

B. F. STURTEVANT.

Machine for Compressing Sole-Fastenings.

No. 159,859.

Patented Feb. 16, 1875.

Fig: 1.

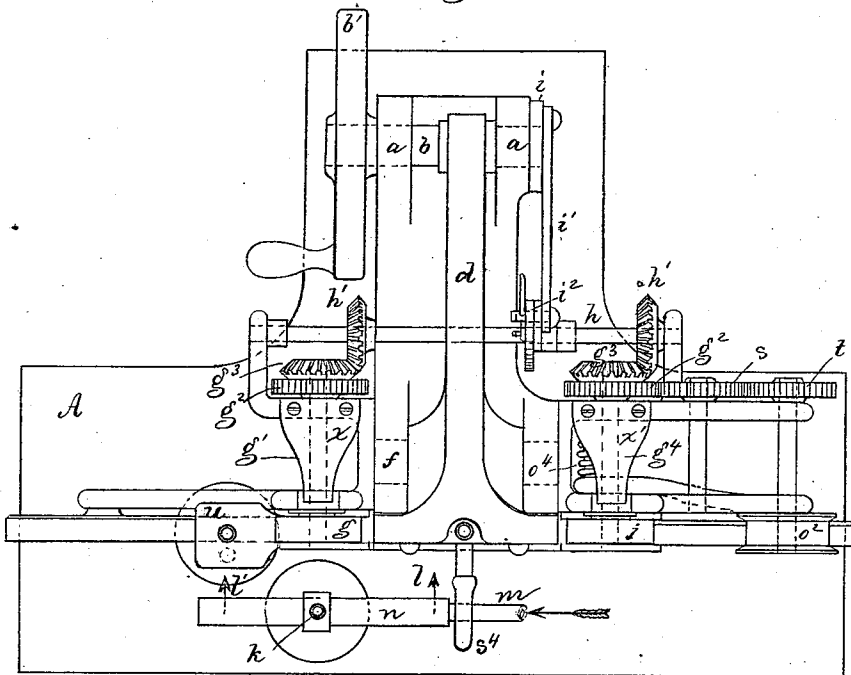


Fig: 5.

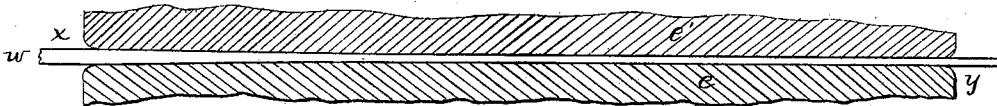
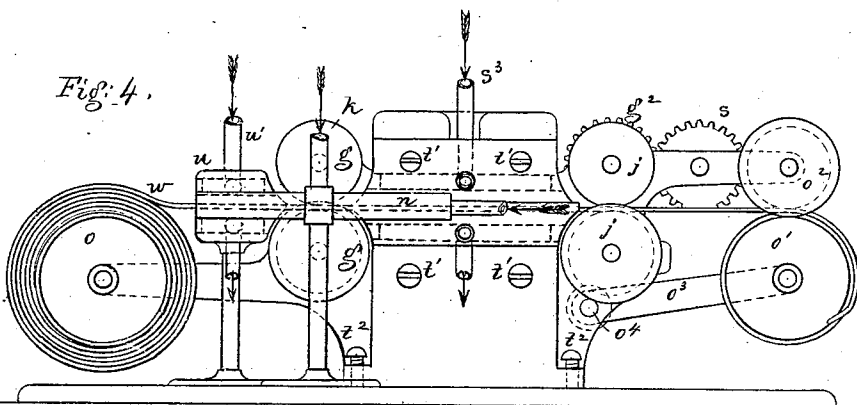


Fig: 4.



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Fig. 3.

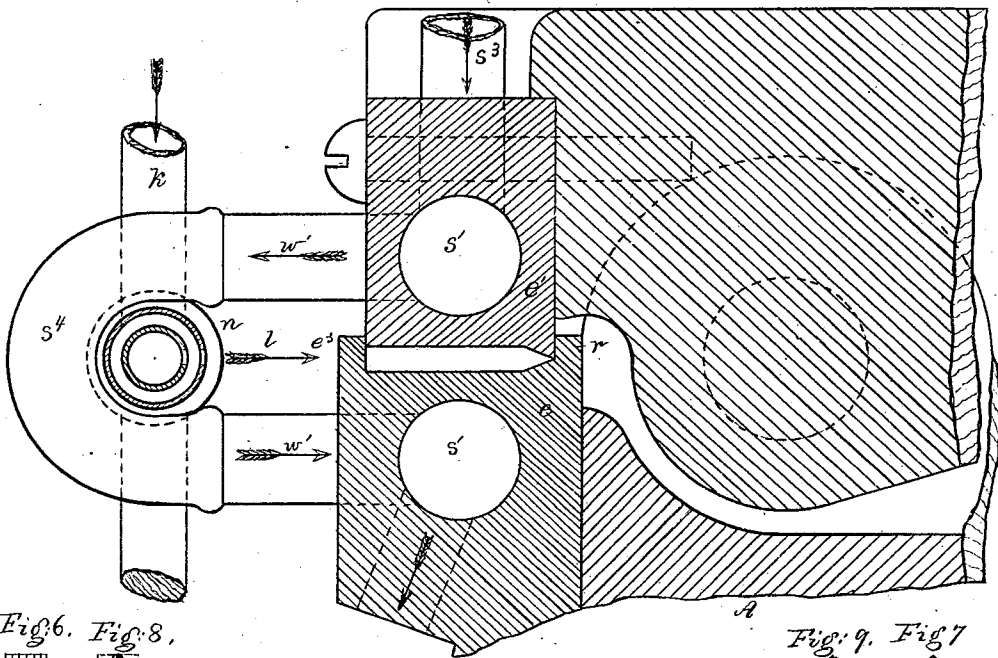


Fig. 6. Fig. 8.

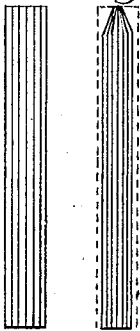
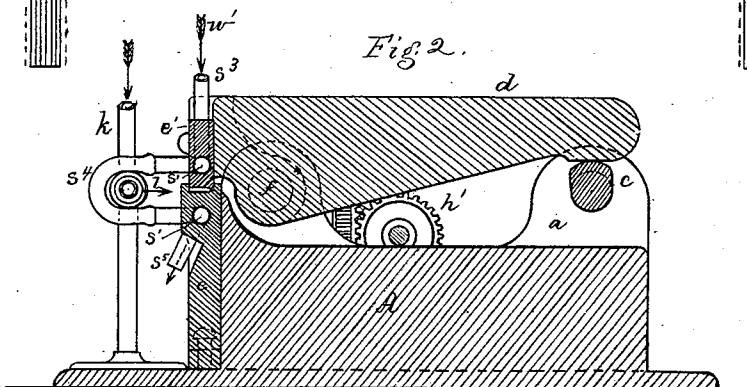


Fig. 9. Fig. 7.



Fig. 2.



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UNITED STATES PATENT OFFICE.

BENJAMIN F. STURTEVANT, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR COMPRESSING SOLE-FASTENINGS.

Specification forming part of Letters Patent No. **159,859**, dated February 16, 1875; application filed December 17, 1874.

CASE B.

To all whom it may concern:

Be it known that I, BENJAMIN F. STURTEVANT, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Machine for Compressing Sole-Fastenings, of which the following is a specification:

My improvement relates to a machine for compressing fastenings for uniting soles to boots and shoes; and consists in a pair or set of compressors or jaws, for consolidating the peg ribbon or strip, and heated by the application of flame to the material forming the compressors; also, in the combination, with compressing-jaws, of a rotating peg-strip-moving mechanism adapted to move the material between the jaws, substantially as described; also, in the combination, with compressors or jaws for consolidating peg-wood, of mechanism for moving the peg-strip, and for winding it; also, in compressors or jaws, constructed substantially as hereinafter described, and in other features specified and claimed.

The ribbon or strip of peg-wood is cut from or around the log in any well-known way; and I prefer that such ribbon be cut so as to present, in cross-section, substantially the form shown in Figs. 6 and 7; and when compressed by the compressing-jaws they will assume substantially the shape represented in Figs. 8 and 9, the degree of compression being about as represented between the dotted lines and full lines, and the points are formed by compressing the material hardest at one edge, substantially as set forth in an application filed at the Patent Office concurrently with this, and another application describes my new method or process for making the said new article of peg-ribbon or peg-strip.

Pegs compressed by this machine are compacted and consolidated, and they remain in this compacted condition until again swollen by the action of moisture. The heated jaws liberate and turn into steam the remaining moisture of the wood, and the glutinous matter, warmed and started, acts to hold the fibers of the wood in their consolidated position. The compressors compress the same portion of the strip many times in passing between them,

and these repeated actions of the compressors harden and compact, but do not destroy, the grain of the wood.

Figure 1 is a top view of my improved machine. Fig. 2 is a longitudinal section. Fig. 3 is an enlarged section of the compressors or jaws for compressing the peg strip or ribbon. Fig. 4 is an end view thereof. Fig. 5 is a longitudinal section of the face of the compressors or jaws; and Figs. 6, 7, 8, and 9 represent cross-sections of peg strips or ribbons, both before and after being compressed.

A represents the bed-piece of the machine, having rising therefrom lugs *a a*, which form bearings for a cross-shaft, *b*, having a cam, *c*, or other suitable connection, adapted to move the rocking arm or lever *d*, having its fulcrum on shaft *f*. The lower or stationary member *e* of the compressors or jaws forms part of, or is connected with, the bed-piece A, and the upper member *e'*, in this instance, is connected with, or forms part of, the rocking arm *d*. These compressors or jaws are represented enlarged in Fig. 3; their faces are, in their width, substantially parallel, but in the direction of their length they are somewhat inclined, as in Fig. 5, being somewhat farther apart at their receiving end *x* than at their discharging end *y*. One of the members *e e'* is to have a lip or ledge; in this instance the stationary member *e* has the lip or ledge *e³* formed or connected with it, against which rests that edge of the ribbon peg wood or blank which is to serve for the heads of the pegs, and the opposite sides of the compressors are provided with bevels or inclines more or less acute, and adapted to bear on that edge of the ribbon or peg-wood strip which is to serve for the points of the pegs. The stationary member *e* has at its inner face, and beyond its beveled portion, another lip or flange, *r*, which acts as a guide for that edge of the peg-strip passing near it. The shaft *b* has a fly-wheel, *b'*, and is driven by power, or otherwise, and a crank, *i*, thereon is connected, by link *i¹*, with a pawl, *i²*, adapted to engage and move a toothed ratchet, *h²*, secured to a shaft, *h*, provided with bevel-wheels *h¹ h¹* that engage bevel-wheels *g³ g³* on the ends of shafts *g¹ g⁴* of the peg-

strip-moving mechanism, said mechanism acting to give the ribbon peg-strip an intermittent feed or movement through between the compressors. The wheels $g j$ are placed in pairs, those g acting to present the material, and the set j acting to take it away from the compressors. These rollers are in pairs, one of each pair being, preferably, flanged, to guide and contain the ribbon peg-blank, and the other rollers are adapted to bear on the material contained within the annular grooved space of the flanged rollers. The upper and lower rollers of each set are connected together by means of toothed wheels $g^2 g^2$, and they all move at substantially the same speed.

Near the compressors is a pipe, kn , through which gas passes, issuing therefrom in the direction of the arrows ll , and, igniting, the flame is blown with force against the material forming the compressors by means of air forced through a pipe, m . The flame acts to heat the compressors as hot as may be required to properly compress the peg-strip.

The ribbon peg-blank, sustained preferably on a reel, o , is led between the rollers g , and then between the faces of the compressors to and between the second set of rollers j , and then it is preferably wound again into a coil on a reel, o^1 . This reel o^1 is mounted on an arm, o^3 , connected with a shaft, o^4 , having a spiral or other spring arranged in connection with it, so that the reel has a tendency to press upward against a roller, o^2 , which bears on the material on the reel o^1 , and moves the reel about its axis, the roller o^2 deriving motion from a train of gear-wheels, $g^2 s t$. The edge of the ribbon peg-blank which is to form the heads of the pegs rests against the ledge or lip e^2 , and the edge which is to be compressed sufficiently to form the edge for the points of the pegs rests at the opposite side of the compressors. The upper member e^1 , as it descends, first strikes the ribbon of peg-wood on that edge which is to form the points. The beveled ends of the compressors, grasping and firmly compressing such edge, squeeze and consolidate it, forming a point-forming edge, substantially as set forth in another application filed concurrently with this, as before stated, and as shown in Figs. 8 and 9. These compressors close gradually on the strip of peg-wood, and consolidate it laterally. The head-forming edge of the strip is forced firmly against the ledge e^2 , and substantially all the water and glutinous material in the strip is gradually stripped or forced toward the edge of the strip resting against e^2 , and when the compressors are closed the ribbon peg-blank is consolidated to any required degree.

The heated compressors act to set and hold the wood or fiber as compressed, and they iron or sear the surface and edges of the ribbon peg blank or strip.

This compressed peg-strip presents many advantages over ordinary peg-strips, such advantages being set forth, as before stated, in

another application, to which reference is made.

I do not, in this application, desire to limit myself to jaws of the exact shape shown, for they may be variously modified as to the bevel of the faces, and they may be made adjustable on the parts $A d$, set-screws $t^1 t^2$ being shown for that purpose, and the movable compressor may be actuated by any suitable devices, and have a vibrating or rectilinear motion.

In some instances I may use the rotary peg-strip-moving or feed rollers with unheated jaws, and with my heated jaws may use other well-known feeding devices common to sewing and other machines, instead of the rotating devices shown; or, instead of heating the jaws, I may heat the strip before it enters the jaws. For this purpose I provide, in advance of the compressors, a box or chamber, u , heated by steam passing through pipes u' , or by gas issuing from pipe n , as indicated by the arrow v , Fig. 1.

The peg-strip is designated by the letter w . The direction of the movement of the steam for heating the compressors is shown by arrows w' . The journal-boxes of the shafts supporting the upper rollers $g j$ are kept down by springs x' .

Having described my invention, I claim—

1. The combination, with compressors for compressing ribbon peg-wood or a peg-strip, of apparatus for directing a flame in contact with the material forming the compressors, substantially as described.
2. In combination, compressors for compressing peg-wood, heating apparatus for heating such compressors, and mechanism for presenting the material to such compressing mechanism, substantially as described.
3. The combination, with compressors for consolidating peg-wood, of rotary presenting mechanism, for presenting such peg-wood to the jaws, substantially as described.
4. The combination, with compressors for consolidating peg-wood, of mechanism to take the peg-strip from the compressors, substantially as described.
5. The combination, with compressors for consolidating peg-strips, of mechanism to present the strip to and take it from the compressors, substantially as set forth.
6. The feeding-rollers to present the peg-strip to the compressors, when provided with flanges to receive and guide such strips, substantially as described.
7. The combination, with compressors for consolidating peg-wood, of mechanism for moving the peg-strip and for winding it, substantially as set forth.
8. The compressors for consolidating the peg-strip, having their faces inclined with reference to each other in the direction of their length, substantially as set forth.
9. The compressors for consolidating the peg strip or ribbon, having their faces inclined

with reference to their length, and beveled and provided with ledges, substantially as described.

10. The combination, with compressors for compressing the peg-ribbon, of means, substantially as described, for heating the strip previous to compression.

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

BENJ. F. STURTEVANT.

Witnesses:

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L. H. LATIMER.