

LE BARON C. COLT.
LASTING MACHINE.
APPLICATION FILED JULY 2, 1908.

996,702.

Patented July 4, 1911.

2 SHEETS—SHEET 1.

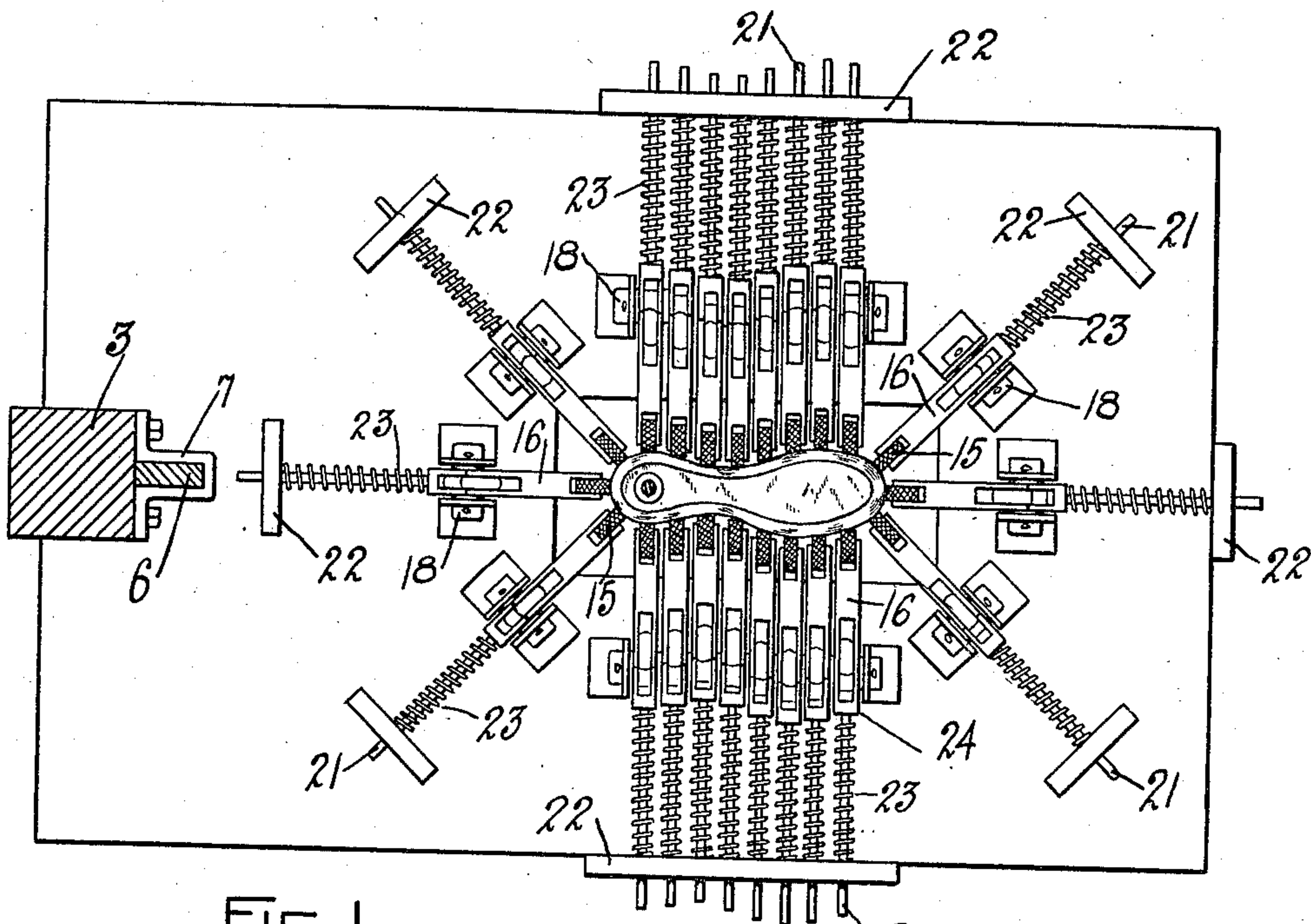


FIG. 1.

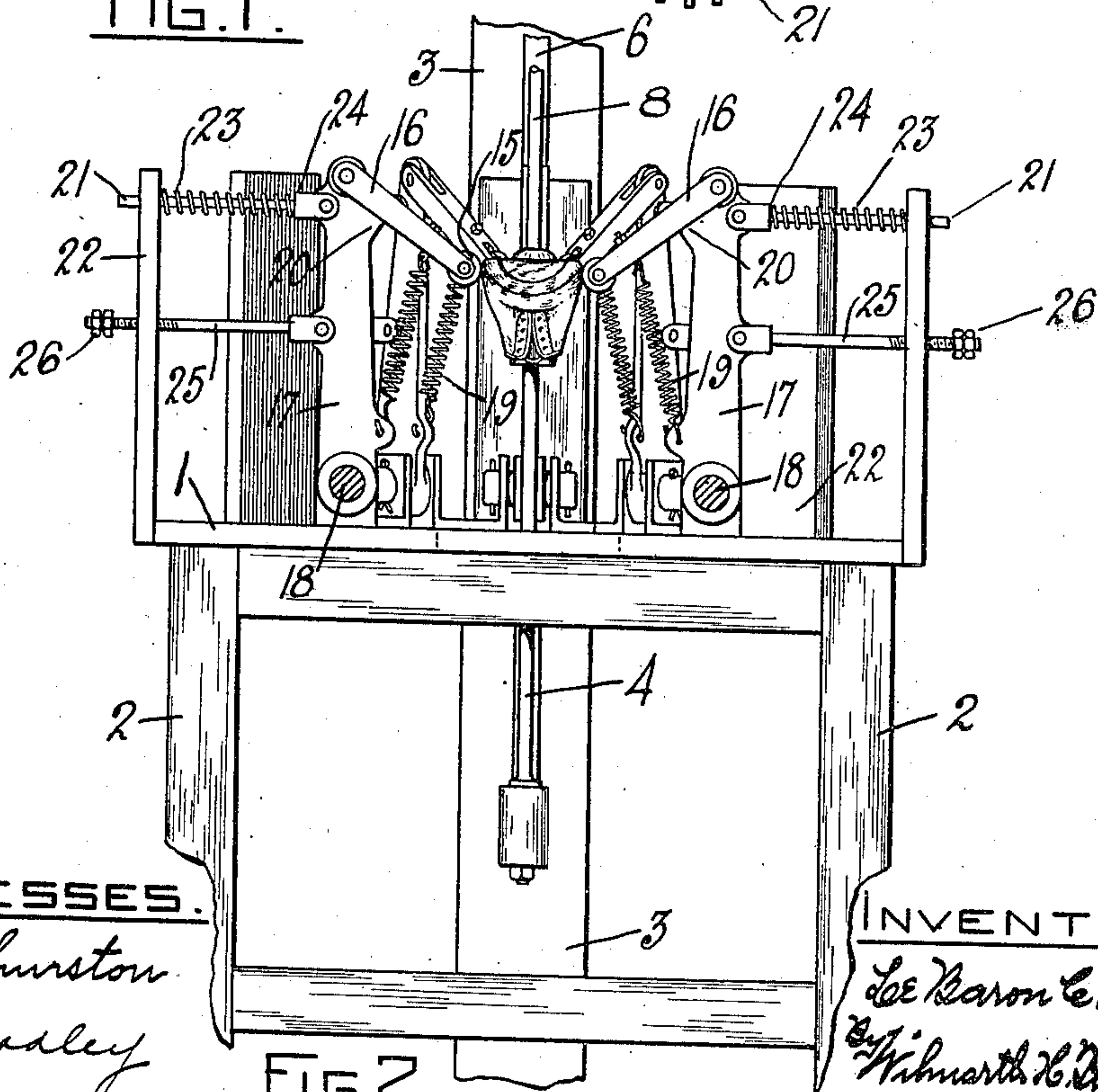


FIG. 2.

WITNESSES.

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INVENTOR.

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By Winthrop H. Thurston
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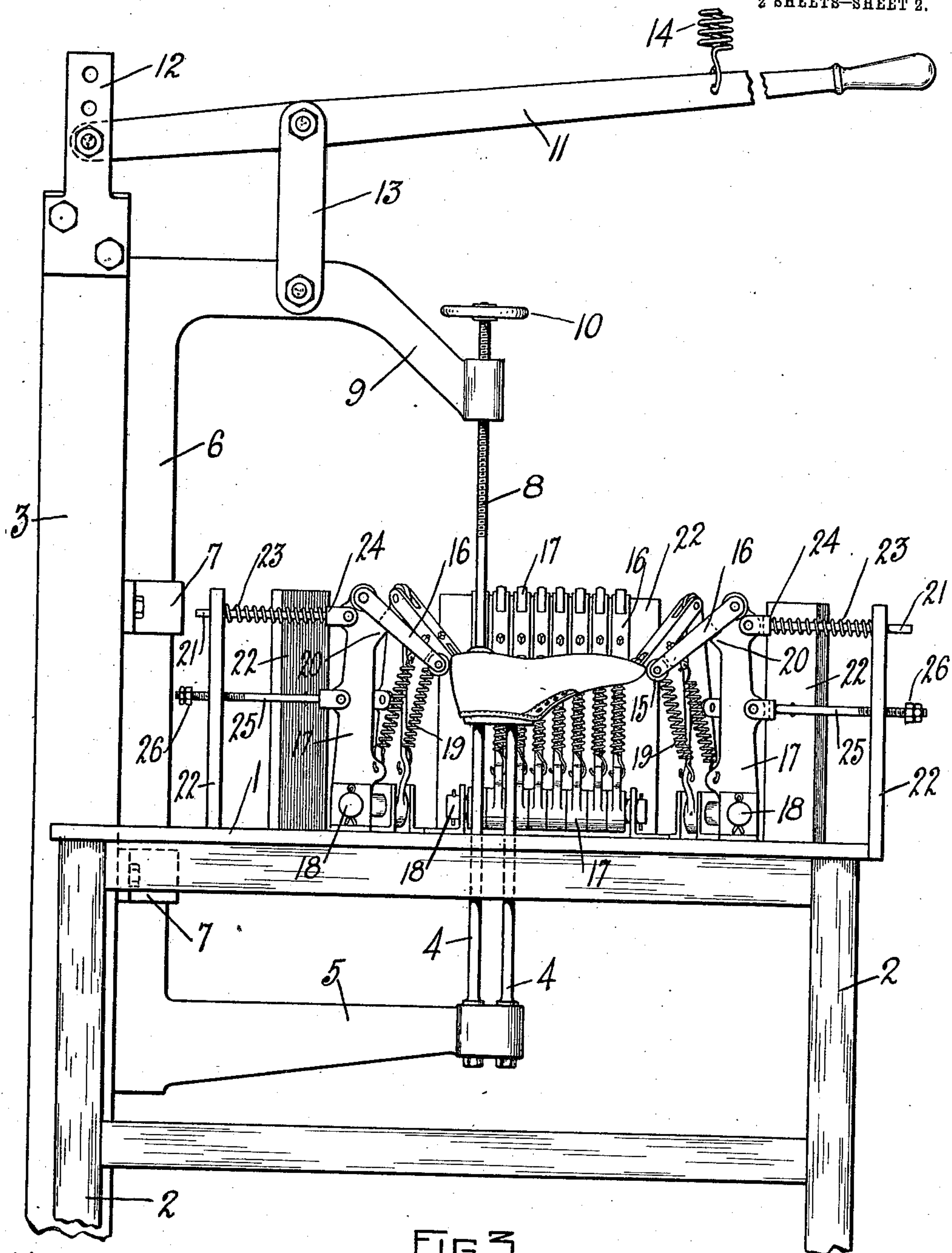


FIG. 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

LE BARON C. COLT, OF BRISTOL, RHODE ISLAND.

LASTING-MACHINE.

996,702.

Specification of Letters Patent.

Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, LE BARON C. COLT, of Bristol, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Lasting-Machines; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

The machine shown and described is especially designed and adapted for lasting rubber-shoes or shoes made of rubber and fabric, but may also, if desired, be employed for the lasting of leather shoes.

The object of the invention is to produce a machine by means of which the lasting of the shoe may be quickly and efficiently performed, and which in the case of rubber-shoes or shoes of rubber and fabric, will operate not only to fold the upper upon the last, but to automatically secure or attach the upper to the in-sole.

The primary feature of the invention consists in providing means whereby the last with the upper applied thereto is caused to travel past a series of automatically actuated rolls arranged to bear upon the upper and operating to fold the upper about the edge and down upon the bottom of the last.

Another feature of the invention consists in providing means for automatically operating said rolls to act upon the upper as it is carried by said rolls.

The invention further consists in certain combinations and arrangements of parts to be hereinafter described.

Referring to the drawings, Figure 1 is a plan view of the main operating parts of the machine. Fig. 2 is a front elevation of the corresponding portion of the machine, but with certain of the rolls and other operating parts removed. Fig. 3 is a side elevation of the machine with certain of the rolls and other operating parts removed.

The machine comprises a suitable table or support 1, said table as shown being supported upon suitable legs or posts 2, 2. Secured to said table is an upright 3 which as shown extends to and is directly supported by the floor on which the machine rests.

The last with an upper applied thereto is placed upon and supported by a movable support which as shown consists of two ver-

tically arranged rods 4, 4, adapted to enter the usual holes in the last. Said rods 4 are secured to an arm 5 projecting laterally from a sliding bar 6 arranged to slide in suitable U-shaped guides 7 secured to the upright 3, as shown in Figs. 1 and 3.

It is desirable that the last with the upper and in-sole applied thereto shall be clamped in position on the movable support 4, and for this purpose a movable or adjustable clamping member 8 is provided, said clamping member comprising a screw-threaded rod with a suitable head or enlargement at the lower end thereof, as shown in Figs. 2 and 3. The screw-threaded rod 8 is mounted in and supported by an arm 9 projecting laterally from the sliding bar 6, the outer end of said arm 9 being provided with an opening for the passage of the adjustable rod 8, said opening being provided with an internal screw-thread to engage the screw-thread upon said rod 8, said rod being provided with a suitable operating handle 10.

After the last with the upper and in-sole applied thereto have been placed in position on the movable support 4, and after the adjustable clamping member 8 has been adjusted to clamp the parts in position, it is desired that said movable support and said clamping member shall be moved downward in unison for the purpose of carrying the shoe past the actuating rolls to be hereafter described. For this purpose means are provided for giving vertical movement to the sliding bar 6, such means as shown consisting of a hand-lever 11 pivoted to a suitable bracket 12 secured to the upper end of the upright 3. A link 13 connects said lever 11 with the arm 9, and so that by a movement of said lever in one direction or the other the sliding bar 6 will be correspondingly moved and with it the movable support 4 and the clamping member 8. Preferably a spring 14 is employed, one end of said spring being connected to the lever 11 and the other to a fixed support to assist in regulating or controlling the movement of the parts under the action of the hand-lever.

The construction and arrangement of the rolls which operate upon the shoe are as follows: As the manner of mounting and the means for operating each of the actuating rolls 15 are the same, a description of such mechanism in the case of one roll is all that will be required. The roll 15 is loosely

mounted in the free end of an arm 16 which is pivoted to the upper end of an arm 17 loosely mounted on a shaft 18 supported in suitable bearings. A spring 19 is connected
 5 at one end to the arm 16 and at the other end to the arm 17, the action of said spring tending to pull the arm 16 toward the arm 17. Said arm 17 is provided with a stop 20 which serves to limit the movement of
 10 the arm 16 under the pull of the spring 19. To the upper end of the arm 17 is pivotally connected a rod 21, the outer or free end of which extends through and is supported by a bracket 22 extending upwardly from the
 15 table. A spring 23 surrounds the rod 21, one end of said spring bearing against a shoulder 24 on said rod and the other end bearing against the bracket 22, said spring 23 being normally under compression.

20 For the purpose of limiting the inward movement of the arm 17 under the action of the spring 23 another rod 25 is pivotally connected to said arm, the outer or free end of which rod likewise extends through and
 25 is supported by the bracket 22. The outer end of said rod 25 is screw-threaded and provided with an adjusting nut 26, the engagement of which nut with the bracket 22 serves to limit the inward movement of the
 30 arm 17.

The operation of the mechanism above described is as follows: As shown in Fig. 1, a series of rolls 15 are arranged to act on one side of the shoe, and a corresponding series
 35 of rolls are arranged to act upon the opposite side of the shoe, while, as shown in the drawings, three rolls 15 are arranged to act upon the heel of the shoe and three other rolls are arranged to act upon the toe of the
 40 shoe. When the last with the upper and in-sole applied thereto has been placed upon the movable support 4 the operator adjusts the clamping member 8 by operating the hand-wheel 10 so as to clamp the parts se-
 45 curely in position. The parts will now occupy substantially the position shown in Figs. 2 and 3, and at this time, as will be seen, each of the rolls 15 will be pressed into contact with the upper by the action of
 50 its spring 23. The operator now depresses the lever 11 to move downward the sliding bar 6 carrying the movable support 4 and the clamping member 8, thereby correspondingly moving downward the shoe held on
 55 said movable support and causing said shoe to travel downward past the rolls 15. As the shoe begins to move downward the rolls 15 will be forced backward somewhat against the action of the springs 23, thereby increas-
 60 ing the tension of said springs and causing said rolls to forcibly roll along the upper and roll the same into firm and smooth contact with the last under the action of said springs until the rolls pass the edge of the
 65 last, when the springs 19 will come into

action and said rolls will then, under the action of the two springs 19 and 23, operate to turn over the edges of the upper about the edge of the last and to force such turned-over edges into close contact with the in-sole,
 70 and where the upper is of rubber or of rubbered fabric will cause the same to become closely adhered to said in-sole.

It will be seen that the rolls in acting upon the upper are always under spring-
 75 pressure, being, during the first part of their movement, under the action of the springs 23, and then, when they have passed over the edge of the last, under the action of both the springs 23 and the springs 19,
 80 and that thus said rolls, as the shoe is passed by them, operate with a dragging or drawing action and serve to draw the upper around the edge of the last and to iron
 85 out, as it were, the material of the upper, at the same time forcing it into close and adhesive contact with the in-sole.

When the shoe has been moved downward to its lower position and past the rolls 15, the clamping member 8 is released by turn-
 90 ing the hand-wheel 10, and the lasted shoe is then removed from the movable support 4. The lever 11 is then operated to again raise the sliding bar 6 and the parts carried thereby to their upper position.
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While in the construction shown the last with the upper applied thereto, in moving past the series of spring-actuated rolls, is moved in a downward direction, and while
 100 for convenience such movement is referred to in some of the claims as downward, it will be understood that the direction of such movement is immaterial, and that instead of being moved downward past said rolls
 105 the last might be moved in an upward direction, or that if desired the machine might be so arranged that the movement of the last would be lateral or horizontal. It will be further understood that while in the machine shown and described the automatic
 110 operation of the rolls is effected by means of springs, such automatic operation may be effected by other means, as for example by means of compressed air, hydraulic pressure, or otherwise.
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What I claim as my invention and desire to secure by Letters Patent is:

1. In a lasting machine, the combination of a series of rolls and means for moving the last with an upper applied thereto past
 120 said rolls, each of said rolls being automatically actuated first in an inward direction and then in a direction substantially at right angles thereto.

2. In a lasting machine, the combination
 125 of a series of rolls, and means for moving the last with an upper applied thereto past said rolls, each of said rolls being acted upon by two springs, one spring acting to move said roll in an inward direction and
 130

the other spring acting to move said roll in a direction substantially at right angles thereto.

3. In a lasting machine, the combination 5 of a series of rolls, and means for moving the last with an upper applied thereto past said rolls, each of said rolls being acted upon by two springs, one of said springs acting to force said roll against the side of the upper, 10 and the other spring acting when the last has moved downward to force said roll against the turned over edge of said upper.

4. In a lasting machine, the combination 15 of a series of rolls, and means for moving the last with an upper applied thereto past said rolls, each of said rolls being acted upon by two springs, one of said springs being a pushed spring and acting to force said roll 20 against the side of the upper, and the other spring being a pull-spring and acting when the last has moved downward to force said roll against the turned over edge of the upper.

5. In a lasting machine, the combination 25 of a series of rolls automatically actuated in two directions, a movable support for the last, a clamping member for clamping the last on such movable support, and means for moving said support and said clamping 30 member past said rolls.

6. In a lasting machine, the combination of a series of rolls substantially actuated in

two directions, a movable frame carrying a support for the last, and a clamping member, and means for moving said frame to 35 carry the last clamped on said support past said rolls.

7. A lasting machine having in combination a pivoted arm, a push-spring acting on said arm, a second arm pivoted on said first 40 arm and provided at its free end with a roll, and a pull-spring acting on said second arm.

8. A lasting machine having in combination a pivoted arm, a push-spring acting on said arm, a second arm pivoted on said first 45 arm and provided at its free end with a roll, a pull-spring acting on said second arm, and stops to limit the movements of said arms under the action of said springs.

9. A lasting machine having in combina- 50 tion a pivoted arm, a push-spring acting on said arm, a stop to limit the movement of said arm under the action of said spring, a second arm pivoted on said first arm and provided at its free end with a roll, a pull- 55 spring acting on said second arm, and a stop formed on said first arm to limit the movement of said second arm under the action of its spring.

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Witnesses:

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