Sheet 1 - 2 Sheets.

H. Halvorson,

Pegging Machine,

No. 10,107. Patented Jan. 10, 1854.

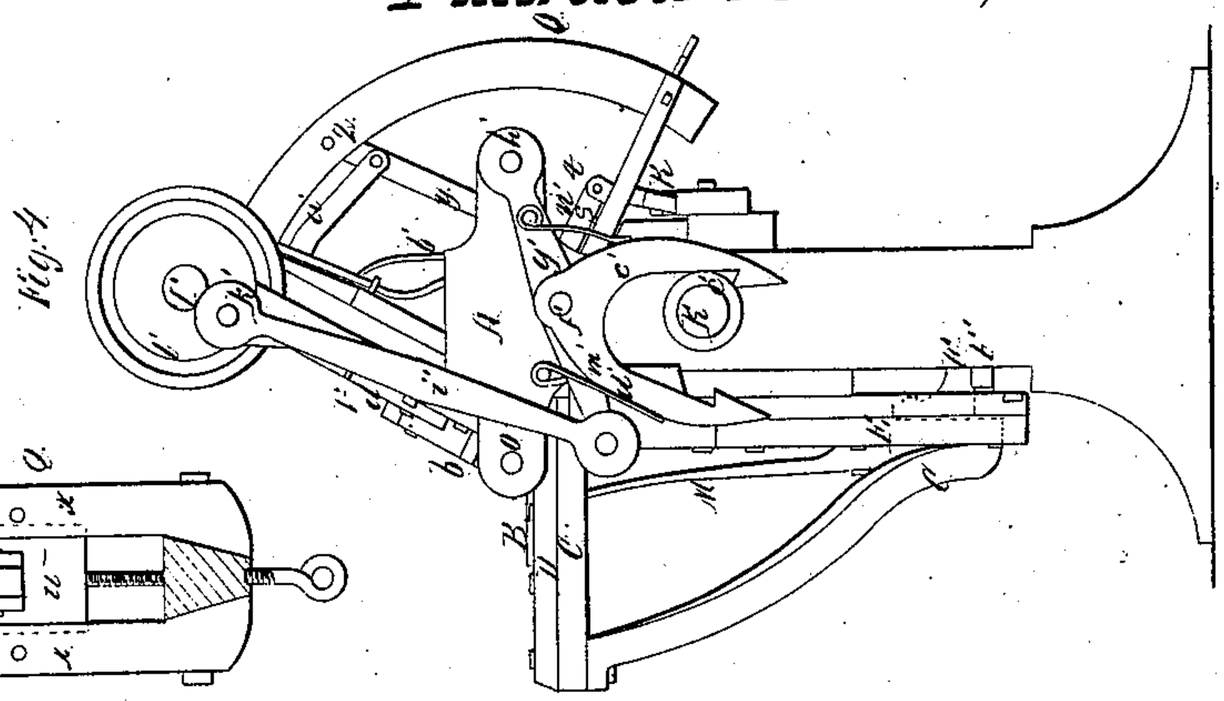


Fig. 4.

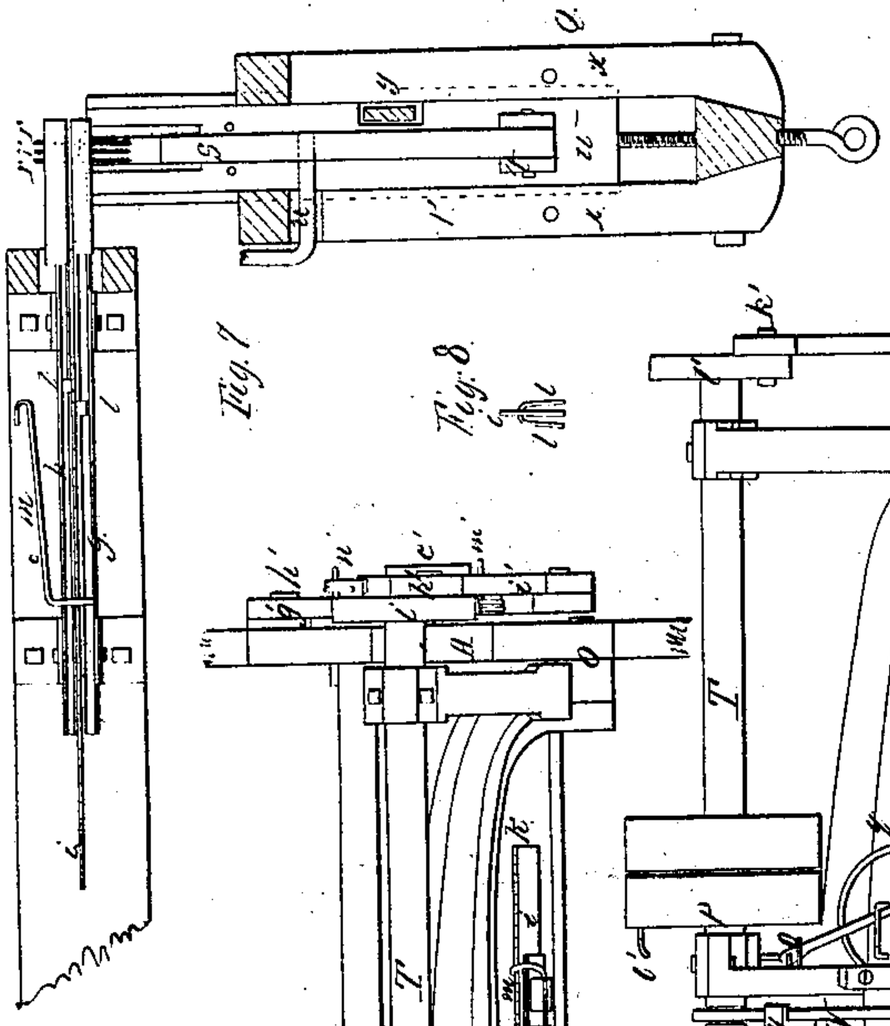


Fig. 7

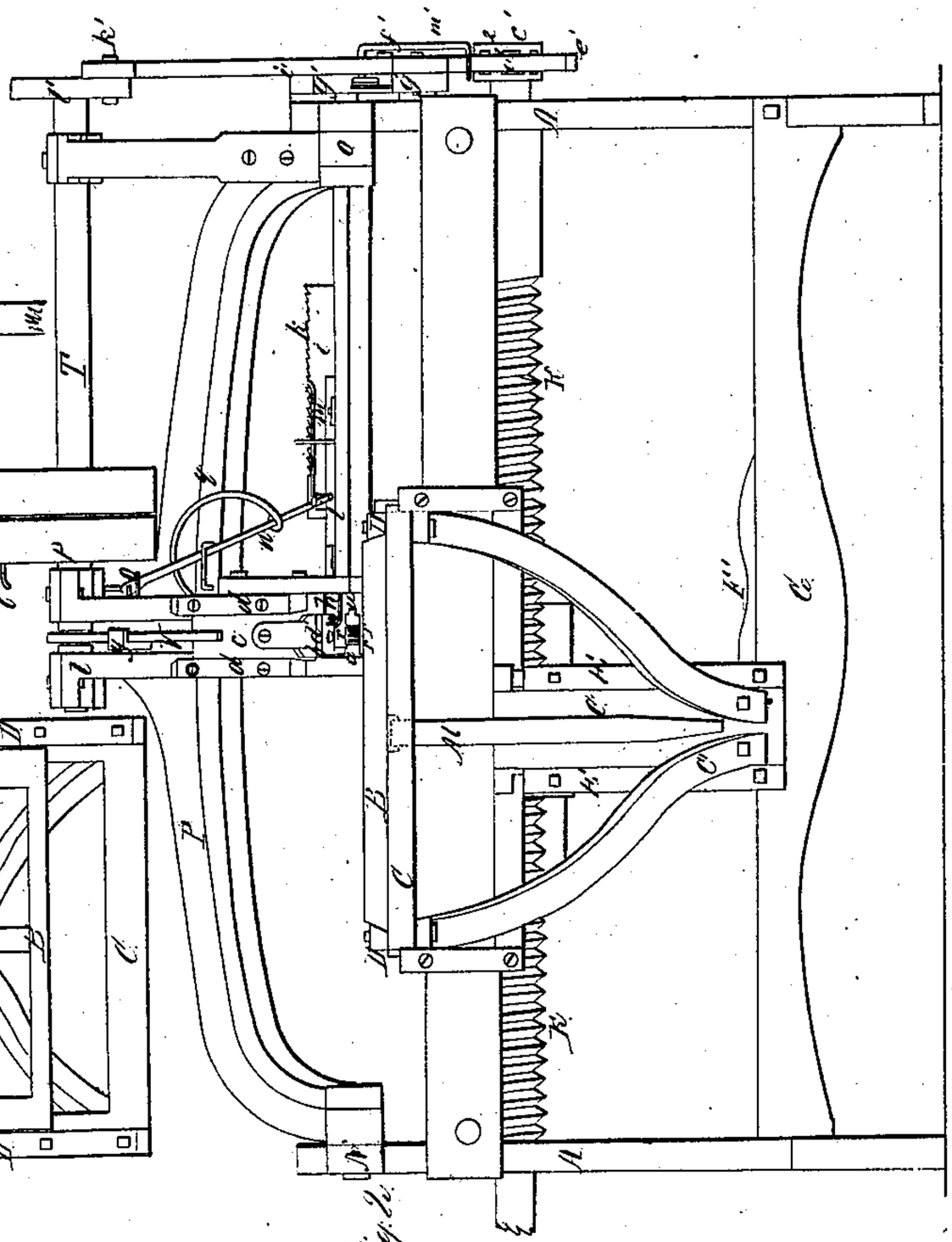


Fig. 8

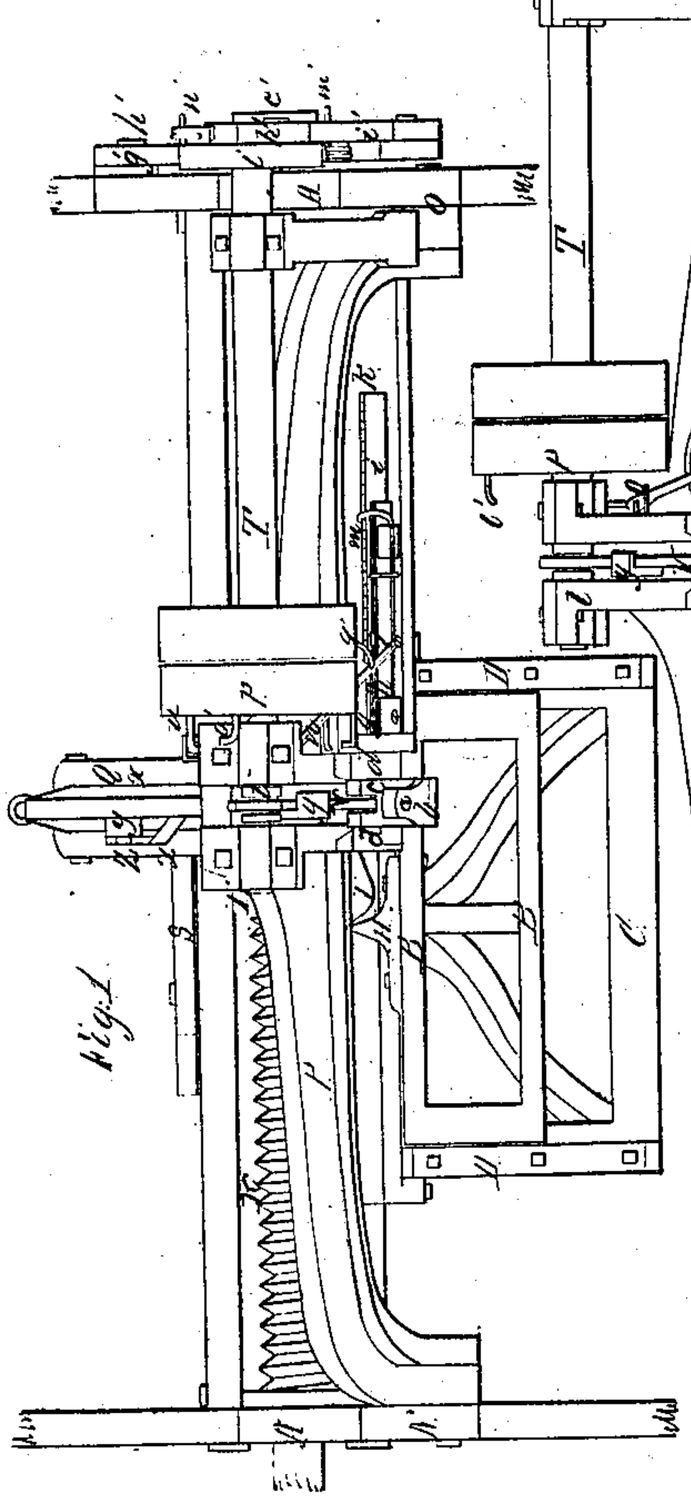


Fig. 1

Fig. 2.

Sheet 2 - 2 Sheets.

H. Halvorson,

Pegging Machine

No. 10,407. Patented Jan. 10, 1854.

Fig: 6.

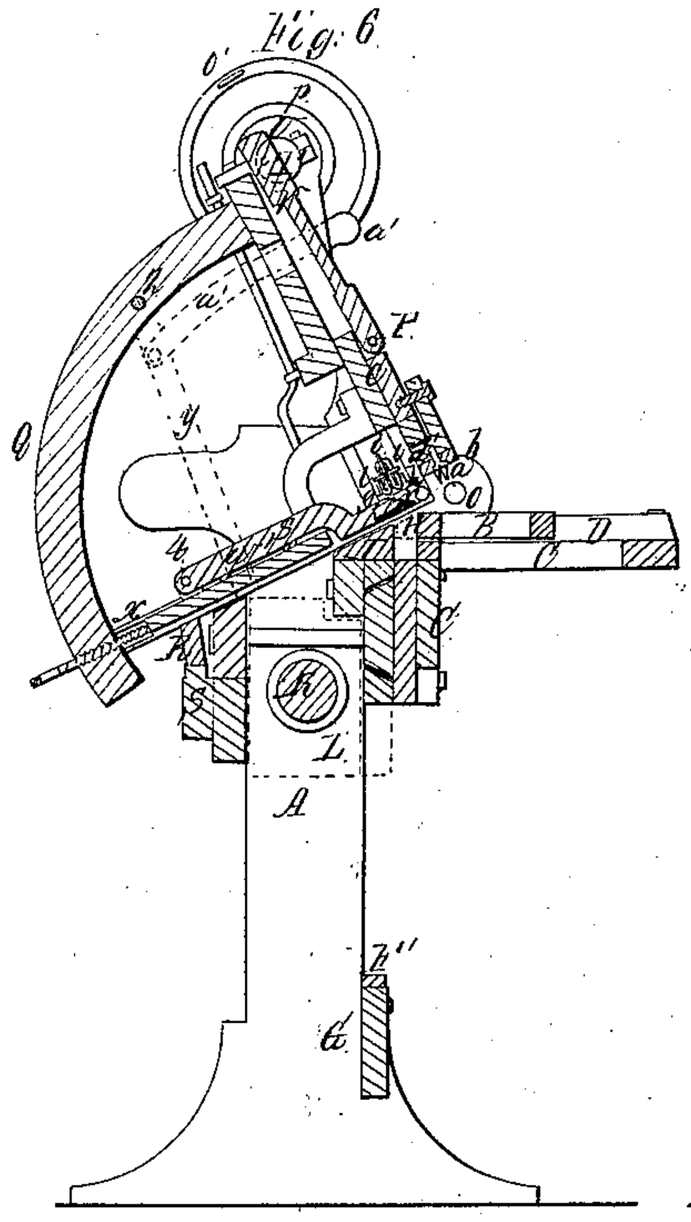


Fig: 5.

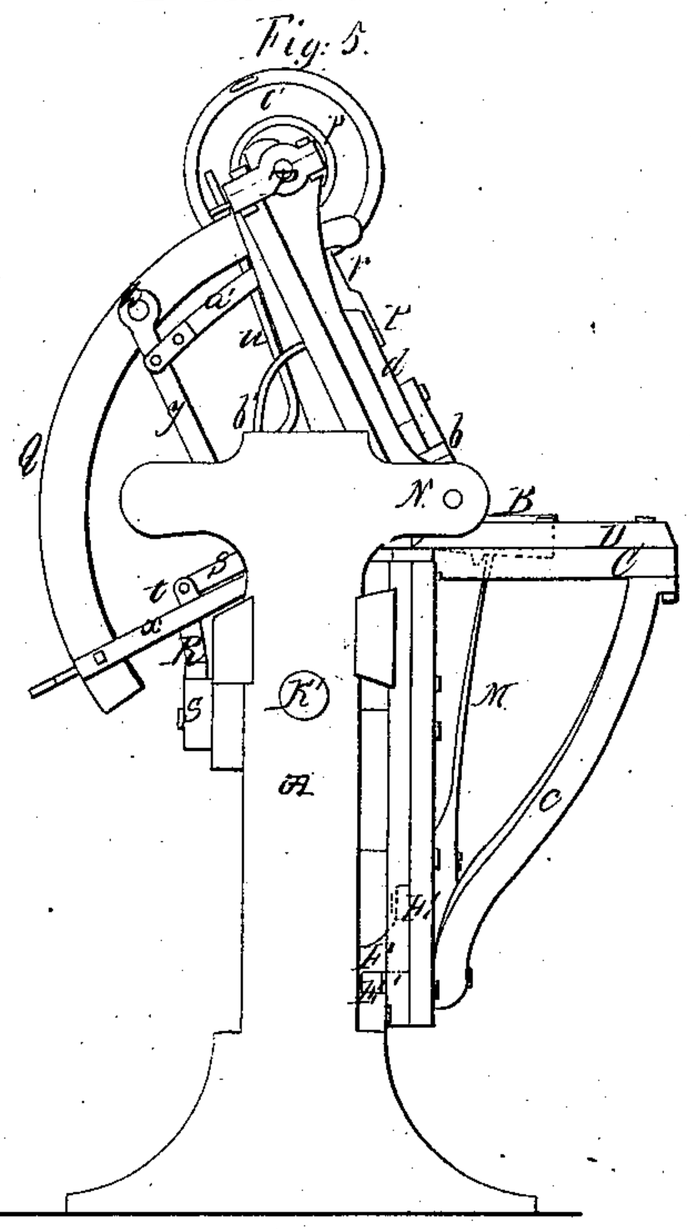
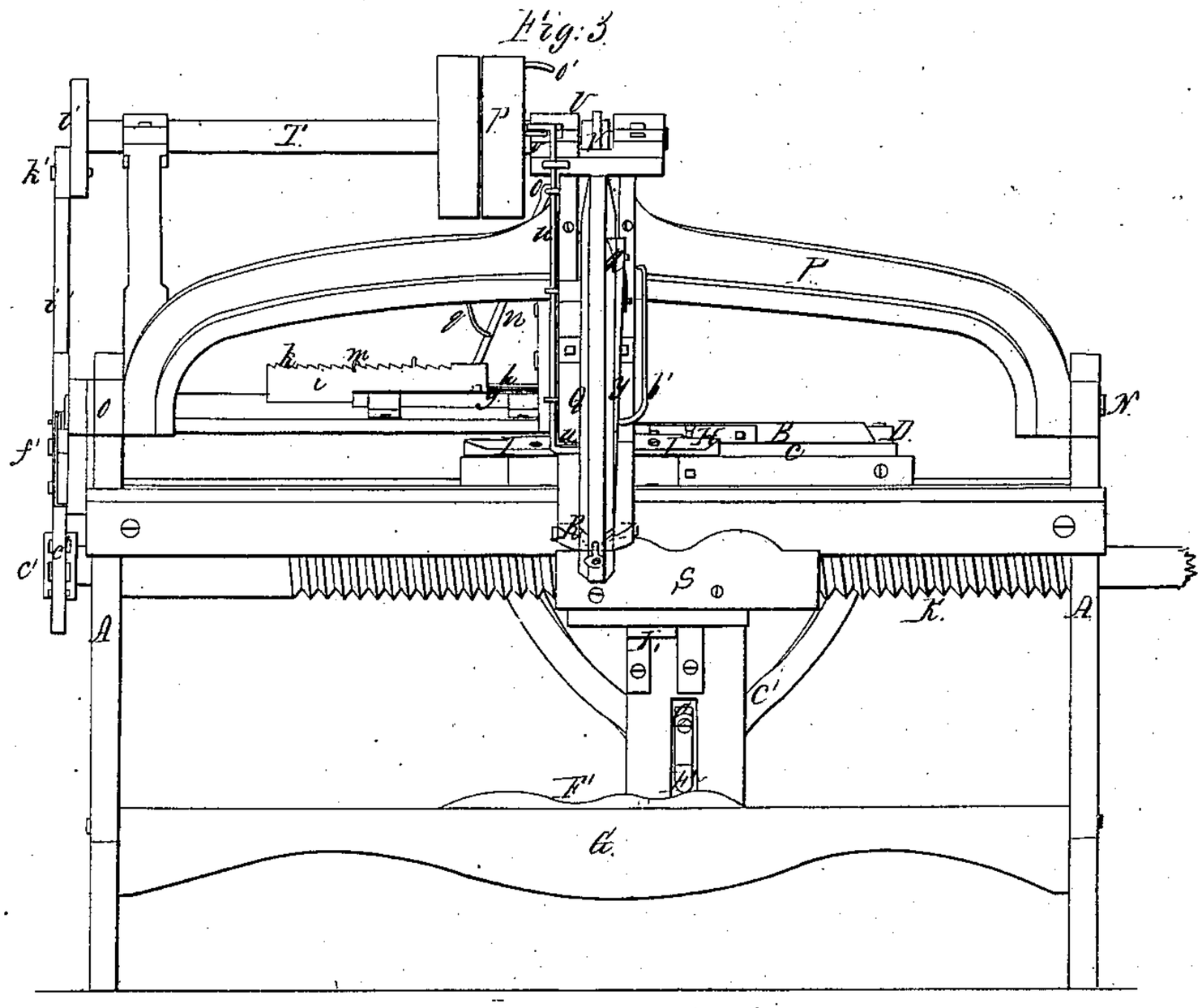


Fig: 3.



UNITED STATES PATENT OFFICE.

HALVOR HALVORSON, OF HARTFORD, CONNECTICUT.

MACHINE FOR PEGGING BOOTS AND SHOES.

Specification of Letters Patent No. 10,407, dated January 10, 1854.

To all whom it may concern:

Be it known that I, HALVOR HALVORSON, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Machine for Pegging Boots or Shoes; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1 denotes a top view of my said machine. Fig. 2 is a front elevation of it. Fig. 3 is a rear elevation of it. Fig. 4 is an elevation of the right end of it. Fig. 5 is an elevation of the left end of it. Fig. 6 is a vertical, central, and transverse section of it.

In the said drawings A represents the main frame for supporting the operative parts of the mechanism, which frame may be of the form as exhibited in the drawings, or it may have any other proper one.

The boot or shoe to be pegged is to be securely fastened with its sole upward in a horizontal rectangular frame B that is supported on another frame C and so as to be capable of being moved transversely forward or back between parallel guides D, D, fixed on such frame C.

During the operation of pegging a boot or shoe and in order that the edge of the sole may always be brought into correct position with respect to the pegging awls and during the movements of the shoe under them it is found that the general form of soles requires that the boot holder should not only have vertical and transverse but longitudinal motions. For this purpose the frame C is sustained between vertical and parallel guides E, E, and it has a stud or projection F extended back from it and made to rest on the top of a curved guide or cam F′, such guide being arranged longitudinally of the machine and on a supporting rail G of it as seen in Figs. 2 and 3. From the back of the frame B a projection H extends and is made to act against a curved guide I affixed firmly to the frame of the machine. The longitudinal movements of the carriage or frame C is produced by a long screw K that is arranged as seen in the drawings and works through a female screw formed in a projection L from the rear side of the carriage C. During the movement of the carriage C by the screw which takes place whenever the screw is put in rotation the carriage C will have not only a longitudinal motion, but a vertical one as it passes over the sinuosities of the pattern or guide F′. The weight of the carriage may be sufficient to keep it down on the pattern or cause it to descend into the hollows, or a spring may be used for such purpose. During such movement of the carriage C, the frame B being moved with it has a transverse motion also imparted to it by means of the curved guide I against which the projection H acts, such projection being pressed against the guide by means of a spring M, that is attached to the carriage C and made to bear against the carriage or frame B as seen in Figs. 2 and 5.

The guides F′ and I are to be so formed with respect to the boot to be pegged as to present the edge of its side in a proper manner to the pegging awls in order that they may not only make the holes for the pegs in one line parallel with and just withing its periphery, but so that they may produce holes around the sole of one uniform depth.

Above the main frame A and working in transverse directions on centers as seen at N, O, is what I term the rocker frame or swinging lathe P. From the lower part of an arm or frame Q extended back from the middle of or making part of the rocker frame P, a small projection or tracer R is made to extend and rests on a curved guide or bar S attached to and made movable with the projection L, such guide being so formed as to cause the rocker frame to rock or move in its bearings to the extent required during the operation of pegging a boot in order to present the awls at the proper angle with the sole to enter it. The points of the awls which are seen at *a* are arranged so that they may be within the axis of motion of the rocker frame when at the extent of their downward motion, and as the boot sole changes its position from time to time it becomes necessary that the position or inclination of the awls should be varied in order that they may enter the sole at the necessary angle. This will be readily seen by cord wainers or persons skilled in the art of making pegged boots.

The awl or awls are made to extend downward from a plate or piece of metal *b* that is affixed to the underside of a punch *c*, that

moves upward and downward between parallel guides *d*, *d*, applied to the rocker frame P. This punch *c* is moved upward and downward during the rotation of a long horizontal shaft T that is arranged on the rocker frame as seen in the drawings and has a bell crank fixed on it at U, such bell crank being connected with the punch by means of a connecting rod V jointed to each.

The plate *b* that carries the awls is made to turn around on a screw *d'* which extends through the middle of the plate and up into the punch. The awls are on one side of the center of this screw or are arranged at a distance therefrom. By turning the plate on this screw one hundred and eighty degrees the awls may be made to stand on the opposite side of the center of the screw. During the operation of pegging a boot the awls are made always to operate in advance of the pegs driven in, they being so arranged that there shall always be one or more holes made in the sole between any one being made by the awls and the nearest pegs that are simultaneously being inserted. As the awls must always act in advance of the pegs inserted it becomes necessary in reversing the lateral movement of the boot that the plate in which the awls are held should be first turned around one hundred and eighty degrees. When to peg from heel to toe of the boot the awls should stand on one side of the screw *d*. When we peg from toe to heel they should stand at one hundred and eighty degrees distant on the opposite side of the screw *d*. This will be more readily seen after a description of the remainder of the machine.

The rocker frame P is made to carry one, two, or more troughs *g*, *h*, such number being in accordance with the number of awls. These troughs are placed parallel to each other as seen in Fig. 7 which is a top view of them and the slide or carriage which is placed between them as well as of such parts of the rocker frame P and machinery thereof as are below the awl holder. Each trough is made of a suitable depth to receive a strip of wood from which pegs are to be cut. Between the two trough *g*, *h*, is a slide or carriage *i* which has a rack of teeth *k* made on its upper edge. From each side of the carriage, a projection U, (see Fig. 8, which is an end view of the carriage;) is made to extend over and down into the adjacent trough *g'* or *h*, and so as to rest against the outer end of the strip of wood when placed in the trough. When this carriage is advanced or moved toward the middle of the machine it forces the two strips of wood along with it. The movement of the carriage is effected by means of a draw pawl *m* that is jointed to the lower end of a pendulous rod or bar *n* that turns on a joint at *o* and in a plane parallel to that of the frame P. The bar *n* is moved inward by a cam *o'* fixed on the side of a wheel or pulley *p* that is placed on and attached to the shaft T. The outward movement of the rod or bar *n* is produced by the reaction of a spring *q* attached to it on one end and to the frame P at its opposite end.

The spring knives or cutters, three in number (*r*, *r*, *r*,) are made to project from the inner end of a knife carrier or lever *s* that works up and down on a fulcrum or pin at *t* and is suitably guided so as to operate in a vertical plane.

The knife carrier has two motions imparted to it, that is to say, it is first moved upward sufficiently to cause the knives *r*, *r*, *r*, to cut from the strips of wood projecting out of the troughs *g'*, *h*, two pegs, one of which will be held between the first and second of the knives, while the other is held between the second and third of the knives, and this by friction or simple spring of the knives, it being understood that the strips are so arranged in their respective ends that only one peg from each will be taken during such upward movement of the knives. Next the knife carrier is moved forward with the pegs and so as to carry the pegs directly over the holes in the sole into which they are to be driven at the next descent of the punch and its awls and by pressure of the turning plate *b*, of said punch *c*, upon them. The lifting upward of the knife carrier is effected by means of a bent slide rod *u* that hooks under the carrier, while at its upper end it is bent as seen in the drawings. During each revolution of the shaft T a pin or projection *v* from the side of the pulley *p* passes under the bent upper part of the rod *u* and lifts the rod upward so as to raise the knife carrier.

The knife carrier is jointed to a frame or carriage *w* that slides forward and back and is supported between ways *x*, *x*, that extend back from the frame P. A swinging bar *y* at its lower end passes through a slot made in the carriage *w;* while at its upper end it is suspended and plays on a joint pin *z*. To this bar *y* another bar *a'* is jointed at its rear end while its front end is hooked around the front edge of the connecting rod V (hereinbefore described) such extension in front of the said front edge being such as will cause the bar *a'* to be moved forward with and by the connecting rod V whenever it is so moved. Such a forward movement will of course cause an advancement or forward movement of the knife carrier, the reverse movement or backward movement thereof being produced by the retraction of a spring *b'* whose upper end is attached to the rocker frame P while its lower end is either made to bear against the carriage of the knife carrier or the vibrating bar *y*.

The rotary movement of the screw K is produced by mechanism which may be thus described: On the right end of such screw is a cogged or lantern wheel c' which acts in concert with one or the other of two lifting pawls d', e', which embrace it on opposite sides and are made and connected together at their upper ends and supported so as to play or swing freely on a common center or pin f' extended from the middle of the lever g' all as seen in the drawings. This lever works up and down on a fulcrum or pin h' at its rear end, and is jointed at its front end to the lower end of a connecting rod i', whose upper end is placed on a crank pin k' projecting from the side of a wheel l' that is fixed on the outer end of the shaft T.

To the lever g' two springs m' n' are affixed, one being of more elastic power than the other: When the spring m' is brought against the lifting pawl d' it presses it against the teeth of the cogged wheel c', during which time the other spring (n') should not be allowed to bear against the pawl e', but should it be desirable to throw such pawl into action with the teeth of the gear it will only be necessary to bring the spring n' to bear against it, when the elastic power of the spring n' will throw the pawl into gear with the wheel and the other pawl out of gear with it. Consequently, during the revolutions of the shaft T the screw K will be revolved in either direction according to which pawl may be acting against the cogged wheel. By throwing both pawls out of gear with the cogged wheel the screw may be revolved by hand applied to a crank a^2 fixed on the opposite end of the screw, and thus by means of such crank the carriage B may be moved at any time into any desirable position.

The awls are not to be arranged at the distance from the peg knives or cutters equal to that of one peg from the next succeeding one when they are directly over a boot sole, but they are arranged at double such distance, in order that there may always be an empty hole between the awls and the pegs when under such circumstances. The utility of this empty hole in reducing resistance to the entrance of the awls into the sole will be easily obvious, as this can be readily demonstrated by taking a piece of leather and two awls and proceeding as follows, viz: First insert the two awls in the leather allowing one to remain there after extracting the other. Next insert the second one again in the leather at the same distance from the second hole that such hole was from the first one. Next without bending the leather, withdraw the two awls; and look through the three holes. The awl will not only be found to enter easier into the third hole than it did in the second one, but the middle hole will be found to present a spongy or rough appearance on its inner surface, while the others are smooth and polished. The rough hole will hold a peg firmer than the smooth one.

Having thus set forth my machine, what I claim is—

1. The automatic combination constituting the same and composed of the following elements, or their mechanical equivalents; 1, a frame or boot holder B; 2, machinery for moving the boot holder B horizontally in directions both toward and away from the awls or hole making contrivances, or in accordance with the horizontal or peripheral curvature of the sole, such mechanism being the guide I and bearing point or tracer H and return spring M; 3, machinery for raising and depressing such boot holder in accordance with the vertical curvature of the sole, such mechanism being the guide or cam F′, and the second frame C, with its tracer F; 4, mechanism to give the boot its movement from heel to toe or vice versa, under the awls or pricking machinery; such mechanism being the screw K, cogged wheel c', pawl d', or e', lever g', connecting rod i', and crank pin k' on shaft k. 5, machinery for holding the strip or strips of wood from which the pegs are to be cut and regularly advancing such strip or strips in manner required toward the cutters, the same consisting of the troughs g, h, and slide or carriage i arranged and operated as described; 6, a series of cutters or cutter knives r, r, r, so made to operate as to cut from the peg strip, pegs, as explained, and hold or retain the same by friction between them, and move such pegs forward to and directly over the holes in the sole previously made by the awls or pricking machinery; 7, machinery for pricking the holes in the sole for the reception of the pegs; 8, machinery for pressing or forcing such pegs into these holes, such being accomplished by the plate, b, carried and forced down by the punch c; 9, a rocker frame or swinging lathe P made to support and carry the mechanism above denoted as the fifth, sixth, seventh and eighth elements of combination; 10, machinery for giving or imparting to such rocker frame its proper movement to insure the correct direction of the awls in puncturing any hole or holes in any part of the sole, such machinery being the movable guide S and the tracer R, the latter being attached to the rocker frame.

2. And as auxiliary to the above or as an improvement I claim the reversible plate or awl holder b made capable of being turned around substantially in manner and for the purpose as hereinbefore stated.

3. And I also claim the improvement of so arranging (as described) the awls and

the machinery that cuts the pegs from the strips of wood and brings them forward and forces them nto the holes, that there shall always be one or more holes made in the sole between the pegs that are being driven and the holes that are being simultaneously made in the sole.

In testimony whereof I have hereto set my signature, this second day of March, A. D. 1852.

HALVOR HALVORSON.

Witnesses:

HENRY SHERMAN,

HENRY K. W. WELCH.