No. 777,218. PATENTED DEC. 13, 1904.

W. McMURRAY.

STAPLE FEEDING DEVICE.

APPLICATION FILED DEC. 26, 1902.

NO MODEL.

Fig. 3.

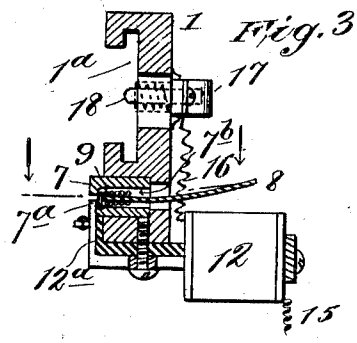


Fig. 1.

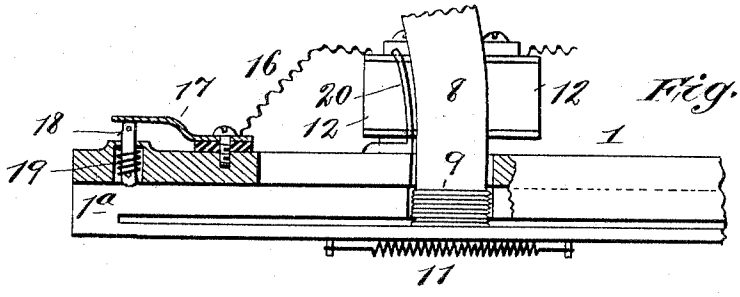


Fig. 2.

Fig. 6.

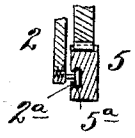


Fig. 4.

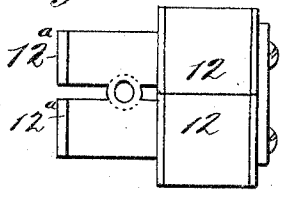
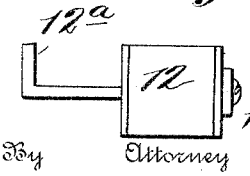


Fig. 5.



Witnesses
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No. 777,218. Patented December 13, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM McMURRAY, OF NEW YORK, N. Y., ASSIGNOR TO WILLIAMS WIRE HINGING MACHINE CO., OF NEW YORK, N. Y.

STAPLE-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 777,218, dated December 13, 1904.

Application filed December 26, 1902. Serial No. 136,758. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McMURRAY, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Staple-Feeding Devices, of which the following is a specification.

My invention relates to improvements in the class of machines adapted to drive staples into boards, boxes, and the like wherein staples are fed by means of a track or carrier to staple-driving mechanism; and the object of my invention is to provide means to cause the staple at the delivery end of the track to be held in proper position in line with or within a guideway through which the staple is to be driven into a board or the like.

To such end the invention comprises the novel details of improvement hereinafter more fully set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a front elevation of a staple-driving mechanism embodying my invention. Fig. 2 is a plan view of part thereof, partly in section, on the line 2 2 in Fig. 1. Fig. 3 is a vertical section substantially on the line 3 3 in Fig. 1 looking in the direction of the arrows. Fig. 4 is a plan view of the magnet. Fig. 5 is a side view thereof, and Fig. 6 is a detail section substantially on the line 6 6 in Fig. 1.

Similar numerals of reference indicate corresponding parts in the several views.

The numeral 1 indicates part of the frame of a staple-driving machine, and 2 indicates generally a staple-driver mounted to slide in a guideway 1^a in frame 1. Said driver may be reciprocated by means of arm 3, operated by suitable means and pivotally connected with said driver, as by a link 4. The driver 2, which may be of suitable construction, is shown provided with an impressing or driving head 2^a, adapted to slide in a staple-guideway, which in the example illustrated is provided in the form of a groove 5^a in a block 5, which may be supported in a groove 6 in frame 1. From said guideway staples are to be driven by driver-head 2^a. Alined with the guideway 5^a is a block 7, shown located in the groove 6, and it may be held therein by suitable means, the block 7 being provided with a groove 7^a, alined with the groove 5^a, said grooves constituting a substantially continuous guideway for the head 2^a to travel in.

At 8 is indicated a track or carrier upon which staples 9 are adapted to slide, the delivery end of said track entering an opening 7^b in the block 7, as indicated in Fig. 3, the end of said track terminating at such a point that the lowermost staple may pass therefrom into the groove 7^a. The extent of movement of driver-head 2^a to the left in Fig. 1 is such that said head may pass to the left beyond the end of track 8, sliding freely past the end of said track to come in position in line with the head or loop end of a staple, so as to thereafter push a staple to the right in Fig. 1 through the guideway 5^a.

At 10 is indicated a cut-off or follower adapted to slide in the groove 7^a, arranged in manner corresponding to the head 2^a, (being indicated as partly broken away,) and a spring 11, connected with said cut-off or follower and with frame 1, normally tends to draw said follower across and in line with the end of track 8 to arrest or prevent the feeding of staples therefrom until the proper time. The driving-head 2^a is adapted to engage said cut-off and to push the latter to the left in Fig. 1 away from in front of track 8.

At 12 is indicated an electromagnet whose pole 12^a is located adjacent to the end of track 8, as indicated in Fig. 3, in such position that when the magnet is energized the lowermost staple at the end of the track will be attracted and drawn into guideway or groove 7^a, so as to be held free from the end of the track, the legs of the staple being thus held in vertical line in said groove (see Fig. 3) and alined with the guideway 5^a. The magnet 12 may be energized in any suitable manner; but by preference I have provided means for closing the circuit of the magnet when the driver

about reaches the end of the return stroke after driving a staple, the circuit thus being broken during the driving stroke. To this end I have shown a battery 13, connected at one pole by a wire 14 with frame 1 and by a wire 15 with the magnet, a wire 16 leading from the magnet to a contact 17, carried by but insulated from frame 1, and at 18 is indicated a pin or contact guided by said frame and held by a spring 19 projected into the groove 1^a in position to be engaged by part of the driver 2 to be pushed outwardly thereby into engagement with said spring, said pin being in circuit with frame 1 to complete the circuit of the magnet.

At 20 is indicated a guard secured to frame 1 and located adjacent to the delivery end of track or carrier 8 in such position that the head or loop ends of the staples will engage the same to cause the staples to travel uniformly into guideway 7^a of block 7.

In the positions of the parts shown in Fig. 1 the driver 2 is nearly at the end of a driving stroke, and the cut-off or follower 10 is in the position it assumes in front of the end of track 8 to prevent the feed of staples into the staple groove or guideway when the magnet is energized, the circuit of the magnet now being broken. As the driver 2 next moves to the left in Fig. 1 it engages and pushes back the follower 10 and passes to the left beyond the end of track 8, and thereupon the appropriate part of the driver engages pin 18 and pushes the same into engagement with the contact 17. The circuit of the magnet being thereupon closed, the magnet-pole attracts the lowermost staple and draws it from the end of the track in the vertical position in guideway 7^a, (shown in Fig. 3,) and thus holds the staple in front of the driver-head 2^a. On the next forward stroke the driver engages the staple head or loop end and pushes the staple forward through the groove or guideway 5^a of block 5, the head 2^a passing in front of track 8 to prevent another staple feeding therefrom. Meanwhile the driver passes from pin 18, and the circuit of the magnet is broken to prevent further attraction of the staples on the track. The cut-off 10 under the influence of its spring 11 follows the driver-head 2^a and passes in front of the end of track 8 as the driver-head passes therefrom and keeps the staples on the track. The driver thereupon drives the staple from the guideway or groove 5^a into a board or the like placed adjacent to the end of block 5, and on the next return stroke of the driver it pushes back the follower 10, passes to the left of the track, and closes the circuit of the magnet, and so on as the driver reciprocates.

Any suitable means may be provided for supplying staples to the track 8, and the track may have any suitable position to cause the staples to feed along the same by gravity; but staples may be caused to feed along the track by any suitable means. Furthermore, the circuit for the magnet and the source of electrical energy therefor may be arranged in any suitable or well-known manner.

Several staple-drivers, tracks, and magnets arranged as substantially set forth may be used in a single machine, and the details of construction set forth may be varied without departing from the spirit of my invention.

Having now described my invention, what I claim is—

1. A machine of the character described comprising staple-driving devices, a track leading thereto, an electromagnet having its pole located adjacent to the delivery end of the track to cause staples to assume proper positions to be driven by the driving devices, a circuit for said magnet, and means to break the circuit during the driving stroke of the driving devices, substantially as described.

2. A machine of the character described comprising a staple-guideway, a staple-driver, a track leading to said guideway to deliver staples thereto, a magnet having its pole adjacent to said guideway arranged to attract and hold staples in the guideway in position to be pushed by the driver, a circuit for said magnet, and means to make and break said circuit by and during the operation of said driver, substantially as described.

3. A machine of the character described comprising a track for staples, a guideway to receive staples from the track, a magnet having a pole adjacent to said guideway to attract and hold staples therein, a driver adapted to push staples along said guide, a circuit for said magnet, and a circuit-controller having a member adapted to be operated by said driver to close the circuit when the driver-head has returned to one side of the track, and to break the circuit when the driver-head moves on the driving stroke, substantially as described.

4. A machine of the character described comprising a track for staples, having a substantially horizontally disposed delivery end, a horizontally-disposed guideway to receive staples from the track, a driver having a driving-head arranged to travel in said guideway, and across the end of said track into position behind the head or loop end of a staple, a magnet having a pole permanently located adjacent to the end of said track to attract and hold staples horizontally on edge in said guideway, a circuit for said magnet provided with contacts, one of said contacts being located in the path of the driver to be operated thereby to make and break the circuit, substantially as described.

5. A machine of the character described comprising a track to carry staples, a guideway to receive staples from the track, a driver having a head to travel in said guideway to push staples from said guideway, a magnet having a pole adjacent to the end of the track to attract and hold staples in said guideway,

a circuit for said magnet, contacts for said circuit adapted to normally break the circuit and arranged to be closed by the driver, and a follower in said guideway arranged to travel into line with the end of the track to keep staples thereon and to be moved back by said driver, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 23d day of December, A. D. 1902.

WILLIAM McMURRAY.

Witnesses:

HORACE L. EDGE,

WILLIAM EDGE.