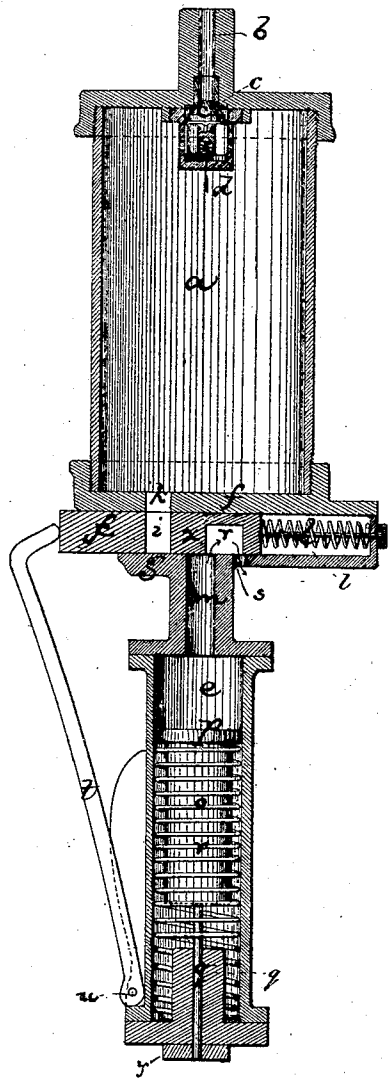
G. McKAY.

Nailers for Lasting Boots and Shoes.

No. 134,083. Patented Dec. 17, 1872.

121-13



Witnesses.
No. W. Brothingham.
L. H. Latimer.

Inventor
Gordon McKay,
By his Attys.
Crosby & Gould

UNITED STATES PATENT OFFICE.

GORDON McKAY, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN NAILERS FOR LASTING BOOTS AND SHOES.

Specification forming part of Letters Patent No. **134,083**, dated December 17, 1872.

To all whom it may concern:

Be it known that I, GORDON McKAY, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Nailers for Boot and Shoe Lasting, &c.; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to the construction of a tool designed particularly for use in lasting boots and shoes, for driving lasting nails or tacks, the purpose of the invention being to provide a tool containing in itself the power to drive the nails, or to operate the driver, the tool having simply to be moved from place to place and the power brought into requisition by the hand of the operator, and preferably by the same hand that moves the tool. My invention consists primarily in a nailer or nail-driving tool, having provision in itself for operating the nail-driver.

In carrying out the invention I prefer to use a tool having a compressed-air chamber or reservoir and a valve through which connection may be alternately made and cut off between the reservoir and a piston-chamber, air being let into the piston-chamber from the reservoir to drive the piston, and communication being then cut off between the reservoir and piston-chamber, and opened between the piston-chamber and the atmosphere, the piston being then thrown up by a spring. The combination of the compressed-air reservoir, piston-chamber, piston, spring, and slide-valve constitutes a part of my invention.

The drawing represents a sectional view of a tool or mechanism embodying my invention.

a denotes a reservoir for receiving compressed air, this reservoir having preferably an inlet-tube, *b*, controlled by a valve, *c*, which valve is forced down as the compressed air strikes it to enter the cylinder, the valve having its seat and permitting the air to pass by it into the reservoir and closing by the action of a spring, *d*, or by the back pressure of the compressed air within the reservoir when the charging supply is cut off. *e* denotes a piston-cylinder having a fixed connection with the main cylinder *a*. At the bottom of the cylinder *a* is a plate, *f*, between which and a seat-plate, *g*, is a slide-valve, *x*. The valve *x* has a pocket or passage, *i*, extending through it, and with this pocket a passage, *k*, in the plate *f* communicates, when the valve is in its normal position, as seen in the drawing, the valve being held in this position by the stress of a spring, *l*. When the valve is slid forward from this position the pocket *i* passes under the plate *f* (shutting off communication between it and the chamber *a*) and over a tube or passage, *m*, which leads into the piston-chamber *n*. This chamber contains a piston, *o*, (whose head *p* fits and slides in the chamber,) having at its lower end the driver *q*, the piston being forced up by the stress of a suitable spring, *r*, and down by the entrance of compressed air from the pocket *i* into the piston-chamber above the piston. When the slide-valve is thrown back by its spring (after having been pressed forward) the tube or passage *m* is brought into connection with an exhaust-port, *s*, through which and an outlet-passage, *t*, the compressed air escapes from the piston-chamber, after having operated to force the piston down and to actuate the driver. The slide-valve may be thrown forward by a bar, *t*, pivoted at *u*, this bar being preferably so constructed and arranged that the operator, in grasping the cylinder *e*, readily embraces also the bar *t*.

The operation of the mechanism is as follows: The air reservoir or tank *a* being charged with compressed air by a suitable air-compresser engine, the tool is held over and against the material to be nailed with the nail-plate *y* against the surface where the nail is to enter, a nail or strip of suitable nail-forming material being in the nail-tube *q*, a nail-forming material being preferably used, and preferably in the form of a strip T-shaped in section, the end of said strip entering the nail-tube through a lateral guide-passage made of corresponding T-shape, as seen at B, which shows an end view of the nail-plate *y*, to let the strip through it, the driver, as it descends, not only driving the nail, but cutting it from the strip by the same blow by which the nail is driven. Having the tool held in place, the parts being in normal position, as seen in the drawing, and the pocket *i* charged with compressed air from the reservoir *a*, the operator, grasping the cyl-

inder *e* and bar *t*, presses the bar in, thereby moving the slide-valve, cutting off communication between the pocket *i* and the reservoir *a*, and bringing the pocket into communication with the tube or passage *m*, the compressed air expanding and driving down the piston and nail-driver, thereby severing and driving the nail. Pressure upon the bar *u* being then withdrawn, the slide-valve is thrown back by the spring *l*, the tube *m* is brought into connection with the exhaust *s*, and the piston and driver are then driven up by the spring *r*, the air above the piston-head escaping through the exhaust, the movement of the slide-valve again bringing the pocket *i* into connection with the passage *k* leading into the reservoir or tank.

By this means, without any power connection, and without any exertion of force by the operator other than to push the valve forward, the nails are automatically driven, or cut and driven, the instrument being moved from place to place for insertion of the several nails, or the work being moved under the tool and the tool held stationary.

Other power than the compressed air may be used, but I prefer the air as a driver.

I claim—

The combination of the air-cylinder *a*, piston-cylinder *e*, and the valve and driving mechanism, arranged to operate substantially as shown and described.

GORDON McKAY.

Witnesses:

FRANCIS GOULD,

M. W. FROTHINGHAM.