

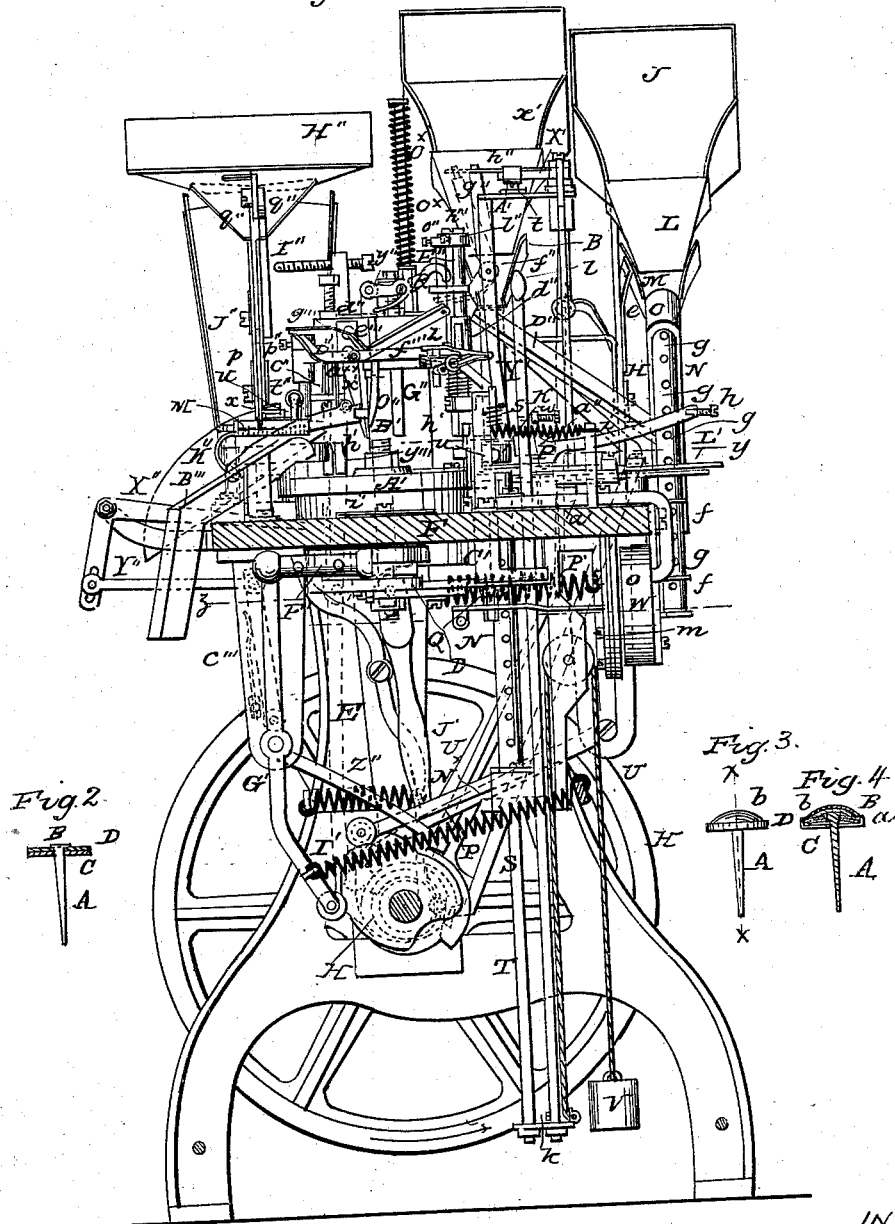
Z. WALSH.

Capping Trunk Nails.

No. 48,465.

Patented June 27, 1865.

Fig. 1



WITNESSES
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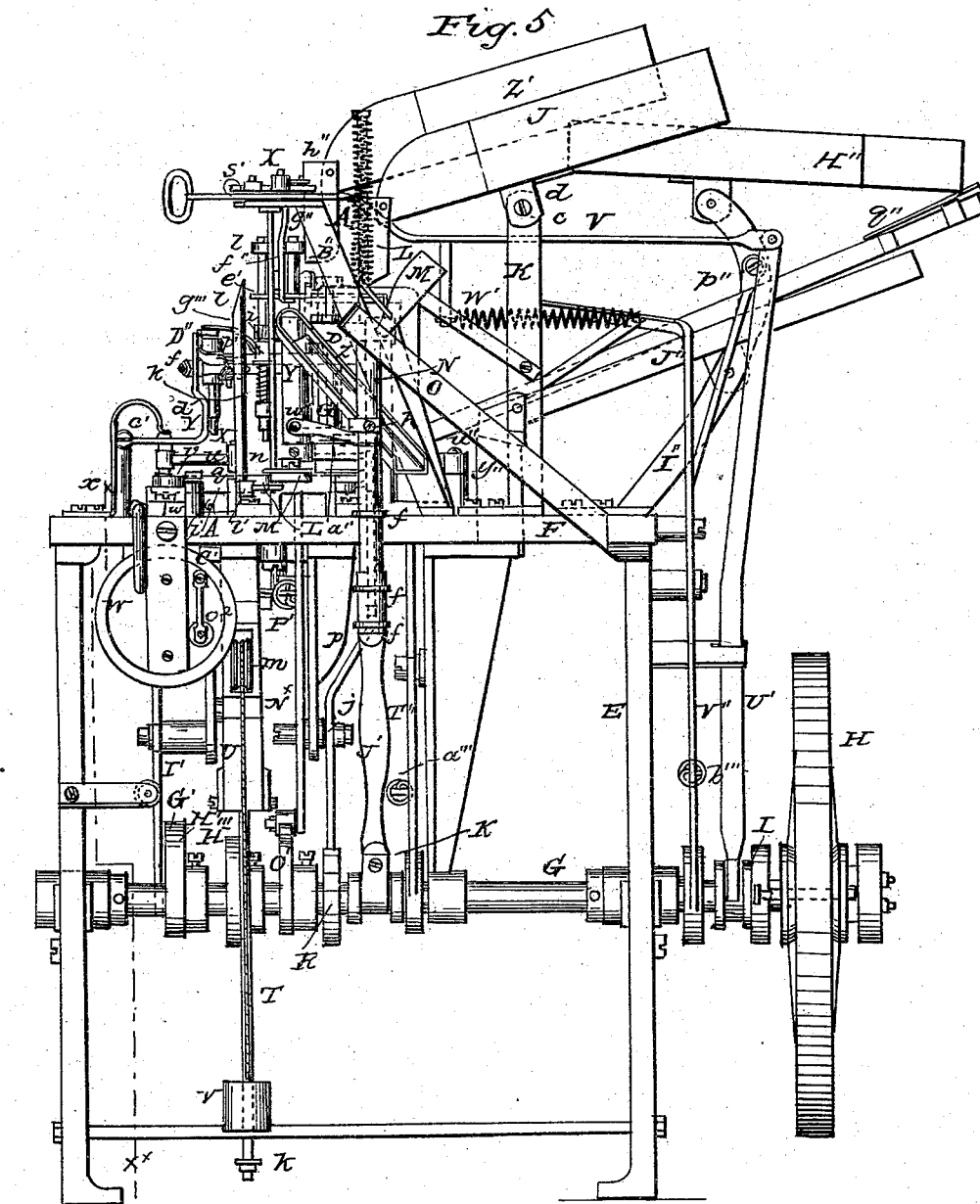
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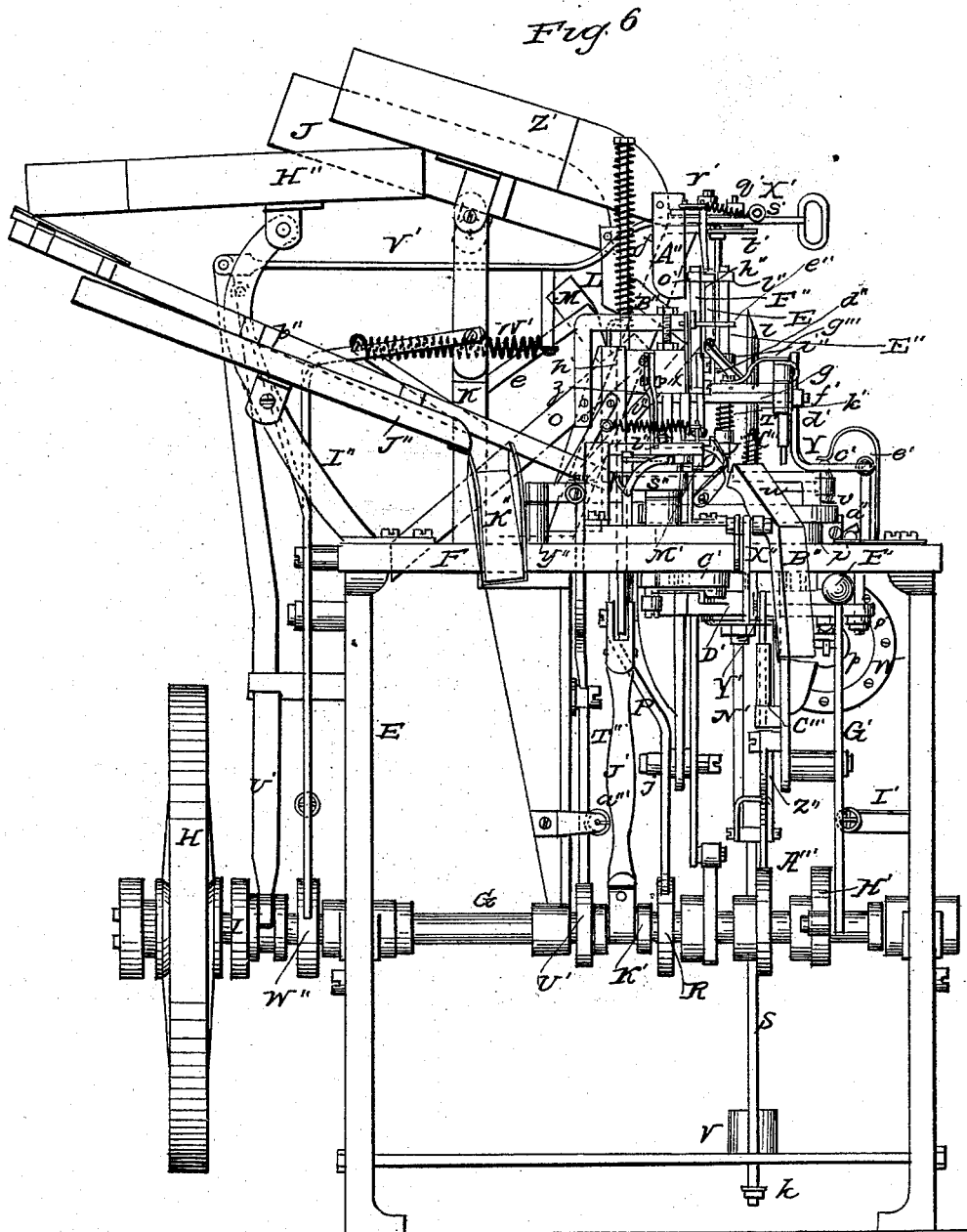
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5 Sheets—Sheet 3

Capping Trunk Nails.

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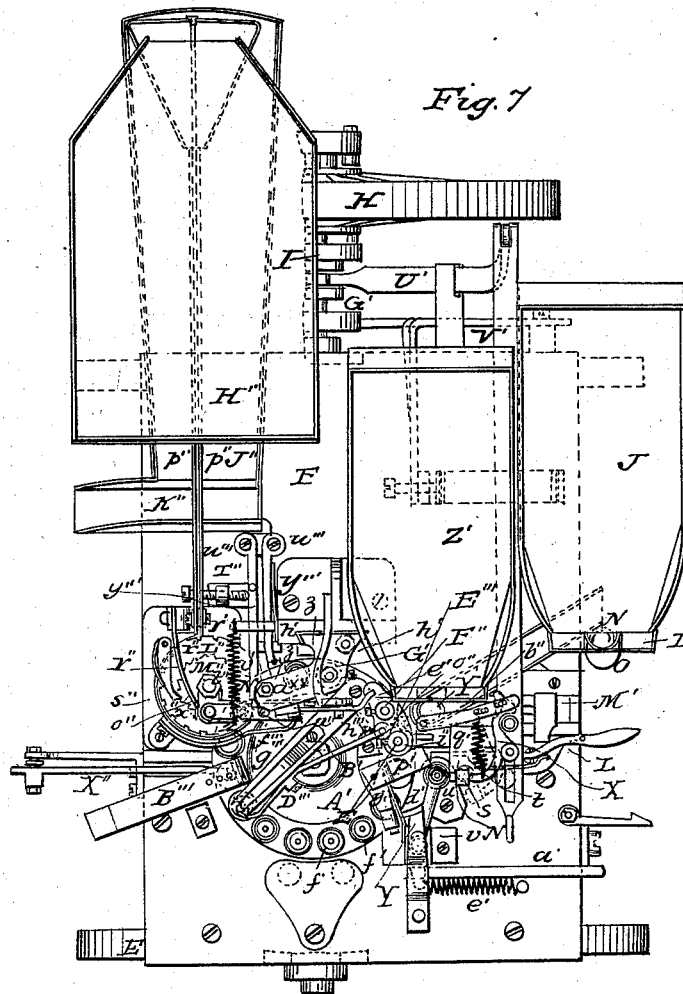
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Capping Trunk Nails.

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Fig. 8

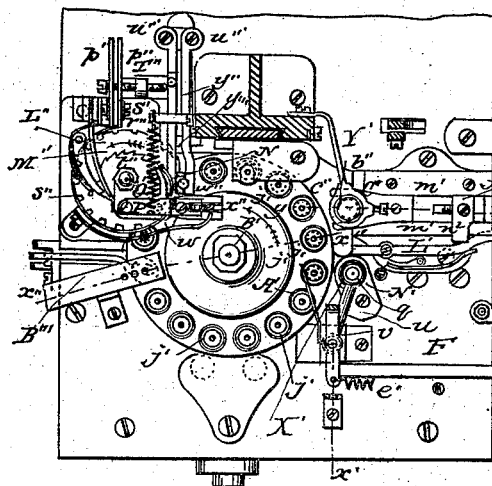


Fig. 9

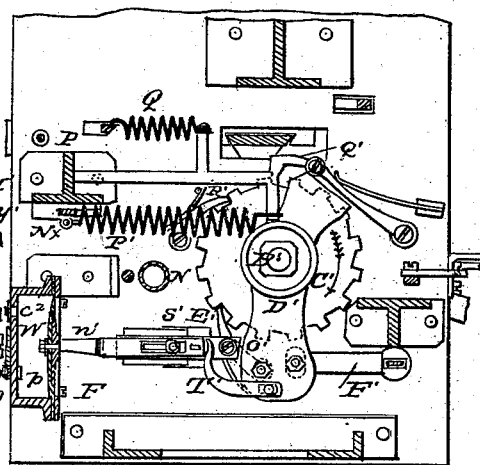


Fig. 10.

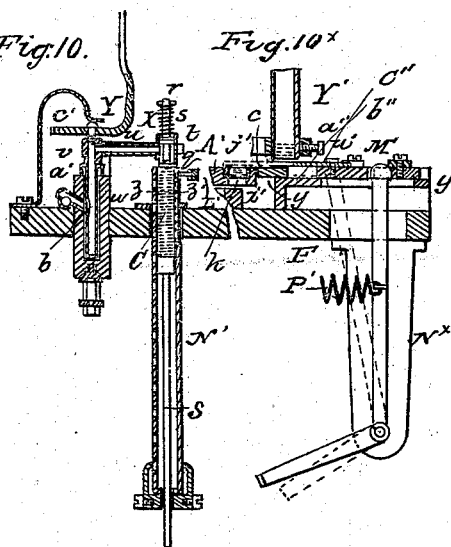


Fig. 10^x

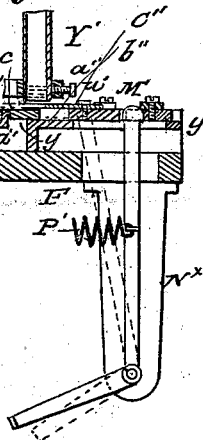


Fig. 11

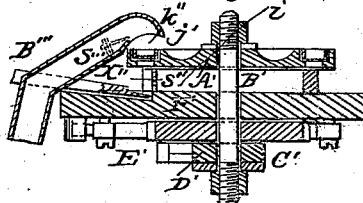


Fig. 12

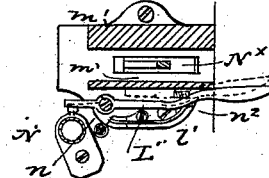


Fig. 13



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UNITED STATES PATENT OFFICE.

ZACHARIAH WALSH, OF NEWARK, NEW JERSEY.

MACHINE FOR PUTTING HEAD-FILLINGS ON TRUNK-NAILS.

Specification forming part of Letters Patent No. 48,465, dated June 27, 1865.

To all whom it may concern:

Be it known that I, ZACHARIAH WALSH, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Machine for Putting Head-Fillings on Trunk and Similar Nails; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet No. 1, is a front sectional elevation of my invention, taken in the line $x^* x^*$, Fig. 2; Fig. 2, a view of a trunk-nail having the pasteboard and sheet-metal fillings upon it; Fig. 3, a side view of a trunk-nail complete; Fig. 4, a longitudinal central section of the same, taken in the line xx , Fig. 3; Fig. 5, Sheet No. 2, a side elevation of the invention; Fig. 6, Sheet No. 3, a side view of the same, opposite to that shown in Fig. 5; Fig. 7, Sheet No. 4, a plan or top view of the same; Fig. 8, Sheet No. 5, a horizontal section of the same, taken in the line yy , Fig. 1; Fig. 9, a horizontal section of the same, taken in the line zz , Fig. 1; Fig. 10, a vertical section of a portion of the same, taken in the line $x' x'$, Fig. 8; Fig. 10^x, a vertical section of a portion of the same, taken in the line $y' y'$, Fig. 8; Fig. 11, a vertical section of a portion of the same, taken in the line $x'' x''$, Fig. 8; Fig. 12, a horizontal section of a portion of the same, taken in the line $y'' y''$, Fig. 10^x; Fig. 13, a horizontal section of a portion of Fig. 10, taken in the line $z' z'$.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and useful machine for putting the pieces of pasteboard and sheet-metal on trunk and similar nails, and which form the principal portion of the filling for the enlarged heads of said nails.

In order to show clearly the work the machine performs, Figs. 2, 3, and 4, on Sheet No. 1, are drawn.

A represents the body or main portion of a nail, and B the head of the same. This is simply an ordinary nail, and for trunks ordinary lath-nails or those about that size are used.

C represents a circular tin or sheet-metal plate, and D a circular piece of pasteboard,

which are fitted on the body A of the nail just below the head B. My invention places these parts C D on the nail, said parts forming the principal portion of the filling of the enlarged head, the other portion of the filling being a circular piece of pasteboard, a , (see Fig. 4,) and a sheet-metal cover, b , the pasteboard a being over or at the outer side of the head B, and the metal cover b being over a , and pressed down and closed around under the edge of C, as shown clearly in Fig. 4.

The placing of the parts a b on and over the parts C D may be done in the usual or in any proper way, my invention, as previously stated, only putting the parts C D on the nails, which it does very expeditiously and in a perfect manner.

In order to avoid confusion, I will proceed, in the first place, to describe the mechanism pertaining to the placing of the sheet-metal plates C in the part where the nails are forced through them.

E represents a framing, and F a horizontal platform thereon.

G is a shaft, which is placed horizontally in the framing E, and has its driving-wheel H fitted loosely upon it and connected to it by a clutch, I. (See Figs. 5 and 6.)

J is a hopper, supported by an upright, K, which is secured to the platform F, the hopper J being attached to the upright K by means of a screw, c , which passes through a pendent lip, d , at the under side of said hopper, as shown clearly in Fig. 5. By this means the hopper J may be adjusted in a more or less inclined position, as desired.

At the discharge end of the hopper J there is a guard or flap, L, which has a vertical, or nearly vertical, position, and is designed to give a proper direction to the contents of the hopper J in their discharge from it, causing the same to fall into a spout, M, which is at the outer end of a bar, e , attached to the upright K.

The sheet-metal plates C are cut out in circular form of the proper diameter by any suitable die or dies, and they are placed into the hopper J, and in passing therefrom are directed into a vertical tube, N, by the guard or flap L and spout M.

The tube N is fitted in brackets f attached to the platform F, and in such a manner that

it may be readily adjusted to the platform and detached from it, and said tube is perforated with holes *g*, extending its whole length, (see Fig. 1,) so that the attendant of the machine may see when the tube *N* is filled and watch the progress of the filling of the tube. The upper end of the tube *N* passes through an inclined spout, *O*. (See Figs. 5 and 6.) This spout *O* is designed to carry off any plates *C* which may fail to pass into tube *N*. The plates *C* thus carried off may drop into any proper receptacle prepared to receive them, and from time to time the contents of said receptacle may be turned into hopper *J*. During the filling of the tube *N* the latter is knocked or tapped by a set-screw, *h*, which passes through the end of an arm, *i*, of a bent bar, *P*, which works on a rod, *j*, the knock or tap on the tube *N* being produced by a spring, *Q*, connected with the bar *P*, the opposite movement of said bar being given by a cam, *R*, on the shaft *G*. (Shown clearly in Figs. 5 and 6.) This filling of the tube *N* with the circular plates *C* is a distinct operation, and when said tube is filled it is removed from the brackets *f* and placed in another part of the platform *F*. This second position of the tube is the one where the plates *C* are taken from it, and it is designated in the drawings by *N'*. Two tubes, *N N'*, therefore, must be necessarily employed during the operation of the machine, one being filled with plates *C* from the hopper *J*, while the other has its plates *C* taken from it to be placed in a certain part, hereinafter described, to be punched and have the nails *A* driven through them. These tubes *N N'* have a hole made centrally in their bottoms or lower ends to admit of a rod, *S*, passing through. This rod passes only into or through the bottom of the filled tube *N'*, and said rod *S* is attached to a horizontal plate or arm, *k*, to which another vertical rod, *T*, is secured, the latter passing up through the platform *F*, and having a beveled or inclined surface, *l*, at its upper end. (See Figs. 1, 5, and 6.) The function of this rod *T* will be hereinafter described.

The plate or arm *k* has a cord, *U*, attached to it, which passes over a pulley, *m*, and has a weight, *V*, at its end. This weight and cord causes the rod *S* to press the plates *C* in the tube *N'* upward, as will be fully understood by referring to Figs. 1 and 10.

The tubes *N N'* are each provided with a spring, *n*, inserted in a longitudinal slot at their upper parts. (See Fig. 10.) These springs, in connection with pressure-levers, hereinafter described, prevent the rod *S* from shoving the plates *C* out from the tubes, as will be fully understood by referring to Fig. 10, in which the spring *n* is shown pressing against the upper plates *C* in tube *N'*. The tube *N'* is fitted in the platform *F* in such a manner that it may be readily adjusted in the position shown, and also readily removed from said position. This is necessary in order that *N'*, when exhausted of plates *C*, may be removed and a filled tube,

N, inserted in its place, *N'* being then adjusted in the place shown occupied by *N*, in order that it may be filled from the hopper *J*.

The plates *C* are taken from the tube *N'* by means of atmospheric pressure, the suction or vacuum in the lifter being produced by a pump, *W*, (shown in Figs. 1, 5, 6, and 7.) Any suitable form of air-pump may be used. The one represented in the drawings is composed of a cylinder, *o*, having an elastic or flexible diaphragm, *p*, to serve as a piston. (See more particularly Fig. 9.)

The lifter (designated by *X*) is composed of a cylinder, *q*, the interior of which is of sufficient diameter to receive a plate *C*. (See Fig. 10.) This cylinder is provided with a plunger-rod, *r*, which passes vertically into it and has a spiral spring, *s*, on its upper part above the cylinder, which spring has a tendency to keep the plunger-rod *r* elevated in *q*, a collar, *t*, on *r* bearing against the upper end of *q*, as shown clearly in Fig. 10. The cylinder *q* is attached to and communicates with a horizontal tube, *u*, which is attached to a vertical tube, *v*, the latter being fitted in a stock, *w*, so as to turn freely therein. (See Fig. 10.) The air-pump *W* communicates with the vertical tube *v* by means of a tube, *a'*, which passes into the stock *w* and in line with a portion of *v*, where a hole, *b'*, is made, as shown clearly in Fig. 10. The upper end of the tube *v* has a bar, *Y*, attached to it, which is bent so as to have a horizontal part, *c'*, and an upright curved part, *d'*. The end of the horizontal part *c'* has a spiral spring, *e'*, connected to it, which has a tendency to keep the upright curved part *d'* in contact with a roller, *f'*, at the outer end of an arm, *g'*, which projects from a vertical reciprocating slide, *Z*, the latter being fitted between suitable guides *h' h'*, secured to the platform *F*. (See Figs. 1, 5, 6, and 7.)

A' represents a horizontal wheel, which is fitted on a vertical shaft, *B'*, the latter passing through the platform *F*, and the wheel *A'* being above the latter and working over a fixed annular rim or ledge, *i'*, on the platform. (See more particularly Fig. 11.) This wheel *A'* has a series of holes made in it near its periphery to receive hollow dies *j'*, which are of cylindrical form and of such a diameter internally as to receive the plates *C*. The dies *j'* are fitted snugly in the holes in *A'* in any proper manner, so that they may be readily inserted in and removed from the wheel and still not be liable to be casually thrown out therefrom. The dies have each a hole, *k'*, made centrally in their bottoms, and the dies rest upon shoulders in the holes of the wheel *A'*, as shown clearly in Fig. 10.

On the shaft *B'*, underneath the platform *F*, there is keyed a ratchet, *C'*, and on the shaft *B'*, directly below the ratchet, there is placed loosely an arm, *D'*, which has a pawl, *E'*, attached to it, said pawl engaging with the ratchet, as shown clearly in Fig. 9. This arm *D'* is connected by link *F'* with a lever, *G'*, the lower

end of which is kept in contact with a cam, H', on the shaft G, by a spring, I'. By the movement of the lever G', actuated by the cam H' and spring I', the ratchet C', and consequently the wheel A', are turned.

The slide Z, previously alluded to, is operated by a connecting-rod, J', from a crank, K', on the shaft G, as shown in Figs. 1, 5, and 6.

The spring *n*, in the upper end of the tube N', has a lever, L', bearing against it, the pressure of the lever on the spring *n* being caused by a spring, U', (shown clearly in Fig. 12.) This pressure-lever L' effectually prevents the circular plates C being forced up out of tube N' by the rod S, and, in order to admit of a plate, C, being taken from tube N', the spring *n* must be relieved of the pressure of the lever L'. This is effected by means of an arm, n², on a slide, M', which works between guides m' on the platform F, and is operated by means of a bent-lever, N², from a cam, O', on shaft G, the lever being kept in contact with the cam by means of a spring, P'.

The wheel A' is prevented from casually moving by means of two holding-pawls, Q' R', one, Q', being thrown out from the ratchet C', when it is moved or turned by the pawl E', by the end of the arm D', which is opposite to the end where the pawl E' is attached. The other pawl, R', is an ordinary holding-pawl, and has no positive movement.

The rod n' of the piston or diaphragm *p* of the pump W is connected to a slide, S', underneath the platform F. This slide is operated so as to force the piston or diaphragm inward by means of the arm D', which acts against it, and said slide is moved in the opposite direction by a hook, T', attached to the arm D' at such a point that it will catch behind a stud, o', on slide S', in order to draw it back or outward and relieve itself from said stud prior to the arm D' acting upon the slide to press the piston or diaphragm inward.

The operation of the parts above described is as follows: The tube N, having been filled with plates C from hopper J, is placed in the framing, as indicated in the drawings, and the shaft G is rotated by any convenient power. As the slide Z is forced upward by the crank K' and connecting-rod J', the roller *f'* at the end of the arm *g'*, in consequence of bearing against the curved upright part *d'* of the bar Y, turns the cylinder *q* of the lifter X over the top of the tube N', and at this moment the piston or diaphragm *p* is drawn outward by the hook T' engaging with the slide S', and a suction is produced in cylinder *q*, so as to take up a plate C from N', the hole *b'* in the tube *v* coming in line with the tube *a'* just at the time that the cylinder *q* is brought in line with the tube N' and in order to admit of the top plate C in N' being released in order that it may be sucked up into *q*, the slide M is shoved by the lever N² backward or outward, so that the arm n² will act against the lever L' and be freed from the spring *n*, which

holds the top plate C, the slide M' being moved back to its original position as soon as the top plate C leaves N' by means of the spring P'. When this top plate has been sucked up to the cylinder *q*, the latter is turned over the edge of the wheel A', this being done by the spring *e'* during the downward movement of the slide Z and roller *f'*, and when the cylinder is over a die *j'* in the wheel A a lateral projection, *p'*, on arm *g* forces down the plunger-rod *r* in the cylinder *q*, and discharges the plate C therefrom into the die underneath it. When the cylinder *q* is moved off from the tube N', the hole *b'* in the tube *v* is cut off from the tube *a'* of the pump W, and the piston or diaphragm *p* is moved back by the arm D' acting against slide S', the air in the cylinder *o* of the pump being forced out through a valve, o². Thus by this means the dies *j'* of the wheel A' are supplied with the plates C from the tube N', the wheel A' being moved by the pawl E' and ratchet C' the distance of one tooth of the latter each time the cylinder *q* is moved from over the wheel A', so that an empty die *j'* is presented to the cylinder *q* each time the latter is brought over the wheel A'. There is a stop mechanism connected with this placing of the plates C in the dies *j'* of the wheel A', which is important. It is constructed and arranged as follows:

The clutch I on the shaft G has a lever, U', connected to it which extends upward some distance above the platform F and has a rod, V', attached to its upper end. To the rod V' there is connected a spiral spring, W', which has a tendency to keep the clutch I free from the wheel H, so that the latter will turn loosely on shaft G. In order to keep the clutch I engaged with the wheel H, a catch, X', is employed, (shown clearly in Fig. 7,) and having a spiral spring, *q'*, connected with it, which spring has a tendency to keep the catch engaged with a pin, *r'*, on the rod V' and cause the clutch I to keep locked with wheel H. This catch X' has a friction-roller, *s'*, on its outer end, and when the last plate C is forced out from the tube N' the upper beveled end, *l*, of the rod T will come between the roller *s'* on the catch X' and a plate, *t'*, attached to a fixture on the framing, and will actuate the catch X' so as to disengage it from pin *r'*, and thereby liberate the rod V', so that the spring W' will throw the catch I free from wheel H, and cause the machine to stop.

I will now proceed to describe the operation of placing the pasteboard D in the dies *j'* of the wheel A'.

Y' is a tube, which is placed in a fixed state above the platform F and is perforated with holes, like the tubes N N'.

Z' is a hopper, provided with a guard or flap, A'', and B'' is a spout below the guard or flap, the guard or flap and spout conveying the pasteboards into tube Y' in precisely the same way as the plates C are conveyed into the tube N. The tube Y' is knocked or tapped by a set-

screw, w' , which passes through an arm, a'' , at the upper end of the bar P, both tubes N Y' being acted upon by the same bar. The tube Y' is open at its lower end, and is directly over a plate, b'' , between which and the lower end of the tube a plate, C'' , attached to the slide M' works. (See more particularly Fig. 10^x.) The outer end of the plate C'' has a semicircular recess, c'' , made in it, and each time the slide M' is forced inward the plate C'' shoves a pasteboard D from underneath tube Y' into a die, j' , which is in line with it. These pasteboards D are each placed on a plate C previously forced into the dies by the means already described.

I would remark that the upper end of the tube Y' passes through the upper end of an inclined spout, D'', which carries off those pasteboards which do not chance to drop into said tube.

This manner of depositing the pasteboards D into the dies j' is quite simple compared with the means employed for depositing the plates C in the dies, but the latter, in consequence of being quite thin, cannot with any degree of certainty be actuated or shoved from underneath their tube by a sliding plate. The pasteboards D, being comparatively thick, may be acted upon by a slide in a perfect manner.

To insure the perfect operation of the machine, it is essential that the plates C and pasteboards D be inserted in each die j' , and in order to prevent a failure in this respect a stop mechanism is employed for each, as follows:

E'' is a vertical rod, which passes loosely through a hub, d'' , on the arm g' of slide Z, said rod also passing loosely through a plate, e'' , which works on a pivot, f'' , and has an upright arm, g'' , attached to it, the upper end of which is connected by a link, h'' , with the catch X'. (See more particularly Figs. 1 and 7.) On the rod E'', between the hub d'' and the plate e'' , there is placed a collar, i'' , which may be secured at any desired point by a set-screw, and on the rod, below the arm g' , there is placed a similar collar, j'' , between which and the arm g' there is a spiral spring, k'' , said spring being on the rod E'' and having a tendency to keep the collar i'' down on the hub d'' , as shown in Figs. 1, 5, and 6. A collar, l'' , is also placed on the rod E'', near its upper end. The rod E'' is directly in line with the center of the path of the movement of the dies j' , and each time the slide Z descends the rod E'' passes into a die, j' , provided with a plate C, and the lower end of the rod E'' comes in contact with the plate C before the slide Z reaches the termination of its downward movement; but the arm g' , acting upon the spring k'' and compressing it when the rod E'' is stopped by coming in contact with the plate C in the die j' and the collar l'' , on the upper end of rod E'', will be prevented from coming in contact with the plate e'' . If, however, a plate C should fail to be deposited in a die, j' , the rod E'' would be, of course, pressed down farther, and the

collar l'' on its upper end will come in contact with the plate e'' and press it down, and cause the arm g'' of said plate and the link h'' to actuate the catch X' and liberate the rod V', so that the spring W' will throw the clutch I in connection with the wheel H.

The stop mechanism connected with the pasteboard-adjusting device is arranged precisely similar.

F'' is a rod which passes loosely through the arm g' , and has three collars upon it, arranged or disposed in precisely the same way as the collars $i'' j'' l''$ on the rod E''. A spiral spring, p'' , is also placed on rod F'', in the same position as the spring k'' on rod E''. In case a pasteboard D should fail to be deposited in a die j' , the plate e'' will be actuated by the collar o'' of rod F' and the rod V' liberated, and the machine stopped. The dies j' , with the plates C and pasteboards D in them, pass underneath a punch, G'', which is attached to the slide Z. This punch, as the slide Z descends, perforates the plate and pasteboard in each die. No stop mechanism is connected with the punching device, none being required, as the punch has a positive movement and cannot fail to perform its work. To insure an easy and smooth movement of the slide Z the latter has a vertical rod attached to it, on which a spring, o^x , is placed. (See Figs. 1 and 6.)

The next operation and the last is the inserting of the nails through the perforated plates and pasteboards in the dies j' and the discharging of the nails, with the plates and pasteboards upon them, from the wheel A'.

H'' is a hopper, which is attached to a standard, I'', on the platform F, in the same manner as the other hoppers, J Z, but in a reverse position.

J'' is an inclined spout, which is underneath the hopper H'', and inclines downward in a direction toward the platform F, and has a discharge-spout, K'', at its end.

Between the hopper H'' and the spout J'' there are two parallel inclined bars, p'' . These bars $p'' p''$ are inclined in the same direction as the spout J'', and they are provided at their upper ends, underneath the discharge end of the hopper H'', with two plates, $q'' q''$. The parallel bars $p'' p''$ convey the nails down to a wheel, L'', the bodies of the nails passing between the bars p'' , the heads of the nails resting on the upper surfaces thereof. The nails are placed in the hopper H'' in a promiscuous manner, and in case any should not chance to pass properly between the bars $p'' p''$ they are carried off by the spouts J'' K'' and replaced again in hopper H''. The wheel L'' has its periphery notched at suitable and equal distances apart, as shown at r'' in Fig. 7, and said wheel is partially encompassed by a fixed metallic strap, s'' , which serves as a cover for said notches. The parallel bars $p'' p''$ convey the nails down to the notches r'' in the wheel L'', depositing a nail vertically in each notch. The

wheel L'' is placed loosely on a vertical arbor, t'', and it has a ratchet, M'', secured concentrically to its upper surface, with which a pawl, N'', engages. This pawl N'' is attached to a bent or right-angular arm, O'', which is fitted loosely on the arbor t'', said arm having an upright pin, w'', to which a spiral spring, v'', is connected. (See Figs. 6 and 7.)

To the bent arm O'' there is attached by a pivot a bar, P'', which has a friction-roller, w'', at its inner end. (See Fig. 7.) This friction-roller w'' is made to bear against an inclined or curved pendant-bar, x'', attached to the slide Z, and the inner end of the bar P'' is made to bear against a curved pendant, Q'', by a spring, x'', the upper end of the pendant Q'' being connected by a pivot, y'', to one end of a lever, R'', the opposite end of the latter being over the plate e'', as shown clearly in Fig. 1.

The wheel L'' is made to rotate as follows: Each time the slide Z descends the bar x'' forces outward the bar P'', and the latter by this movement actuates the arm O'', so as to draw the pawl N'' back over a tooth of the ratchet M'', and as the slide Z and bar x'' rises the spring x'' forces the arm O'' and bar P'' back, and the spiral spring v'', in connection with the spring x'', causes the pawl N'' to turn the wheel L'' the distance of one tooth of the ratchet M'', which is equivalent to the length of the spaces between the notches r'' of the wheel. By this means an empty notch, r'', is presented to the bars p'' at each movement of the wheel L'', the nails being carried around by said wheel between its periphery and the strap s'' to the point of their discharge, which is directly over the inner parts of two jaws, y''' y''', the outer ends of the latter working on pins w'''. These jaws have a tendency to be kept closed or toward each other by means of springs arranged in any proper way, and they are separated or distended each time the slide Z descends by means of a pendant-bar, z'', attached to said slide. These jaws y''' y''' receive the nail S'', Fig. 11, the wheel carrying the nails between the jaws, and hold them directly over a die j', the latter, as the wheel A' rotates, being brought consecutively underneath the nails. As the jaws y''' y''' are forced apart by the bar z'' the nail S'', Fig. 11, between them is forced down through the pasteboard and plate in the die j' underneath by means of a rod, a'', attached to the slide Z. Thus the nails are passed through the pasteboard and plate in each die, the pasteboard being uppermost and the plate underneath, as shown in Fig. 2, Sheet No. 1. The jaws y''' y''' are tapped or knocked by a lever or bar, T'', operated by a spring, a''', and a cam, U'', the latter being on the shaft G. The standard of the hopper H'' is tapped or knocked by a lever or bar, V'', which is operated by a spring, b''', and a cam, W'', the latter being on shaft G.

The nails, with the plates and pasteboards upon them, are discharged from the wheel A' as follows:

X'' is a bent lever, the outer end of which is connected, by a link, Y'', with a lever or bar, Z'', the lower end of the latter resting upon a cam, A''', on shaft G, the lever or bar Z'' being kept in contact with the cam by means of a spring, c'''. The lever or bar Z'' is actuated by the cam A''' and spring c''', and the lever or bar Z'' actuates the lever X'', so that the latter will throw the nails S'', Fig. 11, from the wheel A' into a spout, B'', which conveys them from the machine. (See Fig. 11.)

There is a stop mechanism connected with the means employed for forcing the nails through the pasteboard and plates of the nails, and also a stop mechanism connected with the means employed for discharging the nails from the wheel A'. The former consists of the pendant-bar Q'' and the lever R'', previously referred to. In case of the bar P'' not being moved inward sufficiently to admit of the proper action of the pawl N'' on the ratchet M'' of the wheel L'', the pendant Q'' will not be moved sufficiently to allow a shoulder, d''', upon it to escape a projection, e'', on the slide Z, and said projection will consequently strike said shoulder and actuate the lever R'', and the latter will press down plate e'' and the catch X' moved to liberate the rod V'.

The stop mechanism of the means employed for discharging the nails from the wheel A' is composed of a vertical rod, C''', which passes through an arm, f''', attached to arm g', and has a spring, g''', bearing upon it and also a lever, D'', the spring bearing upon the lever and the lever bearing upon the rod C'''. The inner end of the lever D''' is connected by a pivot to an upright rod, E''', which passes through the plate e'', the rod E''' having a collar, h'', upon it above the plate e''. In case of a nail failing to be discharged from the wheel A', the rod C''' of course cannot be depressed the full downward movement of the slide Z, as the downward movement of C''' will be arrested by the nail in the die j', and the rod E''' will act upon plate e'' and the machine stopped, as before described in the other stop mechanisms.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. The employment or use of a rotating wheel, A', provided with recesses to receive a series of dies, j', in which the pasteboards D and plates C are deposited, in connection with a punch, G'', and a nail-driving mechanism for pressing or passing the nails through the pasteboards and plates, substantially as and for the purpose herein set forth.

2. The rotating notched wheel L'', encompassed partially by the strap s'', in connection with the jaws y''' y''', for the purpose of presenting the nails properly to the punch G'' and the pasteboards and plates in the dies j', substantially as described.

3. The parallel bars p'' p'', in combination with the hopper H'', wheel L'', and spouts J''

K'', for the purpose of presenting the nails to the wheel L'', substantially as set forth.

4. The perforated tubes N N', to receive the sheet-metal plates C, arranged in the machine substantially as shown, so as to be removable and placed alternately in positions for being filled and discharged, as herein described.

5. The employment or use of an air-pump, W, in connection with a lifter, X, arranged as shown, or in any equivalent way, for the purpose of taking the plates C from the tube N or N' and depositing them in the dies j' of the wheel A', as set forth.

6. The spring n, at the upper end of the tubes N N', in connection with the pressure-lever L', and the slide M', or its equivalent, arranged substantially as shown, for the purpose of liberating the upper plate in said tubes and admitting of the discharge of the same at the proper time, substantially as described.

7. The rod S, fitted in the tube N or N', and operated upon by the weight V, in combination with the spring n, pressure-lever L', and the slide M', or its equivalent, for the purpose specified.

8. The catch X', arranged with the rod V' of the lever U', substantially as shown, in combination with the pivoted plate e'', provided with the arm or bar g'', connected with the catch X' by the link h'', for the purpose of constituting a means for the several stop mechanisms herein described, to act upon the lever U' and clutch I, as set forth.

9. The rods E'' F'', passing through the arm g', and provided with the collars and springs, as shown, and arranged with the pivoted plate e'' and the arm g' of slide Z, to operate or act upon the latter so as to stop the machine when necessary, as herein described.

10. The rod E''', passing through the pivoted plate e'', and provided with the collar h''', in connection with the lever D''' and rod C''', connected with the arm f''', all arranged, substantially as shown, to form a stop mechanism for the nail-discharging device, as set forth.

11. The lever R'', with the pendent pivoted bar Q'', provided with the shoulder d''', in connection with the projection e''' on the slide Z, the lever R being placed relatively with the plate e'', and all arranged, as shown, to serve as a stop mechanism for the wheel L', as described.

12. The lever X'', connected with the lever or bar Z'' by the link Y'', in connection with the spring e''' and the cam A''' on the shaft G, all arranged, as shown, for discharging the nails from the wheel A'.

13. The bent or curved bar Y, spring e', and the arm g' of slide Z, for operating the lifter X, or moving it from over the tube N or N' to a proper position over the wheel A' and back again over the tube N or N', for the purpose specified.

14. The plunger-rod r and spring s, in connection with the lateral projection p', an arm, g', for ejecting the plates C from the cylinder q of the lifter, as set forth.

15. The rod T, attached to the arm or plate k of the rod S, and provided with an upper beveled end, l, in combination with the fixed plate t' and catch X', all arranged, substantially as shown, to form a stop mechanism, in connection with the discharging of the plates C from the tube N or N', substantially as described.

Z. WALSH.

Witnesses:

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