

(No Model.)

2 Sheets—Sheet 1.

C. SINNING.
LASTING MACHINE.

No. 456,227.

Patented July 21, 1891.

Fig. I,

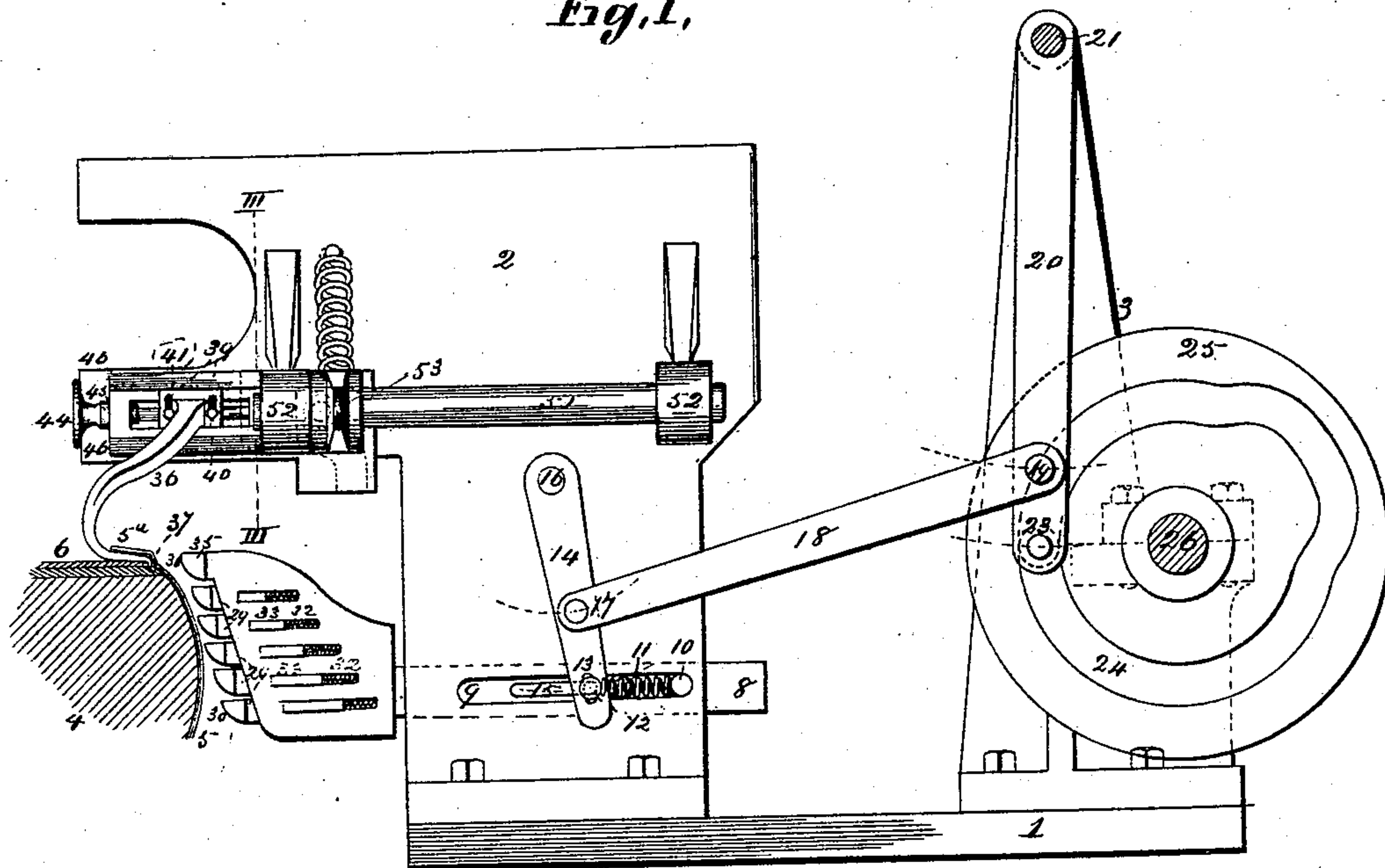
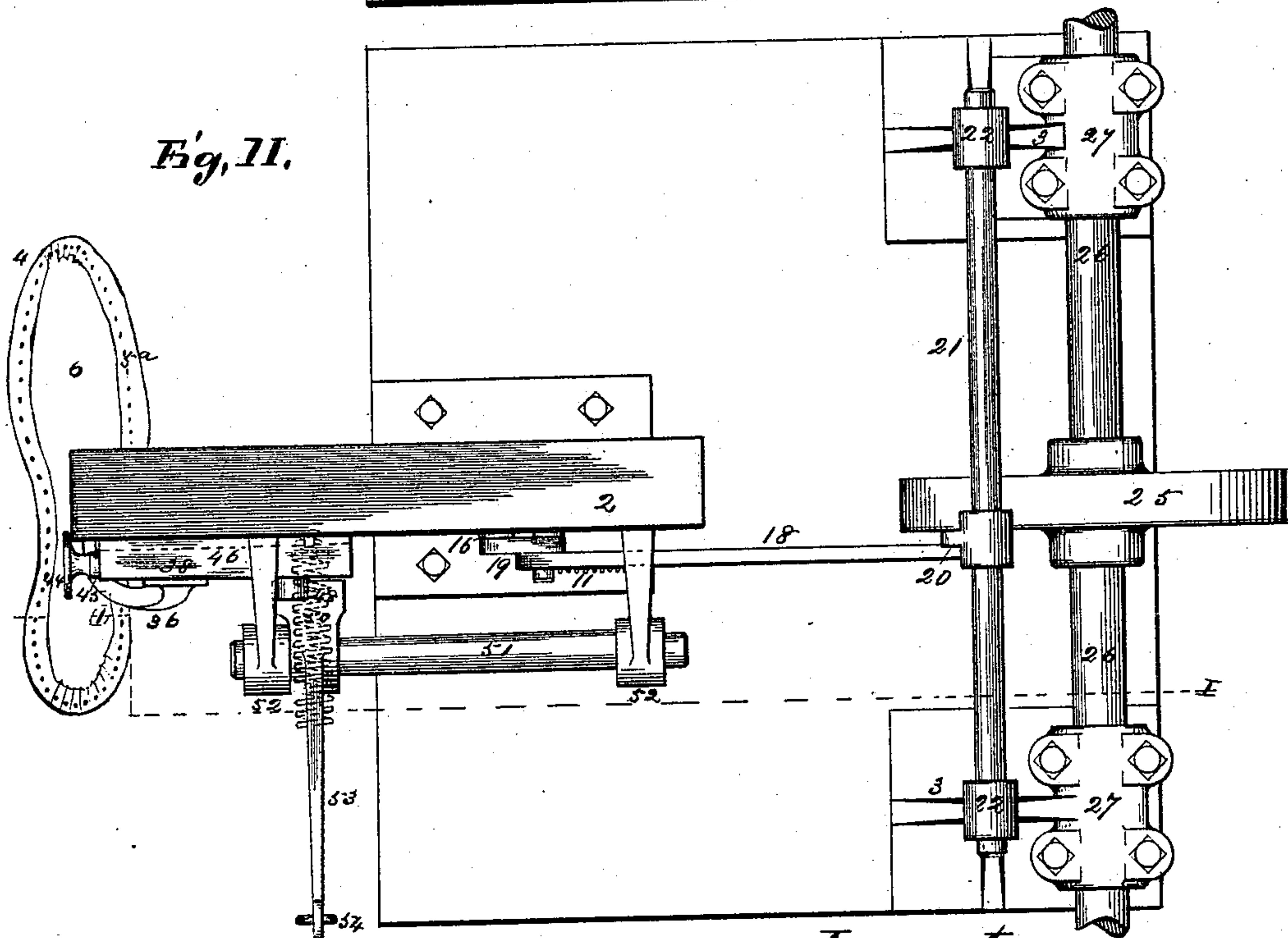


Fig. II,



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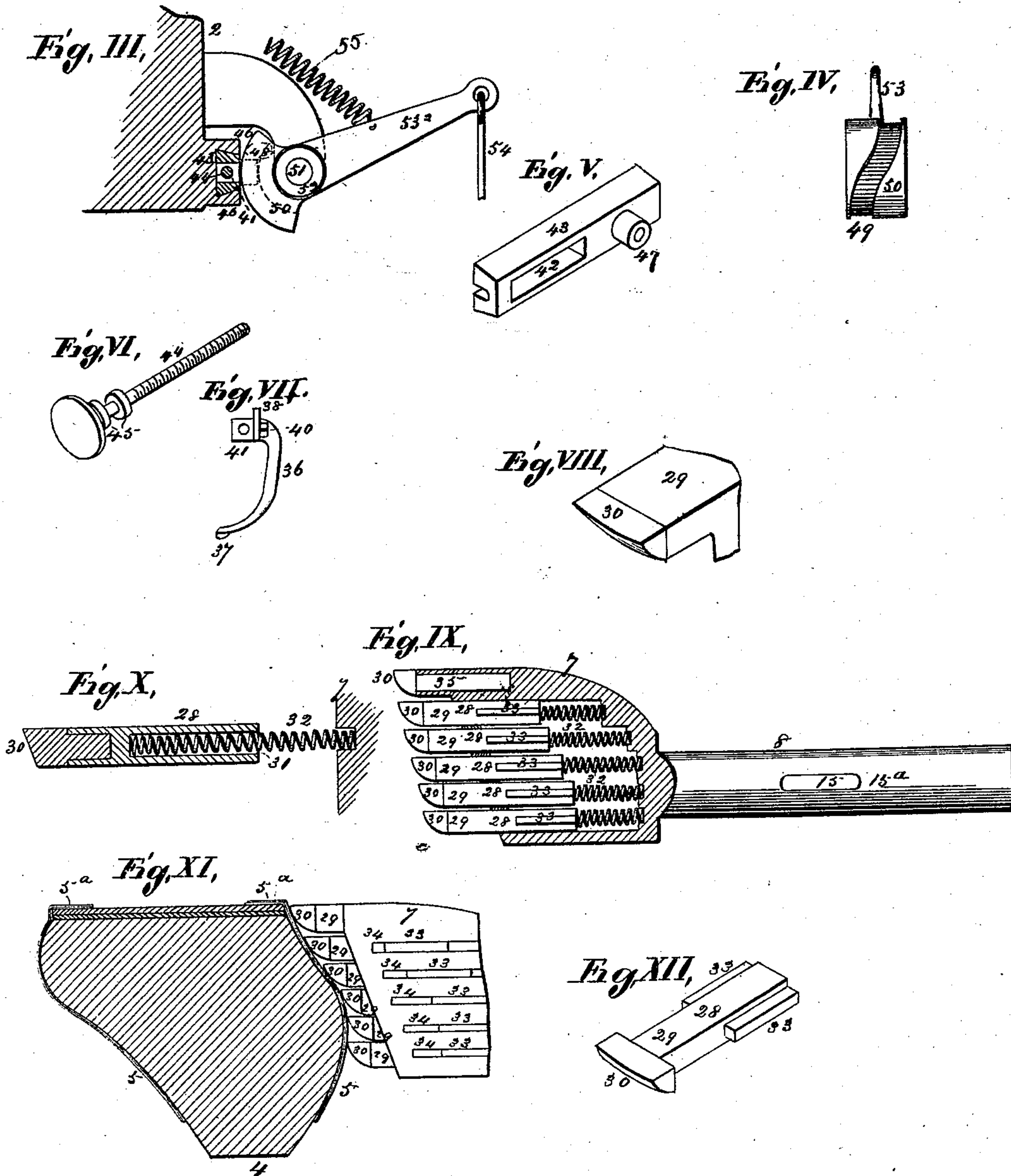
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2 Sheets—Sheet 2.

C. SINNING.
LASTING MACHINE.

No. 456,227.

Patented July 21, 1891.



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UNITED STATES PATENT OFFICE.

CHARLES SINNING, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE SINNING
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LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,227, dated July 21, 1891.

Application filed June 24, 1889. Renewed January 20, 1891. Serial No. 378,419. (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 applies to certain novelties in the pusher by which the shoe "upper" is pressed against the last, the pusher having a number of spring-fingers which accommodate themselves to the contour of the last. The improvement also applies to the guide and devices for moving the same.

Figure I is a vertical section of the device at II, Fig. II. Fig. II is a top view of same. Fig. III is a detail vertical section at III III, Fig. I. Fig. IV is a side view of the cam by which the guide is moved. Fig. V is a perspective view of the guide-slide. Fig. VI is a perspective view of the adjusting-screw of the guide. Fig. VII is a front view of the guide. Fig. VIII is a detail perspective view of the working end of a pusher-finger. Fig. IX is a detail longitudinal section of the pusher. Fig. X is a detail longitudinal section of one of the pusher-fingers. Fig. XI is a side view of the pusher, showing the points of the spring-fingers accommodated to the last, which latter is shown in vertical section. Fig. XII is a detail perspective view of the front portion of a pusher-finger.

1 is the table, which may be supported in any suitable manner.

2 is a standing frame or standard supporting the guide-finger and pusher.

3 3 are standards giving bearing to the shaft of the cam by which the pusher is operated.

4 is the last, 5 the upper, and 6 the insole.

5^a is the edge of the upper overlying the insole and tacked or to be tacked down thereon.

The pusher has a head 7, supported on a stem 8, which works in a guide-socket of the standard 2.

9 is a slot leading from the socket through one side of the standard 2.

10 is a stud in the stem extending through

the slot 9 and carrying a spiral or other spring 11, whose other end is connected to a pin 12, passing through a longitudinal slot 13 in a lever 14. The pin passes through a longitudinal slot 15 in the stem 8. The construction is such that when the lever 14 is swung forward it carries the pusher forward by means of the spring, and when the lever is swung backward the pin 12 impinges against the rear end 15^a of the slot 15 and carries the pusher to its rear position, as seen in Fig. I. Thus it will be seen that the backward movement of the pusher is positive, while its forward movement is not positive, being accomplished by means of the spring, and so the pusher accommodates itself to the position of the last. The lever 14 is fulcrumed to the standard 2 at 16. The lever 14 has a pin 17, connected by a rod 18 with a pin 19 on the arm 20 of a rock-shaft 21, which shaft has bearing at 22 upon the standards 3.

23 is a pin at the lower end of the arm 20, said pin being armed with an anti-friction roller that enters a cam-groove 24 in a cam-wheel 25. The cam-wheel is carried on a shaft 26, turning in boxes 27 upon the standards 3. It will be seen that the rotation of the cam-wheel will cause the reciprocation of the pusher, as set forth. The pusher-head has a number of sockets, in each of which fits the stem 28 of a spring-toe 29, whose fore end 30 is composed of rubber, leather, or some soft substance which will accommodate itself in some measure to the surface against which it is pressed. At the rear end of each stem is a socket 31, which receives the front end of a spring 32, (see Fig. X,) whose office is to push the toe forward, the inner end of the spring bearing against the inside of the head. (See Fig. IX.) The stems 28 have at the sides splines or feathers 33, which work in guide-slots 34. The splines or feathers 33 limit the outward movement of the toes 29. The upper pusher-toe 35 is rigid in the head and has, like the other toes 29, a soft end 30. The office of the pusher is to keep the upper 5 pressed against the side of the last, to whose shape the spring-toes conform.

I will now describe the guide-finger 36 and its operation. The end of the guide is adapt-

ed to fit the top of the insole 6 at the edge, and has a small downturned lip 37, taking over the periphery of the insole. The edge 5^a of the upper lies upon the top of the guide, the lip 37 being inserted between the periphery of the insole and the upper. The guide has ears 38 at its upper end, having vertical slots 39, through which pass screws 40, by which the guide is attached to a nut 41. The nut 41 fits in a slot 42 of a slide 43, and is adjusted endwise in the slot by a screw 44, which works through the nut. The screw has collars 45, preventing its endwise movement in the slide, so that when it is turned the nut is moved inward or outward in the slot 42, and thus the guide may be set inward or outward. This slide is of a dovetail shape in transverse section and works endwise between guides 46 upon the standard 2.

47 is a stud upon the slide armed with an anti-friction roller 48, which enters a cam-groove 49 of a cam 50 upon a rock-shaft 51, working in bearings 52. The rocking of the shaft causes the forward and backward movement of the guide. The cam 50 is turned so as to draw the guide backward by an arm 53, connected by a rod 54 to a treadle, so that by depressing the treadle the guide is pushed forward. When the treadle is released, the arm 53 is drawn upward to its normal position by a spring 55. The guide is drawn backward when driving tacks near the toe and heel, because at such times the part of the work between the guide and pusher is nearer to the body of the machine than at other times. The tack is always driven in the rear of the guide and pusher, which act to assist in laying the edge 5^a in proper position for tacking, and the tack must be driven a given distance from the edge or corner of the last. It will be seen that to bring the proper part of the shoe beneath the point of the tack at the toe or heel the shoe must be brought nearer to the body of the machine than when the side of the shoe is being operated upon, the spring-toes and spring-pusher retreating under the pressure of the guide and allowing the movement of the work.

I claim as my invention—

1. In a lasting-machine, a pusher having a rigid toe 35 and a series of spring-actuated toes 29 below toe 35, adapted to accommodate the pusher to the shape of the last, substantially as set forth.

2. In a lasting-machine, a pusher having a rigid toe 35, and a series of spring-actuated toes 29, arranged one above the other and below the rigid toe, substantially as and for the purpose set forth.

3. In a lasting-machine, a pusher having a rigid toe 35, provided with yielding material at its engaging end, and a series of spring-actuated toes 29, arranged one above the other and below the rigid toe, substantially as and for the purpose set forth.

4. In a lasting-machine, a pusher having a rigid toe 35 and a series of spring-actuated toes 29, arranged one above the other and below the rigid toe, the ends of all the toes being on a line inclined from the rigid toe inwardly, substantially as set forth.

5. The combination, in a lasting-machine, of a pusher, a spring 11, driving the pusher forward, and spring-toes 29, the spring 11 allowing the accommodation of the pusher to the position of the work and the spring-toes accommodating themselves to the contour of the last.

6. In a lasting-machine, the combination of a pusher 7, with rigid toe 35 and spring-toes 29, the spring 11, lever 14, rod 18, arm 20, and cam 25, constructed and arranged to operate substantially as and for the purpose set forth.

7. The combination of a pusher 7, having a stem 8, a drive-lever 14, connected with the stem 8 by a spring 11, and a pin 12 on the lever working in the slot 15 of the stem, all substantially as and for the purpose set forth.

8. In a lasting-machine, the guide 36, supported on a slide 43, having a stud with anti-friction roller 48, the cam 50, treadle-lever 53, and spring 55, substantially as and for the purpose set forth.

9. In a lasting-machine, the combination of guide 36, nut 41, screw 45, slide 43, and means for actuating the slide, substantially as and for the purpose set forth.

10. In a lasting-machine, the vertically-adjustable guide 36, supporting-slide 43, having a slot and a nut adapted to work therein, the guide being attached to said nut, whereby endwise and vertical adjustment of said slide is secured, substantially as set forth.

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In presence of—

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