

June 7, 1932.

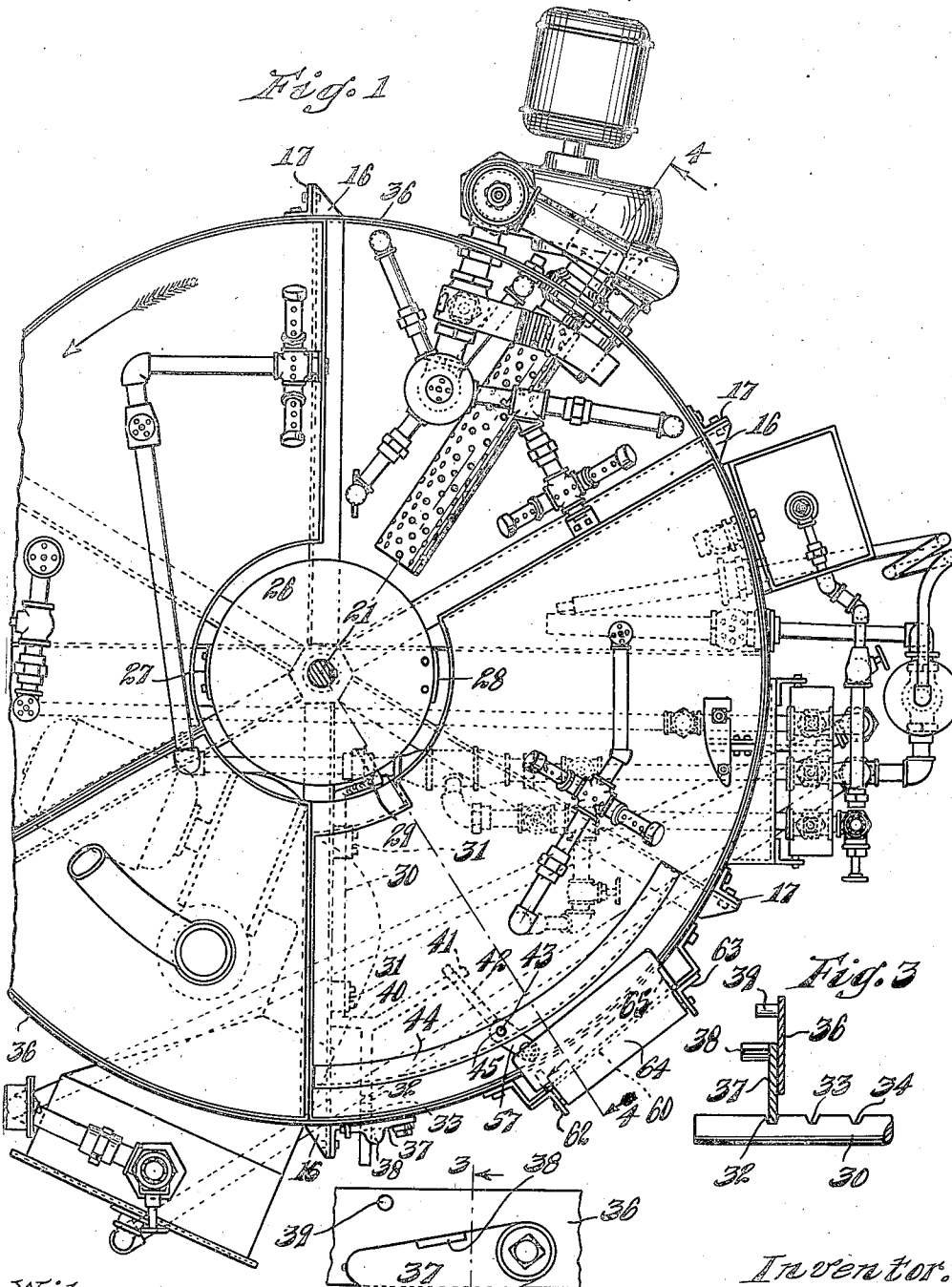
C. F. McEWAN

1,862,485

ROTARY CONVEYER

Original Filed Oct. 10, 1928 5 Sheets-Sheet 1

Fig. 1



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Fig. 2

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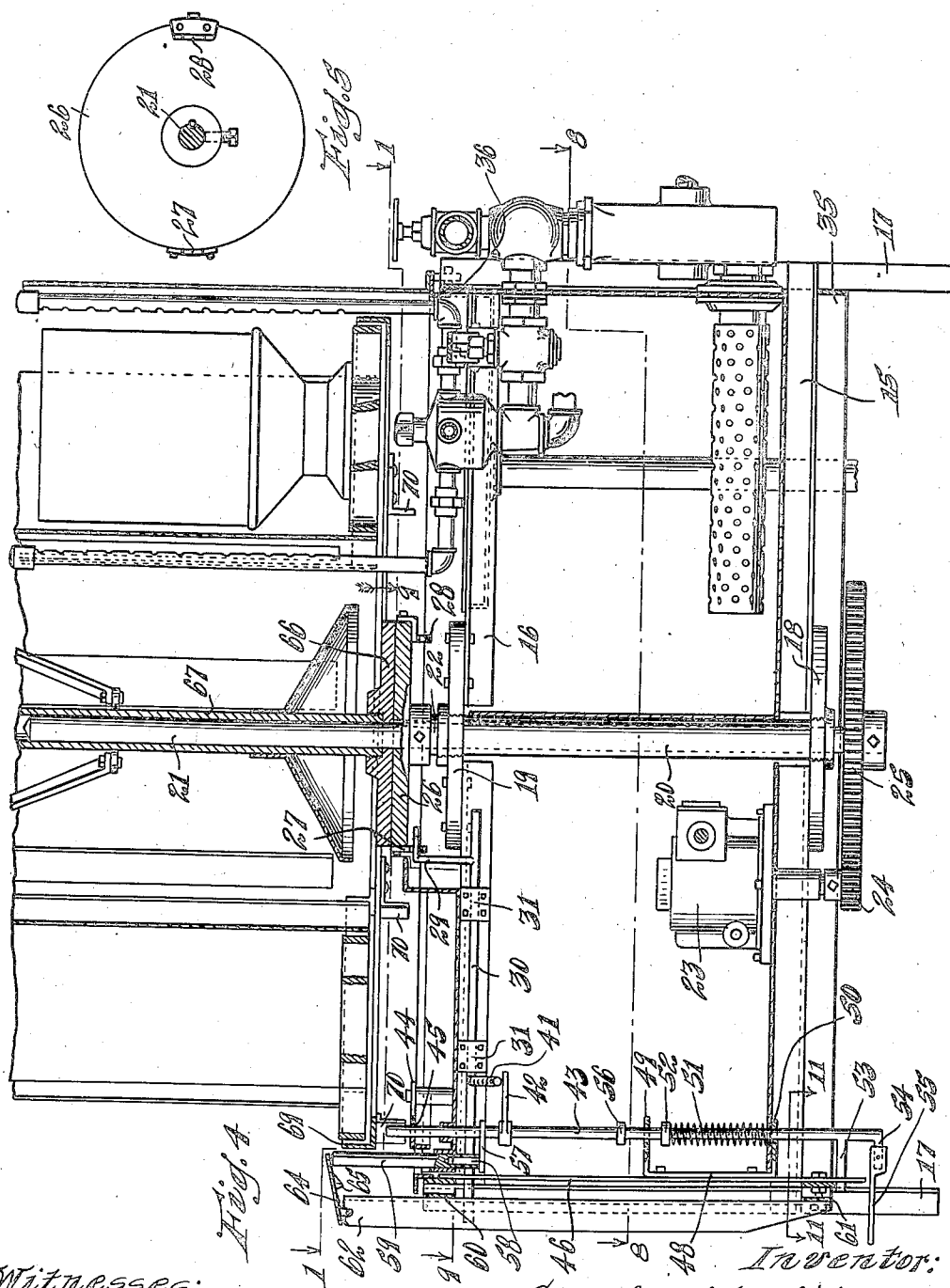
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ROTARY CONVEYER

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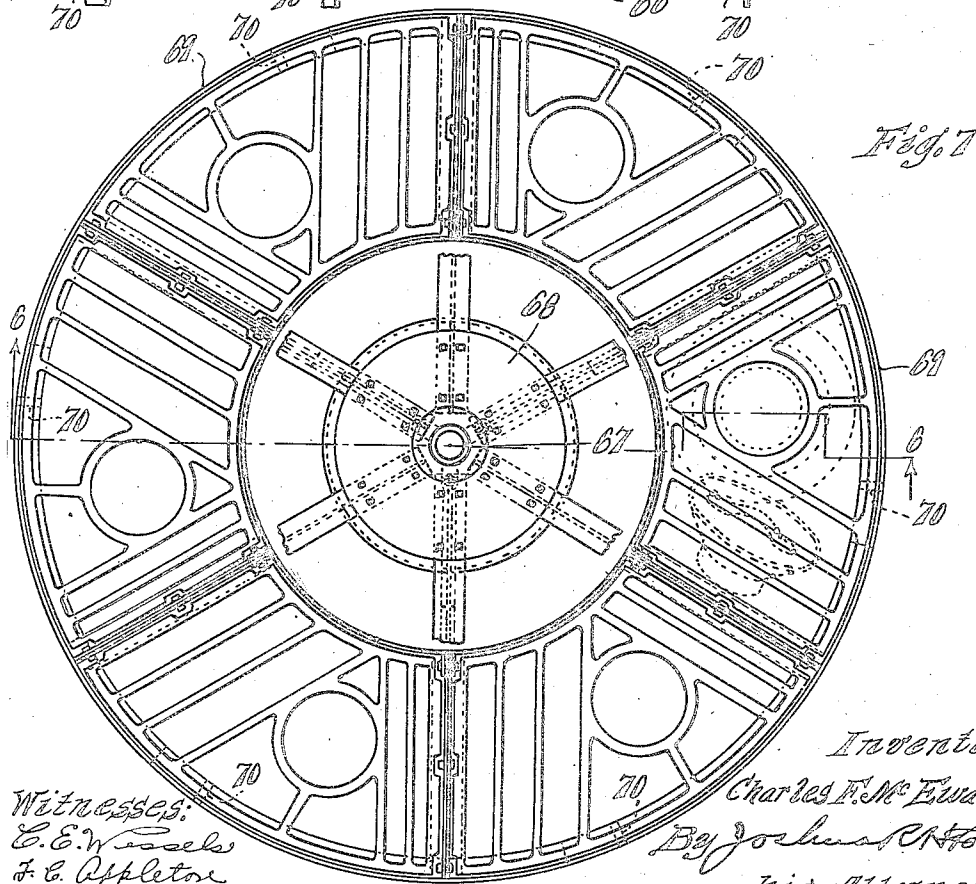
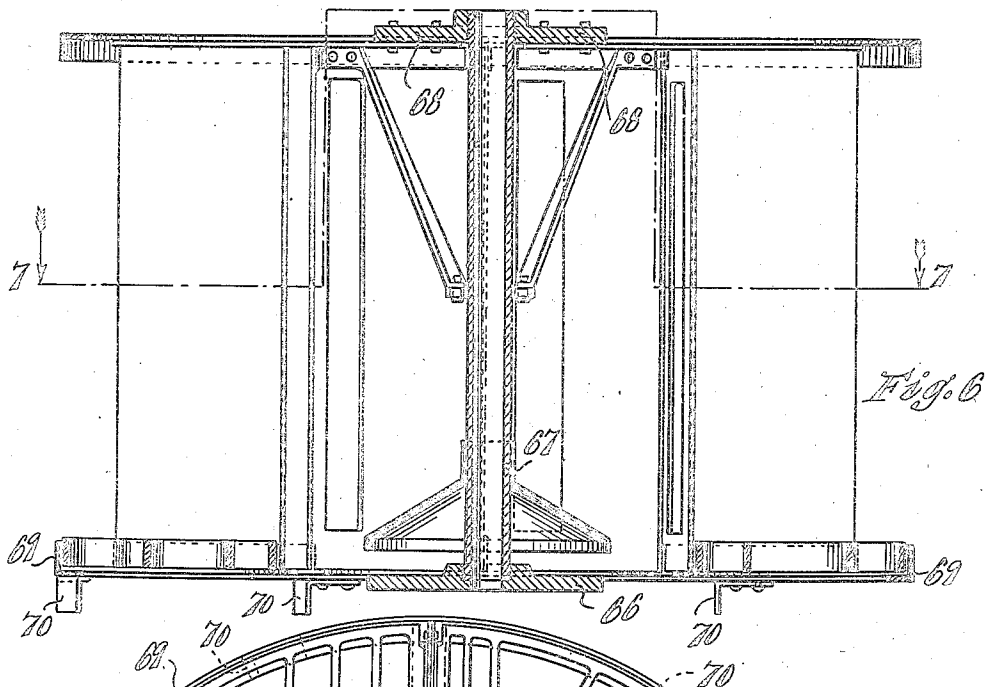
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ROTARY CONVEYER

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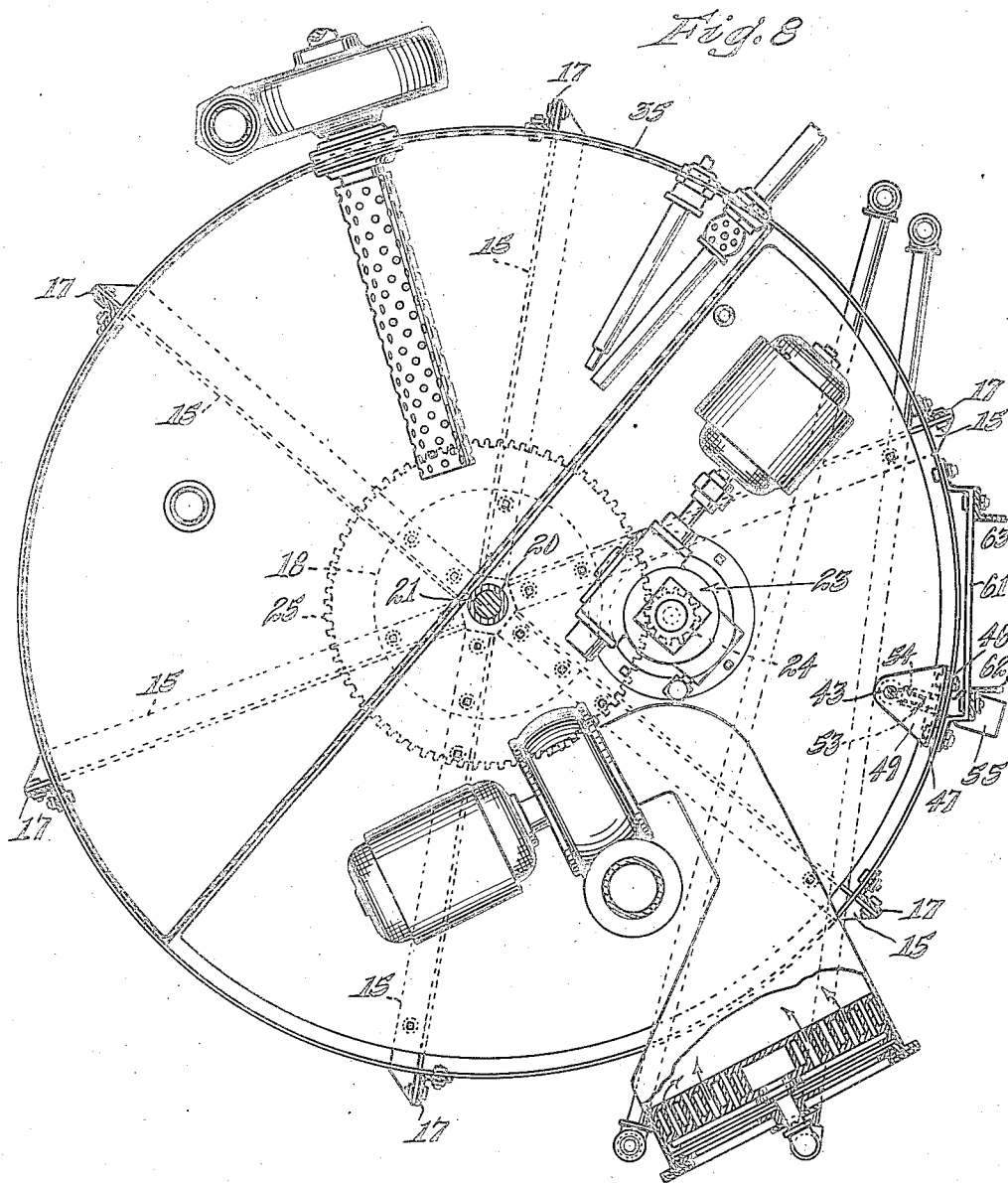
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ROTARY CONVEYER

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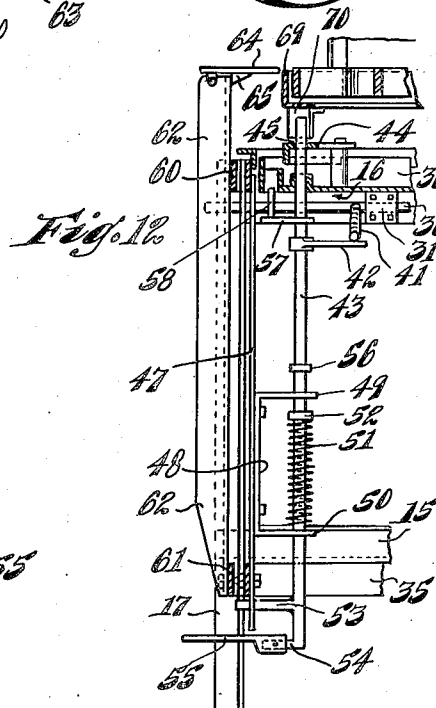
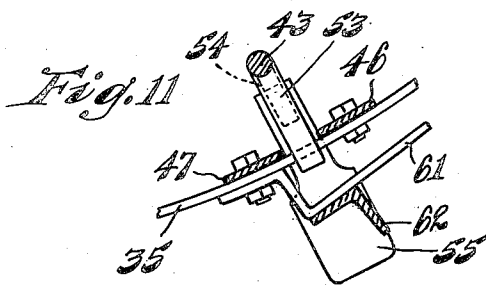
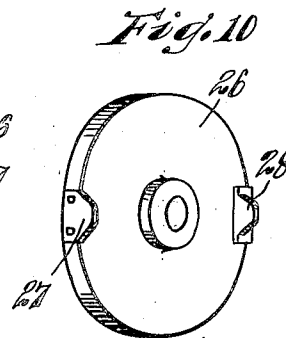
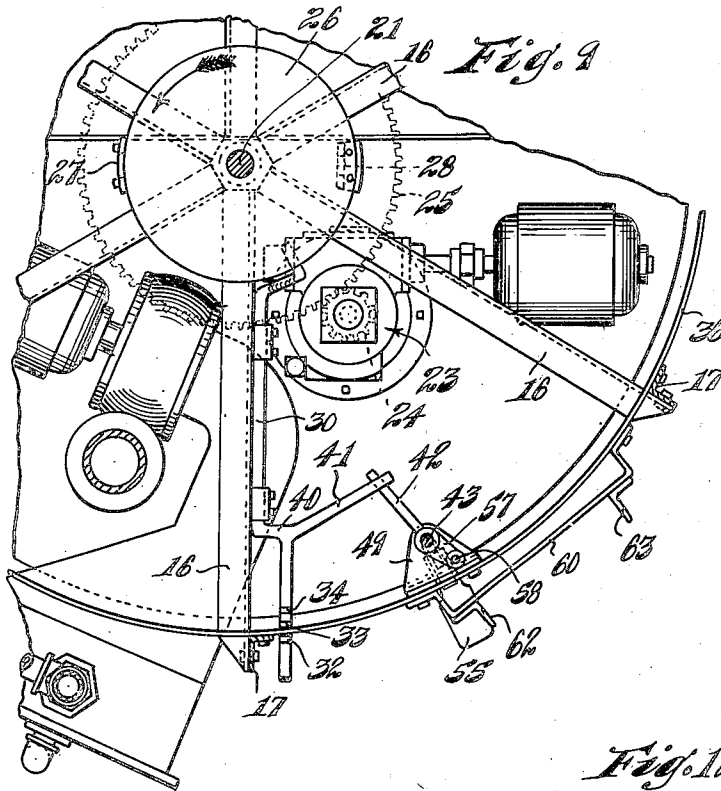
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ROTARY CONVEYER

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UNITED STATES PATENT OFFICE

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ROTARY CONVEYER

Original application filed October 10, 1928, Serial No. 311,538. Divided and this application filed May 25, 1931. Serial No. 539,717.

This invention relates to a rotary conveyer especially adapted for use in combination with other parts for conveying a member which is adapted to contain objects desired to be treated in intermittent step by step fashion, and in the present embodiment of my invention I have illustrated it in connection with other parts forming a can washing machine used for washing, sterilizing and drying milk cans and covers. The subject matter of this application is divided out of an application filed by me on October 10, 1928, entitled "Rotary can washing machine" and given Serial Number 311,538. An object of the invention is the provision of an improved conveyer to be used in this connection whereby the duration of the intermittent, successive washing, sterilizing and drying operations may be varied, and wherein the machine will continue to operate automatically upon one adjustment of the period of duration of the successive operations until a second adjustment is made.

Another object is the provision of improved driving means which will be highly efficient and safe in use.

Another object is the provision of mechanism of the character described which is durable in construction, and which is very simple in operation.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings, forming a part of this specification, and in which:

Fig. 1 is a plan view of the lower stationary portion of a complete machine, taken substantially on the line 1—1 of Fig. 4;

Fig. 2 is a detail elevational view of the locking means for maintaining the rest period control rod in any adjusted position;

Fig. 3 is a sectional view, taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is a vertical sectional view of the stationary base and superposed rotary can carriage member, taken substantially on the

line 4—4 of Fig. 1, illustrating certain parts in elevation;

Fig. 5 is an inverted face view of the rotary driving disc of my novel driving means;

Fig. 6 is a vertical sectional view of the rotary can and cover carriage used in connection with my conveyer, and is taken substantially on the line 6—6 of Fig. 7;

Fig. 7 is a plan view, partly in section, of the structure shown in Fig. 6, taken substantially on the line 7—7 of Fig. 6;

Fig. 8 is a plan view of the lower portion of the stationary supporting structure, taken substantially on the line 8—8 of Fig. 4;

Fig. 9 is a fragmentary plan view, taken substantially on the line 9—9 of Fig. 4, and illustrating more clearly the stop and release members of my carriage and conveyer;

Fig. 10 is a perspective view of my driving disc, illustrating particularly the shoes which release the carriage after it has been stopped;

Fig. 11 is a detail view of the foot control which may be used for regulating the periods of rest for the carriage, and taken substantially on the line 11—11 of Fig. 4; and

Fig. 12 is a fragmentary view, similar to that shown in Fig. 4, and illustrates my loading platform with the stop releasing pin removed from beneath the platform.

As illustrated in the drawings, the preferred embodiment of my conveyer comprises a lower stationary frame structure consisting of lower radially extending angle irons 15, upper radially extending angle irons 16, and vertically extending angle irons 17 which connect corresponding pairs of angle irons 15 and 16 and which preferably extend a sufficient distance beneath irons 15 to form supporting legs for the structure. The lower angle irons are preferably secured to a stationary circular plate 18 by means of bolts or rivets, and similarly the inner ends of upper angle irons are secured to circular plate 19. Threaded into the respective plates 18 and 19 is a vertically extending sleeve member 20 within which is rotatably mounted a vertically extending shaft 21. Shaft 21 is preferably arranged to make a fairly close fit within sleeve 20 to insure smoothness of operation, and is maintained in position by

a collar 22 adapted to bear against the central portion of plate 19. Power is preferably supplied by means of an electric motor and reduction gearing assembly 23 mounted upon the frame of the machine, the shaft of which is provided with a pinion 24 to mesh with a gear 25 secured to the lower end of shaft 21. At a suitable location intermediate the length of shaft 21, there is secured thereto a driving disc 26, preferably of steel construction, and provided with an upper flat surface adapted for frictional engagement with a corresponding driven disc later to be described. Disc 26 may be rigidly secured to shaft 21 so that it may turn with said shaft and be turned by it. To the periphery of disc 26 may be attached shoes 27 and 28, and it is to be noted that shoe 28 is laterally inset from the periphery of disc 26 so that the shoe is located at a shorter distance from the center of the disc than is shoe 27. Shoes 27 and 28 may partake of the outline of the frustrum of a cone, as is clearly illustrated in Fig. 10. These shoes 27 and 28 are adapted for engagement with the inverted L-shaped portion 29 of rod 30. Rod 30 may be mounted upon one of the radially extending angle irons 16 by means of brackets 31. Toward the outer end of rod 30 may be provided notches 32, 33, and 34.

To the outer ends of radially extending angle irons 15 and 16 may be attached bands 35 and 36. To band 36 may be attached plate 37 having outwardly extending hand engaging lug 38, as is clearly illustrated in Figs. 1, 2, and 3. To band 36 may also be attached projecting lug 39 for the purpose of limiting the upward movement of plate 37. Rod 30 is slidable in brackets 31, and as can be seen clearly in Figs. 1, 2 and 3, plate 37 may be raised to disengage it from one of notches 32, 33, or 34, and be pulled outwardly or pushed inwardly to engage a different notch; when one of the notches is in alignment with plate 37 it may be dropped into the notch and thus form a locking engagement with rod 30. In Figs. 1, 3 and 4 plate 37 is in engagement with notch 32 and thus rod 30 is pushed inwardly to a point where inverted L-shaped portion 29 will be in a position to engage both shoe 27 and shoe 28. As can be clearly seen in Fig. 1, rod 30 is offset at 40 and at this point is provided with an outwardly and downwardly extending arm 41 which is adapted upon being turned downwardly when shoes 27 and 28 engage L-shaped portion 29 to bear against arm 42 which is secured to stop rod 43. To upper radially extending angle iron 16 may be attached crescent shaped angle iron 44 which may be provided intermediate its ends with aperture 45 through which stop rod 43 is adapted to extend. As is shown clearly in Fig. 11, vertically extending bars 46 and 47 are secured to bands 35 and 36 and support a bracket 48 which has two inwardly pro-

jecting lugs 49 and 50 which have appropriate apertures for the reception of stop rod 43. Between projecting lugs 49 and 50 and about rod 43 is fitted a compression spring 51 which is adapted to seat against collar 52. Toward the bottom end of rod 43 may be provided outwardly extending arm 53 which is adapted to extend between bars 46 and 47 and thus prevent rotational movement of rod 43. Another outward extension 54 may be provided on rod 43 and pedal extension 55 may be secured thereto for the depressing of rod 43 by the foot of the operator. Above projecting lug 49 may be provided a collar 56 for the purpose of limiting the downward movement of rod 43. Toward the top of rod 43 and above arm extension 42 may be provided an outwardly extending arm 57 which may have vertically extending projection 58 for engagement by an appropriate slot in the base of pin 59.

To upper band 36 may be attached a strap bar 60, and to lower band 35 may be attached strap bar 61, as is illustrated clearly in Figs. 9 and 10. To the outer extremity of bars 60 and 61 may be attached angle irons 62 and 63, between and to which may be pivoted platform 64 which is provided with depending lug braces 65. As can be seen in Fig. 4, platform 64 bears against pin 59 when pin 59 is in position on projection 58.

The carriage member which may be used in connection with my conveyer may be provided with a driven disc 66 having sleeve member 67 threaded thereinto, said sleeve 67 being threaded into circular plate 68 at its upper extremity. Discs 66 and 26 are adapted to rest one on the other as is indicated clearly in Fig. 4. Shaft 21 is adapted to extend upwardly into sleeve 67 and will thus hold discs 26 and 66 in alignment at all times. To sleeve 67 may be attached an appropriate framework for the desired purposes and may be braced to form a rigid structure for the reception of articles desired to be treated. A more thorough description of such a carriage may be found in the application from which the subject matter of this application has been divided. However, around the lower portion of the carriage may be provided an angle band 69 which may have thereto attached a plurality of depending lugs 70 for the purpose of engaging stop rod 43 as the carriage is turned about shaft 21.

In operation, articles may be placed in or upon the carriage, power transmitted through pinion 24 to gear 25, thus turning shaft 21 and disc 26. The frictional engagement of disc 26 with disc 66 will turn disc 66 and the carriage thereto attached until one of lugs 70 impinges against stop rod 43 and thus the carriage will be stopped for a period of time. However, shaft 21 with disc 26 will continue to rotate alone until one of the shoes 27 or 28 engages inverted L-shaped

portion 29 of rod 30, thus causing it to rock and cause arm 41 to impinge on arm 42 attached securely to rod 43, thus depressing rod 43 and removing it from the path of lug 70. As illustrated in Fig. 4, the rod 30 is in position so that L-shaped portion 29 will be engaged by both of shoes 27 and 28 and thus will cause the release of the carriage twice in one complete turn of disc 26. However, by raising plate 37, pulling rod 30 outwardly until plate 37 engages notch 33, the L-shaped portion 29 will be in position to engage only shoe 27 and thus the carriage will be released only once in one complete turn of disc 26. It is understood that when stop member 43 engages one of lugs 70, disc 66 slips upon disc 26 until stop member 43 is forced downwardly and then the frictional engagement between the discs causes the carriage to rotate with disc 26.

Sometimes it may be desirable to operate the device and move the carriage at the end of a length of time which is determined by the judgment of the operator, and in such a case I have provided two different means by which this may be done. In order to operate the entire mechanism in this manner it is necessary first to raise plate 37, pull rod 30 outwardly until plate 37 may engage notch 34, and thus the automatic release will no longer be in operation. In the first place, a pedal 55 may be depressed and because of its attachment to rod 43 will draw the rod downwardly out of engagement with lug 70 and thus the frictional engagement between the two discs 26 and 66 will again cause the carriage to move. Immediately after the foot is removed from pedal 55, compression spring 51 acting against collar 52 will force stop rod 43 upwardly in a position to engage the next succeeding lug 70 attached to the carriage. However, it may be desirable to regulate the time of rest of the carriage by the placing of articles into or upon the carriage, and for this purpose I have provided loading platform 64 which may be used with pin 59, acting upon projection 58 and against arm 57, to depress rod 43. It can be seen that the slot engagement of pin 59 with projection 58 will permit automatic release of rod 43 and yet will give a means by which the operator may release the carriage in his discretion when so desired. If it is desired to have the carriage released automatically and yet use platform 64 for loading without releasing the carriage, pin 59 may be removed at any time and thus the lug 65 on platform 64 will rest against angle irons 62 and 63.

It can be seen that in case of an accident or emergency in which the carriage is stopped from further movement by some unforeseen contingency, that because of the frictional engagement of discs 26 and 27 no damage will be caused to the driving mechanism in any manner whatsoever.

It can be seen that many variations may be made in the construction of my conveyer and means for stopping and releasing the carriage, without departing from the spirit of my invention, and hence I do not wish to be limited to the details herein set forth, but wish to avail myself of any and all variations coming within the scope of the appended claims.

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

1. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said carriage upon rotation of said drive shaft, means for periodically engaging said carriage to arrest the travel thereof, and means for selectively varying the duration of the periods of rest of said carriage.

2. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said carriage upon rotation of said drive shaft, a slidably mounted stop rod adapted to periodically engage and arrest the travel of said carriage, and means upon said drive disc for releasing said stop rod.

3. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said carriage upon rotation of said drive shaft, a slidably mounted stop rod adapted to periodically engage and arrest the travel of said carriage, and a shoe member mounted upon said drive disc for periodically engaging and releasing said stop rod.

4. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said carriage upon rotation of said drive shaft, a slidably mounted stop rod adapted to periodically engage and arrest the travel of said carriage, means upon said carriage for releasing said stop rod, and means for selectively varying the duration of the periods of rest of said carriage.

5. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said

carriage upon rotation of said drive shaft, a plurality of circumferentially spaced lugs mounted upon said carriage, a slidably mounted stop rod adapted to successively engage said lugs to arrest the travel of said carriage, a pivotally mounted loading platform, and means adapted to release said stop rod upon depression of said loading platform.

- 10 6. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said carriage upon rotation of said drive shaft, a plurality of circumferentially spaced lugs mounted upon said carriage, a slidably mounted stop rod adapted to successively engage said lugs to arrest the travel of said carriage, a plurality of shoe members mounted upon said drive disc at unequal distances from the center thereof, and a rest period control member adapted to engage and release said stop rod upon contact of a shoe member with said control member, said control member in one position adapted to be contacted by one shoe member upon each complete rotation of said drive disc and
- 15 20 25 30 adapted to be contacted by more than one of said shoe members upon each complete rotation of said drive disc in a second position of said control member.

7. Conveying apparatus of the character described comprising, in combination, a drive shaft, a drive disc mounted upon said drive shaft, a carriage, a driven disc mounted upon said carriage and adapted to frictionally engage said drive disc to rotate said carriage upon rotation of said drive shaft, a plurality of circumferentially spaced lugs mounted upon said carriage, a slidably mounted stop rod adapted to successively engage said lugs to arrest the travel of said carriage, a pair of shoe members mounted diametrically opposite upon said drive disc and at unequal distances from the center thereof, and a slidably mounted rest period control rod adapted upon actuation to engage and release said stop rod, said control rod in one position arranged to be engaged by only one of said shoe members and in a second position arranged to be engaged by both of said shoe members.

- 55 In testimony whereof I have signed my name to this specification.

CHARLES F. McEWAN.