dies are forced together. The machine then stops by the automatic action of the clutch; or, if the cast-off bar R is held back, the operation may be indefinitely repeated and a hole punched and eyelet set in by each consecutive revolution of the shaft C, the holes being punched and eyeleted at regular intervals corresponding to the swing movement of the head

B. The spacing of the holes may be increased or diminished by adjusting-screw *d*. The surface of the leather is beaded about the hole at the same time it is punched by the end of the spindle D revolving thereon while the dies are pressed together. If desired, the punching and eyeleting devices can be employed without the mechanism for revolving the punch-spindle D; or the punch can be used without rotation by removing the band *h* from the pulleys D' and H'.

I am aware that combined punching and eyeleting machines have been heretofore made in which the punching-bar was mounted on a swinging supporter and had lateral movement for feeding forward the work. Hence I do not herein make claim broadly to such features of operation.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination of the revoluble beading and punching bar, its cutting-bed, the movable head provided with bearings for supporting and guiding said punching-bar, and an operating mechanism whereby rotating, reciprocating, and lateral vibratory action is simultaneously imparted to said punch-bar, substantially as and for the purposes set forth.

2. In a machine for punching, beading, and eyeleting at simultaneous operations, the combination of a reciprocating revoluble punch mounted on a laterally-swinging head-piece and provided with a cutting-die and beaded end face, a pair of eyelet-setting dies mounted on a hinged frame adapted for side movement to allow the alternate advancement of the punch and eyelet-setting dies to a common position in relation to the work, a guiding and holding presser or jaw mechanism adapted for automatically retaining and releasing the work, and means for adjusting the relative swing or lateral movement of the parts for increasing and diminishing the spacing between the holes, substantially as set forth.

3. The combination, with the frame A and swinging head-piece B, carrying punching-dies D D², of the laterally-swinging frame E, carrying the eyelet-setting dies I J, and the mechanism for operating the same, substantially as set forth.

4. The combination, with the punching and eyeleting devices, arranged for operation as described, of the jaw F, with backward-ex-

tended arm F², the spring *f*, the depressing-lever G', and cam G, for the purposes set forth.

5. The combination of the feed-chute M, adapted for delivering eyelets with their flanged ends uppermost, the upper setting-die, J, having a central opening, and the lower setting-die, I, provided with a fixed or rigid picker or receiving pin, *i*, whereby the eyelets are delivered and set into the work from the upper side thereof, substantially as hereinbefore set forth.

6. The combination, with the eyelet-setting bars or dies I and J, of the rocker-shafts K K', connected thereto by arms I' and J', and mounted in bearings on the swinging frame E, the connecting-arms K² K³, and actuating-cam L, substantially as and for the purpose set forth.

7. The combination, with the swinging head B, carrying the punching devices, and the laterally-swinging frame E, carrying the eyeletting mechanism, of the spring *e* for retaining said head and frame in close connection, and the adjusting stop-screw E² for regulating the movement of said frame, as set forth.

8. The combination, with the frame E and eyelet-setting dies I J, of the eyelet-hopper M' and chute M, mounted on the swinging arm M², the cam L, spring M⁴, and adjustable stop or screw N, substantially as and for the purposes set forth.

9. The combination, with the bar L', operated by cam L, and the arm K³, operating the rock-shafts K K', which actuate the eyelet-setting dies I J, of the adjustable connection L², substantially as and for the purpose set forth.

10. The combination, with the hinged frame E, carrying the eyeletting mechanism, of the hinge support or bracket E', adjustably connected to the main frame for backward or forward adjustment, as and for the purpose set forth.

11. The combination of the punch-rod D, the head B, pivoted to the main frame at *b*, and having the slotted bar B', the slide B², pitman *c*, cam C', and revoluble shaft C, as and for the purposes set forth.

Witness my hand this 22d day of February, A. D. 1882.

CHARLES A. CORMAN.

Witnesses:

CHAS. H. BURLEIGH,
CHARLES S. BACON.