Aug. 17, 1943. R. E. J. NORDQUIST 2,326,794

TRANSFER VALVE

Filed Dec. 10, 1941

Fig 1

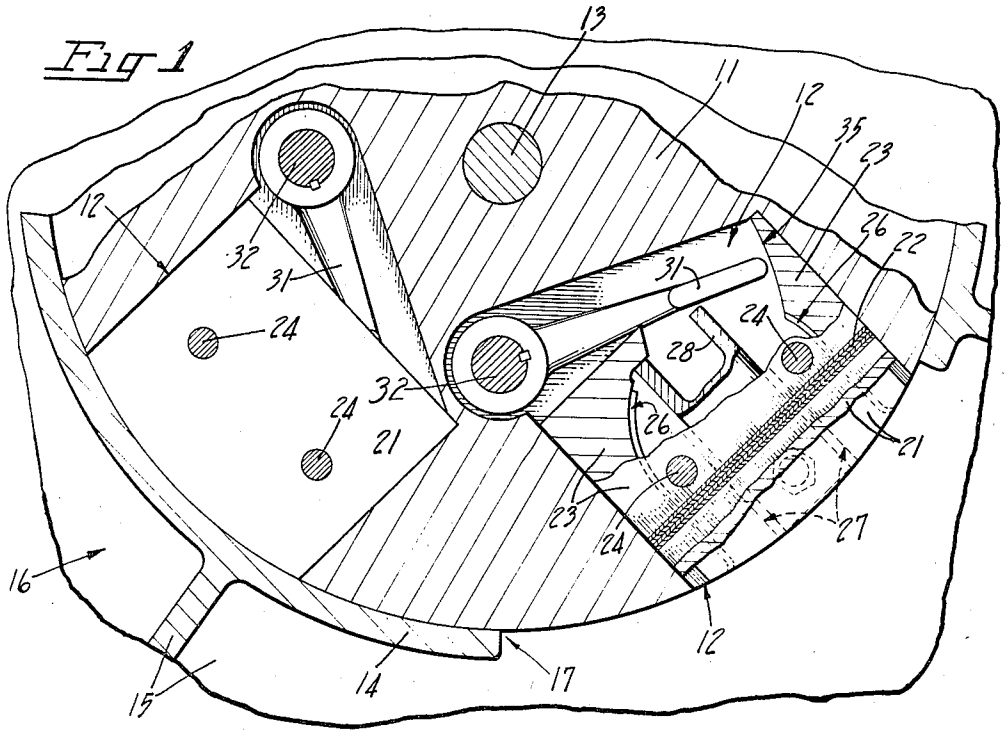
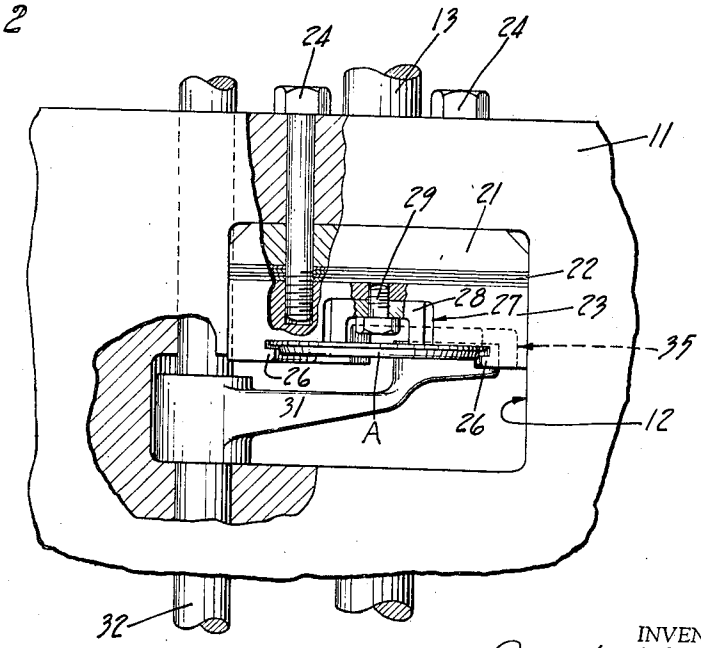


Fig 2



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TRANSFER VALVE

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3 Claims. (Cl. 198—41)

The present invention relates to machines for closing containers or cans and has particular reference to a novel manner of holding can parts in a transfer valve of a vacuum closing machine.

In vacuum closing machines and many other can making machines, can parts such as can bodies with one end attached and with a can end or cover, are conveyed through the machine by turrets and transfer valves having pockets in which the can parts are located while moving from one place to another.

The present invention contemplates more positive holding of the can parts in such turrets and transfer valves by means of a magnetic force so that the can parts will be prevented from shifting in their pockets while being advanced.

An object, therefore, of the invention is the provision in a turret or transfer valve of a can closing machine of holding devices which operate to retain a can part in a pocket of the turret or valve by magnetic attraction so that the can part will be maintained in a definite predetermined position within the pocket during its advancement through the machine.

Another object is the provision of such holding devices which may be adjusted to a predetermined elevation in the turret or valve pockets to maintain the can part in a desired position.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a plan view partly in horizontal section taken through a portion of a transfer valve embodying the instant invention, with parts broken away; and

Fig. 2 is a fragmentary front elevation of the valve, with parts broken back and shown in section.

As a preferred embodiment of the invention the drawing illustrates principal parts of a transfer or turret valve for a vacuum closing machine of the character disclosed in United States Patent 2,039,338, issued May 5, 1936, to Ronald E. J. Nordquist et al. The valve shown in the drawing is utilized for transferring can covers or ends A into and out of a vacuum chamber of the machine although the invention is equally well adapted to valves, turrets, or starwheels in other than vacuum machines for advancing cans, can bodies, and cans with superimposed covers, or cans in which the covers are held in spaced relation thereto.

The transfer valve includes a cylindrical member 11 having a plurality of pockets 12 spaced around its periphery. This valve member is mounted on a shaft 13 which is rotated in any suitable manner in time with the other moving parts of the machine. The valve member is disposed in a surrounding valve seat 14 formed in a frame 15 which may be a part of the main frame of the machine.

In the instant machine the valve 11 and the valve seat 14 seal the entrance to a vacuum chamber 16 in which the cover A is seamed onto a can in the usual manner. The valve seat is formed with an inlet or entrance opening 17 and a similar outlet or discharge opening is disposed opposite the inlet opening to permit of inserting and discharging the can covers A into and from the valve pockets. This is a usual transfer valve construction.

Each valve pocket 12 contains a spacer block 21, a plurality of shims 22, and a cover guide block 23 which are held together against the ceiling of the pocket by bolts 24 secured to the valve member 11. The bottom of the cover guide block 23 is formed with a depending ledge 26 to receive and to guide into a centralized position, a cover A inserted in the pocket. The bottom of the cover guide block is also formed with a radially disposed channel 27 in which there is located an inverted U-shaped permanent bar magnet 28. This magnet is secured in place by a pair of cap screws 29 and is suitably insulated from the guide block 23.

Thus when a cover A is inserted into the guide block 23 within the valve pocket, the cover is attracted to the magnet and is held against displacement from the pocket during rotation of the valve. By augmenting or subtracting shims 22 from those in place in the pocket, the level of confined cover A may be altered or adjusted to correspond with other cooperating working parts in the machine. If such an adjustment cannot be accomplished by adjusting the shims, the spacer block 21 may be removed and a different block of the required thickness inserted in its place.

Provision is also made for ejecting the cover A from its position within a valve pocket 12 at the proper or desired time. For this purpose each pocket 12 contains an ejecting finger 31 which is disposed adjacent the inner end of the pocket. The finger is mounted on a rock shaft 32 which is carried in bearings formed in the valve member 11. These rock shafts are oscillated by cam action as disclosed in the above mentioned Nord-

quist patent. This is a usual valve ejecting finger construction.

When a valve pocket 12 confining a cover A reaches the discharge outlet in the valve seat 14, the cam actuated ejecting finger 31 within the pocket rocks outwardly against the cover and pushes it out of the valve pocket against the resistance or magnetic pull of the holding magnet 28 in the pocket. An opening 35 is formed in the bottom of the guide block 23 to permit this movement of the ejecting finger. The cover thus removed from its pocket is discharged, through the outlet opening in the valve seat 14, into the vacuum chamber for a subsequent operation.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In a can closing machine, the combination of a rotatable transfer member having peripheral pockets for receiving a can part, a permanently energized magnetic element disposed in a said pocket for holding a received can part against radial displacement relative thereto, and ejector means also disposed in a said pocket and operable to eject the can part from said pocket against the holding pull of said magnetic element.

2. In a can closing machine, the combination of a rotatable transfer member having pockets for receiving a can part, a guide block within said pockets for confining a received can part in a predetermined position in its pocket, and a permanently energized magnet secured to said guide block for retaining the confined can part against radial displacement during rotation of said transfer member.

3. In a can closing machine, the combination of a rotatable transfer member having pockets for receiving a can part, a guide block within said pockets for confining a received can part in a predetermined position in its pocket, removable and replaceable spacer elements adjacent said guide blocks in said pockets for locating said guide blocks and the can parts confined therein at a predetermined elevation in said pockets, and a permanently energized magnet secured to said guide block for retaining the confined can part against radial displacement during rotation of said transfer member.

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