

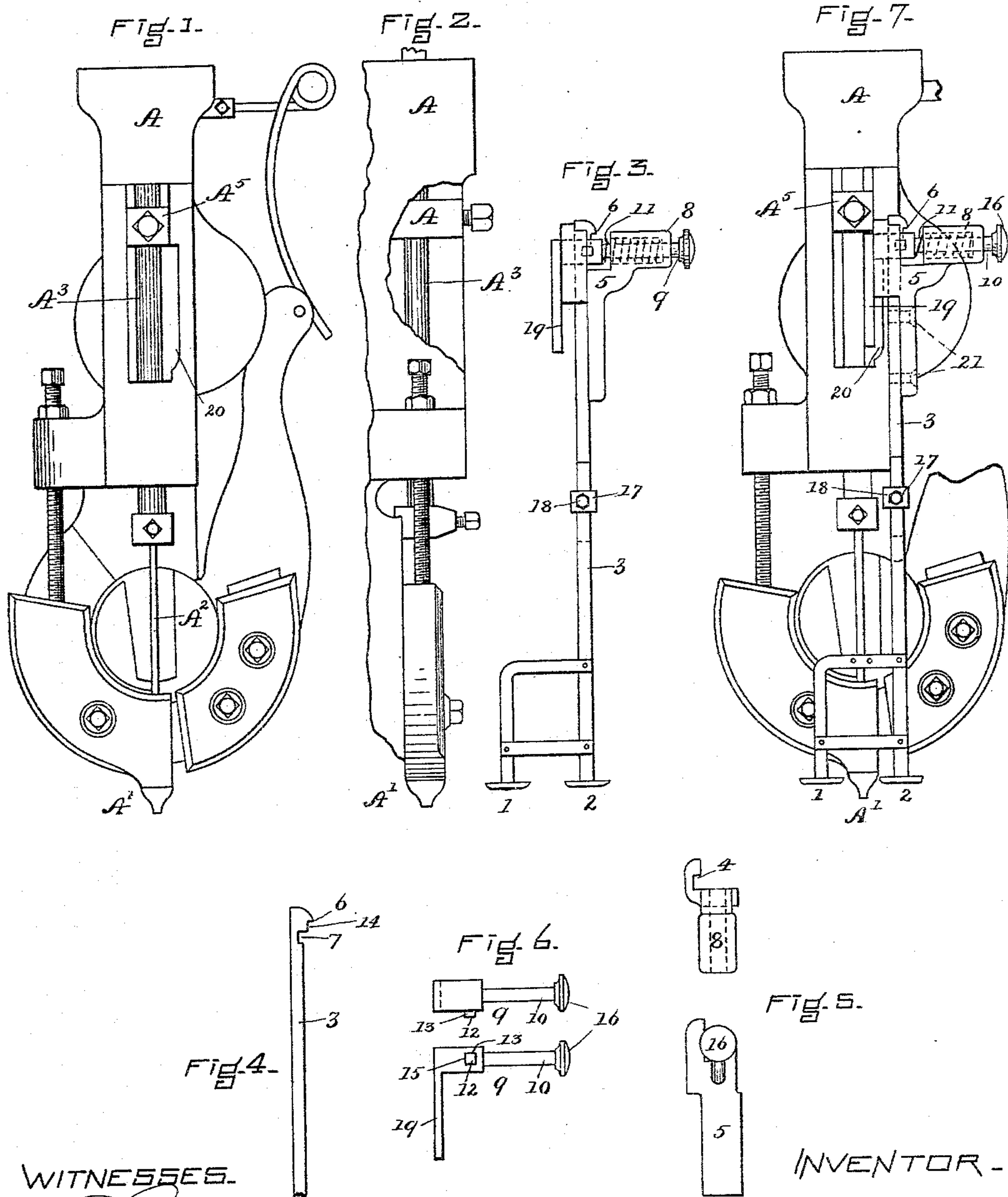
(No Model.)

C. A. COPELAND.

SAFETY ATTACHMENT FOR DRIVING MACHINES.

No. 546,416.

Patented Sept. 17, 1895.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

CHARLES A. COPELAND, OF PEABODY, MASSACHUSETTS.

## SAFETY ATTACHMENT FOR DRIVING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 546,416, dated September 17, 1895.

Application filed February 20, 1895. Serial No. 539,160. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. COPELAND, of Peabody, in the county of Essex and State of Massachusetts, have invented a new and useful Safety Attachment for Driving-Machines, of which the following is a specification.

Referring to the accompanying drawings, Figure 1 is a front elevation of the head of one form of driving-machine, and Fig. 2 a side view of what is shown in Fig. 1, these parts being old and well known. Fig. 3 is a view of my attachment removed. Fig. 4 is a side view of a portion of the slide-bar forming part of my attachment, and Figs. 5 and 6 are detail views of other parts of the attachment. Fig. 7 is a front view of the machine provided with my attachment, the old parts being in dotted lines for greater clearness.

The object of my invention is to provide for driving-machines of various kinds an attachment adapted to prevent the accidental driving of a fastening into the hands of operators. A device for this purpose is wholly and broadly new with me, and while my invention is susceptible of embodiment in a variety of driving-machines now in common use I herein describe it in connection with the well-known "taper nail tacker."

Heretofore, as is well known, operators of machines used for tacking outsoles on shoes which have been lasted and are still on the last have met very frequently with serious accidents to the hands, involving not infrequently the loss of a forefinger and occasionally the loss of a hand. The liability of operators to such accidents will be readily understood by a consideration of the manipulation of the lasted shoe during the tacking on of the outsole. The operator takes the lasted shoe (on the last) and places it insole down on the outsole in one of his hands, and then, holding the outsole and lasted shoe together, turns his hands so as to bring the outsole up-  
permost for presentation to the "nipple" (or nail-passage) of the tacking-machine, presenting the toe portion first to the nipple and operating the machine to drive two tacks (ordinarily) through the toe portion of the outsole, the margin of the upper, and through the insole, where the point end on the fastening is clinched on the bottom of the last,

With a rapid motion the operator, holding with both hands the lasted shoe and superimposed sole at or near the ball thereof, pushes the work away from himself and under the nipple to present first one margin of the outsole to the nipple for a tack and then moves the work sidewise to present the opposite margin of the outsole to the nipple for a tack, the tacking being finally completed by fastening the heel portion under the nipple of the machine. The machines are operated with great rapidity, driving upward of three hundred or so nails per minute, and it is when the work is pushed forward and upward for tacking and clinching the nails at the ball portion of the shoe that the accidents generally occur, the work slipping from the point of the nipple to the left or right and bringing a hand of the operator under the nipple, where it almost invariably, unless the operator is quicker than the machine, receives the fastening intended for the work. These tacks or nails average a half inch in length and produce painful and dangerous wounds, frequently necessitating amputation of a finger or a hand.

In the drawings, illustrating one embodiment of my invention in the best form now known to me, A is the head, A' the nipple, A<sup>2</sup> the driver, and A<sup>3</sup> the driver-bar, of an ordinary "taper nail tacker," which I take as a convenient type of driving-machines.

In general my invention may be embodied in various forms, depending largely on the construction of the various machines and the varieties of work submitted to their action.

The foregoing parts will be readily understood by all skilled in the art without further description.

The gist of my invention lies, when broadly stated, in automatically preventing the driving of a fastening when a safety-guard at the nipple is hit. In the construction now shown I provide a pair of safety devices 1 and 2 at opposite sides of the nipple, these safety devices being hit by either the hand or work whenever the work slips off the nipple as it is shoved forward and upward to receive the fastening. Safety devices 1 and 2 are provided with a slide-bar 3, for which a passage 4 is provided in the holder 5, which is secured to head A in any suitable manner and at any suitable



point. Slide-bar 3 is provided with a lip 6 and with a recess 7, and the arm 8 of holder 5 is chambered to receive a spring-controlled plunger 9, the shank 10 of which is provided with a helix 11, (in the chamber of arm 8,) while the head of the plunger is provided with a projection 12. During the normal operation of the machine plunger 9 is held back against the stress of spring 11, with the lip 6 resting on the wall 13 of projection 12, portion 14 of the slide-bar then being in the path of the plunger 9 and preventing inward movement of the plunger, portion 14 of the slide-bar then contacting with wall 15 of the projection 12. Pressure on either safety device 1 or 2, while the parts are in the position above described, moves the slide-bar upward, carrying its part 14 out of contact with projection 12 and bringing its recess 7 into the path of the projection 12, when the expansion of the compressed helix forces the head of the plunger 9 under the sleeve A<sup>5</sup>, which is the familiar cam-bearing in the taper-nail tacker and is rigidly secured to the driver-bar A<sup>4</sup>, thus preventing descent of the driver and the driving of the nail. Plunger 9 is withdrawn from under the sleeve A<sup>5</sup> by a pull on the outer end 16 of the plunger 9, and the slide-bar carrying the guard or guards then falls to its normal position. Slide-bar 3 is best made in two parts held adj-  
justably together in any suitable manner—for example, by the case 17 and set-screw 18. Plunger 9 is provided with a guide-plate 19 to prevent the cam-sleeve A<sup>5</sup> striking the plunger when the driver-bar A<sup>2</sup> and attached cam-sleeve move upward after driving the fastening. A space 20 is provided between the driver-bar A<sup>3</sup> and head A for the play of the guide-plate 19. The projecting portion of the cam-sleeve A<sup>5</sup>, when in its lowest position, is opposed to the guide-plate 19, so that the plunger cannot move inwardly into the path of the cam-sleeve during its back stroke.

My new device is readily attached to the machine in any suitable manner, as by the screws 21 or otherwise.

It will be readily understood by all skilled in the art that my invention may be embodied in many different forms; but as I am the first to provide for the fingers and hand at the nipple of a driving-machine a safety device which, when pressed against, prevents the driving of a fastening I wish to be understood as claiming my invention in the broad-  
est legally-permissible manner.

What I claim is—

1. The combination, in a driving machine, of a nipple and fastening-driving mechanism with a safety-device at the nipple and means for arresting the stroke of the driver by press-

ure on a safety-device, substantially as and for the purpose set forth.

2. The combination, in a driving machine, of a nipple and fastening-driving mechanism with a safety-device at the nipple and means for connecting the safety-device and driving mechanism to prevent the stroke of the driver, by pressure on the safety-device, substantially as and for the purpose set forth.

3. The combination, in a driving machine, of a nipple and fastening-driving mechanism, with a safety-device at the nipple, and means for coupling the safety-device with the fastening driving mechanism by pressure on the safety-device, substantially as and for the purpose set forth.

4. The combination, in a driving machine, of a nipple, and fastening-driving mechanism, with a safety-device mounted on a sliding bar; a sliding-bar, a spring-controlled-plunger to engage the sliding-bar and a projection from the driving mechanism, substantially as and for the purpose set forth.

5. The combination, in a driving machine, of a nipple and fastening-driving-mechanism, with a safety-device at the nipple, and means for automatically preventing the driving of a fastening when pressure is applied to the safety-device, substantially as and for the purpose set forth.

6. The combination, in a driving machine, of a nipple and fastening-driving-mechanism, with a safety-device mounted on a slide-bar; an automatically acting plunger to engage the slide-bar and driving mechanism and prevent the operation of the driving mechanism, substantially as and for the purpose set forth.

7. The combination, in a driving machine, of a nipple and fastening-driving-mechanism with a safety-device; a slide-bar carrying the safety-device; an automatically acting plunger having a projection and a projection from the driver-bar, the slide-bar having a lip and a recess, all substantially as and for the purpose set forth.

8. The combination, in a driving machine, of fastening-driving mechanism and a nipple with a plurality of safety-devices at the nipple, and means for preventing the driving of a fastening when pressure is applied to either safety-device, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 4th day of February, A. D. 1895.

CHARLES A. COPELAND.

Witnesses:

EDWARD S. BEACH,  
A. I. CRAWFORD.