

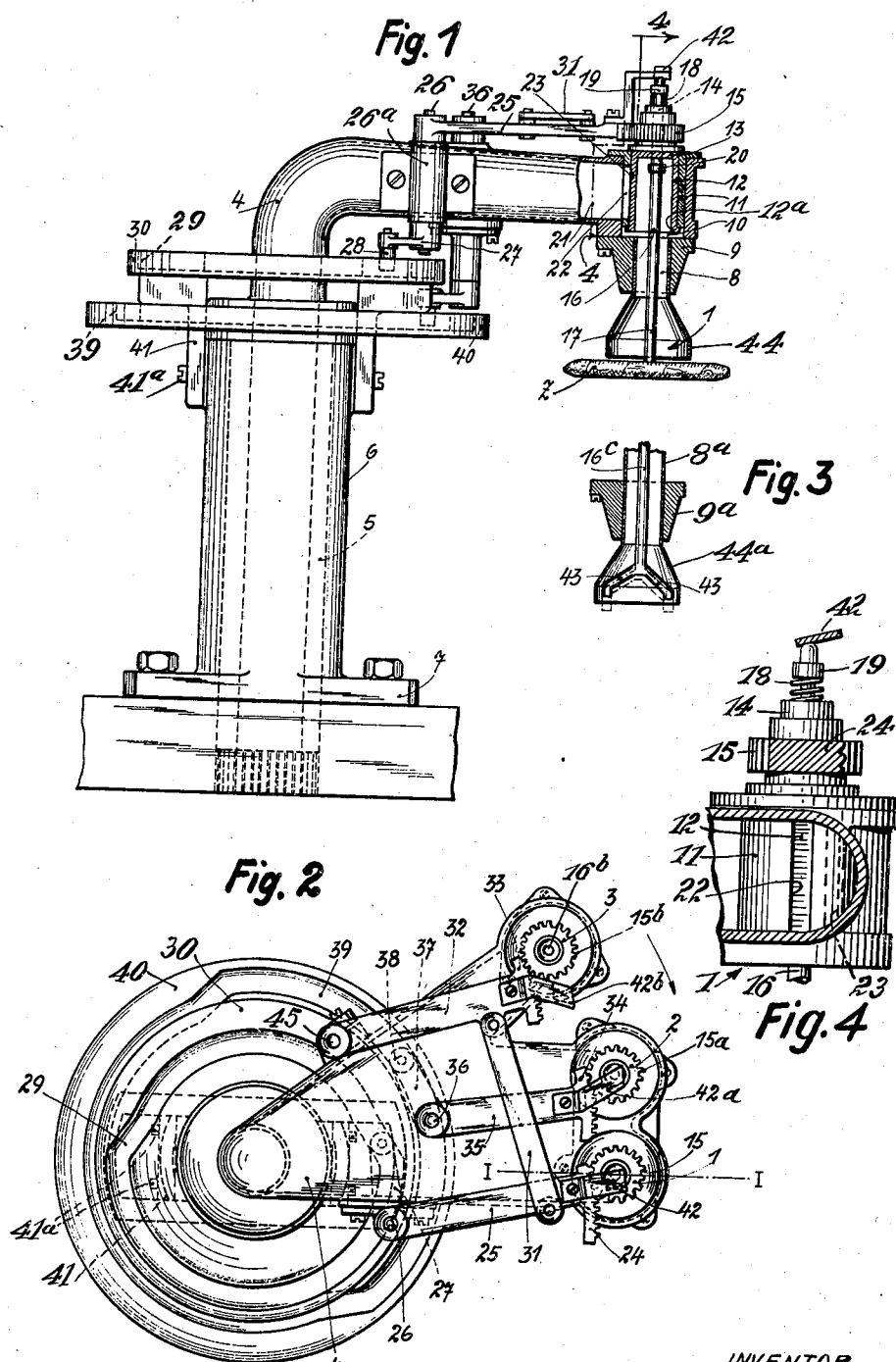
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APPARATUS FOR CONVEYING CIGARS AND FILLERS

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APPARATUS FOR CONVEYING CIGARS AND
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fabrik J. C. Mueller & Co., Dresden, GermanyApplication December 1, 1937, Serial No. 177,469
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2 Claims. (Cl. 214-1)

In the production or manufacture of cigars by mechanical devices it is the practice to transfer or shift the cigars or cigar fillers from one point to another, the transfer in certain instances being made by conveyors of well known types, and in certain other instances being made by transfer devices of the suction type which lift the cigar or cigar filler from one point and transfer it to another point for additional treatment. This invention relates to improvements in transfer devices of the suction type, and it is an object of this invention to provide a suction transfer or shifting device which can be properly timed in its operation so that subsequent operations on the cigar or cigar filler will not be delayed.

In the handling of cigars or cigar fillers by means of suction devices, it has been found that not infrequently due to conditions raising which cannot be foreseen the cigars or cigar fillers carried by such transfer devices are not immediately delivered to the receiving member, thus disturbing the sequence of the following operations, and frequently causing damage to the mis-timed cigar or filler and in other ways affecting the smooth treatment of the cigars or fillers. It is, therefore, another object of this invention to provide in a carrier of the suction type a positive releasing means effective at the moment the suction of the carrier is cut off so that there will not be any delay in the release of the cigar or filler.

It is a further object of this invention to provide a releasing or discharging means in combination with a suction carrier which is so constructed that a multiple carrier may be used and delivery or release of the cigars or fillers effected in a single operation or in sequence.

A still further object of this invention is to connect the cigar or filler releasing means with the suction cut-off means in such a manner that release of the cigar or filler is effected simultaneously with the cutting off of the suction.

This invention is an improvement upon my copending application Serial No. 168,181 filed October 9, 1937.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a detail side elevation of a suction carrier, partly broken away and in vertical section, having an improved releasing means con-

structed according to an embodiment of this invention combined therewith, the section being taken substantially on the line 1-1 of Fig. 2.

Figure 2 is a top plan of the device.

Figure 3 is a fragmentary vertical section of a modified form of this invention.

Figure 4 is a sectional view taken on the line 4-4 of Fig. 1.

Referring to the drawing, the numeral 6 designates generally a suction cylinder which is adapted to be connected to a suction source (not shown), and which is provided at the lower portion with a flange 7 providing means to secure the cylinder 6 onto a support which may form a part of a treating means for the manufacture or treatment of cigars or cigar fillers. The cylinder 6 has a pipe 5 rotatably disposed therein, and this pipe is adapted to be rotated by means not shown so as to effect the desired swinging or rotary movement of the carrier hereinafter described.

The suction pipe 5 is provided at the upper end thereof with a right angularly disposed hollow arm or carrier 4, and the carrier 4 is provided at the free end thereof with a plurality of suction heads generally designated as 1, 2 and 3. The suction heads 1, 2, 3 may be arranged radially with respect to the axis of the pipe 5, or may be arranged in any other suitable manner. In the present instance the heads 1 and 2 are arranged as a pair and are operated as a unit, with the suction head 3 adapted to be operated subsequent to the operation of the heads 1 and 2.

The parts comprising the suction heads 1, 2 and 3 are identical, and the following description of the suction head 1 will apply equally as well to the other suction heads except as will be hereinafter noted.

The suction head 1 comprises a cylinder 10 disposed at the free end of the arm 4, and a flanged sleeve 11 is secured in the cylinder 10 and is provided at its inner side with an elongated slot 22 communicating with the outer end portion 21 of the arm 4. A boss 9 having a bore coaxial with the axis of the cylinder 10 is detachably secured to the lower end of the cylinder 10, and a sleeve 8 is secured in the bore of the boss 9.

A suction nozzle 44 is secured to and extends downwardly of the sleeve 8. The nozzle 44 is open at its lower end, and the opposite end walls of the nozzle 44 may be suitably shaped so that the cigar or cigar filler Z will be snugly received therein. The nozzle 44 preferably is provided with parallel side walls of a length sufficient

to extend along a considerable portion of the cigar or filler Z.

A hollow rotary piston 12 is mounted in the flanged sleeve or cylinder lining 11, and this piston 12 is open at its lower end and closed at its upper end by means of a head 13. The lower end of the piston 12 is preferably flanged as at 12a, and the flange 12a bears against the lower end of the sleeve or lining 11. A bushing or extension 14 having an axial bore therethrough is secured to the head 13, and at its lower end is preferably larger in diameter than the head 13. The lower end of the bushing or extension 14 bears against the flanged upper end of the sleeve or lining 11 so that the piston 12 is thereby held against longitudinal movement but is permitted to have rotary movement therein.

A releasing shaft or rod 16 is mounted in the bore of the extension 14 and extends axially and downwardly through the piston 12, the sleeve 8, and terminates at its lower end in a releasing member 17 which is disposed in the suction nozzle 44. A collar or rib 20 is secured to the shaft 16 within the piston 12 and is adapted to limit the upward movement thereof, the collar or rib 20 being adapted at the end of the upward movement of the shaft 16 to bear against the inner side of the head 13. A spring 18 is disposed about the upper end of the shaft 16 between the upper end of the extension 14 and a collar 19 secured to the shaft 16 below the upper end thereof. The spring 18 constantly urges the shaft 16 upwardly so that the rib 20 will bear against the head 13 and the lower end 17 of the shaft 16 will be disposed entirely within the nozzle 44 in released position.

The extension or stub 14 has a gear 15 secured thereto, and a toothed segment 24 meshes with this gear 15. The segment 24 is carried on the outer end of a swinging arm 25, the inner end of which is secured to a shaft 26 journaled in a bearing 26a secured to a side of the carrier 4. An arm 27 is secured to the lower end of the shaft 26, and this arm 27 is provided with a roller 28 which engages in a cam groove 29 provided in a control disk 30. The control disk 30 is supported in a stationary operative position adjacent the upper end of the cylinder 6 by means of lugs 41 and bolts 41a.

An operating cam 42 is secured to the outer end of the swinging arm or lever 25, and is disposed in a position such that swinging of the arm or lever 25 in one direction under the action of the cam groove 29 will bring the operating cam 42 into engagement with the upper end of the shaft 16 to thereby depress the shaft 16 and move the lower end 17 thereof downwardly into engagement with the cigar or filler Z so as to forcibly discharge the cigar or filler Z from the suction nozzle 44.

The piston 12 is provided in the side thereof with an elongated slot 23 which is adapted to alternately open and cut off the suction of the nozzle 44. In open position, the slot 23 is adapted to be in registry with the slot 22. The piston 12 constitutes a rotary valve which is under the control of the cam groove 29 to alternately open or cut off the suction head 1 with the suction pipe 5 upon swinging movement of the carrier 4.

The rotary valve of the suction head 2 has a gear 15a connected thereto, and a toothed segment 34 meshes with the gear 15a. The segment 34 is carried by the outer or free end of a swinging arm or lever 35 secured at its inner end to a shaft 36. The shaft 36 has an arm 37 secured to the lower end thereof and a roller 38 is carried

by the arm 37 which engages in a cam groove 39 provided in a control disk 40 which is disposed below the control disk 30. An operating cam 42a is secured to the outer end of the lever 35 and is adapted to effect release of a cigar or cigar filler engaged with the suction head 2 in the same manner as the release of the cigar or filler engaged with the suction head 1 is effected. In the present instance the cam groove 39 is so arranged that the opening and closing of the valve in the suction head 2, and the release of the cigar or filler therefrom is effected simultaneously with the release of the cigar or filler from the suction head 1.

The suction head 3 has a gear 15b connected to the valve thereof, and a toothed segment 33 meshes with the gear 15b, the segment 33 being carried by the outer or free end of an arm or lever 32. The arm or lever 32 is pivoted at its inner end to a shaft 45 journaled in a side of the carrier 4, and a connecting link 31 is connected to the levers 25 and 32 adjacent the outer or free ends thereof so that movement of the lever 25 will effect a similar movement of the lever 32. In the present instance, however, the cam 42b carried by the outer end of the lever 32 is so arranged as to work opposite from the cam 42, that is, when the cam 42 is holding the shaft 16 in released position, the cam 42b will be disengaged from the shaft 16b, and when the cam 42 is in released position the cam 42b will be engaged with the shaft 16b.

In Fig. 3 there is shown a modified form of releasing or discharging means, and in this instance the shaft 16c is provided with a forked lower end 43 engaging in the nozzle 44a which is carried by the sleeve or pipe 8a. The nozzle 44a and the sleeve 8a are mounted in a boss 9a which is adapted to be detachably secured to the desired suction head of the carrier 4. The use of the releasing member 43 permits the release of the cigar or filler from the nozzle 44a by engagement of the releasing member 43 at spaced points along the cigar or filler so that the operation of the releasing or discharging member will not injure the cigar or filler as might be the case under certain conditions with the releasing member 17 which is adapted to engage the center of the cigar or filler.

In the use and operation of this device, as to the suction heads 1 and 2, the carrier 4 is adapted in its receiving position to be swung from a position at the left in a clockwise movement. At the left or receiving position, the valve or piston 12 will be in a position where the slot 23 thereof will be in registry with the slot 22 of the carrier 4, so that the cigar or filler Z will be firmly held on the suction nozzle 44. In this position the lower end of the releasing member 17 will be entirely within the suction nozzle 44 and disengaged from the cigar or filler Z. When the carrier 4 is swung to position the heads 1 and 2 in the proper position, the cam grooves 29 and 39 will effect swinging of the levers 25 and 35, respectively, so as to move the slots 23 out of registry with the slots 22 and thus cut off the suction.

The cam members 42 and 42a are so positioned on the levers 25 and 35, respectively, that as soon as the suction has been cut off, the cam members 42 and 42a will depress the releasing shafts 16 and 16a respectively, and instantly discharge the cigars or fillers from the suction nozzles 44. It will be apparent from the foregoing that any dampness of the cigars or fillers which has the effect of causing the cigars or fillers to stick to

the suction nozzles will not delay the discharge of the cigars or fillers from the carrier 4, and for this reason the timing of the subsequent treatment devices for the cigars or fillers will not be affected.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. A carrier for cigars and the like, comprising a suction arm having a suction head for holding the cigars and provided with a shut off valve, a support for said arm having cam means thereon, a lever pivotally mounted on said arm and connected at one end to said shut off valve and engaging at its opposite end in the cam means of the support for operating the valve to shut off position when the arm and head are swung into delivery position to release the cigars, an injector mounted on the suction head and having a por-

tion projecting outwardly therefrom, and a deflecting cam mounted on said lever and movable therewith into engagement with the projecting portion of said ejector to operate the latter and force the cigars from the head when the shut off valve is closed.

2. A carrier for cigars and the like, comprising a suction arm having a head for holding cigars and provided with a rotary valve within the head, a pinion mounted on the upper end of the valve above the head, a normally retracted releaser mounted in the head and having a stem extending upwardly through said pinion, a support for said arm having cam means thereon, and a lever pivotally mounted on the arm with one end engaging the cam means and provided at its other end with a rack bar meshing with said pinion and with a cam projection disposed in the path of said stem of the releaser, whereby when said arm and head are swung into a delivery position said valve is shut off by the operation of said lever through the rack and pinion and said releaser is depressed by said cam portion of the lever.

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