

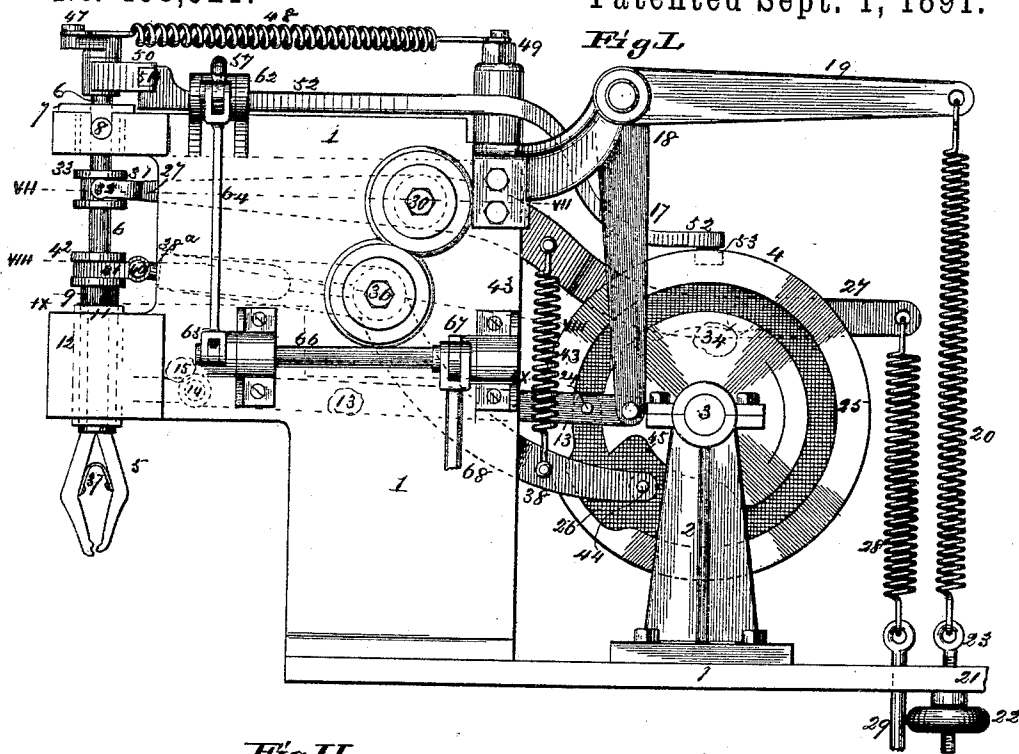
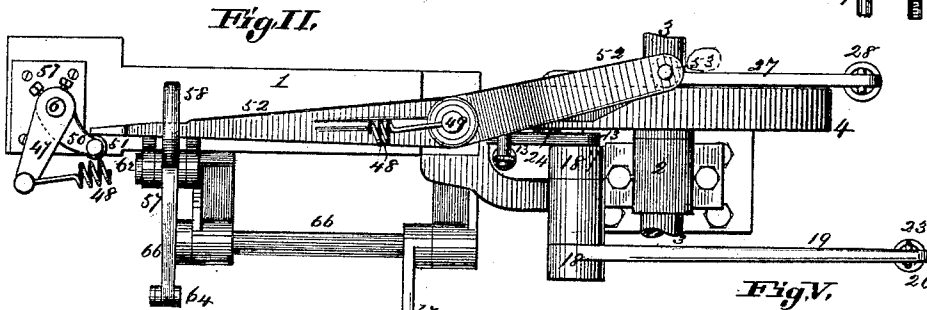
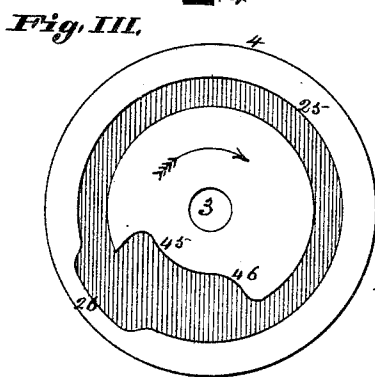
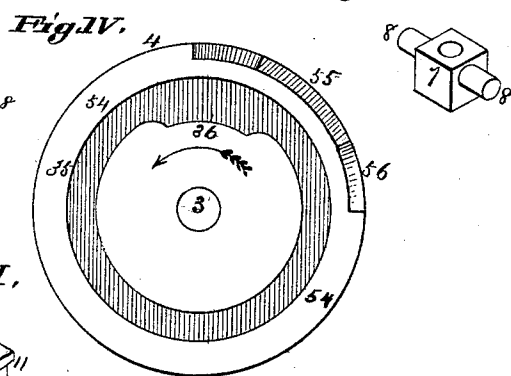
(No Model.)

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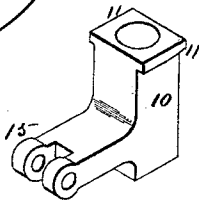
C. SINNING.
LASTING MACHINE.

No. 458,921.

Patented Sept. 1, 1891.



Attest:
Samuel H. Knight
H. S. Rohrer.



Inventor:
Charles Sinning.
By Knight Bros.
attys.

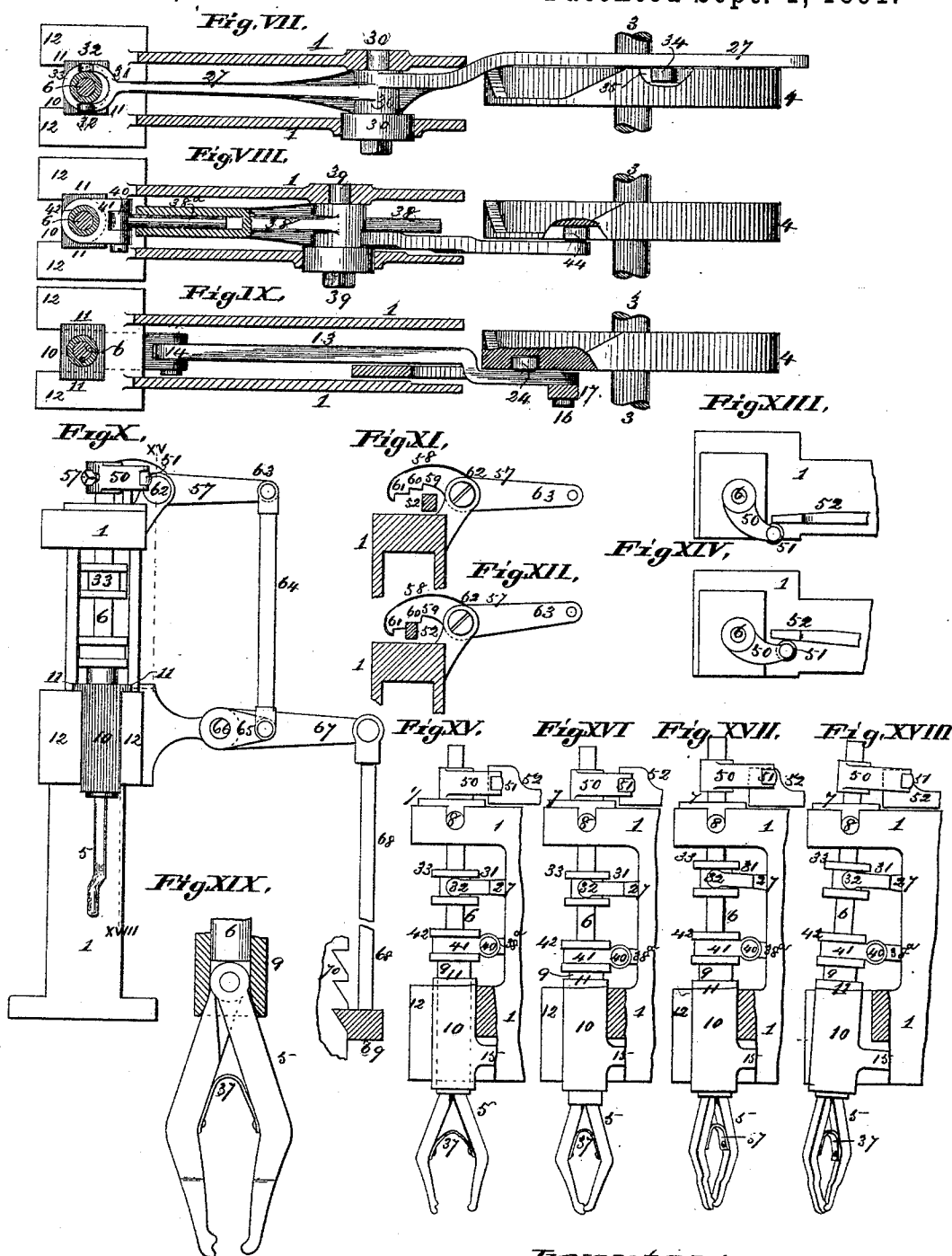
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UNITED STATES PATENT OFFICE.

CHARLES SINNING, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE SINNING
LASTING MACHINE COMPANY, OF SAME PLACE.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 458,921, dated September 1, 1891.

Application filed January 20, 1891. Serial No. 378,410. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SINNING, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Lasting-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This improvement relates especially to the devices for actuating the pinchers by which the leather is drawn over the last and crimped when required.

The novel features of the invention will be set forth in the claims.

Figure I is a side elevation of part of a lasting-machine, showing my invention. Fig. II is a top view of same. Figs. III and IV are opposite side elevations of the cam. Fig. V is a perspective view of the swivel-block, in which the upper end of the pincher-shaft has bearing. Fig. VI is a perspective view of the sliding block, in which the lower end of the pincher-shaft has bearing. Fig. VII is a top view of the pincher-lifting lever and cam, part of the frame being in horizontal section at VII VII, Fig. I. Fig. VIII is a top view of the pincher-closing lever and cam, parts of the frame being in horizontal section at VIII VIII, Fig. I. Fig. IX is a top view of the connecting-rod and cam governing the forward-and-backward movement of the pinchers, the frame being shown in horizontal section at IX IX, Fig. I. Fig. X is a front elevation. Figs. XI and XII are vertical sections at XI XII, Fig. II, showing in elevation and in different positions the stop-arm for limiting the movement of the crimping-lever. Figs. XIII and XIV are top views of the crimping-shaft, showing it in different positions. Figs. XV, XVI, XVII, and XVIII are elevations of the pinchers in various positions. Fig. XIX is an enlarged view of the pinchers with the closing-collar in section.

1 is part of the frame of a lasting-machine.

2 is a standard giving bearing to the shaft 3 of the cam-wheel 4. The pinchers 5 have two jaws adapted to grasp the edge of the upper leather being stretched over and tacked to a last held in the hand of the operator. The jaws are pivoted to the lower end of the shaft

6, which is adapted to turn in its bearings when crimping the leather and to swing forward and backward when stretching the leather over the last and when returning to take a fresh grip on the leather. The upper bearing of the shaft 6 is in a swivel-block 7, rocking on gudgeons 8, having bearing in the frame. The lower bearing of the shaft is in a sleeve or long collar 9, which has bearing in a slide-block 10 and which has vertical and rotary movement in its bearing 10. The block 10 has lips 11 resting upon the top of the guides 12, between which it works.

13 is a rod or bar pivoted at 14 to lugs 15 upon the block 10 and pivoted at 16 to the depending arm 17 of a bell-crank lever 18, whose horizontal arm 19 is connected by a spring 20 to a fixed point 21. The tension of this spring is made adjustable by a nut 22, which screws on the eyebolt 23, to which the lower end of the spring is connected, said nut bearing against the under side of the fixed object 21. It will be seen that the action of the spring 20 will be to push forward the block 10, and thus carry forward the pinchers to pull the edge of leather forward over the last. The rod 13 carries on its side a stud or anti-friction roller 24, which plays in the cam-groove 25 of the cam-wheel 4. When the rotation of the wheel brings the recess 26 to the stud 24, the rod 13 is at liberty to move outward, which it does under influence of the spring 20, and is almost immediately carried back again as the stud is forced backward by the rear part of the recess. The pincher-shaft is elevated by a lever 27, whose rear end is drawn down by a spring 28, the lower end of the spring being connected to a vertically-movable rod 29, by which the tensional force of the spring may be regulated. The lever works on a fulcrum 30. The front end 31 of the lever is forked, the fork having rounded ends 32, which have bearing in the circumferential groove of a collar 33, fixed to the pincher-shaft, so that while the lever causes the ascent and descent of the shaft the latter is not restrained in its rotary movement. The downward movement of the pincher-shaft is positive and is accomplished by the cam-wheel 4, the lever 27 having a stud or anti-friction wheel 34, that plays in the cam-

groove 35 of the wheel. When the recess or enlargement 36 of the groove is brought to the stud 34, the spring 28 carries the stud down into the recess and throws up the outer end of the lever and the pincher-shaft 6. The sleeve or collar 9 has endwise movement on the pincher shaft or rod, its descent forcing the jaws of the pinchers inward upon the leather and its upward movement relatively to the pincher-rod relieving the jaws from its pressure and allowing them to open under the influence of the spring 37, that is secured between the jaws. The sleeve 9 is moved vertically by a lever 38, fulcrumed to the frame at 39. The forward end 38^a of the lever is telescoped into the body of the lever to allow the elongation of the lever as the pinchers are pushed forward. This extension part is hinged at 40 to a collar 41, which occupies a circumferential groove in a collar 42, attached to the sleeve 9.

43 is a draw-spring connecting the rear arm of the lever 38 with the rear arm of the lever 27. The tendency of this spring is to force the sleeve downward.

44 is a stud or anti-friction roller upon the rear arm of the lever 38, said stud playing in the groove 25, the construction being such that when the stud is in the narrow part of the groove the sleeve is in its highest position relatively to the pincher-shaft, and the jaws of the pinchers are open. (See Figs. XV and XIX.) When the rotation of the cam brings the recess 45 to the stud, the spring 43 carries the stud up into the recess and pushes the sleeve forcibly down on the jaws of the pinchers. This takes place when the pinchers are in position to seize the edge of the leather preparatory to drawing it forward over the last. As soon as the leather has been seized the pincher-shaft rises and carries the sleeve upward with it, so that the pinchers keep hold of the leather until the last side 46 of the recess 45 comes in contact with the stud 44 and the sleeve is thrown upward, allowing the jaws of the pinchers to separate and release the leather.

The crimping mechanism will now be described. In order to do the crimping, the pinchers are turned during their combined forward and upward movement.

47 is an arm fast to the top of the shaft 6, connected by a draw-spring 48 to a fixed point 49, the tendency of the spring being to turn the pinchers from the position shown in Figs. XV and XVI to that shown in Figs. XVII and XVIII, and in doing so to crimp the leather. 50 is an arm also fast to the shaft and carrying an anti-friction roller 51, which bears against the side of the lever 52, which is fulcrumed at 49, and having at the under side of its rear end a stud or anti-friction roller 53, which plays against the side 54 of the cam-wheel 4, in which is a recess 55, that is entered by the stud at the proper time for the crimping, and at such time, if the lever 52 is free to move, the shaft 6 is turned by

the force of the spring 48 sufficiently to take up the slack leather. As the stud 53 is reached by the last side 56 of the recess 55 the lever 52 is carried back to its usual position (seen in Fig. II) and the pinchers are carried back to their normal position by the pressure of the front end of the lever 52 against the anti-friction wheel 51 of the arm 50. (See Figs. I, II, XIII, XV, and XVI.) The arms 47 and 50 are shown secured to the shaft 6 by set-screws 57, so that they may be adjusted thereon. During the greater part of the operation of lasting no crimping of the leather takes place, and at such time the lever 52 is held in normal position by resting in the notch 59 of a catch 57, whose notched end 58 is at such time in its lowest position. When, however, a small degree of crimping must be done, the recessed end is slightly raised, as seen in Fig. XII, and the lever 52 is allowed to move outward to the recess 60. To allow greater crimping movement, the end 58 being elevated, as seen in Fig. XI, the lever is allowed to move outward into recess 61. The catch works on a pivot 62 and has an arm 63, connected by a rod 64 with the arm 65 upon a rock-shaft 66. The rock-shaft has an arm 67, connected by a rod 68 with a treadle 69, that engages a rack 70 to hold the catch in the required position. (See Fig. X.)

The operation of the parts may be briefly described as follows: The pinchers are first carried down by the lever 27 and cam 4, and the jaws, being forced apart by the spring 37, are in position to close upon the edge of the leather. The cam-stud 44 of the lever 38 now reaches the recess 45, when the spring 43, acting on the lever 38, forces the sleeve 9 suddenly down and closes the jaws upon the leather. The cam-stud 34 of the lever 27 now reaches the recess 36, when the spring 28, acting on the lever 27, draws up the pincher-rod with the pinchers at the same time the cam-stud 24 of the rod 13 reaches the recess 26, and the spring 20, acting on the lever 18, throws the rod 13 and the lower end of the pincher-rod with the pinchers forward, drawing the edge of the leather over the last. The cam-stud 44 is next acted on by the part 46 of the cam 4, and the sleeve 9 (which had been lifted with the pincher-rod) is lifted so as to allow the pincher-jaws to fly open and release the leather which had been previously tacked to the insole. In case crimping is required, the catch-lever is thrown into the position shown in Fig. XI or XII, and the spring 48 is at liberty to turn the pincher-shaft at the same time as the leather is being drawn upward and outward, the lever 52 restoring the pincher-shaft to normal position at the end of each crimping movement. It will be seen that the closing of the jaws of the pinchers upon the leather, the upward and forward movement of the pinchers in stretching the leather over the last, and the crimping of the leather are all accomplished by spring force, so that the movements are not posi-

tive, but will be accommodated to circumstances and will prevent injury to the leather, while insuring perfection of performance. To explain: Supposing the leather to vary in thickness, the jaws of the pinchers will close upon it with equal force, and thus always take secure hold without pinching the leather injuriously, as would be the case where they always close to the same degree. The spring force insures the leather being drawn with an equal strain under all circumstances, whether it may have a greater or less degree of elasticity or where it requires to be drawn a greater or less distance, as the pinchers cease to draw the leather when the desired strain is reached, but not before. In like manner in the crimping when the slack leather has been taken up the twisting ceases, so that there is automatic accommodation to circumstances in all cases.

Two arms 47 and 50 are shown and described at the head of the pincher-shaft, and this is the preferred construction; but it is obvious that the spring 48 and lever 52 might act on a single arm. It will be observed that the connection of the arms 47 and 50 with the spring 48 and lever 52 is such as to allow the shaft 6 free oscillatory movement without binding at this point.

I claim as new and of my invention—

1. The combination, in a lasting-machine, of a shaft 6, carrying the pinchers 5 at its lower end, a rocking bearing supported on trunnions, and sliding lower bearing 9 10, supported on fixed guides 12, substantially as and for the purpose set forth.

2. The combination, in a lasting-machine, of a pincher-shaft 6, oscillating on trunnions 8, the cam 4, rod 13, with cam-stud working in the cam-groove, and a lever 18, connected with the rod 13 and with a spring 20, substantially as and for the purpose set forth.

3. The combination, in a lasting-machine, of a pincher-shaft having forward and rear-

ward movement, the rod 13, with cam-stud 24, the cam 4, the lever 18, and the spring 20, all constructed and adapted to operate substantially as set forth.

4. The combination, in a lasting-machine, of a pincher-shaft 6, having rotary and oscillatory movement, the sleeve 9 upon the shaft, and the operating-lever 38, having an extension-piece 38^a telescoped in the body of the lever and connected to the sleeve, substantially as and for the purpose set forth.

5. The combination, in a lasting-machine, of a pincher-shaft 6, having an arm projecting radially and a spring 48 connected with the arm, a lever 52, bearing against the arm of the shaft 6, and a cam acting on the lever, all substantially as set forth.

6. The combination, in a lasting-machine, of the pincher-shaft 6, arms 47 and 50, spring 48, lever 52, and cam 4, all constructed and adapted to operate substantially as set forth.

7. The combination, in a lasting-machine, of the pincher-shaft 6, adapted to turn and oscillate in its bearings, the arm 50, secured adjustably to said shaft, the spring 48, lever 52, adapted to impinge said arm, and cam 4, all constructed and adapted to operate substantially as set forth.

8. The combination, in a lasting-machine, of the pincher-shaft 6, the spring 48, and lever 52, with connections between the shaft and lever, substantially as and for the purpose set forth, and the adjustable catch 57, adapted to limit the movement of the lever, as described.

9. The combination, in a lasting-machine, of a pincher-shaft 6, sleeve 9, rod 13, levers 18, 27, 38, and 52, cam 4, and springs 23, 28, 43, and 48, all adapted to operate substantially as set forth.

CHARLES SINNING.

In presence of—

SAML. KNIGHT,
THOS. KNIGHT.