No. 620,844. Patented Mar. 7, 1899.

W. HALKYARD.

MACHINE FOR SETTING LACING HOOKS.

(Application filed Jan. 2, 1897.)

(No Model.) 2 Sheets—Sheet 1.

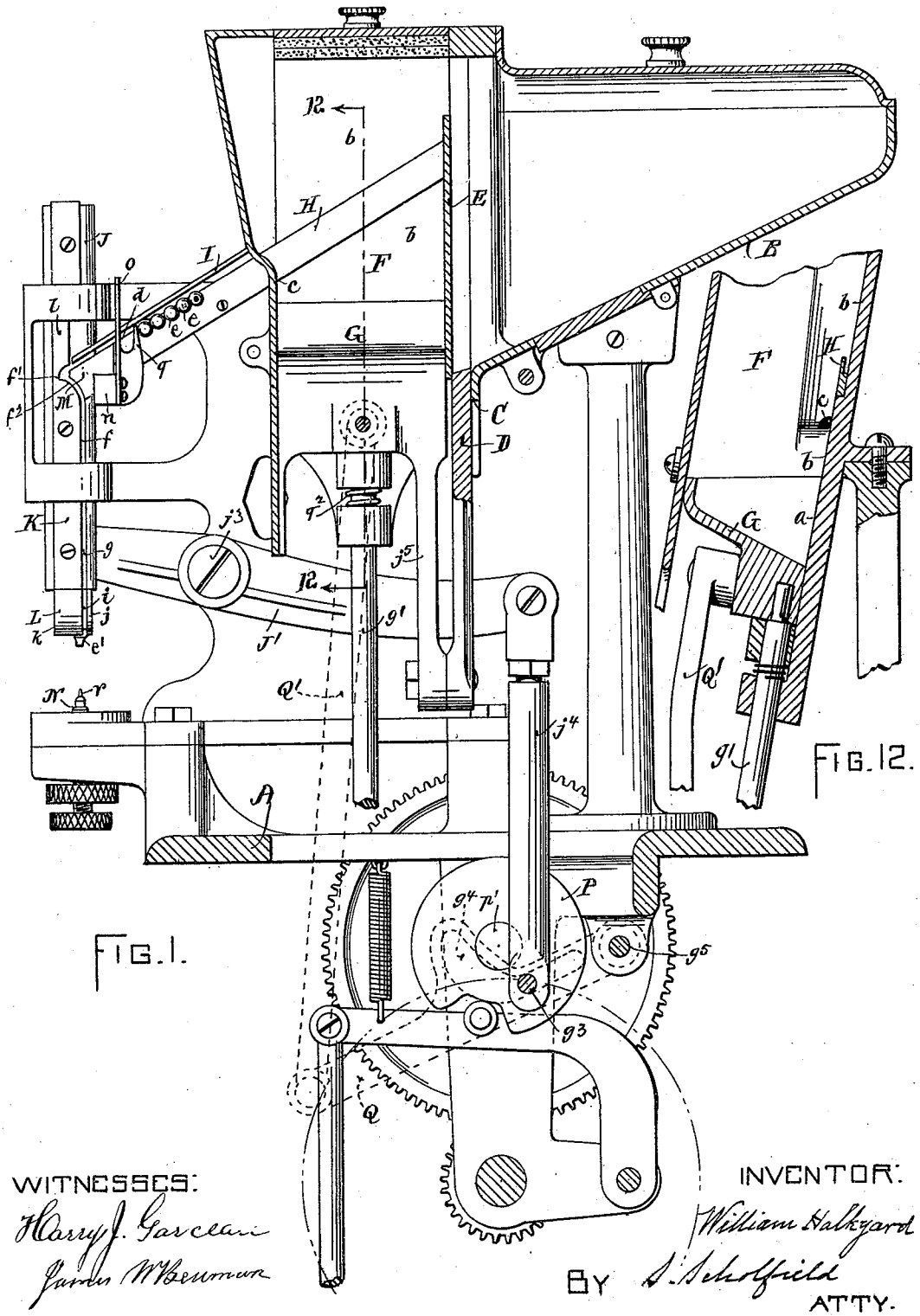


FIG. 1.

FIG. 12.

WITNESSES:

Harry J. Garclair

James M. Beerman

INVENTOR:

William Halkyard

BY S. Schofield

ATTY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 620,844. Patented Mar. 7, 1899.

W. HALKYARD.

MACHINE FOR SETTING LACING HOOKS.

(Application filed Jan. 2, 1897.)

(No Model.) 2 Sheets—Sheet 2.

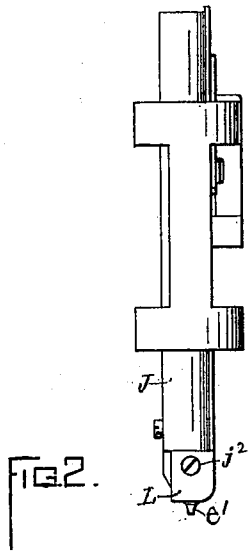


FIG. 2.

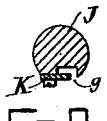


FIG. 9.

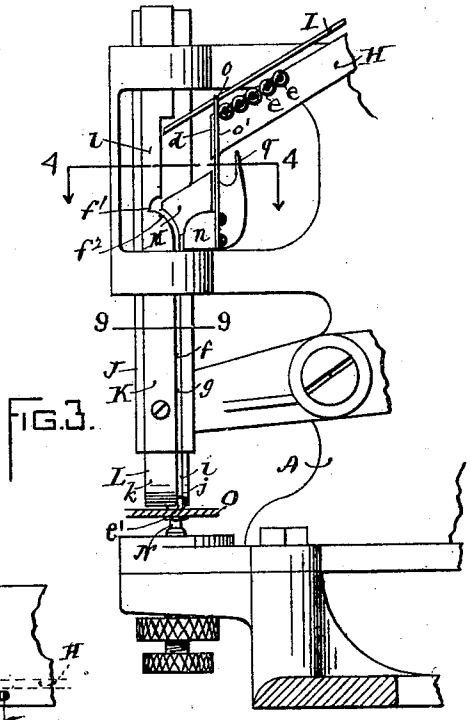


FIG. 3.

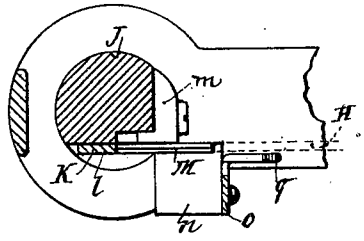


FIG. 4.

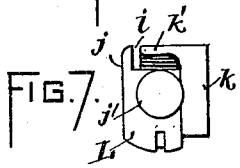


FIG. 7.

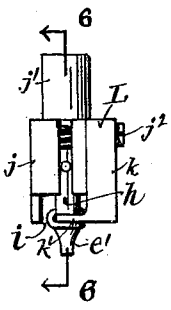


FIG. 5.

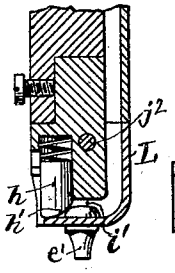


FIG. 6.

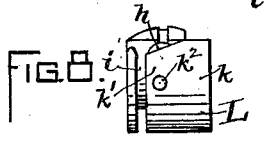


FIG. 8.

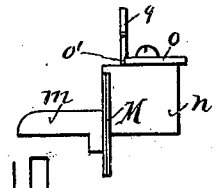


FIG. 10.

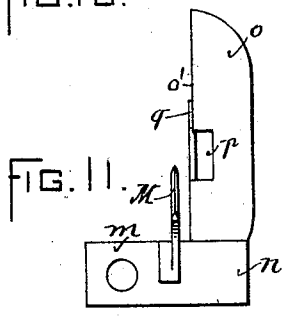


FIG. 11.

WITNESSES:

Harry J. Garceau

James M Brennan

INVENTOR:

William Halkyard

BY S. Schofield

ATT'Y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM HALKYARD, OF NORTH KINGSTON, RHODE ISLAND.

MACHINE FOR SETTING LACING-HOOKS.

SPECIFICATION forming part of Letters Patent No. 620,844, dated March 7, 1899.

Application filed January 2, 1897. Serial No. 617,821. (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 North Kingston, 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 consists in the improved construction of the setting-plunger and of the escapement device for delivering the lacing-hooks one at a time from the feed-track to the setting-plunger, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents a vertical section of a machine for setting lacing-hooks to which my improvement is applied, the setting-plunger being shown in its elevated position. Fig. 2 is a detail view showing a front elevation of the setting-plunger. Fig. 3 represents a detail side view, as in Fig. 1, showing the setting-plunger in its lower position. Fig. 4 represents an enlarged section taken through the setting-plunger in the line 4 4 of Fig. 3. Fig. 5 represents an enlarged side view of the head of the setting-plunger, taken from the side opposite that of Fig. 3. Fig. 6 represents a section of the head of the setting-plunger taken in the line 6 6 of Fig. 5. Fig. 7 represents a top view of the head of the setting-plunger. Fig. 8 represents a bottom view of the same. Fig. 9 represents a section taken through the setting-plunger in the line 9 9 of Fig. 3. Fig. 10 represents an enlarged top view of the escapement device for delivering the lacing-hooks to the raceway of the setting-plunger. Fig. 11 represents a front elevation of the same. Fig. 12 represents a section taken in the line 12 12 of Fig. 1.

In the drawings, A represents the frame of the machine, and B a hopper adapted for the original deposit of a mass of lacing-hooks, which are to be fed to the machine as required. Within the opening C, at the bottom of the hopper, is placed the reciprocating feeding-plunger D, the upper end of which provides a carrier for conveying the lacing-hooks from the hopper B to the top of the partition E, from whence they will pass into the receiving-chamber F, in which is placed the reciprocating feeding-receptacle G, the said receptacle being made open at the side *a*, adjacent to the guiding-wall *b*, and having an up-and-down reciprocating movement along the said wall. To the guiding-wall *b* is attached the inclined feed-track H, which is adapted to catch and retain a number of lacing-hooks from the mass of hooks contained in the feeding-receptacle G while the hooks are making their downward movement along the side of the guiding-wall *b*, the space between the track and the guiding-wall being made of sufficient width to loosely hold the heads of the hooks, so that only those hooks which are properly presented will be caught and retained on the track. The feed-track H passes out of the chamber F through a suitable opening *c* in the wall of the said chamber and terminates at *d*, and over the top of the track H is placed the guide-strip I, which serves to prevent the lacing-hooks *e* from being accidentally thrown from the track.

At the side of the setting-plunger J is secured the flat plate K, the edge *f* of which constitutes the raceway-track, the said raceway-track being recessed at *f'* to provide for the proper passage of a lacing-hook from the feed-track to the raceway-track, the said track forming one side of the raceway *g*, through which the lacing-hooks are dropped by gravity one at a time to engagement with the spring-actuated sliding stop *h*, arranged in the head L of the setting-plunger J, the slot *i*, formed between the two parts *j* and *k* of the head L, constituting an extension of the raceway *g*, which raceway is thus caused to curve to the under side of the head L to carry the lacing-hooks to their proper setting position, as shown in Fig. 6. The part *j* of the head L is provided with the shank *j'* for attachment to the sliding plunger J, and the part *k* is attached to the part *j* by means of the screw j^2. The upward extension *l* of the flat plate K is arranged in line with the lower end of the short feed-track M, which is attached to and moves with the setting-plunger J and forms, when in the position shown in Fig. 1, a downward continuation of the feed-track H toward the raceway *g*.

The supplemental feed-track M is attached to the setting-plunger J by means of the holding-ear *m*, and to the projecting portion *n*, which extends outward from the holding-ear, is secured the escapement device, which consists of the upwardly-extending escapement-

plate *o*, provided with the notch *p* at its edge, and the upwardly-extending spur *q*, which serves to separate a single lacing-hook from the row of lacing-hooks *e* and allows the same to pass through the notch *p* and thence downward through the raceway *g* to the head L of the setting-plunger, the row of lacing-hooks *e* being held back by means of the said spur *q* while the separated hook *e'* is passing downward to the head L, and upon the downward movement of the setting-plunger J to set the hook *e'* the lacing-hooks *e* will be released from the separating-spur *q* and slide down the track H to contact with the edge *o'* of the escapement-plate *o*, as shown in Fig. 3, and upon the setting of the hook *e'* in the fabric O and the subsequent upward movement of the plunger J the notch *p* will come in line with the row of lacing-hooks *e*, thus allowing the lower lacing-hook of the row to pass through the notch while the other lacing-hooks of the row are being held back by means of the spur *q*. When the lacing-hook passes from the track H through the notch *p* to the track M, it slides down the said track M to the recess *f'* in the plate K, which plate forms the raceway-track, the said lacing-hook in its downward movement striking from the feed-track M onto the curved portion f^2 of the raceway-track, from which it will pass by gravity to its proper position in the slot *i* of the head L.

The flange *k'* of the part *k* is provided with the perforation k^2, which allows the entrance of the spur *r* of the anvil N when the hook is being attached to the fabric O, as shown in Fig. 3, and when the lacing-hook has been so attached it may be moved forward in the slot *i* under the beveled or rounded end *h'* of the spring-actuated stop *h*, and thence to complete removal from the open end of the slot *i*, thus providing room for the entrance of another hook into the pocket *i'* to be set in the fabric O, as before.

The feeding-receptacle G is provided with a guide-rod *g'*, the downward movement of the feeding-receptacle being checked by means of the spiral spring q^2 upon the guide-rod, and the feeding-receptacle is actuated in its up-and-down movement by means of the crank-pin g^3 at the side of the cam P on the shaft *p'*, the said pin being arranged to enter the curved slot g^4 in the lever Q, the said lever being pivoted to the frame at g^5 and connected at its outer end with the side of the feeding-receptacle G by means of the connecting-rod Q', the said lever Q and connecting-rod Q' being shown in the drawings by dotted lines.

The setting-plunger J is actuated in its up-and-down movement by means of the lever J', which is pivoted at the screw-stud j^3 and is connected for operation with the crank-pin g^3 at the side of the cam P by means of the connecting-rod j^4, and the feeding-plunger D is attached to the downwardly-extending arm j^5 of the feeding-receptacle G, so as to be reciprocated therewith.

I claim as my invention—

1. In a machine for setting lacing-hooks, the combination of the downwardly-inclined feeding-track for holding the row of lacing-hooks, with the setting-plunger provided with a raceway-track having a recess at its upper end for the reception of the hook in its passage to the raceway, and the supplemental feed-track for guiding the lacing-hooks into the recess of the raceway-track, an escapement-plate which prevents the escape of the row of lacing-hooks from the end of the feed-track at the downward position of the plunger, and the separating-spur which serves to retain the row of lacing-hooks upon the feeding-track at the upward position of the plunger, substantially as described.

2. In a machine for setting lacing-hooks, the combination of the setting-plunger provided with a raceway-track extending across its lower end, with the spring-actuated sliding stop adapted to form a pocket at the lower end of the raceway for the reception of the lacing-hook to be set in the fabric, substantially as described.

WILLIAM HALKYARD.

Witnesses:
SOCRATES SCHOLFIELD,
SALLIE F. GARDINER.