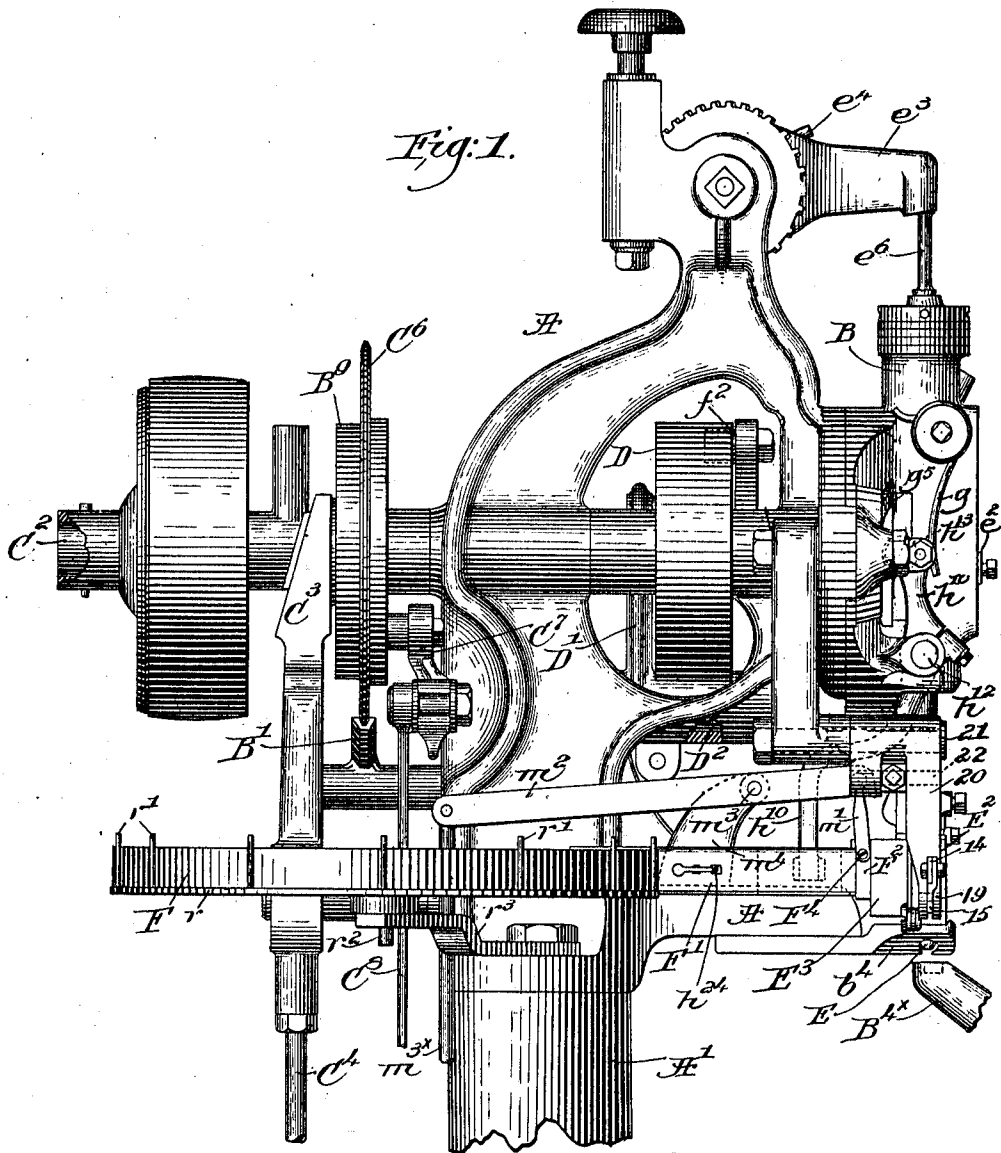


B. F. MAYO.
PEGGING MACHINE.
APPLICATION FILED MAR. 4, 1898.

988,365.

Patented Apr. 4, 1911.

4 SHEETS—SHEET 1.



Witnesses
Edward F. Allen.
A. C. Harmon.

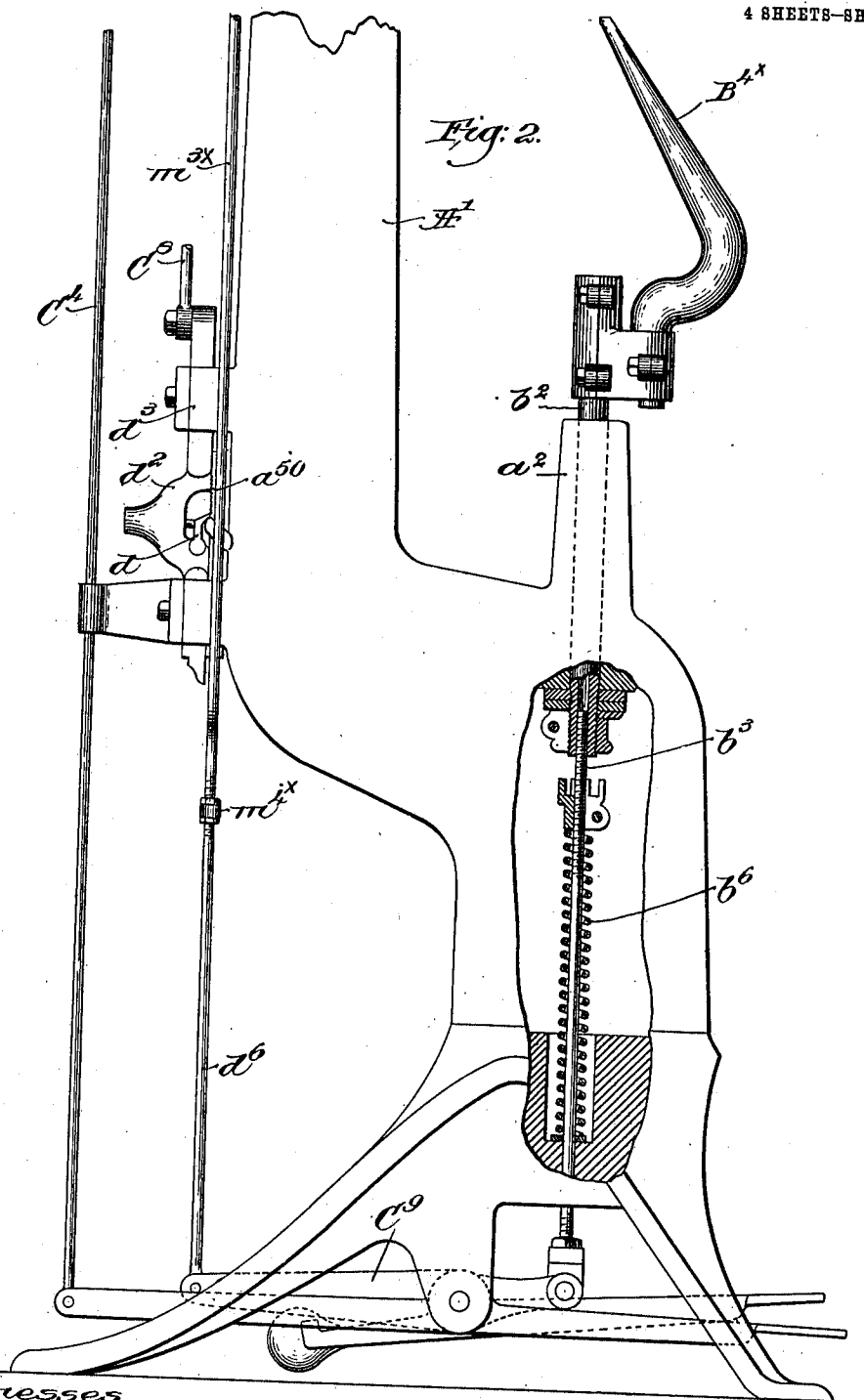
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4 SHEETS-SHEET 2.



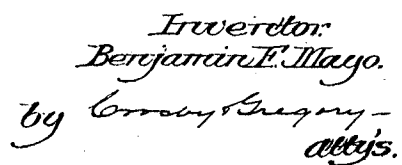
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4 SHEETS-SHEET 3.



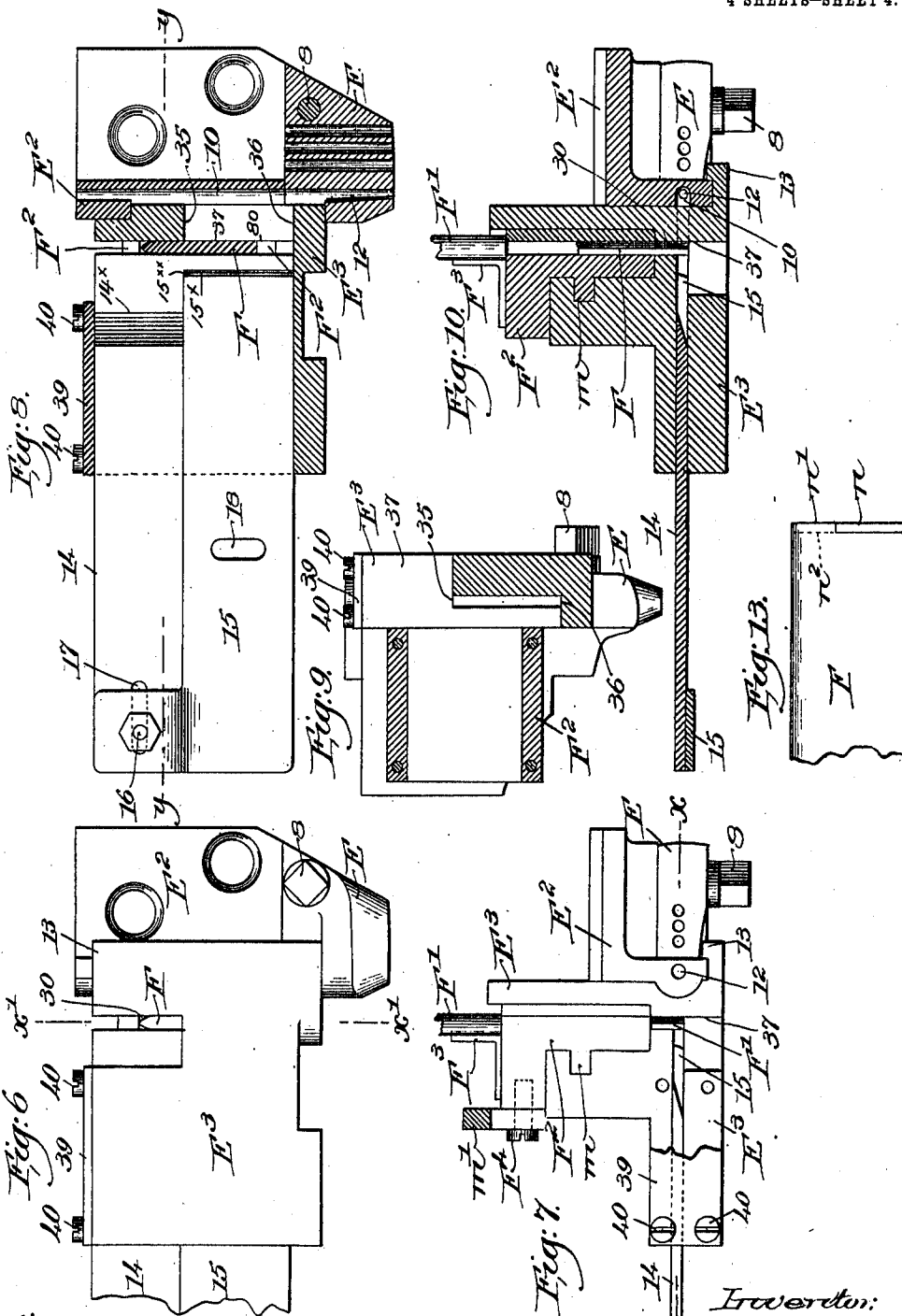
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4 SHEETS—SHEET 4.



Witnesses:
Edward H. Allen.
A. C. Hammond.

Inventor:
Benjamin F. Mayo.
By [Signature]

UNITED STATES PATENT OFFICE.

BENJAMIN F. MAYO, OF SALEM, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO UNITED SHOE MACHINERY COMPANY, A CORPORATION OF NEW JERSEY.

PEGGING-MACHINE.

988,365.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed March 4, 1898. Serial No. 672,507.

To all whom it may concern:

Be it known that I, BENJAMIN F. MAYO, of Salem, county of Essex, State of Massachusetts, have invented an Improvement in Pegging-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to pegging machines and particularly to that type of machines which employ a peg ribbon.

It is now the usual practice in pegging shoes to employ a machine which drives through the outer sole of the shoe a peg of a length longer than the thickness of the soles or other parts to be united so that it is necessary to cut off the driven pegs flush with either or both the inner and outer soles.

The principal object of the present invention is to produce a pegging machine, especially adapted to operate upon shoes but equally useful for other purposes, in which the length of each peg formed will correspond with the stock into which it is to be driven so that each peg when driven will be of a length suitable for the stock whatever its thickness and there will be no occasion for cutting off the end of the pegs after they have been driven.

Accordingly the present invention, in one aspect, comprises the combination with means for supporting a peg ribbon, of means for shortening the peg or determining its length, and means to change automatically the relative position of the ribbon support and the peg shortening means according to variations in the thickness of the stock being pegged, together with such other cooperating elements as are necessary to a practical, organized pegging machine, including, for example, a peg driver and an awl, which preferably will also be utilized for feeding the stock.

More specifically the invention comprises means for forming pegs of a length varying according to the position of a vertically movable horn or other support for the stock which is arranged to cooperate with a vertically stationary foot plate or other fixed abutment for calipering or measuring the

stock, and which is preferably actuated automatically to release the pressure upon the stock while it is being fed.

In addition to the peg shortening means, just referred to, the machine is preferably provided with means which cuts into the peg ribbon transversely and thus cooperates with the peg shortening means to detach directly from the peg ribbon a shortened peg. Broadly considered, the invention, in this aspect, comprises means to detach directly from a peg ribbon pegs of varying length and means controlled by the thickness of the stock being pegged for determining the length of the pegs.

While some of the features of this invention are not limited to a construction in which each peg at the time that it is detached from the peg ribbon is of the proper length for the particular thickness of stock into which it is to be driven, yet this is an important feature of the invention and this manner of obtaining pegs of the proper length is considered preferable to that in which a peg having a length equal to the full width of the peg ribbon is first formed and then is subsequently shortened to the desired length for driving. For instance, where, as herein set forth, the peg is shortened while still attached to the ribbon it may easily be held in proper position with relation to the shortening means and may also be well sustained against the thrust of said means so that the peg will not be broken during the shortening operation but will be shaped accurately.

The peg forming means herein described and shown includes two cutting edges, one of which acts transversely of the peg ribbon to detach a peg and the other of which acts longitudinally of the ribbon to determine the length of the peg. These two edges may be formed on separate parts or elements of the machine, but it is convenient to employ for these purposes two edges at right angles to each other upon a single bar or part. The edge which cuts into the peg ribbon transversely will, in such case, have a width substantially equal to the width of the ribbon, this edge acting alone to form a peg when the peg is to be of a length equal to the full

width of the ribbon. If, however, the peg is to be of a length less than the width of the ribbon, then the other edge which acts to shorten the peg will cut the peg ribbon longitudinally between the two edges of the ribbon, thus defining the upper end of the peg and consequently its length.

In order to make the leading end of the peg ribbon straight when a peg shorter than the width of the ribbon is detached, I have provided means to remove from the ribbon the surplus material not needed in the peg. While this surplus material may be removed from the ribbon either before or after the peg about to be driven is detached from the ribbon, yet, as herein shown, the peg is first detached and then the surplus or stub left at the end of the ribbon is removed by the surplus remover so that the leading end of the peg ribbon will present a plane surface substantially at right angles to the edges of the ribbon. In the preferred embodiment of the invention, the peg forming means and the surplus remover are moved back and forth substantially at right angles to the peg ribbon support and to the ribbon sustained thereby so that the peg is severed from the ribbon and then the material not needed for the peg is removed by the surplus remover during the time that the peg forming means is carrying the peg into position for driving.

A feature of the machine as herein illustrated is that the successive pegs, which may be of varying length, are each driven immediately after formation and before another peg is formed.

Another feature of the machine is that the peg forming means is actuated through connections from the stock feeding head so that no additional cam, or other part on the main shaft, is required to actuate the said means, the peg being formed during the movement of the head.

Mechanism will usually be provided for feeding the peg ribbon forwardly to bring it into proper relation to the peg forming means. Preferably those parts of the feeding mechanism which engage the ribbon, as well as a holder for a coil of the ribbon, are mounted to move vertically with the peg ribbon support.

Other features of my invention will be hereinafter more fully described and pointed out in the claims at the end of this specification.

Referring to the drawings,—Figure 1 is a left side elevation of the upper part of a pegging machine embodying my invention in the preferred form; Fig. 2 shows the lower part of said machine, Figs. 1 and 2 together showing the entire machine; Fig. 3 is a front elevation of the part of the machine shown in Fig. 1; Figs. 4 and 5 are details showing parts of the peg ribbon support or

guide and part of the feeding mechanism for the said ribbon; Figs. 6 and 7 are views upon a larger scale in front elevation and plan respectively of the nose and part of the peg ribbon support; Fig. 8 is a section on the line $x-x$, Fig. 7; Fig. 9 is a section on the line $x'-x'$, Fig. 6; Fig. 10 is a section on the line $y-y$, Fig. 8; Fig. 11 shows in front elevation, partly broken away, another form of the devices shown in Fig. 8; Fig. 12 is a section on the line x^5-x^5 , Fig. 11, and Fig. 13 shows the end of a piece of peg ribbon and indicates the manner in which a peg is detached therefrom.

I have chosen for the sake of illustrating my invention in a practical working machine to show it as applied to a machine of the type represented in Letters Patent of the United States No. 490,624, dated January 24, 1893. Therefore many of the parts illustrated in the drawings are substantially like those in the said prior machine. Thus, the movable head B carrying a driver bar a provided with a driver a^5 , and containing an awl bar f^8 provided with an awl f^9 ; the link e^6 resting on the upper end of the driver bar, the arm e^3 , the spring e^4 , the main shaft C^2 having at its front end a disk e having a driver lifting projection e' and a cam face g^5 , said projection e' acting on a projection from the block e^2 , connected with the driver bar to lift the said driver bar; the cam D fast on the main shaft C^2 , the arm f^a actuated by a groove at one side of said cam, and rocking the shaft f^4 having an attached arm f^6 provided with segmental teeth engaging teeth of the awl bar; the arm D' also actuated by a groove in the cam D, said arm being fast on a shaft D^2 , provided at its front end with a feed arm D^4 , grooved to receive a divided block D^7 , the stud D^6 carrying it and entering the groove between the head B and the finger B^{10} , connected therewith to rock the movable head B and enable the awl in the stock or work to feed the stock over the stock support or horn B^{4*} ; the wedge C^3 , carried by the rod C^4 , the lever C^7 pivoted upon a stud in the head A and having connected to it a rod C^8 which, through suitable connections, depresses the stock support at the proper times; the brake B' , the brake wheel C^6 , the cam B^3 connected therewith; the nose E in which both the driver and the awl work, the driver working in a driver passage in the said nose; and the foot plate b^4 , are or may be all substantially as shown in the patent above mentioned, wherein the same letters are used to designate like parts. I will also state that the stock support B^{4*} mounted on a shaft b^2 adapted to move vertically in a bearing a^2 , rising from the column A' which supports the head of frame A, the rod b^3 connected to the lower end of the stock support and attached to a lever C^9 , said rod being sur-

rounded by a spring b^6 , the rod d^6 connected with one end of the lever C^9 and having at its upper end a ratchet plate a^{50} adapted to be engaged by a pawl d , pivoted in a carrier d^2 working in guideways d^3 and having attached to it the rod C^8 and the rod C^4 hereinbefore referred to, are or may be substantially as represented in Letters Patent of the United States No. 383,455, dated May 29, 1888, so that said parts need not be herein more specifically described. It will be understood therefore that the awl is actuated to make a hole in the stock and to feed the same and that the driver bar and driver are reciprocated to cause the driver to descend at the proper time in the driver passage of the nose E , and that the stock support is automatically lowered after driving each peg thereby to release the stock in order that the awl, in the lateral movement of the head B , may feed the stock and that the horn or stock support then rises to clamp the stock whatever its thickness may be, the said stock support occupying a varying position according to variations in the thickness of stock being pegged so that the stock support and foot plate b^4 serve to caliper the stock which passes between them. According to the present invention I make use of this caliper-

ing means to produce the change, heretofore referred to, in the relative positions of the peg ribbon support and the peg shortening means, as will be hereinafter described in detail.

I prefer to use for the peg ribbon a strip of peg wood F rectangular in cross section so that the pegs will present a smooth surface not only at the inner side of the inner sole, but at the outer face of the outer sole, it being understood that, in shortening the pegs, the cut is made at right angles to the length of the peg.

Instead of the lever employed in said Patent No. 490,624 for actuating the separator for taking off from the raceway the headed nails to be driven, I have substituted in the machine an oscillating lever h^{10} which forms a part of mechanism for feeding the peg ribbon. The lever is secured to a stud h^{12} extended from the movable head B and at its upper end the lever is provided with a roller or other stud h^{13} which is constantly pressed against the cam face g^5 by the spring g . The lower end of this lever h^{10} is provided with ears h^{15} , shown best in Figs. 4 and 5, provided with adjustable stops, represented as screws h^{16} , said stops in the oscillation of said lever meeting the free vertically widened end h^{17} of a feeding pawl or like device the point h^{18} of which passes through a slot h^{19} in one side of the peg ribbon support or guideway F' and engages one side of the peg ribbon F . A stud h^{20} on the pawl is free to slide longitudinally of the ribbon support in a slot h^{21} of a block

h^{22} fixed to the support, a spring h^{23} serving normally to keep the point of the pawl against the side of the ribbon. Fig. 5 represents these parts in the positions they occupy during the feeding of the ribbon toward the nose E . One of the stops h^{16} of lever h^{10} , as shown, acts upon the free end h^{17} of the pawl and forces the point h^{18} firmly into engagement with the ribbon so that, as the lever h^{10} is moved to the right, the stud h^{20} slides in the slot h^{21} and the ribbon is moved forward positively. In the reverse movement of the lever h^{10} , the other stop h^{16} , acting on the end h^{17} , will remove the point of the pawl from its engagement with the ribbon and the pawl will slide backwardly over the ribbon without moving it. During this backward movement, a detaining device shown as a pawl or detent h^{24} pivoted at h^{25} and acted upon by a spring h^{26} prevents the peg ribbon from moving backwardly away from the nose.

The driver guide E^2 , shown in Figs. 8 and 11, is like that in Patent No. 490,624, above mentioned, and it has the nose E connected to it by a screw 8. The driver passage 12 in said driver guide is open at one side, as best represented in Fig. 8. The formed peg is pushed through this open side into the space 10 in said passage 12 and the driver drives it therefrom into the stock. This passage 12 may be tapered slightly, as shown in Fig. 8, being smallest at its lower or delivery end. When the peg is driven, it is compressed as it is forced through this passage and it enters the stock in a compressed condition.

The driver guide E^2 has fitted to it, as shown in Figs. 7 and 12, a block E^3 which has a lug 13 embracing a portion of the driver guide. This block E^3 , which is secured to movable head B , is grooved to support and guide the peg forming means and the surplus remover, about to be more fully described.

As shown particularly in Fig. 8, the peg forming means comprises two cooperating cutting edges 15^x , 15^{xx} . The edge 15^x , which severs the peg from the ribbon, is vertical and cooperates with a vertical edge of the wall 80 of a throat 36 which extends through one end of the block E^3 and opens into the space 10. The edge 15^{xx} , which shortens the peg, occupies a position at right angles to the edge 15^x and cooperates with the edge of the upper wall of the throat 36. These edges 15^x , 15^{xx} are, as herein represented, formed upon a single blade or bar 15. The acting edge 14^x of the blade 14 which constitutes the surplus remover is preferably located behind the edges 15^x , 15^{xx} of the peg forming device and the two blades 14, 15 are adjustably connected by means of a bolt 16 passing through a slot 17 in blade 14. The surplus remover meets that portion of the

peg ribbon which contacts with the wall of block E^3 above the throat 36 and removes the portion of the ribbon not needed for the peg just formed by the peg forming means.

- 5 The face 37 of block E^3 supports the ribbon against the thrust of the peg forming means and of the surplus remover and prevents the surplus wood from getting into the driver passage. As shown in Figs. 8 and 10, the
10 peg ribbon occupies such a position in the slot 30 of the block E^3 that the peg forming means will punch out and detach a shortened peg directly therefrom, the head of the
15 peg being at a distance from the upper edge of the ribbon or strip equal to the distance between said edge and the surface 35 of the throat 36.

The peg forming means and the surplus remover are kept properly seated in the
20 groove of the block E^3 by means of a cap 39, shown as partially broken away in Fig. 7, through which are inserted suitable screws 40.

- For actuating the blades 14 and 15, I provide a swinging arm 20 having, at its lower
25 bifurcated end, a pin 19 which passes through a slot 18 in blade 15. This arm 20, which is pivoted at 21 upon frame A, is provided with a stud 22, shown in Figs. 1 and 3, which is arranged to be engaged by ad-
30 justable screws 23, 24 in ears of a link 25 which is slotted to receive the stud. This link is pivotally connected at 26 to the movable head B, so that in its stock feeding movement the head swings the arm 20 car-
35 rying forward the peg forming means and the surplus remover but at a greater speed than the peg ribbon, which also moves laterally with the head, so that a shortened peg and the surplus or stud end of the ribbon
40 are detached at the proper times. The throw of the arm 20 may be regulated by adjusting screws 23, 24 thus changing the amount of lost motion between arm 20 and link 25. The screw 23 is so adjusted that at
45 the end of the swinging movement of head B to the right, as shown in Fig. 3, the end of blade 15 will have carried the formed peg into the portion 10 of the driver passage and will close the open side of the passage
50 during the driving of the peg. By adjusting bolt 16 in slot 17, the edge 14* of blade 14 is caused to sever the surplus end from the peg ribbon just as the blade 15 puts the
55 peg into the space 10. The blades 14 and 15 will remain in these positions after the head B commences to move toward the left and until the end of screw 24 engages stud 22 when the lost motion between arm 20 and link 25 will have been taken up. The ad-
60 justments just described also provide means for compensating for the change in position of the edges of the blades due to grinding or sharpening.

- 65 The roll or coil of peg ribbon F is supported upon a circular table r having pins r'

rising from it between which the coil lies. This table has a downwardly projecting central pin which enters loosely a hole in an arm r^3 extended from the head or other stationary part of the frame so that as the peg
70 ribbon support F' , which is fixed to the table, is moved vertically the table will move with it, a sufficient amount of play being provided between pin r^2 and its hole.

In order that the peg ribbon support F'
75 may be moved vertically to vary the length of the peg formed, the block E^3 is provided, as shown in Figs. 7 and 10, with a groove to receive and guide a projecting rib m upon a slide piece F^2 at the forward end of the
80 ribbon support. Parts F' and F^2 may be secured together in any suitable manner, as by means of an angle iron F^3 and suitable screws. The slide piece F^2 receives a stud
85 or other screw F^4 which is embraced by one end of a link m' the other end of which is partly cylindrical in form and is seated in a correspondingly shaped groove in the front end of a lever m^2 pivoted at m^3 on a
90 stand m^4 erected on a fixed part of the head A. When the block E^3 and the end F^2 of the peg ribbon support move laterally with the head B during its feeding movement the upper end of the link m' slides in the
95 groove. The rear end of the lever m^2 is pivotally connected to a rod m^{3*} (see Figs. 1 and 2) which, as herein shown, is carried down to and connected adjustably with an ear m^{4*} carried by and extended from the
100 rod d^6 , hereinbefore referred to as instrumental in depressing the stock support, so that whenever the rod d^6 is lifted by lever C^7 and connected parts to depress the stock support the rear end of the lever m^2 will
105 also be lifted to depress the peg ribbon support and its end F^2 in unison with the stock support and it will be understood that that portion F^2 of the ribbon support on which rests the lower edge of the ribbon will be
110 raised and lowered in the slot 30 in the block E^3 .

It will usually be desirable to provide means whereby movements of the stock support greater than those ordinarily occurring while the machine is in continuous op-
115 eration, and particularly the extra depression of the stock support to permit removal of a shoe, will not cause equal movements of the ribbon support. This feature is not claimed herein, however, being fully
120 described and claimed in my Patent No. 834,923, granted November 6, 1906. Whether or not such means is provided, the peg ribbon, while the machine is running normally, will be raised and lowered with
125 relation to the throat 36 in block E^3 and to the edge 15** which shortens the peg so that the length of peg severed from the ribbon and driven is varied automatically according to the thickness of the stock. For exam- 130

ple if the length of the peg is to be equal to the full width of the peg ribbon, then the lower edge of the ribbon will stand substantially at the same height as the bottom of the throat 36 and in line with the lower corner of the edge 15* of blade 15. If, however, the peg next to be driven ought to be shorter than the width of the peg ribbon because the thickness of the stock between the foot plate b^4 and the top of the stock support B^{4*} is of less thickness than the width of the peg ribbon, the peg ribbon support, under the control of the stock support will occupy some such position as that shown in Figs. 8 and 9. Then, as the movement of head B toward the left (Fig. 3) to feed the stock has been completed, the stock support will have adapted itself automatically to the thickness of the stock and will clamp the stock firmly between the stock support and the foot plate. Now, the awl being out of the stock, the head B is moved to the right to put the driver passage 12 immediately above the hole just made in the stock by the awl. During this movement, the link 25 moves the arm 20 as already explained and causes the peg forming means and the surplus remover to operate. The peg forming means first makes the shortening cut longitudinally of the peg ribbon and at the same time the transverse cut for forming the last side of the peg and then it pushes the peg at right angles to the line of feed of the peg ribbon into the space 10 of the driver passage and closes one side of the passage while the driver descends to drive the peg. The surplus remover meets the peg ribbon just before the peg forming means reaches its extreme forward position and acts upon the peg ribbon, which is sustained upon its opposite side by the block E^3 above and at one side of the throat 36, to detach the stub at the end of the ribbon left after the cutting out of the shortened peg. In Fig. 13, which shows a piece of the end of a peg ribbon, n represents in full lines a shortened peg such as would be punched by the peg forming means from the end of the ribbon, while n' represents the stud or surplus not needed for that peg which is to be cut away subsequently upon the line n^2 by the surplus remover, leaving the leading end of the peg ribbon again straight and at right angles to its length.

The chief difference between the form of the invention shown in Figs. 11 and 12 and that already described lies in the fact that the device p which corresponds essentially with the device 15, heretofore described, has in one side a notch p' which, in the rear-most position of the device p is in line with the slot 30 through which the ribbon is fed. Hence, the notch receives the end of the ribbon and as the device p is moved longitudinally in the block E^3 the part of the rib-

bon in the notch p' is cut out from the end of the ribbon and carried into line with the driver passage so that the driver, as it descends, meets the peg in the notch p' and drives it into the stock. In this form of construction, the length of peg is automatically determined and the surplus is removed as in the first described construction.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. In a pegging machine, means to produce a short peg from a peg ribbon, and means to sustain one side of the peg ribbon in the line in which the ribbon is cut longitudinally in the formation of said peg.

2. In a pegging machine, a peg ribbon support to sustain a peg ribbon, a guide for said support, means to slide said support in or with relation to its guide, and means to engage and cut from said peg ribbon a shortened peg of a length less than the width of said ribbon.

3. In a pegging machine, means to raise and lower a peg ribbon, and peg forming means to cut into said peg ribbon both transversely and longitudinally to form a peg of a length shorter than the width of the ribbon.

4. In a pegging machine, a peg ribbon support, peg forming means, means to change automatically the relative positions of said support and said peg forming means, means to actuate said peg forming means to cause it to act against one side of the peg ribbon only and to cut into it along two lines so as to form a peg shorter than the width of the ribbon.

5. In a pegging machine, means to caliper the stock, means to support a peg ribbon and to change its position vertically according to variations in the thickness of the stock, combined with peg forming means, and means to slide the same to and fro with relation to said peg ribbon, said peg forming means operating during one and the same stroke not only to sever the peg ribbon transversely but also to cut the same longitudinally to form a peg of greater or less length according to variations in the thickness of the stock being calipered.

6. In a pegging machine, means to support a peg ribbon, combined with peg forming means, and means to actuate it, said peg forming means having two cutting edges, one adapted to sever the peg from the ribbon and the other to shorten the peg to the requirement of the stock into which it is to be driven.

7. In a pegging machine, a peg ribbon support, a cutting device having two cutting edges, a stock support, means for automatically varying the relative positions of the peg ribbon support and the cutting device according to the position of the stock

support, and means for actuating said cutting device to remove from the peg ribbon a peg shorter than the width of the ribbon.

8. A support for a peg ribbon, a stock support, and means for forming automatically directly from said peg ribbon a succession of pegs varying in length, and means to drive said pegs as they are formed.

9. In a pegging machine, a peg ribbon support, a stock support, connections between said supports whereby the position of the peg ribbon support is varied according to the thickness of the stock and peg forming means to form directly from the peg ribbon pegs varying in length.

10. In a pegging machine, a driver, a self adapting stock support to sustain the stock in opposition to the driver, peg ribbon supporting and feeding means, and peg forming means adapted to form directly from said peg ribbon pegs of varying length thereby to adapt the pegs to the thickness of the stock on the stock support.

11. In a pegging machine, a peg ribbon support, means to form pegs of varying length directly from peg ribbon sustained by said support and means automatically controlled by the thickness of the stock being pegged for changing the relative positions of said peg ribbon support and said peg forming means whereby each peg at the time it is detached from the ribbon is of a length suitable for the stock.

12. In a pegging machine, means to detach directly from a peg ribbon pegs of a varying length, and means controlled by the thickness of the stock being pegged for determining the length of the pegs.

13. In a pegging machine, a peg ribbon support, a stock support, peg shortening means, means to change automatically the relative positions of said peg ribbon support and peg shortening means according to variations in the thickness of the stock on the stock support, and means to actuate said peg shortening means to act upon the peg ribbon and cut therefrom a shortened peg.

14. In a pegging machine, means including a movable stock support to caliper the stock being pegged, means to support a peg ribbon, means to form from the peg ribbon a peg of a length corresponding to the thickness of the calipered stock, the relative position of the ribbon supporting means and the peg forming means being determined automatically by the position of the stock support as it calipers the stock and means to depress the stock support for releasing the pressure upon the stock preparatory to shifting the stock to bring a new portion of it into position to be calipered.

15. In a pegging machine, means to caliper stock being pegged, means to support a peg ribbon, means to form pegs from the peg ribbon and automatic means inter-

mittently to release the pressure exerted upon the stock by the calipering means in order to permit the feed of the stock, the relative position of the ribbon supporting means and the peg forming means being varied automatically from the calipering means for determining the length of the peg according to the thickness of the stock.

16. In a pegging machine, a peg ribbon support, a cutter movable transversely with relation to said support to determine the length of the peg, one of said parts being bodily movable with relation to the other, a block having a throat with which said cutter coöperates, and a stock support connected to said bodily movable part for the purpose specified.

17. In a pegging machine, a peg ribbon support, a block having a throat opposite which the side of the peg ribbon is placed, combined with peg forming means having side and upper edges respectively arranged to meet the peg ribbon substantially in the vertical plane of one side of said throat and also substantially in the horizontal plane of the upper edge of said throat, whereby a peg is sheared out from said peg ribbon with a clean cut.

18. In a pegging machine, means to caliper the stock being pegged, means to support a peg ribbon, peg forming means comprising a member having an edge to act as a peg shortener to define the position of the head end of the peg and an edge to form the last side of the peg by a transverse cut in the ribbon, the transverse cut meeting the inner end of the cut made by the peg shortener, means controlled by the calipering means to change the relative positions of said peg ribbon support and said peg shortener as the stock varies in thickness, and means to actuate said peg forming means to form a peg of the proper length.

19. In a pegging machine, a stock support, peg forming means, peg ribbon supporting means, suitable connections between said stock support and said peg ribbon supporting means, whereby as the stock varies in thickness the said stock support and the said peg supporting means move in unison with relation to the peg forming means, and means to actuate said peg forming means to form directly from the peg ribbon pegs of length varying according to variations in thickness of the stock.

20. In a pegging machine adapted to form pegs from a peg ribbon and to drive them, a driver, a stock support, peg forming means to form from peg ribbon pegs of lengths varying according to the position of the stock support, and a surplus remover to remove from the ribbon the surplus wood not needed in the peg to be driven.

21. A peg ribbon support, a peg forming device, means to change the relative posi-

tions vertically of said support and said peg forming device to cut from a peg ribbon a peg of a length less than the width of the ribbon leaving a stub extending from the ribbon in line with the space from which the peg was removed.

22. A peg ribbon support, a peg forming device, means to change the relative positions vertically of said support and said peg forming device to cut from a peg ribbon a peg of a length less than the width of the ribbon leaving a stub extending from the ribbon in line with the space from which the peg was removed and means subsequently to remove said stub.

23. In a pegging machine, mechanism for cutting out from a peg ribbon a peg of less length than the width of the ribbon and for thereafter removing from said ribbon the wood not needed for the peg.

24. In a pegging machine, a peg ribbon support, mechanism for cutting out from a peg ribbon a peg of less length than the width of the ribbon and for thereafter removing from the ribbon the wood not needed for the peg, and means for changing the relative positions of said support and said mechanism to vary the length of the peg cut from the ribbon.

25. In a pegging machine, a cutter to sever from peg ribbon a peg shorter than the width of the ribbon and a second cutter for removing the material not needed for the peg, and means to cause the cutters to act successively upon the peg ribbon.

26. In a pegging machine, a cutter to sever from peg ribbon a peg shorter than the width of the ribbon and a second cutter for removing the material not needed for the peg, and means for securing the said cutters together with provision for relative longitudinal adjustment.

27. In a pegging machine, means to caliper the stock being pegged, means to support peg ribbon, peg forming means, a surplus remover, means controlled by the caliper means to move said peg ribbon support vertically as the stock varies in thickness thereby to vary the length of the peg, and means to actuate said peg forming means and surplus remover.

28. In a pegging machine, a peg ribbon support engaging the sides and both the upper and lower edges of a peg ribbon to sustain and guide it, means to move said support rectilinearly in substantially a vertical direction according to the required variations in the length of the peg to be formed and cooperating means for forming a peg constructed and arranged to act upon the ribbon closely adjacent to the ribbon support.

29. In a pegging machine, a peg ribbon support for the reception of a peg ribbon, means to sustain one side of the ribbon out-

side said support, peg forming means arranged to contact with the ribbon at that side thereof which is not in contact with said sustaining means, means to change automatically the relative positions of said support and peg forming means, a guideway for the latter, and means for sliding said peg forming means in said guideway whereby said means when forced against the unsustained side of said peg ribbon will cut the same and form therefrom a peg shorter than the width of the peg ribbon.

30. In a pegging machine, a peg ribbon support, a nose having an open sided driver passage, a block connected with said nose and having an open ended slot to guide a peg ribbon across the open side of the driver passage, means to feed the peg ribbon in the slot, peg forming means, a surplus remover, and means to actuate the peg forming means and the remover to form a peg and discharge the surplus wood through the open end of the peg ribbon slot.

31. In a pegging machine, a nose having a driver passage open at one side for the reception of a peg, a block secured to said nose and having a throat leading to said open side, combined with peg forming means and a surplus remover, the acting end of the peg forming means being in advance of the acting end of the surplus remover, and means to actuate said parts to form a peg and straighten the end of the peg ribbon.

32. In a pegging machine, a peg ribbon support, a block having a throat, said block being adapted to receive against its one side of a peg ribbon, the peg ribbon covering more or less of said throat from its top end down, combined with peg forming means shaped to shear out from said peg ribbon a peg of a length less than the width of the ribbon, and a surplus remover acting subsequently against one side of the ribbon while the opposite side is supported above said throat by said block to remove from the ribbon the surplus end or stub left after the operation of forming the peg.

33. In a pegging machine, a driver, an automatically movable stock support to sustain the stock against the thrust of the driver, peg ribbon sustaining means movable in unison with the stock support, peg forming means, a surplus remover, and means to actuate them whereby a peg of a length corresponding with the thickness of the stock on the stock support is formed from the peg ribbon and the surplus wood of the ribbon not required for a short peg is removed and the peg ribbon is left with a vertical leading edge.

34. In a pegging machine adapted to form pegs from a peg ribbon and to drive them, a driver, a stock support, a block having an opening, peg forming means guided in said block to form from peg ribbon pegs of

varying length according to the position of the stock support, a surplus remover to effect the discharge through said opening of the surplus wood not needed in the peg to be driven.

35. In a pegging machine, a nose open at one side to receive a peg, a support for peg ribbon, mechanism to remove from the ribbon the wood not needed for the peg, means to change the relative positions of said support and said mechanism, a peg forming cutter and means for actuating said cutter to sever a peg from the ribbon and then to close the open side of the nose, a driver, and means to actuate it to drive the peg from said nose into the stock.

36. In a pegging machine, a block having a throat or slot at one side to receive the peg, a peg ribbon support to sustain a peg ribbon with one side opposite said throat, means to move said ribbon support automatically relatively to said throat so as to cause said ribbon to cover more or less of the length of the throat according to variations in the thickness of the stock, peg forming means co-acting with the throat to form from the peg ribbon pegs of a length suitable for the thickness of the stock being pegged.

37. In a pegging machine, a peg ribbon support, means carried by said support to feed said peg ribbon longitudinally therein, peg forming and shortening means, and means to change the relative positions of said peg forming and shortening means and said peg ribbon support to vary the length of the pegs to be cut from a peg ribbon in said support.

38. In a pegging machine, peg forming means to form a peg from a peg ribbon, and peg ribbon supporting means to raise and lower said ribbon automatically and insure a peg of the desired length, and peg ribbon feeding means carried by the peg ribbon support.

39. In a pegging machine, a stock support, a peg ribbon support operatively connected therewith, peg ribbon feeding means mounted in said peg ribbon support, means to actuate said feeding means intermittently, and peg forming means.

40. In a pegging machine, a stock support, peg forming means, a peg ribbon support controlled as to its position by variations in the thickness of the stock, peg ribbon feeding means movable with said peg ribbon support, and means to actuate said peg ribbon feeding means.

41. A support for peg ribbon, and means for automatically forming from said peg ribbon a series of pegs varying in length and for sustaining them against longitudinal movement in position to be driven, and means to drive each peg as formed before forming a second peg.

42. In a pegging machine, a peg ribbon support, a block having a throat, said block being adapted to receive against it one side of a peg ribbon, the peg ribbon covering more or less of said throat from its top end down, combined with peg forming means to meet and shear out from said peg ribbon a peg of a length less than the width of the ribbon and pass said peg into said throat.

43. In a pegging machine, means to caliper the stock being pegged, means to support peg ribbon, peg forming means, and connections between said calipering means and the means supporting said peg ribbon to change automatically the relative positions of said peg ribbon support and peg forming means to produce pegs of the length required to unite the stock being calipered, said peg forming means moving the formed peg at an angle to the line of travel of the peg ribbon into position for driving, and a surplus remover.

44. In a pegging machine, a nose having a continuous driver passage and a lateral opening leading into said passage between its upper and lower ends, a driver movable in said passage, means to caliper the stock being pegged, a peg ribbon support, means for forming pegs from peg ribbon and for carrying them through the lateral opening in the nose and into the driver passage, and devices connected to said stock calipering means for changing automatically the relative positions of said peg ribbon support and said peg forming means according to variations in the thickness of the stock.

45. In a pegging machine, a nose having a driver passage open at one side, a grooved block having a peg throat of a length corresponding with the longest peg to be made and having also a transverse slot to receive one end of a peg ribbon, said block presenting above said peg throat a plane surface to sustain one side of the peg ribbon when the peg to be made therefrom is of a length less than the full width of the ribbon, combined with peg forming means located in the groove of said block and means to actuate said peg forming means to form from said ribbon pegs of varying length and carry the same through said throat and the open side of the driver passage.

46. In a pegging machine, a nose having a driver passage open at one side, peg forming means movable toward and from said opening, means to support a peg ribbon in the path of the peg forming means, automatic means for moving the peg ribbon support vertically according to the length of the peg to be formed, and means to actuate the peg forming means to form successively pegs varying in length and to carry them into the driver passage as formed.

47. In a pegging machine, a peg ribbon support, peg forming means, a stock sup-

port, a lever, connections between said lever and said peg ribbon support and between said lever and said stock support whereby the position of the peg ribbon support may be varied through variations in thickness of the stock on the stock support.

48. A nose or foot plate and a stock support adapted to clamp stock between them, peg forming means, a peg ribbon support, a lever connected with said peg ribbon support, a lever connected with said stock support, a connection between said levers whereby said peg forming means is enabled automatically to cut pegs of a length to suit the clamped stock.

49. A nose or foot plate, a peg ribbon support, a stock support, a spring acting normally to elevate said stock support to clamp the stock between itself and said plate, a lever connected with said peg ribbon support, a lever connected with said stock support, and a connection uniting said levers.

50. A peg ribbon support, a stock support, a lever connected with said peg ribbon support, a lever connected with said stock support, and a connection between said levers.

51. In a pegging machine, a stock support, a movable head, an awl and a driver carried thereby, a pivoted lever, connections between one end of said lever and said stock support, and a peg ribbon support connected to said head and also to said lever and movable vertically therewith as the stock on the stock support varies in thickness.

52. In a pegging machine, peg forming means, a peg ribbon support, a stock support, a rod controlled by the stock support so as to be raised as the stock support is lowered, and vice versa, said rod effecting a relative change of position of the peg ribbon and the peg forming means to vary the length of the peg to be cut from the peg ribbon, and an independent lever under the control of the operator to depress the stock support for the removal of stock therefrom.

53. In a pegging machine, a stock support, means automatically to depress the stock support so as to permit the stock sustained thereby to be fed, a spring acting to raise the stock support so that it may adapt itself to variations in the thickness of the stock being pegged, peg forming means, a peg ribbon support arranged to guide peg ribbon into operative relation with the peg forming means and to engage it in close proximity to the point where the ribbon is engaged by the peg forming means, and means controlled by the position of the stock support for changing automatically the relative positions of said ribbon support and said peg forming means in accordance with variations in the thickness of the stock.

54. In a pegging machine, a stationary foot plate, a stock support movable automatically to clamp the stock against the foot

plate, automatic means to release the stock, means to feed it when released, a peg ribbon support, peg forming means, and means for moving it to form from peg ribbon a peg shorter than the width of the ribbon but corresponding in length with the thickness of the stock between the foot plate and the stock support, and means to raise and lower the ribbon support in unison with the stock support.

55. In a pegging machine, a stationary foot plate, a peg ribbon support, means to sustain one side of the peg ribbon in the line where it is to be cross cut, peg forming means located at one side of the peg ribbon, means to slide the same toward and from the peg ribbon in a defined plane at a uniform distance from said stationary foot plate, a movable stock support, peg ribbon feeding means, and devices intermediate said stock support and said peg ribbon support to move said peg ribbon automatically in the direction of its width relatively to said peg forming means, whereby the latter will form from said peg ribbon pegs of length varying according to variations in the thickness of the stock on the stock support.

56. In a pegging machine, a stationary foot plate to bear upon one face of the stock, a vertically movable stock support cooperating with the foot plate to caliper the stock, means to support a peg ribbon, means to form a peg from the ribbon, connecting and supporting devices constructed and arranged to maintain one of said means immovably vertically with relation to the foot plate and to cause the other of said means to move in a vertical direction at the same time and to the same extent as the stock support moves by reason of the varying thickness of the stock being pegged, and means to move the stock support away from the foot plate to release the pressure upon the stock preparatory to shifting the stock to bring a new portion of it into position to be calipered.

57. In a pegging machine, a driver, a foot plate to engage one side of the stock being pegged, a stock support to sustain the stock in opposition to the thrust of the driver, peg forming means, a shaft having a cam, means moved by said cam to cause the operation of said peg forming means, peg ribbon supporting means, and suitable intermediate connections between said stock support and said peg ribbon supporting means to cause the peg ribbon to change its position automatically in accordance with the changing position of the stock support due to the passage over it of stock of varying thickness, causing said peg forming means to form a shorter or longer peg according to the thickness of the stock on the stock support.

58. In a pegging machine, an awl, a driver, cooperating mechanisms for actuating them successively in a predetermined

time relation, means including a stock support to caliper stock being pegged, means to form from peg ribbon a peg shorter than the width of the ribbon, supporting and
 5 guiding means for said ribbon substantially in contact with all four sides of the ribbon and extending in comparison with the width of the ribbon relatively close to the point at which the ribbon is acted upon by the
 10 peg forming means, and means controlled by the calipering means for changing automatically the relative position of said ribbon and said peg forming means so that the length of each peg is made to correspond to
 15 the thickness of the stock into which it is driven.

59. In a pegging machine, a stock support, a peg ribbon support consisting of a grooved bar having a connected plate at its outer
 20 end on which is laid a coil of peg ribbon, feeding devices to engage said peg ribbon in the groove of said bar, means loosely to sustain and guide the plate of said bar, and means connected with the end of said bar to
 25 raise and lower the same as the stock passing over the stock support varies in thickness.

60. In a pegging machine, a peg ribbon support, a plate rigidly connected to said
 30 support and arranged to sustain a coil of peg ribbon, means to form pegs from said peg ribbon, and means to move the ribbon support automatically relatively to the peg forming means.

35 61. In a pegging machine, a peg ribbon support, means to move the same vertically according to variations in the thickness of the stock being pegged, a peg ribbon feeding device engaging said peg ribbon, a lever to
 40 move said peg ribbon feeding device, and a cam to actuate said lever to insure the feeding of said peg ribbon longitudinally.

62. In a pegging machine, a peg ribbon support consisting of a grooved bar having a
 45 slot at one side, a block connected with said bar and having a slot, combined with a feeding device consisting of a pawl, having an extension, and a stud, the latter entering said slot, and means to act on said extension to move said feeding device in one
 50 direction to engage the peg ribbon and feed it, said feeding device when moved in the opposite direction passing freely over said peg ribbon without moving it.

55 63. In a pegging machine, a rocking head, an awl bar and a driver bar in said head, one being provided with an awl and the other with a driver, a block having a throat and being connected to and movable laterally
 60 with said head during the stock feeding operation, peg forming means, means to actuate the same, a stock support to support the stock, a peg ribbon support to present the end of a peg ribbon between the acting end
 65 of said peg forming means and the said

throat, and connections between said stock support and said peg ribbon support to move the ribbon vertically in the path of movement of the peg forming means, thereby to leave a greater or less amount of peg ribbon
 70 to be acted upon by said peg forming means to form a peg of proper length to unite the stock on the stock support.

64. In a pegging machine, a stock support, a nose having a combined driver and peg
 75 passage tapered gradually toward its delivery end, a peg ribbon support, peg shortening means, means to actuate it to form a shortened peg adapted to the thickness of the stock resting on the stock support, and
 80 a driver to drive the shortened peg through said tapered passage, the peg being compressed during the operation of driving.

65. In a pegging machine, a head movable laterally for feeding the stock being pegged,
 85 peg forming means, a peg ribbon support movable laterally with the head and capable of an independent vertical movement relatively to both the head and the peg forming means so that the length of the pegs formed
 90 may be varied.

66. In a pegging machine, a laterally movable head, a peg ribbon support movable with said head and also capable of vertical
 95 movement, a vertically movable stock support, connections between the peg ribbon support and the stock support whereby said supports are caused to rise and fall together and means for forming pegs of varying
 100 length from peg ribbon sustained in said peg ribbon support.

67. In a pegging machine, a head movable laterally to feed the stock, stock engaging
 105 means in said head, peg forming means supported by said head but capable of independent movement, and connections between said head and said peg forming means whereby the lateral movement of said head moves said means to form a peg.

68. In a pegging machine, a head movable
 110 laterally to feed the stock, means to sever a peg from peg ribbon, and adjustable connections between said movable head and said means to impart to said means a stroke of sufficient length to form a peg.
 115

69. In a pegging machine, a head movable to feed the stock and provided with a guideway, peg forming means movable in the
 120 guideway and means for moving said peg forming means in the same direction as the head but for a greater distance.

70. In a pegging machine, a movable head, means movable with said head to support a
 125 peg ribbon, a device to sever pegs from the peg ribbon, and means connecting said head and said device constructed and arranged to move said device in the same direction as the head but at a greater speed.

71. In a pegging machine, peg forming
 130 means, a pivoted actuating arm connected

therewith, a movable head carrying an awl bar and awl, and a link intermediate said movable head and arm and connecting the same, whereby the movement of said head effects the movement of said peg forming means.

72. In a pegging machine, a peg ribbon support, a bar having a cross groove to receive the end of the ribbon and confine it upon three sides, and means for moving said bar to sever a peg from the end of the ribbon.

73. In a pegging machine, a nose having a driver passage laterally open above its lower end, a peg ribbon support, peg forming means comprising a carrier having a cross groove, means to vary automatically the position vertically of said support with relation to said lateral opening, and means to feed said peg ribbon in said support to enter the cross groove of said peg forming means.

74. In a pegging machine, a driver bar and driver, a nose having a driver passage open laterally, a carrier having a cross groove to receive the end of a peg ribbon, a peg ribbon support, means to feed the peg ribbon in said support and means to move the end of said peg ribbon up and down with relation to said carrier according to variations in thickness of the stock to be pegged, and means to place the end of said carrier into said nose and put the peg which is contained in the groove of said carrier under the driver so that it may be driven into the stock.

75. In a pegging machine, mechanism for cutting out from a peg ribbon a peg of less length than the width of the ribbon and for removing separately from said ribbon the material not needed for the peg.

76. In a pegging machine, an awl, a driver and automatic mechanisms to actuate them successively in predetermined time relation to form a hole in the stock and thereafter to drive a peg into the hole, a peg ribbon support, means for detaching a peg from peg ribbon sustained in said support, peg shortening means, and means to change automatically the relative position of the peg ribbon support and the peg shortening means according to variations in the thickness of the stock being pegged.

77. In a pegging machine, an awl, a driver, and means to actuate them in predetermined time relation to form a hole extending completely through the stock and then to drive a peg into the hole, peg forming mechanism

including means for determining automatically the length of each peg according to the thickness of the stock being pegged, means for supporting a peg ribbon, and actuating mechanism for said parts constructed and arranged to cause them to detach a peg from the ribbon and carry it from a position out of the path of movement of the driver into said path and into alinement with the awl hole.

78. In a machine of the class described, means to caliper the stock being pegged, an awl and means for actuating it automatically to cause it to enter the stock and then to move laterally to feed the stock, means to support a peg ribbon, and means to form from the peg ribbon a peg of a length corresponding to the thickness of the calipered and punctured stock, the relative position of the ribbon supporting means and the peg forming means being determined automatically by the calipering means.

79. In a pegging machine, peg driving mechanism, means for feeding the stock being pegged intermittently predetermined distances between successive operations of the driving mechanism, means to caliper the stock between the formation of successive pegs, means to support a peg ribbon, means to form from the peg ribbon a peg of a length corresponding to the calipered stock and connections from said calipering means to determine the relative position of the means for supporting the ribbon and the peg forming means.

80. In a pegging machine, a peg ribbon support, a stock supporting horn mounted so as to be capable of complete rotation, connections between the ribbon support and the horn to cause them to move together during the continuous operation of the machine while pegging, means acting automatically at a predetermined time in the cycle of operations to depress the horn in order to permit the stock to be fed and automatic means for forming pegs of lengths varying according to variations in the position of the horn resulting from changes in the thickness of the stock being pegged.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

BENJAMIN F. MAYO.

Witnesses:

GEO. W. GREGORY,
EMMA J. BENNETT.