

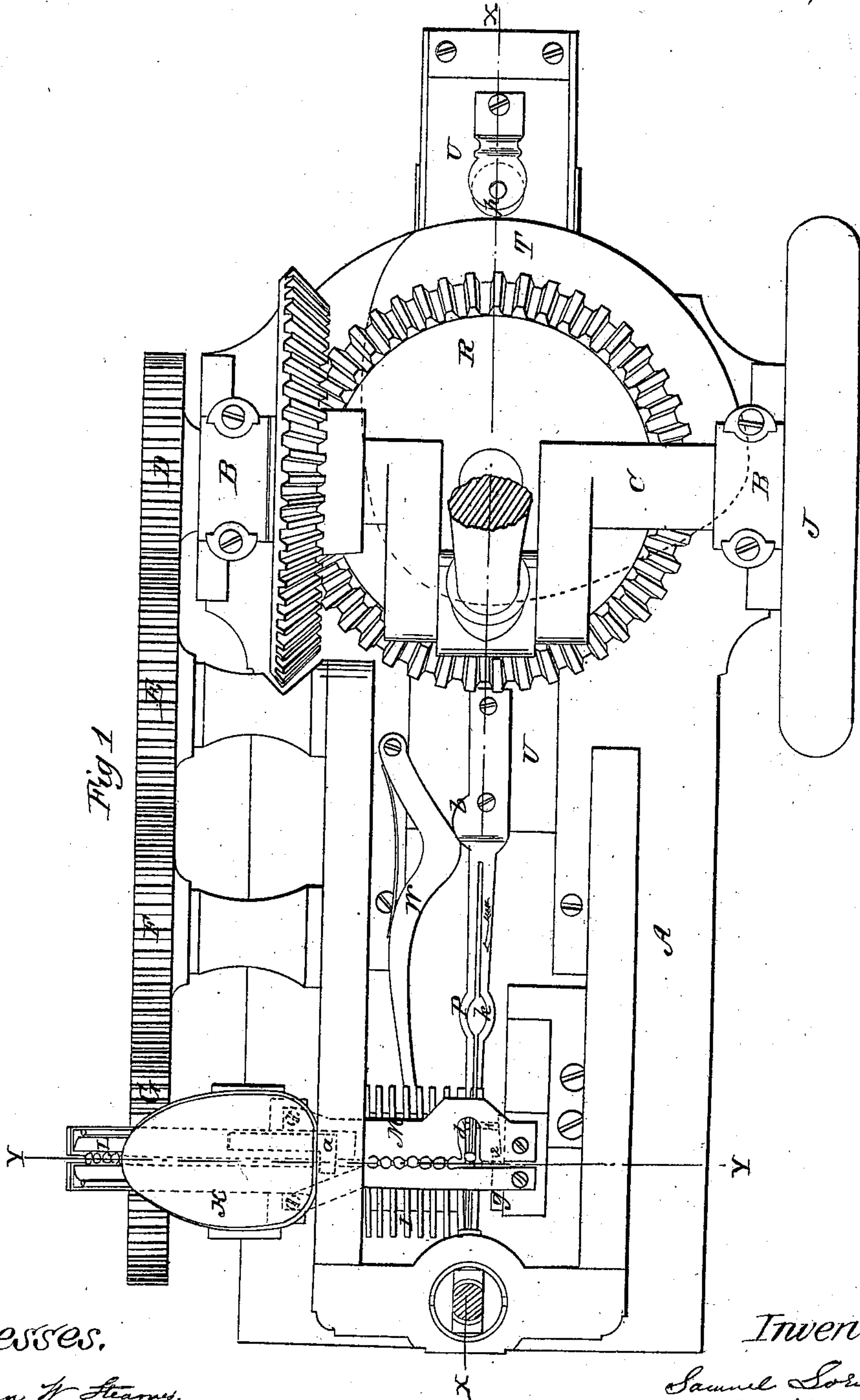
3 Sheets-Sheet 1.

S. Loring,

Tack-Leathering Machine.

N<sup>o</sup>. 34510

Patented Feb. 25, 1862.



Witnesses.

Norman H. Stearns.

J. C. Schumacher

Inventor,

Samuel Loring  
per his attorney  
Sam. Cooper.

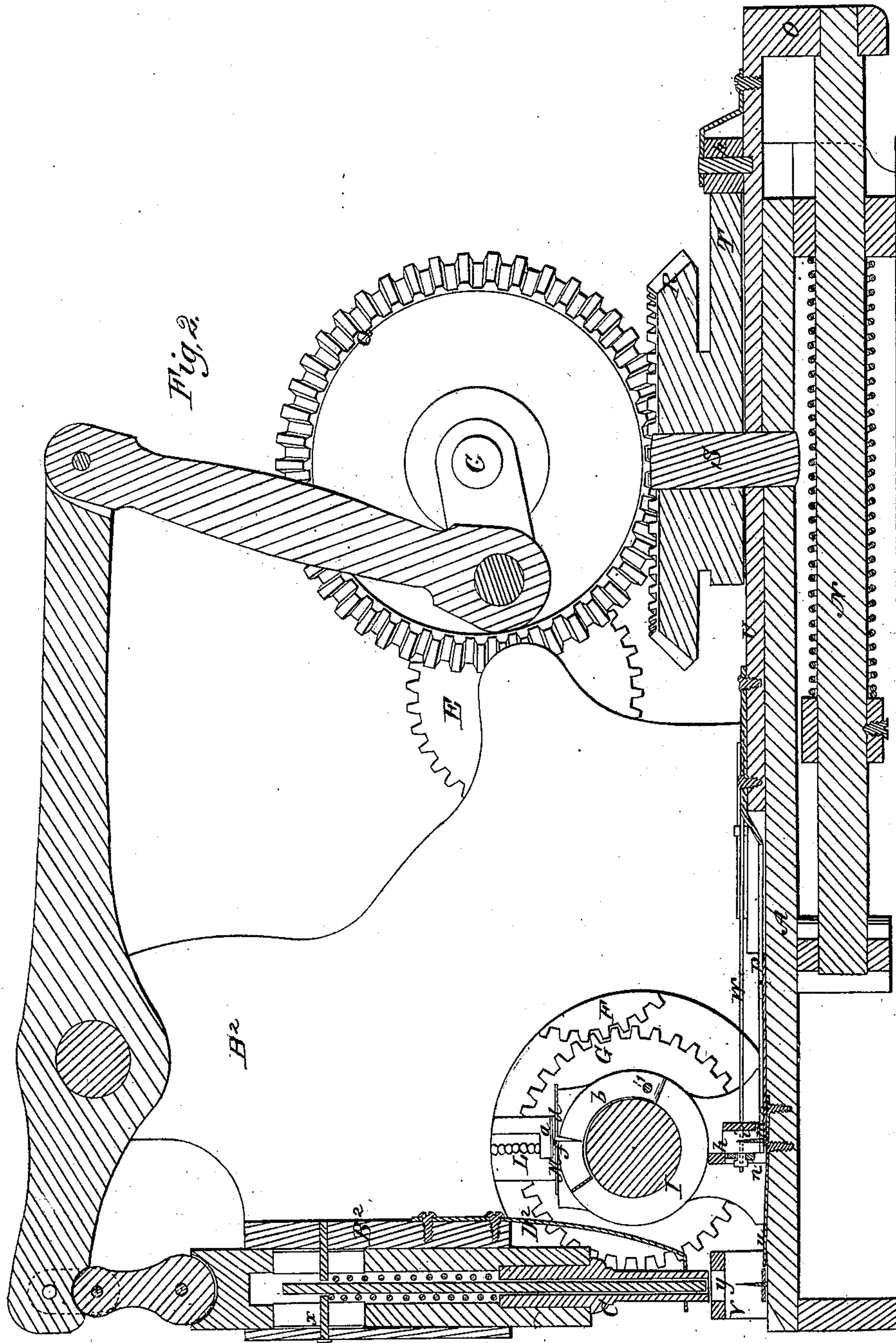
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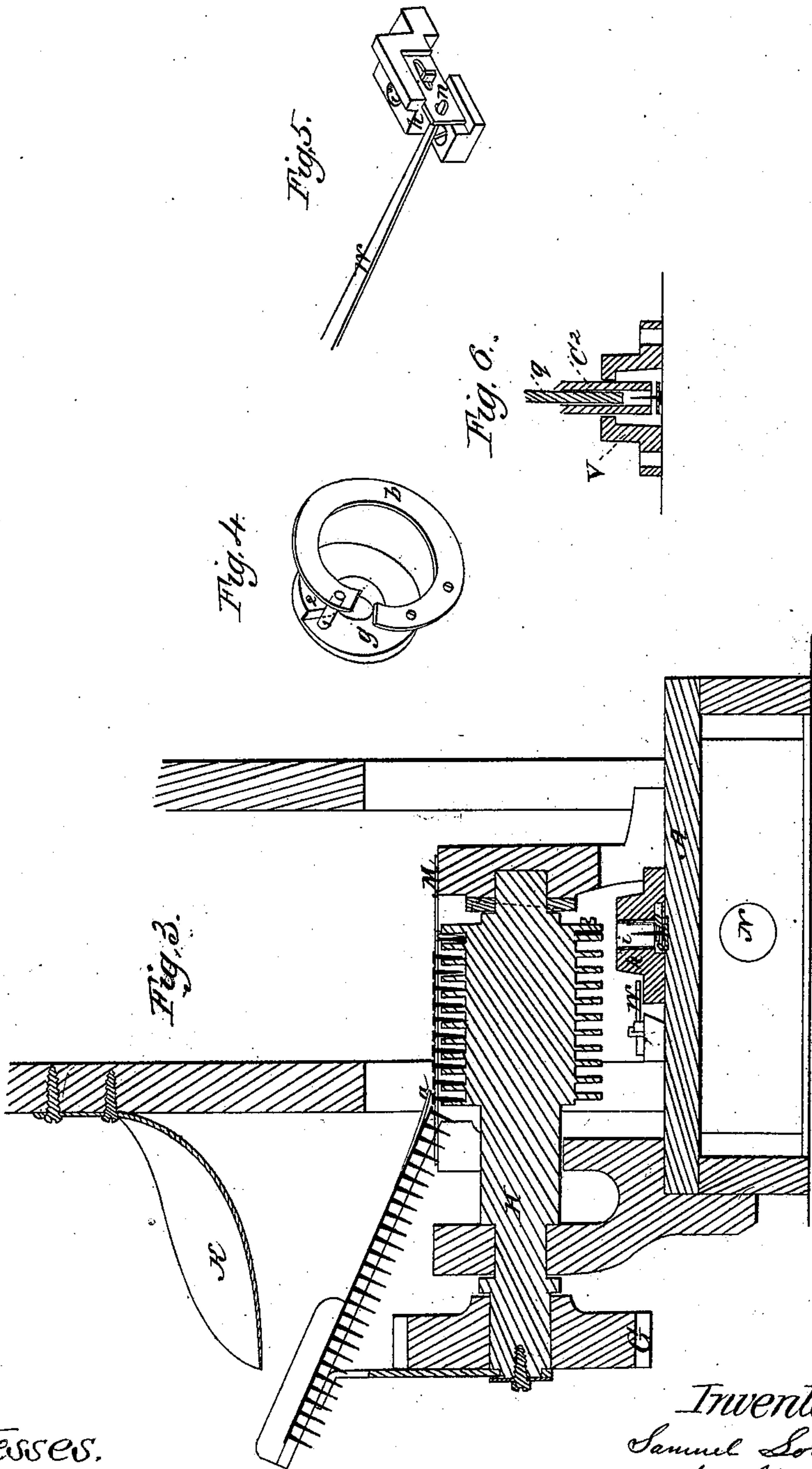


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# UNITED STATES PATENT OFFICE.

SAMUEL LORING, OF DUXBURY, MASSACHUSETTS.

## IMPROVEMENT IN MACHINES FOR LEATHERING TACKS.

Specification forming part of Letters Patent No. 34,510, dated February 25, 1862.

*To all whom it may concern:*

Be it known that I, SAMUEL LORING, of Duxbury, in the county of Plymouth and State of Massachusetts, have invented a new and Improved Machine for Leathering Tacks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan of my machine; Fig. 2, a longitudinal section upon the line X X of Fig. 1; Fig. 3, a transverse vertical section on the line Y Y of Fig. 1; Figs. 4, 5, and 6, details to be referred to hereinafter.

To enable others skilled in the art to understand my invention, I will proceed to describe the manner in which I have carried it out.

The operating parts are secured to a foundation or bed A, from which rise the standards B, that carry the main shaft C. This shaft carries a fly-wheel J and a gear D, which, through the intermediate gears E and F, communicate motion to the gear G upon the shaft H of the spiral tack-carrier I, by means of which the tacks are carried one by one to the nippers. The tacks, being poured in quantity into the receptacle K, are shaken out by the jar occasioned by the operation of the machine and are received by the inclosed delivering-trough L. This trough is constructed in a well-known manner of two side pieces placed at a sufficient distance apart to allow the shanks of the tacks to pass between them but to arrest the heads, and at the foot of this trough is a spring a, which lies at a distance from the inclined trough slightly exceeding the thickness of the heads of the tacks, the object of which is to prevent the tacks from riding each other and to throw them into position to be separated by the spiral conveyer, the positions of the spring at the junction of the inclined trough and the spiral conveyer being such as to throw the point of the advance tack away from the one which follows it, and thus the edge of the screw-thread is more surely inserted between the two. Upon the top of this conveyer is a bar M, having a slot f through it, which is but a continuation of the opening between the two side rails of the inclined trough L. The conveyer I may be described as a deeply-cut perpendicular threaded screw, and the tack thus introduced by the

advancing edge of its first thread lies between two of the threads with its head supported by the bar M, by which it is prevented from being carried round by the conveyer. As the latter revolves, the tack is thus carried along to its opposite end, and here it is seized by a spring b, that presses it up against the last thread of the conveyer, the bar M being cut away at d to permit its escape from the slot f. The spring b has upon one side a pin l, Fig. 4, which runs upon a stationary face cam g, by which the spring is forced away from the screw thread of the conveyer until just at the instant when it is passing the tack, when a step 2 in the cam permits the spring to snap in and seize the tack and carry it round one hundred and eighty degrees, and here the cam g is so formed as to press back the spring and permit the tack to fall head down into a hole i, Fig. 5, in a box h immediately beneath the conveyer. The spring-nippers P, which now convey the tack to the leathering-punch, lie directly beneath this block, the rear portion of the jaws being so enlarged or bowed out at k as to permit the head of the tack to drop between and below them. The nippers are now, as will presently be described, drawn back (the tack being held stationary and upright in the hole i in the box h) until their gripping portion m has a firm hold of the tack. The nippers now begin to advance, the gate n in the block h, Fig. 5, being momentarily opened to permit the escape of the tack.

The nippers are moved back and forth as follows: The main shaft C carries a bevel-wheel Q, which engages with a similar wheel R, which runs upon a short vertical stationary shaft or post S, rising from the platform or bed. To the wheel R is secured a cam T, which bears upon a roller p on a sliding plate U, to which the spring-nippers P are attached. The cam T is so formed as to give the required motions to the nippers, the roller p being held constantly in contact with its cam by a spring which encircles a rod N, which is connected with the plate U by a knee O.

The gate n is operated by the lever W, which is pivoted at s to the frame or bed, and is pressed in one direction so as to close the gate by the spring r. At the instant when the nippers move to carry the tack out of the box h a projection l on the shank of



the nippers strikes the lever *W* and opens the gate *n*. The nippers now advance in the direction of the arrow, Fig. 1, carrying the tack with them into the leathering-box *V*, where it is held for a short time with its point up until the leathering-punch descends. This portion of the machine is constructed and operated as follows: A plunger *Z*, connected with one end of the beam *A*<sup>2</sup>, slides up and down in vertical guides *B*<sup>2</sup>, attached to the frame-work. To the lower end of this plunger is attached the cutting and leathering punch *C*<sup>2</sup>, through the center of which passes the rod *q*. This rod is prevented from descending below the punch by a pin *t*, Fig. 2, which rests on the top of the punch, and is also prevented from descending below a certain point with the punch by a pin *c* in its upper end, which rests upon a stationary rod *w* in the guides *B*<sup>2</sup>, which passes through a slot *x* in the plunger. A spring *z*, the lower end of which rests upon the pin *t*, insures the descent of the rod *q*, with the punch *C*<sup>2</sup>, until it is arrested by the pin *c* coming in contact with the bar *w*. A clearer *D*<sup>2</sup>, attached to the frame and encircling the punch, prevents the leather from being carried up by the punch as it rises. The punch *C*<sup>2</sup> passes through a hole *y* in the top of the leathering-box *V*, immediately beneath the center of which the tack is held by the nippers. The hole *y* is of the exact size of the punch, so that as the punch descends it shall first cut out the piece of leather and then force it down upon the tack, Fig. 6. After the leather is secured to the tack the nippers are drawn back, the tack being prevented from accompanying them by the punch, which now embraces it, and by a spring-plate *u*, against which the head of the tack strikes. The tack is prevented from rising with the punch by the rod *q*.

Operation: The tacks are poured into the receptacle *K*, from which they drop into the inclined trough *L*, their points passing through the slot in the trough, as seen in Fig. 3. On reaching the bottom of the trough the lowest one is retained by the spring *a* until as the cylinder *I* revolves the advancing thread of the screw passes behind it and the tack is drawn from beneath the spring. It is now carried along a distance equal to the distance between two threads of the screw, each complete revolution of the cylinder *I* being guided longitudinally by the plate *M* through the slot in which it passes until it arrives at the other end of the cylinder. Here the advance end of the spring *b* passes behind it, and the next instance the pin *1* passes off the step *2* and allows the spring to grasp the tack and press it up against the last thread of the screw. At this point the plate *M* being cut away, as seen at *d*, Fig. 1, the tack is allowed to escape from the slot in this plate, and is carried round until it is directly over the hole *i* in the box *h*. Here the cam *g* is of such

a form as again to press back the spring *b* and release the tack, which now falls into the box *h*, the head passing through the opening *k* and beneath the arms of the nippers. The nippers are now drawn back in a direction contrary to that indicated by the arrow in Fig. 1 (the tack being retained by the box *h* and by a thin plate *o*, against which the head strikes) until it is received by the jaws of the nippers. The nippers now advance with the tack, the gate *n* opening to permit it to leave the box, and on arriving beneath the punch *C*<sup>2</sup> it stops, the cam *T* being suitably formed to give the required motions and rests to the nippers. An attendant now places a piece of leather on top of the leathering-box and over the hole *y*, and the punch *C*<sup>2</sup> descending cuts out a piece of the size of its lower end and carries it down and forces it onto the tack. The rod *q* being retained by the pin *c* striking against the bar *w*, the disk of leather is thus forced down hard against the head of the tack. The plunger now rises, the spring *z*, the lower end of which bears upon the pin *t*, keeping the rod from rising with the punch until the pin *t* strikes against the top of the punch, as before explained. The nippers now advance with another tack, and the operation proceeds as before.

Among the advantages possessed by this machine may be enumerated the following: First, celerity of action, it being capable of operating at a very rapid rate as compared with other machines for a similar purpose; second, the perfection of its work, the leather being always applied centrally to the tack and forced down hard against the head, and, third, any waste scraps of leather may be employed, the attendant feeding it to the punch by hand as the leathering proceeds.

It is obvious that the spiral conveyer may be employed in machines where nails or screw-blanks are to be separated preparatory to being submitted to future operations. I do not, therefore, confine myself to its use in machines for leathering tacks.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The spiral conveyer *I*, in combination with the slotted bar *M*, or its equivalent, for the purpose of separating and conveying the tacks, as set forth.
2. The spring *b*, in combination with the cam *g* for the purpose of carrying the tack round to the nippers, as set forth.
3. The box *h*, in combination with the nippers, operating as set forth, for the purpose described.
4. The punch *C*<sup>2</sup>, so constructed as to cut out the leather and force it down upon the tack, as set forth.

SAMUEL LORING.

Witnesses:

WILLIAM THOMAS,  
GEORGE RYDER.