July 11, 1944. K. A. LEUSCHNER 2,353,343

CAN DRAINER

Filed April 14, 1941 2 Sheets-Sheet 1

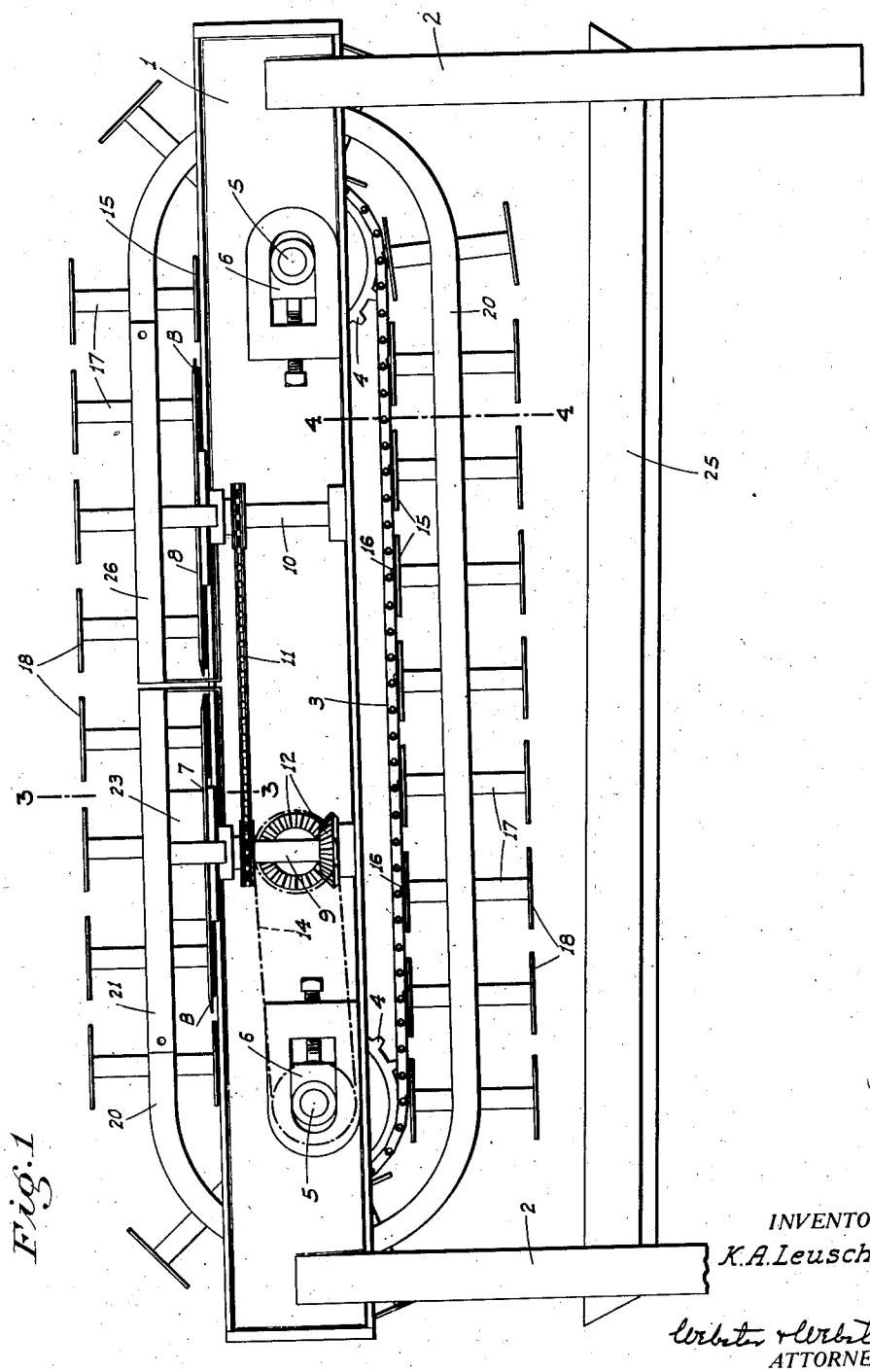


Fig. 1

INVENTOR.
K. A. Leuschner

Webster & Webster
ATTORNEYS

July 11, 1944. K. A. LEUSCHNER 2,353,343

CAN DRAINER

Filed April 14, 1941 2 Sheets-Sheet 2

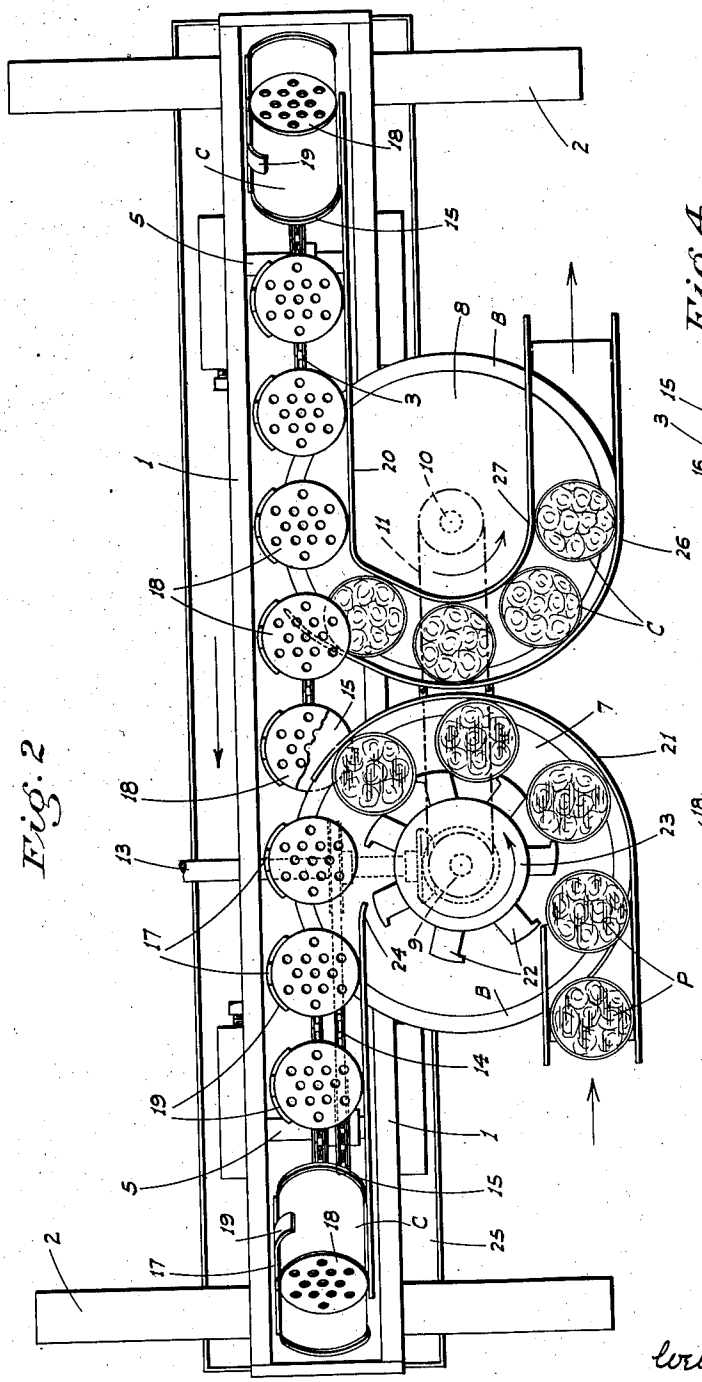


Fig. 2

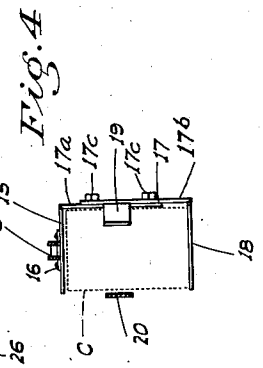


Fig. 4

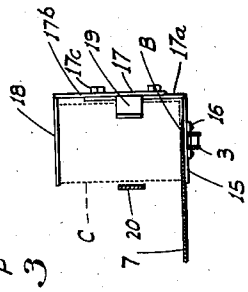


Fig. 3

INVENTOR.
K. A. Leuschner

Webster & Webster
ATTORNEYS

Patented July 11, 1944

2,353,343

UNITED STATES PATENT OFFICE

2,353,343

CAN DRAINER

Kurt Alfred Leuschner, Monterey, Calif.

Application April 14, 1941, Serial No. 388,351

1 Claim. (Cl. 226—22)

This invention relates in general to an improvement in apparatus adapted for use in the canning industry, and in particular the invention is directed to an improved can drainer operative to remove excess fluids from the cans and contents during the canning process and before the cans are sealed.

One of the objects of this invention is to provide a can drainer which is compact in assembly and of such capacity that it can be interposed in the production line of a cannery without occupying undue space or slowing down the production rate.

Another object of the invention is to provide a can drainer which is designed so that the cans are inverted and drain in a plane below the feeding conveyors and in a straight line; this being a distinct advantage over certain other types of can drainers wherein the cans are carried upward and inverted to drain into a catch pan disposed above the feed-in and discharge point of the apparatus.

A further object of the invention is to provide a can drainer suited for use in the food canning industry generally, for any products which require draining, which can operate at high speed and yet provide thorough draining of the cans, as is desirable.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the apparatus.

Figure 2 is a top plan of the apparatus.

Figure 3 is a fragmentary cross section on line 3—3 of Fig. 1.

Figure 4 is a fragmentary cross-section on line 4—4 of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, the device comprises a supporting frame including longitudinally extending, horizontal beams 1 disposed in parallel, transversely spaced relation; such beams being connected at their ends and rigidly supported adjacent said ends by legs 2.

An endless chain 3 is disposed between beams 1 and is carried by sprockets 4 mounted on cross shafts 5 carried by adjustable bearings 6 on said beams. The upper run of endless chain 3 is disposed in substantially the same horizontal plane as the upper edge of beams 1, and is parallel thereto.

A pair of horizontal, longitudinally spaced and relatively thin turntables 7 and 8 are rotatably mounted on vertical supporting and drive shafts 9 and 10, respectively, which are laterally offset relative to chain 3. The shafts 9 and 10 are connected by an endless chain and sprocket assembly indicated generally at 11, while shaft 9 is rotated through the medium of meshing bevel gears 12, one of which is secured on a transversely mounted power shaft 13. The endless chain 3 is driven from power shaft 13 by an endless chain assembly 14. Turntable 7 is beveled at its periphery as at B and a peripheral portion of the turntable overlies the upper run of endless chain 3, said run of the chain being substantially tangent to said portions, as clearly shown in Fig. 2.

A multiplicity of circular can supporting discs or plates 15 are secured at the center on the outside of chain 3 by attachment lugs 16; such discs 15 being spaced circumferentially of the chain and disposed in outwardly facing relation, with their axes at right angles to said chain. With movement of chain 3, the discs pass closely adjacent the peripheral portions of turntables 7 and 8, as indicated in Fig. 3.

On the side opposite the turntables, each disc 15 is fitted with an outwardly projecting rigid arm unit 17 which is parallel to the disc axis and of an adjustable length approximately the height of the cans to be drained. At their outer ends arm units 17 are formed with perforate, disc-like drain plates 18 which are parallel to and aligned with discs 15. Discs 15 and plates 18 are of a diameter no less than that of the cans to be drained.

Intermediate their ends and facing toward the turntables, the units 17 are provided with laterally extending, concave can engaging and locating fingers or cradles 19 of a length and configuration to symmetrically engage the side of a can but to an extent less than 180°. A guide rail 20, symmetrical to endless chain 3, is mounted on one of the beams 1 opposite arms 17 and concave fingers 19, and is substantially on the same level as fingers 19; the distance between arm units 17 and rail 20 being only slightly greater than the diameter of cans to be drained. Each arm unit 17 includes an arm 17a fixed on and extending from the corresponding disc 15, and another arm 17b fixed on and extending from the corresponding plate 18; the arms 17a and 17b overlapping with the latter being longitudinally

adjustably secured to said arm 17a by bolts 17c. By reason of this arrangement, the arms 17b, together with plates 18, can be adjusted lengthwise of the arm unit without altering the relative positions of fingers or cradles 19 and said guide rail 20. The guide rail 20 has a gap in the top thereof, and the ends are disposed above corresponding turntables, as shown.

The turntable 7 is the feed table of the pair, and upright open top cans C filled with the product P to be drained are fed by a suitable conveyor between parallel guide rails 21 onto said turntable 7 and on which they are spaced a predetermined distance (equal to the distance between discs 15) by means of radial lugs 22 projecting from a hub 23 fixed on said turntable. The cans C, as spaced by said lugs, are held on the turntable to a point of discharge by means of the outermost rail 21 which follows the periphery of the turntable to a point directly above the chain 3 but short of the path of movement of fingers 19. The adjacent end 24 of guide rail 20 is tangent to the path of movement of the outer ends of lugs 22.

As cans C leave rail 21, they progressively enter between the discs 15 and plates 18 of the can supporting units which are moving in timed relation to said cans, and also slide into engagement with concave fingers 19 and are thence carried from the turntable and engaged between said fingers and guide rail 20. As so positioned the cans cannot escape from the supporting units and advance with chain 3.

As the units and engaged cans pass from the upper to the lower run of chain 3, they are inverted and fluid in the cans then drains through perforate plates 18 throughout said lower run; fluid so drained falling into a catch or recovery pan 25 disposed below and extending the full length of the apparatus.

After the cans drain and the supporting units return to upright position in the upper run of chain 3, the drained cans are deflected from the units onto turntable 8 by means of a peripheral guide rail 26 having one end projecting into the path of the cans between discs 15 and plates 18 and beyond the adjacent end of guide rail 20.

Another rail 27, which leads from the adjacent end of rail 20 in spaced parallel relation to rail 26, forms with the latter a discharge channel through which the discharging cans pass under the influence of turntable 8 which rotates in the direction indicated by the arrow in Fig. 2. This discharge channel straightens out at its free end and is parallel to the direction of movement of chain 3. It is also to be noted that the point of discharge is aligned with the point of feed to the apparatus and adjacent thereto, thus facilitating interposition of the apparatus in a production line and without undue space occupancy therein.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

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

Can conveying apparatus comprising a driven rotary conveyor mounted to rotate in a vertical plane, a plurality of circumferentially spaced can receiving and supporting units mounted on and projecting radially out from the periphery of said conveyor, each unit comprising a pair of radially spaced can-end engaging and supporting members disposed in facing relation and one of which is non-movable relative to the conveyor, a rigid arm unit connecting each pair of members on one side and comprising separate elements fixed on and extending from the corresponding members, and means securing said elements together for longitudinal adjustment to alter the spacing between the can engaging members; a can locating cradle fixed on the element of said one can-end engaging member and opening laterally of the conveyor toward the other side of said members, and a fixed can guide rail extending alongside the conveyor adjacent said other side of the members and substantially opposite the cradles radially of the conveyor.

KURT ALFRED LEUSCHNER.