

Nov. 26, 1929.

P. NAVARRE

1,736,935

AUTOMATIC BASKET FEEDER

Filed April 30, 1928

3 Sheets-Sheet 1

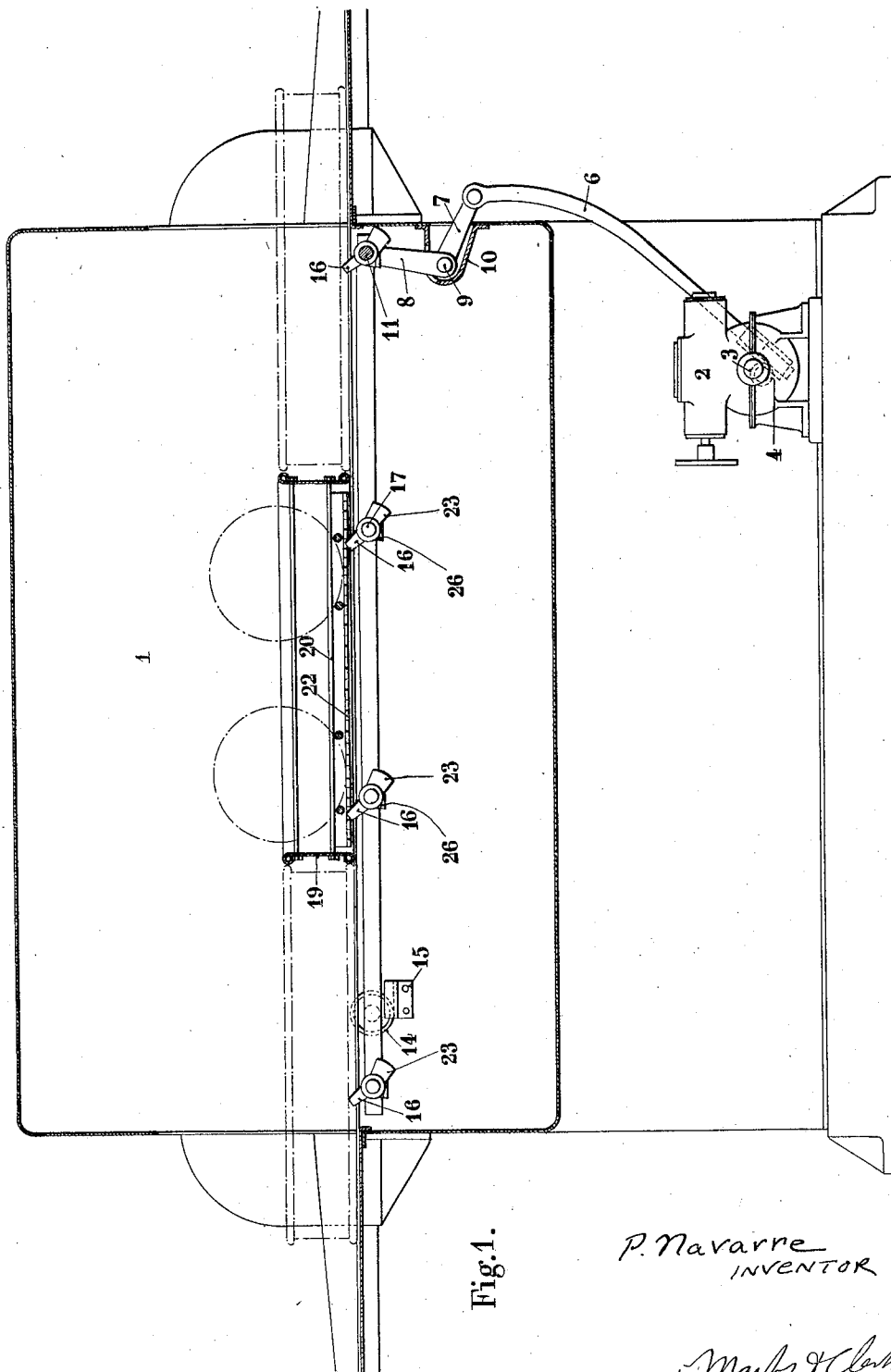


Fig. 1.

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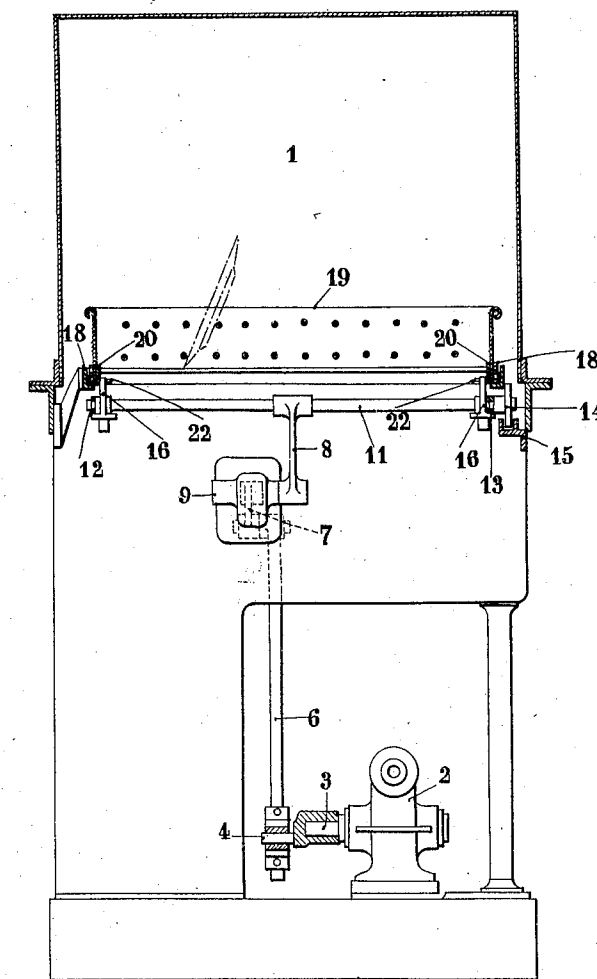
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Fig .2.



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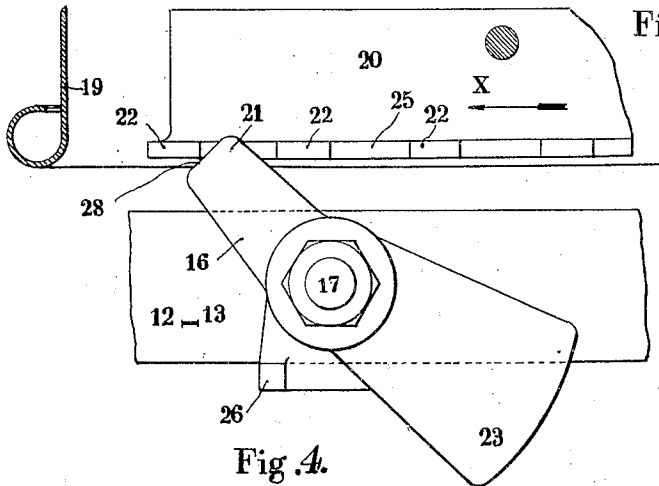


Fig. 3.

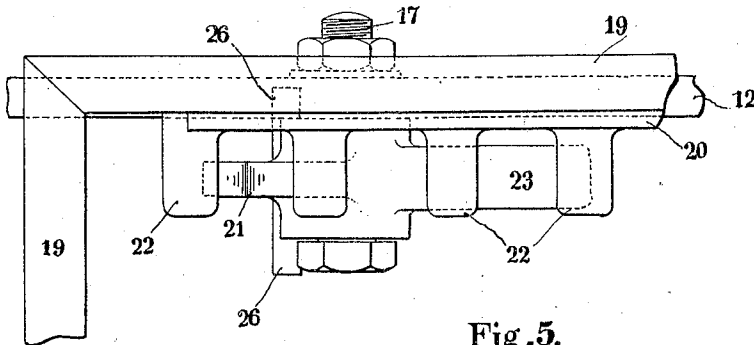
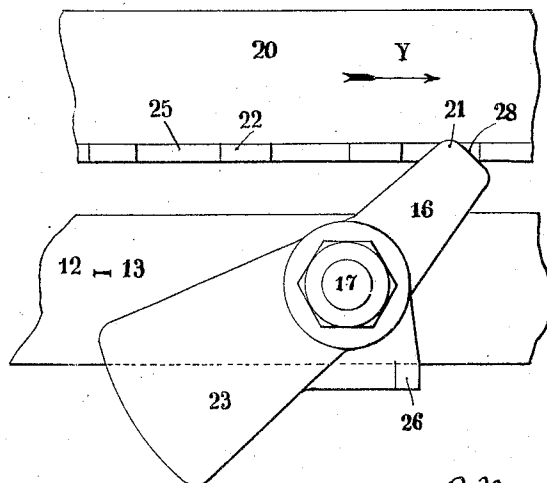


Fig. 5.



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## UNITED STATES PATENT OFFICE

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## AUTOMATIC BASKET FEEDER

Application filed April 30, 1928, Serial No. 274,106, and in France January 16, 1928.

The present invention has for its object improvements in the construction of machines for washing plates and dishes or mechanical members.

5 These improvements concern the automatic feed system of the baskets receiving the plates and dishes or the mechanical members in their transport through a longitudinal machine.

10 In actual machines, this automatic feed system is generally realized by two tracks formed of jointed chains carrying the baskets and drawing them along in a continuous manner by any hooking system, either by  
15 tenons carried by the baskets and fitting in the chains, or by abutments carried by the chains and controlling the feed of the baskets.

In general this conveying structure is  
20 driven by an electric motor, a speed reducing device and a series of chains and pinions ensuring the desired speed of the feed. The motor drives, at the same time, a centrifugal pump serving for the washing of the mem-  
25 bers contained in the baskets so that it can only rotate in a determined direction which is the direction of rotation of the pump. Now, these washing machines must convey the baskets either towards the right or towards  
30 the left, according to the direction of the plant feeding these said machines. The provision of these two directions of working interferes with an effective mass production of these machines, owing to the difficulties  
35 experienced in assembling the same.

Among other things, must be provided, a stock of speed reducing devices, the shaft of which rotates either to the right or to the left; machines must be provided with the  
40 translation control shaft either at the right or at the left in order that the taut side of the chains may be always situated uppermost. It is also frequently noticed, during the installation of a machine adapted for working  
45 to the right, for instance, that the working or advance towards the left would be more convenient; the modification then involves long and costly work. On the other hand, the utilization in hot water, of jointed chains  
50 presents serious mechanical problems, owing

to the impossibility of ensuring the lubrication of said chains.

The present invention has for its object a device ensuring the automatic feed of the baskets, which is essentially constituted by  
55 bars or links receiving by any suitable means, a reciprocating movement and carrying swinging tappets so arranged as to be automatically brought back into suitable positions in order to withdraw from the fulcrums  
60 of the baskets or to press against these fulcrums. The driving tappets are, moreover, mounted on the rods or links so as to be capable of being easily removed and turned  
65 over for changing the direction of advance of the baskets.

The automatic feed system according to the present invention is more simple, less expensive and less fragile than the chain system actually employed and it permits, moreover,  
70 of changing, in a few minutes, the direction of working of the machine, by using exactly the same constituent parts above defined. This control of the feed allows, on the other  
75 hand, the sliding of the baskets on the translation members without detriment to the mechanism, for instance, where an obstacle prevents their advance at the exterior of the machine.

The accompanying drawing illustrates, by  
80 way of example, a form of construction of the improvements forming the subject-matter of the present invention.

Figure 1 is a front elevation of the system according to the invention adapted to  
85 a machine for washing the plates and dishes or mechanical members, which is shown diagrammatically.

Figure 2 is a corresponding end view  
partly in section.

Figure 3 is a detail view on an enlarged  
90 scale showing the members for feeding the baskets.

Figure 4 is a corresponding plan view.

Figure 5 shows the same members in the  
95 return position for reversing the direction of feed of the baskets.

As shown in the drawing, the machine for washing plates and dishes or mechanical members, diagrammatically indicated at 1, 100

comprises a speed reducing device 2 provided with a worm, carrying on its shaft 3, a crank 4 which, by means of a bearing and a link 6 transmits the movement to a bell crank constituted by levers 7 and 8 mounted on a common axis 9 journaled in the support 10.

On the lever 8 is mounted a transverse axis 11 transmitting the reciprocating movement to two longitudinal bars or links 12 and 13 which are each supported at the other end of the machine by a roller 14 and a raceway 15.

On these bars are mounted driving tappets 16 pivoted on axes 17 and each having a hooking end 21, a counterweight 23 and two side abutments 26. Angle irons 18 constitute a slide way for the baskets 19, at the lower part of the longitudinal sides of which, are secured angle irons 20, the horizontal wing of which is cut out so as to form a rack between the teeth 22 of which automatically engages the hooking end 21 of the tappets 16, as explained hereinafter.

The bars or links 12 and 13, which draw along the tappets 16, receive a reciprocating movement, of an amplitude superior to the pitch of the teeth of the rack, and determined by the stroke of the crank 4 and the ratio of the levers 7 and 8.

The operation is as follows:

Each basket is introduced and pushed in the machine, in the direction of the arrow X indicated in Fig. 4, so that the front part of this basket is presented at least at the level of the first tappet 16 of each bar or link. This tappet in its backward movement automatically withdraws itself by freely pivoting on its axis 17 when its hooking end 21 passes under the first tooth 22 of the rack 20 which it encounters and springs up again at once, brought back in its position by the counterweight 23, as soon as its end 21 comes opposite the space 25 separating two adjacent teeth of the rack. The abutment 26 takes a bearing on the bar 12 or 13 and in its forward movement, the tappet 16, still held by its abutment 26 and engaged by its end 21, in a hollow of the rack, pushes the basket, to an extent equal to the throw of the bars 12 and 13.

Upon the following displacement, the tappet takes a bearing on another tooth in the same conditions and so on, until another tappet takes up the basket. The latter is thus conveyed through the machine successively by each of the tappets. The end of these tappets carries, at the front, a safety incline 28 which, in the case of an outside obstacle preventing the advance of the baskets, allows the tappets to move and lift the baskets without drawing them along, this doing away with all injury to the mechanism.

The above-described device permits, if necessary, of changing the direction of advance of the baskets.

Referring to Fig. 5 it will be seen that the only transformation to be effected consists in removing the axes 17 and the tappets 16, and replacing these members by turning over the tappets on their axis.

The abutment 26 of each tappet being provided in duplicate for acting, whether the tappets are mounted in one direction or the other, the feeding of the baskets is effected, when the tappets are in the position shown in Fig. 5, in the direction of the arrow Y, that is to say, in the reverse direction to that described in connection with Figs. 1 to 4.

It is seen from the foregoing, that the device, forming the subject-matter of the present invention, for automatically feeding the baskets in machines for washing plates and dishes or mechanical members, is simpler, stronger and cheaper than the system of jointed chains actually used. It is also understood that it allows of changing the direction of feed of the baskets; this operation can be effected, in a few minutes, by any inexperienced person. Finally this device which allows, on the other hand, no provision of any special element or assemblage for one direction or the other, thus prevents all complication in the storing, the machining and the assembling in mass production.

The above-described arrangements are of course given by way of example only; the forms, materials used and dimensions of the constituent parts as well as all details of construction may be modified without departing thereby from the principle of the invention.

#### Claims:—

1. A device for automatically feeding the baskets in machines for washing plates and dishes or mechanical members, comprising: baskets containing the articles to be washed,—two longitudinal guides supporting these baskets and adapted to guide the same through the machine,—inner abutments carried by two opposite walls of these baskets,—two parallel bars arranged under the baskets,—a transverse rod connecting these bars at one end,—a roller loosely mounted at the other end of each bar, two fixed guides adapted to form a raceway for the said rollers,—means for imparting to the transverse rod and to the bars connected by the latter a reciprocating displacement in a horizontal direction,—trunnions removably secured in each bar,—tappets loosely mounted on these trunnions and adapted to automatically come in engagement with the inner abutments of the baskets and to drive these latter when the bars are moved in one direction and to automatically withdraw when these bars are moved in the opposite direction,—and means integral with the tappets and adapted to allow of mounting these tappets on their trunnions in two reverse directions and to thus modify the direction of translation of the baskets.

2. A device for automatically feeding the baskets in machines for washing plates and dishes or mechanical members, comprising: baskets containing the articles to be washed,—two longitudinal guides supporting these baskets and adapted to guide the same through the machine,—inner abutments carried by two opposite walls of these baskets,—two parallel bars arranged under the baskets,—a transverse rod connecting these bars at one end,—a roller loosely mounted at the other end of each bar, two fixed guides adapted to form a raceway for the said rollers,—a crank coupled to the transverse rod connecting the two said bars,—a horizontal shaft carrying this crank, means for imparting to this shaft an angular reciprocating displacement and for controlling the rectilinear reciprocating displacement of the bars,—trunnions removably secured in each bar,—tappets loosely mounted on these trunnions and adapted to automatically come in engagement with the inner abutments of the baskets and to drive these latter when the bars are moved in one direction and to automatically withdraw when these bars are moved in the opposite direction,—and means integral with the tappets and adapted to allow of mounting these tappets on their trunnions in two reverse directions and to thus modify the direction of translation of the baskets.
3. A device for automatically feeding the baskets in machines for washing plates and dishes or mechanical members, comprising: baskets containing the articles to be washed,—two longitudinal guides supporting these baskets and adapted to guide the same through the machine,—two racks each secured on the inner face of two opposite walls of each basket,—two parallel bars arranged under the baskets,—a transverse rod connecting these bars at one end,—a roller loosely mounted at the other end of each bar, two fixed guides adapted to form a raceway for the said rollers,—a crank coupled to the transverse rod connecting the two said bars,—a horizontal shaft carrying this crank, means for imparting to this shaft an angular reciprocating displacement and for controlling the rectilinear reciprocating displacement of the bars,—trunnions removably secured in each bar,—rocking tappets loosely mounted on these trunnions,—a counterweight rigid with each tappet and adapted to bring back the latter in the raised position,—and an abutment integral with each tappet and adapted to hold it in raised position by allowing its engagement between the teeth of the racks on the baskets and the actuation of these latter when the bars are moved in one direction and its withdrawal when the bars are moved in the opposite direction.
4. A device for automatically feeding the baskets in machines for washing plates and dishes or mechanical members comprising: baskets containing the articles to be washed,—two longitudinal guides supporting these baskets and adapted to guide the same through the machine,—two racks each secured on the inner face of two opposite walls of each basket,—two parallel bars arranged under the baskets,—a transverse rod connecting these bars at one end,—a roller loosely mounted at the other end of each bar, two fixed guides adapted to form a raceway for the said rollers,—a crank coupled to the transverse rod connecting the two said bars,—a horizontal shaft carrying this crank, and means for imparting to this shaft an angular reciprocating displacement and for controlling the rectilinear reciprocating displacement of the bars,—trunnions removably secured in each bar,—tappets freely rocking on these trunnions and adapted to be mounted in two reversed positions on the said trunnions,—a counterweight integral with each of these tappets and adapted to automatically determine their rising movement in one or the other of their two positions,—a double abutment integral with each of these tappets and adapted to take a bearing on the bars carrying the tappets in one or the other of the two positions of these latter and for holding them in raised position by allowing automatic engagement between the teeth of the racks on the baskets and the actuation of these latter during the displacement of the bars in a determined direction and their automatic release during the displacement of the said bars in the reverse direction,—and a safety incline formed on the end of each tappet and adapted to allow these tappets to lift the baskets without driving them along when these latter are held back for any cause whatever.
- The foregoing specification of my improvements in automatic basket feeder, signed by me this 18th day of April, 1928.
- PAUL NAVARRE.