

J. LEE.
 NAILING MACHINE.
 APPLICATION FILED JULY 14, 1909.

1,000,023.

Patented Aug. 8, 1911.

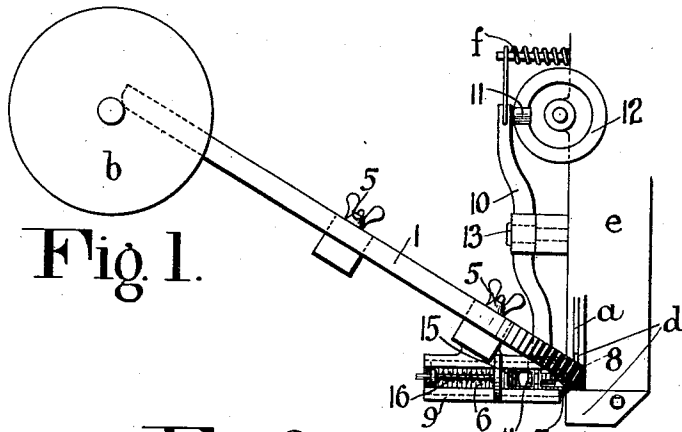


Fig. 1.

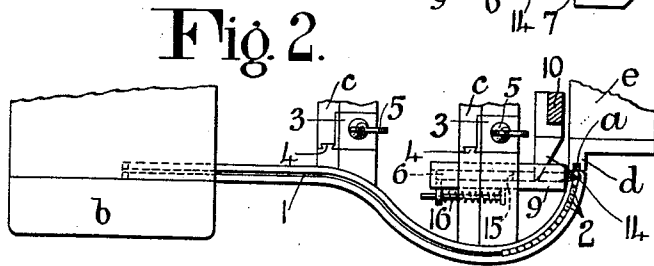


Fig. 2.

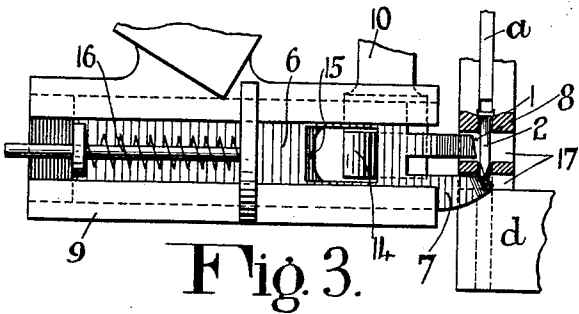


Fig. 3.

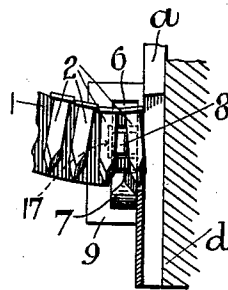


Fig. 4.

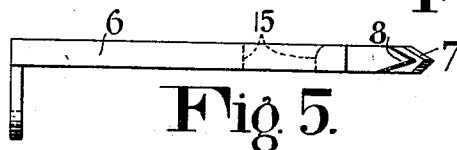


Fig. 5.

Witnesses:-
 W. P. Burke
 A. F. Heuman

Inventor:
 Job Lee
 By W. Hallow White

ATTY

UNITED STATES PATENT OFFICE.

JOB LEE, OF KETTERING, ENGLAND.

NAILING-MACHINE.

1,000,023.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed July 14, 1909. Serial No. 507,636.

To all whom it may concern:

Be it known that I, JOB LEE, a subject of the King of Great Britain, residing at Kettering, Northampton, England, have invented new and useful Improvements in or Relating to Nailing-Machines, of which the following is a specification.

This invention relates to nailing machines such as are used in the manufacture of boots and shoes and of the type in which loose nails are contained within a hopper from whence they are delivered into a race down which they pass to the usual driver of the machine, the end nail in the race being separated from the others by a divider or selector, which introduces the selected nail to the driver and keeps the following nails separated therefrom.

The present invention embodies improvements particularly, though not exclusively, applicable to machines for use with bills or studs, and it includes a curved raceway fitted on the front of the machine and leading from the nail hopper to the driver.

The principal advantage in a curved race is that headed bills (particularly those in which the length of the head is coincident with the width of the shank) receive a turn around or part rotation in their passage from the hopper to the driver and thus present the head to the driver so that the bills or nails when driven into a heel, top piece or sole have their heads pointing to the center of the same. Further a curved race gives an increased length thereto within a given space and allows of a greater accumulation of rivets or bills therein which is always an advantage in a quick driving machine and prevents the driving of the nails occurring at a greater speed than the feed from the hopper to the race.

The invention also includes the use with the raceway of an improved construction and arrangement of divider and separator for separating the lowest stud or nail in the race from the others therein and delivering it to the driver.

In order that the invention may be clearly and readily understood, reference will be made in the following description to the accompanying drawing, wherein:—

Figure 1 is a front elevation of a raceway and nail separating device constructed and arranged according to this invention, the said parts being applied to a nailing machine of known construction. Fig. 2 is a

plan of said parts shown in Fig. 1. Fig. 3 is a detail front view of the nail separating device. Fig. 4 is an end view of the same. Fig. 5 is a plan view of the nail separator or divider *per se*. Figs. 3, 4 and 5 are drawn to a larger scale than Figs. 1 and 2.

As the present invention is particularly concerned with the raceway and nail separating device alone, for the sake of clearness, only those parts of the nailing machine which are connected with or are to cooperate with the improved raceway and separator will be described and shown, it being understood that the remaining parts of the nailing machine to which the invention is applied are of known construction.

The raceway 1 of the present invention is, as shown in Fig. 2, curved so that the headed studs or bills are fed in under the driver *a* at the front of the machine and in a direction at right angles to that in which they leave the nail hopper *b*. This curved raceway, as previously mentioned, is not only of increased length but it turns the headed studs partly around and presents them to the driver *a* so that they have their heads pointing to the center of the sole or heel *i. e.* radially, when inserted into the work. The said race 1 is fixed by clamps 3 to the framing *c* of the front of the machine and can be removed therefrom at the will of the operator and a raceway of different character, as for instance for use with brass rivets or the like, substituted therefor, thus rendering the same machine convertible for use with two different kinds of nails and saving the manufacturer the cost of the extra machine and factory area for the same.

The clamps 3 may be of any convenient formation and in the example illustrated consist of plates which are adapted to be tightened upon undercut strips 4 of the raceway by means of screws or nuts 5.

The separator comprises a slide 6 having on its forward end two cuneiform fingers 7, 8 one above the other, see Fig. 3. The separator plate or slide 6 is movable to and fro along a fixed carrier 9 attached to or formed with the raceway 1 and is moved in one direction viz. toward the end of the raceway and the nose *d* of the machine by means of a pivoted lever 10. The said lever 10 is pivoted on the front of the head *e* of the machine and a roller 11 on its upper end is

in contact with a cam 12 by which it is rocked on its pivot 13. A spring *f* maintains the roller in contact with the face of the cam 12. The slide or plate 6 derives its reciprocal motion from the opposite end of the lever 10 by means of a wedge shaped or inclined nose 14 attached to said lever and projecting through an opening 15 in the plate 6, see Figs. 2 and 3. The plate 6 is moved in the opposite *i. e.* rearward direction by means of a spring 16.

As shown in Fig. 4, the end of the raceway 1 is recessed or cut away at 17 so that the fingers 7, 8 of the separator slide may pass through and across the raceway as the said slide is reciprocated. The lower finger 7 being wedge shaped in character, as shown in Fig. 5, passes between the points of the lowest two studs or nails 2 in the race 1, as will be clearly seen upon reference to Figs. 3 and 4. The prior entrance of the wedge shaped lower finger 7 between the nails, spaces or opens out the lower end of the second nail of the series from the first while the upper finger 8, which is likewise of a wedge shaped character, subsequently pushes between the shanks or upper parts of said nails and effectively completes the separation and forces the first nail from off the end of the raceway under the driver *a*. After this has taken place, the separator 6 is withdrawn by the spring 16 as the wedge shaped nose 14 on the lever 10 swings backward. When the fingers move clear of the raceway the series of nails slide down and the next movement of the plate or slide 6 repeats the separating operation. When using very short studs, only one, the uppermost, of the separating fingers will be necessary.

As will be seen in Fig. 5, the wedge

shaped fingers 7, 8 are provided with two inclined sides coming to a chisel point so that the latter can with facility penetrate or edge its way between the shanks of two adjacent nails.

What I claim then is:—

1. In a nailing machine for inserting loose nails in boots and shoes and comprising a driver, a raceway for the nails and a device for separating the endmost nail in the race and introducing it under the driver, the combination with a slotted separator slide of actuating means for the same comprising a pivoted lever, a rotating face cam to rock the lever forward, a spring to rock the lever rearward, a wedge shaped nose on the lever engaging the slot in the separator slide to move the latter forward, and a spring to move the separator slide rearward substantially as described.

2. In a nailing machine of the kind described, a nail raceway, a nail separating device consisting of a slide plate arranged to move through and across the end of the nail raceway, cuneiform fingers on said slide plate adapted to primarily separate the points and subsequently the shanks of the nails in the raceway, and mechanism consisting of a pivoted lever, an inclined nose on said lever projecting through the slide plate, a cam to rock said pivoted lever and move the slide plate forward to separate the nails, and a spring to withdraw said slide plate, substantially as described.

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

JOB LEE.

Witnesses:

E. N. LEWIS,
GEORGE LESTER.