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## CAN LID STAMPING MECHANISM

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Fig. 1: A top-down view of a mechanical assembly. It features a central circular component with a flared outer edge (11), a large circular plate (10) with radial slots, and a smaller circular plate (8) with a central slot. Various numbered parts (20-28, 30-39) are shown in dashed lines, indicating different states or positions of the assembly. Arrows indicate rotational movement for parts 11 and 10.

Fig. 2: A side-view cross-sectional diagram of the device. It shows a vertical assembly with a base (45), a central vertical rod (42), and a horizontal beam (11) supported by a bearing (46). Various numbered parts (16, 23, 28, 30, 31, 32, 34, 35, 36, 37, 40, 41, 43, 44, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 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## CAN LID STAMPING MECHANISM

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This invention relates to can machinery and particularly to means for marking or embossing the lids of the cans for any purposes.

5 An object of the invention is to provide for positively advancing can lids or ends to and through the marking dies and for so arranging the operation of the cooperating dies and lid feeding means that the lid feeding means may pass between the marking dies during periods before and after the marking operation.

Another object is to provide rotating dies which are synchronized with the associated 15 mechanism to permit of continuous operation of the marking means or dies.

Another object is to provide means of the class described which are simple and efficient in construction and operation.

20 These and other objects are attained by the means described herein and set forth in the accompanying drawing, in which:

Fig. 1 is a plan view of a can feeding and lid feeding assembly normally associated 25 with the means for attaching the lids to the cans.

Fig. 2 is a view taken on the line 2—2 of Fig. 1.

Fig. 3 is a cross-sectional view taken on 30 the line 3—3 of Fig. 1.

With reference to the drawing: The can feeding assembly comprises a rotatable disc 6 overhanging a second rotatable disc 7 which in turn overhangs a circular table member 8. 35 The discs 6 and 7 are rotatable in the direction indicated by the small arrows for the purpose of carrying cans toward the table member 8. This purpose is further achieved by the use of a can spacing means 9 positioned above the disc 7 and by a plate 10 positioned above the table member 8 and having a guide strip 11 attached thereto and extending above the discs 6 and 7. A suitable rotary conveyor 12 is positioned upon the 40 table member 8 and serves to carry the filled 45

cans along the surface of said table member between the edge of the plate member 10 and a suitable guide strip 11. A star wheel 14 comprising suitable semi-cylindrical can receiving members 15 receives the cans as delivered by the conveyor 12 and moves the cans over to the lid feeding assembly to be described. The means just set forth may be any of several well known mechanisms used for such purpose, and need not be further 50 detailed.

The lid feeding assembly comprises a table portion 16 having an enlarged transversely extending aperture 17 provided intermediate thereof and opening upon the inner edge 18 of the table member 16 adjacent the point at which the cans are delivered to the lid feeding mechanism. The aperture 17 has associated therewith means for providing a guideway through which can lids are fed in synchronization with the delivery of the cans. This guideway begins beneath the lid stacking rack 19 and the lid aperture 20 and comprises an arcuate strip member 21 positioned at one side of the aperture 17 and a similarly curved ledge portion 22 formed upon the bottom face of the table member 16 and adapted to support the edge of the lid, at one side, while the strip member 21 supports the lid at the other side. A swivel arm 23 is pivotally mounted upon the under face of the table 16 behind the lid aperture 20. The arm 23 is provided at its ends with lid supporting members 24 adapted to cooperate with and support the lid and to effect movement of the lid through the guideway as the arm 23 is rotated upon its pivotal mounting. It will be observed by reference to Fig. 1 that the lid holding members 24 are adapted to move through the aperture 17 of the lid guideway. In operation the members 24 are brought into abutment with the rear edge of each lid as its passes downwardly through the lid aperture 20, thereafter pushing the lid before it through the guideway. At the 55 60 65 70 75 80 85 90 95

inner side of the table 16 is provided a supplementary plate 25 which projects in the direction of the guideway as indicated at 26. The under face of plate 25 is provided 5 with a lid supporting ledge 27 which forms a continuation of the ledge 22. As the lid moves from the guideway it is received by the ledge 27 along one side while the rear portion of the lid is supported by one of 10 the members 24. At this point the star wheel 14 in its operation, is in a position to receive one side of the lid upon the arcuate ledge 28 provided in each of the semi-cylindrical can receiving members 15. Said members 15 thereafter carry the lid over to the 15 can heading mechanism (not shown), the lid being moved along the supporting ledge 27. The guideway means just described are likewise known in the art and need no further 20 detailing.

The marking means of the present invention are provided adjacent and in connection with the lid guideway heretofore described. These means comprise a pair of elongated 25 die holders 29 and 30 positioned intermediate of and in alignment with the guideway aperture 17. The holder 29 is positioned above the plane of the lids moving through the guideway and the holder 30 is in substantially 30 the same relative position below the plane of the lids. Members 29 and 30 are each rotatably mounted on central transverse axes by means of shafts 31 and 32 which are journaled in the gear casings 33 and 34 35 attached to the upper and under face respectively, of a table member 16. The inner ends of shafts 31 and 32 may be provided with worms and are designed to be driven by gears 35 and 36 fixed upon the vertical 40 drive shaft 37. The die holders 29 and 30 are adapted to receive the dies 38 which may be suitably and removably attached within 45 said holders. The details of the die holding means form subject matter of a separate application for patent and are claimed therein. It will be seen by reference to Fig. 3 that the marking dies 38 project outwardly of the die holders. Said holders are so positioned relative to one another, that when they are 50 rotated to endwise alignment as indicated in dotted lines in Fig. 3, they are adapted to mark a lid 39 passed between the dies. The die holders are adapted to be continuously 55 rotated and the movement thereof is so synchronized with the action of the lid moving arm 23 that the endwise alignment of the dies occurs at that moment when the lid is centrally disposed between the dies. It will be understood that said endwise alignment 60 is but a momentary relationship and that the dies immediately return toward the horizontal whereby ample space is provided for movement of the lid holding members 24 and the outer portions of arm 23 between the 65 dies. In this way a continuous and smooth

flow of mechanical motion may be attained which is particularly desirable not only for efficiency in operation but likewise for attaining the maximum of speed.

As indicated in Figs. 1 and 2, suitable means may be provided for effecting release or non-release of a lid depending on whether or not a can is received by one of the members 15 of the star wheel 14. Said means comprises a trip arm 40 positioned above the circular conveyor 12 and adapted to be actuated through contact with each can as the latter is received by one of the members 15. The trip arm 40 is fixed upon a shaft 41 (Fig. 2), said shaft at its lower end being provided with an arm 42 adapted to cooperate with a cam 43 carried at the lower end of the shaft 44. The latter at its upper end has fixed thereon the lid moving arm 23. By the means just described, the trip arm is not actuated unless a can is received by the member 15 adjacent the circular conveyor 12. The mechanical details of cooperating parts just described may likewise be effected in any desirable manner, and the particular mechanism employed may be varied as desired. For example, the trip arm 40 may be operated by can bodies for operating a can lid feed mechanism for releasing a can lid to the action of arm 23 that may rotate continuously, or the trip arm may control intermittent rotation of the arm 23, or any other suitable cooperating mechanism, of which there are numerous disclosures in patents in this art.

As suggested above, the means of this invention incorporates the step of can marking into the uninterrupted movement of the various mechanical assemblies forming a can feeding and heading structure. The device is simple and efficient in operation. It is intended that the dies 38 may be quickly removed and substituted by other dies containing different identification marks or numbers, and the disclosed mechanism permits such changes.

It will be understood that the synchronism of the lid moving means with the lid stamping means or dies may be attained by any suitable means or gearing which herein is merely indicated by the driving gears 45 and 46.

What is claimed is:

1. The combination with a horizontal can lid guideway adapted to contact lateral portions only of the lids and means movable in the guideway for effecting passage of the lids therethrough, of a pair of spaced elongated marking dies rotatably mounted on transverse axes and in vertical alignment, one above and one below the plane of lids positioned in the guideway, said dies being adapted when in endwise alignment to mark a lid passing therebetween, and means for continuously rotating the dies, such rotation be-

ing synchronized with the lid moving means whereby the dies are actuated into endwise alignment upon each passage of a lid therebetween and are then moved out of such alignment at which time the lid-moving means

5 pass between the dies.

2. The combination with a horizontal can lid guideway and means for effecting passage of lids therethrough, of a pair of vertically aligned marking members rotatably mounted one above and one below the guideway and adapted to mark lids successively passed therebetween, and means for continuously rotating the marking members in synchronism with the lid moving means, portions of said marking members during rotation being adapted for successive approach and withdrawal relative to one another the marking members marking the lids during

10 20 said approach relationship.

3. The combination with a horizontal can lid guideway and means movable through the guideway for effecting passage of lids therethrough, of a pair of vertically aligned marking members rotatably mounted one above and one below the guideway, said members being provided with extended portions adapted to mark a lid passed therebetween during rotation of said members, and with restricted

25 30 portions, the lid moving means passing between said restricted portions during rotation of the marking members, and means for continuously rotating marking members and synchronized with the lid moving means for

35 effecting the indicated operative relationships.

4. The combination of guideway forming means for slidably supporting blanks movable through the guideway, a pair of rotating dies each having a marking face and a clearance face, the marking faces of the pair of dies cooperating for simultaneous contact with opposite sides of a blank passing through the guideway, the marking faces being spaced farther from their respective centers of rotation than are the clearance faces spaced from said centers of rotation, means for rotating the dies and for successively attaining apposition of the marking faces and

45 50 55 apposition of the clearance faces of the dies, and blank moving means synchronized with the dies for moving blanks between the dies and for passing between the clearance faces of the dies when the clearance faces are in apposition.

5. The combination of guideway forming means for slidably supporting blanks movable through the guideway, a pair of rotating dies, together having cooperating marking faces for movement into apposition for contacting opposite sides of a blank passing through the guideway, said dies also having cooperating clearance faces for movement into apposition for providing a recurring

60 65 66 passageway between the dies, means for rotat-

ing the dies for attaining successive apposition of the marking faces and of the clearance faces, and means for moving blanks through the way and between the marking faces when in apposition, said means passing through the recurring passageway between the dies incident to apposition of the clearance faces.

In testimony whereof, I have hereunto subscribed my name this 29th day of July, 1931.

JOHN K. BROWNING.

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