

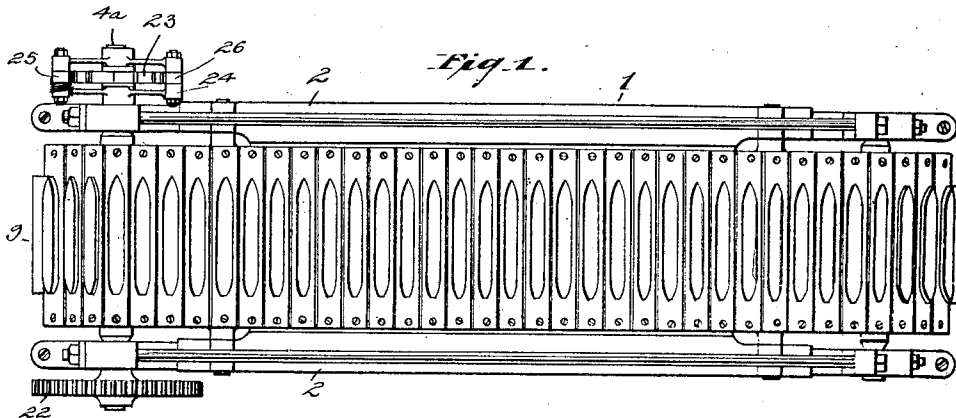
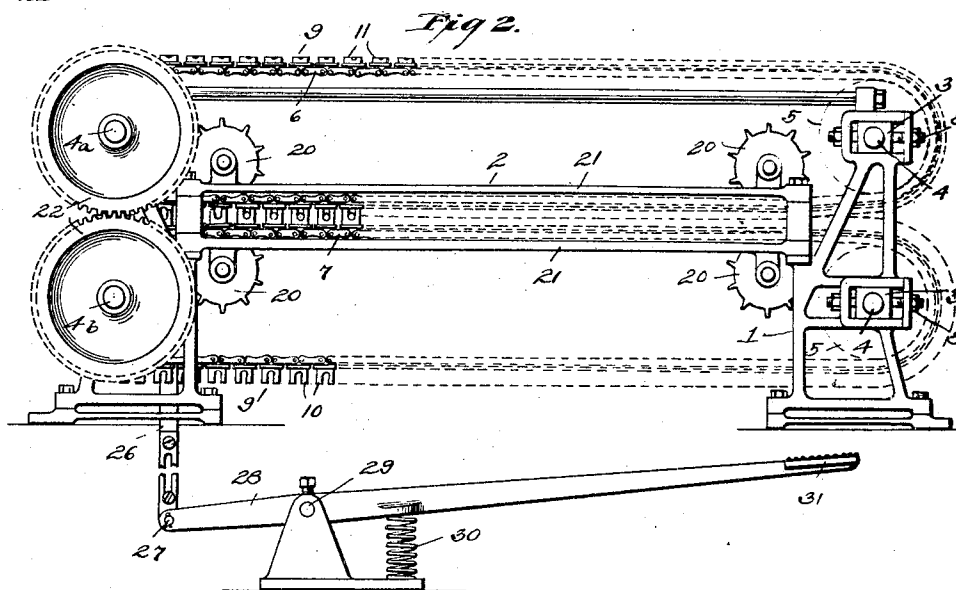
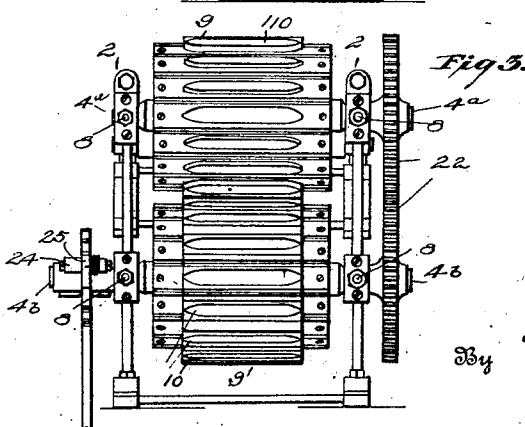
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H. L. ROBY
CIGAR MAKING MACHINERY

Filed Nov. 13, 1924

2 Sheets-Sheet 1



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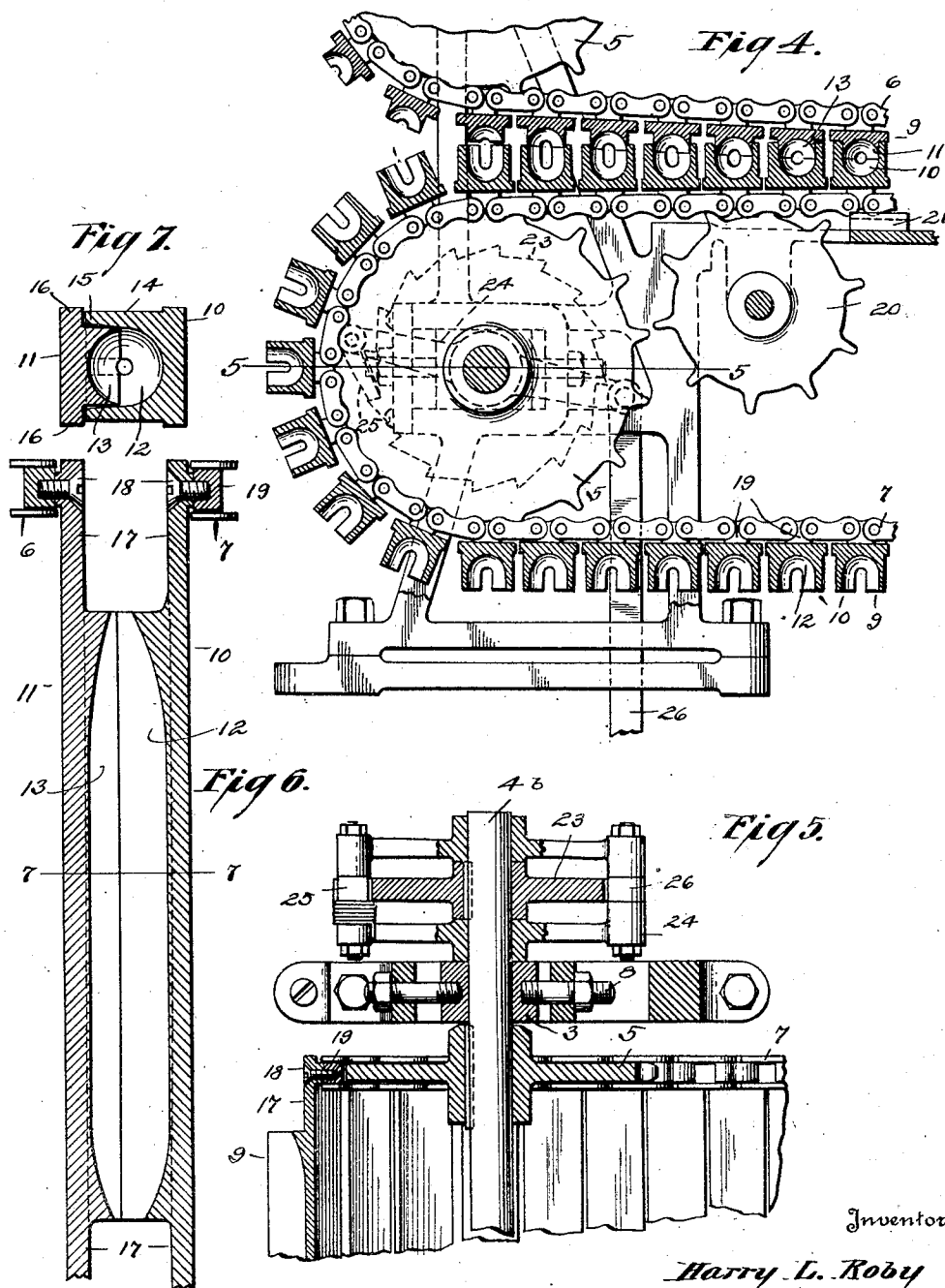
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CIGAR MAKING MACHINERY

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

HARRY L. ROBY, OF BARNESVILLE, OHIO.

CIGAR-MAKING MACHINERY.

Application filed November 13, 1924. Serial No. 749,626.

To all whom it may concern:

Be it known that I, HARRY L. ROBY, a citizen of the United States, residing at Barnesville, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Cigar-Making Machinery, of which the following is a specification.

This invention relates to improvements in cigar making machinery, and has for its primary object the provision of an improved mold structure through the use of which the process of manufacturing cigars is materially expedited in a labor and cost saving manner and the quality of the finished product maintained at a high standard.

Another object of the invention resides in the provision of an improved cigar molding and shaping machine which performs automatically the duty previously performed by hand pressing and delivering between two units, the construction of the machine being such as to impart the necessary pressure to all bunches equally with the end in view of improving the workmanship on the bunch and the finished product.

Another object of the invention is to prevent drying out of the tobacco during the molding operation by the employment of metal cups or molds which deliver the cigar bunches from the bunch maker to the roller or wrapper operator by an endless chain conveyor carrying the shaped cups or molds, the cups or molds automatically closing into interfitting relation to produce the required perfect shape.

A still further object of the invention resides in the provision of a combined molding machine and conveyor which provides a means for mechanically transferring cigar bunches from the bunch forming operators to the wrapper applying operators and at the same time, during such transit of the bunches, provides means for applying pressure to the bunches for the purpose of molding and compressing the same into cigar configurations and to render them suitable for handling by the wrapping operators.

With these and other objects in view, as will appear as the description proceeds, the invention consists in the novel features of construction, combinations of elements and arrangements of parts hereinafter to be

fully described and pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a top plan view of the improved conveyor mold comprising the present invention,

Figure 2 is a side elevation thereof,

Figure 3 is an end elevation,

Figure 4 is an enlarged vertical sectional view taken through the dripping end of the machine,

Figure 5 is a horizontal sectional view on the plane indicated by the line 5—5 of Figure 4,

Figure 6 is a horizontal sectional view taken through one of the mold sections, and

Figure 7 is a transverse sectional view taken on the line 7—7 of Figure 6.

In the specific form of the invention illustrated in the accompanying drawings the numeral 1 designates the bed or supporting frame of my improved cigar pressing or molding machine. This frame is formed to comprise side members 2—2 in which are provided openings for the reception of adjustable bearing boxes 3. Either fixed or mounted for rotation within the bearing boxes 3 are upper and lower sets of cross shafts 4 upon which are mounted transversely spaced sprockets 5. Obviously, the sprockets may be either fixed for rotation with the cross shafts 4, or may rotate loosely around the axis thereof. Passing around the sprockets 5 are longitudinally extending transversely spaced endless chains 6 and 7, the chain 6 being disposed in the upper part of the frame and the chain 7 in the lower part thereof and spaced vertically with relation to each other. The boxes 3 are adjustable by means of the usual screws 8 for the purpose of controlling the degree of tension upon the chains 6 and 7.

Mounted upon the chains 6 and 7 are a plurality of bunch receiving molds 9. Each of these molds consists of two sections, a main section 10 and a supplemental or cover section 11. Each main section includes, as shown in Figures 6 and 7, a large hollow cavity 12 shaped to conform to the desired configuration of the finished cigar. Similarly, each cover section 11 is formed with a complementary cavity 13, so situated that when the two sections are in pressing relation the cavities 12 and 13 register with one another to produce a substantially circu-

lar socket (see Figure 7), in which the cigar bunch is received. It will be observed that the sides 14 of each of the main sections 10 are extended so as to receive between them the interfitting portion 15 of the cover section 11. This insures proper registration and cooperation between the complementary sections 10 and 11, and the interfitting movement of the two sections is regulated by providing the cover section with outstanding ribs 16 which seat upon the outer edges of the sides 14, thereby limiting relative interfitting movement between said mold sections.

The machine is constructed to permit of the convenient and facile removal of the molds from connection with the chains 6 and 7 so as to permit of the substitution of other molds having bunch receiving cavities of varying configuration in order that the different shapes or styles of cigars may be readily produced on the single machine. This object is preferably attained by providing each of the sections 10 and 11 with longitudinally projecting attaching lugs 17, as shown in Figure 6. These lugs each have their ends perforated to receive a screw or other fastening device 18 which is threaded into one of the blocks 19 carried, in this instance, by the links of the chains 6 and 7. By the simple use of a screw driver, the mold sections may be attached to or removed from the chains with security and convenience.

By reason of the spacing of the upper and lower sets of chains 6 and 7 and by timing the rotation of the sprockets 5, it will be seen that upon the rotation of said sprockets movement will be imparted synchronously to said chains and consequently the molds 9. The timing is such as to cause the cover sections to properly register one with the other, as clearly disclosed in Figure 4. Then, in order to bring the cover sections down into the main or base sections 10, the frame 1 is provided with a plurality of idler sprockets 20, which are disposed immediately adjacent to the sprockets 5 at each end of the machine. It will be observed, however, that the sprockets 20 engage with the links of the chains 6 and 7 at points between the circular pitch lines of the sprockets 5. Due to this, relative movement toward one another between the mold sections is produced while said sections are travelling along the advancing runs of the chains 6 and 7. This movement is independent of the relative movement between said sections effected by the passage thereof around the sprockets 5. In fact, as shown in Figure 4, the pitch diameter of the sprockets 5 is merely sufficient to bring the mold sections into slight contact with one another, but through the added employment of the idler sprockets 20, further and final relative movement be-

tween said mold sections is secured, which insures proper interfitting between the base and cover sections 10 and 11 of the molds. Therefore, bunches placed within the cavities 12 of the base sections will be subjected to pressure during the travel of the bunches through the machine, and this pressure is adequate to uniformly press each individual bunch so as to insure a uniformity in the product greatly lacking in mold structures of ordinary form.

Not only does the machine serve as a facile and expeditious mold mechanism but also possesses the attributes of a conveyor and materially assists in systematizing the procedure of cigar manufacture. Hitherto it has been customary for the bunch maker, after roughly finishing a cigar bunch, to place each individual bunch in a flat mold, containing twelve or more bunches each. Then, to place these molds in a press to impart the desired pressure thereto and shape the roughly made bunch, compress it into proper form. Upon the removal of the mold from the press the same was then carried over to the cigar wrapper, who applies the binding and wrapping leaves of tobacco to complete the finishing of the cigar. By the use of the present machine a traveling mold structure is provided. The bunch former after roughly rolling each bunch, places the bunch into a cavity provided in one of the base sections 10 of the mold. The machine is then operated, as will be presently described, so as to advance the chains 6 and 7, whereby the sections 10 and 11 of the mold are brought into proper mating and pressing relation, so as to press fully and adequately each cigar bunch contained within the molds 9 while the latter are travelling with the advance runs of the chains 6 and 7. After passing through the machine in this manner the finished product is then delivered from the machine to the table of the wrapper operator, who selects the pressed bunches as fast as they are delivered from the machine and completes the wrapping operation. It will be observed that neither the bunch forming operators nor the wrapping operators have had their duties disturbed in any way. The bunch former merely places a roughly formed bunch in the machine and the wrapper operator removes this bunch after pressing from the machine. In other words, the machine is simultaneously performing two operations, to-wit, the pressing of the cigar bunches and the delivering thereof from one department of cigar making to the next consecutive department. It will be observed that the advancing runs of the chains 6 and 7 are supported upon fixed guides 21, which maintain the mold sections in proper interfitting relation throughout their travel along the advancing runs of said chains. This prevents sagging of the

chains and overcomes thereby undue separation of the mold sections.

Any suitable means may of course be provided for imparting power to the chains to effect their continuous or intermittent operation. In the present form of the machine I have shown the shafts 4^a and 4^b as provided with gear wheels 22. These wheels are preferably fixed upon the shafts 4^a and 4^b so that the latter will be caused to revolve synchronously. Corresponding movement will of course be applied to all of the sprockets 5. Then, in order to rotate the sprockets, the shaft 4^a, as shown in Figure 5, has fixed thereon a ratchet wheel 23. Adjacent the wheel 23 and loosely mounted upon the shaft 4^a for pivotal movement about the axis thereof is a rocking link 24. One end of this link carries a spring pressed pivoted pawl 25, which engages with the ratchet 23 when the link 24 is oscillated in one direction. To rock the link 24, the end of the latter opposite to the pawl 25 and on the other side of the shaft 4^a is pivotally connected with a vertical bar 26. This bar has its lower end pivotally joined as at 27 to a treadle bar 28, which is pivoted as at 29 upon a suitable base and has one end thereof normally elevated by means of a return spring 30. The treadle bar at one end is formed with an enlarged foot receiving portion 31 which may be situated, for example, adjacent the bunch forming operator. As the latter finishes a bunch and desires to advance the molds, he merely presses upon the bar 28 by applying foot pressure thereto. This rocks the bar about its pivot 29, causing upward movement of the bar 26, and the consequent oscillation of the link 24. By rocking the link 24 in this manner the pawl 25 is forced downwardly, rotating the ratchet wheel and the shaft 4^a in unison therewith. When the operator releases the treadle bar 28, the latter responds to the spring 30 and returns to its normal position, thereby elevating the pawl 25 for further operation. It is manifestly within the scope of this invention to apply power to the machine in any other desired way, and I therefore do not desire to be limited to the manual operating method disclosed, but may resort to a power system of operation of a clutch control nature rather than the specific form herein described.

In view of the foregoing description taken in connection with the accompanying drawings it will be seen that there is provided a cigar molding and shaping machine which performs automatically the work hitherto done manually of pressing cigar bunches and delivering them from one department in cigar manufacture to another department. The design of the machine is such that the interfitting molds will apply the necessary pressure and distribute the same

uniformly upon all cigar bunches equally. This improves the workmanship materially, since by hand operations it is practically impossible to apply the same degree of pressure to all bunches. Further, the machine prevents the drying out of the tobacco during the pressing operation by reason of the speed with which the pressing or molding operation is carried on and by the fact that the mold sections are preferably formed from metal, although I do not limit myself to the use of this material. Further, by delivering mechanically the mold bunches from the bunch makers to the wrapper operators a great saving in time is produced and these operators, who are performing skilled work, do not lose any time in the performing of duties not in proportion to the work they are required to perform.

What is claimed is:

1. In a cigar molding machine, spaced upper and lower sets of endless carriers, mold sections mounted for travel in unison with said carriers, and means for imparting power to said carriers.

2. In a cigar molding machine, spaced upper and lower sets of endless carriers, mold sections carried by each of said sets of carriers and arranged in interfitting relation during the movement of said mold sections along the advancing runs of said carriers, and means for imparting power to said carriers.

3. In a cigar molding machine, spaced upper and lower sets of endless carriers, separable molds including base sections movable in unison with the lower set of carriers and cover sections movable in unison with said upper set of carriers, means for bringing said mold sections into interfitting relation during the passage thereof along the advancing runs of said carriers, and means for imparting movement to said carriers.

4. In a cigar molding and conveying machine, upper and lower conveyors, mold sections carried by said conveyors, means for imparting relative movement between said mold sections during the passage thereof along the adjacent runs of said conveyors, and means for imparting movement to said conveyors.

5. In a cigar molding machine, spaced upper and lower sets of endless carriers, mold sections removably mounted upon said carriers and arranged in interfitting relation during the passage thereof along the advancing runs of said carriers, and means for imparting movement to said carriers.

6. In a cigar forming machine, upper and lower sets of endless chains, separable molds carried by said chains and consisting of base sections carried in connection with the lower set of chains and cover sections carried in connection with the upper set of

chains, means for imparting relative approach movement between said mold sections while the latter are moving in unison with the advance runs of said chains, and means for applying power to said chains.

7. In a cigar making machine, upper and lower sets of conveyors, and a plurality of interfitting metallic mold sections carried by said conveyors, said mold sections being arranged in registering relation when moving in unison with the advancing runs of said conveyors.

8. In a cigar making machine, spaced upper and lower sets of conveyors, registering metallic molds carried by said conveyors, said molds having registering recesses formed therein for the reception of cigar bunches, whereby when said molds are moving in unison with the advancing runs of said conveyors pressure will be imparted to the contents of the molds, and means for applying power to said conveyors.

9. In a cigar making machine, spaced upper and lower sets of endless conveyor chains, sprockets around which said chains

pass, molds including base sections carried by the lower set of chains and cover sections mating with the base sections carried by the upper set of chains, guide members cooperative with the advancing runs of said chains for effecting interfitting relation between said mold sections when the latter are moving along the advancing runs of said chains, and means for applying power to said chains.

10. In a cigar making machine, spaced upper and lower sets of endless conveyors, molds including base sections mounted upon the lower of said conveyors and complementary cover sections arranged for movement in unison with the upper of said conveyors, guide members cooperative with said conveyors for effecting interfitting relation between said mold sections during the passage of the latter along the advancing runs of said conveyors, and means for applying power to said conveyors.

In testimony whereof I affix my signature.

HARRY L. ROBY.