

No. 676,414.

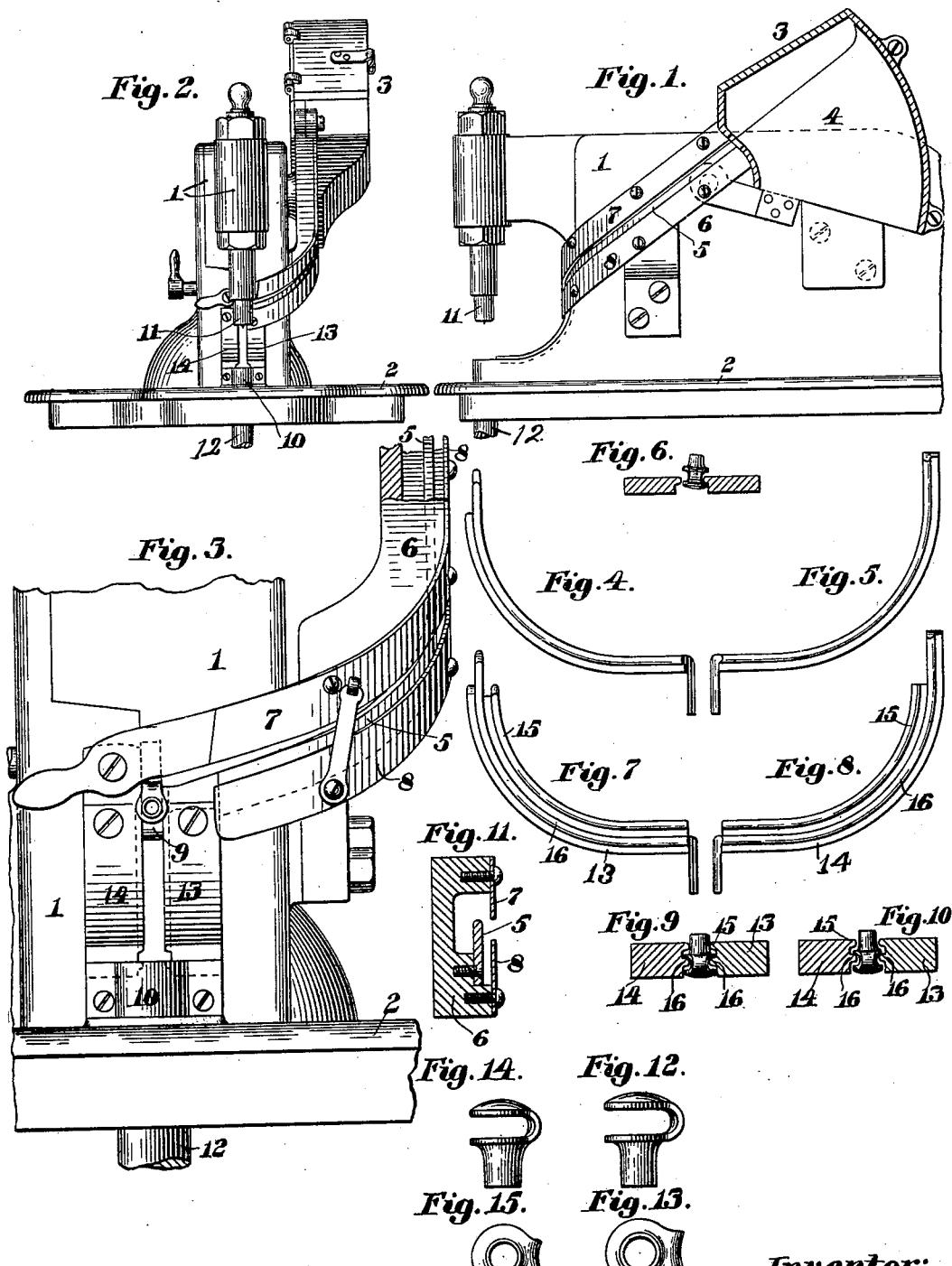
Patented June 18, 1901.

W. C. BRAY.

RACEWAY FOR LACING STUD MACHINES.

(Application filed Mar. 14, 1901.)

(No Model.)



Witnesses:

Walter E. Lombard  
from A. Bacon

Inventor:

Wm. Claxton Bray,  
by N. C. Lombard Atty.

# UNITED STATES PATENT OFFICE.

WILLIAM C. BRAY, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO TUBULAR RIVET AND STUD COMPANY, OF BOSTON, MASSACHUSETTS.

## RACEWAY FOR LACING-STUD MACHINES.

SPECIFICATION forming part of Letters Patent No. 676,414, dated June 18, 1901.

Application filed March 14, 1901. Serial No. 51,094. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CLAXTON BRAY, of Newton, in the county of Middlesex and State of Massachusetts, have invented a 5 new and useful Improvement in Machines for Setting Lacing-Studs, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to machines for setting 10 lacing-studs, and is an improvement upon the invention shown and described in Letters Patent No. 277,985, granted to me May 22, 1883; and it consists in certain novel features of construction, arrangement, and combination 15 of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claim here-to appended and in which my invention is clearly pointed out. The machine shown and 20 described in my said prior patent has been a very successful machine; but there has been one objection raised to it, because it was not really as practical to set studs of different sizes with the same machine as if the 25 plates *e e* of the curved roadway *L'* were set far enough apart to permit the passage down the channel between them of the larger stud, and if an attempt were made to set the smaller-sized studs without change in the machine 30 it would often happen that a stud in being separated from the line of studs in the race-way *K* and delivered to the roadway *L'* would be tipped from its appropriate position and thrown out of the channel of said roadway, 35 resulting in loss of time and often in injury to the work. This objection has made it necessary to furnish a machine for each size of studs that the manufacturer desired to use, thereby incurring additional expense to the 40 manufacturer. To obviate this objection and render a single machine capable of setting studs of several different sizes is the object of my present invention, and to this end I construct my improved machine as illustrated in 45 the accompanying drawings, in which—

Figure 1 is a sectional elevation of so much of a stud-setting machine as is necessary to illustrate my invention. Fig. 2 is a front elevation of the same part. Fig. 3 is a partial front elevation of the raceways and stud-separating devices drawn to an enlarged scale

with anvil removed. Figs. 4 and 5 are inside elevations, respectively, of the right and left curved guide-plates which formed the lower curved roadway for guiding the studs 55 from the lower end of the upper raceway to the setting-tools in my before-cited patent. Fig. 6 is a transverse section of said guide-plates in the proper positions relative to each other when fitted to a machine adapted to set 60 the larger stud illustrated in Figs. 12 and 13 and showing a smaller stud in a disarranged position therein. Figs. 7 and 8 are inside elevations, respectively, of the right and left curved guide-plates which form the lower 65 curved roadway which constitutes the subject-matter of my present invention. Fig. 9 is a transverse section of said plates in their proper relative positions with a stud of the size illustrated in Figs. 12 and 13 in proper 70 position therein. Fig. 10 is a similar section of said plates with the smaller stud shown in Figs. 14 and 15 in proper position in the channel between them. Fig. 11 is a transverse section of the upper inclined and curved race-way. Figs. 12 and 13 are respectively a side 75 elevation and an inverted plan of the larger stud in general use for shoe-lacing drawn to an enlarged scale, and Figs. 14 and 15 are similar views of the smaller stud to be set by 80 my improved machine.

In the drawings, 1 represents the frame of the head of the machine, constructed and arranged to be supported upon a bench or table by means of its flange 2 in an obvious manner and provided with suitable setting-tools and mechanism for operating the same substantially as in my before-cited patent. A hopper 3 is secured to the right side of said frame, within which is the vertically-movable pivoted blade 4, which as it moves upward through the studs placed in said hopper picks up one or more of said studs by their necks, with their shanks all pointing toward the right of said hopper, and when said blade reaches the extreme of its upward movement, with its upper edge inclined as shown in Fig. 1, the studs hanging thereon by their necks slide down said inclined edge of said blade through a slot in said hopper upon the inclined rail 5 of the raceway 6 and down the same to its lower end, being prevented from being dis-

charged therefrom by the upper and lower guard-plates 7 and 8, respectively, precisely as in my prior patent before cited. The raceway 6 extends from the hopper in a downwardly-inclined direction toward the front of the machine and then curves toward the left and terminates with its lower end in a vertical plane substantially at right angles to the vertical plane in which lies the upper portion of said raceway and at a point contiguous to the separator 9, which is directly in the rear of the setting-tools, comprising the pocket 10 and anvil 11.

The parts hereinbefore described and the mechanism for operating the pivoted blade 4, the separator 9, the plunger (not shown) for feeding the stud into the pocket 10, carried by the setting-plunger 12 and reciprocating said setting-plunger, are constructed, arranged, and operate the same as in the machine shown and described in my before-cited prior patent.

The studs in moving from the hopper down the raceway 6 to the separator 9 hang by their necks astride the rail 5 and are delivered in the same position, one at a time, upon the hook of the separator 9, and when said hook of the separator is removed from the stud by its downward and backward movement said stud drops into the roadway between the curved plates 13 and 14 and slides down said roadway toward the pocket 10 into a position in front of the feed-plunger, (not shown,) with neck portion at the rear, said stud being guided by the lips 15 and 16, formed on the inner faces of each of the plates 13 and 14, the lips 15 fitting between the head proper and the base-flange of said stud and bearing against or having their edges in near proximity to the neck of said stud, one upon each side thereof, and the lips 16 being in contact with or in near proximity to the shank of the stud, as shown in Figs. 9 and 10.

By providing the plates 13 and 14 with the

two lips or ribs 15 and 16 arranged to act as guides upon opposite sides of the longitudinal axis of the stud and above and below the base-flange thereof the roadway between said plates 13 and 14 may be made of sufficient width to permit the passage of the stud illustrated in Figs. 12 and 13, and without change the smaller stud illustrated in Figs. 14 and 15 may be set in the same machine, as well as any stud of a size between that shown in Figs. 11 and 12 and that shown in Figs. 13 and 14. In the machine shown and described in my said prior patent this could not be practically accomplished, because the plates forming the roadway between the separator and the pocket had only one lip or rib, each of which engaged the neck only of the stud on opposite sides thereof, and if said plates were set far enough apart to permit the passage of the stud shown in Figs. 11 and 12 and an attempt were made to set in the same machine studs of the size illustrated in Figs. 13 and 14 the studs, when delivered from the separator, were very liable to be tipped sidewise, as shown in Fig. 6, and fall out of the roadway.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

In a machine for setting lacing studs, a stud-guiding roadway provided with two pairs of stud-guiding lips or ribs constructed and arranged to receive the base-flange of the stud between them, with one pair of said lips in near proximity to and on opposite sides of the neck of the stud, and the other pair of said lips in near proximity to and on opposite sides of the shank of said stud as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 7th day of March, A. D. 1901.

WILLIAM C. BRAY.

Witnesses:

N. C. LOMBARD,  
EDWIN A. BABB.