

Dec. 1, 1959

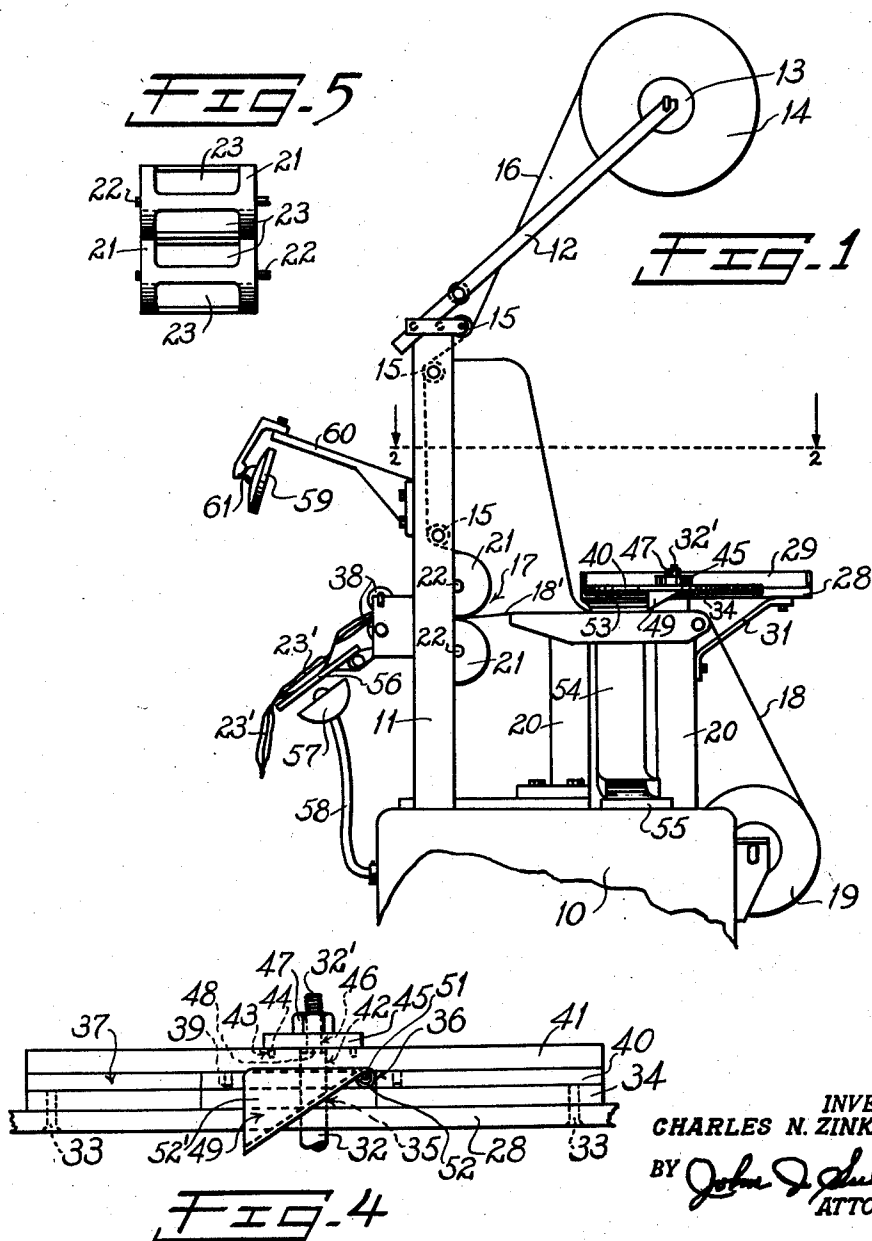
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2,914,896

DEVICE FOR PACKAGING MACHINES

Filed March 18, 1959

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 3

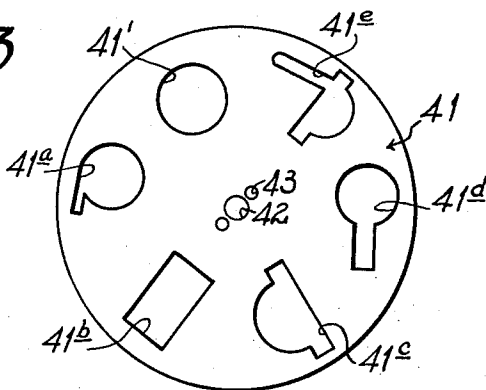
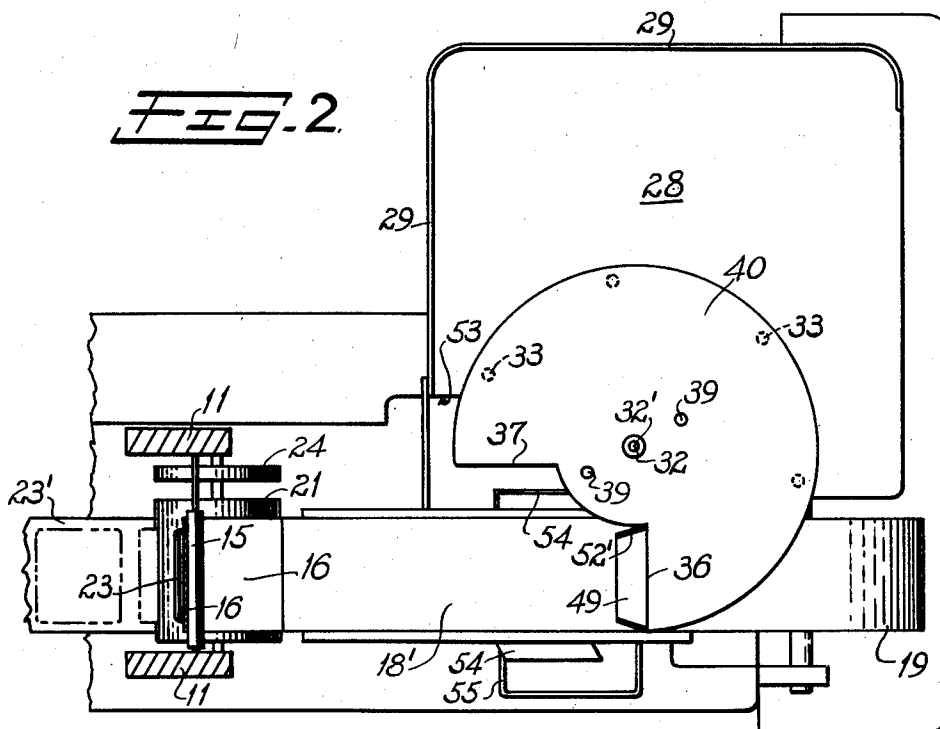


FIG. 2



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DEVICE FOR PACKAGING MACHINES

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10 Claims. (Cl. 53—78)

This invention relates broadly to packaging or wrapping machines and more particularly to means facilitating the feed operation of such machines, including a device by which items to be wrapped or packaged are automatically disposed in the required position for conveyance to the wrapper at prescribed intervals corresponding to the wrapping operation of the machine.

The instant invention is especially concerned with wrapping machines for relatively small and variously shaped parts or items such as, for example, nuts, bolts, springs, gaskets, etc. These machines commonly employ a conveyor upon which the parts to be wrapped are individually placed. The conveyor carries the part to an associated mechanism where it is packaged and sealed in a wrapper for shipment.

In order to properly space each item to be packaged on the conveyor so that the timing of its arrival at the wrapping mechanism corresponds to the operation of that mechanism, a rotary feed disc has been employed. This disc is mounted for rotation on an underlying stationary table adjacent the conveyor and is provided with a plurality of properly spaced slots into each of which the operator places a part. As the disc is rotated each part, in turn, as it passes over the conveyor is transferred from the disc to the conveyor.

In this operation it is required that many of the parts such as bolts, screws, etc., be heavily coated with grease, cosmoline, or the like prior to packaging. At the same time, many parts like springs, gaskets, etc., must be packaged dry. When a series or run of greased parts is complete and the next run is to be of dry parts, all dirt, moisture and grease on the disc and/or underlying table must be removed. This requires removal of the particular machine from operation, cleaning of the disc and table with appropriate solvents, detergents, etc., and allowing the machine thus cleaned to thoroughly dry prior to its return to operation. During such cleaning, the structure, parts, and operating mechanism of the machine are invariably subjected to and affected by the cleaning materials which can and have caused substantial damage thereto.

Moreover, in most of these machines the construction is such that two operators are required, one at the feed side and the other at the outlet side. Otherwise, a single operator working at the feed side of the machine must periodically leave his station to inspect the outlet side of the machine to insure the proper packaging of the articles.

In addition, the slots provided in the disc have been of a standard configuration, i.e., a configuration adapted to take a variety of sizes and shapes of parts. To this end, circular holes have heretofore commonly been employed. While the circular configuration has proved to be the best single shape for the variety of parts to be wrapped, it presents many problems, particularly when the part being packaged happens to be oblong, e.g., bolts, springs, etc. Such parts have a tendency during rotation of the disc to reorient themselves and ultimately

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be disposed upon the conveyor in any number of chance positions, many of which are either not suitable for proper wrapping or prone to fall from the conveyor.

The subject invention was conceived as an improvement in the foregoing operation and proposes broadly a reconstruction of certain components of the feed mechanism whereby each of the above and other shortcomings of existing wrapping machines have been eliminated.

To this end, it was conceived to removably mount on the stationary supporting table a protective plate upon which the rotary disc is mounted during the operation. Thus, upon the completion of a run of wet or greased parts, the disc and protective plate may be removed from the machine and a fresh plate and disc substituted therefor with substantially no interruption in production. The removed or dirty disc and plate may be set aside for subsequent use in connection with a later run of wet parts or cleaned and/or stored for subsequent use.

At the same time, it is proposed that multiple discs be employed, each having a number of identical slots particularly designed and adapted for a specific part to be wrapped. When the part is located in the disc it is held substantially immovable therein during the rotary operation of the disc whereby such part is delivered to the conveyor.

In order to permit a single operator stationed at the feed side of the machine to perform the entire wrapping operation without assistance, the invention further contemplates the provision of means to permit him continuously to monitor and thereby control the wrapped packages as they leave the machine. For this purpose a lamp is mounted at the outlet side of the machine below and adjacent the packaged articles as they leave the machine. A mirror is located on the opposite side of and above such packages whereby the operator viewing the mirror will see the part or its outline in the package as it leaves the machine, due to the magnitude of illumination of the lamp against the package.

With the above and other objects in view, as will be apparent, this invention consists in the construction, combination and arrangement of parts all as hereinafter more fully disclosed, claimed and illustrated in the accompanying drawings, wherein:

Fig. 1 is a side elevation of that portion of a relatively common wrapping machine which the instant invention proposes to modify to show the incorporation of the proposed improvements therein by which the entire feed operation is facilitated;

Fig. 2 is a view taken along line 2—2 of Fig. 1 to show the protective plate contemplated herein removably disposed and positioned on the supporting table of the machine in association with the conveyor by which the parts to be packaged are delivered to the wrapping mechanism;

Fig. 3 is a plan view of a single rotary feed disc provided with a variety of different sized and shaped slots therein for simplicity of illustration, it being understood that any one of these and other shapes and sizes may be used in a particular disc to receive and retain a corresponding part to be handled by the machine;

Fig. 4 is a detail at a substantially enlarged scale of the present protective plate and disc mounted on the supporting table of the feed mechanism illustrated in Fig. 1; and

Fig. 5 is a detail in elevation of the coacting rollers of the wrapping and sealing mechanism of the machine.

Referring more particularly to the drawings, the wrapping machine illustrated and representative of the general type of machine which the present invention proposes to improve comprises a stationary base 10 in

which the operating machinery is enclosed. At one end of this base 10 is mounted an upstanding frame or support 11 at the outer end of which is connected an adjustable extension 12 carrying a freely rotatable roller 13. A spool of wrapping paper 14 is adapted to be mounted on the roller 13.

A plurality of rollers 15 similar in every respect to the roller 13 is mounted on and carried by the support 11 in spaced parallel relation one to the other and to the roller 13. The paper 14 from its spool passes around each of the rollers 15 in the conventional manner to facilitate its unrestricted movement in a continuous sheet 16 from the spool to the associated wrapping or packaging mechanism 17 carried by the support 11 adjacent its lower or fixed end.

Also being delivered to the wrapping mechanism 17 is a continuous sheet of wrapping paper 18 from a second spool 19. This spool of paper 19 is mounted on a roller like 13 carried by the base 10 at the opposite end thereof with reference to the support 11. One or more intermediate rollers 15' equivalent to the rollers 15 are mounted on and carried by the base each in parallel position relative to the other and to the spool 19 over which the sheet 18 passes and is fed into the wrapping mechanism 17.

More specifically, a roller 15' is disposed in alignment with and spaced from the inlet to the wrapping mechanism 17. The sheet 18, therefore, extends from the spool 19 around the roller 15' and into the wrapping mechanism 17, that portion of the sheet 18 between the roller 15' and the wrapping mechanism 17 being disposed in a horizontal plane. The portion 18' of the sheet 18 thereby constitutes a belt or conveyor for the successive parts to be wrapped, as will become more apparent. Suitable supporting structure 20 carried by and extending from the base 10 may be employed to mount the roller or rollers 15'.

The wrapping mechanism includes a pair of parallel, vertically aligned rollers 21, each mounted on an independent shaft 22 carried by the support 11. Corresponding portions of the surfaces of the rollers 21 are formed or otherwise provided with medial recesses or pockets 23, the pockets of one roller being adapted to align with a pocket of the other roller. Thus, the companion pockets of the rollers 21 cooperate to receive and permit the free passage therethrough of a part or group of parts being wrapped. The remaining surfaces, i.e., the surfaces of the rollers 21 defining the pockets 23, are tangent to and in abutment with each other. The rollers 21 are driven by suitable mechanism, which per se forms no part of the present invention, in opposite directions whereby the sheets 16 and 18 are withdrawn or pulled from their respective spools 14 and 19 into and through the wrapping mechanism 17 with their longitudinal edges aligned. To this end a gear 24 mounted on and carried by each shaft 22 is connected to the operating or drive mechanism within the base 10 by suitable means, such as a gear train or the like.

The paper 14 and 19 commonly employed in this machine includes a coating or liner on one face thereof of thin polyethylene, vinyl, or equivalent synthetic resin material. The sheets 16 and 18 are so mounted on their respective spools 14 and 19 that the lined or plasticized faces thereof are disposed adjacent to one another. Heat is applied to one of the rollers 21 in any one of a variety of ways, usually electrically, so that when the sheets 16 and 18 move through the rollers as above described the passage of heat from the hot to the cold roller fuses that portion of the plasticized sheets between the abutting surfaces of the rollers 21. The sheets are thereby sealed one to the other to form a number of successive packages 23' having a central compartment for the part corresponding to the pockets 23.

Mounted adjacent and to one side of the conveyor sheet 18' is a work surface 28 defined on its outer sides by an

upstanding flange 29. The supports 20 mounted on and carried by the base 10 together with appropriate arms or brackets 31 connected between such supports 20 and the surface 28 serve to secure the surface to the machine. The parts to be wrapped are disposed on this surface 28 and the flange 29 prevents their falling therefrom.

Adjacent the edge of the surface 28 near the conveyor sheet 18' is a vertical shaft 32 which extends from the base 10 and projects above the surface 28. The drive mechanism located in the base 10 already referred to for movement of the rollers 21 is also operatively connected to the shaft 32 and serves to rotate it in a clockwise direction, Fig. 2. The interconnection of the rollers 21 and shaft 32 in this way causes their coordinated or synchronized rotation for reasons to become more apparent.

Overlying the surface 28 and immovably secured thereto by a plurality of bolts or pins 33 is a stationary supporting table 34 which extends beyond one edge of the surface 28 to thereby overlie the conveyor sheet 18'. The table 34 is generally circular and is pierced at its center by a hole 35 for the passage therethrough of the shaft 32. A portion or segment of the table 34 adjacent the periphery thereof is removed to provide a radial edge 36 overlying and transversely disposed of the conveyor sheet 18' and a second radial edge 37 at right angles to the first on the near side thereof with reference to the rollers 21.

The foregoing describes in essence the structure of a wrapping or packaging machine commonly in use. A rotary disc having circular holes therein adjacent its periphery is mounted on and keyed to the shaft 32 for rotation therewith. An operator or workman standing at the surface 28 can place the individual parts to be wrapped in the holes of the disc on the table 34. Rotation of the disc moves the parts to the edge 36 where they fall from the table 34 onto the underlying conveyor strip 18' which conveys them to and through the rollers 21 where they are wrapped and sealed prior to shipment and/or storage.

This conventional machine is further provided with a pair of spaced parallelly disposed rollers 38 adjacent to and in alignment with the rollers 21 to receive the successive packages 23' as they leave the machine and direct them away from the machine. This prevents their tumbling and falling into and between the machine structure and base 10.

The present invention proposes to modify a substantial portion of the feeding mechanism set forth above and to materially improve and facilitate the entire operation of the type of wrapping machine herein considered. To this end, a number of upright studs 39 are integrally formed on or otherwise connected to the table 34. An intermediate plate 40 substantially identical in area and shape to the supporting table 34 is provided. This plate 40 is formed with a corresponding number of recesses or perforations, one adapted to receive each pin or bolt 39 projecting from the table 34 whereby the plate 40 and table are disposed in face to face abutment with the corresponding edges thereof registering one with the other. The length of the pins 39 is such that they terminate below the upper surface of the plate 40 when operatively disposed on the table 34.

A plurality or series of discs 41 each having a diameter substantially equal to the table 34 and intermediate plate 40 are provided in lieu of the standard disc heretofore employed. Each of these discs 41 is pierced by a plurality of slots, 41', 41a, 41b, 41c, 41d or 41e adjacent its peripheral edge, each slot in the same disc being identical to the other slots of that disc. For simplicity of illustration, a single disc 41 with a variety of such slots is illustrated in Fig. 3. The slot 41' is especially adapted for gaskets or circular objects, while the slots 41a and 41d are adapted to handle elongated as well as circular objects. Slot 41b, on the other hand, is especially adapted for square or rectangular items, and slots

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41c and 41e oblong items to be disposed on the conveyor 18' and delivered to the rollers 21 at various angles.

At its center each disc 41 is pierced by a hole 42 substantially equal in diameter to the shaft 32 which is adapted to pass therethrough. Adjacent the hole 42 each disc 41 is further provided with keyholes or slots 43. These holes 43 correspond in size and location to coacting or mating keys or studs 44 carried by and depending from one face of a collet 45. The collet 45 is pierced centrally by a hole 46 adapted to receive the reduced threaded end 32' of the shaft 32 which projects through the collet 45 for cooperation with a nut 47 in the usual fashion. The collet 45 is further provided with a central depending boss-like bearing 48 having a diameter equal to that of the shaft 32.

Thus, when an intermediate plate 40 is disposed on the table 34 with the studs 39 of the table seated in the corresponding holes of the plate, the plate 40 is secured to the table against relative rotary movement. A selected disc 41 is then disposed on the shaft 32 with its lower face in substantial abutment against the adjacent face of the plate 40. The collet 45 is then placed on the shaft with its keys 44 in alignment with and projecting into the holes 43 of the disc 41. At the same time, bearing 48 of the collet 45 extends into the central hole 42 in the disc 41 and abuts the edge surface of the shaft 32 defining the reduced end 32' of the shaft. Tightening of the nut 47 on the threaded end 32' thereby secures the disc 41 to the shaft 32 for rotation therewith relative to the stationary table 34 and plate 40.

With the selected disc 41 thus assembled, operation of the machine motor and drive mechanism rotates the rollers 21 (Fig. 1) in opposite directions and the disc 41 relative to the stationary plate 40 (Fig. 2) in a clockwise direction. The parts to be wrapped, for example, bolts, are placed by the operator one in each of the slots 41c. As the disc 41 thus rotates, the slots 41c pass one by one over the edge 36 of the underlying plate 40 and are deposited onto the conveyor sheet 18' which is concurrently being withdrawn from the roll 19 by the rotation of the rollers 21.

A removable ramp 49 is connected to the plate 40 adjacent the edge 36 to facilitate the transfer of each part or bolt from the surface of the plate to the lower surface of the sheet 18'. To this end a rod 51 is fixedly secured to the edge of the plate 40 by any known means to be disposed parallel to the edge 36. The ramp 49 terminates in a curled or looped edge portion 52 adapted to slide over the rod 51 with the ramp 49 forming a substantial continuation of the upper surface of the plate 40 at one side and resting on the sheet 18' at its other side. Ramps 49 of various slopes or angles depending upon the particular item or part being wrapped may thereby be employed to maintain the part properly oriented in the transfer from plate surface to conveyor surface. Each ramp 49 is also tapered toward its lower end and defined on opposed sides by the flanges 52' for this purpose.

The edge 37 of the plate 40 and underlying table 34 is disposed in spaced vertical relation to the conveyor strip 18' and the underlying portion of the surface 28 is removed as at 53. One end of a duct or chute 54 is disposed adjacent the conveyor sheet 18' in the space 53 to receive parts falling therefrom inwardly of the machine. At its other end the chute 54 terminates in an outlet at the top of base 10 and a bin or tray 55 defines a localized area of the base adjacent the chute outlet 52.

It has been learned in practice that the majority of parts falling from the conveyor sheet 18' do so at the transfer point between the plate 40 and the conveyor 18'. The chute 54 is disposed adjacent the conveyor sheet 18' in alignment with the path of rotation of the disc 41 whereby parts tumbling at the ramp 49 will be carried or pushed by the disc as it continues to rotate and will fall into the chute 54.

As the parts to be wrapped are thus delivered from

the disc 41 to the conveyor sheet 18', the rollers 21 pull both sheets 16 and 18 from their respective spools 14 and 19 between the rollers 21 and the part resting on the sheet 18' passes into the recesses 23 between the rollers. As each part passes between the rollers 21 the flow of heat from the hot to the cold roller 21 seals the part between the adjacent sheets of paper 16 and 18 and the part thus packaged leaves the wrapping mechanism 17 through the rollers 38.

On the outlet side of the wrapping mechanism 17 adjacent the rollers 38 a guide or plate 56 is disposed at a selected angle to supplement the operation of the rollers 38 in directing the packages away from the machine to prevent an entanglement thereby. At the same time, this plate 56 is employed for another purpose. To this end, the plate 56 is fabricated of transparent material such as, for example, clear Lucite, and a lamp 57 is disposed adjacent the under surface thereof. The lamp 57 is the so-called "goose-neck" type, i.e., mounted on the end of and carried by a flexible arm 58 connected at its opposite end to the base 10. A reflector or mirror 59 is mounted on the end of a fixed bracket 60 connected to and projecting from one of the uprights 11. The mirror 59 is adjustable through a ball joint socket 61 whereby the operator may position it to the suitable angle whereby he may without leaving his station at the feed side of the machine view the several packaged parts leaving the wrapping mechanism. Illumination of the lamp 57 is such that it passes through packages and thereby outlines the parts therein.

From the foregoing it is apparent that the operation of the existing wrapping machine of the type described has been materially improved hereby. By the provision of the removable plate 40 fixedly secured to the table 34 no loss of the machine from production occurs when a run of greased parts is followed by a run of dry parts. In this case it is necessary only that the nut 47 be removed from the end 32' of the shaft 32 whereupon the collet 45 and disc 41 are removable from the assembly. A fresh plate 40 and/or disc 41 may be thereafter disposed on the shaft and secured thereto by the collet 45 and nut 47 as before.

Moreover, with the plate 56, lamp 57, and mirror 59 properly adjusted, a single operator feeding parts from the work surface 28 to the rotary disc 41 has a complete view of the packaged parts leaving the wrapping mechanism 17. It is, therefore, possible for him to constantly inspect each package 23' leaving the machine with no interruption in the feeding operation to insure the proper wrapping for shipment of each part therein.

What is claimed is:

1. In combination with a packaging machine of the type described having a stationary supporting table with a peripheral edge portion overlying a conveyor and a portion of said edge portion removed, of a plate conforming substantially in shape and area to said table, releasable engagement means between the table and said plate to secure them against relative movement in face to face abutment with their edges aligned, and a rotary disc overlying and in substantial face to face abutment with said plate, said disc being pierced adjacent its peripheral edge by a number of holes each adapted to confine a part to be packaged resting on the plate between its edges during rotation of the disc whereby said part is deposited on the conveyor when it overlies the removed portion of the table and plate during its rotation.

2. In combination with a packaging machine of the type described having a stationary supporting table partially overlying a conveyor and defined by an edge transversely disposed relative to the conveyor, of a plate conforming substantially in shape and area to said table, releasable engagement means between the table and said plate to secure them against relative movement in face to face abutment with their edges aligned, a ramp contiguously disposed between the surfaces of the plate adjoining the

transverse edge aforesaid and conveyor, and a rotary disc overlying and in substantial face to face abutment with said plate, said disc being pierced adjacent its peripheral edge by a number of holes each adapted to confine a part to be packaged resting on the plate between its edges during rotation of the disc whereby said part is delivered to the ramp and thereby deposited onto the conveyor.

3. In combination with a packaging machine of the type described having a stationary supporting table with a peripheral edge portion overlying a conveyor and a portion of said edge portion removed, of a number of plates each conforming substantially in shape and area to said table and having a plurality of openings in one of its faces, a corresponding number of upstanding fixed studs on the top of said table, one adapted to project into each opening in one of said plates whereby the table and that plate are secured against relative movement in face to face abutment with their edges aligned, and a series of interchangeable rotary discs each adapted to be disposed one at a time on and in substantial face to face abutment with said plate, said discs being pierced adjacent their peripheral edges by a number of holes adapted to confine parts to be packaged resting on the plate when that disc is disposed in abutment with the plate as aforesaid whereby said parts are deposited on the conveyor at predetermined spaced intervals during rotation of the disc when the holes therein are located over the removed portion of the table and plate.

4. In combination with a packaging machine of the type described having a stationary supporting table partially overlying a conveyor and terminating in an edge transversely disposed relative to the conveyor, of a plate conforming substantially in shape and area to said table and pierced by a pair of holes, an upstanding fixed stud on the top of said table complementary to each hole in said plate for projection therein whereby the table and plate are secured against relative movement in face to face abutment with their edges aligned, and a rotary disc disposed in substantial face to face abutment with said plate, said disc being pierced adjacent its peripheral edge by a number of holes each adapted to confine a part to be packaged resting on the plate between its edges whereby each part is moved by rotation of the disc over the transverse edge of the table and plate aforesaid and is deposited on the conveyor at predetermined spaced intervals.

5. In combination with a packaging machine of the type described having a generally circular, stationary, supporting table with a segment adjacent its peripheral edge removed creating radial edges, one disposed transversely of an underlying conveyor and the other parallel to and vertically spaced from said conveyor, of a plate conforming substantially in shape and area to said table, releasable engagement means between the table and said plate to secure them against relative movement in face to face abutment with their edges aligned, ramp means contiguously disposed between the transverse radial edge aforesaid and the surface of the conveyor, a chute having an inlet opening at one of its ends adjacent the conveyor in the space between the conveyor and the parallel edge aforesaid and an outlet at its other end opening into a remote confined area below the table, and a rotary disc overlying and in substantial face to face abutment with said plate, said disc being pierced adjacent its peripheral edge by a number of holes each adapted to engage a part to be packaged resting on the plate during rotation of the disc and convey said part to the ramp for delivery thereby to the conveyor, such parts as might remain in the plane of the disc being moved thereby to the inlet of said chute for delivery thereby to the confined area aforesaid.

6. In combination with a packaging machine of the type described having a generally circular, stationary, supporting table with a peripheral edge portion overlying a conveyor and a portion of said edge portion removed to

create a first radial edge transversely disposed relative to the conveyor and a second radial edge parallelly disposed relative to the conveyor, of a plurality of plates each conforming substantially in shape and area to said table, releasable engagement means between the table and any one of said plates to secure the table and selected plate against relative movement in face to face abutment with their edges aligned, and a plurality of rotary discs each designed and adapted to be operatively disposed on said plate in substantial face to face abutment therewith, each of said discs being pierced adjacent its peripheral edge by a number of holes corresponding to a part to be packaged, the several holes of one disc having a different size and shape from the holes of the other discs whereby a selected disc operatively disposed as aforesaid moves corresponding parts placed in its holes and resting on the plate upon rotation to said first radial edge and onto the underlying conveyor.

7. In combination with the wrapping mechanism of a packaging machine having a stationary supporting table with a peripheral edge portion overlying a conveyor for the delivery of parts to be packaged to the wrapping mechanism, a portion of said edge portion being removed, of a plate conforming substantially in shape and area to said table, releasable engagement means between the table and plate to secure them against relative movement in face to face abutment with their edges aligned, a rotary disc disposed on and in substantial face to face abutment with said plate, said disc being pierced adjacent its peripheral edge by a number of holes adapted to confine parts to be packaged resting on the plate whereby said parts are deposited on the conveyor at predetermined spaced intervals during rotation of the disc when the holes therein are located over the removed portion of the table and plate for delivery by the conveyor to and through the wrapping mechanism, a translucent plate disposed at the outlet side of the wrapping mechanism to support and guide the wrapped parts as they leave said mechanism, illumination means adjacent said translucent plate, and reflection means in opposition to said illumination means relative to the translucent plate whereby the wrapped parts are viewable from a remote location.

8. In combination with the wrapping mechanism of a packaging machine having an upright rotary shaft, a stationary supporting table at right angles to and pierced by said shaft and defined by an edge portion overlying a conveyor for the delivery of parts to be packaged to the wrapping mechanism, said edge portion terminating in an edge transversely disposed relative to the conveyor, of a number of plates each conforming substantially in shape and area to said table and adapted to overlie the table in face to face abutment with the edges thereof aligned, releasable engagement means securing one of said plates at a time to the table when positioned as aforesaid, a series of interchangeable discs each pierced adjacent its peripheral edge by holes corresponding in size and shape to parts to be packaged and adapted to be disposed on and in substantial face to face abutment with said plate, the holes in each of said discs being adapted to confine parts resting on the plate when that disc is disposed on the plate as aforesaid, and releasable connection means between the shaft and said disc for the rotation thereof in unison whereby the parts in said holes are deposited on the conveyor at predetermined spaced intervals during rotation of the disc when passing over the transverse edge aforesaid.

9. In combination with a packaging machine having a stationary supporting table with a peripheral edge portion overlying a conveyor and a portion of said edge portion removed, of a plate conforming substantially in shape and area to said table, releasable engagement means between the table and plate to secure them against relative angular movement with their edges aligned, a disc overlying and in substantial face to face abutment

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with said plate, said disc being pierced adjacent its peripheral edge by a number of holes each adapted to confine a part to be packaged resting on the plate between its edges, a rotary shaft piercing said table, plate and disc, and a collet fixedly secured to the outer end of said shaft and engaging the disc for the rotation thereof whereby each part aforesaid is deposited on the conveyor when it overlies the removed portion of the table and plate during such rotation.

10. In combination with the wrapping mechanism of a packaging machine having a vertical rotary shaft, a stationary horizontal supporting table pierced by said shaft and defined by an edge overlying and transversely disposed relative to a conveyor for the delivery of parts to be packaged to the wrapping mechanism, of an independent, removable plate conforming substantially in shape

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and area to said table and overlying the table with the edges thereof aligned, projections carried by the table engageable with complementary means carried by the plate when positioned as aforesaid, an independent, removable disc overlying said plate and pierced adjacent its peripheral edge by holes corresponding in size and shape to parts to be packaged to thereby confine such parts resting on the plate, the plate and disc each being pierced by a hole for the passage therethrough of the upper end of said shaft, a removable collet fixedly secured to said shaft, and complementary, coacting engagements carried by the collet and disc whereby the disc rotates with the shaft and the parts in said holes are deposited on the conveyor when passing over the transverse edge aforesaid during such rotation.

No references cited.