

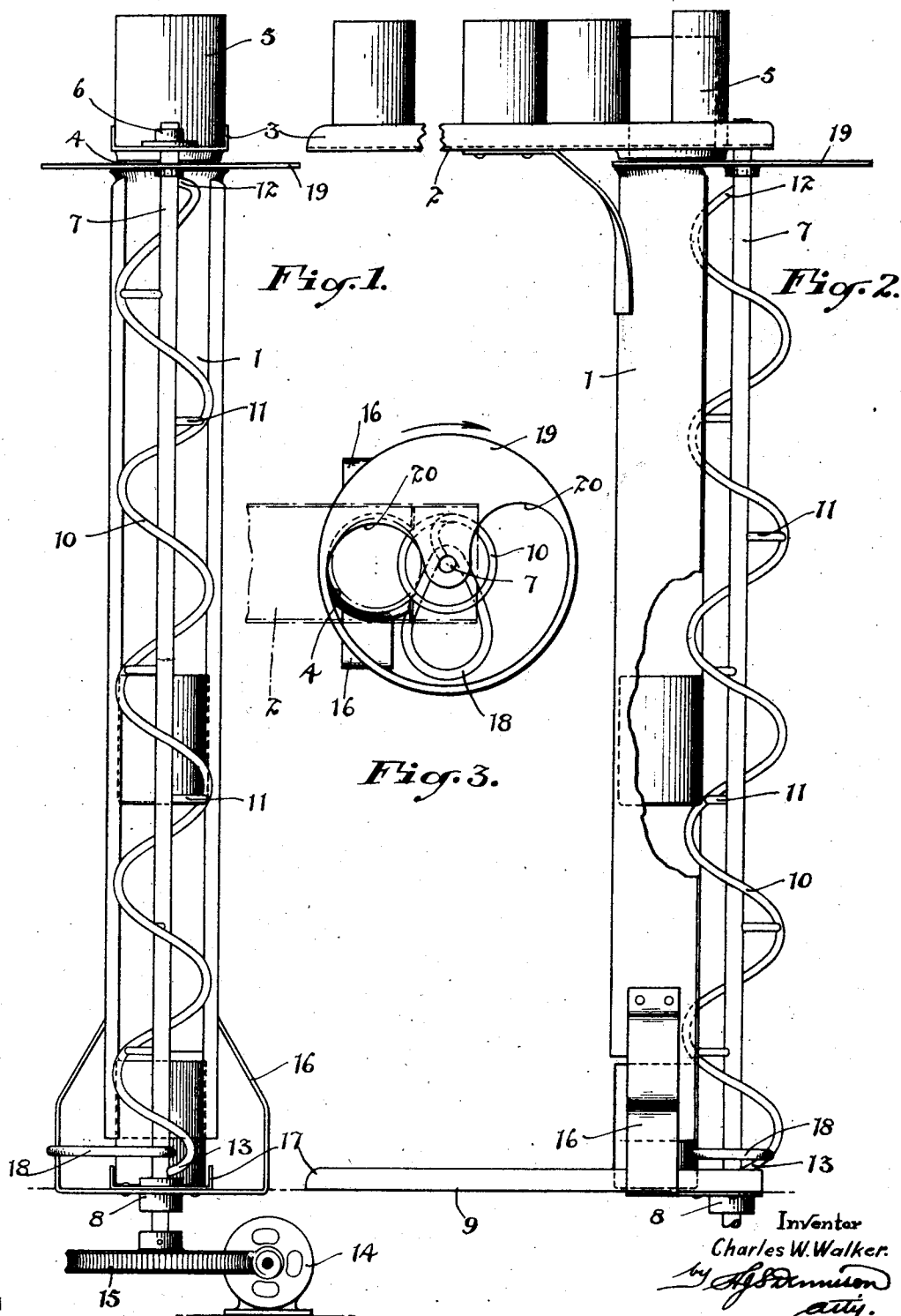
Feb. 19, 1929.

1,702,554

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LOWERING DEVICE

Filed Oct. 10, 1927



UNITED STATES PATENT OFFICE.

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LOWERING DEVICE.

Application filed October 10, 1927. Serial No. 225,277.

The principal objects of this invention are to facilitate the transferring of packages downwardly from one floor to another and particularly to provide an economical method of handling milk cans in dairies with the minimum of labour and the maximum of speed.

The principal feature of the invention consists in the novel construction and arrangement of a rotatable spiral member in conjunction with a guide-way whereby the can or package is lowered down the guide-way at a uniform speed of movement regulated by contact with the spiral member.

In the drawings, Figure 1 is a front elevational view of my improved device.

Figure 2 is a side elevational view having a portion of the vertical guide broken away.

Figure 3 is a top plan.

This invention is extremely simple and consists of a guide-way which may be arranged in a vertical position or at an incline and is here shown in the form of a part cylindrical sheet metal structure 1 which extends between two floors of a building.

At the upper end of the guide 1 is arranged a platform 2 which is formed with side flanges 3 and a circular hopper opening 4 through which the cans or packages are directed into the guide. A shield 5 is arranged at the outward end of the platform to stop the end movement of the cans at the hopper.

A journal bearing 6 is arranged at the end of the guide-way adjacent to the hopper 4 and in this bearing is journaled a vertical shaft 7 which is stepped in a bearing 8 arranged in the bottom guide 9.

The shaft 7 has secured thereto a spirally shaped rod 10 which is supported from the shaft at intervals throughout its length by the rigid spacing bars 11. The top end 12 of the rod 10 is secured in the shaft as also is the bottom end 13.

The spiral rod is so arranged that it extends into the open side of the part cylindrical guide 1 and forms an obstruction to the cans or packages that are to be directed down through the device.

The shaft is operated by a suitable motor 14 geared to the shaft through a worm gear 15 which turns the shaft at the desired speed.

The bottom end of the guide 1 is supported by a bracket 16 and the bottom platform 9 is provided with side flanges 17 to guide the cans or packages away from the guide. The

lower end of the guide is open at the back a sufficient height from the bottom to permit the cans or packages to be ejected to the bottom guide 9 when they reach the bottom.

A looped arm 18 is secured to the shaft at the bottom end in such a position that it moves into engagement with each can or package that is deposited on the bottom member 9 and pushes it outwardly between the flanged sides thereof from whence it is moved by suitable means.

I prefer to arrange a spacing device at the top of the lowering member so that the cans or packages to be lowered will be spaced apart and this is arranged in the form of a circular plate 19 secured to the upper end of the shaft and extending between the hopper 4 and the upper end of the guide 1. This plate is provided with a slot opening 20 which extends over a portion of the arc of a circle. The blank space between the ends of the slot is adapted to support a can or package from sliding into the guide until the slot 20 moves to the open position. It thus forms a spacing device to hold the cans or packages apart.

In the operation of this device, the cans or packages to be lowered from one floor to another in a building are placed on the platform 2 and moved along between the flanges 3 until they slip into the hopper 4, being guided by the shield 5.

If the plate 19 is so positioned that the upper end of the spiral rod 10 is just passing under the hopper, the slot 20 will be open and the can or package will drop through the hopper and its bottom will rest upon the rotating spiral rod. Gravity actuates the package to follow down the guide as the spiral turns and the spiral holds the package from sliding free, thus a plurality of packages may be entered in the guide and be moved through the same at the same time without coming into contact or without being injured by being jammed together in any way.

When the lowering spiral deposits the can or package upon the lower receiving bracket the looped arm 18 travelling with the shaft pushes the can or package out through the back opening in the guide and makes room for the next succeeding package to land.

The device is extremely simple and may be manufactured with any desired strength to lower any weight of article to be handled. Very little power is required to operate the spiral as it merely requires to be turned at a

uniform speed and only sufficiently to overcome the friction of the spiral shaft against the edge of the package.

The device is shown of cylindrical form but it may be of a rectangular form to suit other forms of merchandise or packages to be handled or any size or shape of package may be handled in the device that will not slip through the guide without being engaged by the spiral shaft.

What I claim as my invention is:

1. A lowering device, comprising a guide arranged to guide articles downwardly and closed at the bottom, a spiral member arranged external to said guide and having its axis parallel with the guide, means for regulating the speed of rotation of said spiral member to effect the lowering of articles in the guide at a regulated speed, and means for directing the articles to be lowered one at a time into the top of said guide.

2. A lowering device, comprising a tubular guide having a slot extending longitudinally thereof from end to end, a spiral member journaled external to the guide and parallel therewith and having its perimeter extending through the slot in the guide to engage and lower articles placed in the guide, means for regulating the speed of rotation of the spiral member, and means arranged at the end of the spiral for ejecting the articles from the guide.

3. A lowering device, comprising a tubular guide having a longitudinal opening in one side thereof and an opening in the opposite side at the bottom, a spiral member having its axis journaled in parallel relation to the guide and having its perimeter extending through the longitudinal opening therein and adapted to lower articles placed in the guide, means for regulating the speed of ro-

tation of said spiral member, and means arranged at the bottom of the spiral member for ejecting the articles lowered in the guide through the bottom opening in the guide.

4. A lowering device, comprising a tubular guide having a longitudinal opening in the side, a platform arranged on the top of the guide having an opening therethrough leading to the guide, a spiral member journaled parallel to the axis of the guide and extending through the longitudinal opening of the guide and adapted to engage articles passed through the opening in said platform and to lower them in the guide, and means for regulating the operation of the spiral member.

5. A lowering device, comprising a part cylindrical guide having the open side thereof extending from end to end, a spiral shaft journaled at its top and bottom ends parallel with said guide and extending through the side opening, means for regulating the speed of rotation of said spiral member, a platform arranged at the bottom of the guide, an opening from said guide at the bottom arranged in alignment with said platform, an arm secured to said spiral shaft at the bottom adapted to engage and move articles lowered by the spiral member on said platform through the opening in the guide, and means for directing articles to be lowered into the top of said guide.

6. A lowering device, comprising a guide closed at one end, a spiral member arranged external to the guide and rotating on its axis to engage and move the articles placed in the guide, and means operating in unison with the spiral member for removing the articles from the guide.

CHARLES W. WALKER.