

(No Model.)

2 Sheets—Sheet 1.

G. LYON.

MACHINE FOR FILLING THE TICKS OF MATTRESSES.

No. 414,066.

Patented Oct. 29, 1889.

Fig. 1.

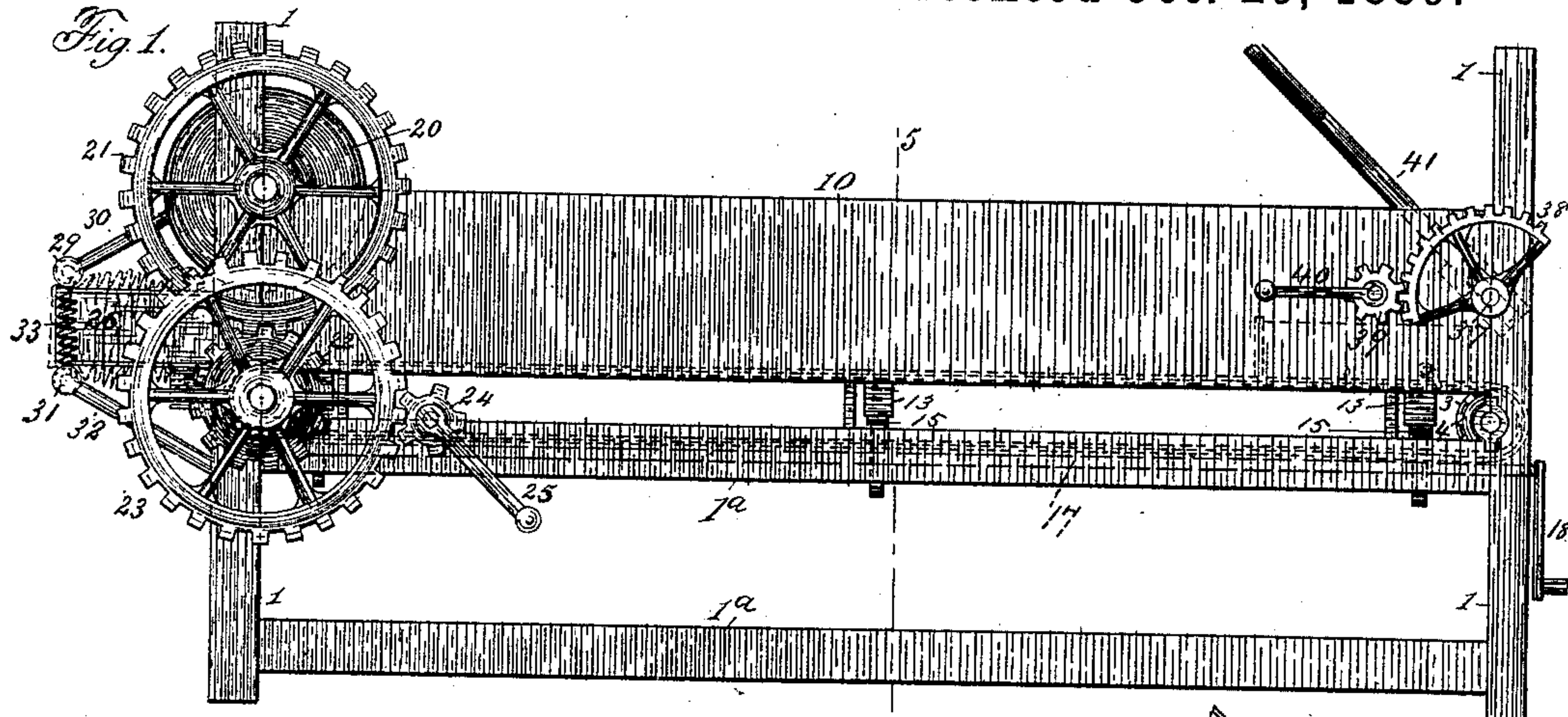


Fig. 2.

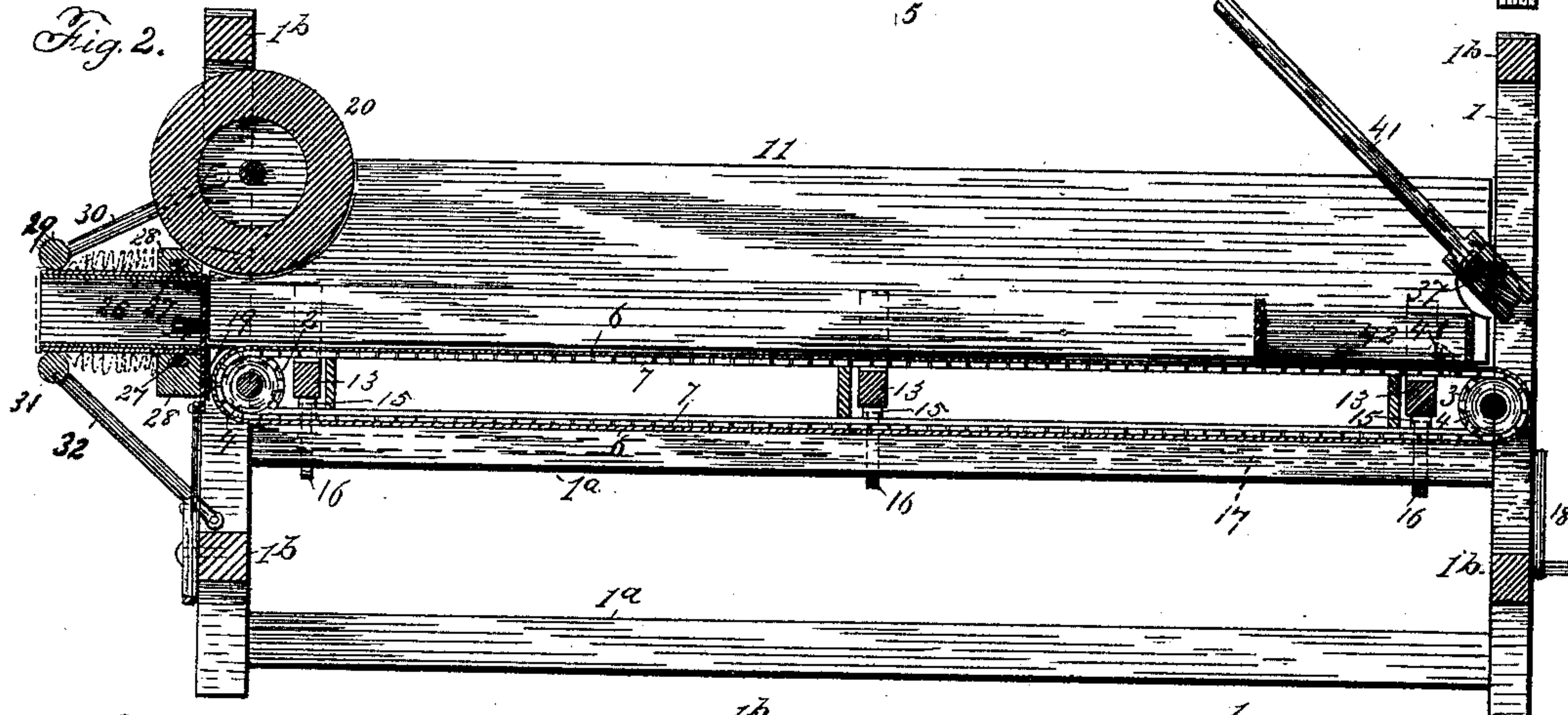
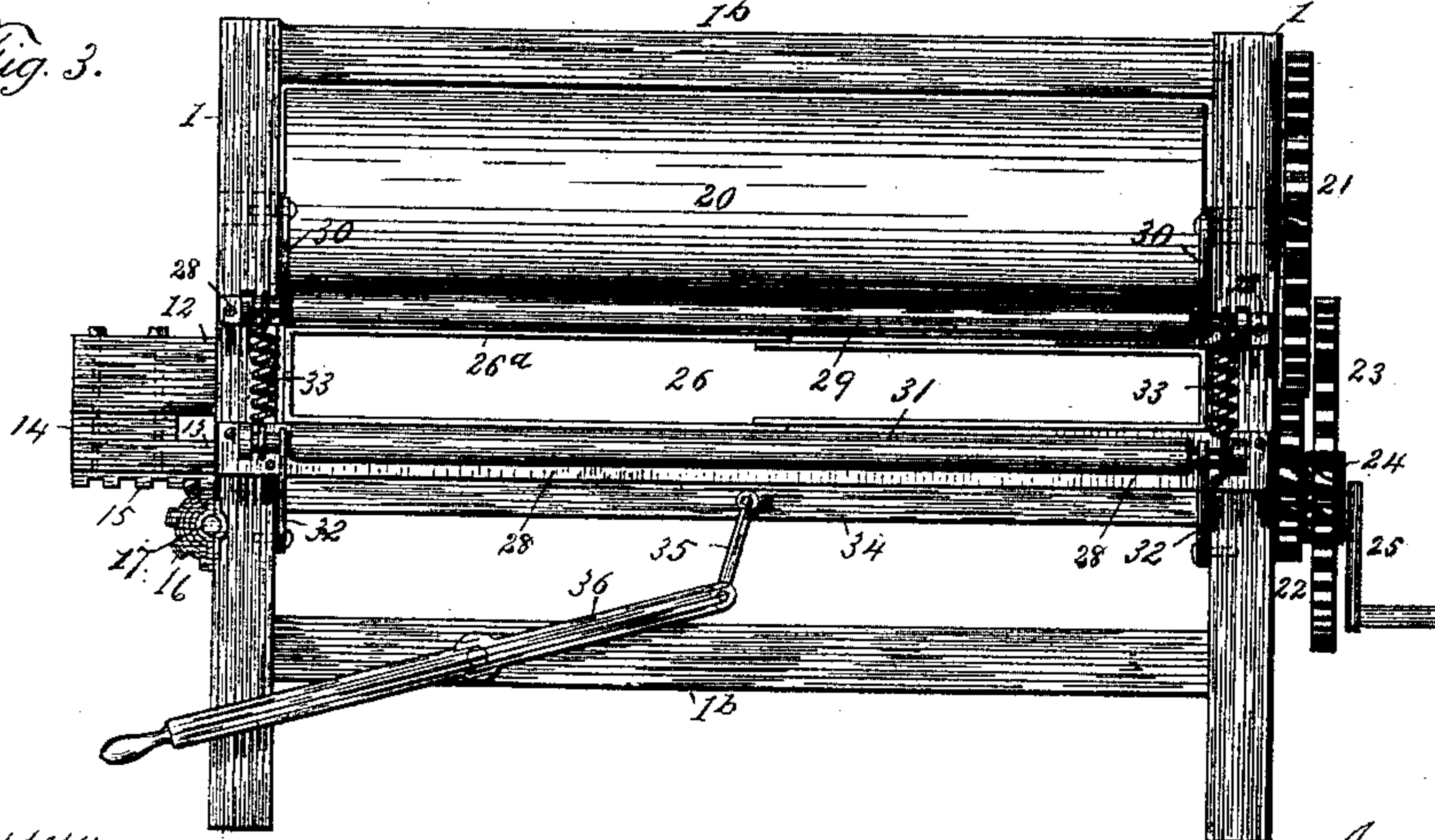


Fig. 3.



Witnesses:

J. E. Christy.
E. Arthur.

Inventor,
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(No Model.)

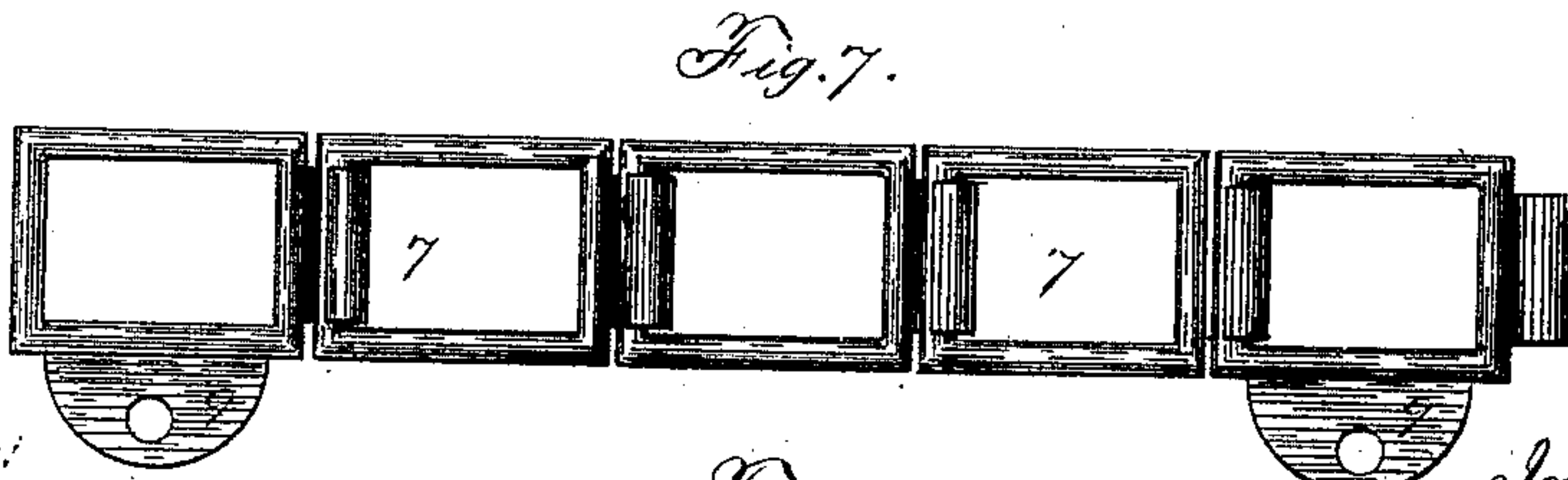
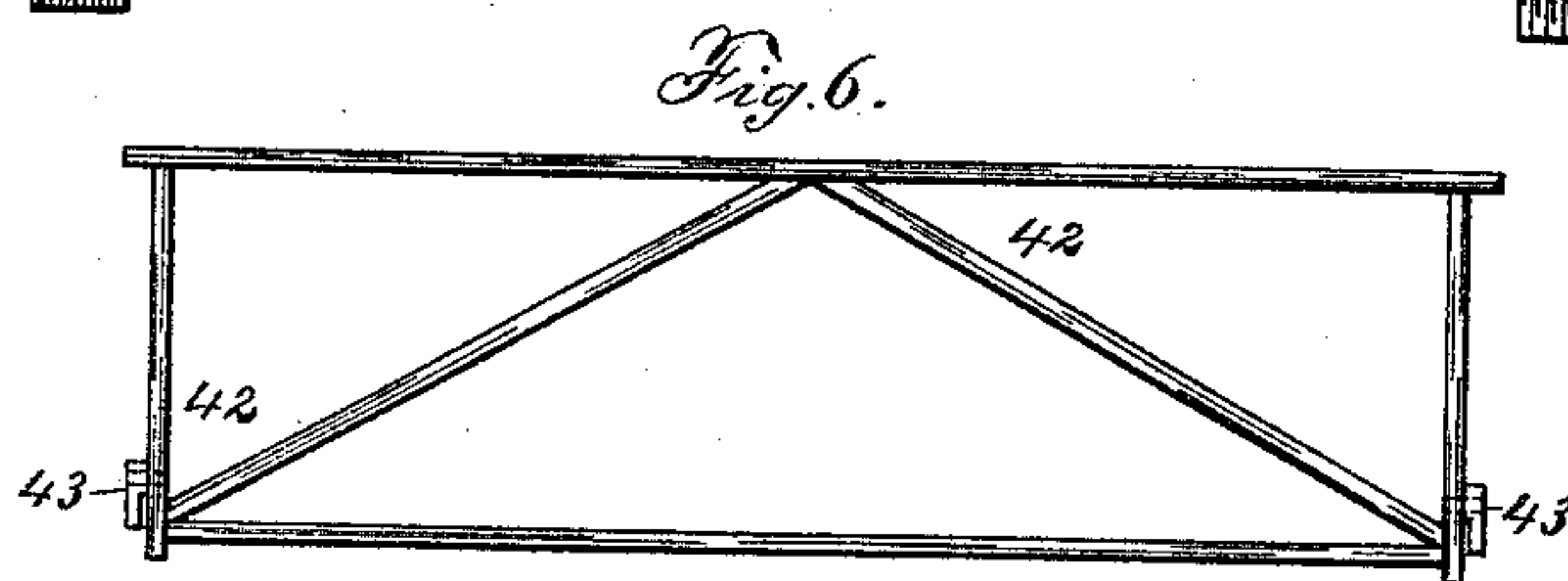
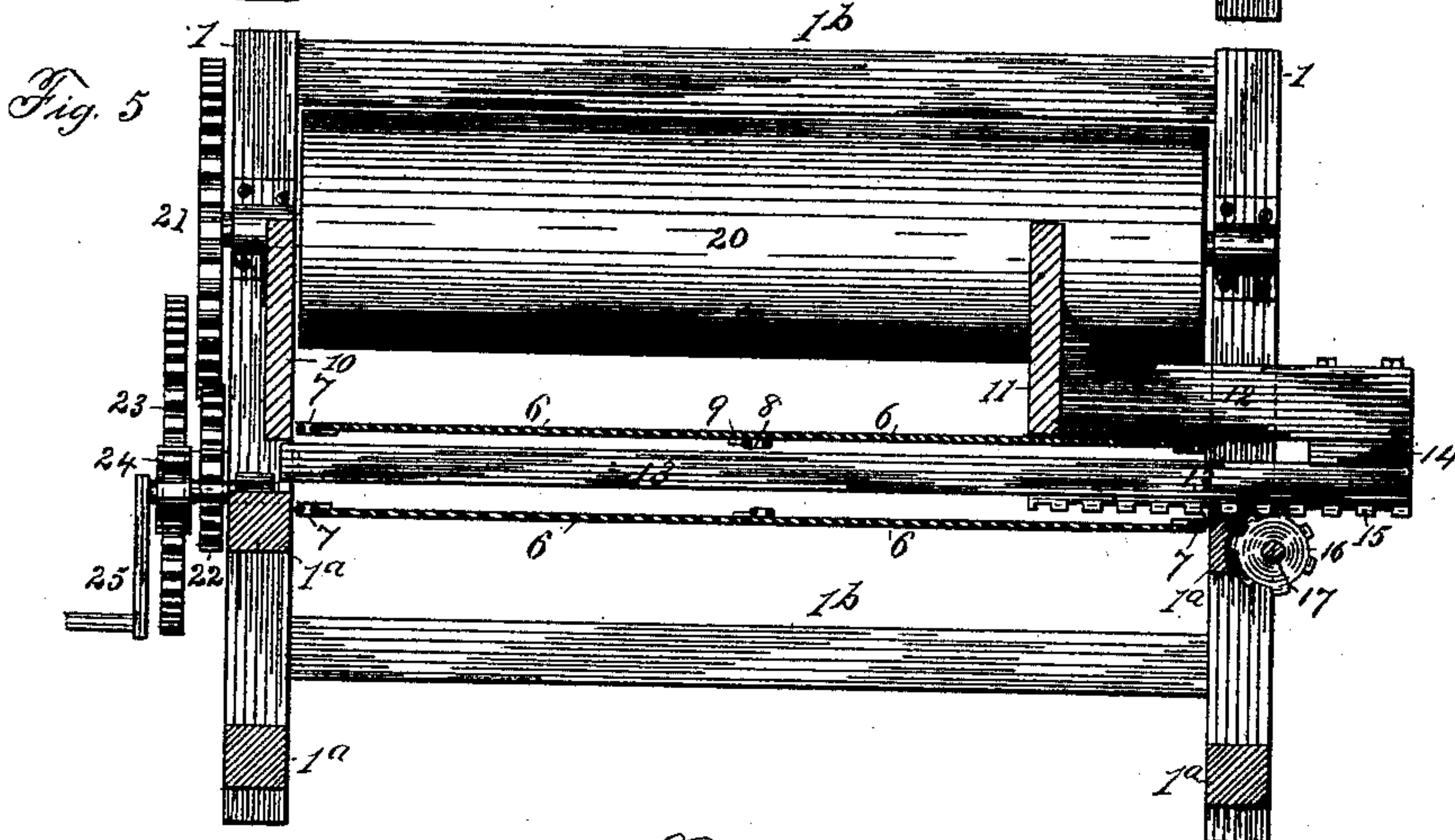
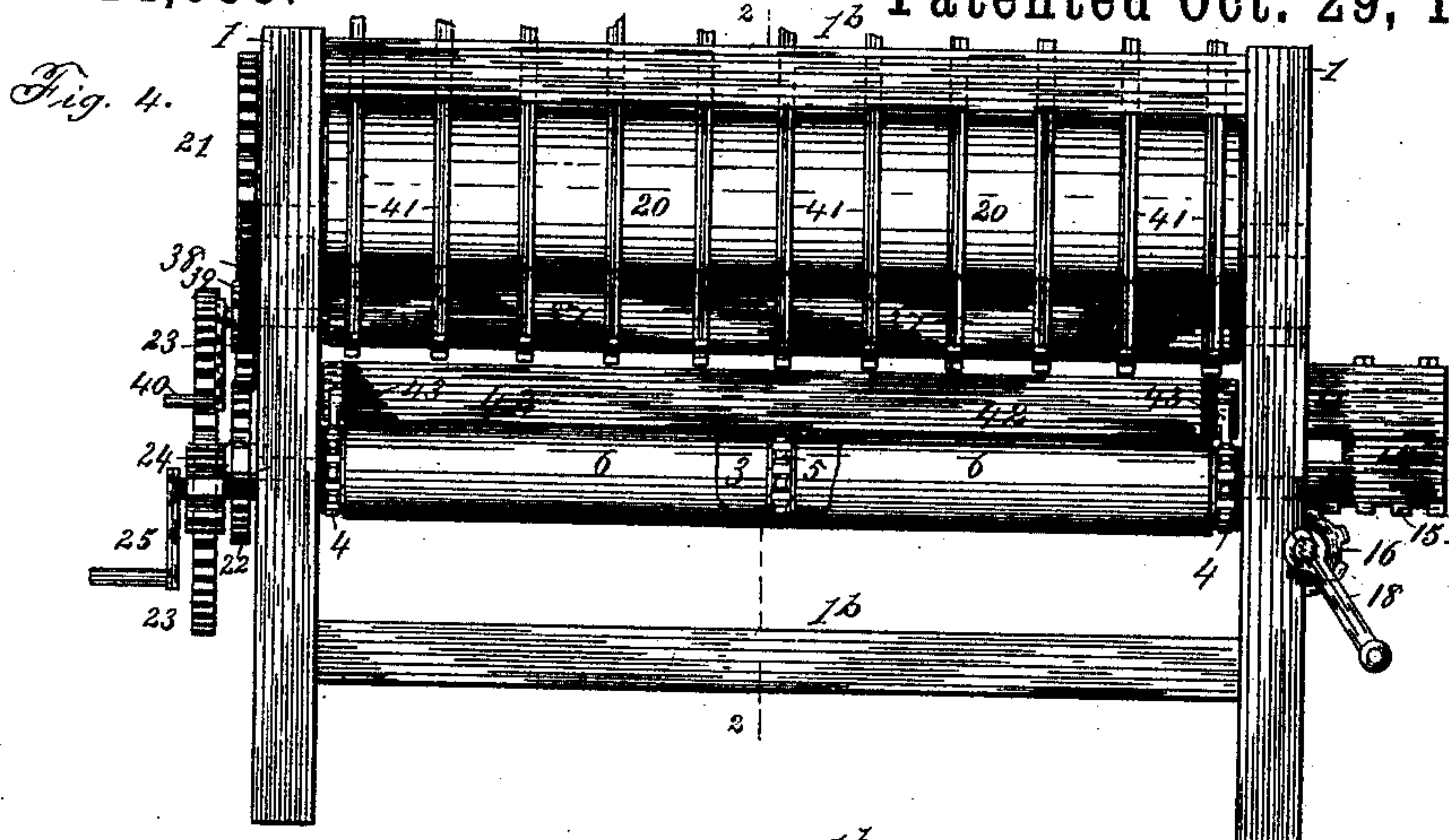
2 Sheets—Sheet 2.

G. LYON.

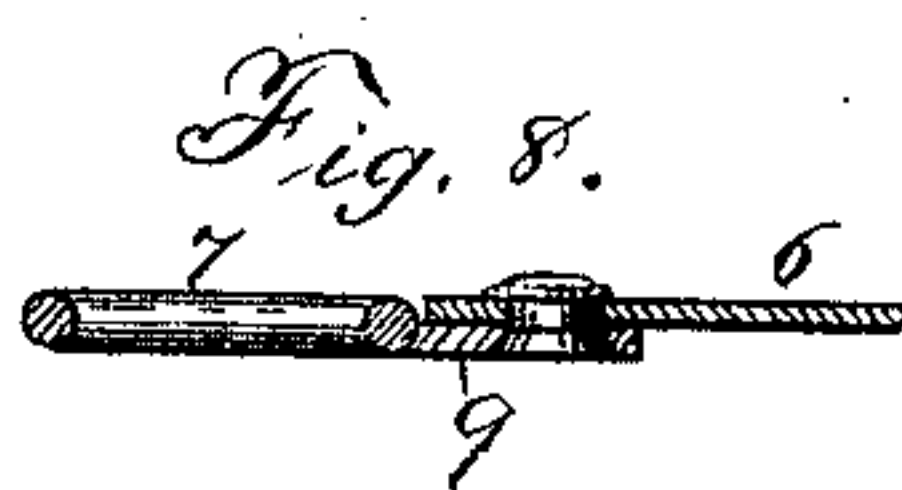
MACHINE FOR FILLING THE TICKS OF MATTRESSES.

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Inventor,
George Lyon,
By *Knight Bros*
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UNITED STATES PATENT OFFICE.

GEORGE LYON, OF CHICAGO, ILLINOIS.

MACHINE FOR FILLING THE TICKS OF MATTRESSES.

SPECIFICATION forming part of Letters Patent No. 414,066, dated October 29, 1889.

Application filed March 14, 1889. Serial No. 303,305. (No model.)

To all whom it may concern:

Be it known that I, GEORGE LYON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Filling the Ticks of Mattresses, of which the following is a specification.

The invention consists in certain features of novelty which are particularly pointed out in the claims hereinafter, a machine embodying said invention being first fully described as a whole with reference to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of said machine. Fig. 2 is a longitudinal section of said machine on the line 2 2, Figs. 3 and 4. Figs. 3 and 4 are respectively an elevation of the head end and an elevation of the tail end of said machine. Fig. 5 is a transverse section of said machine on the line 5 5, Fig. 1. Fig. 6 is a plan view of the follower. Fig. 7 is an enlarged plan view of a fragment of one of the drive-chains. Fig. 8 is a transverse section of one link of said chain and a fragment of the belt, illustrating the manner in which they are secured together.

The frame of the machine shown in the drawings consists of four upright corner-posts 1 1 1 1, situated at proper distances apart, and connected by four side rails 1^a 1^a 1^a 1^a (two on each side) and four end rails 1^b 1^b 1^b 1^b, two at each end. These parts constitute an adequate frame, but a frame of any other desired construction may be employed.

2 is a roller journaled in suitable boxes secured to the head-posts, and 3 is a roller similarly journaled in boxes secured to the tail-posts of the machine. Each of these rollers is provided at each end with a sprocket-wheel 4, and at its mid-length with a third sprocket-wheel 5, which wheels are equal in diameter, over all, to the diameter of the rollers.

6 is a canvas or other belt, constituting the movable bed of the machine, which embraces the two rollers, as shown more clearly in Fig. 2, and is equal in width to the length of said rollers, as shown more clearly in Fig. 4, where a portion of it is broken away in order to

display the middle sprocket-wheel 5 of the roller 3.

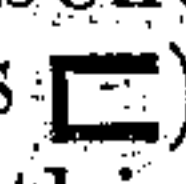
7 7 are drive-chains which embrace the sprocket-wheels 4 4 4 4, and 8 is a third drive-chain which embraces the sprocket-wheels 5 5. These drive-chains are firmly secured to the belt 6 in the manner shown in Fig. 8—that is, certain of the links of the chains—say every third or fourth one—are formed with thin flat lips 9, which project from the sides of said links and are perforated for the passage of rivets, whereby they are secured to the belt. The lips of the chain 8 may project from either or both sides thereof; but the lips of the chains 7 must project from the inner sides of the respective chains inward over the ends of the rollers 2 3.

10 and 11 represent the side boards, which extend from end to end of the frame and from the plane of the top lap of the belt upward the required distance. The side board 10 is fixed to the frame, while the side board 11 is movable toward and from the side board 10 by means of the following mechanism. To the outside of the side board 11, at equal distances apart, are secured three (more or less) stout arms 12, which project outward beyond the side of the frame. The outer extremity of each of these arms is secured by bolts to the outer extremity of a slide 13, which extends inward beneath the arm 12 and parallel therewith. Between the outer extremity of the arm 12 and slide 13 is interposed a short flat block 14, the object of which is to prevent contact and leave a space between the inner end of said arm and the slide. The object of this space is to permit the arm 12 to project inward over the top lap of the belt 6, while the slide 13 projects inward beneath it, the said top lap occupying the space between the arm 12 and slide 13, and the said slide occupying the space between the top and bottom laps of the belt. The slide 13 may, however, be situated even beneath the bottom lap of the belt, if desired. Upon the under side of the slide are racks 15, which rest upon and gear with pinions 16, the several pinions being secured to a shaft 17, journaled in boxes secured to the side of the frame and provided with a crank 18. By turning this crank all of the slides 13, and consequently

the arms 12, are simultaneously and uniformly advanced or retracted, thereby advancing the movable side board 11 toward or moving it away from the fixed side board 10, as the case may be, without disturbing their parallelism.

19 is a stout bar of angle-iron supported by the head-posts 1 1, with its hollow side toward the roller 2 and one of its straight outer sides horizontal and flush with the surface of the top lap of the belt.

20 is a feed and compression roller situated directly over the roller 2 and journaled in boxes secured to the head-posts 1 1. Secured to the shaft of roller 20 is a cog-wheel 21, with which gears a pinion 22, secured to the shaft of the roller 2. To this latter shaft is also secured a cog-wheel 23, which gears with a pinion 24, journaled to the frame and provided with a crank 25, whereby the whole train of gears and their connections are operated.

26 is a rectangular nozzle, which is of the requisite length and depth and so constructed as to be readily adjustable in width. It consists of two pieces of sheet metal, each bent to form three sides of a rectangle (thus ) and arranged to telescope or slide one within the other. The inner one is fixed immovably, and is situated on the same side of the machine as is the fixed side board 10, while the outer one is provided on its top and bottom sides with dovetail or T-shaped tongues 27, which fit in two corresponding grooves cut in parallel strips 28, extending across the machine.

29 is a roller resting upon the top side of the nozzle near its outer extremity and journaled to the lower extremities of a pair of links 30, whose upper extremities are hinged to the frame.

31 is a second roller similarly journaled to links 32, which are hinged to the frame below the nozzle, and 33 33 are coiled-wire springs, each of which engages one end of each of the rollers 29 and 31, whereby said rollers are held firmly against the top and bottom sides, respectively, of the nozzle.

34 is a vertically-sliding door situated between the inner end of the nozzle and the angle-bar 19, and connected by a link 35 with one extremity of a lever 36, which is fulcrumed to the frame.

37 is a rock-shaft, of rectangular or other non-circular cross-section, suitably journaled at the tail end of the machine. To one of its extremities is secured a segment 38, with which gears a pinion 39, journaled to the frame and provided with a crank 40, whereby said shaft may be rocked.

41 41, &c., are a number of light slats, each provided at one end with a slit corresponding in shape to the cross-section of the rock-shaft 37, adapted to receive said shaft, so that when the latter is rocked one way or the other said slats will be raised or lowered, as the case may be. In practice these slats extend about

to the feed-roller 20; but their full length is not shown in the drawings.

42 is a follower, which may be constructed of boards secured together edge up, as shown in Fig. 6; and has pivoted to each of its sides a dog 43, which dogs are adapted to engage the chains 7 7 or 8, whereby said follower is removably attached to the movable bed of the machine.

The operation of the machine is as follows: The side board 11 is so placed that the distance between it and the board 10 is equal to the width of the mattress to be made. This is accomplished by turning the crank 18 one way or the other, as may be necessary. All of the slats 41 which lie outside of the plane of the side board 11 after it is adjusted to proper position are then removed and the remaining slats elevated, as shown in full lines. For mattresses of different sizes followers of different width are provided, the one used in any given instance being just wide enough at front to extend from one side board to the other. If the mattress to be made is so narrow that the board 11 is within the vertical plane of the chain 4 on that side of the machine, the second dog 43 is so fixed to some part of the follower that it may engage the central chain 8. The nozzle 26 must also be adjusted to the same width as the mattress to be made, and this is accomplished by sliding its outer or movable part 26^a toward its fixed or inner part. One end of each of the springs 33 must be freed from the roller which it engages, 29 or 31, as desired. This allows the roller 31 to fall away from the under side of the nozzle, and permits the roller 29 to be lifted up and thrown back out of the way. The nozzle is then inserted into the open end of the tick and said tick pulled onto the nozzle, as suggested by dotted lines, until its opposite closed end is stretched tightly across the outer end of the nozzle. The rollers 29 and 31 are then restored to the positions in which they are shown by the drawings and the springs 33 again hooked to them. The door 34 being elevated, closing the inner end of the nozzle, and the follower 42 in position, as shown, the desired depth of filling material is spread evenly over the entire surface of the movable bed from side to side and from the door 34 to the front end of follower 42. This done, the door 34 is lowered, and the slats 41 also lowered and allowed to rest upon the top of the layer of filling material. The crank 25 is then turned, causing the parts to move, as indicated by the arrows, expelling the filling material through the nozzle. The pressure of the material will be sufficient to draw the pulled tick off of the nozzle as fast as it is needed, and the tension of the springs 33 upon the rollers 29 and 31 is sufficient to prevent the tick from feeding off too rapidly. The follower 42 is of such length and its points of connection with the movable bed so situated that when it has been advanced as far as it is possible for said bed to advance

it, its front end will be quite at the outer end of the nozzle, thus expelling the last bit of filling material and completing the filling operation.

5 Whatever be the depth of the filling material on the bed, the operation will be the same, and no change of construction or further adjustment of any of the parts will be necessary, the roller 20 serving to compress
10 the material before it enters the nozzle, as well as to feed it forward.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a mattress-machine, the combination,
15 with the frame and the nozzle, of a movable bed, a follower, a series of slats adapted to rest upon the material on the bed, a rock-shaft, to which said slats are secured, and hand mechanism for operating said shaft, and
20 by which they are alone operated, substantially as set forth.

2. In a mattress-machine, the combination, with the frame and the nozzle, of the movable bed, the follower, a rock-shaft, a series
25 of slats all separately and removably attached to said rock-shaft, and hand mechanism for turning said shaft and thereby moving said slats, and by which they are alone operated, substantially as set forth.

3. In a mattress-machine, the combination,
30 with the frame and the nozzle, of a movable bed, a follower, a non-circular rock-shaft, and slats, each slotted at one end and slipped onto said rock-shaft, whereby it may be separately removed and replaced, substantially
35 as set forth.

4. In a mattress-machine, the combination, with the frame and the nozzle, of a bed, a follower, the slats 41, the rock-shaft 37, to
40 which said slats are secured, the segment 38 on said rock-shaft, the pinion 39, gearing with said segment, and the crank 40, substantially as set forth.

5. In a mattress-machine, the combination,
45 with the frame and the nozzle, of the movable bed consisting of a belt, and a follower actuated by said belt, said bed and follower co-operating to expel the filling material from the nozzle, substantially as set forth.

50 6. In a mattress-machine, the combination, with the frame and the nozzle, of a movable bed consisting of a belt, and a follower removably attached to said belt, substantially as set forth.

55 7. In a mattress-machine, the combination, with the frame and the nozzle, of a movable bed, and a follower actuated by said bed, said follower being sufficient in length to extend to the outer end of the nozzle when it

has reached the limit of its movement, whereby 60 the last bit of the charge of filling material is discharged from said nozzle, substantially as set forth.

8. In a mattress-machine, the combination, with the frame and the nozzle, of an endless 65 belt constituting a movable bed, a follower attached to said belt, and slats adapted to rest upon the material on the bed, substantially as set forth.

9. In a mattress-machine, the combination, 70 with the frame and the nozzle, of an endless belt constituting a movable bed, a follower attached to said belt, slats adapted to rest upon the material on the bed, and the feed-roller 20, substantially as set forth. 75

10. In a mattress-machine, the combination, with the frame and the nozzle, of the rollers 2 and 3, a belt embracing them, a chain to which said belt is secured, and a follower attached to said chain, substantially as set 80 forth.

11. In a mattress-machine, the combination, with the frame and the nozzle, of the rollers 2 and 3, the belt embracing them, the sprocket-wheels 4 4, the chains 7 7, embracing said 85 wheels and to which said belt is secured, and the follower attached to said chains, substantially as set forth.

12. In a mattress-machine, the combination, with the frame and the nozzle, of the rollers 90 2 and 3, the belt embracing them, the sprocket-wheels 4 4 and 5, the chains 7 7 and 8, embracing said wheels and to which said belt is attached, and the follower attached to said chains, substantially as set forth. 95

13. In a mattress-machine, the combination, with the frame and the nozzle, of the rollers 2 and 3, the belt embracing them, the chains having lips to which said belt is secured, and the follower actuated thereby, substantially 100 as set forth.

14. In a mattress-machine, the combination, with the frame and the nozzle, of the movable bed, the follower, and the angle-iron 19 situated between the bed and nozzle, substan- 105 tially as set forth.

15. In a mattress-machine, the combination, with the frame, the nozzle, and an endless belt constituting the bed, of an adjustable side board, arms to which it is secured, and 110 slides to which said arms are secured, said slides extending inward across the machine and between the two laps of the belt, substantially as set forth.

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Witnesses:

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