March 21, 1944. J. P. DURNING 2,344,769

DETACHABLE TRANSFER POCKET

Filed Dec. 20, 1940 2 Sheets-Sheet 1

FIG. 1

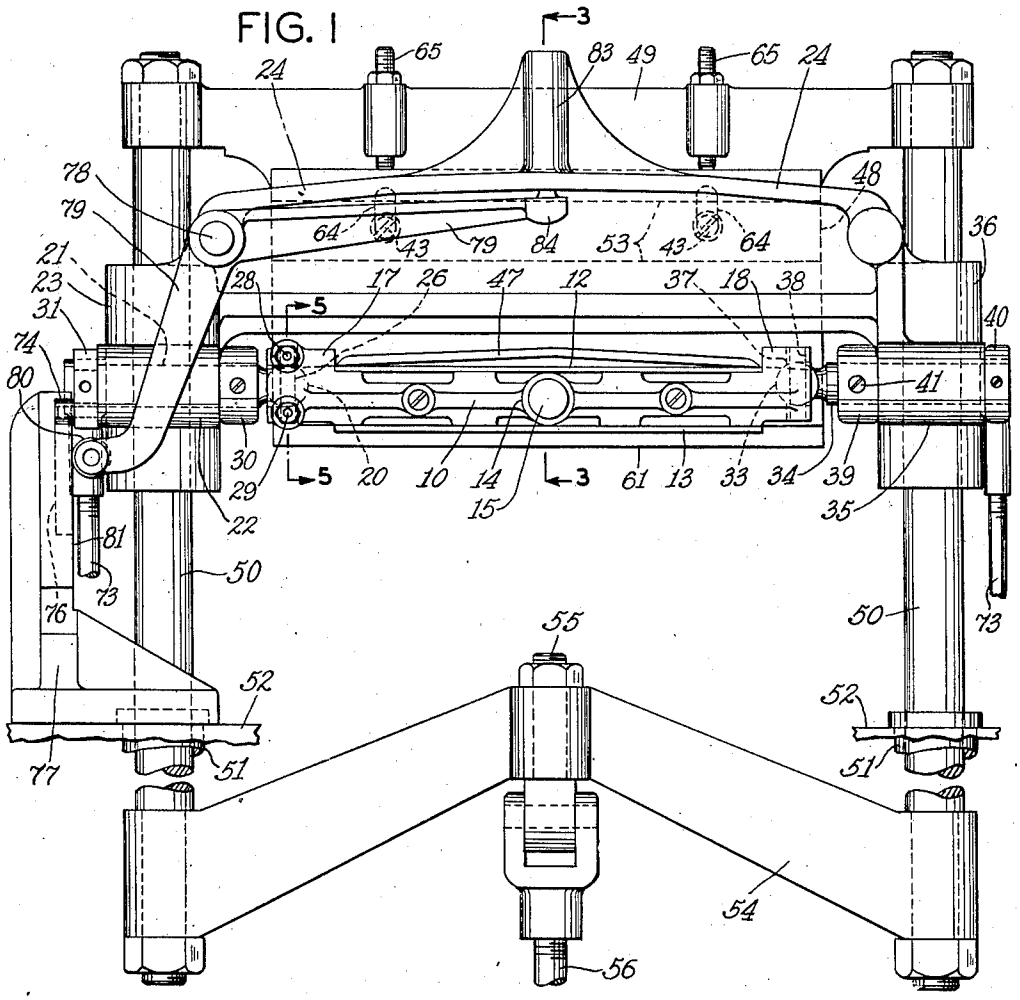



FIG. 4

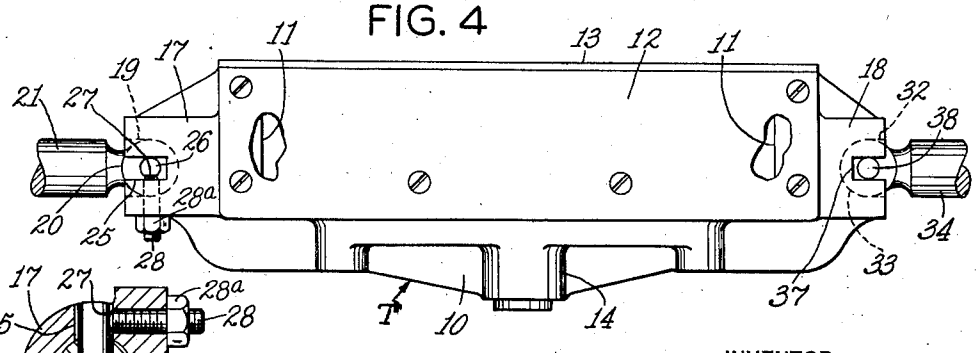
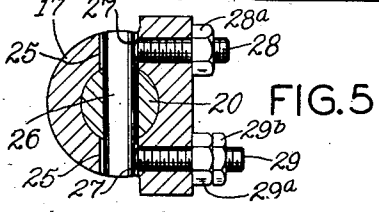



FIG. 5




INVENTOR
JAMES P. DURNING
BY George S. Hastings
ATTORNEY

March 21, 1944. J. P. DURNING 2,344,769

DETACHABLE TRANSFER POCKET

Filed Dec. 20, 1940 2 Sheets-Sheet 2

FIG. 3

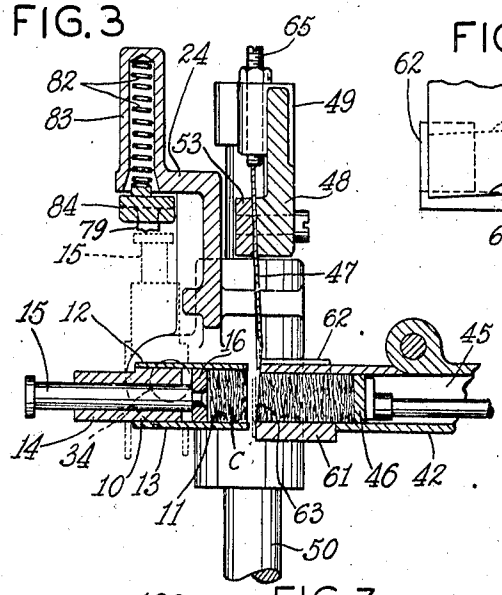
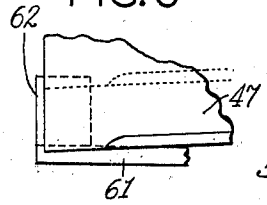



FIG. 6



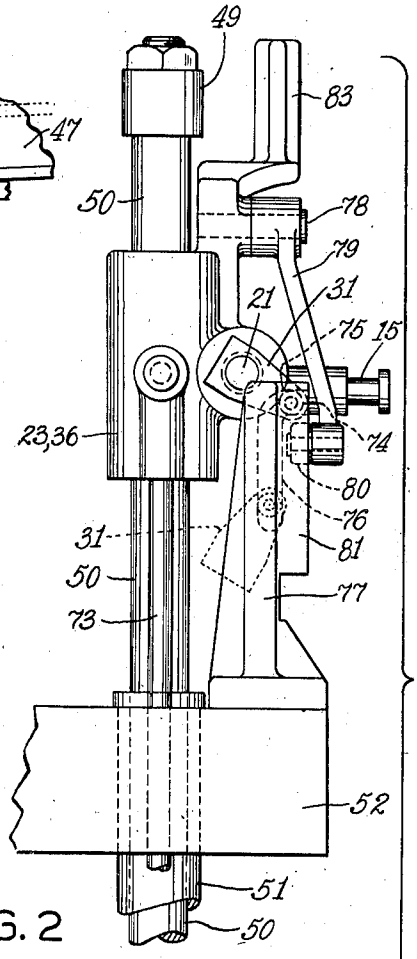




FIG. 7

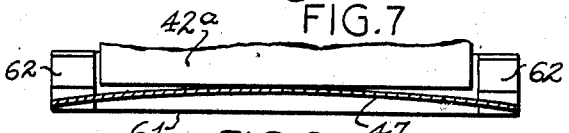



FIG. 8

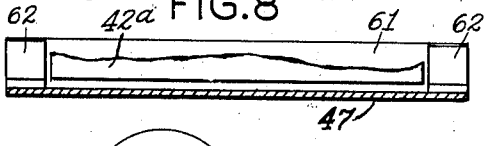
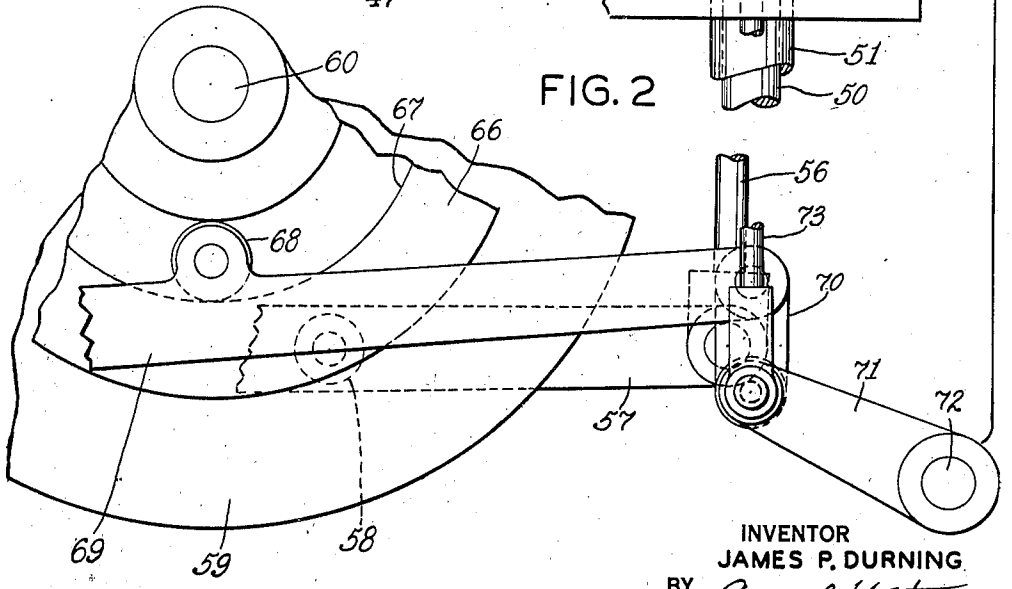



FIG. 2




INVENTOR
JAMES P. DURNING
BY Georges, Hastings
ATTORNEY

Patented Mar. 21, 1944 2,344,769

# UNITED STATES PATENT OFFICE

2,344,769

## DETACHABLE TRANSFER POCKET

James P. Durning, St. Albans, N. Y., assignor to International Cigar Machinery Company, a corporation of New Jersey

Application December 20, 1940, Serial No. 370,935

8 Claims. (Cl. 131—81)

This invention relates to cigar machines and more particularly to a quickly detachable charge transfer for cigar machines employing a charge compression chamber in conjunction with the bunch charge transfer which moves between the charge compression chamber to convey a measured charge cut from the tobacco in the charge compression chamber into the bunch rolling mechanism.

This invention relates further to cigar machines of the general type shown in my co-pending application, Serial No. 193,244 filed March 1, 1938, for Feed for cigar bunch machines, now Patent No. 2,306,381, and relates to improvements therein, especially in a readily detachable bunch charge transfer, the means for aligning it with the charge compression chamber in such a manner that the alignment between the two in charge forming position will be substantially permanent for each particular bunch size selected. It is, therefore, an object of my invention to provide improved mechanism for effecting quick and easy removal of the bunch charge transfer and for more easily and effectively maintaining the alignment between the charge compression chamber and the bunch charge transfer.

My invention also consists of improvements in mechanisms for adjusting the position of the bunch charge transfer relative to the charge compression chamber, so that the lower side wall of the bunch charge transfer may be more accurately aligned with respect to the bottom plate of the charge compression chamber during the machine operation in forming each bunch size required.

My invention also consists in the provision of means for raising and lowering the bunch charge transfer relative to the bottom wall of the charge compression chamber and means for positively locking the charge transfer against movement out of adjustment with respect to the charge compression chamber once the desired adjustment has been obtained.

From time to time during the operation of a cigar machine of this type, it is necessary to make repairs of one kind or another to the bunch charge transfer or parts of the machine located in proximity to the charge transfer or to replace the transfer or knife. Therefore, it becomes highly desirable that the charge transfer be made removable with a minimum of effort and parts in order that desired adjustment or replacements may be effected rapidly without tearing down part of the machine to get to the charge transfer or knife or adjacent mechanism, as had been the case in previous machines. Accordingly, a further object of my invention is the provision of a quickly detachable bunch charge transfer.

An added object of my invention is the provision of a bunch charge transfer which is detachably mounted in my cigar machine and can be removed therefrom without tearing down the machine merely by unscrewing one or more screws and shifting the supports of the transfer or pocket for removal of the whole pocket from the machine.

My invention also consists in a novel bunch charge transfer having socketed recesses at the ends thereof which coact with the transfer support for easy and rapid removal of the bunch charge transfer from the machine.

In order that the wear and tear on my improved bunch charge transfer may be maintained at a minimum because of the relation between the recess in the ends of the pocket and the supports which coact therewith for mounting the pocket in its traveling frame, my invention also consists in means for coupling the supports to the ends of the transfer so that the supports act as journals in the bearings which mount them in the traveling frame, and in this way, due to the loose fit between the coupling means and the ends of the transfer, the end supports and transfer turn as one as the transfer moves between receiving and discharge positions, without any binding.

It is, therefore, an added object of my invention to provide a bunch charge transfer having slotted recesses in its ends, and means positioned at one end engaging flattened surfaces on a coupling pin for raising or lowering the pocket relative to the charge compression chamber, and means bearing on the slotted surface for locking the pocket in adjusted position.

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

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

Figure 1 is a partial front elevation of the machine showing the improved manner of mounting the charge transfer and also the mechanism for actuating said transfer and knife;

Figure 2 is a partial side elevation of the mechanism shown in Figure 1, showing also the cams for operating the charge transfer and knife;

Figure 3 is a sectional detail view taken from line 3—3 of Figure 1;

Figure 4 is a detail plan view of the charge transfer;

Figure 5 is a detail view in section of the charge transfer mounting as seen from line 5—5 of Figure 1;

Figure 6 is a detail view showing a portion of the knife and one of the guide blocks situated at each end of the knife; and

Figures 7 and 8 are detail plan views of the knife in its up and down positions, respectively.

Referring to the drawings which show a preferred form of my invention, the tobacco charge transfer, designated generally T, consists of a holder or frame 10 (Figures 1, 3 and 4) so constructed as to form end walls 11 of a charge receiving pocket, and also carry plates 12 and 13 forming the upper and lower walls of the pocket. A hub 14, of holder 10, supports a slidable rod 15, carrying, as a charge ejecting plunger, plate 16 serving as the rear wall of the pocket much in the manner of that shown in my above referred to co-pending application.

The holder 10, at its ends, is equipped with bearings 17 and 18. Bearing 17 is provided with an open end socket or recess 19 adapted to fit over and cooperate with the ball shaped end 20 of a stud 21 loosely mounted in a hub 22 projecting from a bearing 23 of a cross frame 24. An open slot 25 in bearing 17 serves to engage the protruding ends of a pin 26 mounted in the ball end 20 of stud 21. The protruding ends of stud 26 preferably have flat surfaces 27 adapted to be engaged by the ends of set sdrews 28 and 29 (Figure 5) supported by bearing 17 for a purpose described hereinafter. The stud 21, when properly mounted, is held from moving axially in hub 22 by means of a collar 30 and an arm 31 located at the outer end of hub 22 (Figure 1).

The bearing 18 of holder 10 also has an open end socket 32 which may be similar to that in bearing 17 and is adapted to receive the ball shaped end 33 of a stud 34 loosely mounted in hub 35 extending from a bearing 36 of frame 24. The bearing 18 is provided with an open end slot 37 engaging the projecting ends of a pin 38 mounted in the ball end 33 of stud 34. The stud 34 is held in operative position in hub 35 by means of collars 39 and 40 locoted at each end of the hub 35.

It will be seen that excess wear on the ball ends of studs 21 and 34 is prevented by reason of the manner in which the transfer T is supported for rotation on the studs. The ball shaped ends 20 and 33, respectively, act as self-aligning bearings and allow some movement between the ends 20 and 33 and the recesses 19 and 32 in the frame 10, in order to locate the transfer pocket properly with respect to the charge compression chamber 45, and allow adjustments to be made to raise and lower the transfer pocket relative to the lower wall 61 by means of screws 28 and 29 which bear against the ends of pin 26. Actual turning of the transfer pocket from horizontal charge receiving position to and from vertical discharging position is effected by the studs 21 and 34 through the pins 26 and 38 engaging the slotted portions 25 and 37, respectively, so that the studs 21 and 34 act as journals for the charge transfer T in the hubs 22 and 35, respectively.

With the transfer pocket mounted in this manner, it may be readily dismounted from the machine for cleaning purposes or whenever it may be necessary to remove it to get at different parts of the machine for purposes such as mentioned hereinabove. This is accomplished by loosening a set screw 41 which secures collar 39 to stud 24. The operator then grasps the collar 40 and pulls it axially in hub 35, whereupon the ball shaped end 33 and pin 38 move out of bearing 18, and the transfer pocket is free to be disengaged from the ball end 20 of the stud 21. The screws 28 and 29 are set so as to engage the ends of pin 26 but still are free to permit slipping the pocket in and out of engagement with the ball and socket arrangement.

Set screws 28 and 29 are secured in adjusted position by means of nuts 28*a* and 29*a*, respectively, and in order to lock the set screws more permanently against unwanted displacement, lock nut 29*b* may be used. In some instances, as where screws 28 and 29 are placed tightly against the ends of pins 26, rapid removal of the transfer pocket can be effected by loosening set screw 28 whereupon the pocket is removed without disturbing the setting of set screw 29 and the pocket can be returned to its adjusted position in the cross head for reassembly therein merely by tightening screw 28.

The measured tobacco charges are delivered to a magazine 45 (Figure 3) in the same manner as disclosed in my above referred to co-pending application, wherein a reciprocating plunger 46 of the usual construction advances the leading end of the tobacco column into the transfer pocket. With the tobacco charge C deposited in said pocket, a knife 47, by suitable means presently to be described, descends and cuts the tobacco charge thereby separating it from the tobacco in the magazine.

Referring to Figures 2 and 3, it will be seen that the charge cutting knife and charge transfer are operated independently of each other so that after the knife has cut a charge deposited in the charge transfer, the charge transfer is lowered, usually a greater distance than the stroke of the knife, to discharge the charge into bunch rolling mechanism.

Knife 47 is carried by a depending arm 48 of a tie bracket or cross head 49 secured to the upper ends of vertical rods 50 which are guided for movement in sleeves 51 (Figures 1 and 2) supported by the table 52 of the machine. Because of the fact that the knife has independent movement, it can be made much shorter with respect to vertical movement since its limits are bounded by the upper edge of upper wall 42*a* of the charge compression chamber 45 and the bottom of the ledger plate 61, which may be fixed to the bottom wall 42 of the chamber and forms a part thereof as shown in Figure 3. The knife is clamped in cutting position by a cross bar 53 detachably secured to arm 48 by screws 43 extending through slots 64 in the knife. The lower ends of rod 50 are secured to a bracket 54 (Figure 1) which is provided with a stud 55 supporting one end of a link 56 connecting to a cam lever 57 (Figure 2) mounted on a fulcrum shaft on the machine (not shown). Cam lever 57 is equipped with a cam roller 58 engaging in a cam track (not shown) of a cam 59 mounted on a shaft 60 suitably supported by frames of the machine.

After the knife has been moved downwardly its full stroke to cut through the charge, it remains in this position until after the charge transfer has moved from charge receiving to charge discharging position for delivering the charge C to the rolling apron of the machine (not shown) and returned to its starting position ready to receive more tobacco from the charge

compression chamber whereupon the knife 47 ascends to its upper limits and dwells.

The knife 47 is preferably mounted at an angle with respect to ledger plate 61 (Figure 3) in order to insure better cutting of the tobacco charge due to the more positive shearing action which effects cleaner and more efficient cutting with practically complete elimination of "after-drag" sometimes experienced in the use of thick knives, especially in the formation of small types of cigars due to the movement of the cutting edge of the knife upon the ledger plate. This means that more uniform charges are produced with my novel cutting mechanism, and hence fewer cigars are rejected.

At each end of the ledger plate 61 are blocks 62 having inclined surfaces 63 adapted to engage the ends of the knife 47 when it is in its up position (as shown in Figure 3) with its ends engaging the blocks 62 so that at all times the knife will be guided properly with respect to ledger plate 61. In order to provide for better shearing action, I prefer to bow or curve knife 47 as shown in Figure 7, because as the knife descends with its ends bearing against blocks 62, the cutting edge is guided into cutting position adjacent the ledger plate 61 and due to the relationship between the edge of the knife and the ledger plate, the knife is flexed so that it becomes straight and bears against the full length of the ledger to insure better cutting of tobacco with a positive shearing action. It will be seen, therefore, that I have provided a thin knife which is self-supporting and of sufficient rigidity to function with a scissors like action against a ledger plate in such a manner that it is self-sharpening and also has practically no tendency to flex away from the ledger plate. This positive scissor-like shearing action practically eliminates dragging and tearing of the tobacco during the cutting of the compacted tobacco extending from the charge compression chamber into the charge transfer.

The knife 47 is provided with the elongated slots 64 (Figure 1) to permit it to be adjusted properly and also to provide means for re-adjusting the knife from time to time to compensate for wear of the beveled cutting edge. The bracket 49 is equipped with set screws 65 adapted to bear against the upper edge of the knife and keep it in adjusted position.

With the tobacco charge C lodged in the transfer, it is now ready to be actuated in order to deliver the charge to the bunch rolling apron of the machine (not shown). This is accomplished by a cam 66 (Figure 2) having a cam track 67 engaging a cam roller 68 carried by a cam lever 69, the latter supporting one end of a link 70 connecting to an arm 71 secured to a pivot shaft 72 of the machine. The shaft 72 at its other end carries another arm the same as 71 (not shown) each of said arms supporting one end of a rod 73 connecting to their respective bearings 23 and 36 of bracket 24 (Figures 1 and 2) sliding on the vertical rods 50.

Mounted upon the bed 52 of the machine is a bracket 77 provided with a stationary cam track having a horizontal part 75 and a vertical part 76. As shown in Figures 1 and 2, arm 31 is provided with a cam follower 74 engaging in track portions 75 and 76 so that when bracket 24 descends the cam follower 74 moves from the horizontal track portion 75 into the vertical track portion 76 and in so doing the transfer T is swung 90° from horizontal position to vertical position, as shown in dotted lines in Figure 3. By means of pins 26 and 38, which couple the ball shaped ends of studs 21 and 34 to the transfer pocket T, the studs 21 and 34 act as journals turning in hubs or bearings 22 and 35, respectively, as described hereinabove.

The bracket 23 supports a stud 78 carrying a lever 79 equipped with a roller 80 normally riding against the face 81 of bracket 77, the roller 80 being held in engagement with its face by means of a spring 82 (Figure 3) located in a housing 83 of bracket 24. As bracket 24 approaches its down position, the roller 80 rides off its surface 81 permitting the spring 82 to depress the end 84 of lever 79 which encounters the head of the plunger rod 15 causing the plunger 16 to expel the tobacco charge into the loop of the rolling apron of the machine.

The invention above described may be varied in construction within the scope of the claims, for the particular device, selected to illustrate the invention, is but one of many possible concrete embodiments of the same. It is not, therefore, to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. A charge transfer pocket for a cigar machine comprising, a frame member provided with slotted bearings in the ends thereof, end walls forming a part of said frame, spaced side wall plates fixed to said frame, and forming with said end walls a tobacco confining pocket, a charge ejecting plunger for ejecting a charge from said member, spaced screws mounted at one end of said frame and projecting into the slotted bearing at said end, said screws operating to position said member for quick detachability from said machine, and in accurate position for receiving charges.

2. In a cigar machine of the class described having a reciprocating cross frame, a charge transfer mounted on said frame, and a charge compression chamber from which tobacco is fed to said transfer, means for adjustably mounting said transfer in said frame comprising, ball and socket mounts, and means on one of said mounts for adjusting the position of said transfer relative to said chamber.

3. In a cigar machine of the class described, having a reciprocating cross frame, a bunch charge transfer having end walls provided with sockets turnably mounted on said frame, and a charge compression chamber associated with said transfer for feeding tobacco thereinto, support studs carried by said frame, self-aligning transfer supporting heads on said studs adapted to coact with said sockets and mount said transfer for movement with said frame, and means cooperating with one of said sockets for raising and lowering said transfer to align it with said chamber.

4. In a cigar machine, the combination with a charge compression chamber constructed and arranged to hold a plurality of cigar bunch charges, of a bunch charge transfer normally positioned in alignment with said chamber, said transfer comprising a pocket having end walls provided with pocket support sockets in each outer face thereof, a traveling frame for moving said pocket to and from said chamber, pocket supporting studs carried by said frame, devices on said studs adapted to fit within said sockets in said end walls of said pockets, said devices being

constructed and arranged to provide for self-aligning movement of said transfer pocket when mounted in said frame relative to said chamber, and means on said pocket for setting the alignment of said pocket with said chamber and for locking said pocket in said aligned position.

5. In a cigar machine, the combination with a charge compression chamber having a substantially horizontal tobacco supporting surface, of a bunch charge transfer, comprising a pocket having spaced top and bottom walls and end walls provided with support sockets, means for positioning said bottom wall in alignment with said surface, including transfer supporting studs, devices on said studs engaging said sockets and forming therewith self-aligning connections for said transfer, means on one of said end walls cooperating with one of said devices for adjusting the alignment of said transfer relative to said chamber, and means for locking said transfer in said adjusted position.

6. A charge transfer pocket for a cigar machine comprising a frame member provided with slotted self-aligning bearings in the ends thereof, end walls forming a part of said frame, spaced side walls carried by said frame, and forming with said end walls a tobacco charge confining pocket, a charge ejecting device for ejecting a charge from said member, and adjustable pocket securing means mounted at one end of said frame adjacent one of said self-aligning bearings, said securing means being constructed and arranged to position said member for quick detachability from said machine and in accurate position for receiving and discharging charges.

7. A charge transfer pocket for use in a cigar machine comprising a frame member provided with sockets in the outer faces of the ends thereof, a tobacco charge confining pocket formed in said member, a charge ejecting plunger movable in said pocket for ejecting charges therefrom, and adjustable pocket securing means carried by said member and mounted adjacent one of said self-aligning bearings for cooperation therewith, said means including support studs for said pocket, and devices on said studs constructed and arranged to fit in said sockets and form therewith a quickly detachable self-aligning transfer pocket support connection.

8. In a cigar machine of the class described, the combination with a reciprocating cross frame, of a charge transfer turnably mounted on said frame, said transfer having end walls provided with recesses, supports for the ends of said transfer, means mounting said supports in said frame, recess engaging projections on said supports constructed and arranged to fit within said recesses, adjusting and locking devices carried by one of said end walls, and means mounting said devices for coaction with one of said projections for effecting a quickly detachable connection between said transfer and frame and maintain said transfer accurately positioned for movement therewith.

JAMES P. DURNING.