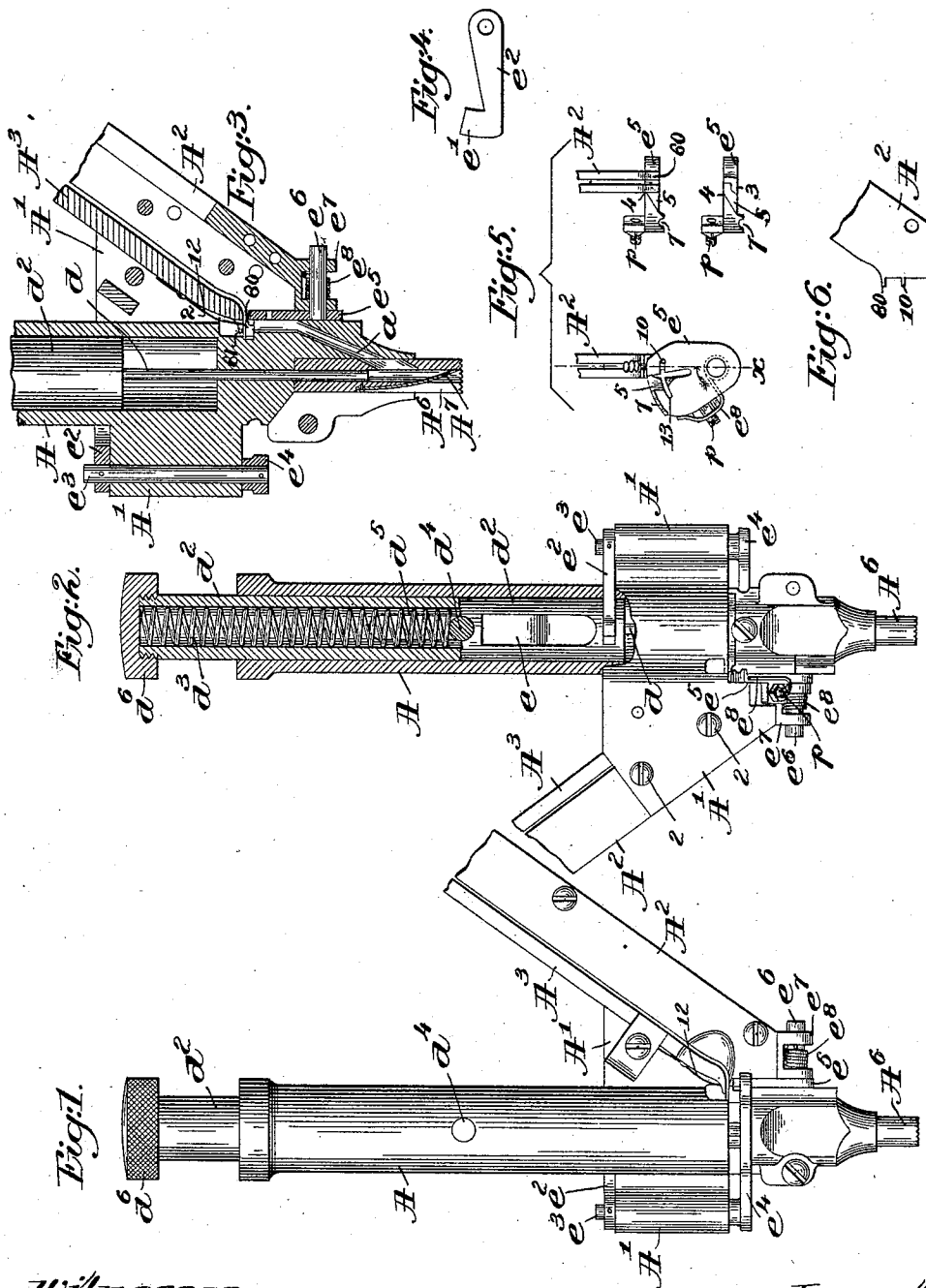


(No Model.)

M. BROCK.
NAILING APPARATUS.

No. 537,269.

Patented Apr. 9, 1895.



Witnesses.

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Inventor:

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UNITED STATES PATENT OFFICE.

MATTHIAS BROCK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE MCKAY-COPELAND LASTING MACHINE COMPANY, OF PORTLAND, MAINE.

NAILING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 537,269, dated April 9, 1895.

Application filed July 7, 1894. Serial No. 516,817. (No model.)

To all whom it may concern:

Be it known that I, MATTHIAS BROCK, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Nailing Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

In the manufacture of boots and shoes, and for other work, loose nails have to be driven, and for this purpose it has been customary to employ an apparatus having a race-way for the reception of nails, it containing as part of it, a hand piece or case having a driver-bar provided with a driver to drive one nail at a time from the nose of the apparatus into the work.

I have aimed to improve and simplify the class of apparatus referred to, and I have accordingly devised a novel gate located at the end of the raceway and between it and a chute adapted to conduct the nails singly from the race-way into the nose under and so as to be acted upon by the driver, a spring in the nose preventing the escape of a nail until acted upon by the driver. The means for moving said gate is also novel.

Figure 1 in side elevation shows a nail driving apparatus embodying my invention, a part of the race-way being broken off to save space on the drawing. Fig. 2 is an opposite side view, the hand piece or case and driver-bar being in section; Fig. 3, an enlarged longitudinal central section of the lower part of the apparatus. Fig. 4 shows the lever e^2 detached; Fig. 5, details showing in two views the gate and the end of the race-way, the section Fig. 3 being in the line x , Fig. 5, said figure also showing the gate in top view and detached; and Fig. 6 shows the end of the raceway with the stop 10.

The case or hand-piece A has at or near its lower end an enlargement or head A' , to which is attached by screws 2, a raceway A^2 , it having side walls with a slot between, in which may travel by gravity a series of nails placed therein, each side wall having at its lower or delivery end a substantially horizontal lip or rest 60, shown in Figs. 2 and 6, on which lies

the under side of the head of the endmost nail of the series of nails in the raceway, and the nails are prevented from rising in the slot of the raceway by a cover A^3 , the lower end of which, see Fig. 3, is turned outwardly immediately above the lip 60, and which is slotted to form a space for the reception of the free end of a head-detaining spring 12, represented as attached to said cover, the free end of the spring lying in the slot at the end of the cover and extending down substantially to or into the space between the lip 60 of the raceway, the said free end normally occupying a position at that side of the head of the nail nearest the driver, and at a point below the head of the nail, said spring forming a yielding detainer against which the head of the nail is forced positively, as the gate, to be described, acts by its point 4 against the rear side of the endmost nail to force the same from the lip 60 in the operation of picking the nail off from the raceway so that it may be driven.

It will be noticed that the nose A^6 of the hand-piece has a diagonally arranged chute which is located opposite the end of the raceway, and the entrance to said chute is separated from the end of the raceway by the gate e^3 , to be described.

It is essential that the point of the nail drop into the inclined portion of the chute a as soon as the nail is detached from the raceway by the gate, and this operation is provided for unerringly by the gate pushing the head of the nail against the free end of the detaining spring, the latter, by acting upon the head of the nail being pushed off laterally from the lips by the gate serving to tip the nail so that its point will be inclined outwardly, thus enabling it to easily enter the inclined portion of the chute.

The chute a , shown best in Fig. 3, leads the nails one after another down through a lateral passage communicating with the driver passage of the nose A^6 .

Preferably the driver passage in the nose will have an open side, closed, however, by a suitable spring A^7 which serves to hold each nail in place at a point below the driver d , in order that the latter, when the driver-bar d^2

to which it is connected is descending, may strike the head of a nail and drive it from the nose into the material.

The driver-bar shown has a tubular shank 5 in which is placed a strong spring d^3 , the lower end of which rests on a pin d^4 fast in the hand piece A, the said pin being straddled by a slot d^5 in the driver-bar, the upper end of the spring acting upon a cap d^6 screwed upon the 10 top of the driver-bar, the spring normally keeping the driver-bar elevated.

The driver-bar is cut away at one side, see Fig. 2, leaving a pocket e , of cam shape, at the bottom, into which may enter a toe e' of 15 an arm e^2 , fastened to a rock-shaft e^3 having its bearing in the head A', the lower end of said rock-shaft having a second arm e^4 , the end of which acts upon the gate e^5 secured to a short rock-shaft e^6 mounted to turn in suitable bearings e^7 , connected to or forming part 20 of the case or hand-piece, said rock-shaft e^6 being surrounded or acted upon by a suitable spring as e^8 which serves normally to throw the gate into the position represented in Fig. 25 5 and keep it pressed against the arm e^4 , and cause the toe e' of the arm e^2 to be held against the driver-bar, said arms e^3 and e^4 , and their connections constituting a gate actuating lever or device.

30 Referring to Fig. 5,—the diagram at the right,—it will be seen that the face of the gate e^5 next the open end of the raceway A², and opposite the slot therein, is provided with a notch to let the endmost nail in the race-way 35 enter said notch when the driver-bar is fully elevated, and rest against a shoulder 3 of the gate, a point 4 of the gate forming one side of said notch then standing substantially opposite the space between the endmost nail 40 and the one next back of it.

When the driver-bar is depressed, bringing the cam pocket e opposite the toe e' of the arm e^2 , the said toe enters said pocket, and the arm e^4 ceases to constitute an abutment 45 for the gate e^5 , and the spring e^8 acts to move the gate and with it the arm e^4 , the movement of the gate being in the direction of the arrow in Fig. 5, so that the point 4 of the gate is made to pass between the endmost nail and 50 the one next back of it, and force the nail through the diagonal opening 5 of the gate, the head of the nail, while the nail is being moved laterally by the point 4, meeting the retarding spring which causes the point of 55 the nail to be tipped laterally out of the diagonal vertical passage 5, so that the point of the nail drops into the chute a , to pass therethrough under the driver. This happens it will be understood while the driver is descending, and the point of the nail consequently strikes against the side of the driver 60 which at that time is supposed to be within the nose and as acting upon and driving therefrom a nail previously deposited therein, but as soon as a nail has been driven and the driver-bar is permitted to ascend under the 65 action of its spring d^3 , the driver is lifted

above the nail then in the lower end of the chute a and permits said nail to enter the nose and come into position under the elevated driver. 70

The gate has at its front side a notch 7 which is just behind the base of the point 4, said notch permitting the free descent of the head of the nail resting on the gate, while the 75 point 4 acts to remove said nail from the end of the race-way.

One end of spring e^8 for moving the gate to remove a nail from the raceway rests against the bearing e^7 , the other end of said spring, 80 see Figs. 2 and 5, acting against the gate e^5 .

The gate has on it an adjusting device, shown as a screw p , the inner end of said device acting against a rigid part of the case and determining the movement of the gate in 85 detaching a nail.

My application, Serial No. 516,817, filed on the 7th day of July, 1894, shows an apparatus for automatically filling the raceway.

The end of one side of the raceway is provided with a lateral support 10, for one side 90 of the nail being moved by the gate, said support being extended through a slot 13 in the gate, and acting against one side of the nail at a point below its head, and at a point below 95 that against which acts the inclined side of the point 4, as the latter in the movement of the gate by the spring e^8 acts to remove a nail from the raceway.

The detaining spring does not serve the purpose of acting upon the head of the endmost 100 tack to tip the same laterally away from the tack next to it, preparatory to and so as to make an open space between the endmost tack and the one next back of it for the reception 105 of the usual pick-off.

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

1. The race way having at its end a lateral 110 support 10 for a nail, and a gate having a slot to receive said support, said gate having also a vertical opening for the entrance and passage therethrough of a nail from the race way, a beveled point as 4, and an inclined passage 115 5, combined with means to move said gate, substantially as described.

2. In a nail-driving apparatus, a nose having a nail chute or passage to conduct a nail from the end of a raceway into position to be 120 acted upon by a nail-driver; a raceway having side walls provided at its lower end each with a lip 60; a cover, bifurcated at its lower end to overlap the lip 60 of the raceway; and a nail-retaining spring having its free end 125 located between the head of the endmost nail of the raceway lying on the lip 60, and the driver; combined with a gate having a vertical opening for the passage therethrough of a nail, and a point 4 to enter between the body 130 of the endmost nail the head of which is supported on the lip of the raceway, and the nail next back of it, the gate as it enters between the endmost nail and the one next back of it

causing the head of the nail being removed from the raceway to make contact with the free end of the retaining spring and be detained thereby, thus enabling the gate to effect the inclination of the body of the nail as it leaves the lip 60, thereby insuring the correct entrance of the nail into the chute or passage of the nose under the driver, substantially as described.

3. A nail driving apparatus, consisting essentially of a casing having an attached nose; a race way; a driver bar having a cam pocket; a gate having at one side a notch back of which is a shoulder to receive against it the end-most nail of a series of nails in the race way, and having a vertical opening through which may pass a nail from the race way, a

point 4, the latter serving to force a nail laterally from the race way, while the gate is moved to close the end thereof, a chute leading from the end of the race way into the driver passage in said nose, and means between said driver-bar and said gate to permit the latter to be moved during the descent of the driver-bar and effect the discharge of a nail from the end of the race way into the chute, substantially as described.

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

MATTHIAS BROCK.

Witnesses:

GEO. W. GREGORY,
LAURA T. MANIX.