Nov. 20, 1945. J. F. HALSTEAD 2,389,256

BUNCH LOCATING AND TRANSFER MECHANISMS

Filed Feb. 17, 1942 2 Sheets-Sheet 1

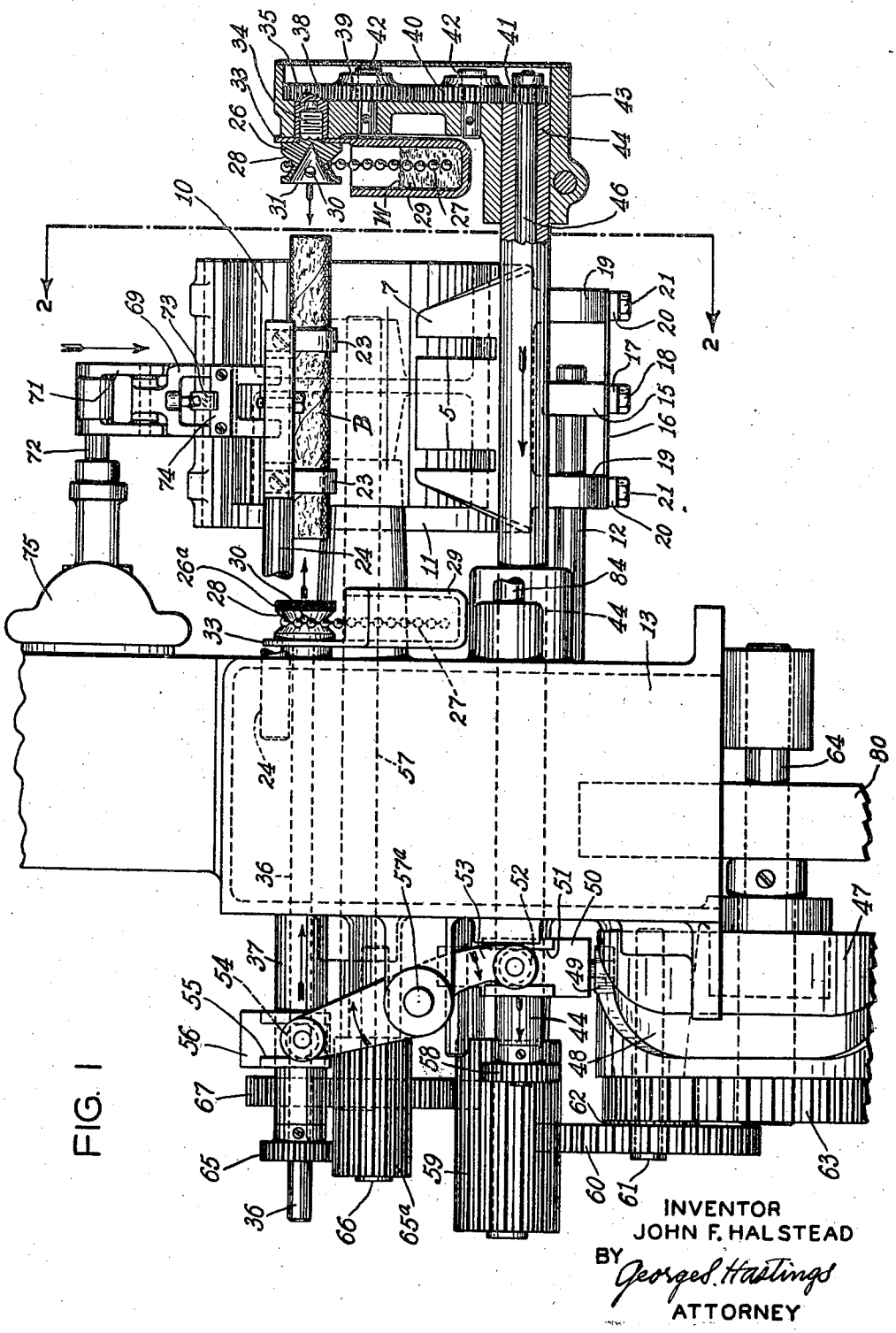

FIG. 1

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BUNCH LOCATING AND TRANSFER MECHANISMS

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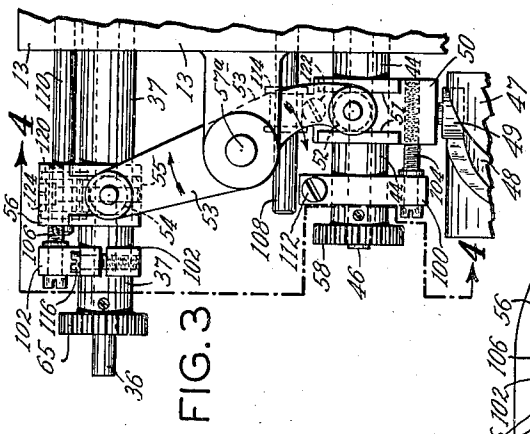

FIG. 3

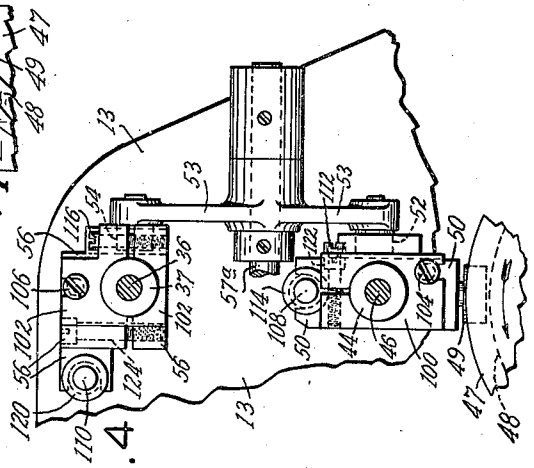

FIG. 4

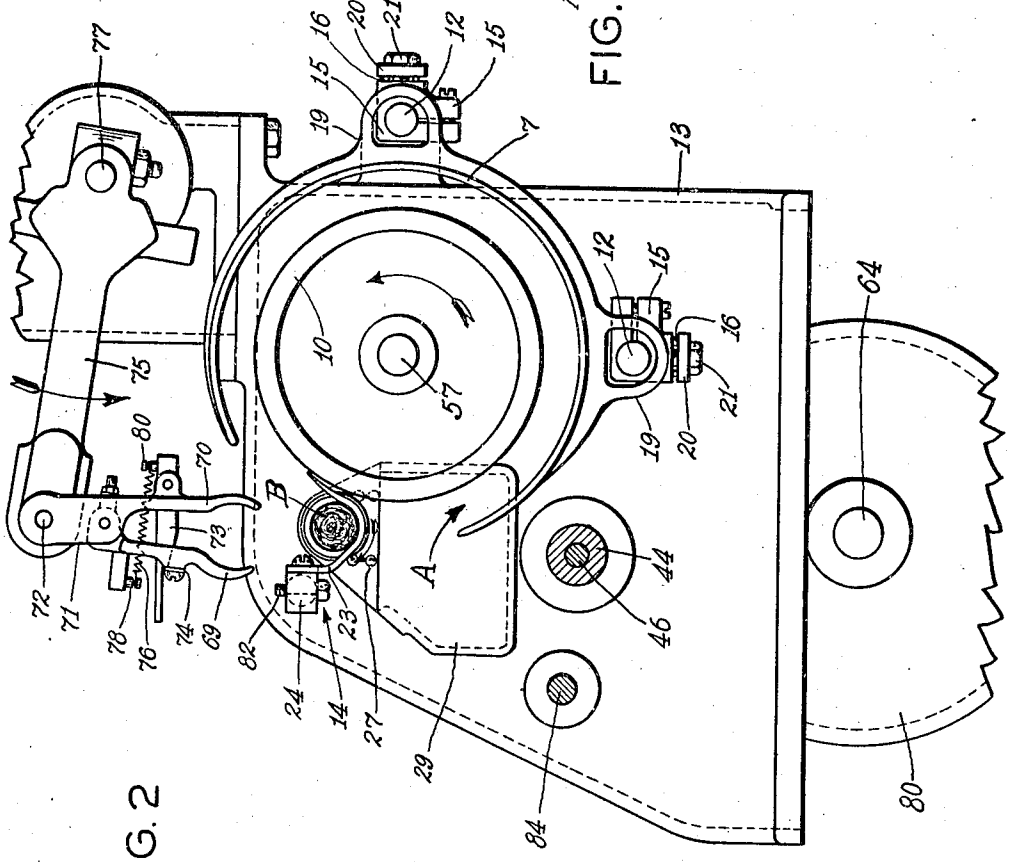

FIG. 2

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Patented Nov. 20, 1945 2,389,256

UNITED STATES PATENT OFFICE

2,389,256

BUNCH LOCATING AND TRANSFER MECHANISM

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Application February 17, 1942, Serial No. 431,197

5 Claims. (Cl. 131—38)

This invention relates to cigar machines, more particularly to the bunch locating and transfer mechanisms which operate upon the bunch delivered from the softening mechanism.

Heretofore, one of the locators **36** shown in my prior patent, No. 1,765,831, was provided with a finger (not shown) which projected beyond the locator sufficiently to trip a detent (not shown), which held open the jaws of the bunch transfer **22** thereof, when the jaws had moved into positions wherein they were on opposite sides of the bunch delivered from between the concave **8** and the drum **9**. In operation, this finger trips the bunch transfer jaws before the locating operation is entirely completed, wherefore the bunch which has been gripped by the jaws cannot be properly located. Accordingly, either the tuck or the head end of the bunch will be unduly compacted, and the opposite end will be too soft, depending upon the position in which the bunch was delivered from between the concave and drum. Moreover, my locators revolve oppositely, in the proper direction to wipe down the ends of the binder which is spirally wound about the bunch charge.

One of the objects of the invention is to provide an improved construction having a novel mode of operation whereby the bunch transfer will not grip the bunch until the locators have engaged and located it in the desired position. To this end there is provided a novel bunch transfer which does not operate to grip the bunch until after the locating operation has been entirely completed.

The novel construction of the bunch transfer, which constitutes another object of the invention, permits the detent which holds the transfer jaws open to be tripped by the movement thereof into position wherein the bunch transfer fingers are on opposite sides of the bunch.

A further object of the invention is to provide a novel construction of the locator mechanism. In the locator mechanism shown in the co-pending application of H. H. Wheeler, S. N. 234,001, filed October 8, 1938, on which Patent No. 2,356,636 was issued August 22, 1944, there was no provision for unequal movement of the locators into engagement with the ends of the bunch to be located. Such unequal movement is desirable, since customarily the locator which engages the head end of the bunch has a greater inward movement toward the bunch than the tuck end locator to position the bunch axially into engagement with the tuck end locator. The head end locator of the construction shown in the above-mentioned Wheeler patent, since it is moved back from the head end of the bunch the same extent as the tuck end locator, may not be returned to a position wherein there is enough clearance to avoid interfering with the bunch being delivered into position to be located.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations hereinafter fully described and set forth in the appended claims.

In the accompanying drawings, which form part of this specification and in which like characters of reference indicate the same or like parts:

Fig. 1 is a side elevation of the bunch softener section of a cigar machine exemplifying my inventon and equipped with my novel bunch transfer;

Fig. 2 is an end elevation of the same on the line 2—2 of Fig. 1;

Fig. 3 is a detailed front elevation illustrating a suitable fine adjustment device which may be provided for the locators, shown in Figs. 1 and 2; and

Fig. 4 is a detailed side elevation of the same fine adjustment devices illustrated in Fig. 3 taken on the line 4—4 of Fig. 3.

With reference to Figs. 1 and 2, the cigar bunch B is delivered from the bunch rolling apron to the softening mechanism at a point A by a bunch transfer (not shown) having a construction similar to that shown in the above named Wheeler Patent No. 2,356,636, and having parts or fingers which hold the bunch and enter slots **5** in the concave **7** and deposit the bunch between the concave and the drum **10**. The bunch is rolled along the concave and manipulated and deposited at the position shown in Fig. 2 on cradle **14** by the rotation of the drum which is mounted on a shaft **57** driven in a counter-clockwise direction by mechanism hereinafter described. The concave is supported from stationary bars **12** held in the housing **13**. On each of the bars **12** is clamped a support **15** to which wires **16** are clamped by a plate **17** held on the support by a cap screw **18**. The inner lugs **19** of the concave **7** have holes through which the bars **12** pass, and the ends of the wires **16** are clamped to the lugs **19** by plates **20** secured to the latter by cap screws **21**. The cradle **14** on which the bunch B is deposited consists of curved arms **23** mounted on a member **24** fastened in and projecting from housing **13**. The bunch B resting in cradle **14** is then engaged by constantly

rotating locating and moistening heads 26 and 26a, these heads being moved simultaneously in a horizontal direction towards the ends of bunch B, as will be presently described. Endless bead chains 27 each supported in a circumferential groove 28 cut in heads 26 and 26a have their lower portions submerged in water W held in moisture wells 29 and are thereby constantly driven to carry water up to heads 26 and 26a by chains 27, which flows through holes 30 into the conical cups 31 formed in the locator heads which engage the ends of bunch B. Each of the moisture wells 29 has a flange 33 mounted on the stem of the locator head, each of said stems being threaded into the hub 35 of gear 38 and shaft 36 respectively. As shown in Fig. 1, the stem 34 is threaded into the hub 35, and the stem of the locator 26a is similarly threaded into its shaft 36 which is supported by a sleeve 37 slidably mounted in housing 13. The hub 35 of gear 38 revolves in housing 43 and gear 38 is driven through gears 39 and 40 from a gear 41. The gears 39 and 40 are mounted on studs 42 carried by the gear housing 43 which is clamped on a sleeve 44 slidably mounted in housing 13. Within the sleeve 44 revolves a shaft 46 which carries the gear 41.

The bunch locating action of heads 26 and 26a, that is the horizontal reciprocating motion of the same, is achieved by mechanism which will now be described. A cam 47 has a cam track 48 engaging with a cam roller 49 pivoted to an operating block 50 which is releasably secured to the sleeve 44. Operating block 50 is provided with a track 51 slidably engaging with a roll 52 pivoted to one end of a double lever 53, the other end of said lever being pivoted to a roll 54 slidably engaging with a track 55 of an operating block 56 adjustably secured to sleeve 37 which carries the shaft 35 on which the locating head 26a is mounted. The double lever 53 is pivoted to a stud 57a held by a bearing lug of housing 13. The blocks 50 and 56 may be clamped or otherwise secured to their respective sleeves 44 and 37, so that upon releasing the same from the sleeves the latter may be adjusted to position the locators to properly engage the ends of different lengths of bunches.

It may be noted that the upper arm of the lever 53 is longer than the lower arm thereof in order that the head end locator 26a may be moved a greater distance than the tuck end locator 26 while locating a cigar. Thus the head end locator will displace the bunch axially on the arms 23 into engagement with the tuck end locator and yet will be moved back sufficiently to provide sufficient clearance for delivery of the next bunch upon the arms 23 without interference.

Ordinarily in adjusting for different lengths of bunches, the tuck end locator only is adjusted, as the bunches of various lengths are delivered from the rolling apron with their head end at the same position. For this purpose the block 50 is unclamped from the sleeve 44 and the latter may be then moved to the left of Fig. 1 to move the locator 26 inwardly for a shorter bunch, the width of the pinion 59, which drives the gear 58 on shaft 46, being sufficient to remain in mesh with gear 58 throughout the desired range of adjustment. If either locator fails to properly engage its respective bunch end, that is moves in too far against the bunch end or does not move inwardly enough, then upon unclamping either block 50 or 56 from its respective sleeve, the latter may be adjusted as desired with the locator supported thereon. It may be noted that with my locator mechanism the range of adjustment is sufficient to compensate for all the lengths of cigar which can be manufactured on the cigar machine and it is not necessary to make special parts for cigar bunches of extremely long or short length.

On shaft 46, which drives the head 26, is fastened a gear 58 meshing with a pinion 59 which in turn is driven by a gear 60 loosely mounted on a stud 61 fastened in the portion of the housing behind cam 47. The gear 60 is securely attached to gear 62 which is also loosely mounted on stud 61. Gear 62 is driven from a gear 63 fastened to the cam 47. The shaft 64 of cam 47 is mounted in bearing lugs on the bottom of housing 13 and gear 63 is driven from the main drive of the machine. On shaft 36, which revolves head 26a, is fastened a gear 65 meshing with a pinion 65a mounted on a stud 66 fastened in a suitable bearing lug of housing 13. Gear 65a meshes with gear 67 on the shaft 57 of drum 10, and gear 67 also meshes with gear 59 whereby shaft 36 is constantly driven. The bunch B, after moistening heads 26 and 26a have moved in and located and moistened its ends, is held between the locators waiting to be moved to its next position. This is accomplished by a bunch transfer having a pair of fingers 69 and 70, the finger 70 having its upper end 71 secured on shaft 72. The finger 69 is bifurcated and pivoted on finger 70, and a latch 73 pivoted on finger 70 has a shoulder resting on a strip 74 connecting the legs of finger 69. A tension spring 76 connected to a post 78 on finger 69, and anchored to a post 80 on latch 73, holds the plate 74 against the shoulder on latch 73 to maintain the fingers 69 and 70 in open position to admit the bunch B therebetween when they descend to a position in which they are disposed on opposite sides of the bunch, finger 69 passing through a slot in member 24.

The shaft 72 is supported in and protrudes from the outer end of a hollow arm 75 wherein it is free to revolve, the inner end of arm 75 being fastened to shaft 77. A bevel gear on the inner end of shaft 72 meshes with a bevel gear on one end of a shaft (not shown) supported within and free to revolve within the arm 75 and having a bevel gear (not shown) at its other end meshing with a bevel gear on shaft 77, whereby the fingers are maintained in an upright position as they descend with arm 75 to pick up the bunch B. The shaft 77 is turned to and fro through a gear (not shown) mounted thereon and meshing with a rack (not shown) connected to and operated from a cam lever (not shown) actuated by the plate cam 80 on shaft 64. When the fingers reach the bunch B, the projecting end of the latch 73 is engaged and tripped by the adjustable stop screw 82 on bar 24, and the spring closes the fingers 69 and 70 on the bunch B to grip and then carry it in a clockwise direction to bunch shaping or crimping mechanism (not shown).

The shaft 84 shown protruding from the housing 13 is slidably mounted in the latter and carries a pair of arms (not shown) both of which may be yieldingly mounted on the shaft 84, as described in the above-mentioned Wheeler patent. On the outer ends of these arms are mounted relatively yieldable fingers between which is received the bunch from the rolling apron and from which it is deposited at the point A. The shaft 84 has a gear segment (not shown) meshing with a gear segment on a cam lever (not

shown) operated by cam 80, and shaft 84 also has a cam block fastened thereon and provided with a circumferential cam track engaged by a stationary roller to displace the shaft 84 axially as it carries the bunch from the rolling apron to the softening mechanism. Since the construction of the mechanism for oscillating and displacing axially the shaft 84, as well as the construction of the arms on the shaft 84 and the fingers supported thereon is similar to that shown in the above-mentioned Wheeler patent, further description is deemed unnecessary.

The construction of the mechanism for moistening the bunch locators 26 and 26a, forms no part of this invention but is the subject matter of the co-pending application of S. Clausen, S. N. 430,128, filed February 9, 1942, on which Patent No. 2,337,028 was issued December 21, 1943.

In Figs. 3 and 4 are shown suitable devices for producing fine adjustment of either the head end or tuck end locator, if either or both thereof fail to properly engage the ends of the cigar bunch. For this purpose a lug 102 by means of screw 116 is clamped at or near the end of sleeve 37 and a lug 100 by means of screw 112 is secured to the end of sleeve 44. Each lug carries an adjusting screw 106 and 104 respectively, the threaded ends of which engage with a corresponding block 56 and 50. Said blocks are also clamped to their respective sleeves by means of clamp screws 124 and 122 respectively.

Upon unclamping either block 56 or 50 from its corresponding sleeve and turning the corresponding adjusting screw 106 or 104, the corresponding sleeve 37 or 44 will be displaced axially with the locator supported thereon.

It may be noted that movement of the operating lever 53 during this adjustment of sleeve 37 or 44 is prevented due to the engagement of the cam roller 49 of block 50 with the cam track 48 of cam 47.

It should also be noted that blocks 56 and 50 have a projecting fork-shaped lug, each of which engages with a collar 120 and 114 respectively. The latter is slidably mounted on a rod 108 while collar 120 is slidably mounted on a rod 110. Both rods 108 and 110 are fastened in a housing 13, thus preventing blocks 56 and 50 from turning during adjustment operations. After adjustment is completed, blocks 56 and 50 are clamped again to their respective sleeves.

The terms used in explaining the above illustration of the invention are used as terms of description and not of limitation and it is not intended to exclude any equivalents of the features shown and described, but it is recognized that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. In a cigar locator mechanism, the combination with a pair of spaced locators arranged to engage the head end and tuck end respectively of a cigar bunch, of a pair of slidable members on which said locators are respectively supported, a double-arm operating lever, one of the arms of said lever being connected to one of said members and the other of its arms being connected to other of said members, means for simultaneously rotating said members in opposite directions together with said locators, and mechanism for reciprocating one of said members to cause the locator supported thereon to move inwardly and engage one end of the cigar bunch whereby the other member will be simultaneously operated through said lever to cause the other locator to engage the other end of the bunch, the arm of said lever which is connected to the member supporting the head end locator being longer than the other arm thereof to impart a greater inward movement to the head end locator and cause the latter to displace the bunch axially to bring the tuck end of the bunch into engagement with the tuck end locator at the inward position of the latter, said means including gears fastened on each of said members and movable therewith as said members displace said locators to and from the locating positions, and stationary elongated pinions meshing with and driving said gears, the length of said pinions being sufficient to maintain them in mesh with said gears throughout the entire reciprocating movement of said members, and a gear train meshing with said pinions and driving the locators supported from the said members in opposite directions.

2. In a cigar locator mechanism, the combination with a pair of spaced locators arranged to engage the head end and tuck end respectively of a cigar bunch, of a pair of slidable members on which said locators are respectively supported, a double-arm operating lever, one of the arms of said lever being connected to one of said members and the other of its arms being connected to other of said members, and mechanism for reciprocating one of said members to cause the locator supported thereon to move inwardly and engage one end of the cigar bunch whereby the other member will be simultaneously operated through said lever to cause the other locator to engage the other end of the bunch, the arm of said lever which is connected to the member supporting the head end locator being longer than the other arm thereof to impart a greater inward movement to the head end locator and cause the latter to displace the bunch axially to bring the tuck end of the bunch into engagement with the tuck end locator at the inward position of the latter, said members being adjustably connected to the operating lever to permit adjustment of the locators toward and away from the bunch ends.

3. In a cigar locator mechanism, the combination with a pair of spaced locators arranged to engage the head end and tuck end respectively of a cigar bunch, of a pair of slidable members supporting said locators, operating blocks releasably clamped to said members, a double-arm operating lever having its ends connected to said blocks, a support fastened to each of said members, and an adjusting screw threaded into each of said supports and the operating block on the corresponding locator-supporting member, whereby upon unclamping either of said blocks from the member upon which it is supported and turning the adjusting screw threaded into the said block the locator-supporting member will be displaced axially with the locator supported thereon.

4. In a cigar machine having bunch softening and bunch shaping mechanisms, the combination with a stationary support arranged to receive a cigar bunch from the bunch softener and adapted to support the bunch without gripping it for free endwise displacement, of a pair of spaced opposed locators arranged to engage the ends of a bunch resting on said support, mechanism for oppositely moving said locators to engage the ends of a bunch resting on said support and supported solely by said support, and displace the bunch axially thereon to a predetermined position, a bunch transfer adapted to transport a bunch from said support to the bunch shaping

mechanism, said transfer having fingers movable into positions on opposite sides of the middle of the bunch on said support, and mechanism for closing said fingers to grip the bunch on said support after it has been positioned by said locators.

5. In a cigar machine having bunch softening and bunch shaping mechanisms, the combination with a stationary support arranged to receive a cigar bunch from the bunch softening mechanism and adapted to support the bunch without gripping it, of a pair of spaced opposed locators arranged to engage the ends of a bunch resting on said support, mechanism for oppositely moving said locators to engage the ends of a bunch resting on said support and supported solely by said support, and displace the bunch axially thereon to a predetermined position, a bunch transfer adapted to transport a bunch from said support to the bunch shaping mechanism, said transfer having fingers movable into positions on opposite sides of the middle of the bunch on said support, a member for moving said fingers downward into positions on opposite sides of the middle of the bunch on said support after the same has been positioned by said locators, a latch pivoted on one of said fingers, an abutment mounted on the other of said fingers, said latch having a shoulder resting on said abutment to maintain said fingers sufficiently spread apart to admit a bunch therebetween, a tension spring connecting said fingers, and a stationary stop disposed in the path of said latch during the downward movement of said member to disengage the latch from said abutment and permit said spring to close the fingers and grip the bunch.

JOHN F. HALSTEAD.