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ELIJAH SHAW.

PUNCH & EYELETING MACHINE

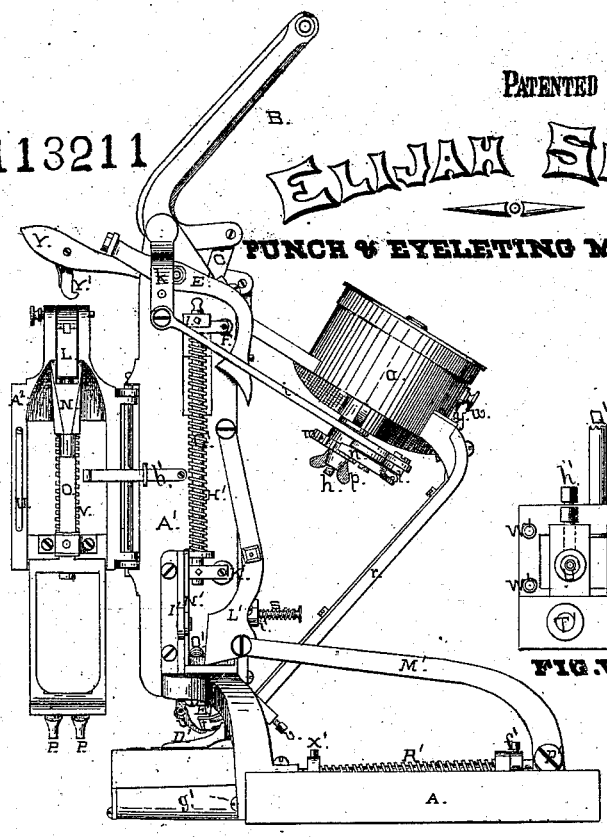

FIG. I.

FIG. VIII.

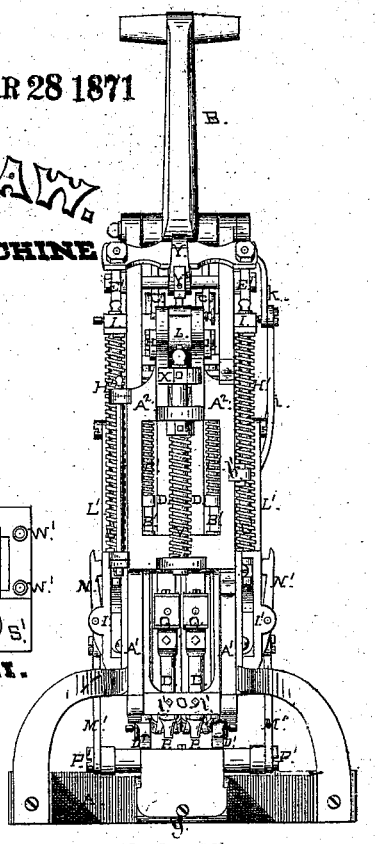

FIG. II.

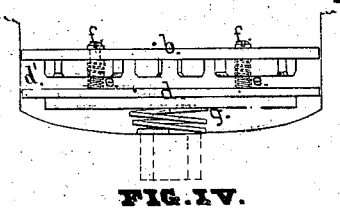

FIG. IV.

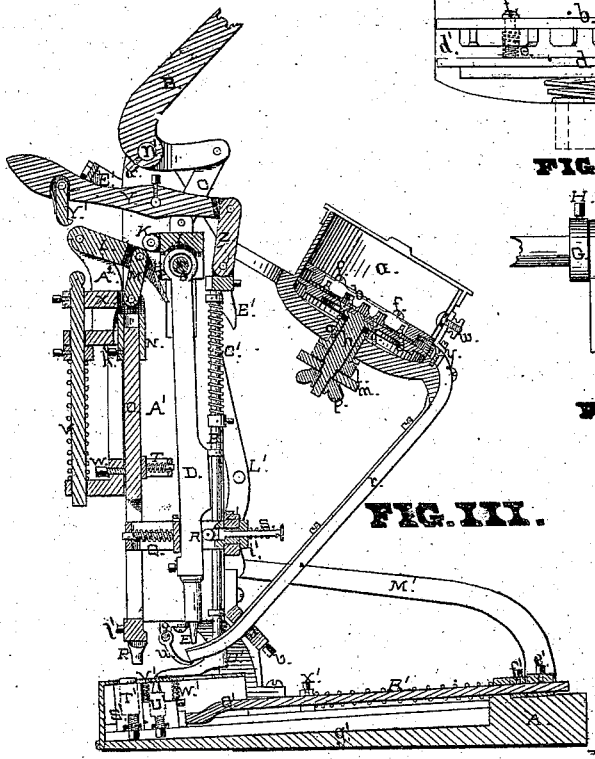

FIG. III.

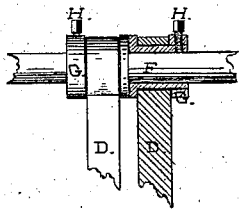

FIG. V.

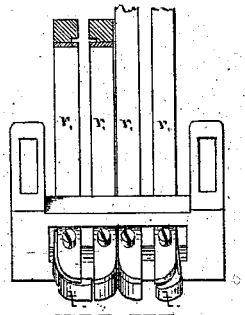

FIG. VI.

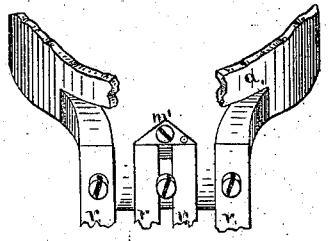

FIG. VII.

Witnesses.

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Letters Patent No. 113,211, dated March 28, 1871.

IMPROVEMENT IN PUNCH AND EYELETING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

I, ELIJAH SHAW, of Milwaukee, in the county of Milwaukee and in the State of Wisconsin, have invented certain Improvements in Punch and Eyeleting-Machines, of which the following is a specification.

Nature and Object of the Invention.

My invention is for punching two holes at the same time, and putting two eyelets in boots and shoes or anything else, on opposite sides of the slit, and setting the eyelets down firmly in place; and this is done by first punching the holes and then automatically feeding the article in which the holes are punched, along to the eyeleting apparatus, when the eyelets are placed in the holes and set down, new holes being punched at the same time, and then fed along alternately till the last holes are punched, when the punches are swung out clear of the article, and the finishing touch is put to it by setting down the last eyelets.

Description of the Drawing forming part of this Specification.

Figure 1 is a side view of my invention with the punching apparatus thrown open.

Figure 2 is a front view.

Figure 3, a sectional view.

Figure 4 is a view of the adjustable bottom of the eyelet-hopper.

Figure 5 is a view of the head of the eyelet-setting rods.

Figure 6 is a view of the mouth of the chutes with their springs.

Figure 7 is a section of the eyelet-hopper and the upper end of the chutes.

Figure 8 is a view of the carriage and anvils.

General Description.

A is the bed-frame of the machine.

A^1, the supporting-frame.

B, a bent lever, held fast upon the shaft *n'* by a set-screw, *a'*, which actuates the several parts of the machine.

C links connecting bent lever B to setting-rods D. The lower ends of these rods D are hollow to receive the sliding pins E, which are elastically seated under spiral springs inside of rods D.

Rods D are hung on shaft F, which has its bearings in frame I, to which links C are attached.

G are collars on shaft F, which form a bushing for the holes in the top ends of rods D.

These collars are made with a head on one side of the rods D, and a loose outside collar on the other side, and the collar and loose head fastened to the shaft F by set-screws H, which pass through both to the shaft. This leaves the rods D so that they can be changed nearer together or further apart, as may be desired, and each be independent of the other, and can be moved forward or backward without moving the shaft.

K, roller on frame I, which, as the frame I is pressed down, strikes lever L on its inclined end, and carries it down with it until the inclined end assumes a perpendicular position, when it holds lever L in that position, sliding down against it, the other end of lever L being secured to the frame A^2 and connected with link M, and that, in turn with head N of punching-frame O, at the bottom of which are punches P P.

It will be seen that this roller K forces the punches down just far enough to cut the holes, and then slides down further without changing the position of the punches.

Q, guides, through which pass rods D, with springs in the front ends of these guides pressing against rods D to hold them back against roller R; and as these rods D are pressed down pins E enter the eyelets in the mouth of the chutes; and then an enlargement on rods D strikes the roller R and the rods D are pressed forward so as to take the eyelets over the holes punched in the article and the anvils to be set.

S are pins and springs on the back side of rods D, to push them forward when an eyelet is not wanted to be taken from the chutes.

These rods D are pushed forward when the first holes are punched in the work, so as not to take out eyelets.

T, a spring in a keeper-back of punching-frame O, to carry the frame back to its position after the holes are punched. When the punches are set down and the holes punched the work is carried back the distance required while the punches are still in the work, and this spring T yields for the punches to go back; and, when the punches are raised, it then throws them to their original position.

U, a spring on frame A^2, to throw the frame open when the catch *b'* is loosened.

V, a spring on a movable rod, its lower end resting on a projection in A^2, and a set-screw and stop on the movable rod, holding its upper end in position to raise punching-frame O up again after it has done its work.

W, a set-screw, with which to regulate the punching-frame O.

X, a sliding head on punching-frame O.

Y, lever, to raise the feet which holds the article to be punched down.

Z, link which connects lever Y to feet-rods, B'.

A^2, swinging punching-frame.

C', springs on rods B', to throw them back again after being raised to let the work be fed up.

D', the feet which hold the article being eyeleted.

E′, levers which rollers F′ strike against and raise rods B′ and feet D′ to relieve the article being eyeleted and allow it to be fed up.

G′, rods attached to frame I, on which are spiral springs, H′, and which works in guides I′, and on the bottom of these rods are rollers K′, which, as they are pressed down, strike swinging levers L′ and throw them out, which, as the end of connecting-rod M′ is attached to them at one end and at the other end to shaft P′ and rod Q′ attached to shaft P′, and carriage S′ to rod Q′, moves the carriage S′ back, and thus feeds up the work; and the springs H′ throw rods D and the set-works back again after the work is performed.

N′, locks which hold carriage S′ back till punches P P′ are released and are moved back to their first position.

These locks have an arm to them which, as the lower end is thrown out by spring O′ when levers L′ are thrown back far enough to clear these arms, will catch the lower end of lever L′ and hold it there till the frame of roller K′ rises high enough to throw the upper end out, which trips the lower end, and spring R′ throws the set-works back again.

T′, box to set anything in for the punches to cut on.

U′, the setting-anvils.

V′, a perforated cover over the setting-anvils, set on four spiral springs W′. This cover is carried down when the eyelets are set, and when the sets D are raised throws the work clear of the anvils, so that the carriage may go back.

X′, set-screw and collar on rod Q′, to hold spring R′ up to its work.

Y′, spring-hook which, when lever Y is pressed down, hooks over lever L, and holds the feet D up while the work is being adjusted.

Z′, frame which holds guides Q, and is held by screws to frame A¹, and is adjustable so as to raise or lower guides Q when the machine is adjusted for taking the eyelets.

a is a hopper secured to frame A¹, which holds the eyelets.

On the inside of this hopper is an annular rim, *b*, the top side smooth, but on the under and inner side are perforations approximating the shape of an eyelet, and the outside of the rim is made open, so that there is a chamber, *d′*, for eyelets all around these perforations, between them and the curb of the hopper; and this rim is attached to a revolving bottom, *d*, by set-screws *f*, so that it can be raised or lowered according to the size of the eyelets; and this rim is held up in position by spiral springs *e* around set-screws *f*; and as the perforations are made smallest at the top side, the eyelets cannot pass except flange down.

g, spring under the bottom *d* to steady the motion.

h, shaft which revolves bottom *d*.

i, connecting-rod which connects crank *k* with arm *l*, which operates pawl *n*, meshing into ratchet-wheel *m*, thus revolving the bottom *d* and agitating the eyelets.

p, thumb-screw on the end of shaft *h*, which holds the agitating-works together, and which is used to agitate the eyelets when starting the machine, so as to fill the chutes before starting.

q, adjusting-collar to regulate the height of bottom *d*.

r, the chutes.

t, the spring-jaws of the chutes.

u are spring-arms slotted to hold the eyelets onto the pins E till they reach a point over the setting-anvils, and the pins E and sets D have been brought in contact therewith.

v, adjusting-screws for setting the chutes for different-sized eyelets.

w, set-screw to adjust slide *y* to the different-sized eyelets, to keep them in position while passing from the hopper to the chutes.

d′, chamber for the eyelets outside of the perforations in the rim *b*. The eyelets passing through the perforations in rim *b*, with their flanges down, cannot turn in this chamber, but are all presented to the mouth of the chutes just right to pass through, and the slide *y* is raised just high enough to let the eyelets pass under it. This slide *y* is over a larger opening than that all around the rim *b*, this opening being made larger at the head of the chutes for a reservoir for eyelets, and the division between the chutes is headed by a pointer, *m′*, so that the eyelets are directed in both directions.

e′ is a set-screw in shaft P′ to regulate the carriage S′, so as to bring the anvils under the setting-rods D and pins E.

f′ is a set-screw and collar to regulate the distance for the carriage S′ to travel.

g′, the carriage-way for carriage S′ to move on, being the central piece of bed-frame A. This central piece is made inclining, rising as it goes back to the back side of bed-frame A, so that as the carriage goes back it rises just enough to keep the same pressure of the punches on the cutting surface. This carriage-way is in the center of bed-frame A, and there is an opening on each side of it so that the work to be punched can be placed astride and pass up over it without coming in contact with anything.

h′, set-screws in the carriage S′, to adjust the anvils to any distance apart that may be necessary.

i′ are screws or nuts for the purpose of adjusting the setting-rods D, and placing them further apart or nearer together, as may be desired.

k′ is a set-screw for the purpose of holding punching-frame Q higher or lower.

l′, set-screws for the purpose of setting the punches P P further apart or nearer together.

This machine is operated by a treadle attached to rods connected to bent lever B. The eyelets are thrown promiscuously in the hopper *a*, and agitated by taking hold of thumb-screw *p*, which, by turning it a few times, fills chutes *r*, after which arm *i* will agitate sufficiently, and then raise feet D′ by pressing down lever Y, when catch Y′ will hook under lever L and hold them up; then adjust the article to be eyeleted under feet D′ on carriage S′. If a shoe, put the vamp on the carriage so that the slit of the shoe comes in the center of the carriage; then put your fingers on springs S S and force rods D forward so that the eyelet-pins E will clear the chute; then press down bent lever B with the treadle until carriage S′ has been moved back the required distance; then let the lever B come back again. The feet will then hold the material which was punched when lever B was first pressed down in that position, and the punches will then go back in position to make two more holes. Then press the bent lever B clear down, when the punches will punch two more holes, and the setting-rods D will set two eyelets in the holes first punched; then repeat the operation till you have the last two holes punched; then touch spring *b′*, and frame A² will swing open and the punches will be outside of the work; then set the last two eyelets; then raise the feet D′, take out the work, and repeat the operation.

The machine can be set for different kinds of work by setting the parts with the set-screws described further apart or nearer together.

Claims.

I claim as my invention—

1. An eyeleting-machine, arranged to punch two holes, feed, and set two eyelets with one motion, at the same time, substantially as described.

2. Roller K and lever L, arranged so that lever L

will go down a certain distance pressed by roller K, and then it will assume a perpendicular position and remain pressed down that distance while the roller K passes on, substantially as described.

3. Punching-frame O, movable head X, spring V, spring T, set-screw W, and set-screw K′, in combination with swinging frame A^2, substantially as described.

4. Bent lever B, links C, frame I, rods G′, springs H′, levers E, rollers F′, rods B′, springs C′, lever Y, feet D′, in combination with frames A and A^1, substantially as described.

5. Bent lever B, connecting-links C, frame I, rods G′, springs H′, roller K′, levers L′, lever M′, shaft P′, rod Q′, carriage S′, all in combination with frames A and A^1, substantially as described.

6. Carriage S′, anvils U′, with cover V′, and springs W′, all in combination substantially as described.

7. Inclined way g', in combination with carriage S′, for the purpose of keeping the elevation adjusted so that the punches P may keep an even bearing while they and the carriage S′ are fed up.

8. Frame A^2, with punching-frame O, to swing open, so that the punches may not be used when not desired.

9. Locking-levers N′, springs O′, in combination with roller K′ and lever L′, substantially as described.

10. Frame Z′, adjustable guides and springs Q, rollers R, and spring and pins S, in combination with rods D, substantially as described.

11. Inclined-way g', arranged in the center between the outsides of frame A, so that a shoe or other closed article may be fed up over and around g', and the holes punched and eyelets set, substantially as described.

12. Annular rim b, perforated as described, with chamber d', and pointer m', with slide y, and set-screw w, substantially as described.

13. Outer pocket for eyelets at the head of chutes r, with pointer m' and slide y, and set-screw w, substantially as described.

14. Bushing G, with loose head and set-screws H, in combination with shaft F and setting-rods D, substantially as described.

ELIJAH SHAW.

Witnesses:
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J. B. SMITH.