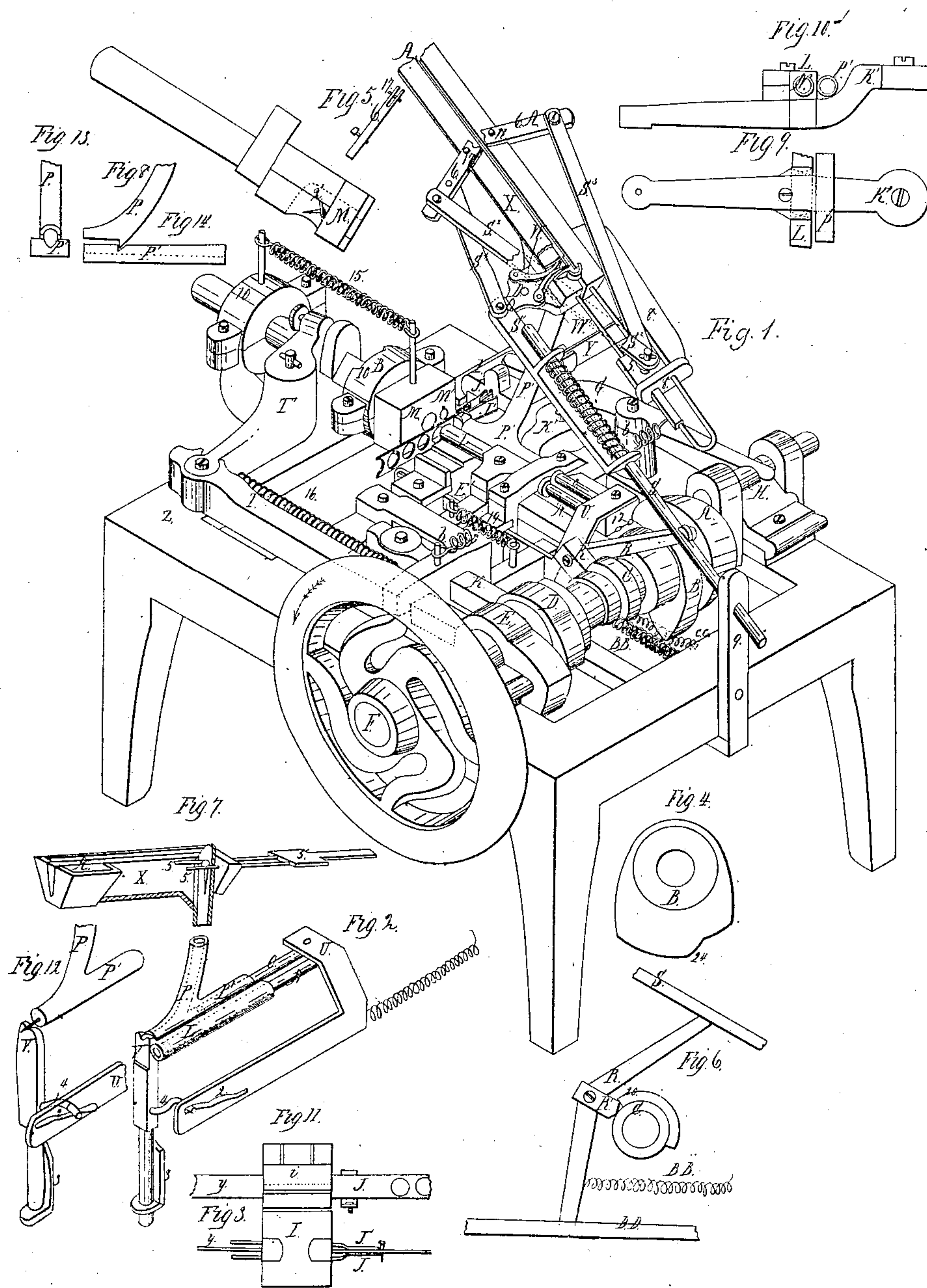


No. 20,821.

PATENTED JULY 6, 1858.

C. L. RUSSELL.  
MACHINE FOR LEATHERING TACKS.





# UNITED STATES PATENT OFFICE.

CHARLES L. RUSSELL, OF DERBY, CONNECTICUT.

## MACHINE FOR LEATHERING TACKS.

Specification of Letters Patent No. 20,821, dated July 6, 1858.

*To all whom it may concern:*

Be it known that I, CHARLES L. RUSSELL, of Derby, in the county of New Haven and State of Connecticut, have invented a new and useful Machine for Leathering Tacks or Nails; and I do hereby declare that the following is a clear and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an isometrical view of the whole machine, Figs. 2, 12, 7 are isometrical details; Figs. 3, 4, 5, 6, 8, 9, 10, 11, 13 and 14, are plan and side views of details.

The same letters and figures represent the same parts in all the figures.

The object of my invention is to provide a machine wherein the several operations of separating, distributing and conducting the tacks to a proper position for being leathered, and of driving the tacks through the leather, cutting out the leathered disks and discharging the leathered tacks shall be performed automatically and continuously with unerring certainty.

Z, represents the frame; F, the shaft; A, B, C, D, and E, cams; L, punch for cutting the material; M, a die; T, T', slide and lever for moving forward die M; K, K', slide and lever for moving forward punch L; P, a curved tube terminating at stop V; J, J', feeders for feeding leather; X, inclined race; A', groove or slot in the inclined race; I, slide for holding feeders; H and G, slide and lever for operating feeders; O, N, punches; Q, an inclined groove or slot in slide U; 3, a stand for holding the lower end of stop V, through which V, slides by means of arm 4, working in slot Q; 6, 6<sup>A</sup>, tack separators; W, W', stop fingers; 5 fork; S<sup>1</sup>, S<sup>2</sup>, S<sup>3</sup>, S<sup>4</sup>, connections; Q, cross head for operating stop fingers W, W'; 8, stand through which lower end of fork slides; 9, stand for holding end of slide S; R, R', lever and projection for working slide S; M', hole in die M, for admitting point of tack; 10, 10<sup>B</sup>, stands for holding die M; D, D, stand for holding lower end of lever R; B, B, c, c, b, b, 15, 16, springs.

Having given the names, letters and figures of the different parts of the machine, I will now proceed to show its construction and operation.

An apparatus not shown in the drawings

conducts the tacks to the inclined race X, into which they are introduced, hanging by their heads, their points hanging down in the groove A', the separators 6, 6<sup>A</sup> all open to receive the head and body of the tack. It will be observed that the separators 6, 6<sup>A</sup>, are divided, a portion working above the plate of the inclined race X, for the purpose of grasping the head of the tack, and a portion of the same working under the plate for the purpose of taking hold of the body of the tack. The shaft now makes a half revolution; the projection on cam C, (at 20, Fig. 6) raises the lever (the lower end of which is hung in the stand D, D,) by contact with projection R', on lever R, which by slide S, and connections S', S<sup>2</sup>, S<sup>3</sup>, S<sup>4</sup>, gives to the feed ends of the separators 6, 6<sup>A</sup>, a downward circular motion (upon their centers 17, 18) carrying a tack with them. When at or near their full stroke a tack is disengaged which slides forward to the stop finger W, which lies across the groove of race X, and there remains until the shaft has made another half revolution, when the stop finger W, is withdrawn by means of the projection 20, on cam C, passing the projection R', on lever R, but not until the finger W', (which is arranged by the side of the stop finger W, and working alternately with finger W, by means of cross head Q, and connection S') is nearly or quite across the groove in race X. The tack now rests against finger W', when another half revolution of the shaft withdraws finger W', and lets the tack drop from the end of race X, onto the fork 5, (which fork has just been driven into and across or through the curved tube P) upon which the tack hangs by its head, the point down, and entered into the curved tube P (see Fig. 7) ready to be dropped by fork 5, point foremost to a horizontal position to be stuck. It is not the office of the fingers W, W', to separate the tacks one from another, but to insure their dropping precisely at the time required, as the tack has the time of a whole revolution of the shaft after leaving the separators 6, 6<sup>A</sup>, before it is dropped onto the fork 5. Now another half revolution of the shaft takes place, which withdraws fork 5, (by means of connection S<sup>2</sup>, and springs B, B, the projection on cam C, having passed the projection on lever R) and drops the tack through the curved tube P



into the horizontal tube or groove P'. The arrangement of fork 5, is such that the upper surface of the rods or prongs thereof 5, 5, shall be somewhat lower than the top of the inclined race X, so that when the tack drops from the race X, to the fork 5, the point of the tack shall be lower than the bottom of the groove in race X, thus preventing (when the fork is withdrawn) the point of the tack from striking the bottom of the groove, turning over and falling head foremost into the curved tube P.

The construction of the tube is as follows: Sufficient curve is given to the tube or pipe so that a tack suspended by its head falling by its own gravity or being forced through it shall change from a perpendicular to a horizontal position; the tube P for convenience is joined to a horizontal tube P', in which punch O, works, but the tube P', is not absolutely necessary as a V shaped or half circular groove placed under and detached from the curved tube P, would answer as well to receive the tacks from the curved tube P (see Figs. 13 and 14). The cap which holds the punch L, and the end of horizontal tube P', in their places, is left off in the drawings in order to show the parts well.

The hollow punch L is arranged so near the receiving tube or groove P', as shall cause a full disk or head of leather to be cut when the leather is moved the diameter of a disk or head from the point where the leather receives the tack. The leather or material to be punched is first put through the slide I, far enough to cover the end of tube or groove P, in front of the stop V. The punches O, N, are drawn back by a spring c, c, attached to the slide U, which connects with slide 12, which holds the punches O, N, the end of punch N, being back of the junction of tubes P and P'. The tack is now lying in the tube or groove P', the point against the stop V, which is forced up and covers the end of P', by means of arm 4, worked by the slot 2, in the slide U, (see Fig. 2,) which is drawn back with the punches O, N, to which it is attached by slide 12. The shaft now turns, the feeders J, J', move back out of the way of the punch L, by means of a spring b, b, which is broken away to show the other parts, cam A, slide H, feed lever G, and slide I. The die M, moves up to the leather by means of cam E, slide T, and lever T'. The hole M', in the die M, is now opposite the tube P'. The slide 12, slide U, and punches O, N, now move forward by means of cam B. Stop V, is forced down (by the inclined slot 2, in slide U) and dwells at the proper height to steady the point of the tack while punch O, drives it into the center of the leather, the tack lying on the end of stop V, by its own gravity, Fig. 12, when

the point of the tack has entered the leather the stop V, is forced down out of the way of the head of the tack and the punch O, (by the inclined slot 2, in slide U). The punch O, does not drive the head of the tack quite up to the leather but leaves space enough between the leather and head of the tack for the feeder J', to pass between the leather and head of the tack and strike the body of the tack (Fig. 3). The die M, punches O, N, and L, now move back from the leather by means of the springs 15, 16, 19, and c, c, leaving the tack sticking through the leather. The stop V, now comes up and closes the end of P', ready to stop the next tack. The feeders J, J', are arranged on both sides of the leather (Fig. 3) now move forward (by means of cam A, slide H, feed lever G and slide I) and striking against the tack feeds along the leather so if by any means there should be no tack driven through the leather there will consequently be no leather fed. The tack and material are now brought opposite the punch L, the feeders J, J', now move back out of the way. The die M, moves forward, the point of the tack enters the die, the punch L, moves forward by means of the cam D, slide K, and lever K', and cuts into the leather just far enough to hold the leather firm, and then stops until the punch N, comes forward and completes the driving of the tack, at the instant the driving is finished a projection on cam D, (24 Fig. 4) moves forward the hollow punch L, which cuts out the disk, from the leather. The punch N, now drives the leathered tack into and out of the lower side of the die M, which has an opening for that purpose at 21, Fig. 8.

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

1. One or more separators 6 6<sup>A</sup>, having a cavity in their ends or an equivalent therefor, which shall grasp the head or body of the tack, or both, substantially as and for the purposes herein described.

2. The fingers W, W', arranged in the relation shown to the tube or guide P, and working alternately so that one serves as a stop to the tack and the other as a discharger thereof in such a manner as to insure the dropping of the tack into the tube or guide P, with unerring certainty at the precise time and place necessary, substantially as and for the purposes set forth.

3. The fork 5, or its equivalent when working through or across a tube near its top as shown, for the purpose of insuring the dropping of the tacks perpendicularly into the tube P substantially as described.

4. The guide or conducting tube P P' having inclined and horizontal passages running into each other, in combination with the driving punch O, cutting punch L,



N, die M, M, race X, and feed motion I, J, substantially as and for the purposes set forth.

5 5. The self adjusting grooved rest or guide V, for receiving and supporting the point of the tack, when arranged so that the tack shall be kept on the guide by its own weight, substantially as and for the purpose herein specified.

10 6. Feeding leather or other material to the machine in the operation of leathering

tacks by each succeeding tack itself which is driven into or through the material used for forming the heads or disks and acts as a stop to a feed motion whereby to effect 15 the movement of the material to a position in front of the cutting punch substantially as described.

CHARLES L. RUSSELL.

Witnesses:

LEDYARD COLBURN,  
FOSTER P. ABBOTT.