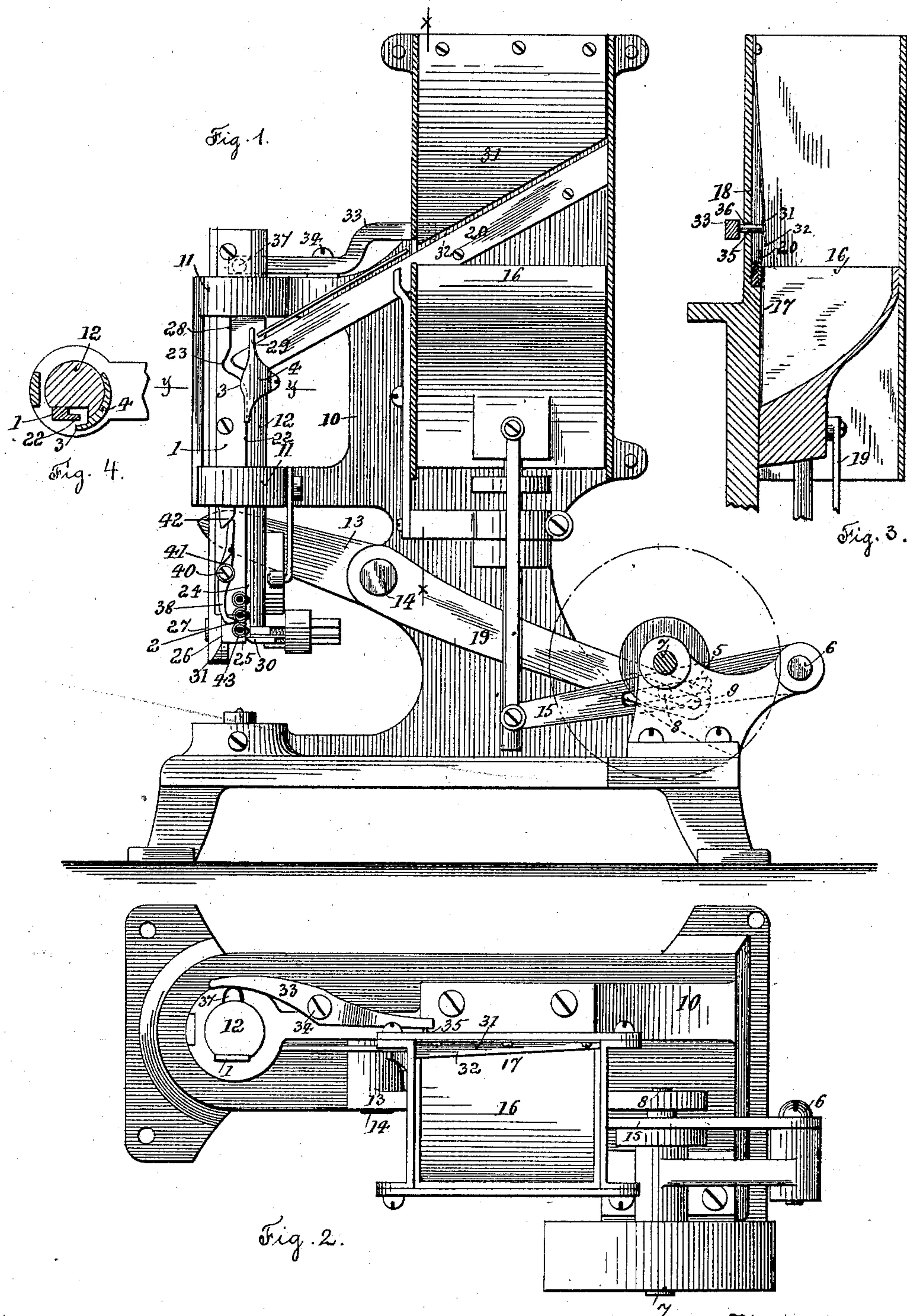


(No Model.)

W. HALKYARD.
MACHINE FOR SETTING LACING HOOKS.

No. 509,733.

Patented Nov. 28, 1893.



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UNITED STATES PATENT OFFICE.

WILLIAM HALKYARD, OF PROVIDENCE, RHODE ISLAND.

MACHINE FOR SETTING LACING-HOOKS.

SPECIFICATION forming part of Letters Patent No. 509,733, dated November 28, 1893.

Application filed June 25, 1891. Serial No. 397,527. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HALKYARD, a citizen of the United States, and a resident of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Machines for Setting Lacing-Hooks, of which the following is a specification.

My invention is an improvement upon my Letters Patent No. 454,114, dated June 16, 1891, and it consists in means for discharging the partially engaged lacing hooks from the feed track; in an additional guide at the recess of the raceway track, to prevent the disarrangement of the lacing hook, in its passage to the raceway, and in means for preventing the escape of more than one lacing hook from the raceway track, to the holding rest of the swinging head.

Figure 1, represents a side elevation of the machine with the guide box for the feeding receptacle shown in section. Fig. 2, represents a top view of the machine. Fig. 3, represents a detail section taken in the line *x, x*, of Fig. 1. Fig. 4, represents a detail section taken in the line *y, y*, of Fig. 1.

In the accompanying drawings, 10 represents the frame of the machine provided with the ears 11, which hold the sliding plunger 12, the said plunger being operated in its up and down movement by means of the lever 13, which is pivoted at 14, to the frame, and connected by means of a slot 9, with the crank pin 8, upon the driving shaft 7. The reciprocating feeding receptacle 16, is open at the side 17, adjacent to the wall 18 and has a vertical reciprocating movement, the said movement being obtained through the link 19, which is jointed to the feeding receptacle, and also to the outer end of the lever 15, the said lever being pivoted at the point 6, to the frame, and provided with a slot 5, which embraces the crank pin 8. The inclined feed track 20, is arranged parallel with the wall 18 and is adapted to catch and retain a number of the lacing hooks from the feeding receptacle while the mass of the said hooks are making their downward movement, the space between the said wall and the feed track, being made of sufficient width to loosely hold the heads of the hooks, so that those hooks which are properly presented will be caught and retained upon the

track. At the side of the plunger 12, is secured a flat plate 1, constituting the raceway track 22, which extends for nearly the whole length of the plunger and is recessed at 23, to provide for the passage of a lacing hook from the feed track 20, to the edge of the raceway track 22, which track forms one side of the raceway 24, from which the lacing hooks are dropped one at a time, to the holding rest 25, the said holding rest forming a part of the swinging head 26, which is journaled by means of the spindle 27, to the ears 31, at the lower end of the plunger. The upper extension 28 of the plate 1, is arranged in line with the lower end of the feed track 20, and will form a stop at the downward position of the plunger against which the lacing hooks on the feed track will rest.

To the plunger 12 is attached the curved plate 4, provided with the upwardly projecting stop-spur 29, so arranged, that as the plunger ascends, the said stop will be caused to pass between the first and second lacing hooks on the feed track and thus allow only the first lacing hook to pass into the recess 23, and thence to the raceway 24. The stop lever 38, is pivoted at 40, to the side of the setting plunger, the lower end 2 of the said lever being actuated toward the raceway 24, by means of the spring 41, the said stop lever being actuated to release the lacing hook 43, by engagement with the inclined projection 42, upon the lower ear 11 of the frame, and upon the backward movement of the lower end 2 of the stop lever 38, as shown in Fig. 1, the lacing hooks will be released and the lower lacing hooks 43 contained in the raceway 24, will pass downward to engagement with the holding rest 25 and the sliding stop 30 of the swinging head 26 of the setting mechanism; reference being made to my aforesaid Letters Patent, for a full description of the swinging head 26, the holding rest 25, and sliding stop 30, and the various movements of the parts of the machine which are not necessary to be set forth in this application.

In the machine described in the above mentioned patent, the lacing hook upon its release from the feed track, passed continuously to the sliding stop of the swinging head, which would require a considerable space of time,

thus limiting the speed at which the machine could be driven, and in carrying out my present invention, I first deposit a number of lacing hooks 43, at the lower end of the raceway 24, in engagement with the end 2 of the stop lever 38, so that at the upward movement of the plunger as shown in Fig. 1, a single lacing hook will be allowed to pass directly from the raceway 24 to the sliding stop 30, while at the same time the released lacing hook from the lower end of the feed track, 20, will be making its passage downward to its stopping place at the lower end of the raceway, thus allowing the machine to be driven with greater rapidity; and the return movement of the end 2 of the stop lever 38, upon the initial downward movement of the plunger 12, will serve to force the escaped lacing hook 43, properly against the side of the stop 30, and also to prevent the lacing hooks retained above the end 2, from dropping from the raceway, upon the subsequent turning of the swinging head to set the separated hook.

When the feeding receptacle 16, has made its up and down movement, thus leaving a number of lacing hooks upon the feed tracks, some of them may be retained thereon when not in proper position to be fed downward to the setting plunger, and in order to remove the said imperfectly placed lacing hooks from the feed track, I arrange a spring plate 31, which at its backward position forms a guide for the downwardly moving lacing hooks, and having its lower edge 32 made with an inclination parallel with the inclination of the feed track 20 and slightly above the same, so that upon the inward movement of the said spring plate by suitable means, the imperfectly retained lacing hooks will be swept from the feed track, into the receptacle 16, the inward movement of the said spring plate being properly effected by means of the lever 33, which is pivoted to the frame at the point 34, and is provided with a pin 35, passing through the perforation 36, in the wall 18, and resting against the back of the spring plate; the outer end of the lever 33 being engaged by the inclined pin 37, upon the plunger 12, at its upward movement as shown in Fig. 2. When the lacing hook is fed from the feed track 20, to the raceway track 22, at the recess 23, the momentum of the lacing hook in its downward passage to the raceway 24 is such, as to cause a turning of the lacing hook from its proper position upon the said track, so that the lacing hook may not pass from the recess to the raceway but will lodge at the upper end of the raceway, and in order to preserve the lacing hook in its proper position upon the raceway track upon its downward passage from the recess 23, the forward edge 3 of the curved plate 4, which carries the stop spur 29, is made to project over the edge of the raceway track, and in close proximity thereto, as shown in the transverse section Fig. 4, thus effectively preventing the disarrangement of the lacing hook upon the race-

way track by the engagement of the plate with the outwardly projecting tubular portion of the lacing hook, the said plate being arranged reversely of the raceway track.

I do not in this application make a claim to the combination of the inclined feed track, with a reciprocating setting plunger, provided with a raceway track having a recess adapted for the passage of a lacing hook from the feed track to the raceway track at the upward movement of the setting plunger, the same having been shown and described by me in my former Letters Patent. Neither do I claim in this application, the combination with the reciprocating setting plunger provided with a raceway track extending lengthwise of the plunger, of the swinging head provided with a holding rest, the same having also been shown and described in said Letters Patent.

I claim as my invention—

1. The combination with the guiding wall, the inclined feed track, and the vertically reciprocated feeding receptacle, open at the side toward the said wall, of the spring clearing plate, the setting plunger, and the intermediate lever for operating the spring plate, substantially as described.

2. In a machine for setting lacing hooks, the combination with the inclined feed track, and the setting plunger, provided with a raceway track having a recess adapted to receive the lacing hook from the end of the feed-track, of the plate arranged at the lower side of the recess, and having its forward edge projecting reversely of the raceway track, and at a slight distance outwardly therefrom, so as to bear against the tubular portion of the lacing hook and guide the said lacing hook from the recess into the raceway of the plunger, substantially as described.

3. In a machine for setting lacing hooks, the combination with the inclined feed-track, the setting plunger, provided with a raceway track having a recess adapted to receive the lacing hook from the end of the feed track, and the plate arranged at the lower side of the recess, and having its forward edge projecting reversely of the raceway track, and at a slight distance outwardly therefrom, to guide the lacing-hooks from the recess to the raceway, of the swinging head attached to the lower end of the plunger, and provided with the holding rest and sliding stop, the spring actuated stop-lever attached to the side of the plunger and adapted for engagement with the lacing-hooks above the swinging head, and means for operating the stop-lever to release the lacing hooks for downward movement in the raceway, and to separate therefrom the lower lacing-hook deposited on the holding-rest, substantially as described.

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