Sheet 1-2 Sheets.

E. M. Stevens,

Pegging Machine,

No. 21,091. Patented Aug. 3, 1858.

Fig. 1.

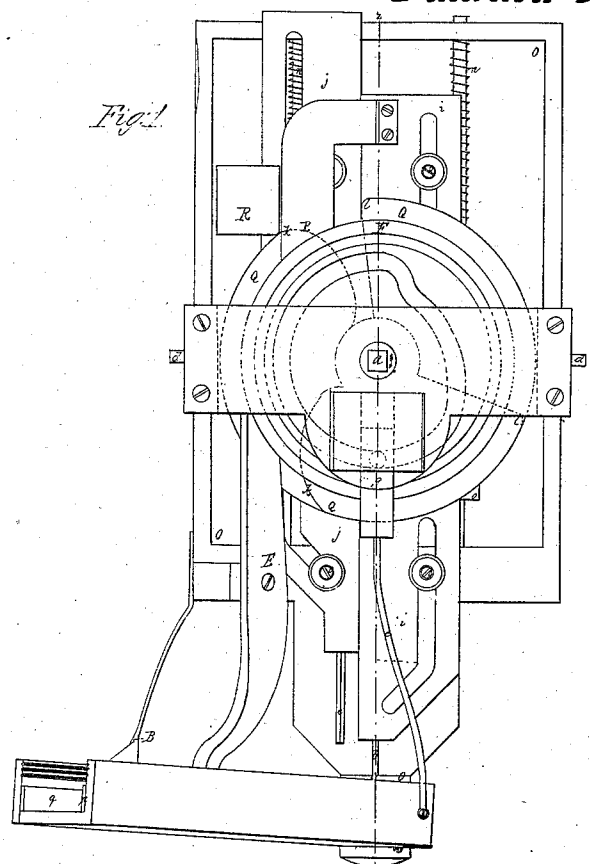
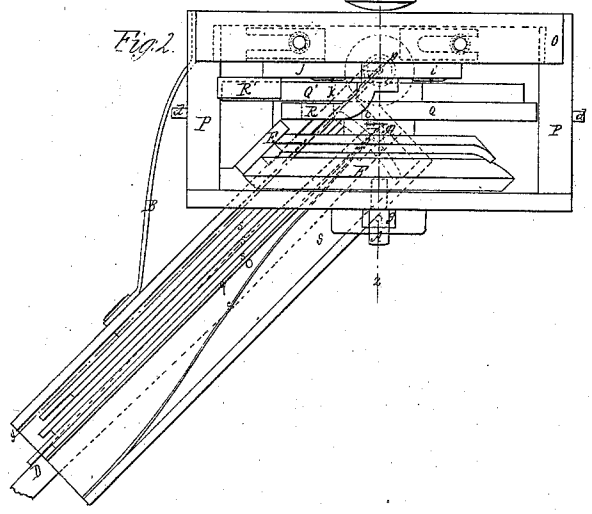


Fig. 2.



Witnesses:
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Gideon McKay

Inventor:
E. M. Stevens.

Sheet 2 - 2 Sheets

E. M. Stevens,

Pegging Machine,

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Fig. 3.

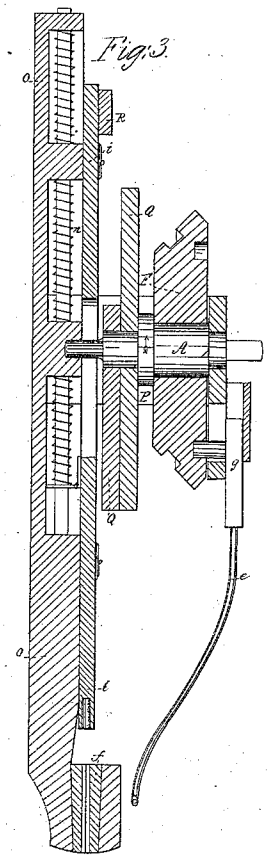


Fig. 6

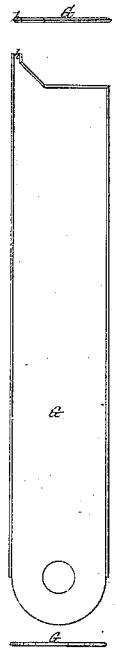


Fig. 5.

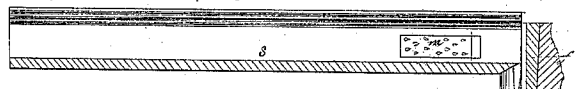
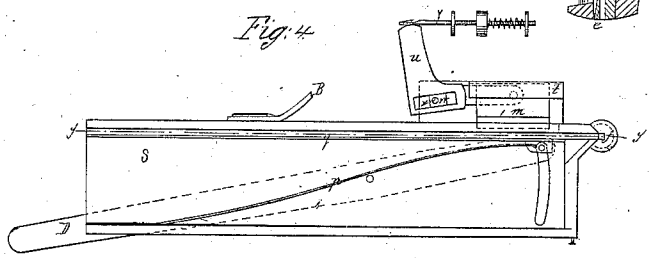


Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

E. M. STEVENS, OF BOSTON, MASSACHUSETTS.

PEGGING-MACHINE.

Specification of Letters Patent No. 21,091, dated August 3, 1858.

To all whom it may concern:

Be it known that I, EDGAR M. STEVENS, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pegging-Machines, of which the following is a clear, full, and exact description, taken in connection with the accompanying drawings, which form part of this specification.

My invention relates to that portion of the mechanism of a pegging-machine which operates directly on the pegs, and is particularly applicable to the pegging machine patented to me on the fifteenth day of December A. D. 1857, and numbered 18,879; it may also be applied to other varieties of pegging machines.

The nature of my invention consists in the arrangement and details of the peg box and in the mechanism for feeding the pegs.

To enable those skilled in the art to make and use my invention I will describe its construction and operation, premising that these parts only of a pegging machine which embody my invention, or which have a direct and intimate relation thereto, will be herein described and illustrated, and that the "head" or "frame," to which all parts of my invention are shown attached, may be hung, used, and operated as in the before mentioned patented machine.

Figure 1, is an elevation of the pegging head; Fig. 2 is a plan of the same; Fig. 3 is a section on the line *z*, *z*, seen in Figs. 1 and 2; Fig. 4 is a plan of the peg box showing the peg feeding mechanism; Fig. 5 is a section through the peg box and peg tube on line *y*, *y*, seen in Figs. 2 and 4.

Similar letters refer to similar parts in all the figures of the drawings.

(O) "head" or "frame" intended to swing and slide on pins (*d*, *d*) fixed therein for the purpose of presenting the pegging mechanism, fixed to (O), properly to the various curves of the soles to be pegged; (*i*) awl bar; (*j*) driver bar; these are made to rise by the action of the curved faces (*k*, *k'*) of the cams (Q, Q') on the lifters (R, R') fixed on the bars (*i*) and (*j*). The cams (Q, Q') are fixed on shaft (A) which is made to rotate as indicated by the arrows.

The bars (*i*) and (*j*) are forced downward, when the points (*l*, *l'*) of the cams (Q, Q') pass lifters (R, R') by the action of the spiral springs (*n*, *n*) on projections (*a*, *a*) from (*i*) and (*j*). These bars (*i* and *j*) are made to move sidewise in their ascent and descent by means of the inclined slots wherein the guide pins (*o*, *o*, *o*, *o*) act. That end of the head (O) which bears upon the sole is bored to receive the steel piece (*f*); this is made somewhat tapering to prevent its being driven downward by a chance blow, and also to facilitate its displacement for a similar piece. A square hole is formed centrally in the length of (*f*) of the size of the peg to be used; this I call the peg tube.

(S) peg box which is pivoted to the bracket (B) so that it can vibrate freely upon the pivot as a center. This peg box is arranged on an angle of 45° to the tangent of the curve of the side of the sole at the point where the peg is driven; this angular arrangement of the peg box is for the purpose of setting the pegs "diamond fashion," so called, and the peg tube is secured in a similar position by a set screw as shown in the drawings. One side of the peg box, against which the peg wood blanks are pressed, and through which the feeding instrument (*m*) works, is in line with one side of the peg tube, and the width of the slot in the peg box through which the peg wood is last fed forward is just the width of the peg tube.

(S) is hung in a plane above the center of the length of the peg tube so that a cutter vibrating on the peg box pivot would cut into the peg tube on the side nearest (S), leaving the material of (*f*) at a knife edge near the central part of the length of the tube, and of sufficient thickness at the bottom, forming thus a knife out of one of the sides of the peg tube by which the peg is cut or split from the blanks (*s*, *s*, *s*,). The end of (S) is made concentric with the pivot on which it is hung, and it is otherwise made to fit against (*f*) as is fully illustrated by the drawings (S) is uniformly grooved at different heights for a sliding cover, by which means, different lengths of pegs can be used at different times in the peg box. This cover (G) is shown in detail in Fig. 6; it is made to correspond with the size of the peg box (S) and to fill the angular grooves therein, which are shown by the drawings. There are several of these grooves into which the cover (G) can be slipped to accommodate different lengths of peg wood. The stop (*h*), which is shown in Fig. 6 as forming part of the cover (G), which is a very convenient way of construct-

ing said stop, may be separate from G and may be attached to the peg box (S) by means of a screw or other suitable device by which it can be adjusted to correspond to the length of the peg wood. It will be obvious that this stop (*h*), whether it forms part of the cover (G) or is separate therefrom, must, in order to fulfil its functions, be placed in the narrow slot in (S) leading from the main peg wood receptacle to the peg tube, within less distance of the plane of the knife face and edge than the bigness of one peg. It is necessary to place the stop (*h*) in the position just defined in order to separate the last two pegs of each peg wood strip (*s*, *s*,) by the movement of the peg box (S), which forces the peg wood upon the knife (*r*), this with the resistance of the stop separates each peg from the peg wood and leaves them partially inserted in the peg tube where they await the action of the driver (*c*). If the stop (*h*) was located substantially farther away from the knife edge than the place before designated, separation of the peg wood is liable to occur in other places than between the first and second pegs nearest the peg tube, in which case the movement of the peg box S is not sure to insert the peg to be driven in the peg tube, and thus the peg may be broken by the driver (*c*) because it is not in line with it and the peg tube. The pressure strip (*q*) is forced against the peg wood (*s*, *s*, *s*, *s*), by the spring (*p*); the lever (D), pivoted to (S) and connected with (*q*) and (*p*), affords facility for compressing (*p*) and withdrawing (*p*) from the blanks (*s*, *s*, *s*), by which, and the removal of the cover, means are found for filling the peg box with peg wood.

It is evident that so fast as one blank is fed to the peg tube the means just described will present a new blank to the action of (*m*). It is convenient, in practice, to support (S) between two brackets, one from each side of (O) instead of one as shown in the drawings; one of these then affords convenience for the attachment of a sliding gage which bears against the edge of the sole and determines, by its adjustment, the distance of one or more rows of pegs therefrom.

The mechanism for feeding the peg wood consists of the piece (*m*), bell crank (*u*), link (*v*), lever (E), cam slot in beveled face of (F) and of other parts shown in the drawings and described hereafter. (*m*) has teeth formed on its face which can project into (S) and against (*s*, *s*), it is provided with a shoulder which prevents its being forced beyond a determined distance into (S), and it is kept from being too far withdrawn by the guard (*t*).

m is slotted to receive one end of the bell crank (*w*) which is pivoted to (*m*); to the other end of the bell crank is attached the link (*v*). (*u*) is slotted to receive the block (*w*) which is fitted in the slot so as to slide therein with any desired amount of friction. A projection from (S) supports various parts of the peg feed mechanism; the pivot (*x*) is fixed in this projection and passes into (*w*) which turns freely thereon. It will now be obvious that any movement imparted through (*v*) will first cause (*u*) to turn on (*x*) as a center, carrying (*m*) to or from (*s*, *s*, *s*), and that when the movement about (*x*) as a center is resisted sufficiently to overcome the friction of (*w*) in the slot (*u*) will slide on (*w*), carrying (*m*) with it.

Movement is imparted to (*v*), through lever (E), from the cam slot cut in the beveled face of (F); the movement of the end of (E) should exceed considerably the amount of movement required, theoretically, to force the peg against that side of the peg tube opposite the knife (*r*) for reasons hereafter given. This excess of movement is exerted to compress the spring on (*v*) which is regulated, by the nuts and screws shown in the drawing, to resist compression until the peg is forced home. It will now be understood that there are two distinct movements of the feeding instrument (*m*), one of which forces the teeth into the peg wood and withdraws them from it, the other is the feeding and fleeting movement, to, and from the peg tube. It is important that a reciprocating feeding instrument, having teeth, which by their contact with or engagement in the peg wood forms the connection by which the peg wood is fed along, should have the first movement above described, for if the teeth were allowed to drag on the peg wood during the "fleet" of (*m*), the peg wood would either be drawn backward by friction, and so cause failure to supply a peg to the action of the driver at the proper time, or else the peg blank would be rasped away, diminishing the bigness of the pegs, thus causing poor pegging on account of the pegs not filling the holes made by the awl.

It is essential to the correct and uniform working of the peg feed, under all circumstances where peg wood is used instead of separate pegs, that the amount of direct feed movement shall be considerably greater than the bigness of the peg, and subject to check when the required amount of feed is accomplished, and this without regard to the kind of feeding instrument employed, or the details of the mechanism actuating it: first, because the feeding instrument, however made, is liable to slip a little in its contact with the peg wood, this would subtract from the distance fed; second, because when a new blank replaces one just before fed beyond reach of the feeding instrument, a small

space is liable to exist between the old and new blank, which must be taken up during the first feed movement or irregularity in the pegging will ensue; third, such a provision obviates the necessity of changing the amount of positive movement in the feeding mechanism when the size or bigness (not the length) of the pegs are changed.

It will be obvious, from inspection of the drawings, that any movement of the lever (E) toward the spring on (*v*), after the peg wood has been forced home into the peg tube, will compress the spring.

The link (*v*), with the parts shown in the drawing as immediately connected therewith, might be attached to a radial arm, as it is to the bell crank (*u*); such an arm might carry a pawl working into the teeth of a ratchet cut feed wheel, to the center of which, said arm might be pivoted; this wheel would then act on (*s*, *s*, *s*) in place of (*m*) and the compound movement, described for (*m*), would be unnecessary for the wheel, which, however, should have the same excess of unobstructed feed movement as described for (*m*); this would be regulated by the spring on (*v*) as hereinbefore set forth. I prefer such a feeder as (*m*), to a wheel feeder, because of its greater hold on the peg-wood. The vibration of the peg-wood magazine (S) is caused by the action of the cam groove in the outer vertical face of (F), on the pin fixed in slide (*g*) which is connected to (S) by (*e*).

The order in which the various parts of the pegging mechanism should operate is as follows; some variations from this order however are allowable without detriment. Motion in the direction indicated by the arrows being communicated to shaft (A), the awl (*b*) descends to perforate the work and then is raised to its highest position; during the latter part of the rise of the awl the peg-wood box (S) vibrates upward to its highest position, which brings that surface of (L) upon which the points of the peg wood rest, above the edge of knife (*r*) so that the peg-wood can be fed into the peg tube. The feeder (*m*) now moves toward the peg-wood, and engaging with it moves forward until (*s*) strikes against the further side of the peg tube, when (S) vibrates downward carrying the peg wood upon the edge of knife (*r*) which splits a peg from (*s*) and leaves the peg in the peg tube exposed to the action of driver (*c*) which now descends and forces the peg into the work through the lower and closed part of the peg tube, which bears with its lower end upon the sole. It is obvious that the peg cannot bend or break in the lower part of the peg tube and that it must be forced into the work or crushed, if sufficient power be applied.

The feeder (*m*) may at any time, after the peg is cut from the peg wood, draw back from (*s*) and fleet in readiness to feed again after the driver is withdrawn, when the movements above described may be repeated. The jarring, consequent upon the blows of the awl and driver, and the vibrating movements of the peg-wood magazine would displace the peg-wood so as to render the supply of pegs to the work uncertain, were it not for the provision, made to guard against such a failure, which consists of a presser bar (*q*), forced against (*s*, *s*) by spring (*p*) which keeps the peg-wood upright against the side of (S) and exposed to the action of (*m*), and a cover, which slides close over the peg-wood in such of the grooves shown in (S) as are suited to the length of the peg-wood and keeps it from rising from the bottom of the peg-box. The cover herein mentioned is not shown in the drawings except in Fig. 6, as it would interfere with the representation of other parts and is but a simple metallic strip fitted to slide in the grooves of the peg box. It has been hereinbefore set forth that the cover should extend into the narrow groove in (S), leading into the peg tube, for reasons given; this is the most convenient way known to me of forming the stop by which the peg wood is forced upon the knife in the movement of (S), but it may be made in various ways separate from the cover and adjustable to the length of the peg-wood. To increase the strength of the pegs it is intended not to increase the thickness of the peg-wood, but to make its cross pointing coarser, and have extra pieces (*f*) with the peg-tubes therein made to match the cross pointing; this method of increasing the size of the pegs viz: by changing their form of cross section from square to rectangular, renders it unnecessary to change (S) for other peg-wood magazines having grooves of different width leading to the peg-tube. The taper of (*f*), which is held in position by a set screw only, renders its removal easy.

The use of the spring on (*v*), and the excess of movement of (E), in connection with the feeder (*m*) is obvious when the size of the pegs is changed.

I claim—

1. A peg-wood box or receptacle (S) which is vibrated or reciprocated so as to bring the peg wood (*s s s*) upon the knife (*v*) for the purpose of splitting a peg from the peg-wood, and which is so located and arranged as to present the peg to or directly over the hole in the sole into which it is to be driven; but I do not claim broadly, any moving peg-wood box which is arranged remotely from the awl hole, made in the sole, and there delivers the peg-wood or pegs which ultimately are fed to the awl hole into which they are to be driven.

2. In combination with the vibrating or reciprocating peg-wood box (S), a stop which is adjustable to the length of the peg-wood (*s s s*), and is located in the mouth of (S) near the peg tube in (*f*), and within less distance of the plane of the edge face of the knife (*r*) than the bigness of one peg, and whose function is to hold the peg-wood against the action of the knife in splitting off the peg; and this I claim whether such stop forms a part of the cover of the peg-wood box (S) or is separate therefrom.

3. I am aware that it is not new to use a feeding instrument having a compound movement like that described for (*m*), that therefore I disclaim; but what I do claim is the mechanical means or their equivalents for producing said compound movement of (*m*), the same consisting of the bell crank lever (*u*) hinged to (*m*), and the friction block (*w*) which is arranged to slide in the slot in (*u*), both (*u*) and (*w*) being arranged to pivot upon (*x*).

4. The use of a spring, (the spring on *v*) or its equivalent, in combination with a peg-wood feeder (*m*) having a range of feed movement, when unobstructed, greater than the bigness of a peg, for the purpose of rendering the movement of the feeder (*m*) self regulating, as set forth.

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