Dec. 8, 1953 M. E. FRANCISCO 2,661,883

AUTOMATIC PACKING APPARATUS

Filed April 5, 1950 4 Sheets-Sheet 1

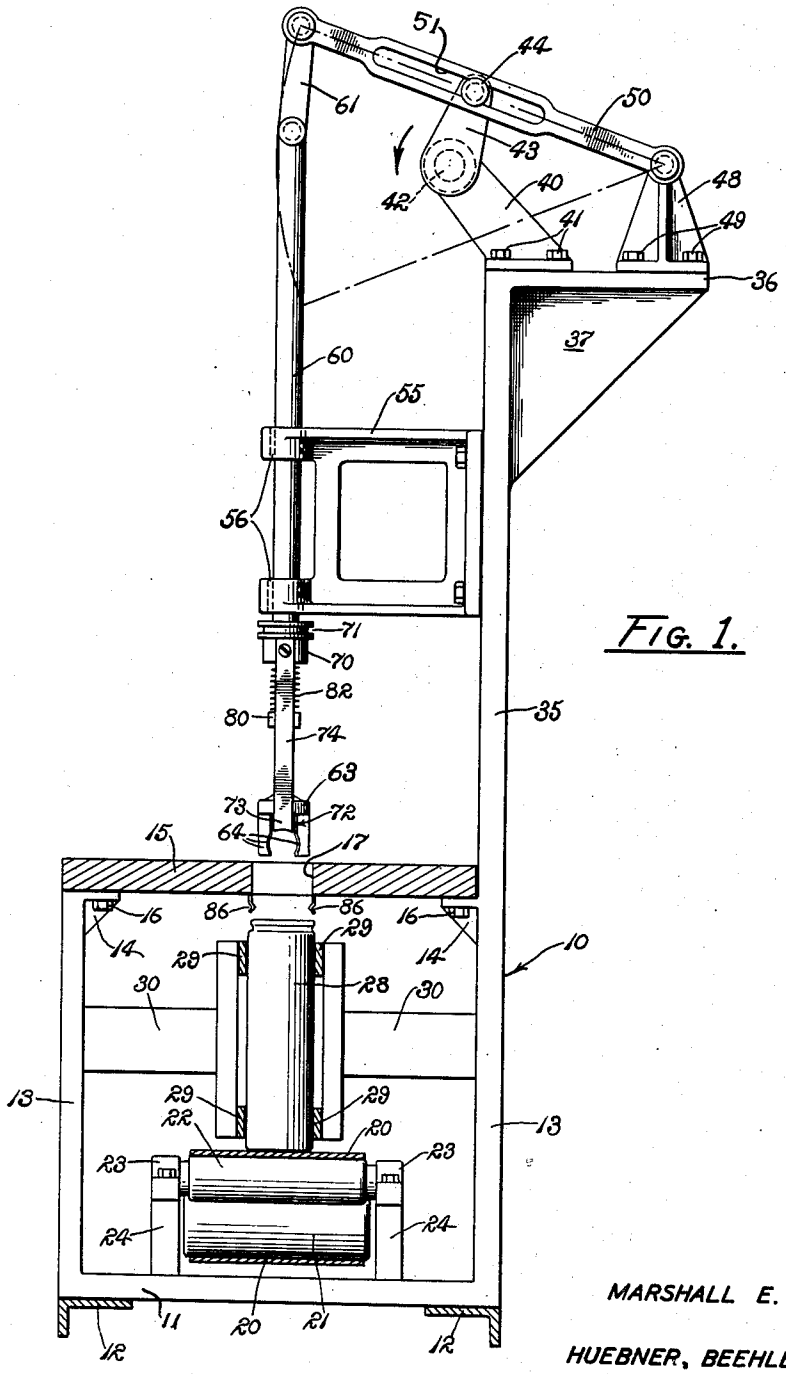


FIG. 1.

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AUTOMATIC PACKING APPARATUS

Filed April 5, 1950 4 Sheets-Sheet 2

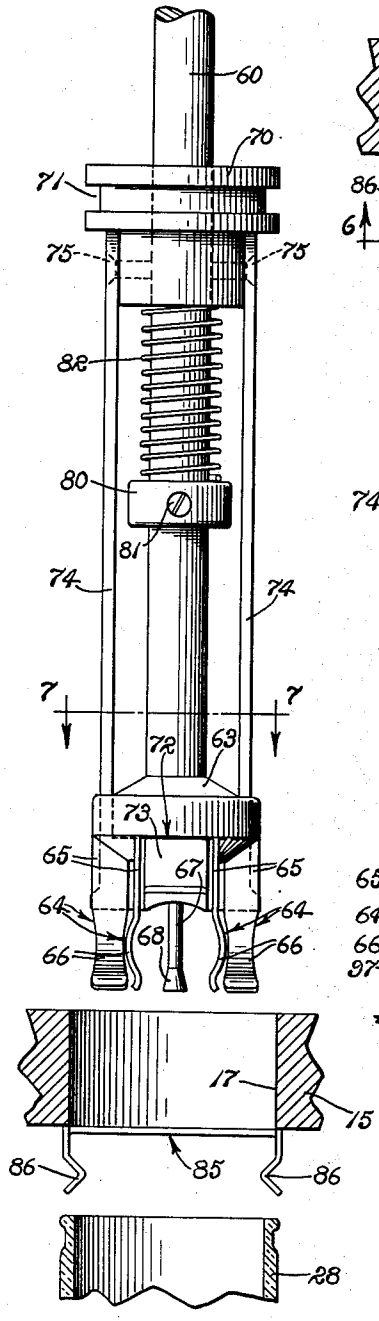


FIG. 2.

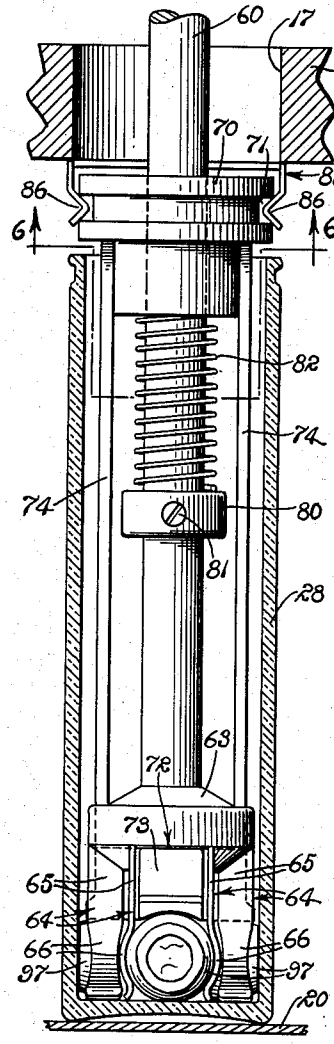


FIG. 3.

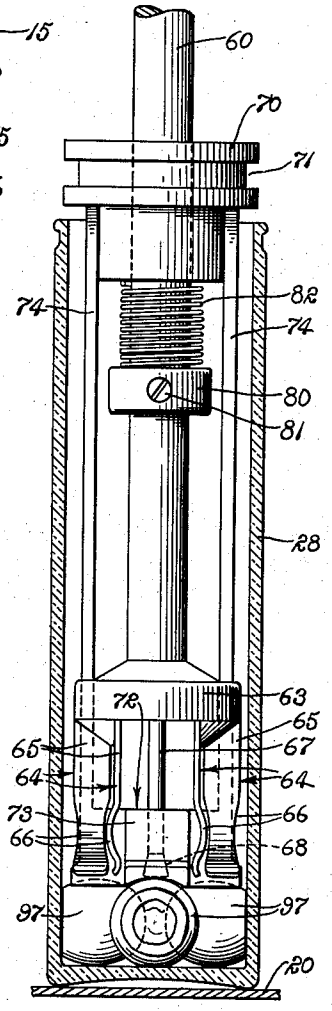


FIG. 4.

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AUTOMATIC PACKING APPARATUS

Filed April 5, 1950 4 Sheets-Sheet 3

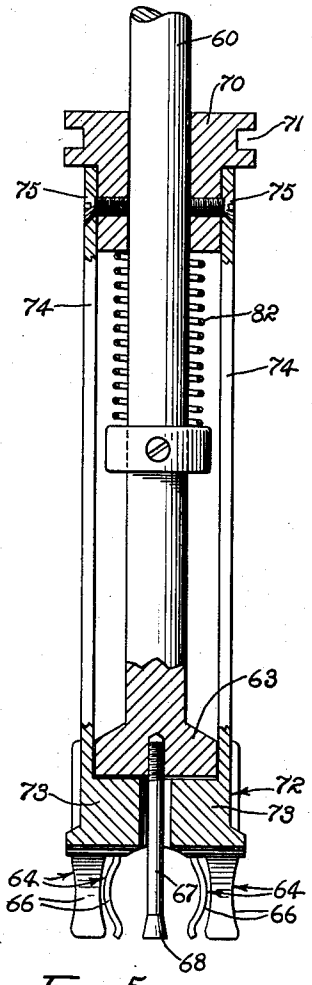


FIG. 5.

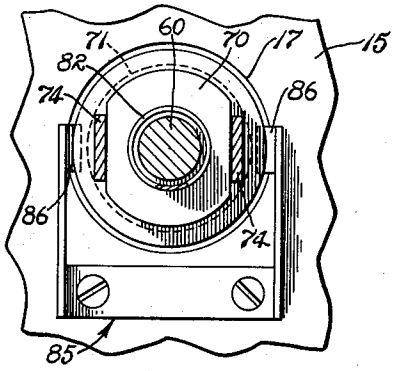


FIG. 6.

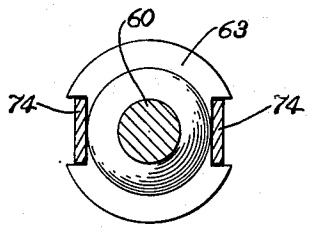


FIG. 7.

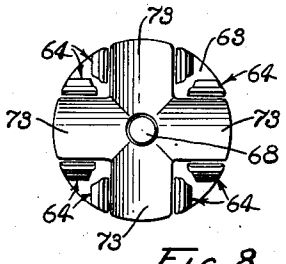


FIG. 8.

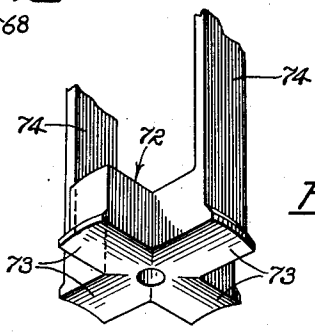


FIG. 9.

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AUTOMATIC PACKING APPARATUS

Filed April 5, 1950 4 Sheets-Sheet 4

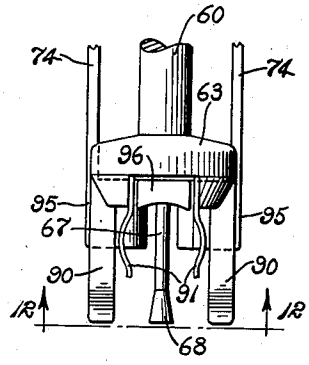


FIG. 10.

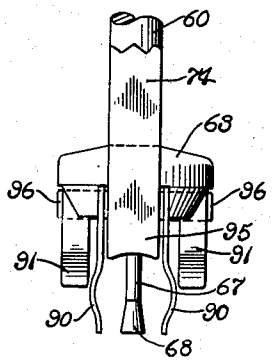


FIG. 11.

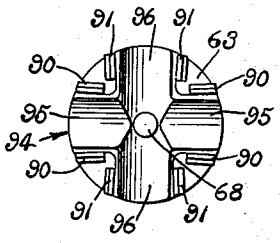


FIG. 12.

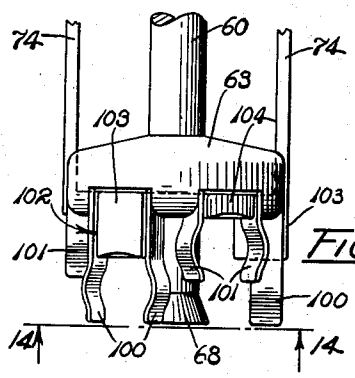


FIG. 13.

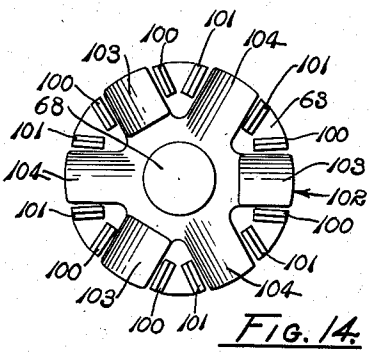


FIG. 14.

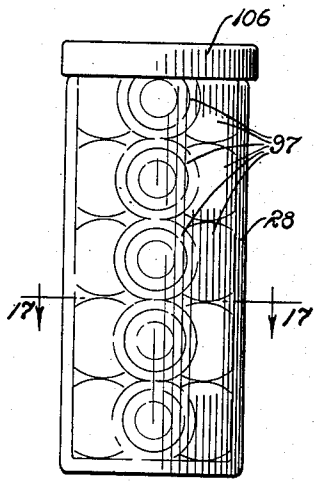


FIG. 15.

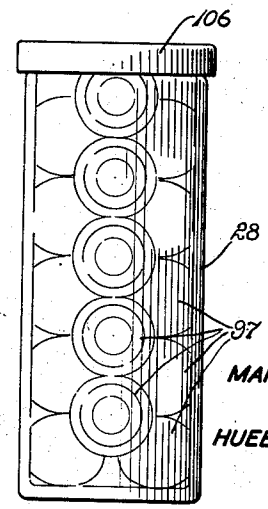


FIG. 16.

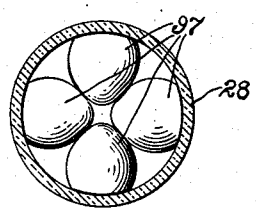


FIG. 17.

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Patented Dec. 8, 1953

2,661,883

UNITED STATES PATENT OFFICE

2,661,883

AUTOMATIC PACKING APPARATUS

Marshall E. Francisco, San Jose, Calif.

Application April 5, 1950, Serial No. 154,099

14 Claims. (Cl. 226—16)

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The present invention relates to packing apparatus and more particularly to an automatic packing device adapted to receive a plurality of articles to be packed and to deposit the same in a container therefor in predetermined attitudes and relations, as for display purposes.

The problems which the present invention has overcome are conveniently illustrated by reference to the packing of stuffed olives in transparent glass bottles. Stuffed olives are generally received in bulk from various Southern European sources and hand packed in the United States into the small glass bottles of the type generally displayed in grocery stores, delicatessen stores, and the like. Conventionally, the olives are selected from bulk and placed by hand with the aid of tweezers in the bottles with the stuffing outwardly disposed and faced against the bottle walls so as exteriorly to present a smooth and pleasing appearance. The olives are circularly arranged in the bottles and compacted, so that by their own resilience in the circular arrangement, firm engagement with the walls of the bottles is maintained. Successively superimposed circular layers of the olives are usually positioned in the container to provide vertical alignment of corresponding olives in each layer in stacked arrangement. This is a tedious and expensive process imposing a labor charge on the finished product comprising a substantial portion of the total cost of each bottle of olives.

Although uniformity of results is desirable and greater speed and economy of packing has been a continuous objective since the marketing of stuffed olives in this manner originated, it has heretofore been considered impossible mechanically to perform the packing operations because of the delicacy of the olives and their stuffing, the very limited space within the containers in which to perform the packing operations, and the precise fitting of the olives so that by their own resilience in their circular arrangements each olive will be urged radially outwardly with a pressure appropriate to achieve the desired facing of the stuffing against the walls of the containers.

An object of the present invention is more economically to make available to consumers, stuffed olives and the like heretofore requiring tedious and expensive hand packing operations.

Another object is to minimize the expenses and wasted time incident to the packing of fruit and the like by hand in containers therefor under conditions requiring predetermined ordered arrangement of the fruit and proper facing thereof, as for display purposes.

Another object is automatically and mechanically to pack articles in selected numbers in predetermined relation and attitude in containers provided therefor.

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Another object is to provide a mechanical packing aid adapted simultaneously to position a plurality of articles in predetermined circular arrangement in a container therefor and upon release of the articles in the containers to urge the same radially outwardly.

Another object is to provide improved releasable holding means for fruit and the like adapted dependably to support and release the same with a minimum of damage thereto.

Other objects are to provide improved elements and arrangements thereof in a device of the character and for the purposes set forth that is dependable in operation, economical to produce and rapid in the performance of its packing function.

Further objects and advantages will become apparent in the subsequent description in the specification.

In the drawings:

Fig. 1 is a side elevation of a device for packing olives and the like in bottles therefor embodying the principles of the present invention, showing portions of the device in vertical section for illustrative convenience.

Fig. 2 is a fragmentary enlarged side elevation of the device shown in Fig. 1 illustrating an olive holding and depositing subassembly thereof, as seen at a loading station adapted to receive olives and the like.

Fig. 3 is a side elevation of the structure shown in Fig. 2 shown extended into a container illustrated in vertical section and positioning olives in a first layer therein.

Fig. 4 is a side elevation of the structure shown in Figs. 2 and 3 illustrating the start of a retraction stroke of the olive holding and depositing subassembly at the moment of ejection of the olives therefrom.

Fig. 5 is a longitudinal section through the olive holding and depositing subassembly.

Fig. 6 is a transverse section of said subassembly taken on line 6—6 of Fig. 3.

Fig. 7 is a horizontal transverse section of the subassembly taken on line 7—7 of Fig. 2.

Fig. 8 is an end view of the subassembly illustrating the means for resiliently holding and ejecting the olives.

Fig. 9 is a fragmentary perspective view of the lower end of an ejector portion of the olive holding and depositing subassembly.

Fig. 10 is a fragmentary side elevation of an olive holding and ejecting subassembly illustrat-

ing a modified form adapted concurrently to pack two layers of two olives each with the olives of each layer in substantial alignment and in ninety degree relation to the olives of the other layer.

Fig. 11 is a side elevation of the fragmentary structure of Fig. 10 viewed at a position ninety degrees removed from the position viewed in Fig. 10.

Fig. 12 is an end view of the structure of Figs. 10 and 11, as viewed from line 12—12 of Fig. 10.

Fig. 13 is a fragmentary side elevation of an olive holding and ejecting subassembly illustrating a further modified form adapted concurrently to pack two layers of three olives each with the olives of each layer in one hundred twenty degree relation and in sixty degree relation with adjacent olives of the other layer.

Fig. 14 is an end view of the structure of Fig. 13 as viewed from line 14—14 thereof.

Provided for descriptive clarity, Fig. 15 is a side elevation of a bottle of stuffed olives as results from employment of the olive holding and ejecting subassembly of Figs. 1 to 9 inclusive.

Fig. 16 is a side elevation of a bottle of stuffed olives as results from employment of the olive holding and ejecting structure of Figs. 10 to 12 inclusive.

Fig. 17 is a horizontal section of the olive pack shown in Fig. 15 as taken on line 17—17 thereof.

Referring in greater detail to the drawings:

In Fig. 1, a support frame is indicated generally at 10 having a floor portion 11 supported on feet 12. Legs 13 are upwardly extended from the floor 11 and formed with inwardly turned brackets 14 in elevationally spaced relation to the floor 11. A table top 15 is rested on the brackets 14 and secured thereto as by the stub bolts 16. The table top has a bore 17 formed therethrough for purposes soon to be described.

An endless conveyor 20 of belt, link, or other suitable form is mounted for substantially horizontal travel beneath the table top 15 on drive rollers, one of which is illustrated at 21. Support rollers 22 are transversely mounted below the upper run of the conveyor as in bearing 23 supported by pillow blocks 24 mounted on the floor 11. The support rollers provide dependable maintenance of articles carried on the conveyor at a predetermined level.

In the device of the present invention, bottles 28 are carried along the conveyor 20 to a position in alignment with the bore 17. The bottles may be retained against continued travel with the conveyor by lubricating the surface of the conveyor and providing any of the well known synchronous holding means as employed in bottling, capping, labeling, and casing machines. There being many such retaining means well known in the art, no particular form is illustrated in the drawings.

Dependably to position the bottles 28 relative to the side edges of the conveyor 20 to facilitate alignment of the bottles with the bore 17, guides 29 are mounted between the legs 13 as by brackets 30. The guides are spaced to receive the bottles 28 therebetween and preferably lubricated so that a minimum of resistance to bottle movement is offered by the guides.

The preceding structure is essentially conventional and is described to facilitate explanation of the present invention through representation of a suitable operational environment. It is to be understood that the preceding structure in no way limits the present invention. Any manual or mechanical means for successively locating bottles in predetermined position and at predetermined elevations is considered suitable with which to employ the olive packing structure subsequently to be described.

Posts 35 are upwardly extended alongside the the table top 15 and conveniently may take the form of integral extensions of selected legs 13. A horizontal shelf 36 is conveniently provided integrally with the posts 35 at a position elevated above the table top 15. Vibration of the subsequently described structure mounted on the shelf 36 makes it desirable to brace the shelf as by means of a gusset plate 37.

A pillow block 40 is mounted on the shelf 36 as by stub bolts 41 and mounts a crank shaft 42 for horizontal rotational movement. The crank shaft is rotated by any suitable source of power, not shown. A crank arm 43 is radially extended from the crank shaft and provides a rotatable cam follower 44 axially parallel to the crank shaft 42 at the outer end of the crank arm.

An upwardly extended bracket 48 is mounted on the shelf 36 as by bolts 49 preferably approximately in the plane of the cam follower 44. An elongated drive arm 50 is pivotally mounted on the bracket 48 and provides an elongated camway 51 formed longitudinally thereof which receives the cam follower 44 of the crank arm 43. Rotation of the crank shaft 42 pivotally reciprocates the drive arm 50, the extended end of which rises and falls at a speed dependent upon the speed of crank shaft rotation.

A bracket box 55 is mounted on the posts 35 and provides a pair of vertically spaced slide bearings 56 vertically aligned between the bore 17 and the extended end of the drive arm 50.

A rod 60 is mounted in the slide bearings 56 for longitudinal slidable movement. The upper end of the rod is connected to the extended end of the drive arm by a link 61 pivotally connected therebetween. The means for mounting the rod 60 and elevationally reciprocating the same just described are also not intended to limit the device of the present invention but merely to illustrate a suitable mounting and driving means for the packing device of the present invention, there being innumerable satisfactory structures for the purpose and even manual operation being a marked improvement over the prior art.

The lower end of the rod 60 is provided with an enlarged head 63 conveniently of circular form and of a size adapted freely to pass through the bore 17. As shown in Figs. 2 to 5 and 8, a plurality of pairs of spaced resilient fingers 64 are mounted on the head, as by being soldered or welded thereto, and endwardly and downwardly extended from the rod. The pairs of fingers are arranged in a generally circular pattern in close proximity to each other. As evident in Figs. 10 to 14, any desired number of pairs of fingers may be employed. Each of the fingers preferably provides a resilient shank 65 and an article holding portion 66 curved to conform to the configuration of an article to be supported.

A spreader rod 67 is screw threadably mounted on the rod 60 and axially downwardly extended from the rod concentrically of the circular arrangement of the fingers 64 and at its lower end provides a downwardly enlarged frusto-conical portion 68.

A slide block 70, of cylindrical or other suitable form, is slidably mounted on the rod 60 above the head 63. The block preferably provides a radially disposed catch receptacle 71 clearly evident in Figs. 2 to 5 inclusively. A

cross head 72 having radially extended stops 73 is mounted below the head 63 with the stops 73 located between the fingers 64 of each pair, as by means of a pair of arms 74 integral with the cross head 72 and secured in dependent relation on the slide box 70 by screws 75, as shown in Fig. 2.

A collar 80 is mounted on the rod 60 below the slide block 70, as by a set screw 81. A helical spring 82 is provided under initial compression between the slide block and the collar, thus urging the slide block and the cross head 72 upwardly with the cross head engaged against the head 63 of the rod. Such relatively retracted position of the cross head is shown in Figs. 2 and 3. The cross head 72, its arms 74, and the slide block 70 comprise an ejector for articles held between the pairs of fingers 63 activated by relative movement of the fingers and the cross head in opposition to the forces of the compression spring 82.

As shown in Figs. 1, 2 and 6, a resilient catch 85 having detent portions 86 mounted for engagement with the receptacle 71 of the slide block 70 is mounted below the table top 15. The detents of the catch engage the receptacle 71 when the subassembly is lowered into a bottle, as shown in Fig. 3, and upon retraction of the rod 60 retains the slide block 70 and thus the cross head 72 in their lower limit of travel until the fingers 64 have been drawn upwardly alongside the stops 73, as shown in Fig. 4, ejecting articles held by the fingers in predetermined relative arrangement in the bottle, at which time the compression of the spring 82 overcomes the resiliency of the catch 85 and the slide block is returned upwardly on the rod retracting the cross head against the head 63 of the rod and preconditioning the apparatus for reloading.

Modified article packing and releasing structure

A modified form of article packing and releasing structure is shown in Figs. 10 to 12. This modification is adapted concurrently to pack two layers of two olives each with the olives of each layer in substantial alignment and in ninety degree relation to the olives of the other layer. As previously described, the rod 60 is provided with the enlarged head 63 at its lower end. Four pairs of fingers, similar to the fingers 64, are downwardly extended from the head 63 in generally circular arrangement. Two pairs of fingers 90, adapted to hold two olives or the like, in alignment at the same level, are downwardly extended from the head a distance appreciably greater than intermediate fingers 91 which are adapted to hold a pair of olives or the like, in alignment at a somewhat higher level to rest upon and across olives placed by the fingers 90.

A cross head 94 is mounted below the head 63, as previously explained, of the cross head 72. The cross head 94 provides downwardly extended stops 95 between the fingers 90 and stops 96 at a higher level between the fingers 91. In short, the stops 95 and 96 preferably bear the same elevational relationship to their respective fingers 90 and 91 as the stops 73 bear to the fingers 64. As before, a spreader rod 67 having the frusto-conical end portion 68 is screw threadably mounted in the head 63 concentrically of the fingers 90 and 91 and axially extended from the rod.

In the packing of stuffed olives and the like into containers therefor, it is desirable to provide as visually attractive a pack of olives in the container with a minimum of number of olives because of their high price. That is, the customer expects the container and its contents to be attractive, but prefers to buy the olives in small quantities. Thus, generally speaking, it is an object of all olive packers to provide a tight and attractive pack having a minimum of olives. The modified form of the article packing and ejecting means just described is adapted to pack two layers at a time in the arrangement of articles illustrated by the stuffed olives 97 in Fig. 16.

Second modified form of article packing and releasing structure

A further modification of the article packing and ejecting structure is illustrated in Figs. 13 and 14 adapted concurrently to pack two layers of three olives each with the olives of each layer in one hundred twenty degree relation to each other and in sixty degree relation to adjacent olives of their adjacent layer. In this form six pairs of fingers are mounted on the head 63 in generally circular arrangement and endwardly and downwardly extended therefrom. Three pairs of fingers indicated at 100 are downwardly extended similarly to the fingers 90 in the modified form just described. Intermediate the pairs of fingers 100 shorter pairs of fingers 101 similar to fingers 91 are provided. A cross head 102 is mounted below the head 63 on the arms 74 in the previously described manner. The cross head 102 provides downwardly extended stops 103 intermediate the fingers of each of the pairs 100 thereof and relatively higher stops 104 between the fingers of each of the pairs 101. When the first and second modified forms of the article packing and ejecting structure are employed in means for vertically reciprocating the same to and from bottles 28 successively located at a packing station, retraction of the fingers 90, 91, 100 and 101 prior to retraction of their respective stops 95, 96, 103, and 104 effectively ejects olives or other articles held by the fingers in predetermined arrangement in the bottles.

Operation

The operation of the present invention is believed to be clearly apparent and is briefly summarized at this point. Bottles 28 are successively located at a predetermined packing station by the conveyor 20 or any other suitable manual, mechanical or other means. Olives, cherries, pearl onions, or other articles to be packed are inserted between the fingers 64, 90, 91, 100, and 101 (dependent upon the type of pack desired) when the rod 60 is in its elevated position. The inserting of the articles between the fingers may be manually accomplished or by any suitable auxiliary mechanism not shown. When the fingers are loaded, rotation of the crank shaft 42 lowers the rod 60 into a bottle 28 located at the loading station until the ends of the fingers closely approach the bottom of the bottle. Upon return movement of the rod, the detents 86 of the catch 85 engage in the receptacle 71 of the slide block and retain the slide block and the cross head 72, 94 or 102 connected thereto in its lower limit of travel until upward movement of the rod has drawn the fingers alongside their respective stops 73, 95, 96, 103, or 104, ejecting the articles from between the fingers, as shown in Fig. 4. The spreader rod 67 moves upwardly with the rod 60 and as the articles are held downwardly by the stops, the frusto-conical portion 68 is drawn between the inner ends of the

articles, urging the same endwardly outwardly in the bottle. When stuffed olives are packed by the device of the present invention, they are loaded between the fingers with the pimiento or other stuffing radially disposed. The movement of the spreader rod upwardly between the inner ends of such olives urges the same radially outwardly effectively facing the stuffing against the walls of the bottle.

When the spreader rod has moved upwardly sufficiently to draw the frusto-conical portion **68** thereof from between the articles and urge the same outwardly, proper positioning of the collar **80** on the rod **60** causes compression of the spring **82** to overcome the resilience of the catch **85** releasing the slide block **70** and retracting the stops under the urging of the spring **82** against the head **63** and preconditioning the structure for reloading upon retraction from the bottle into the position shown in Fig. 1.

To load successive layers into the bottles, the bottles are either conveyed to successive loading stations at which the packing and ejecting structure is successively lowered into the bottles a distance less than the previously deposited layers or the bottles are completely loaded at a given station which provides for relative movement of the bottle and the packing mechanism, whereby successive layers are positioned therein. Such structures having the stepped elevation or depression of bottles and the stepped elevation of a mechanism utilized with such bottles are well known in the bottle filling, capping and sealing arts and thus are not described nor shown herein.

Successive operation of the subassembly shown in Figs. 2 to 5 to pack stuffed olives **97** into a bottle **28** achieves the pack shown in Fig. 15, there being four olives in each layer and corresponding olives of superimposed layers being aligned. As shown in Fig. 17, the resilience of the olives in their circular arrangement maintains them in position and urges each olive radially outwardly for facing engagement with the side of the bottle. After the olives are packed in the bottles, they are covered with a fluid and the bottles sealed in any suitable manner, as by caps **106**.

The employment of the packing and ejecting structure of Figs. 10 to 12 to pack stuffed olives **97** achieves a pack of the type shown in Fig. 16 in which there are two aligned olives in each layer and adjacent layers have their aligned olives disposed in right angular relation. The pack shown in Fig. 16 is loaded two layers at a time and corresponding olives of alternate layers are vertically aligned.

It is believed that the pack resultant from the structures of Figures 13 and 14 is self-evident. Each layer provides three olives in one hundred twenty degree relation with adjacent layers having their corresponding olives rested intermediate the olives of the lower layer.

Although frequent reference has been made herein to the packing of olives, it is to be understood that the present invention is not limited thereto, being excellently adapted to the packing of cherries, grapes, pearl onions, plums, anchovy-caper rolls, and other articles. Whether the packing and ejecting structures are pneumatically, electrically, mechanically, as demonstrated in Fig. 1, or manually operated, the present invention successfully achieves a more rapid packing and a resultant pack of greater uniformity. For example, even hand operation of the device of the present invention permits a packer to pack many times as fast, in actual tests frequently achieving ten to fifteen times the output in a day attainable by conventional hand packing methods. The greater packing speed greatly reduces the labor cost incident to hand packing and thus makes available stuffed olives and the like packed in the described manner at a materially reduced price.

Although the invention has been herein shown and described in what is conceived to be the most practical and preferred method and embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices and structures.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A packing device, adapted simultaneously to place a plurality of articles in predetermined circular arrangement in a container therefor and to urge the articles radially outwardly in their circular arrangement, comprising an elongated rod, a spreader having an enlarged end portion endwardly extended from the rod, a plurality of fingers endwardly extended from the rod in a circular arrangement concentrically of the spreader adapted to receive articles therebetween, means mounting the rod and endwardly reciprocating the same between a loading station and a packing station, and means responsive to endward reciprocation of the rod for restraining the articles at the packing station upon return movement of the rod therefrom while the fingers are withdrawn from the articles and the enlarged end of the spreader is withdrawn from between the circular arrangement of said articles urging said articles radially outwardly of their circular arrangement.

2. An automatic packing device adapted simultaneously to place a plurality of articles in predetermined relation in containers therefor comprising an elongated member, a spreader endwardly extended from the member and terminating in an enlarged end portion, a plurality of pairs of elongated spring fingers endwardly extended from the member in a substantially circular arrangement concentrically of the spreader, means having driving connection with the member adapted reciprocally to position the same so as to carry the fingers and spreader simultaneously back and forth between predetermined loading and packing stations, and means for restraining the articles at the packing station during return movement of the fingers toward the loading station until said articles are removed from the fingers and thrust radially by movement of the enlarged end of the spreader upwardly therebetween.

3. An automatic olive packing device comprising an elongated rod, frame means mounting the rod for reciprocal longitudinal travel between predetermined limits, a spreader integral with the rod and endwardly extended therefrom terminating in an endwardly enlarged frusto-conical portion, a plurality of pairs of spaced resilient fingers endwardly extended from the rod concentrically of the spreader, each pair of fingers in cooperation with the spreader being adapted releasably to hold an olive therebetween in predetermined relation to olives held between the spreader and other pairs of fingers, an ejector having stops disposed between the fingers slidably mounted on the rod for reciprocal movement thereon between an extended position with

the stops adjacent to the ends of the fingers and a retracted position with the stops adjacent to the end of the rod from which the fingers are extended, resilient means mounted on the rod in engagement with the ejector urging the ejector into retracted position, said ejector being formed with a catch receptacle in a side thereof, and a resilient catch mounted in the frame means for engagement with the receptacle of the ejector to restrain the ejector against return movement thereof with the rod from the limit of travel in the direction of finger extension.

4. In a packing device, the combination of means for resiliently clasping a plurality of articles to be packed and releasably supporting the articles in a predetermined generally annular arrangement, a rod-like spreader mounted in unitary relation with the clasping means concentrically of the predetermined annular arrangement of the articles and providing a frusto-conical end portion adjacent to the clasping means, means for reciprocating the article clasping means and the spreader between predetermined loading and packing stations, and an ejector engageable with articles at the packing station resiliently clasped by the clasping means to retain the articles at the packing station upon return movement of the clasping means and ejector therefrom.

5. In a packing device, the combination of a mounting member, an elongated rod-like spreader mounted on the mounting member and having an enlarged extended end of substantially frusto-conical form, cooperative pairs of elongated juxtapositioned concave spring fingers mounted on the mounting member and extended therefrom in substantially parallel relation to the spreader in a substantially circular arrangement concentrically about the spreader, the fingers of each pair being in substantially symmetrical relation to a line radial to the spreader passed there between, and an ejector slidably mounted on the spreader for reciprocal movement longitudinally thereof having portions extended between the fingers of each pair.

6. In an automatic packing device having a support frame, an elongated rod slidably mounted in a substantially erect position in the frame, driving means connected to the rod for vertical reciprocation thereof between predetermined upper and lower limits of travel, a rod-like spreader downwardly extended from the rod, spring fingers mounted on the rod for unitary elevational movement therewith in an arrangement concentric to the spreader and defining article receiving compartments therebetween radially related to the spreader, the spreader having a lower end providing article engaging surfaces directed downwardly and radially of the spreader adjacent to the compartments, a crosshead having portions extended between the fingers slidably mounted on the spreader, a slide block slidably mounted on the rod in spaced relation to the lower end thereof, arms interconnecting the crosshead and the slide block in predetermined spaced relation, a collar mounted on the rod intermediate the slide block and the lower end of the rod, a compression spring mounted in circumscribing relation on the rod between the collar and the slide block urging the slide block upwardly on the rod, said slide block having a detent receptacle formed therein, and a resilient detent mounted in the frame in a position engageable with the detent receptacle at the lower limit of travel of the rod.

7. In a packing device having a frame and being adapted to place a plurality of articles in predetermined relation in containers therefor, a rod mounted in a substantially erect position in the frame, means for elevationally reciprocating the rod between predetermined upper and lower limits of travel, a plurality of pairs of spaced resilient fingers downwardly extended from the rod in substantially circular arrangement, the fingers of each pair being adapted resiliently to hold an article therebetween in predetermined relation to articles held by the other fingers, a spreader downwardly extended from the rod concentrically of the fingers and having a downwardly enlarged frusto-conical end portion, an ejector having stops disposed between the fingers slidably mounted on the rod for relative movement thereon between an upper limit with the stops adjacent to the upper ends of the fingers and a lower limit with the stops adjacent to the lower ends of the fingers, resilient means mounted on the rod in ejector engagement urging the ejector upwardly on the rod, and a resiliently releasable catch mounted in the frame in a position engageable with the ejector at the lower limit of travel of the rod adapted to restrain the ejector against upward movement thereof with the rod until said rod is drawn upwardly a distance sufficient to carry the lower ends of the fingers into adjacent relation to the stops and release the articles held by the fingers.

8. In an automatic packing device having a support frame, an elongated rod slidably mounted in a substantially erect position in the frame, driving means connected to the rod for vertical reciprocation thereof between predetermined upper and lower limits of travel, a rod-like spreader downwardly extended from the rod having a substantially frusto-conical enlarged lower end, cooperative pairs of elongated spring fingers mounted on the rod and downwardly extended therefrom in substantially parallel relation to the spreader in a substantially circular arrangement concentric to the spreader, the fingers of each pair being in substantially symmetrical relation to a line radial of the spreader passed therebetween, a crosshead having portions extended between fingers of each pair slidably mounted on the spreader, a slide block slidably mounted on the rod in upwardly spaced relation to the lower end thereof, a pair of arms interconnecting the crosshead and the slide block in predetermined spaced relation, a collar fixedy mounted on the rod intermediate the slide block and the lower end of the rod, a compression spring mounted in circumscribing relation on the rod between the collar and the slide block urging the slide block upwardly on the rod to draw the crosshead into engagement with the lower end of the rod, said slide block having a detent receptacle formed therein, and a resiliently releasable detent mounted in the frame in a position engageable with the detent receptacle at the lower limit of travel of the rod adapted to restrain the slide block against upward movement thereof with the rod upon upward movement of the rod from the lower limit of travel thereof.

9. In an automatic packing device having a support frame, an elongated rod slidably mounted in a substantially erect position in the frame having an enlarged lower end portion, driving means connected to the rod for vertical reciprocation thereof between predetermined upper and lower limits of travel, a rod-like spreader downwardly extended from the rod having a substantially frusto-conical enlarged lower end, coopera-

tive pairs of elongated spring fingers mounted on the rod and downwardly extended therefrom in substantially parallel relation to the spreader in a substantially annular arrangement concentric to the spreader, the fingers of each pair being in substantially symmetrical relation to a line radial of the spreader passed therebetween, alternately successive pairs of the fingers in the annular arrangement defining article receiving compartments radially related to the spreader in a common plane normal to the spreader and intermediate pairs of fingers similarly defining article receiving compartments radially related to the spreader in a common plane vertically spaced from the plane of the first said alternately successive pairs of fingers, a crosshead having stops extended between the fingers of each pair in abutting relation with the lower end of the rod for reciprocal movement longitudinally of the spreader, the stops extended between the fingers of said alternately successive pairs thereof being in a common plane and the intermediate stops being in a common plane elevationally spaced therefrom correspondingly to the elevational spacing of the planes of their respective pairs of fingers, a slide block slidably mounted on the rod in spaced relation to the lower end thereof, a pair of arms interconnecting the crosshead and the slide block in predetermined spaced relation, a collar mounted on the rod intermediate the slide block and the lower end of the rod, a compression spring mounted in circumscribing relation on the rod between the collar and the slide block urging the slide block upwardly on the rod to draw the crosshead into engagement with the lower end of the rod, said slide block having a detent receptacle formed therein, and a resilient detent mounted in the frame in a position engageable with the detent receptacle at the lower limit of travel of the rod adapted releasably to restrain the slide block against upward movement thereof with the rod.

10. A packing device adapted automatically to place a plurality of articles in predetermined relation in containers therefor comprising an elongated spreader having an enlarged end portion, a plurality of pairs of spaced elongated spring fingers arranged concentrically of the spreader in a substantially circular pattern, means for simultaneously reciprocating the spreader and fingers endwardly between predetermined loading and packing stations, stops mounted for reciprocal movement longitudinally between the fingers, resilient means urging the stops toward the ends of the fingers opposite to the enlarged end of the spreader, and means for restraining the stops against movement during initial return movements of the spreader and the fingers from the packing station to eject the articles from between the fingers and to thrust the same outwardly by movement of the spreader upwardly therebetween.

11. An automatic olive packing device comprising an elongated rod, frame means mounting the rod for reciprocal longitudinal travel between predetermined limits, a plurality of pairs of spaced resilient fingers endwardly extended from the rod concentrically in an annular arrangement, each pair of fingers being adapted releasably to hold an olive therebetween in predetermined relation to olives held between other pairs of fingers, an ejector having stops disposed between the fingers slidably mounted on the rod for reciprocal movement thereon between an extended position with the stops adjacent to the ends of the fingers and a retracted position with the stops adjacent to the end of the rod from which the fingers are extended, resilient means mounted on the rod in engagement with the ejector urging the ejector into retracted position, said ejector being formed with a catch receptacle in a side thereof, and a resilient catch mounted in the frame means for engagement with the receptacle of the ejector to restrain the ejector against return movement thereof with the rod from the limit of travel in the direction of finger extension.

12. In an automatic packing device having a support frame, an elongated rod slidably mounted in a substantially erect position in the frame, driving means connected to the rod for vertical reciprocation thereof between predetermined upper and lower limits of travel, spring fingers mounted on the rod for unitary elevational movement therewith in an arrangement concentric to the rod and defining article receiving compartments therebetween radially related to the rod, a crosshead having portions extended between the fingers slidably mounted on the spreader, a slide block slidably mounted on the rod in spaced relation to the lower end thereof, arms interconnecting the crosshead and the slide block in predetermined spaced relation, a collar mounted on the rod intermediate the slide block and the lower end of the rod, a compression spring mounted in circumscribing relation on the rod between the collar and the slide block urging the slide block upwardly on the rod, said slide block having a detent receptacle formed therein, and a resilient detent mounted in the frame in a position engageable with the detent receptacle at the lower limit of travel of the rod.

13. In an automatic packing device having a support frame, an elongated rod slidably mounted in a substantially erect position in the frame, driving means connected to the rod for vertical reciprocation thereof between predetermined upper and lower limits of travel, cooperative pairs of elongated spring fingers mounted on the rod and downwardly extended therefrom in a substantially circular arrangement concentric to the rod, the fingers of each pair being in substantially symmetrical relation to a line radial of the rod passed therebetween, a crosshead having portions extended between fingers of each pair slidably mounted on the spreader, a slide block slidably mounted on the rod in upwardly spaced relation to the lower end thereof, a pair of arms interconnecting the crosshead and the slide block in predetermined spaced relation, a collar fixedly mounted on the rod intermediate the slide block and the lower end of the rod, a compression spring mounted in circumscribing relation on the rod between the collar and the slide block urging the slide block upwardly on the rod to draw the crosshead into engagement with the lower end of the rod, said slide block having a detent receptacle formed therein, and a resiliently releasable detent mounted in the frame in a position engageable with the detent receptacle at the lower limit of travel of the rod adapted to restrain the slide block against upward movement thereof with the rod upon upward movement of the rod from the lower limit of travel thereof.

14. In an automatic packing device having a support frame, an elongated rod slidably mounted in a substantially erect position in the frame having an enlarged lower end portion, driving means connected to the rod for vertical reciprocation thereof between predetermined upper and lower limits of travel, cooperative pairs of elon-

gated spring fingers mounted on the rod and downwardly extended therefrom in a substantially annular arrangement, the fingers of each pair being in substantially symmetrical relation to a line radial to the annular arrangement of the fingers, alternately successive pairs of the fingers in the annular arrangement defining article receiving compartments radially related to the annular arrangement in a common plane normal to the rod and intermediate pairs of fingers similarly defining article receiving compartments radially related to the annular arrangement in a common plane vertically spaced from the plane of the first said alternately successive pairs of fingers, a crosshead having stops extended between the fingers of each pair in abutting relation with the lower end of the rod for reciprocal movement longitudinally of the spreader, the stops extended between the fingers of said alternately successive pairs thereof being in a common plane and the intermediate stops being in a common plane elevationally spaced therefrom correspondingly to the elevational spacing of the planes of their respective pairs of fingers, a slide block slidably mounted on the rod in spaced relation to the lower end thereof, a pair of arms interconnecting the crosshead and the slide block

in predetermined spaced relation, a collar mounted on the rod intermediate the slide block and the lower end of the rod, a compression spring mounted in circumscribing relation on the rod between the collar and the slide block urging the slide block upwardly on the rod to draw the crosshead into engagement with the lower end of the rod, said slide block having a detent receptacle formed therein, and a resilient detent mounted in the frame in a position engageable with the detent receptacle at the lower limit of travel of the rod adapted releasably to restrain the slide block against upward movement thereof with the rod.

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