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SPACING DEVICE FOR CAN CLEANING MACHINES.
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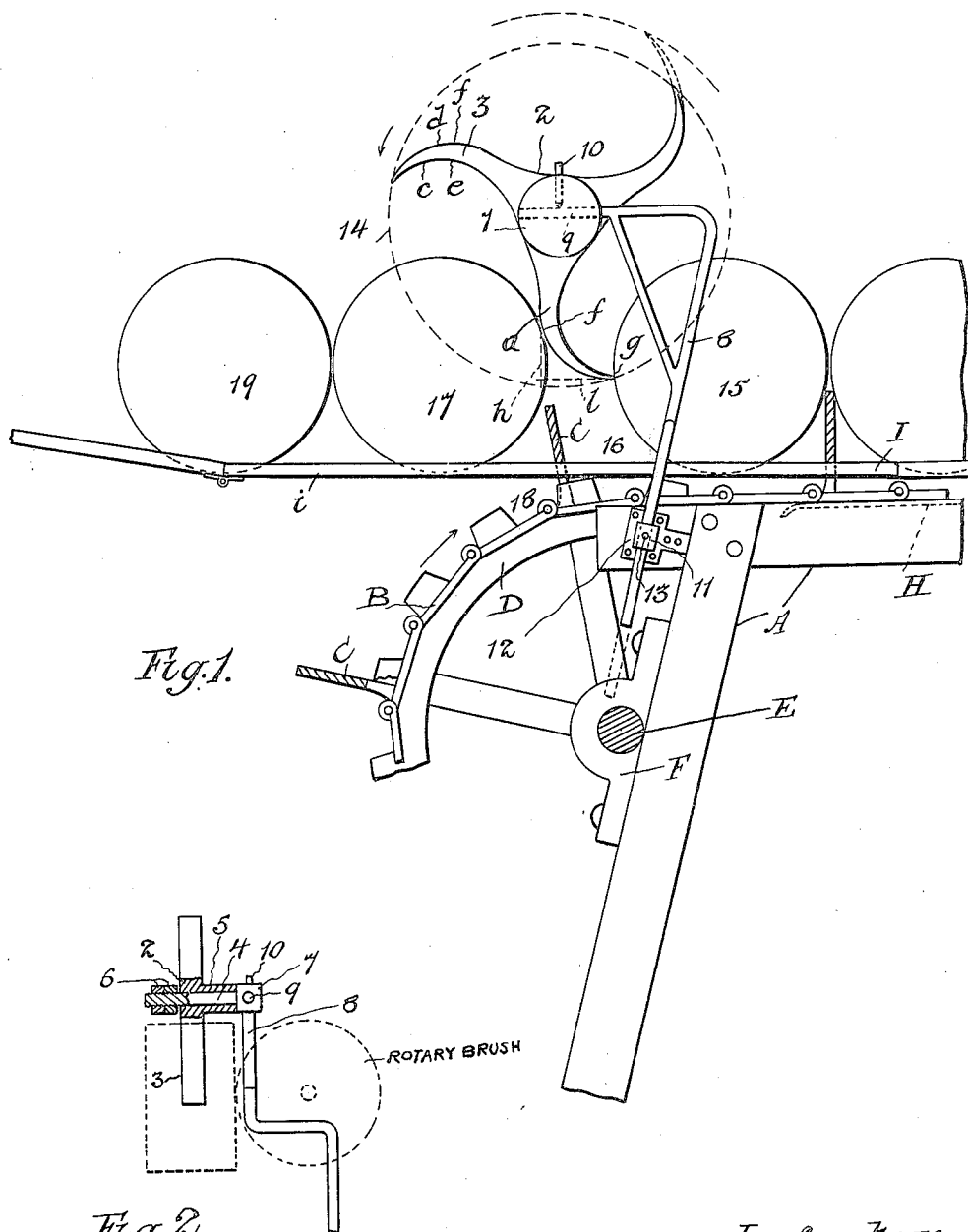


Fig. 2.

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UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM AUSTON BECKETT, residing in the village of Kingsville, county of Essex, Province of Ontario, Canada, a subject of the King of Great Britain, have invented certain new and useful Improvements in Spacing Devices for Can-Cleaning Machines, of which the following is a specification.

My invention relates to improvements in spacing devices for can cleaning machines, and the principal object of my invention is to dispense with the necessity of having to use a number of carrier chains for the conveying of cans with the flights thereof spaced apart according to the size of the cans to be handled, and to use a single carrier chain for various sizes of cans, and to provide spacing means coöperating with the said carrier chain and the flights thereof so as to insure that only one can at a time will pass into the pockets formed between the said flights, and the construction of my preferred form of invention will be hereinafter particularly set forth, and what I claim as new will be pointed out in the claims forming part of this specification.

Figure 1 is a side elevation of portion of one end of a can cleaning machine, showing an end elevation of my preferred form of spacing device attached thereto, certain portions being broken away. Fig. 2 is a longitudinal section through a portion of my preferred form of spacing device, showing suitable construction whereby the same is mounted.

In the drawings, like characters of reference indicate corresponding parts in each figure.

It is now common in can cleaning machines to space the flights the required distance apart to provide pockets to receive the cans of a certain diameter. Therefore, it will be understood that it is necessary to have a number of carrier chains to handle cans of different diameters. Not only is it expensive to have a number of carrier chains but considerable expense is incurred in changing the carrier chains in respect of labor and the time the machine is idle during the changing. Now by separating the flights of the carrier chains so that the pockets therebetween will receive any size can up to a given capacity, for example up to one gallon, and providing my spacing device, which insures the passing of one can

at a time into the pockets between the flights, I am enabled to provide a can cleaning machine with a carrier chain which need not be changed to handle cans up to a given capacity. In other words, the flights, in the ordinary can cleaning machine as well as the cans must be timed in their movements so that cans of a given diameter will arrive at a certain point in the machine at a given time so as to occupy a given pocket between any given pair of flights. Now by means of my invention it is not necessary to time the arrival together of the flights and cans at a given point, as the spacing device co-acting with the carrier chain will only allow one can at a time, up to a given diameter, to pass into the pockets between the flights.

Of course it will be understood that the principle of my invention may be applied to cans of any size, and although I preferably make use of the invention in connection with machines for cleaning cans, it is to be understood that I make claim to the right to use my invention in any art to which the same can be applied.

A are portions of any suitable frame of a machine, for example for cleaning cans.

B is any suitable belt, preferably in the form of a carrier chain provided with flights C of any suitable construction. This chain passes around the sprocket wheel D, loosely mounted on a suitable axle E which is held in suitable bearings F (only one of which is shown) suitably carried by the frame A. As is common in machines having an endless carrier chain, this chain passes over at least another sprocket wheel (not shown) which I may term the driven sprocket wheel.

H is any suitable bed carried by the frame A upon which the carrier chain B rides.

When this invention is applied to use in can cleaning machines of a certain type, ordinary flanged rails I are used (only one of which is shown) and the same are suitably supported by the frame A. As is usual in this art the flanged rails I are spaced apart to allow for the movement of the flights C therebetween.

My preferred form of spacing device comprises a rotary member 2 provided with a plurality of radiating arms 3 which perform the function of retarding the movement of any given can into any given pocket between any given pair of flights of

the carrier chain so as to insure that only one can at a time will occupy the said pocket. The member 2 is in the form of an idler, and is suitably mounted on an axle 4. To provide a proper bearing for this rotary member 2, I provide the same with a hub, 5. The said rotary member is retained on said axle 4 by any suitable means. A suitable construction, shown, comprises a pair of lock-nuts 6 mounted on the threaded end of said axle. These lock-nuts co-acting with the head 7 of the said axle enable the rotary member 2 to be loosely mounted on the axle 4 so that the said member may be turned by the weight of the cans as they come in contact with the radiating arms 3. Any suitable means is used to support the rotary member 2. As shown, I provide a bracket 8, the end 9 of which is held in the head 7 by means of a set screw 10. The lower portion of this bracket 8 is mounted in a lug 11 carried by a plate 12, suitably secured to the frame A. A set screw 13 or equivalent means is held in the lug 12 to hold the bracket 8 in the desired position. By means of the construction just described, the position of the rotary member 2 may be adjusted as desired and this bracket may be made long enough so that this rotary member may be supported out of the path of movement of the cans.

As before mentioned, the size of the pockets between the flights C is such that the carrier chain B may be used, for example to convey cans, say up to a capacity of one gallon. It is understood when the size of the cans is such as to practically fill the pocket between any given pair of flights, there would be no need of using my spacing attachment, and therefore in such cases, the same is raised up out of the path of movement of these cans. Now suppose it is intended to convey cans of a capacity of one-half gallon, unless some means is used to prevent the cans crowding one after the other, two cans will endeavor to get into one pocket and jam there, in case they are small enough, or climb out of place. Now the rotary member 2 is used to prevent the entry of more than one can at a time into the pockets between the flights. The dotted line 14, represents the path of movement of the extremities of the arms 3. The can 15 has passed into the pocket 16, and the can 17 is about to pass into the pocket 18. As the cans to the right of the rotary member 2 are carried along the cans to the left of the rotary member 2 on the inclined portion *i*, of the runway will consecutively come into contact with the radiating arms 3 and so turn the rotary member 2 before the flight C rises high enough. Through the action of the can 17 against the arm *a*, the rotary member 2 is turned in the direction indicated by the arrow, thus bringing the arm

c into a position whereby it is interposed between the cans 17 and 19. As the carrier chain moves along, the parts are so timed that the can 19 will not be allowed to pass into the path of movement of the flight C by reason of its being held by the arm *c*, thus absolutely insuring that the can 17 will meet with no interference in passing into the pocket 18. It will be understood that so soon as the apex of the arm *c* moves into the path of movement of the can 19, the downward movement of this can will be arrested and this can will only be allowed to advance according to the rate of movement of the rotary member 2.

The arms 3 are preferably shaped as shown by the convex and concave curves *d* and *e*, respectively, and these curves are eccentrically placed so that each arm will be provided with a tapered apex which will facilitate the entry of the arms between any two cans.

As my invention is designed to be used in connection with cans of different diameters, it will be understood that the length of the arms 3 will be increased accordingly as the diameter of the cans decreases so as to increase the distance separating the apex *f* of the convex curve *d* from the apex *g* of the arms 3 measured, as indicated by the dotted lines in Fig. 1.

h is a vertical dotted line dropped from the apex *f* of the arm *a* which meets the horizontal dotted line 1. The length of the horizontal dotted line 1 represents the horizontal distance between the apexes *f* and *g*. These points are well illustrated in full lines in Fig. 1. The can 17 is shown in contact with the apex *f*; and the apex *g* is shown in contact with the can 15. Keeping in mind the fact that one of the objects of my invention is to position the flights C so as to receive in the pockets therebetween cans up to say, a capacity of one gallon, it will be understood that according to the diameter of the cans below this capacity the period of the retarding movement imparted to the cans by the arms 3 will increase as the diameter of the cans decreases. Now, I increase this period of retarded movement by lengthening the arms 3, as shown in dotted lines in Fig. 1, so as to increase the distance between the apexes *f* and *g*. Therefore, it will be understood that, I provide a number of rotary members the arms of which vary in length according to the diameter of the cans to be handled, and by loosening the set screw 10, a rotary member can be removed from the end 9 of the brackets 8 and another rotary member employed in place thereof.

The retarding action of the arms 3 will be clearly understood upon referring to the position of the arm *a*, Fig. 1. The apex *g* of this arm is held against the can 15 which in turn is resting against one of the flights,

and the apex *f* of this arm is in contact with the can 17 thus retarding the movement of this can 17. Likewise, when the apex of the arm *c* moves into the path of movement of the can 19, the movement of this can will be sufficiently retarded to prevent the flight C conflicting therewith as it moves into the horizontal.

The rotary member 2 is preferably supported so as to be substantially midway of the cans, and of course, said member is suitably shaped so as not to come into conflict with the cans except at the points indicated.

A considerable advantage resulting from the use of my invention resides in the fact that for all sizes of cans below those of a capacity of one gallon each, the rotary member 2 prevents the cans from bouncing from their rails.

While I have described what I consider to be the best embodiment of my invention, I desire it to be understood that the principle can be embodied in different forms, and I desire not to be limited beyond the requirements of the prior art, and the terms of my claims.

What I claim as my invention is:

1. The combination with an endless carrier belt, provided with a plurality of

flights, spaced apart; supporting and operating means for said belt; and a track held by said supporting means, of an idler rotary device provided with a plurality of curved radiating arms which consecutively move between two moving articles, moving along said track on their way to be carried forward by said belt so as to retard the movement of one of said articles, to insure the passage of one of said articles at a time into each of the pockets between said flights, and means whereby said rotary device is mounted in position.

2. As a new article of manufacture, an idler spacing device comprising a member provided with a plurality of radiating arms describing substantially the same arc, the inner and outer sides of the major portion of each arm being formed of eccentric arcs which touch to provide each arm with pointed ends, the said arcs having radii less than the radius of any arc on the surface of any of the cans to be separated.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM AUSTON BECKETT.

Witnesses:

B. JASPERSON,
GEO. S. GOODEVE.