

(No Model.)

4 Sheets—Sheet 1.

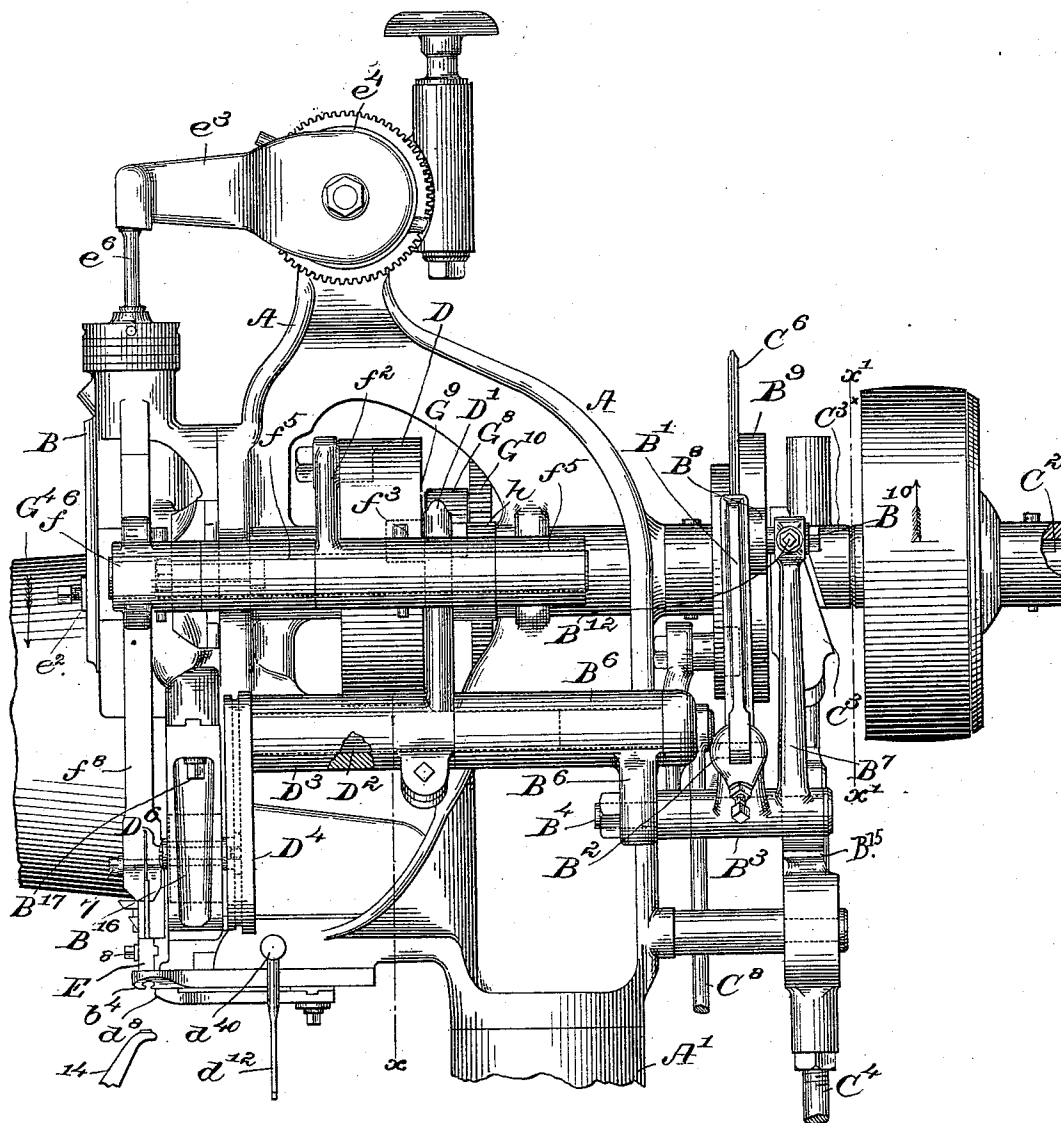
L. GODDU.

MACHINE FOR UNITING SOLES TO UPPERS.

No. 490,624.

Patented Jan. 24, 1893.

Fig. 1.



Witnesses.

Fred S. Greenleaf.
John F. C. Prins.

Inventor

Louis Goddu
by Crosby & Gregory
Attys.

(No Model.)

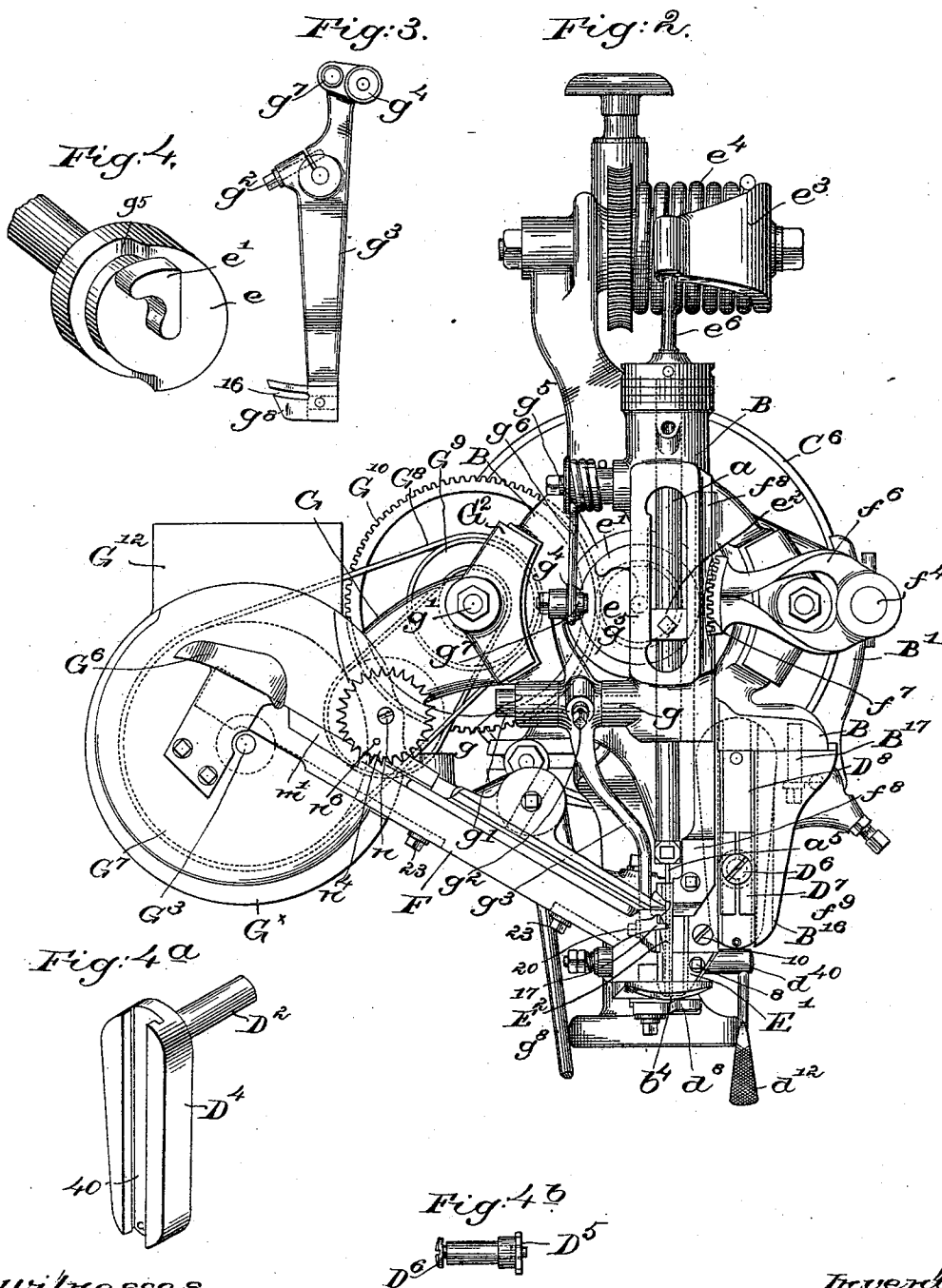
4 Sheets—Sheet 2.

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witnesses.

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Fig. 5.

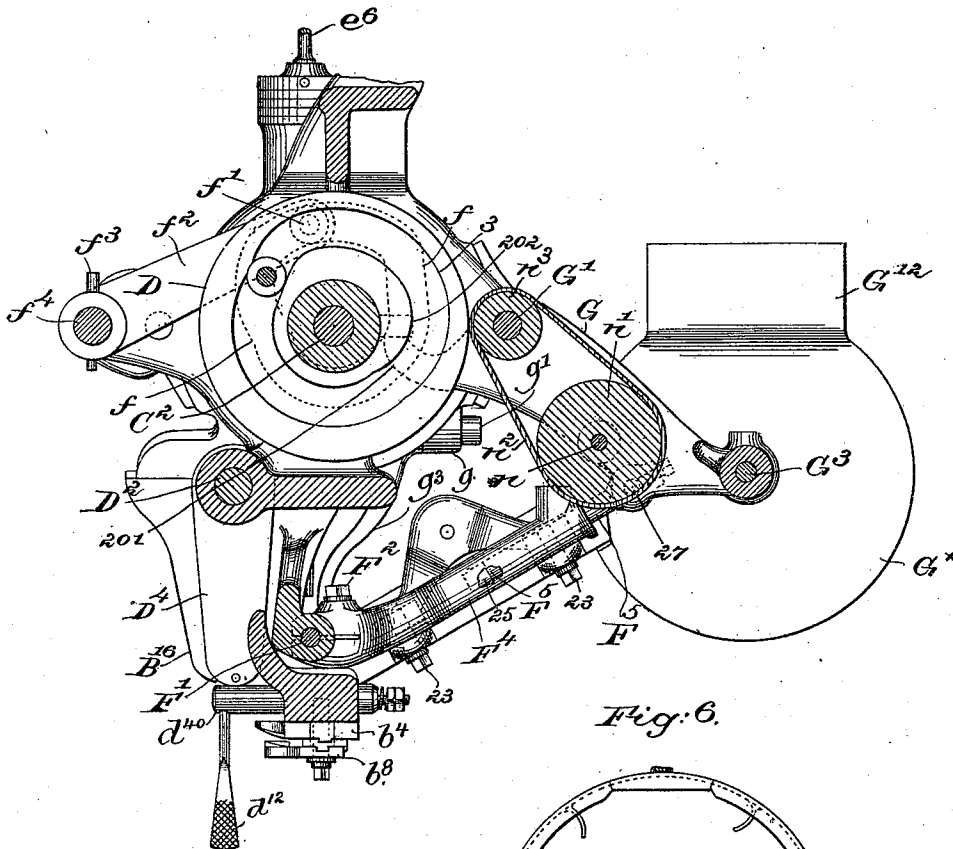


Fig. 6.

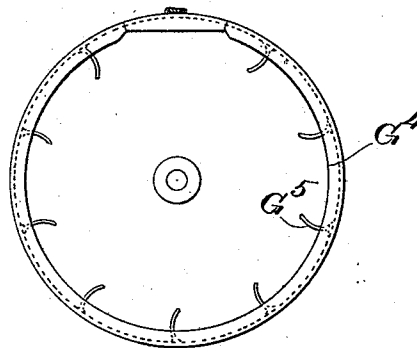


Fig. 6a.

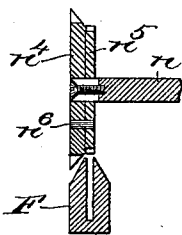
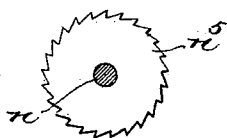


Fig. 6b.



Witnesses.

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(No Model.)

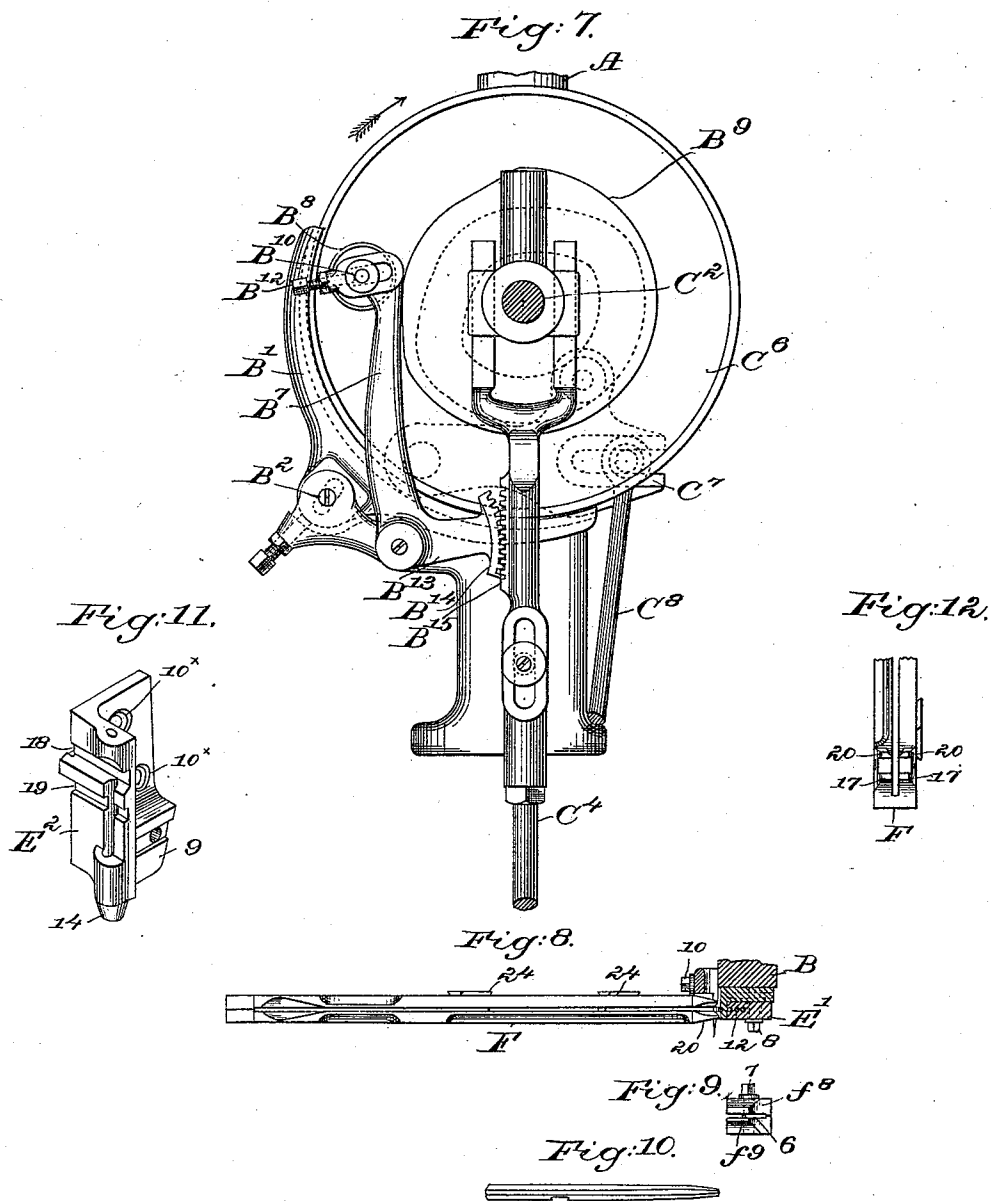
4 Sheets—Sheet 4.

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Witnesses

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UNITED STATES PATENT OFFICE.

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MACHINE FOR UNITING SOLES TO UPPERS.

SPECIFICATION forming part of Letters Patent No. 490,624, dated January 24, 1893.

Application filed April 7, 1892. Serial No. 428,154. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GODDU, of Winchester, county of Middlesex, State of Massachusetts, have invented an Improvement in Nailing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the machine herein to be described headed nails are thrown in bulk into a hopper having co-operating with it a rotating lifter containing suitable buckets which deposit the nails on the upper end of a raceway down which the nails travel, the nails being let off one at a time by a separator which is moved at the proper intervals to permit the endmost nail in the chute to enter a driver passage in a nose where it is acted upon by a driver and driven therefrom into the material. Co-operating with this driver-bar is an independent awl-feeding device which engages and moves the material. The raceway is made movable longitudinally with the vibratory head having the driver and awl bars, so that the roadway always preserves one and the same relative position to the nose.

The particular features in which this invention consists will be hereinafter described and pointed out in the claims at the end of this specification.

Figure 1, is a right-hand side elevation of the upper part of a nailing machine containing my present improvements together with part of the horn. Fig. 2, a front elevation of the machine shown in Fig. 1, the lifter co-operating with the hopper being removed. Fig. 3, a detail showing the separator. Fig. 4, a detail showing the cam g^5 . Fig. 4^a, a detail showing the feed arm D^4 . Fig. 4^b, a detail showing the stud of the feed rocker. Fig. 5, a section to the left of the dotted line x , Fig. 1, some of the upper part of the machine being broken away. Fig. 6, a detail showing the inner side of the lifter. Fig. 6^a, a detail showing the chute and clearer in section. Fig. 6^b shows the rear part of the clearer, the front part shown in Fig. 2 being removed. Fig. 7, a sectional detail in the dotted line x' , Fig. 1, looking to the left. Fig. 8 is a top view of the raceway and a section of part of the swinging frame and nose piece. Fig. 9, a

view of the lower end of the awl bar and awl thereon. Fig. 10 an underside view of the raceway cover. Fig. 11 shows the nose enlarged and in perspective, and Fig. 12, is a front end view of the raceway.

The head A, mounted on a suitable column A', has bearings for a suitable shaft C², upon the front end of which is a disk e , having a lug or projection e' which, in the rotation of the shaft, acts on a projection e^2 , attached to the driver-bar a , provided with a driver a^5 . The driver-bar is mounted in a movable head B, which is adapted to be oscillated, as will be described, during the operations of the machine. The upper end of the driver-bar has ball-jointed to it a link e^6 , in turn connected with a lever e^3 , acted upon by an adjustable spring e^4 , the latter serving to throw down the driver-bar quickly whenever the lug or projection e' passes the projection e^2 . On the outer end of this main-shaft C² is secured a suitable fast pulley, and at its inner side is a suitable loose pulley, the two constituting a friction pulley device, the loose pulley (driven constantly) being forced in contact with the fast pulley at the proper times by a wedge C³, at the upper end of a rod C⁴, attached to a suitable treadle (not shown), so that when the operator puts his foot upon the treadle the wedge is elevated, it acting against a loose collar C^{3x}, interposed between the wedge and the loose pulley, which is forked to embrace the shaft C², and the hub of the loose pulley. Fast on this shaft C² is a cam C⁶, having in one of its faces a suitable groove, shown by dotted lines in Fig. 7, in which enters a roller or other stud of a lever C⁷. The lever C⁷ is connected to a rod C⁸. The nose or foot-plate b^4 has at its under side an edge-gage d^8 , made adjustable by a rod d^{40} , suitably toothed to engage teeth connected to or forming part of the said edge-gage, the said rod having a handle d^{12} .

The work or material into which the nails are to be driven will rest upon a horn 14, a part of which is shown in Fig. 1.

The parts so far described and referred to by letters and figures are common to United States Patent No. 265,227, and in the foregoing description I have aimed to employ letters and figures common to similar parts in the said patent, but in the said patent

the collar acted upon by the wedge C^3 was not lettered and herein the cam C^6 has been somewhat altered, as I shall presently show. Herein the cam C^6 is made larger in diameter and its periphery is beveled off on its two sides, and I have provided a brake-shoe B' correspondingly grooved to fit the said beveled edges, the said brake shoe by acting upon the surface of the cam serving to check the rotation of the said shaft more quickly and unerringly after each nail or fastening has been driven.

The brake B' , best shown in Fig. 7, is shaped as a segment, pivoted at B^2 on an arm of a sleeve B^3 , mounted upon a stud B^4 , fast in an ear of a bearing B^6 , see Fig. 1, forming part of the frame or head A. The hollow hub or sleeve B^3 has an upright arm B^7 , provided with a roller or other stud B^8 , which, in the rotation of the shaft C^2 acts against the periphery of a cam B^9 , attached to or forming preferably a part of the cam C^6 , the said roller B^8 being represented as mounted upon a stud B^{10} , made adjustable by a suitable screw or adjusting device B^{12} in a slot at the upper end of the said arm. The sleeve B^3 has also an arm B^{13} , provided with a toothed segment B^{14} , see Fig. 7, which engages a rack B^{15} on the rod or bar C^4 , the said bar, as before stated, being common to the said patent, but in the said patent the said bar does not have the rack-teeth B^{15} referred to.

The shaft C^2 has fast upon it a cam D, having at its rear side a cam-groove 3, represented by full lines, Fig. 5, in which enters a roller or other stud carried by an arm D' , see Fig. 1, fast on a rock-shaft D^2 , extended through a bearing D^3 forming part of the head A, the said rock-shaft at its front end having a feed arm D^4 , grooved at its front face at 40, as represented at Fig. 4^a, to receive the foot of a hollow stud D^5 fitted to slide in the said groove, the said stud having screwed into and through it a stud-screw D^6 , the inner end of which meets the arm D^4 , the stud being embraced loosely back of the screw-head by two like blocks D^7 , the flat faces of the said blocks entering and sliding in a slot D^8 formed between a part of the rocking head B and a finger B^{16} , the latter being adjustably connected therewith by a suitable set-screw B^{17} , the connection between the finger B^{16} and the head B being further effected by a tongue on one entering a groove in the other, adjustment of the finger B^{16} compensating for wear of the blocks and stud. As the rock-shaft D^2 is vibrated, it will, as will be seen from the foregoing description, vibrate the frame B about the usual circular projection upon which it turns, the said circular projection forming part of the usual head A, and being common to the patent referred to.

The cam D at its front side has a cam-groove f , represented by dotted outlines in Fig. 5, said cam-groove receiving a roller or other stud f' , at the inner end of an arm f^2 , the hub of which is suitably attached as

by a pin f^3 to a rock-shaft f^4 sustained in suitable bearings f^5 of the head. The outer end of this rock-shaft has suitably attached to it a toothed segment f^6 , see Figs. 1 and 2, the teeth of which engage suitable teeth, see Fig. 2, of the awl-carrying-bar f^8 , the latter being provided at its lower end with a suitable awl or feeding point f^9 to feed the material resting on the horn or other work-support below the foot b^4 .

The lower end of the awl-carrying-bar is slotted at 6, see Fig. 9, to constitute a clamp, and the awl is held in position by means of a set-screw 7 screwed through the awl-bar, and the awl may be moved laterally in the said slot to place it at the proper distance from the nose of guide E^2 , see Fig. 11, into which the nail to be driven is led from the end of the raceway F to be described, the said nose containing a nail passage, the driver entering the said passage and striking the head of the nail therein. This adjustment of the awl laterally provides for making a hole in the material at the proper distance from the last nail driven, or, in other words, enables the spacing of the nails to be determined correctly and finely. The lower end of the awl has to be steadied, and to do this I have provided a guide E' , which is adjustably attached by the screw 8 to a flange 9 forming part of the nose or nail-receiving block E^2 , the latter being attached to the rocking frame B by suitable screws as 10 in holes 10^x .

The awl guide E' referred to, and as shown best in Fig. 8 in section, has a series of holes 12, either one of which may be entered by the awl, in its adjustment, as provided for, in the slot in the awl-bar, the guide having, it will be understood, any suitable number of holes at the proper distances apart.

I have shown the nail-receiving block detached in Fig. 11, and it will be noticed that it has a nose 14, which in practice is adapted to enter a slot in the foot b^4 . The nail-receiving block and its nose travel with the material, in the direction of the feed thereof while the awl is in the material the horn at such time being depressed to release the work, as provided for in the said patent. Herein the rocking frame B is provided with suitable bearings g , for a stud g' on which, as herein represented, is clamped by a screw g^2 a lever g^3 , provided at its upper end with a roller or other stud g^4 , which bears against a cam face g^5 forming part of the disk e , the said disk being enlarged sufficiently beyond the size shown in the patent referred to, to present this cam surface outside the lifting cam e' . A suitable strong spring g^6 , attached to the frame B, acts upon a suitable stud g^7 forming part of the lever g^3 , and serves to keep the said roller g^4 against the cam. The lower end of the lever g^3 , see Fig. 3, has attached to it a gate or separator g^8 , it having a slot 16 to embrace the ear or prong 17 at the end of the raceway F. The nail-receiving block is notched or shouldered at two

places, 18 and 19, see Fig. 11, to receive the two prongs 17 and 20 at the lower end of the raceway, thus forming a tongue and groove connection between the block and the discharge end of the raceway.

The movable frame B has a suitable hollow ear to receive the stud F', upon which is clamped by a screw F² the split hub of a carrying frame F⁴, suitable set-screws 23 acting upon suitable projections 24 extended laterally from the raceway to confine the latter in working position. This frame F⁴ is bored out at 25 to receive loosely a guide-rod F⁵, the said frame and guide-rod being splined, however, one to the other, to prevent rocking movement of the frame F⁴ yet permitting the said frame to slide upon the said guide-rod when the rocking frame B is being swung during the feeding operation.

The guide-rod F⁵ referred to has a hub which embraces a pin 27, carried by a lever G, mounted loosely upon a stud or stationary shaft G', held in suitable bearings G², the outer end of the said lever G having a bearing in which is mounted the shaft G³, to which is connected the rotating lifter or drum G⁴, provided with lifters or shelves G⁵ which pick up the loose nails and drop them upon the shelf G⁶ fixed to the hopper G^x and in communication with the upper end of the raceway F so as to enable the nails dropped therein to fall on the upper end of raceway. The shaft G³ has a pulley G⁷, see dotted lines Fig. 2, which receives a belt G⁸, driven by a pulley G⁹, fast on a toothed gear G¹⁰, loose on the stud G', the said toothed gear being engaged and driven by teeth h, herein represented as made in the hub of the cam D. The hopper G^x is shown as a fixed part of the lever G. The hopper is shown as a disk concaved at its front side, and at its upper side it has a box-like projection G¹² down through which the nails are discharged into the nail-pot composed of the disk and the lifter referred to. The face of the disk-like portion G^x is notched, see Fig. 1, to receive and guide the upper end of the raceway, the latter, by its connection with the frame B as described, sliding in the said notch with the said frame during the operation of the machine. The lever G has suitable bearings for a clearer shaft n, provided at its rear end with a pulley n' driven by a belt n² from a pulley n³ moving with the pulley G⁹. The front end of this clearer shaft has a clearer herein represented as composed of two toothed disks n⁴, n⁵, made so merely for convenience of manufacture, the said two parts being represented as connected by a pin n⁶ on one entering a hole in the other part, see Fig. 6^a. The larger part n⁴ of the clearer, is provided with a series of conical teeth, as best shown in Fig. 6^a, adapted to sweep over one of the beveled sides of the top of the road-way so as to remove any nails lodged crosswise on the raceway, the other smaller part n⁵ of the clearer having ratchet-shaped teeth which are located immediately above the slot in the

raceway so as to dislodge any nails coming down in the slots with their heads not properly seated to ride in the raceway, or those sliding down thereon point or head foremost.

The lever or frame G has a toe 201, shown by dotted lines Fig. 5, which acts against a lug 202 fixed with relation to the frame, and as stated, the lever is loosely mounted on the stud G'. This loose mounting of the lever is of material advantage, for thereby it is possible to readily remove the said lever, and the hopper and its attached parts from the machine.

The operator to start the machine, puts his foot upon the treadle, lifts the rod C⁴ and causes the beveled upper end C³ thereof to close the clutch, and the said clutch will remain in firm engagement until the shaft C² has been rotated sufficiently to perform its cycle of operations, for the teeth B¹⁵ of the rod acting on the toothed end of the three armed lever, of which the sleeve B³ forms the hub, moves the said lever instantly in a direction to remove the brake shoe from the brake wheel C⁶, and at the same time the roller stud B⁸ is moved away from the cam B⁹ so that as the latter starts it will not be held by the roll, but soon after the cam B⁹ starts the part thereof of greatest diameter acts on the roller stud and keeps the rod C⁴ fully elevated and the clutch pulleys in firm clutch until the depressed or lowest part of the said cam again arrives opposite the rod B⁸. In this way it is immaterial when the operator removes his foot from the treadle and releases the rod C⁴ during each rotation of the shaft C².

The teeth at the edge of the awl bar are so cut or made as to enable the head B to oscillate with the awl during the feeding movement thereof.

The lever arm B⁷ and sector, constitute a locking device for the clutch rod C⁴.

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

1. In a nailing machine, a driver-bar, a driver, a nose, and an awl-bar slotted transversely at its lower end to constitute an awl-receiving slot, and a clamp, combined with an awl adjustable in said slot toward and from the driver, substantially as described.

2. In a nailing machine, a driver-bar, a driver, a nose, and an awl-bar slotted transversely at its lower end to constitute an awl-receiving slot, and a clamp, combined with an awl adjustable in said slot toward and from the driver, and a guide for the awl between its ends, substantially as described.

3. In a nailing machine, a pivoted head B, provided with a projection B¹⁶ to leave a slot as D⁸, and a rock-shaft D² having a grooved arm D⁴, combined with a stud made adjustable in the slot of said arm and provided with blocks D⁷ to slide in the slot D⁸, substantially as described.

4. In a nailing machine, the rotating cam shaft C² having at its front end a driver-bar

lifting cam, and a cam g^5 , located on the plate which carries the driver-bar-lifting-cam. combined with a driver, a nose, a separator lever, its separator, and a roadway for the nails to
5 be driven, substantially as described.

5. The pivoted head B carrying the driver and awl bars and the nose, and a separator lever movable with the head, and a roadway, combined with a hopper having a stationary
10 shelf located above the receiving end of the roadway, substantially as described.

6. In a nailing machine, the arm G, its attached disk-like portion, G^x having a hopper G^{12} fixed to it, the shaft G^3 ; and the lifter at-
15 tached thereto and provided with buckets, combined with the roadway; the delivery plate G^6 attached to said disk-like portion; and a nose and pivoted head B, the latter in its movements causing the roadway to be recip-
20 roated independently of said delivery plate, substantially as described.

7. The nail pot, and its carrying arm, and the head B, having the stud F' , combined with the carrying frame, the guide rod on which the roadway and its carrying frame is free to
25 slide, the said guide rod being jointed to the said nail pot carrying-arm, substantially as described.

8. In a nailing machine, the main shaft; nail-driving mechanism, a brake pulley con-
30 nected to said shaft, and brake shoe; combined with a three armed lever, one arm having a series of teeth B^4 , and being engaged by the rod C^4 , to operate, substantially as described.

In testimony whereof I have signed my
35 name to this specification in the presence of two subscribing witnesses.

LOUIS GODDU.

Witnesses:

GEO. W. GREGORY,
EMMA J. BENNETT.