(No Model.)

3 Sheets—Sheet 1.

G. H. JACKSON & C. H. INMAN.

POWER PEGGING MACHINE.

No. 262,952. Patented Aug. 22, 1882.

Fig. 2.

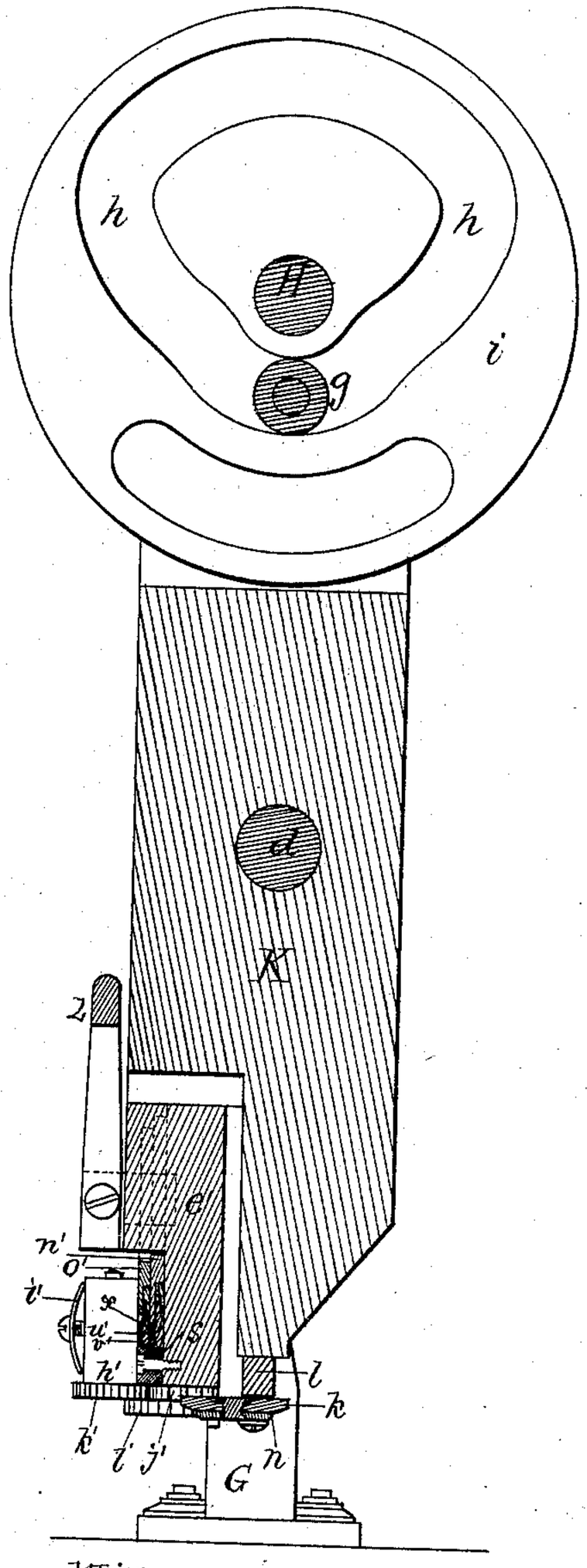
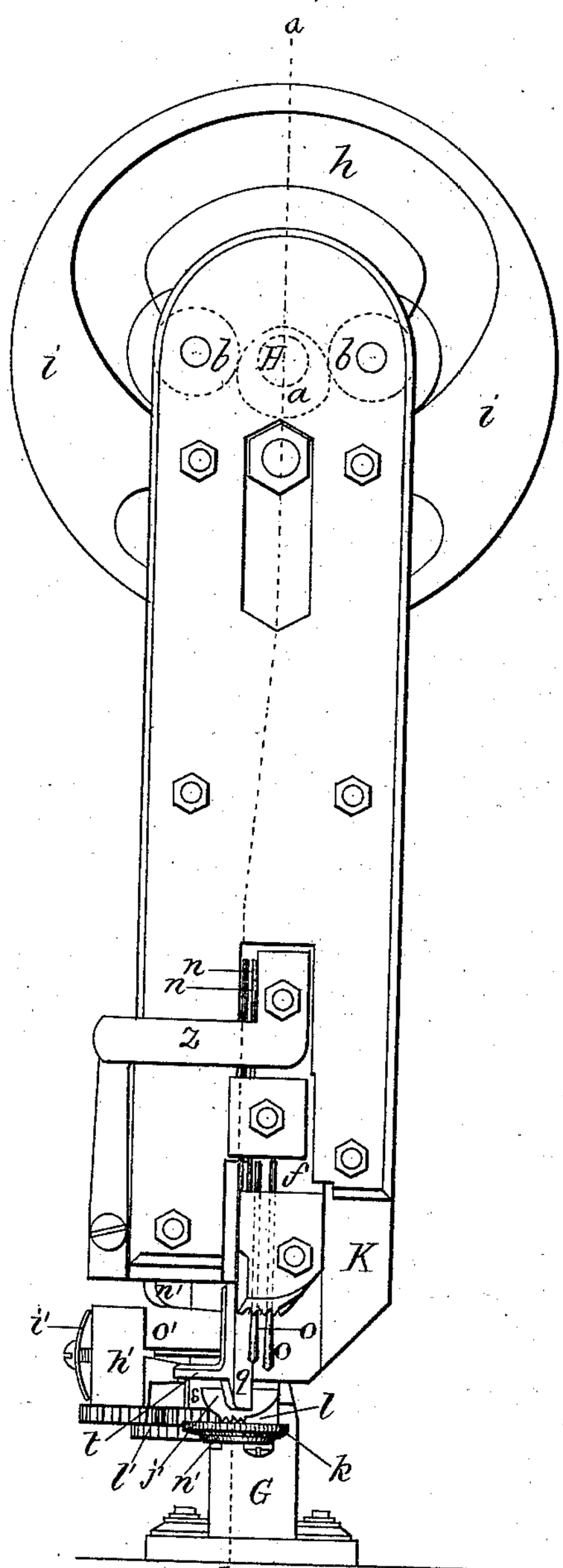


Fig. 1.



Witnesses.
H. E. Lodge.
F. D. Simpson.

Inventors.
Geo. H. Jackson & C. H. Inman.
F. Curtis. Atty.

(No Model.) 3 Sheets—Sheet 2.

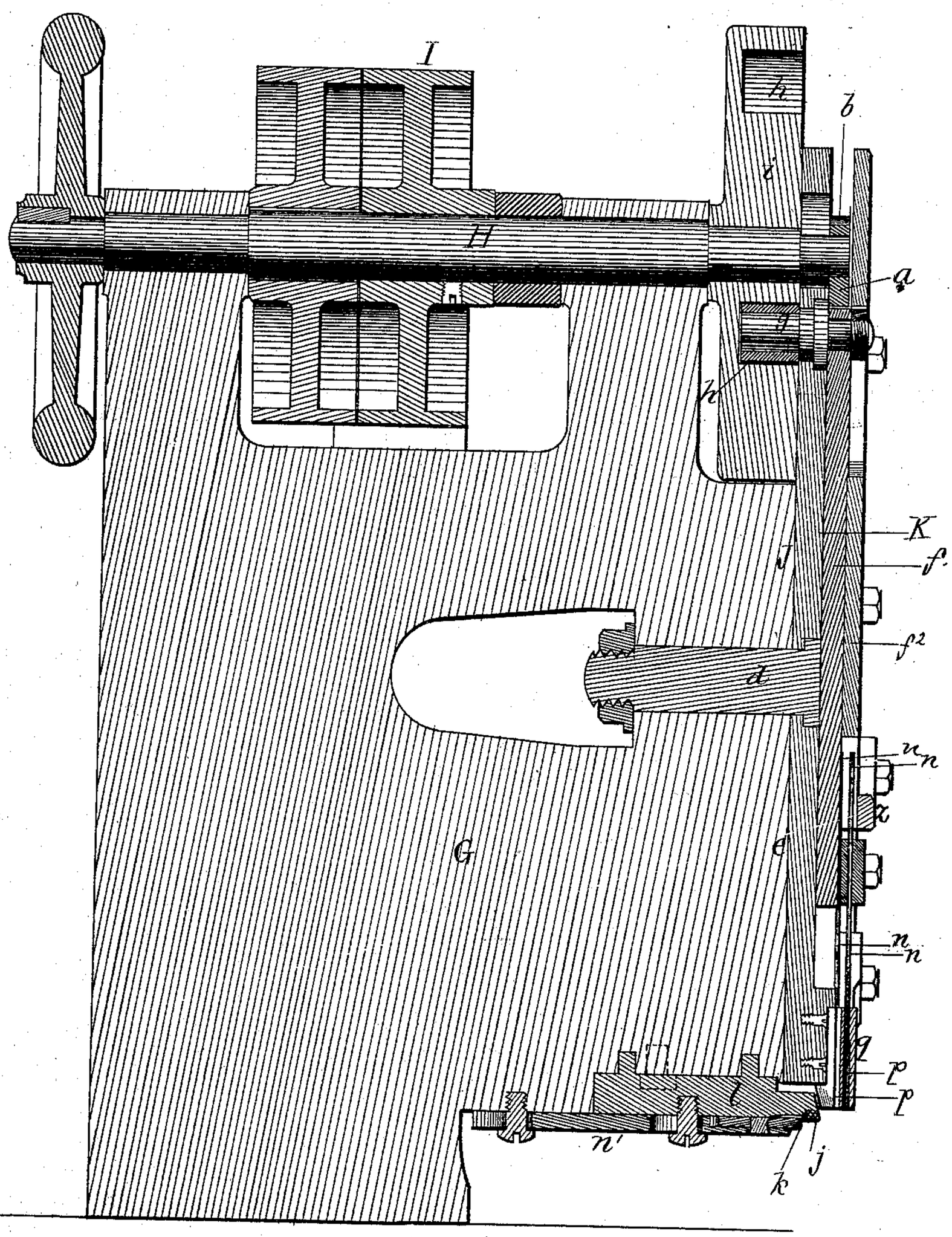
G. H. JACKSON & C. H. INMAN.

POWER PEGGING MACHINE.

No. 262,952. Patented Aug. 22, 1882.

Fig. 3.

on line ab of Fig. 1.



Witnesses.
H. C. Lodge.
F. L. Dimpson.

Inventors.
Geo. H. Jackson & C. H. Inman.
F. Curtis. Atty.

(No Model.) 3 Sheets—Sheet 3.

G. H. JACKSON & C. H. INMAN.

POWER PEGGING MACHINE.

No. 262,952. Patented Aug. 22, 1882.

Fig. 4.

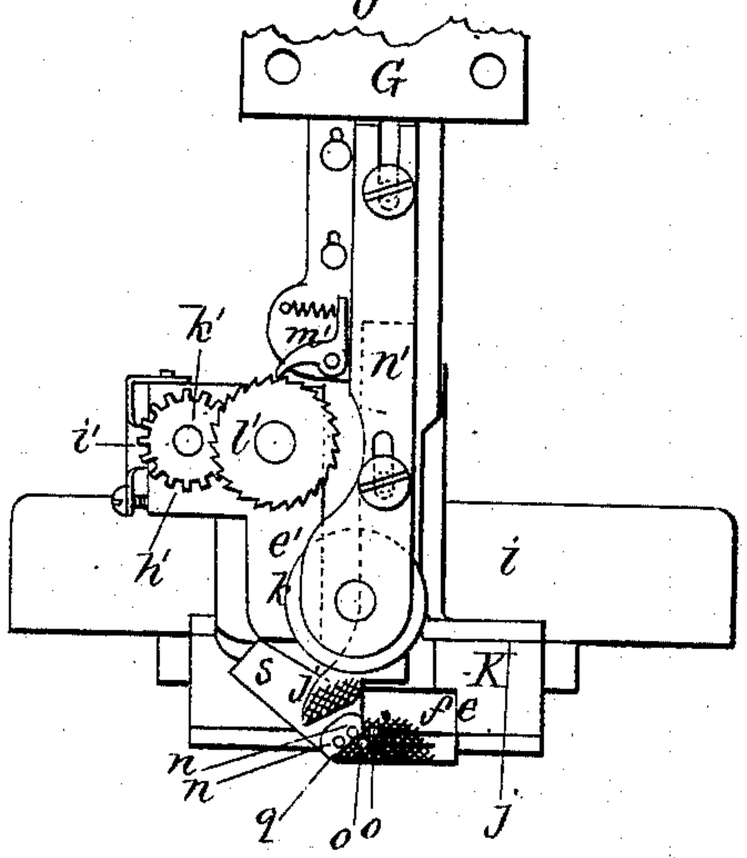


Fig. 5.

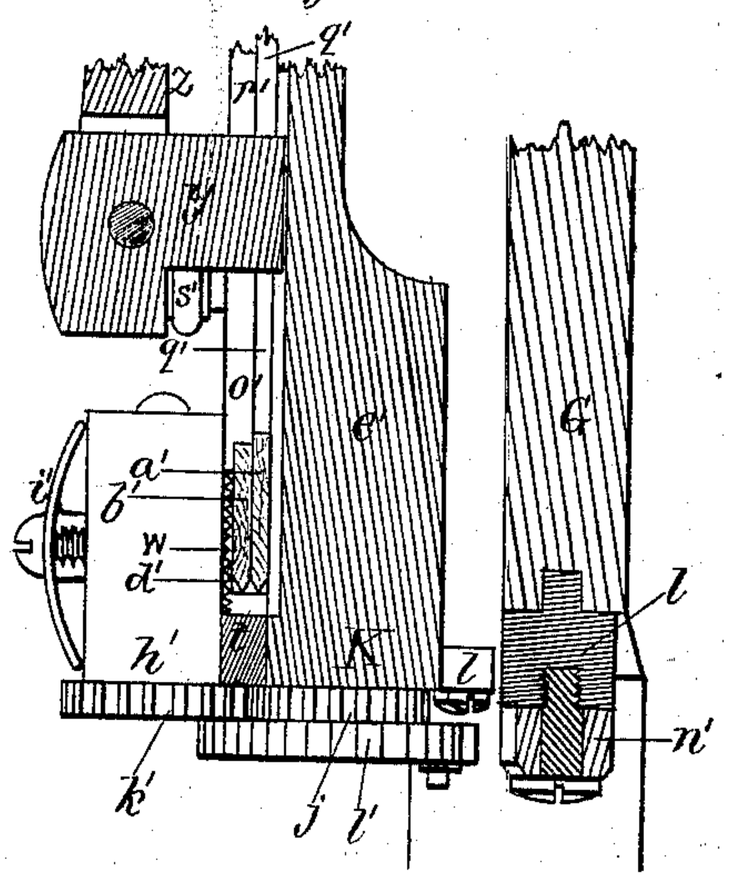


Fig. 6.

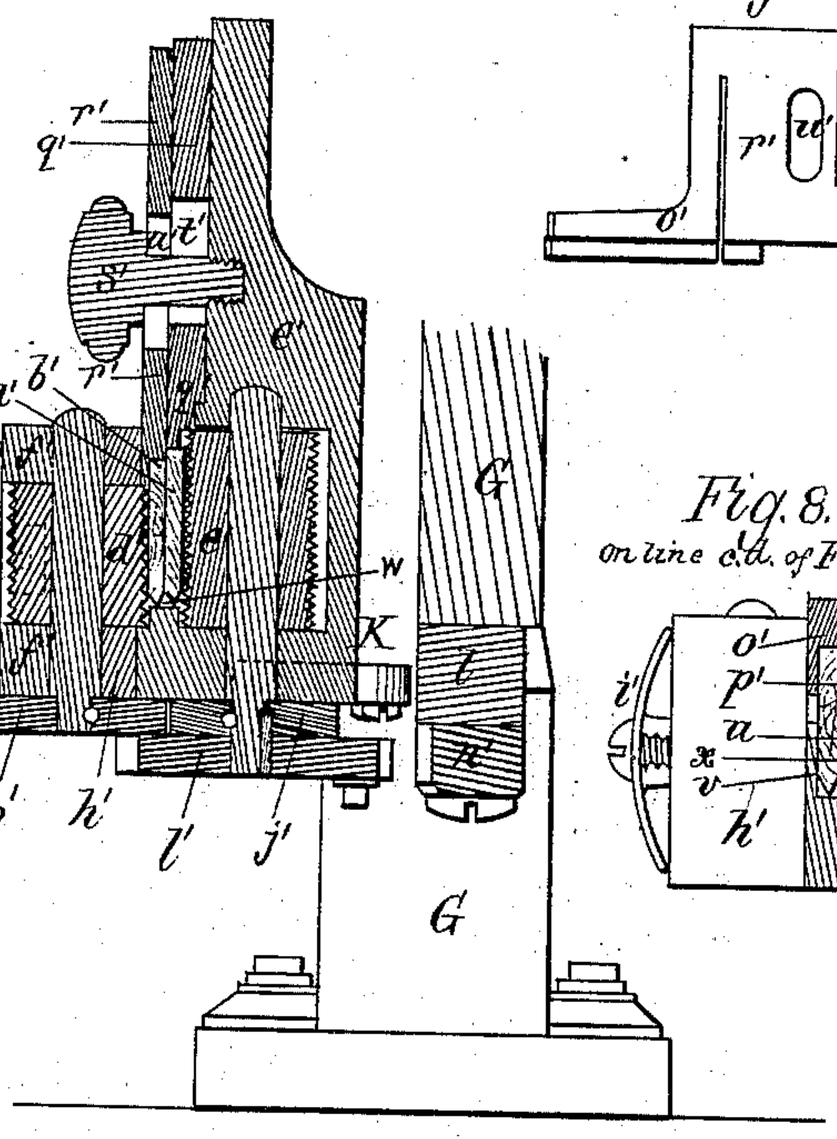


Fig. 9.

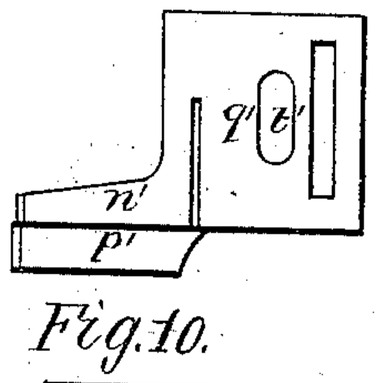
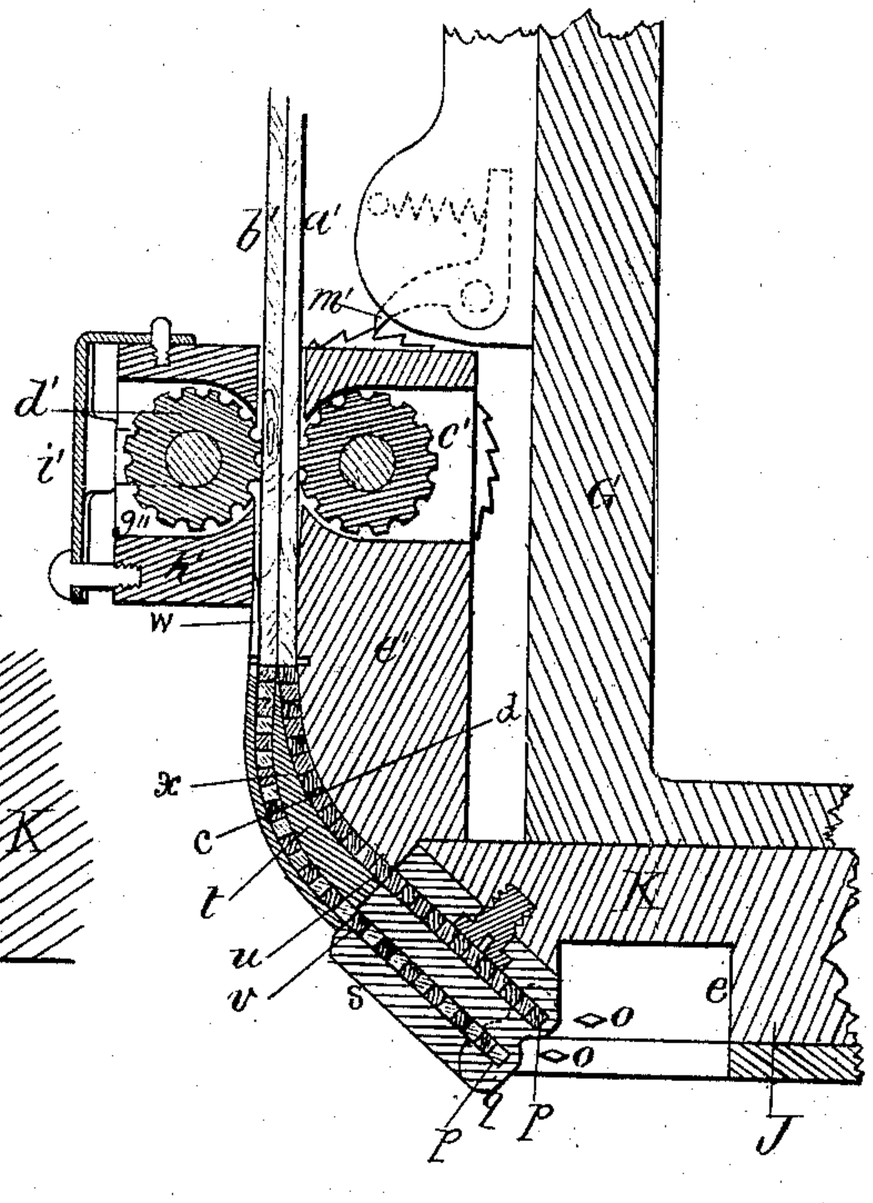


Fig. 10.

Fig. 8.
on line c.d. of Fig 7.

Fig. 7.



Witnesses.
H. E. Lodge
R. G. Dickerson.

Inventors.
G. H. Jackson & C. H. Inman.
H. Curtis. Atty.

UNITED STATES PATENT OFFICE.

GEORGE H. JACKSON, OF NATICK, AND CHARLES H. INMAN, OF STONEHAM, MASSACHUSETTS.

POWER PEGGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,952, dated August 22, 1882.

Application filed January 9, 1882. (No model.)

To all whom it may concern:

Be it known that we, GEORGE HARWOOD JACKSON, residing at Natick, in Norfolk county, and CHARLES HENRY INMAN, of Stoneham, in Middlesex county, in the State of Massachusetts, and both citizens of the United States, have invented certain new and useful Improvements in Power Pegging-Machines; and we hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

These improvements are based upon a class of machines heretofore generally in use for pegging the outsole of a boot or shoe to the upper, in which the boot or shoe is supported upon the top of a jack whose standard is swiveled at bottom to a weighted foot-lever or pedal, by means of which the boot or shoe is held up to the feeding and pegging devices, the jack being susceptible of universal freedom of motion upon its support, in order that the point of union of the boot-sole with the bearing-plate or foot of the pegging mechanism, may, for the moment of driving a peg, constitute the center of motion of the work, and in order, also, that the surface of the sole at the point being operated upon may be brought to a horizontal plane, both of which movements are requisite to the successful operation of the machine.

The entire mechanism for severing, feeding, and driving the pegs is carried by a vertical plate (called in shoe-makers parlance a "swing-plate") oscillating centrally, or thereabout, upon a horizontal stud from the machine-head, the peg-wood guide being secured directly to the lower end of this plate, while the driver and awl are rigidly secured to the lower end of a vertical bar impelled in vertical reciprocation to and fro of such plate, the oscillations of the plate being effected by the wrist-pin of a crank-wheel operating in a slot in such head, while the traverses of the awl-bar are effected by a cam-groove in such wheel actuating a stud from such bar. The peg-driver plays within a throat in a stationary vertical guide located at the front or delivery end of the peg-wood channel, while the awl remains and operates outside of such guide. The sole of the boot or shoe is held by the weighted lever against a roughened bearing or foot secured immovably to the machine-head and located immediately in rear of the guide of the peg-driver, such bearing-plate or foot constituting the center of motion of the work, and serving to prevent feeding motions of the boot while the awl is out of the sole. The combined movements of the oscillating head and awl-bar are such that the awl first retreats a distance equal to the space separating it from the driver, descends, and buries itself in the sole, and then, while in such sole, advances and, in conjunction with the lower end of its bar, (which at this time bears upon and lowers the sole from the hold of the foot before named,) feeds the boot an equal distance in the opposite direction, then rises out of the sole, (its bar at the same time rising and freeing the sole, and permitting the weight of the lever to restore such sole to its bearing against the stop,) and again retreats in readiness to again descend and punch a new hole in the sole, the peg-driver, during the descent of the awl, also descending and driving a peg into the hole punched by the preceding descent of the awl. With the advance of the driver and awl the knife secured to the machine-standard operates to sever a peg from the peg-wood strip, while simultaneously with each retreat movement of the awl and driver over the sole the peg-wood strip is fed a distance equal to the thickness of a peg, in order to present a peg to the driver at each reciprocation of the latter. The peg-strip is advanced by rotary feed-wheels embracing its opposite sides, and intermittently rotated by suitable mechanism to effect step by step the feeding movement of the strip, this strip, practically endless, being fed by such wheels into and through a channel intercepted by the stationary knife carried by the standard, by which knife the pegs are severed in succession from the strip and are pushed forward successively beneath the driver by the advance of the peg-strip from behind.

In our machine we retain the elements going to make up the structure of the machine

as above organized and generally in use, and, so far as the drivers and awls are concerned, which operate independently of each other, though moving simultaneously, we merely duplicate them by adding extra ones, which addition (being but a matter of degree and an addition to the capacity of the machine) we do not claim as possessing any patentable novelty.

Our present invention consists mainly in the following improvements: first, in a pegging-machine having a movable jack, the combination of an immovable bearer roughened to hold the shoe, a vertically-reciprocating bar carrying multiple awls and peg-drivers, and feeding mechanism for the pegs, substantially as hereinafter set forth; second, the combination of a reciprocating bar, provided with awls, peg-drivers, and a knife, with feeding mechanism for the pegs, substantially as set forth, and a bearer which is roughened to hold the shoe in place; third, in combination with a bearer roughened as described, a vertically-reciprocating bar provided with awls and drivers and arranged to force the shoe away from said bearer as said awl descends; fourth, an oscillating plate or head, in combination with a bar which is guided thereby, a shaft which oscillates said plate and reciprocates said bar, awls and peg-drivers carried by said bar, and a holder below said bar, substantially as set forth; fifth, the combination of an oscillating plate, a reciprocating bar, a driving-shaft, a knife carried by said bar, parallel guides for peg-wood, and feeding devices for the same, substantially as described, the guides or channels for the peg-wood being of variable depth; sixth, adjustable cap-plates for the delivery channels or guides for peg-wood, in combination with said channels, a reciprocating bar carrying a cutter, feed-wheels and ratchet for advancing the peg-wood, and the driving-shaft, substantially as set forth; also in divers other improvements hereinafter more particularly described, and pointed out in the claims.

The drawings accompanying this specification represent, in Figure 1, a front elevation, in Fig. 2 a vertical cross-section, and in Fig. 3 a vertical and longitudinal section, of a pegging-machine containing our improvements. Fig. 4 is an under side view of the pegging devices. Figs. 5, 6, 7, and 8 are detailed sections of the pegging devices. Figs. 9 and 10 are views of the cap-plates of peg-troughs.

In these drawings we have not shown the upright standard which supports the peg-driving mechanism, nor the jack which supports the boot or shoe while being pegged by these devices, as these devices, as well as the entire machine in general, are the same as single-pegging machines generally in use, it being sufficient to say that the said standard is of such a height as to support the peg-driving mechanism in a plane level with the operator's eye, the superstructure of the machine containing such mechanism being secured to the top of this standard. The jack, which is of the construction used in power pegging-machines now generally in use, is secured to the top of an upright standard, C, which in turn is swiveled at bottom to weighted foot-lever in such manner that the weight of the lever serves to maintain the sole of the boot or shoe in contact with the bearing-plate or foot of the machine while the sole is being pegged to the upper, and also in such manner that the jack is susceptible of freedom of motion in various directions upon its support to properly present the face of the sole to the action of the awls and drivers.

The superstructure of the machine consists of a head-stock, G, of proper form and strength, carrying at top a horizontal shaft, H, provided with a pulley, I, while the front end of this shaft, outside of the front face, J, of the head-stock, carries an eccentric or cam, *a*, which enters a vertical groove formed in the rear part of a vertical plate, K, or between anti-friction rollers *b b*, pivoted to the rear side of such head, this head being pivoted at about its center by a horizontal pivot or trunnion *d* to the front face, J, before named, and being free to oscillate in short arcs of a circle upon such pivot by the rotations of the cam *a*. The oscillating head K is grooved or otherwise provided with vertical ways or guides *e e* upon its front face, to receive and guide the movements of a vertical bar, *f*, such bar being impelled in vertical reciprocations within the head by a spur, *g*, from its rear side entering a cam-groove, *h*, in the front face of a disk or wheel, *i*, secured to the front end of the shaft H in rear of the cam *a*, the parts being so timed or adjusted that as the lower end of the plate K swings to the right (the observer facing the front of the machine) and comes to a stop the awl-bar *f* descends and buries the awls in the work, as well as drives the pegs, the plate remaining stationary in this position while this takes place; but as soon as the awls and drivers have descended, as stated, the head swings to the left to the extent of separation of two pegs of a line, carrying the awls and drivers with it, and comes to a stop, and remains in this position while the awls and drivers are being elevated.

The bearing-plate or foot to which allusion has been made is shown at *j* as a horn or spur roughened upon its under side and formed upon the outer end of a horizontal bar, *l*, secured to the under side of the main head G, the usual rotary gage, *k*, being pivoted to a second bar, *n'*, also secured to the under side of the said head. The bearing-plate or foot *j* is located immediately below the oscillating plate K, and serves as a bearing and center of motion to the work.

In carrying our improvements into practice we proceed as follows:

To the lower end of the awl-bar *f* we secure, as shown in the present instance, two awls, *o o*, and two peg-drivers, *n n*, the former being in

rear of the latter, laterally of the plate K, and the twin awls and drivers being arranged obliquely of the front face of such plate at such angles that the holes punched by one awl shall alternate centrally with the space between the holes punched by the opposite awl. The awls and drivers are separated a distance equal to the distances between the pegs of each row to be driven, while the distance between an awl and a driver upon one side and the same upon the opposite side determines the extent of space between the two rows of pegs. The two drivers *n n* play within vertical grooves or throats *p p*, formed in a vertical guide, *q*, disposed immediately in front of the bearer *j*, such guide constituting part of a plate, *s*, secured to the lower front part of the swing-plate K. Immediately in rear of the guide *q* the plate *s* has a horizontal ledge, *t*, in which horizontal channels *u v* are created, these channels connecting respectively with the vertical grooves *p p*, and extending rearward to and converging into a single channel, *w*, created in the rear part of the head K, the partition *x* separating the two channels, *u v*, vanishing at a knife-edge, and preferably falling away at an angle of forty-five degrees, or thereabout, to a horizontal plane.

The knife for severing the pegs (to which allusion has been made) is shown at *y* (see Fig. 5) as a flat vertical blade confined by a clamp-screw within the slotted and rear end of a curved arm or stock, *z*, the front end of which is secured to the awl-bar *f* above the awls, this knife in its descent intercepting the channel *w* and extending practically to the bottom of the latter, and in its passage severing a peg from each of the peg-wood strips. The strips of peg-wood are in the present instance two in number, and of unequal width, and are shown at *a' b'*. They enter the common channel *w* and traverse the latter as one until they reach the separator *x*, when they are separated by the latter and diverted by it in the form of two independent lines of pegs into the separate channels *u v*, which they traverse until they enter the vertical channels *p p* in the guide *q*, being reduced to pegs by the action of the knife before being separated.

The mechanism for feeding the peg-strips is the same as that heretofore in use, and consists as follows:

c' d' represent twin rolls, roughened on their peripheries and disposed upon opposite sides of the two peg-strips, the roll *c'* being pivoted within a pocket in the lower rear part of the head K, before mentioned, or a bracket or extension, *e'*, of such head, while the opposite and outer roll, *d'*, is journaled within boxes *f' f'*, contained within an orifice, *g''*, formed in a boss, *h'*, secured to or making part of the bracket *e'*, the outer roll, *d'*, being crowded toward the inner one by a spring, *i'*, acting upon the boxes *f' f'*.

To the lower end of the shaft of each roll *c' d'* is affixed a spur-gear, *j'* or *k'*, which engage each other, while to the under side of the inner gear, *j'*, is secured a ratchet-wheel, *l'*, which engages a spring-impelled pawl, *m'*, pivoted to the under side of the main head G, in rear of the bearer *j*.

As the pawl *m'* is pivoted to an immovable support and the ratchet follows the movements of the oscillating plate K, it will be seen that with each vibration of this head the ratchet will be advanced to the extent of one of its teeth. Hence the length of each of these teeth is such as to advance the peg-strip a distance equal to the width of a peg.

To prevent vertical slipping and misplacement of the peg-strips we place over each channel *u v* a cap-plate, *n'* or *o'*, the plate *n'* covering the channel *u* and the plate *o'* covering the channel *v*, and the plates being separated by a partition, *p'*, of equal thickness with the partition *x*, (see Fig. 8,) and, like the latter, vanishing to a knife-edge immediately in front of the knife to aid in separating the peg-strips. Each cap-plate *n' o'* is continued rearward into a flat plate, *q'* or *r'*, the inner plate, *q'*, abutting against and being supported by the outer face of the bracket *e'*, while the plate *r'* abuts against the plate *q'*, and both are secured to the bracket by a common clamp-screw, *s'*, which passes through a vertical slot, *t'* or *u'*, in each plate, the two slots *t' u'* coinciding, and being to enable each plate to be raised or lowered to adapt the machine to receive peg-strips of different widths. In rear of the knife *y* the two plates *n' o'* constitute a common cover for the single channel *w*, one plate covering one-half of such channel and the other the opposite half, as seen in Fig. 6.

In lieu of the single channel *w* receiving the two peg-strips, as stated, and diverging into the two channels *u v*, two channels, each containing a strip and connecting with said channels *u v*, may be employed. We prefer, however, one primary channel, as shown, for the reason that by feeding the two peg-strips together as one they are less liable to slip than if they were separated and one feed-wheel were to act upon each.

In the operation of this machine the operator places his foot upon the foot-lever, depresses the jack, places a boot or shoe upon it, and, releasing the pressure of his foot upon the lever, allows the latter to raise the boot until the bottom of its sole rests against the bearer *j* at the point in the edge of such sole at which the rows of pegs are to begin, it being understood that the lower end of the oscillating plate K is swung to its extreme position to the left, and the awl-bar stands at its highest position within such plate. The belt being shipped to the fast pulley I and the machine thereby put in motion, the plate K swings to the right, thereby carrying the dual awls (as well as peg-drivers) a step backward, while at the same time the pawl *m'* acts upon the ratchet *l'* to rotate the gears *j' k'* and feed-wheels *c' d'* and advance the peg-strips and

the line of pegs in advance of them a distance equal to the thickness of a peg, thereby pushing the two outermost or advance pegs into the throats *p p* to a point directly beneath the drivers. The head K remains immovable until the awls descend and bury themselves in the sole. The drivers drive the two advance pegs into the holes punched by the last preceding descent of the awls, and the lower end of the awl-bar *f* impinges upon and lowers the boot, and frees the sole from the restraint of the bearer *j* at the same time that the knife descends, severs a peg from the end of each strip, and rises when the plate K swings at bottom to the left or forward, and advances the boot the distance required to separate any two pegs of the same row. The awl-bar and awls, with the drivers and knife, now rise, and the bearer *j* again takes hold of and prevents any forward movement of the sole, and the head K retreats, as at first, thereby bringing the drivers in line with the holes last punched and pushing forward the advanced pegs of the two lines to a point beneath these drivers, this feeding of the pegs being effected by the peg-strips from behind pushed forward by the feed-rolls, as before stated. These movements are repeated with rapidity until the desired portion of the sole has been gone over and two rows of pegs driven, when the operator raises the weighted end of the lever, allows the jack and boot to drop, and removes the boot just pegged.

By the employment of dual sets of drivers and awls and two peg-strips we are enabled to drive two rows of pegs in the time now required to drive one, and these two rows must of necessity be parallel. By arranging the drivers and awls in parallel planes obliquely to the path of movement of the plate K we deposit the pegs of one row opposite the spaces between the pegs of the other row, thereby preventing, as before stated, weakening or fracture of the sole, and at the same time presenting a neat appearance.

By delivering the rows of pegs to the drivers in independent channels we are enabled to greatly simplify the construction of the punching and driving mechanism, as we have merely to duplicate the awls and drivers. By adapting the channels which contain the multiple rows of pegs to be varied in depth we are enabled to drive pegs of uniform lengths or of varying lengths at pleasure.

One object we have had in view in devising this machine is to render a power pegging-machine readily transformable from a single to a double machine, or vice versa. This we are enabled to do by simply adding or removing an awl, peg-driver, and peg-strip and substituting a single plate for the strip removed. This plate may be added in the place of the plate *r'*, in which case it will be of similar shape, but having a pendent lip to extend between the boss *h'* and the peg-strip *a'* and filling the portion of the channel *w* occupied by the removed strip, this lip extending forward to and meeting the separator *x;* or the pendent lip may be an independent plate to be secured in place, allowing the plate *r'* to remain.

Having thus described our improvements and the operation and advantages of the same, we claim as our invention, and desire to secure by Letters Patent of the United States, the following:

1. In a pegging-machine having a movable jack, the combination of an immovable bearer roughened to hold the shoe, a vertically reciprocating bar carrying multiple awls and peg-drivers, and feeding mechanism for the pegs, substantially as set forth.

2. The combination of a reciprocating bar provided with awls, peg-drivers, and a knife, with feeding mechanism for the pegs, substantially as set forth, and a bearer which is roughened to hold the shoe in place.

3. In combination with a bearer, roughened as described, a vertically-reciprocating bar provided with awls and drivers and arranged to force the shoe away from said bearer as said bar descends.

4. An oscillating plate or head, in combination with a bar which is guided thereby, a shaft which oscillates said plate and reciprocates said bar, awls and peg-drivers carried by said bar, and a holder below said bar, substantially as set forth.

5. The combination of an oscillating plate, a reciprocating bar, a driving-shaft, a knife carried by said bar, parallel guides for peg-wood, and feeding devices for the same, substantially as described, the guides or channels for the peg-wood being of variable depth.

6. Adjustable cap-plates for the delivery channels or guides for peg-wood, in combination with said channels, a reciprocating bar carrying a cutter, feed-wheels, and ratchet for advancing the peg-wood and the driving-shaft, substantially as set forth.

7. In combination with head-stock G and horizontal driving-shaft H, having cam *a*, the plate K, engaging with said cam and operated thereby, the grooved wheel *i* on said shaft, the spurred bar *f*, which engages with said grooved wheel and is reciprocated in guides on said plate, and the awl or awls and driver or drivers carried by said bar and operated thereby.

8. In combination with an oscillating supporting-plate and a bar reciprocating therein and carrying awls and peg-drivers, a driving-shaft which oscillates said plate and reciprocates said bar, and a knife carried by a bar, which is guided in said plate and reciprocated by said shaft, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE HARWOOD JACKSON.
CHARLES HENRY INMAN.

Witnesses:
F. CURTIS,
H. E. LODGE.