No. 612,040. Patented Oct. 11, 1898.

W. T. HOOFNAGLE.

TACK DRIVING IMPLEMENT.

(Application filed Apr. 6, 1896.)

(No Model.) 2 Sheets—Sheet 1.

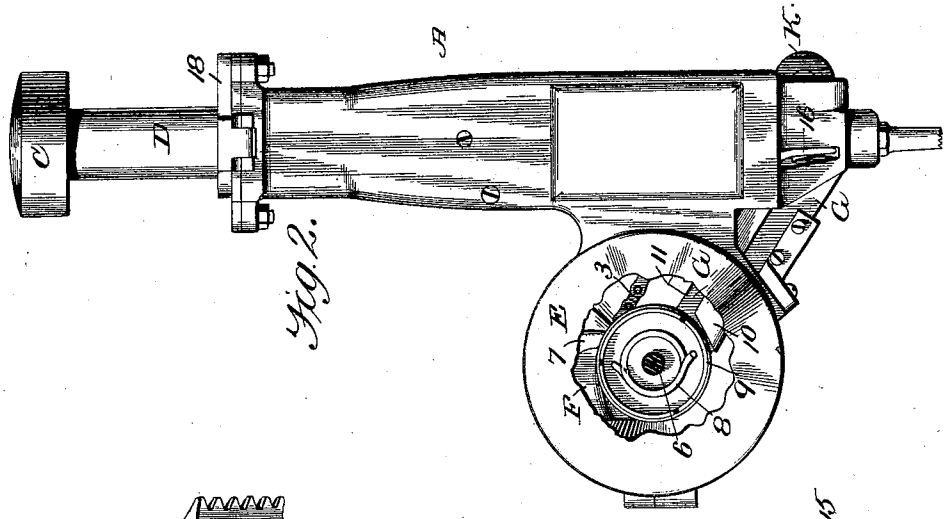


Fig. 2.

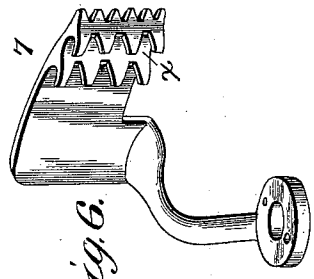


Fig. 6.

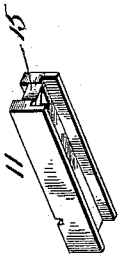


Fig. 7.

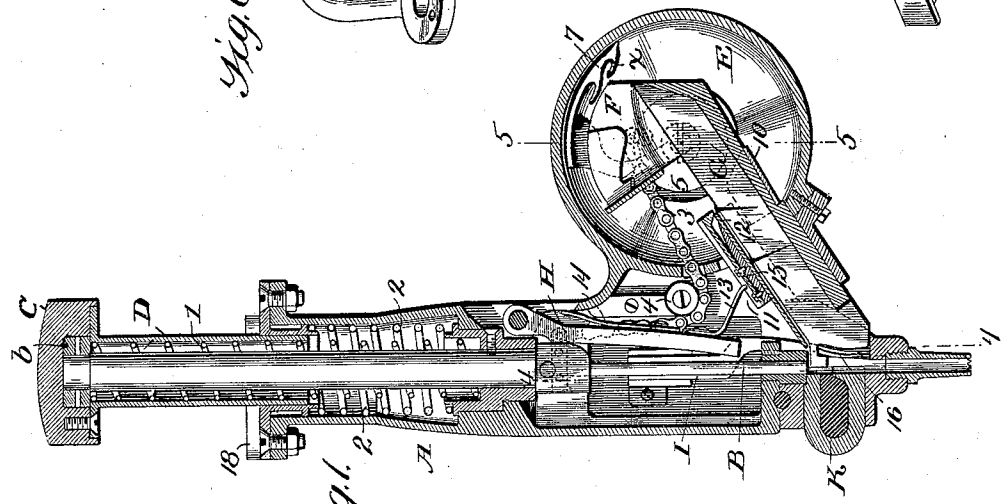


Fig. 1.

Witnesses
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Fig. 3.

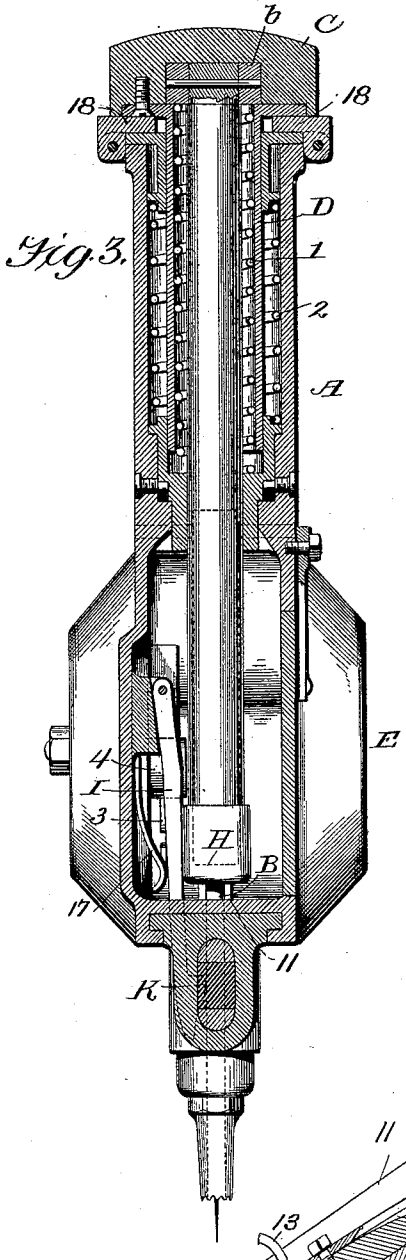


Fig. 4.

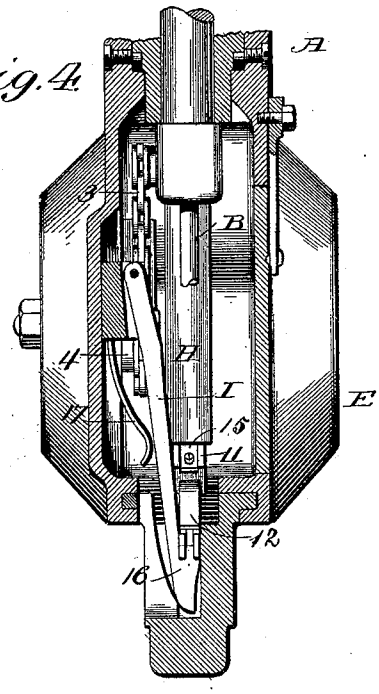


Fig. 5.

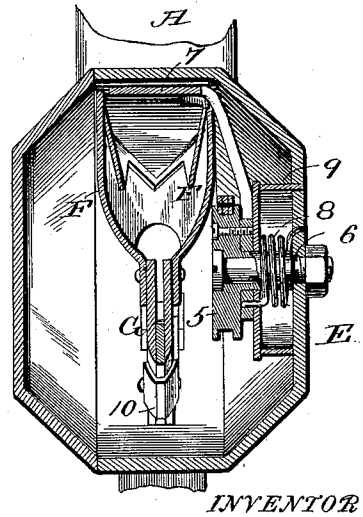
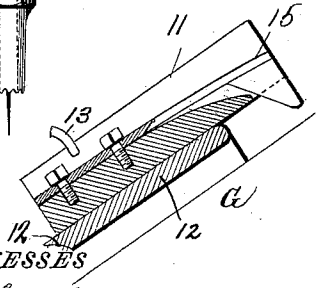


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM T. HOOFNAGLE, OF BALTIMORE, MARYLAND.

TACK-DRIVING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 612,040, dated October 11, 1898.

Application filed April 6, 1896. Serial No. 586,417. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. HOOFNAGLE, a citizen of the United States, residing in the city of Baltimore, Maryland, have invented certain new and useful Improvements in Tack-Driving Implements; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of loose tack-driving implements described in my Patent No. 527,985, dated October 23, 1894.

The invention consists in a new means for lifting the tacks from the main reservoir to the feeding-hopper and in an improved tack-feeding slide or brush.

It also consists in other details of construction and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a vertical central section through the implement. Fig. 2 is a side elevation of the same with a part broken away to show the spring for operating the tack-lifter in one direction. Fig. 3 is a vertical section at right angles to the view shown in Fig. 1, showing the plunger down. Fig. 4 is a section on the line 4 4 of Fig. 1, showing the plunger in normal position. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a detail of the tack-lifter. Fig. 7 is a detail of the brush, and Fig. 8 is a sectional view of the brush in forward position with plunger down.

A is the handle and framework, with which all the parts of the implement are connected.

B is the tack-driving plunger, operating through the handle part A in the usual way.

C is the plunger head or knob, connected with a sleeve or guide D. The head is recessed, as shown, and the plunger-stem is coupled with the head and sleeve by means of a ring or collar *b*. When coupled in this way, the head and sleeve are free to turn around the plunger-stem, which is held in position by key and spline, and by reason of this freedom of movement the plunger-stem is relieved from shocks and strains incident to twisting blows applied to the head. The plunger is returned to its normal position by a spring 1, and the violence of the shock when returned is relieved by the cushioning-spring 2.

Connected with the plunger-stem is a chain or other suitable belt 3, which leads around a guide-pulley 4 to a second pulley 5, freely mounted on the stud 6. One extremity of this chain or belt is connected through the pulley 5 with a reciprocating tack-lifter 7, which serves to lift tacks from the magazine E and discharge them to the hopper F. The oscillating pulley 5 on stud 6 is operated in one direction to carry the tack-lifter into the magazine by means of a suitable volute spring 8, incased in a barrel.

The tack-lifter is moved in the direction to lift the tacks from the magazine and discharge them to the hopper by the main plunger-lifting spring 1, operating through chain belt 3. The tack-lifter being controlled in both of its movements by springs, the jamming of tacks is prevented and the chance of breakage of parts is reduced. This tack-lifter consists of a concavo-convex plate having an arm rigidly connected with the oscillating pulley 5 and provided with elevator-buckets, preferably serrated to act as hooks and adapted to slide under and grapple a mass of tacks. My reciprocating bucket readily slips under the tacks and lifts a sufficient number with little disturbance of the mass of tacks, instead of moving through and agitating the entire mass incident to rotary buckets. According to my invention the oscillating tack-lifter moves bodily in the plane of the race and discharges the tacks into the hopper and over the race.

G is the tack-race, built up of plates in the usual way. In order to prevent the points of the tacks from penetrating the seam or joint between the plates of the built-up race, I provide a binding or guard 10 to prevent the tacks from entering the seam in the raceway and being bent.

11 is the head of an improved slide or brush to prevent the tacks from clogging at the entrance to the covered raceway and to guide the heads of the tacks under the cover 12. This slide is operated by spring 13, connected with vibrating arm H, normally held in the path of the plunger by spring 14. The slide (shown in section, Fig. 1, and in detail, Figs.

7 and 8) has a spring-claw 15, having its free end formed with an edge and its under face inclined, so that when it strikes the end of the cover 12 as the plunger rises it will freely vibrate and rise, as seen in Fig. 1. In the forward movement of the slide when it reaches the end of the cover during the descent of the plunger its inclined edge strikes the tacks which have not run down the raceway by reason of having been caught by the cover, knocks them away or brushes them out of its path, and clears the raceway.

I is my new separator and retainer for separating one tack from the column and retaining the column in the raceway while the plunger is raised to normal position. This retainer consists of an arm pivoted inside the handle, as shown, having a lateral projection or blade 16 and normally held across the mouth of the raceway by a spring 17. The arm is adjusted in the path of the plunger and as the plunger is operated the retainer moves away from the raceway and allows a tack to drop into position against the plunger. As the plunger rises, but before it has passed the raceway, the retainer moves athwart said raceway and separates a single tack from the column and retains the rest of the column in position. The retainer is preferably made of bronze or other non-magnetic metal, so that the efficiency of the magnet may not be disturbed. In case of obstruction the spring-pressed separator will yield and jamming or straining of the parts incident to positively-operated separators is avoided.

K is the magnet opposite the raceway for drawing a single tack into position in the plunger-tube. In order to regulate the thrust of the plunger to drive a tack part way home, I connect with the handle or frame of my implement folding wings or plates 18 18. By this contrivance I am enabled to readily adjust the implement to drive tacks entirely or partially home.

Having now described my invention, what I claim is—

1. A tack-lifting device for tack-driving implements, consisting of the combination of a curved plate or body provided with hooked or toothed buckets, and means to reciprocate said device in a curved path, substantially as described.

2. In a tack-driving implement, the combination of a partially-covered raceway, and a slide or brush comprising a spring-claw formed with an inclined working surface to ride over the raceway-cover, and with an edge or acute angle for engaging and carrying tacks backward in the raceway, substantially as described.

3. In a tack-driving implement, the combination of a plunger or driver, an oscillating tack-lifter, and a flexible connection between the plunger and lifter, substantially as described.

4. The combination of a tack-lifter, a spring-lifted plunger operatively connected with the tack-lifter to raise the lifter for feeding tacks, and a suitable spring, operatively connected with said lifter to carry it down into the magazine, substantially as described.

5. The combination of a tack-lifter, means for positively operating said lifter to raise the tacks, and a spring for forcing the lifter under the tacks, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM T. HOOFNAGLE.

Witnesses:

CHAS. F. GARRIGUES,

E. A. HOFFMAN.