

No. 709,943.

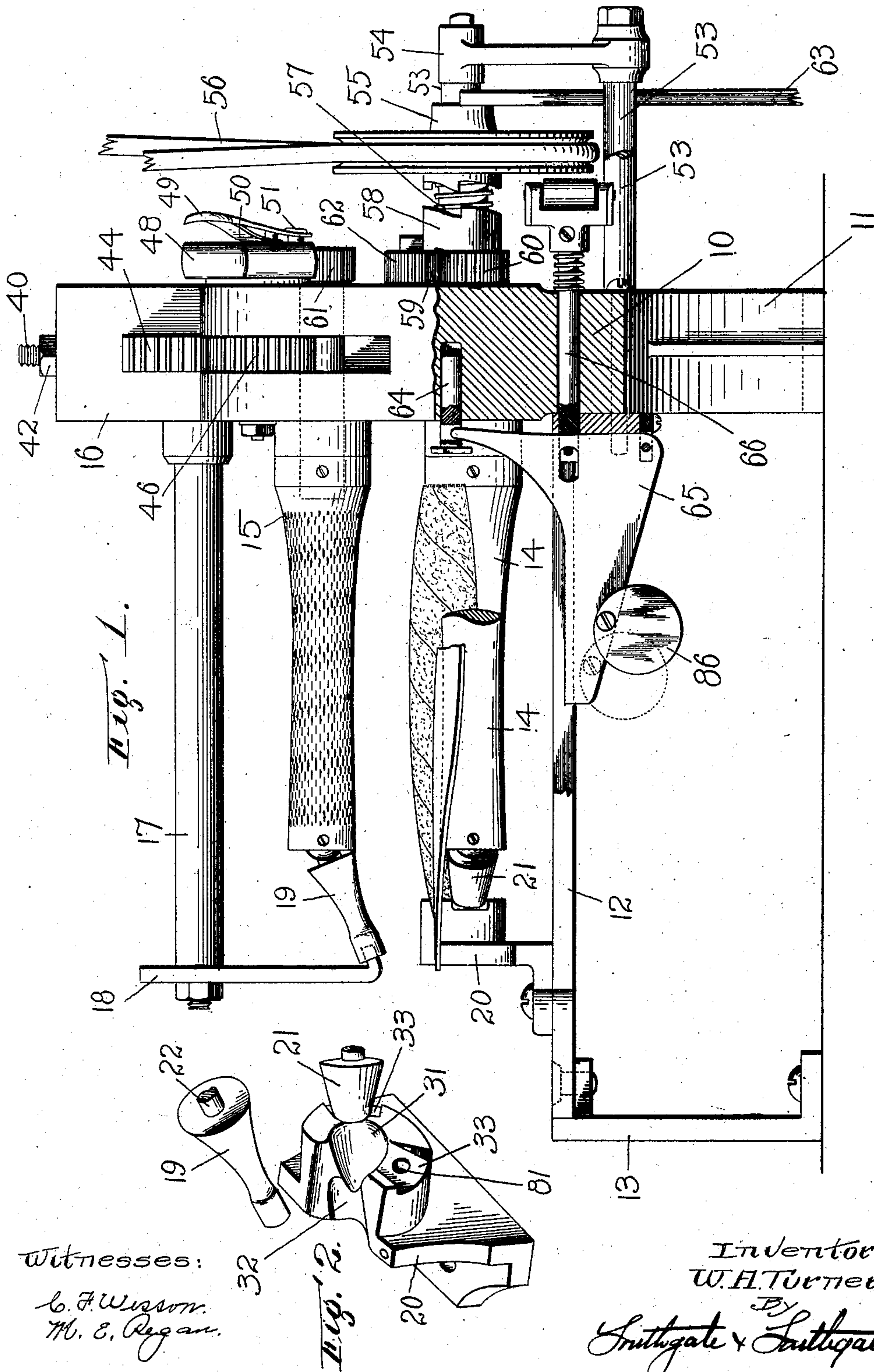
Patented Sept. 30, 1902.

W. A. TURNER.
CIGAR MACHINE.

Application filed Jan. 31, 1902.)

(No Model.)

2 Sheets—Sheet 1.



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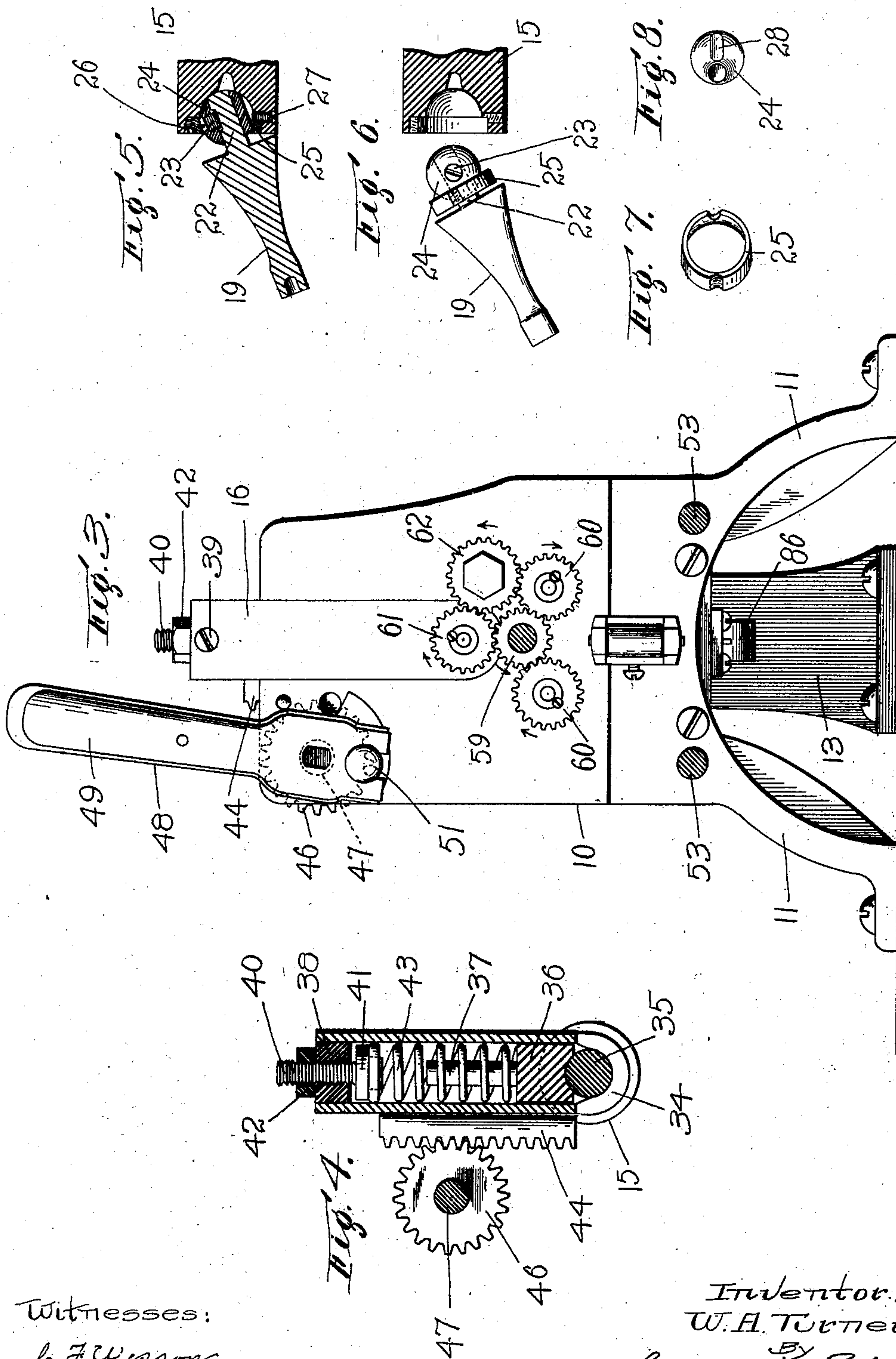
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UNITED STATES PATENT OFFICE.

WILLIAM A. TURNER, OF PROVIDENCE, RHODE ISLAND.

CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 709,943, dated September 30, 1902.

Application filed January 31, 1902. Serial No. 92,003. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. TURNER, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Cigar-Rolling Machine, of which the following is a specification.

This invention relates to that class of cigar-machines in which the cigars are formed between rolls.

The especial object of this invention is to improve and perfect this class of cigar-making machines so as to cause said machines to more nearly simulate the operations which are performed in making cigars by hand.

To these ends this invention consists of the cigar-making machine and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a side view, partially broken away, of a cigar-machine constructed according to my invention. Fig. 2 is a fragmentary perspective view illustrating the relation of the conical rolls to the thimbling-socket. Fig. 3 is an end view of the machine. Fig. 4 is a sectional view of the vertically-movable bearing-piece in which the top roll is mounted. Fig. 5 is an enlarged sectional view illustrating the ball-and-socket joint which may be used for connecting the main rolls with the conical rolls. Fig. 6 is a similar view showing the joint detached, and Figs. 7 and 8 are detail views of parts of one of said ball-joints to be hereinafter referred to.

In the use of that class of cigar-machines to which this invention relates approximately the proper amount of filling is selected and placed in position to be rolled into shape between a cluster of properly-formed rolls. The wrapper is next fed in between the rolls, so as to be wound spirally about the bunch, the extreme end of the wrapper being pasted at the tip of the cigar. One of the most difficult problems in the use of this class of machines arises from the difficulty in forming perfect tips on the cigars. In most of the prior machines of this class it has heretofore been customary to combine the rolls which form the cigar with a stationary thimbling-socket to form the tip of the cigar. This con-

struction in practice, however, is objectionable, as the resistance of the stationary thimbling-socket acting on the end of a cigar while its body portion is being positively rolled is apt to either completely twist off the end of the cigar being formed or else to screw the same into such a hard lump as to injure the quality of the cigar. In some of the other cigar-machines of this class it has been proposed to provide rolls with conical sections which nest together to thimble or roll the end of the cigar, thus providing a construction in which the cigar will be positively and evenly rolled along its entire length. In the use of this construction, however, a practical difficulty has been encountered by reason of the fact that the conical rolls cannot be set close enough together to prevent the formation of a projecting thread or fin on the end of the cigar.

One especial object of my present invention is to provide for the production of perfect tips on the cigars manufactured in a machine constructed according to my invention by combining a rigid thimbling-socket with one of the conical rolls in such a manner that the conical roller fits down in a notch in the thimbling-socket, thus providing for the uniform rolling of the cigar throughout its entire length, while at the same time securing the perfectly-closed cigar end which can best be produced by a rigid thimbling-socket.

Further objects of my invention are to combine the stationary thimbling-socket with the conical rollers, which are connected to the lower rolls in such a manner as to prevent the formation of a ridge between the body portion of the cigar and its tip; to provide means for automatically pressing the bunch which is being rolled toward the thimbling devices, which means may be adjusted to exert different pressures according to the quality of the stock which is being rolled; to secure a feeding action from one of the rolls, tending to force the wrapper toward the thimbling end of the machine; by providing one of the rolls with nurling, which extends helically around the same; to provide for starting the rotation of the top roll while it is being brought into operative position, and to provide improved connections for raising and lowering the top roll and for holding the

same down in its bearing with adjustable spring tension.

Referring to the accompanying drawings for a detail description of a cigar-machine constructed according to my invention as herein illustrated, the frame of the machine comprises a casting 10, which is supported on legs 11, a table or bed-piece 12, and an end piece or support 13. Extending in from the casting 10 are the rolls, which are shaped to form the body of the cigar. These rolls are preferably three in number and comprise the bottom rolls 14 and the movable top roll 15, which is journaled in a vertically-movable piece 16, as hereinafter described. Extending from the piece 16, parallel with the top roll 15, is a support 17, extending down from which is an arm 18, having a pivot for supporting the end of a conical roll 19. The bottom rolls 14 are provided at their ends with short conical rolls 21. The joints for connecting the bottom rolls 14 with the conical rolls 21 and the joint for connecting the top roll 15 with the conical roll 19 are similar in construction, and a description of one of such joints, as illustrated in Figs. 5 to 8, inclusive, will be sufficient. As shown in these figures, the conical roll 19 is provided with an integral stem 22, secured on which by a screw 23 is a ball 24. The ball 24 fits into a partially-spherical socket in the end of the top roll 15 and is held in place therein by a ring 25, which ring 25 is fastened by a small screw 26, which is threaded partly into the body of the roll and partly into the ring 25. Tapped through from the side of the roll 15 is a screw 27, acting as a spline, engaging a slot 28 in the side of the ball 24. I consider this construction a desirable form of joint, as the parts are held together by the screw 26, while the screw 23, which fastens the ball 24 onto the spindle 22, being located within the spherical socket, cannot work loose.

The form of stationary thimbling-socket which I preferably employ and the relation of the conical rolls 19 and 21 thereto are most clearly illustrated in Fig. 2. As shown in this figure, a stationary piece or bracket 20 is provided with an inwardly-extending lug, in which is formed a stationary thimbling-socket 31, which is partially cut away or notched at its top, as at 32, to form a socket for receiving the conical roll 19. In practice the notch 32 is not cut quite deep enough into the side of the thimbling-socket 31 to intersect the axis thereof.

The extreme end of the stationary thimbling-socket 31 is a closed end, forming a fixed abutment which will absolutely close the ends of the cigars being formed.

The lug projecting in from the stationary piece 20 is provided at opposite sides of the stationary thimbling-socket 31 with bearing-surfaces 33, against which abut the ends of the conical rolls 21, the journals of the conical rolls 21 being supported in sockets 31 in such a position that the periphery of the rolls

21 will slightly overlap the edge of the stationary thimbling-socket 31. I have found this to be of advantage in practice, as this construction prevents the formation of a ridge or seam between the body of the cigar and the tip which is formed in the thimbling-socket, and in addition to this the rolls 21 act to break any of the coarser stems or bunches which may be located in this part of the cigar.

The construction of the vertically-movable piece 16 and the manner in which the top roll 15 is journaled therein is shown most clearly in Figs. 3 and 4. As shown in these figures, the vertically-movable piece 16 is slotted transversely and is provided at its lower end with straps or bottom bearings 34, in which the shaft 35 of the top roll 15 is journaled. Resting on the shaft 35 is a pressure-piece 36, having a pin 37, on which is coiled a spring 43. Secured in the upper end of the piece 16 by a screw 39 is a piece 38, threaded through which is an adjusting-screw 40, bearing on a disk 41, which engages the upper end of the spring 43. The adjusting-screw 40 can be fastened in adjusted position by a jam-nut 42. Extending from the front face of the piece 16 is a rack 44, which meshes with a lifting-pinion 46, secured on a shaft 47. At its end the shaft 47 is provided with a lifting-handle 48, having a latch 49 connected thereto by a spring 50, as shown most clearly in Fig. 1, which latch 49 is arranged to operate a locking-pin 51, which may be set into holes to lock the top roll in its raised or lowered position.

In the use of the class of cigar-making machines to which this invention relates the top roll as it is being brought to its operative position engages the bunch which is about to be rolled while said roll is yet some distance from its final operative position, and if the top roll is not already turning at proper speed when it is brought into engagement with the bunch it happens in some cases that the bunch rides up out of place or else is undesirably disarranged. To avoid this objection, I have provided a special form of driving-gearing in which a starter-gear is employed for starting the rotation of the top roll while the top roll is still some distance from its lowest position. As shown most clearly in Fig. 1, three studs are arranged to extend from the casting 10 in the opposite direction from the rolls, the outer ends of the studs 53 being connected by a frame 54. Journaled on the upper one of the studs 53 is the usual driving-pulley 55, which may be driven by a band 56, and formed on the inner face of the driving-pulley 55 is the usual clutch-section for engaging the clutch-section 58 of the central driving-gear 59. The clutch-sections are normally separated by a spring 57 and may be brought into mesh by the usual shifting-lever 63. Meshing with and driven from the central gear 59 are the pinions 60 of the bottom rolls 14. The central driving-gear 59 is also arranged to turn and drive the pinion 61

of the top roll when said top roll is in its lowest or operative position.

In order to provide for starting the rotation of the top roll before it reaches its lowest position, I have provided a starter-gear 62, which meshes with and is driven from one of the lower roll-pinions 60 and which is arranged in position at one side of the center, so that as the top roll is moved down its pinion 61 will first mesh with the starter-gear 62 and its rotation will be started in the proper direction and at proper speed before it is moved down to its final position in mesh with the central driving-gear 59.

In order to insure the proper action of the instrumentalities for thimbling the cigar-tips, it is desirable that means should be employed for forcing the cigar bodily toward the thimbling end of the machine. In order to accomplish this purpose, I preferably provide means for acting on the outside or wrapper of the cigar being formed, as well as a pusher for acting upon the end bunch or filler.

As shown in Fig. 1, 64 designates a plunger or pusher, which is engaged by one arm of a bell-crank lever 65. Adjustably secured on the horizontal arm of the bell-crank lever 65 is a weight 86, which may be set to different positions, as indicated by dotted lines, in order to vary the pressure of the plunger 64 upon the end of the cigar, according to the character of the stock which is being used. The pusher 64 is normally retracted by a spring-pressed rod 66, which is loosely connected at one end to the bell-crank lever 65 and is provided at its other end with a roll adapted to be engaged by the face of the driving-gear 55. By means of this construction when the driving-gear 55 is moved into its driving position the pusher 64 will be released and will act on the end of the cigar with a pressure which can be varied by setting the weight 86 to different positions.

In addition to providing means for pushing the center or body portion of the cigar toward the thimbling end of the machine I also preferably provide means tending to carry the wrapper of the cigar in the same direction, and in practice I have found that I am enabled to produce the desired effect by providing the top roll with nurling, which is carried helically around the body portion of the roll to form, in effect, a carrying-thread.

The tobacco used for wrapper-stock is usually quite delicate and easily torn; but I have found in practice that if nurling is threaded onto the top roll, with a pitch of about fourteen to the inch, it will produce the desired carrying-thread which will act without tearing or injuring the stock.

In operating a cigar-machine as thus constructed the operator first selects approximately the requisite amount of filling, and after bunching the same loosely together in the fingers the bunch is placed between the rolls, the machine is started, and the top roll

is lowered into operative position to form the bunch or body portion of a cigar. The wrapper is then fed in over the ordinary table T and is wound spirally around the body portion of the cigar, the end of the wrapper being gummed as it passes into the thimbling-socket to form the closed cigar-tip.

In making cigars by hand a skilful cigar-maker while rolling the body portion or bunch of a cigar on the surface of a table, as well as when rolling the same up in its wrapper, rolls the cigar beneath his hand, so that his hand passes from the end of the cigar toward the tip thereof. In a cigar-machine constructed according to my invention substantially this same action is secured by the carrying-thread formed by the nurling on the upper roll, so that in practice the wrapper is wound around the bunch with the same degree of tightness as in hand-made cigars. In addition to this the combined action of the pusher for the body of the cigar and the nurling or carrying-thread acting on the wrapper of the cigar tending to carry the cigar toward the thimbling end of the machine secures substantially the same thimbling action that is effected when cigars are thimbled or have their tips finished by hand.

I am aware that numerous changes may be made in practicing my invention by those who are skilled in the art without departing from the scope thereof as expressed in the claims and that certain features of my invention may be used without adopting all the features which I have herein illustrated. I do not wish, therefore, to be limited to the particular machine which I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a cigar-machine, the combination of three rolls shaped to form the body portion of a cigar, comprising two bottom rolls and a movable top roll, means for operating said rolls, a rigid piece having a thimbling-socket with a notch therein, a conical roll connected to the top roll at an angle with the axis thereof, and means for moving the top roll down so that its conical roll will set into said notch in the rigid thimbling-socket.

2. In a cigar-machine, the combination of a rigid piece having a thimbling-socket, and rolls abutting against and journaled in the rigid piece with their peripheries slightly overlapping the edges of the thimbling-socket.

3. In a cigar-machine, the combination of three rolls shaped to form the body portion of a cigar, comprising two bottom rolls and a movable top roll, means for operating said rolls, a rigid piece having a thimbling-socket with a notch therein, a conical roll connected to the top roll at an angle with the axis thereof, and adapted to set into said notch in the thimbling-socket, and short conical rolls connected with the bottom rolls at angles with

their axes, and abutting against the thimbling-socket piece so that their edges slightly overlap the edge of the thimbling-socket.

4. A roll for cigar-machines shaped to conform to the body portion of a cigar, and having nurling extending helically around the surface thereof.

5. The combination of the roll of a cigar-machine, a conical extension therefor, and a ball-and-socket joint connecting said parts, comprising a ball, a fastening-screw securing the ball on the spindle of the conical extension, a ring holding the ball in place, a screw threaded partly into the ring, and partly into the body portion of the roll to fasten the ring in place, and a screw acting as a spline and engaging a groove in the ball, said parts being arranged so that the walls of the spherical socket will prevent the fastening-screw from working loose.

6. In a cigar-machine, the combination of rolls shaped to form the body of a cigar, and a thimbling device for the end of the cigar, one of said rolls being provided with nurling extending helically around the same and acting to feed the material toward the thimbling end of the machine.

7. In a cigar-machine, the combination of rolls shaped to form the body of a cigar, a thimbling device for the end of the cigar, a normally retracted pusher for engaging the other end of the cigar to force the same toward the thimbling end of the machine, and a starting device connected to release said pusher, permitting the same to automatically move into operative position when the machine is started.

8. In a cigar-machine, the combination of rolls shaped to form the body of a cigar, a thimbling device for the end of the cigar, a

plunger for engaging the opposite end of the cigar, a weighted bell-crank for operating the plunger, the weight on which may be adjusted, and a spring-pressed retracting-rod normally holding the plunger out of operation, and arranged to release the pusher when engaged by the driving-pulley as the same is shifted laterally to start the machine.

9. In a cigar-machine, the combination of rolls shaped to form the body portion of a cigar, comprising bottom rolls, a vertically-movable piece, a top roll journaled therein, a handle for moving the top roll into and out of operative position, pinions turning with each of said rolls, a central driving-gear arranged to mesh with and drive all three of said pinions when in operative position, and a starter-gear driven from one of the bottom-roll pinions and located at one side of the center in position to start the rotation of the top roll before the same is fully brought into operative position.

10. In a cigar-machine, the combination of the bottom rolls, a vertically-movable piece, a top roll having its shaft seated in half-bearings in the vertically-movable piece, a spring holding the top roll down in its bearings, means for adjusting the tension of the spring, a rack carried by the vertically-movable piece, a lifting-gear meshing therewith, and an operating-handle for the lifting-gear for moving the top roll into and out of operative position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM A. TURNER.

Witnesses:

ANNA E. PERSON,
CHARLES H. BARTLETT.