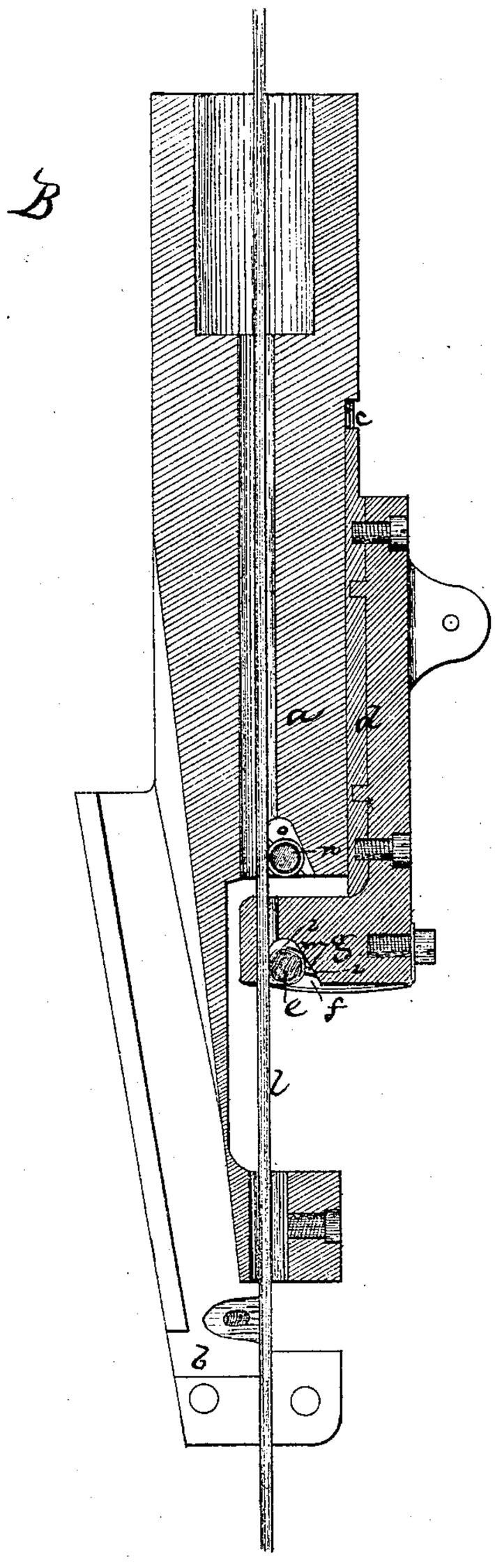
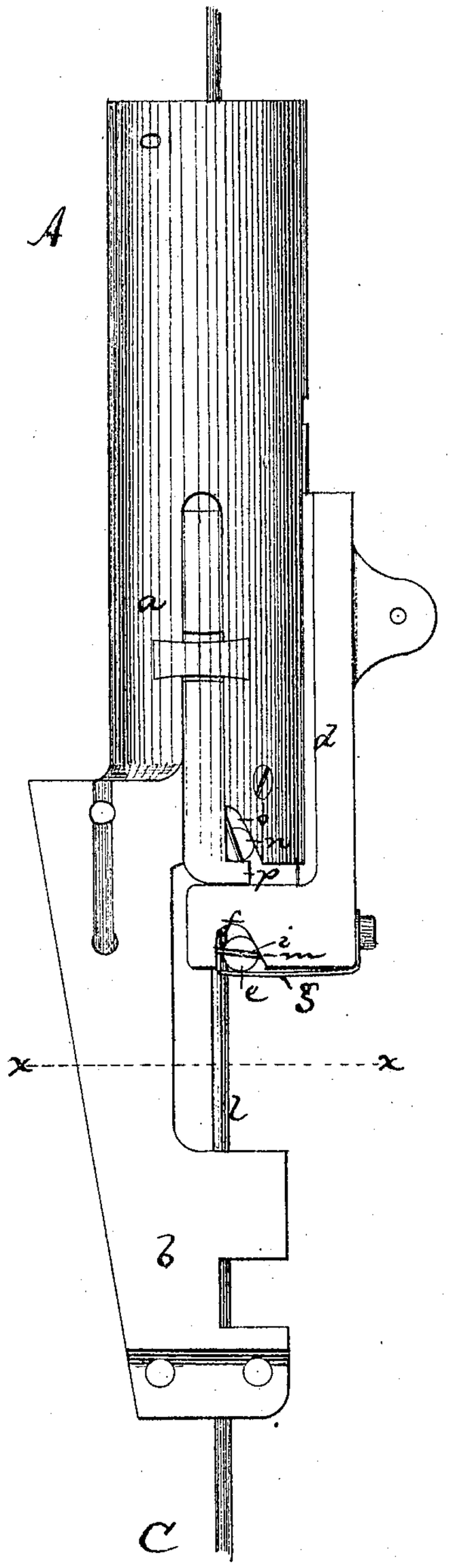
A. S. LIBBY.

Improvement in Wire-Feed Mechanisms for Sole-Nailing Machines.

No. 129,572. Patented July 16, 1872.





Wilnesses.
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By his Attys.
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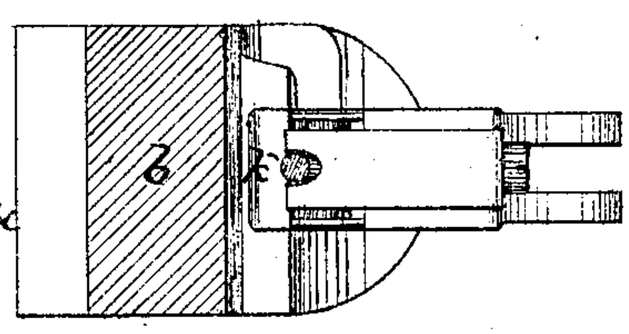

UNITED STATES PATENT OFFICE.

ASA S. LIBBY, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN WIRE-FEED MECHANISMS FOR SOLE-NAILING MACHINES.

Specification forming part of Letters Patent No. 129,572, dated July 16, 1872.

To all whom it may concern:

Be it known that I, ASA S. LIBBY, of Lawrence, in the county of Middlesex and State of Massachusetts, have invented an Improved Wire-Feed Mechanism for Sole-Nailing Machines; 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.

My invention relates particularly to a method of feeding a nail-forming wire to be cut up into nail lengths in machines for nailing soles to boots and shoes. In my invention I use for a feeding device a roll which does not feed the wire by a rolling action upon it, but by griping the wire between a peripheral groove extending around the roll and a vertical groove in the surface of a vertically-reciprocating slide-bar, the foot of this bar having a deep vertical slot extending up into it, in which is the griping-roll, one vertical wall of the slot having the vertical wire-entering groove, and the other wall being inclined, so that the slot flares downward, the descent of the bar causing the roll to roll, or tend to, up into the slot, and by bearing against the incline to gripe the wire tightly between the roller-groove and slot-groove, so that as the bar descends the wire will descend with it or be fed. As the bar moves up the roll is released and loosens its gripe upon the wire, so that the roll and bar will slip over the wire without moving it, the roll being retained in the slot by a spring that holds the roll in such position that it instantly gripes the wire if the bar descends. The shank of the presser-foot or nail-tube may have a similar roller-slot, with a similar roll, and as the feed-bar moves down the latter roll is drawn down into the large end of the slot, so that the wire slips by the roll, while, when the bar moves up, the said roll is forced up into its slot by the pressure of the wire and gripes the wire, thereby keeping it from back movement. It is in this construction or method of feeding the wire that my invention consists.

The drawing represents the wire-feed mechanism (embodying my invention) applied to the nail-tube, &c., of a Blake sole-nailing machine.

A shows the mechanism in side view. B is a sectional elevation of it. C is a section on the line *x x*.

a denotes the vertical tube or shaft, through which the wire passes, said shaft having at its lower end the presser-foot shank *b*, in which are arranged the wire-cutting devices and the devices which transfer the severed nail to the nail-tube foot in position to be driven by the driver. In the surface of the shaft *a* is a guide-slot, *c*, in which slides the vertically-reciprocating bar *d* that carries the feed or griper-roll *e*. This roll is placed in the slot *f* of the bar, and is kept in said slot by a spring, *g*, and by end wires *i*. Around the roll runs the peripheral groove *h*, and in one face of the slot is the vertical groove *k*, the wire *l* passing between these two grooves. The opposite face of the slot is inclined, as seen at *m*, and it will be obvious that when the bar descends the roll will be forced up the incline and against the wire, clamping or griping the wire tightly between the two grooves, so that the wire must be fed with and by the movement of the bar, the roll being drawn down toward the mouth of the slot when the bar rises, and slipping over the wire without moving it, the wire being detained by any suitable mechanism. For detaining the wire I prefer to use the second roll *n*, placed in a slot, *o*, in the tube or shank-piece *a*, this roll, as the bar starts up, being pressed up by the wire, so that, rolling against the incline of the slot, its opposite face gripes the wire and prevents the wire from moving up, the roll *n* being drawn to the mouth of its slot *o* and down to a spring or stop, *p*, as the bar starts down, thereby releasing the wire from the gripe of the roll *n* and permitting it to be fed by the gripe of the other roll *e*.

This method of feeding the wire is not only very simple and effective, but it enables the extent of feed-movement imparted to the wire to accord to the minutest changes in thickness of the parts to be united.

I claim—

1. In combination with the wire-conducting tube, the reciprocating bar, having the feed or griping roll *e* located in the slot *f*, and operating to feed the wire, substantially as shown and described.

2. In combination with the griper-roller *e*, the detainer-roll *n*, arranged and operating substantially as described.

ASA S. LIBBY.

Witnesses:

FRANCIS GOULD,

M. W. FROTHINGHAM.