T. H. WYNN.

AUTOMATIC FEEDING DEVICE FOR TACK MACHINES.

APPLICATION FILED MAR. 17, 1914.

1,102,625.

Patented July 7, 1914.

4 SHEETS—SHEET 1.

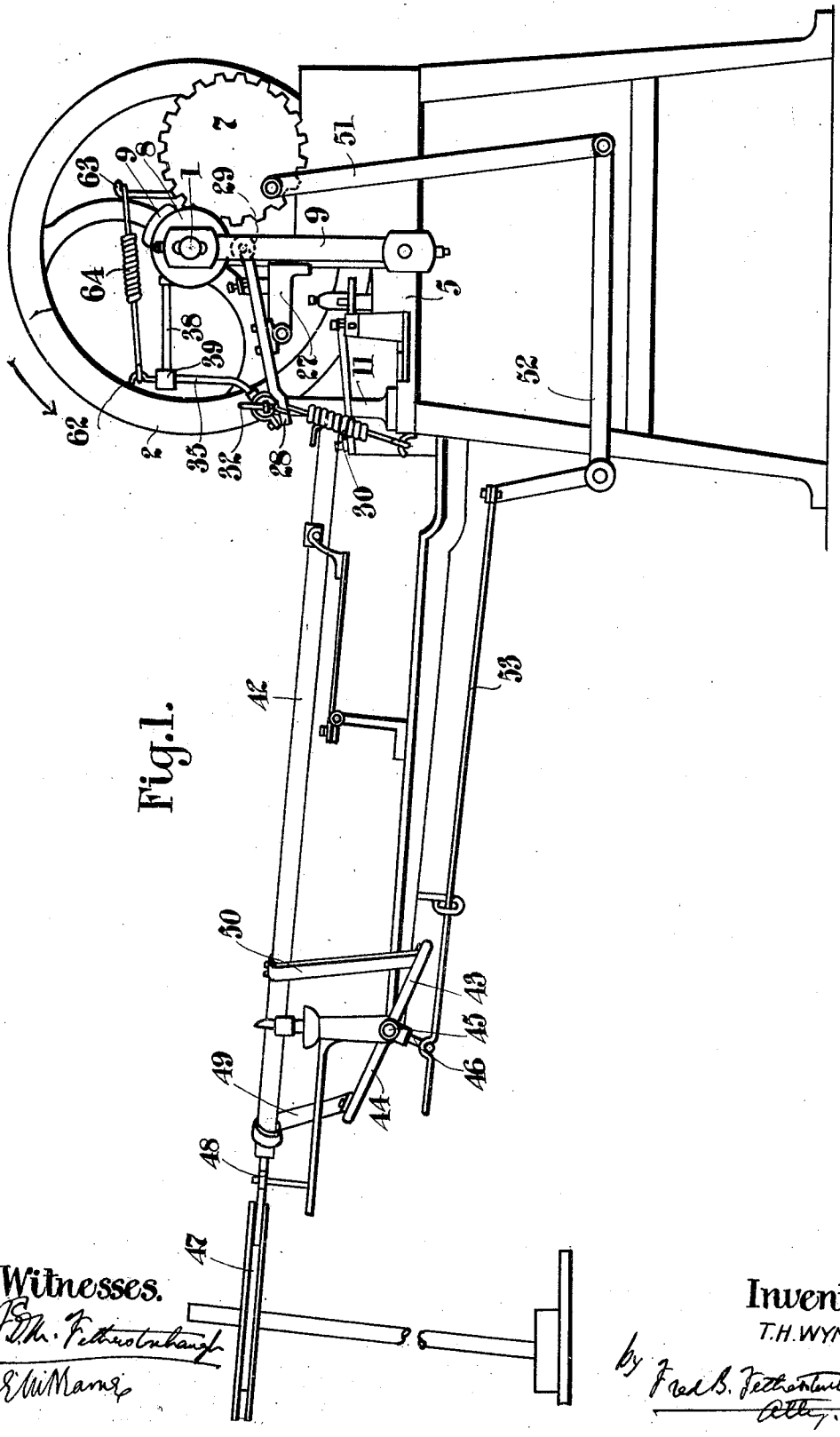


Fig. 1.

Witnesses.

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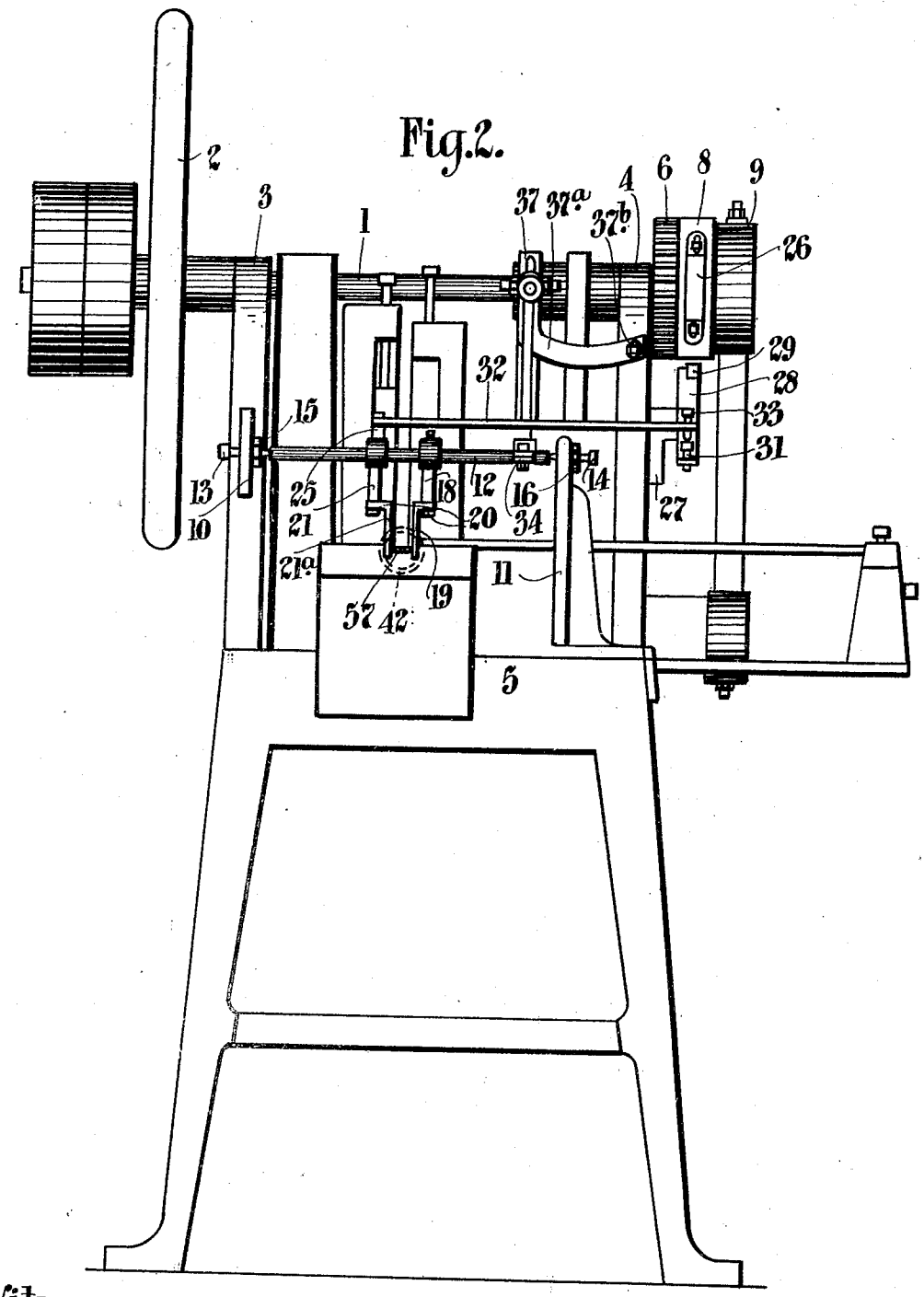
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4 SHEETS—SHEET 2.

Fig.2.



Witnesses.

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4 SHEETS—SHEET 3.

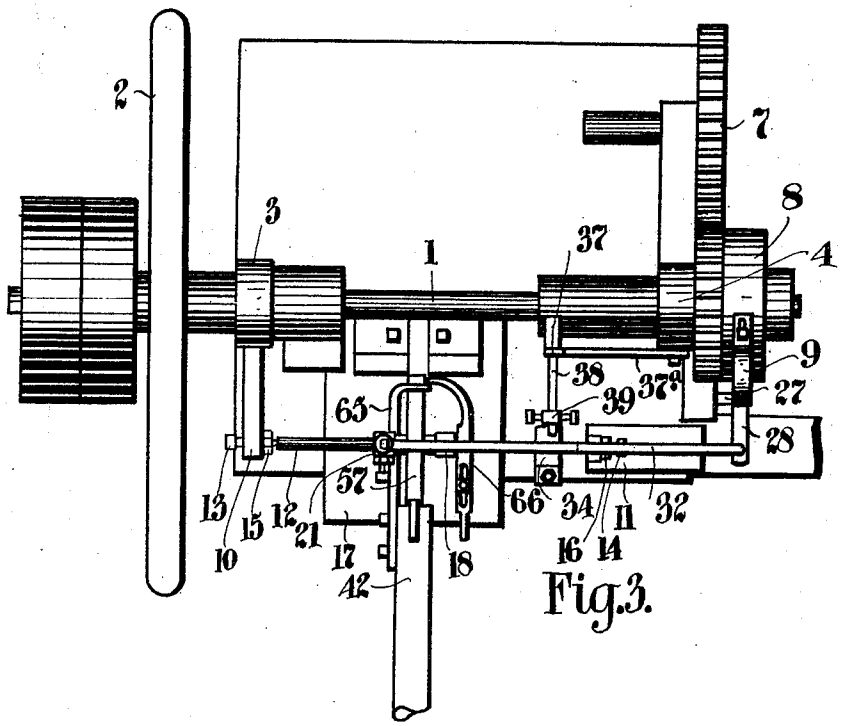
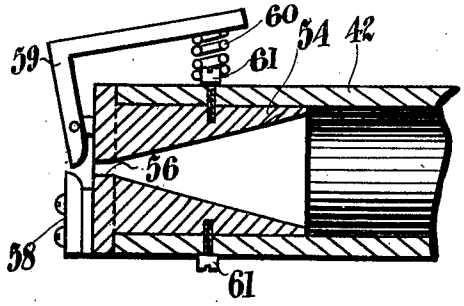


Fig.3.

Fig.7.



Witnesses.

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4 SHEETS—SHEET 4.

Fig.4.

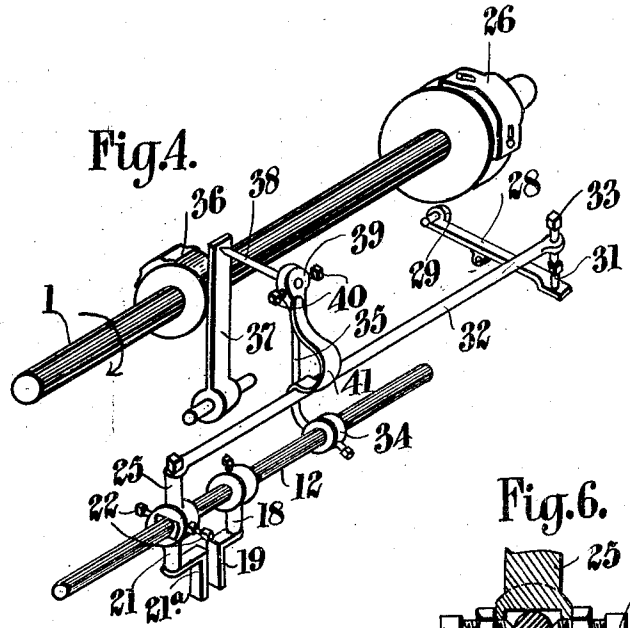


Fig.6.

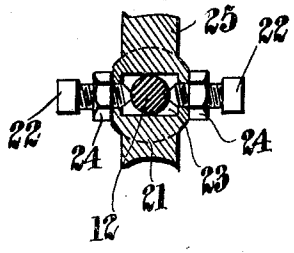
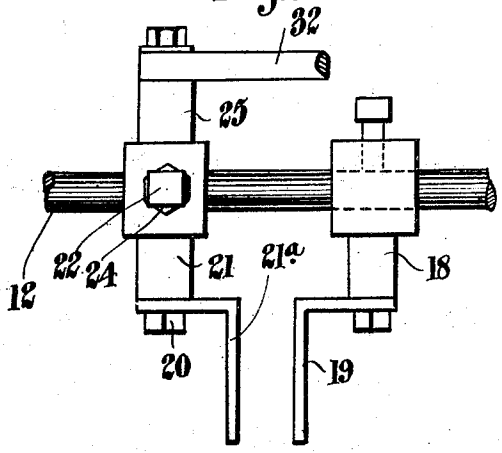


Fig.5



Witnesses.

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UNITED STATES PATENT OFFICE.

THOMAS HENRY WYNN, OF HAMILTON, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF TO JOHN INGLIS McLAREN, OF HAMILTON, ONTARIO, CANADA.

AUTOMATIC FEEDING DEVICE FOR TACK-MACHINES.

1,102,625. Specification of Letters Patent. Patented July 7, 1914.

Application filed March 17, 1914. Serial No. 825,283.

To all whom it may concern:

Be it known that I, THOMAS HENRY WYNN, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Feeding Devices for Tack-Machines, of which the following is the specification.

My invention relates to automatic feeding devices for tack machines, and the object of the invention is to devise an automatic feed in which the material for manufacturing the tacks will be fed into the machine from a coil.

A further object is to provide means for gripping the material fed into the machine on the side edges thereof.

A still further object is to devise means for simultaneously gripping the material to be fed and feeding it by means of the gripping mechanism.

Another object is to provide means for adjusting the feeding device so that the points of the tacks may be varied to suit different requirements, and another object is to provide a nose piece which will be turned under the gripping device instead of over as has hitherto been the case.

My invention consists of the parts constructed and arranged as hereinafter more particularly described and illustrated in the accompanying drawings in which—

Figure 1 represents a side elevation of a tack machine showing the boss head and my device applied thereto. Fig. 2 is an enlarged front view thereof. Fig. 3 is a plan view of my feeding device applied to a tack machine. Fig. 4 is a perspective detail thereof. Fig. 5 is an enlarged elevational detail of the gripping jaws. Fig. 6 is a cross sectional view of the rocking jaw and Fig. 7 is a cross sectional view showing a mechanism provided on the forward end of the feeding tube of the machine for preventing the strip or ribbon of material from slipping or being drawn back in a direction opposite to the direction in which it is fed.

Like characters of reference indicate corresponding parts in the different views.

1 is the main shaft of the tack machine. 2 is the fly wheel thereof.

3 and 4 are bearing brackets for the main shaft suitably secured or formed on the bed 5 of the machine.

6 is a pinion on the main shaft and 7 is a gear meshing therewith and suitably journaled to the frame of the machine.

8 is the boss head. 9 is a pitman connected thereto at its top and adapted to actuate the tack machine.

The parts as described above are standard on the ordinary tack machines at present in use. I will now describe my feeding device designed to be applied thereto.

10 is a bracket secured to the bearing bracket 3, and 11 is a bracket suitably secured to the bed 5 of the tack machine.

12 is a cross shaft extending between the two brackets.

13 and 14 are set screws threaded through the brackets 10 and 11 respectively and provided with the lock nuts 15 and 16. The ends of said set screws are pointed and engage the ends of the shaft.

17 is the bed pocket of the machine.

18 is a depending arm adapted to be rigidly connected to the shaft 12, but said arm being capable of being adjusted thereon.

19 is a jaw adjustably secured to the arm 18 by the set screw 20.

21 is an arm secured to the shaft 12 in such a manner as to be capable of being rocked about an axis at right angles to the longitudinal axis of the shaft. For this purpose set screws 22 are threaded through the arm, said arm having a cross aperture 23 therein through which the shaft 12 extends. The inner ends of the set screws are pointed and engage the shaft, thus permitting the same to be rocked as above described.

24, 24 are lock nuts on the set screws 22.

25 is an upwardly extending portion of the arm 21.

26 is a suitably disposed cam on the boss head 8, said cam being adjustable thereon.

27 is a bracket secured to the bearing bracket 4 and having the lever 28 pivotally connected thereto.

29 is a roller on the inner end of the lever adapted to engage the cam 26 when the boss head is revolved. 30 is a spring connected to the other end of the lever 28 at one end and to the bed of the machine at the other. 31 is a set screw threaded in the latter end of the lever 28 and extending upwardly therefrom.

32 is a rod secured at one end to the extension 25 of the arm 21, the other end being

provided with a set screw 33 adapted to engage the aforesaid set screw 31 on the lever 28.

34 is a collar adapted to be rigidly secured to the cross shaft 12 but being adjustable thereon.

35 is an upwardly extending arm secured to the collar 34. 36 is a second cam on the main shaft 1.

37 is a lever journaled at its lower end to the bearing bracket 4 of the machine, the upper end being adapted to engage the cam 36 upon the shaft being revolved.

38 is a rod having a pointed end engaging the lever 37, the other end being mounted on the head 39 of the arm 35 in such a manner as to permit the pointed end of the rod a certain amount of up and down movement. This is achieved by the end of the rod 38 extending into the head 39 and being held therein by the two set screws 40 constructed in a similar manner as already described for the rocking arm 21.

41 is a spring connected at one end to the head 39 of the arm 35, the lower end bearing against the cross rod 32.

42 is a tube through which the material forming the tack blanks is designed to be fed, said tube being so mounted as to be capable of being rotated a half turn in each direction.

43 and 44 are levers connected to a cross shaft 45 provided with the extension 46.

47 is the coil of material to be fed into the tack machine and 48 are guiding rollers for guiding the same into the tube.

49 is a strap connected at one end to the tube and at the other end to the lever 44.

50 is a strap connected at one end to the lever 43 and at the other end to the tube 42.

51 is a link pivotally connected at one end to the gear 7 and connected at the other end to the bell crank 52.

53 is a rod detachably connecting the upper end of the bell crank to the extension 46 on the shaft 45.

54 is a sleeve adapted to be inserted into the forward end of the tube and having the conical interior 55, the apex thereof terminating in a slot 56 through which the strip of material 57 is designed to be guided.

58 is a dog rigidly connected to the forward end of the sleeve.

59 is a dog pivotally connected above the aforesaid dog 58 and so designed as to always engage the strip of material being fed through. The dog 59 is held in engagement with the strip by the spring 60.

61, 61 are screws extending through the tube 42 and threaded into the sleeve 54 for holding the sleeve in place in the tube.

62 is a hook connected to the head 39 of the arm 35.

63 is a hook attached to the frame of the tack machine, and 64 is a spring extending between the two hooks 62 and 63.

The operation of the device is as follows:—When the tack machine is in operation for cutting the tack blanks and forming the heads thereon the main shaft 1 is rotated in the direction indicated by the arrow in Fig. 1. As this takes place the boss head 8 is revolved, thus bringing the cam 26 into engagement with the roller 29 of the lever 28, consequently depressing the roller end of the lever and raising the other end thereof. As the other end is provided with a set screw 31 engaging the set screw 33 on the cross rod 32 the free end of this rod 32 is moved upwardly, and as the rod is rigidly connected with the upwardly extending portion 25 of the arm 21 the arm is swung about the set screws 22, thus bringing the jaw 21^a closer to the jaw 19 and consequently gripping the strip of material firmly on the side edges thereof. As this takes place the cam 36 comes into engagement with the lever 37 thus forcing back the upper end of the arm 35 and as the arm 35 is rigidly connected to the shaft 12 by the collar 34 the shaft will be turned in the direction indicated by the arrow in Fig. 4; consequently the jaws will be moved toward the tack machine, thus feeding the strip of material 57 into the same. When the shaft 1 rotates a further extent the cams 26 and 36 slide off the levers 28 and 37 respectively, and the springs 30 and 64 restore the levers respectively into the initial or inoperative position, thus throwing the jaws out of engagement as far as the gripping and feeding of the strip of material is concerned. This operation is repeated upon each rotation of the main shaft 1. The spring 41 engaging the cross rod 32 normally holds the outer end of this rod in its lowermost position.

It is to be understood that after each feeding operation the tube 42 is turned a half turn, thus reversing the taper of the sheared end of the strip of material 57 in order to properly position the same for cutting off the next blank. This operation is achieved by the bell crank 52 being connected with the rod 53 and such rod 53 being connected with the extension 46 of the shaft 45 which rocks the levers 43 and 44 back and forth, thus alternately pulling on the straps 49 and 50 which alternately turn the tube in one direction and then in the other. In order to throw the tube turning mechanism out of engagement it is merely necessary to throw the rod 53 out of engagement with the extension 46 of the shaft. When this is done the tube will not be rotated but the mechanism for feeding and gripping would go on just the same. In order to obviate this difficulty the operator when leaving a

machine running merely has to turn the tube by hand so that the thinner face of the strip of material is uppermost; consequently the gripping jaws will not engage the strip of material and the material will not be fed into the machine.

The arms 18 and 21 are adjustable on the shaft 12, also the jaws are adjustable on the arms in order that should it be desired to turn the tube 42 at an inclination to the normal longitudinal axis thereof for so positioning the material as to cut a tack blank with a broader or narrower point, the jaws can be set so that they are parallel with the strip of material being fed. The set screws 33 and 31 can also be adjusted for changing the throw of the jaw 21^a. The lever 37 has also an extension 37^a which is provided on its free end with a set screw 37^b threaded therethrough and adapted to bear against the bearing bracket 4. This screw can be adjusted in order to change the feed of the device so that the jaws will feed the strip of material a greater or smaller extent. Further the cams 26 and 36 are adjustably connected to the shaft 1 in order that they can be adjusted to change the timing of the feeding and gripping device.

Hitherto it has been the custom in the ordinary tack machines at present in use to feed short strips of material through the feeding tube. When this is done there is a loss of material of approximately one inch for each strip so fed. Further the machine has to be under constant observation. But in my automatic feeding device the strip of material is fed into the machine from a coil and consequently the action is automatic and very little attention is required. When it is required to get at the different parts of the tack machine the feeding device can be readily disconnected therefrom with the minimum of trouble. Further the nose piece 65 is connected to the tube 42 in the ordinary manner and the strip of material 57 extends through the foot thereof. But in the present instance instead of turning the nose piece over in an upward direction it is turned down under the gripping and feeding jaws. The bed pocket is at present provided with double guards, one stationary and the other a spring guard. Now I do away with the spring guard entirely and instead use the stationary guard alone. This guard is adjustable as in the stationary guard at present in use.

It is to be understood that it would be within the scope of my invention to use my feed on a cut nail machine.

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

1. In an automatic feeding device for tack machines adapted to cut the material for the tack blanks transversely, the combination with means for turning the strip of material over in the opposite direction after the shearing of each tack blank from the same, of means for gripping the strip of material on the narrow faces or side edges of the strip and reciprocating means for feeding the strip so gripped into the machine.

2. In an automatic feeding device for tack machines adapted to cut the material for the tack blanks transversely, the combination with means for turning the strip of material over in the opposite direction after the shearing of each tack blank from the same, of a pair of jaws gripping the narrow faces or edges of the strip of material, and reciprocating means for actuating the jaws and feeding the material into the machine.

3. In an automatic feeding device for tack machines adapted to cut the material for the tack blanks transversely, the combination with means for turning the strip of material over in the opposite direction after the shearing of each tack blank from the same, of a pair of jaws, said strip of material adapted to be gripped between the jaws on the narrow faces or edges thereof, reciprocating means for simultaneously actuating the jaws and one of the jaws being capable of oscillating laterally.

4. In an automatic feeding device for tack machines adapted to cut the material for the tack blanks transversely, the combination with a guiding tube adapted to turn in the opposite direction after the shearing of each tack blank from the strip, of means for gripping the strip of material on the narrow faces or edges thereof, said means situated between the shearing mechanism of the tack machine and the guiding tube and independent of the latter, and reciprocating means for feeding the strip so gripped into the machine.

5. In an automatic feeding device for tack machines adapted to cut the material for the tack blanks transversely, the combination with a guiding tube through which the material is fed, said guiding tube adapted to turn in the opposite direction after the shearing of each tack blank from the strip, of means for gripping the strip of material on the narrow faces or edges thereof, said means situated between the shearing mechanism of the tack machine and the guiding tube and independent of the latter, reciprocating means for feeding the strip so gripped into the machine, and means connected to the strip for preventing retrograde movement thereof.

6. In an automatic feeding device for tack machines adapted to cut the material for the tack blanks transversely, the combination with a guiding tube through which the

material is fed, said guiding tube adapted to turn in the opposite direction after the shearing of each tack blank from the strip, of a sleeve inserted into the end of the guiding tube adjacent to the tack machine, said sleeve having a forwardly extending tapering interior terminating in a cross slot, means for detachably securing the sleeve to the tube, a dog rigidly mounted on the outer end of the sleeve, and a spring held dog pivotally mounted on the outer end of the sleeve.

7. In an automatic feeding device for tack machines, the combination with the main shaft of the machine, of gripping and feeding jaws, said jaws adapted to grip the side faces or edges of the strip to be fed, means upon rotation of the shaft for throwing one of the jaws toward the other jaw, and means for simultaneously moving the jaws toward the machine.

8. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross shaft, the other of the feeding jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, means controlled by the rotation of the main shaft for throwing the rocking jaw toward the fixed jaw, and means controlled by the operation of the main shaft for turning the cross shaft and moving the jaws simultaneously toward the machine.

9. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross shaft, the other of the feeding jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, a cam on the main shaft, means engaging the cam for throwing the rocking shaft into the engaged position, and means controlled by the operation of the main shaft for turning the cross shaft and moving the jaws simultaneously toward the machine.

10. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross shaft, the other of the feeding jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, a cam on the main shaft, means engaging the cam for throwing the rocking shaft into the engaged position, a second cam on the main shaft, and means engaging the second cam on the main shaft for turning the cross shaft and moving the jaws simultaneously toward the machine.

11. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross shaft, the other of the jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, a cam on the main shaft, a lever fulcrumed on the frame of the machine, one end of the lever engaging the cam upon rotation of the shaft, and means connecting the other end of the lever to the rocking jaw for moving the latter into the engaged position.

12. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross shaft, the other of the jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, a cam on the main shaft, a lever fulcrumed on the frame of the machine, one end of the lever engaging the cam upon rotation of the shaft, and adjustable means connecting the other end of the lever to the rocking jaw for moving the latter into the engaged position.

13. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross shaft, the other of the jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, a second cam on the main shaft, a lever fulcrumed to the frame of the machine, the free end engaging the second cam upon rotation of the shaft, and means connecting the lever to the cross shaft for rotating the same and simultaneously moving the jaws toward the machine.

14. In an automatic feeding device for tack machines, the combination with the main shaft, main frame and boss head connected to the main shaft, of a cross shaft rotatably mounted on the frame, gripping and feeding jaws, one of the gripping and feeding jaws rigidly connected to the cross

shaft, the other of the jaws capable of rocking on the cross shaft about an axis at right angles to the longitudinal axis of the shaft, a second cam on the main shaft, a lever fulcrumed to the frame of the machine, the free end engaging the second cam upon rotation of the shaft, a collar secured to the cross shaft, an arm thereon extending in an upward direction and a swingably mounted rod secured to the upper end of the arm having a pointed end engaging the lever, and a spring for holding the rod against the lever.

15. In an automatic feeding device for tack machines, the combination with a material guiding tube rotatably supported on the frame of the machine, of a pair of jaws gripping the narrow faces or edges of the strip of material to be fed, said jaws situated between the guiding tube and the machine, a nose piece suitably secured to the guiding tube, the material to be fed extending through the nose piece, and means for compelling the nose piece to turn back and forth under the jaws upon the partial rotation of the guiding tube.

In testimony whereof, I have signed at the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Canada, this 13th day of March, 1914.

THOMAS HENRY WYNN.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."