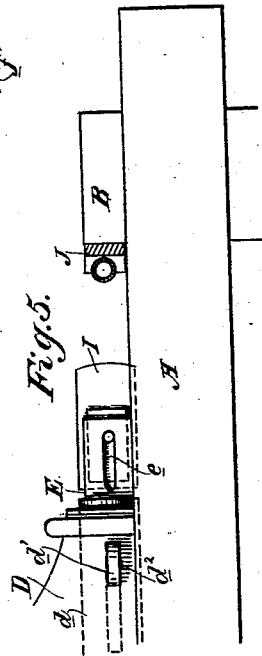
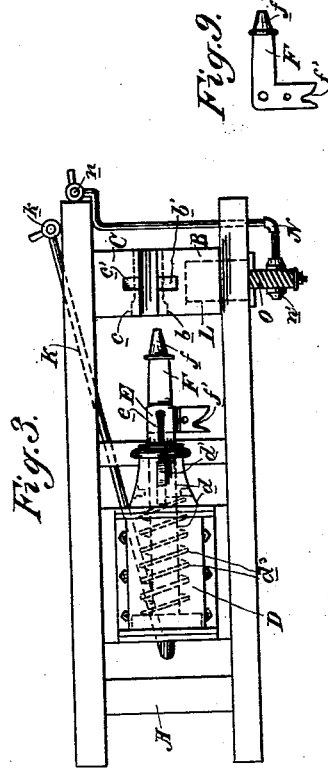
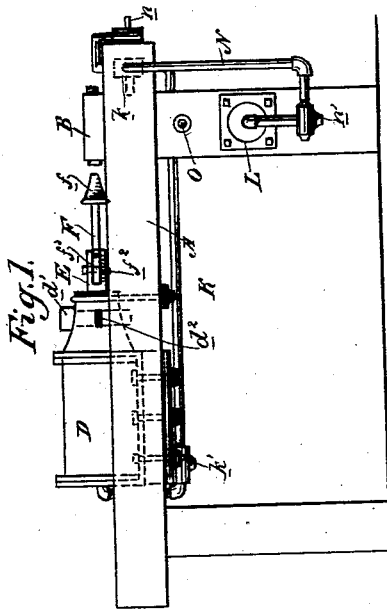
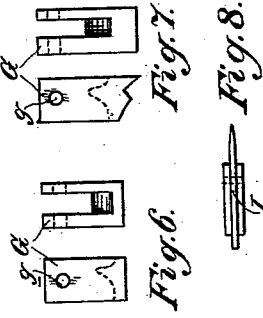
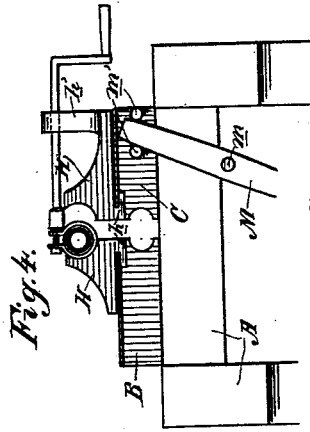
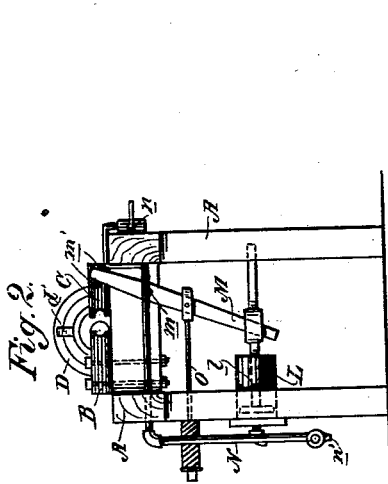


(No Model.)

J. A. ANGWIN.
MACHINE FOR APPLYING HOSE COUPLINGS.

No. 423,106.

Patented Mar. 11, 1890.



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UNITED STATES PATENT OFFICE.

JAMES A. ANGWIN, OF OAKLAND, CALIFORNIA.

MACHINE FOR APPLYING HOSE-COUPPLINGS.

SPECIFICATION forming part of Letters Patent No. 423,106, dated March 11, 1890.

Application filed October 4, 1889. Serial No. 326,026. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. ANGWIN, a citizen of the United States, residing at Oakland, Alameda county, State of California, have invented an Improvement in Machines for Applying Hose-Couplings; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of machines for applying the couplings to hose; and my invention consists in the novel arrangement, construction, and combination of parts hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a simple and easily-operated power-machine for applying the couplings to hose and securing them in their places. My machine, though applicable to any couplings, is specially intended for the coupling-heads and nipples of the hose of railway air-brakes.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side view of my machine. Fig. 2 is an end view. Fig. 3 is a plan. Fig. 4 is an end view showing the attachment to the jaws of the clamp-blocks H. Fig. 5 is a side view showing the attachment of knife I. Figs. 6 and 7 are views of bars to be attached to bar F. Fig. 8 is an edge view of knife I. Fig. 9 is a view of bar F.

A is a frame or stand. Upon one end of this frame is fixed the stationary block or jaw B, opposing which is the sliding block or jaw C, said jaws having their opposing faces grooved to receive and hold the hose which is inserted between them, and the grooves of the jaws are at their inner ends cut out a little deeper, as shown at *b* and *c*, so as to permit the expansion of the hose which is held between them.

Upon the top of the frame or stand A is a cylinder D, having a slotted piston-rod *d*, to which is connected the coupling-block E. This block is a forked one, and is provided with an elongated vertical slot *e*, passing through it at right angles to its fork-opening. The block and the piston-rod are guided by means of a removable key *d'*, which passes down through the slotted rod.

F is a bar which forms a combined expander and coupling-head holder. It is made

elbow-shaped, having at the end of one of its arms the conical expander portion *f* and at the end of its other arm a shape or construction—such as is shown at *f'*—adapting it for the ready engagement of the coupling-head of a Westinghouse air-brake hose. This bar is fitted to the forked coupling-block E, and is secured thereto by means of a pin *f*², which passes down through its angle and through the elongated slot *e* of the coupling-block.

The machine as far as described has the following operation: The hose is placed between the jaws B and C with its end projecting very slightly beyond them. The sliding jaw C is then moved up to the hose, so as to bind it between itself and the fixed jaw B with sufficient power to resist the forcing of the coupling. The angular bar F is pivoted in the forked block E in such a manner that its expander-point *f* extends directly forwardly and in line with the end of the hose. In order to guide it truly and insert it in the hose primarily, said bar is slid backwardly, its pin *f*² moving in the elongated slot *e*, so as to clear the hose, and is then slid forwardly again in order that its conical point *f* may enter the hose. Then the piston-rod *d* is forced forwardly, thereby forcing the conical point *f* of the expander into the end of and expanding said hose, which yields in the enlarged portions *b* and *c* of the jaws. As soon as the hose is expanded the piston-rod *d* is withdrawn and the expander-point *f* removed from the hose by the return of the piston-rod under the power of a release-spring *d*³ in the cylinder. As soon as it is free the angular bar is turned on its pivotal center *f*² to a position at right angles, so that its end *f'* is brought into line with the hose. When the expander-point is withdrawn, the expanded end of the hose remains practically within the enlarged portions *b* and *c* of the jaws. The ordinary coupling-head is now easily inserted in the expanded end of the hose, and then the bar F is slid forwardly until the end *f'* of the coupling-bar engages the coupling-head, and pressure then from the cylinder forces the coupling-head into the hose with the necessary tightness.

To insert the nipple-coupling, it is obvious that the end *f'* of the angular bar might be

suitably formed for this purpose; but I prefer to have a separate bar of suitable construction—such as is shown by G—which I couple on by a pin *g* to the end of the angular bar F, said bar being adapted to fit and force the nipple in. It will be readily understood that these forcing-bars may be made of any suitable construction adapting them to engage the particular kind of couplings which are to be put into the hose. After the coupling has been forced into the hose said hose is removed from the holding-jaws B and C, and then the usual clamps are placed about the hose ends to hold the couplings in place. These clamps consist of curved pieces of metal encircling the hose and having seated between their meeting ends a securing-bolt. The clamps are usually applied by being placed between the straight-faced jaws of a vise; but in employing such means it is obvious that the clamps are not forced about the hose to conform to its curvature, but are rather flattened out. To better clamp them, and also to provide means in connection with my machine which can be readily used, I have the curved-faced opposing jaws H, the stem *h* of each of which is flanged and is adapted to fit in a grooved-out socket *c'* and *b'*, formed in the tops of the blocks or jaws C and B. These clamp-jaws are readily inserted in place, and the hose end, with its clamp, is placed between them. Then by moving the block C up the two jaws H bind upon and press the clamp firmly about the hose, so that its bolts may be set up. A standard *h'* rises from one of the jaws H, and through this is to pass freely the shank of the wrench to screw up the nuts on the clamp-bolts.

In order to cut the hose into any suitable lengths, I have a cutting-blade I, which is adapted to be connected in a vertical plane with the coupling-block E. This is done by removing the key *d'*, turning the piston-rod and coupling-block E through a quarter-revolution, so that its fork-opening lies vertically, and reinserting said key *d'* in a horizontal plane through the horizontal slot *d''*. Then the knife I is inserted vertically in the fork-opening of the coupling-block and secured therein by a pin. A grooved temporary block J is then laid upon the table parallel with and against the jaws B and C, and in the groove of this block the hose is laid, so that when the knife is moved forward it will cut it at right angles.

The cylinder D is intended for use in connection with compressed air, which is supplied to it by a pipe K, controlled by a cock *k*, a suitable relief-valve *k'* being provided.

The sliding jaw C is operated by the following mechanism: Secured under the table or stand is a second air-cylinder L, the piston-rod *l* of which is connected with the lower end of a lever M, which is pivoted at *m* and has its upper end bearing between studs or pins *m'* on the sliding jaw C. Air is supplied to the cylinder through a pipe N, controlled

by cock *n*, and when admitted to the cylinder forces the piston forward and operates the lever M to set the jaw C up. A spring-controlled rod O, connected with the lever M, moves the parts back again, a suitable escape-valve at *n'* being provided.

I am aware that in machines for applying hose-couplings the hose is held in a suitable clamp, while the coupling is forced into it by means of power devices, and I do not, therefore, claim such, broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In a machine for applying hose-couplings, the combination of a piston-rod and a bar connected therewith and adapted to engage the couplings, a fixed jaw and a sliding jaw between which the hose is held in line with the coupling-bar, and the means for operating the sliding jaw, consisting of a cylinder having a piston and rod, a lever connected with said rod and engaging the sliding jaw, and pipe-connections with said cylinders for admitting air under pressure whereby the lever is operated, substantially as herein described.

2. In a machine for applying hose-couplings, the combination of a piston-rod and a bar connected therewith and adapted to engage the couplings, a fixed jaw and a sliding jaw for holding the hose in line with the coupling-bar, and the mechanism for operating the sliding jaw, consisting of a cylinder to which compressed air is supplied, a piston and piston-rod of said cylinder, a pivoted lever connected with the rod and engaging the sliding jaw, and the spring-controlled rod O, for returning the parts, substantially as herein described.

3. In a machine for applying hose-couplings, the fixed jaw and the sliding jaw, and the means for operating the sliding jaw, consisting of the air-cylinder with its piston and the rod, and the pivoted lever M, in combination with the air-cylinder D, the piston-rod *d* thereof, and a bar connected with said rod and engaging the coupling for forcing it into the hose, substantially as herein described.

4. In a machine for applying hose-couplings, the piston-rod *d* and the forked coupling-block E, secured thereto, in combination with a bar secured in said block and having a conical end, and the jaws between which the hose is held in line with the conical end, whereby said hose is expanded to receive the coupling, substantially as herein described.

5. In a machine for applying hose-couplings, the piston-rod *d* and the forked coupling-block E, secured to said rod and having an elongated slot *e*, in combination with jaws between which the hose is held and a bar fitted to the forked block and pivoted loosely in the elongated slot thereof, said bar having a conical end for expanding the hose, substantially as herein described.

6. In a machine for applying hose-couplings, the piston-rod *d* and the forked coupling-

block E, secured to said rod, in combination with the angular bar F, pivoted at its angle in the coupling-block, said bar having one end conical to expand the hose and the other end constructed to engage and force the coupling into the hose, substantially as herein described.

7. In a machine for applying hose-couplings, the piston-rod *d* and the forked coupling-block E, secured to said rod and having an elongated slot *e*, in combination with the angular bar F, fitted to said block and pivoted at its angle in the elongated slot thereof, said bar having one end conical for expanding the hose and its other end formed to engage the coupling and force it into the hose, and the jaws for holding the hose to receive said conical end and coupling, substantially as herein described.

8. In a machine for applying hose-couplings, the piston-rod *d* and the forked slotted coupling-block E, secured to said rod, in combination with the angular bar F, pivoted at its

angle in the slotted block and having one end formed conical for expanding the hose, and bars of suitable construction connected removably with its other end and adapted to engage and force the couplings into the hose, substantially as herein described.

9. In a machine for applying hose-couplings, the cylinder, the slotted piston-rod *d* of the cylinder, and the forked slotted coupling-block E, secured to the rod, in combination with a removable key passing through the slotted rod to guide it and adapted to be inserted vertically and horizontally, whereby the block may be held horizontally or vertically, and the knife I, fitted vertically in the forked block for cutting the hose into lengths, substantially as described.

In witness whereof I have hereunto set my hand.

JAMES A. ANGIN.

Witnesses:

S. H. NOURSE,
H. C. LEE.