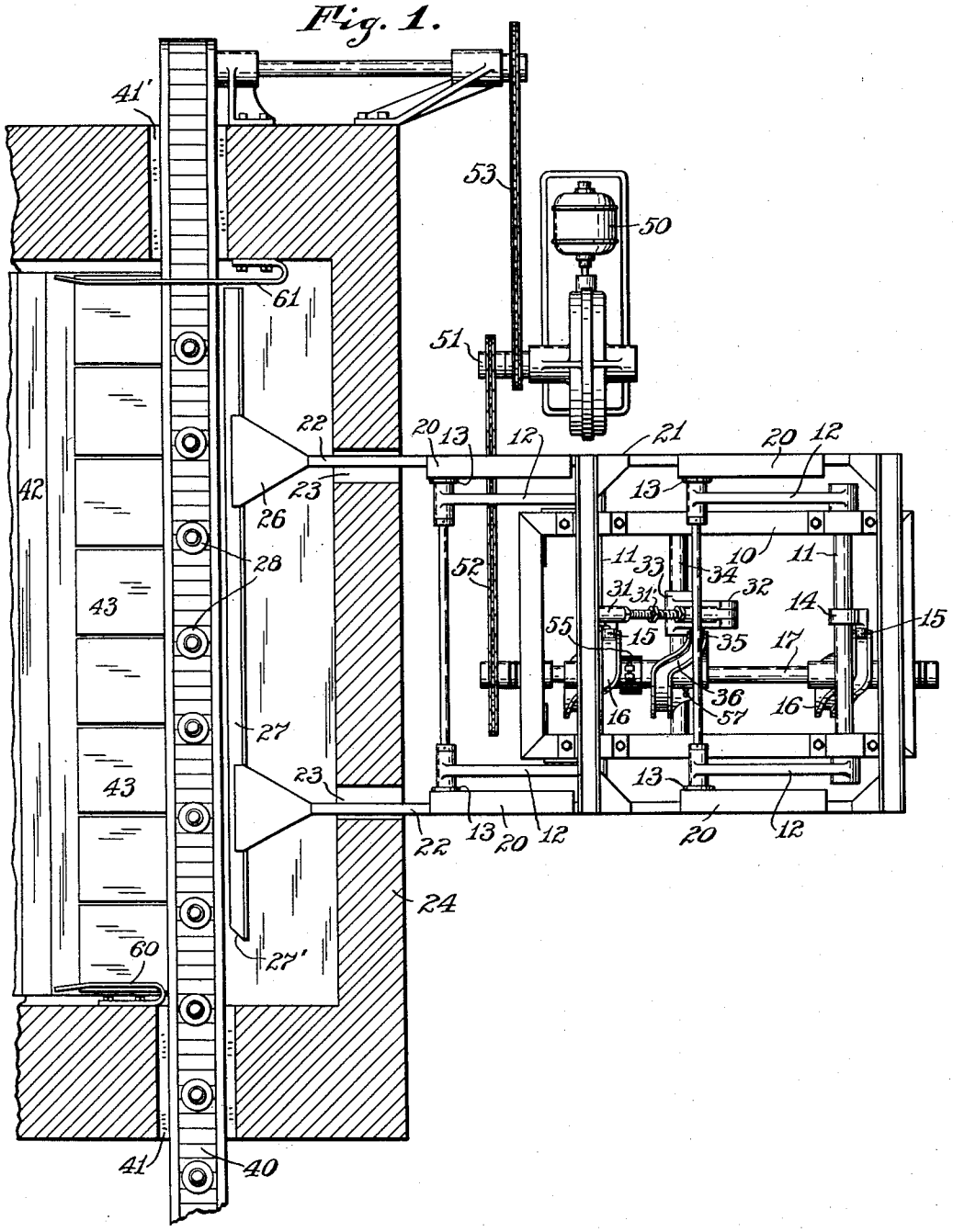
July 15, 1924. 1,501,602

M. K. HOLMES

LEER FEEDER

Filed Nov. 20, 1922 2 Sheets-Sheet 1

Fig. 1.



INVENTOR

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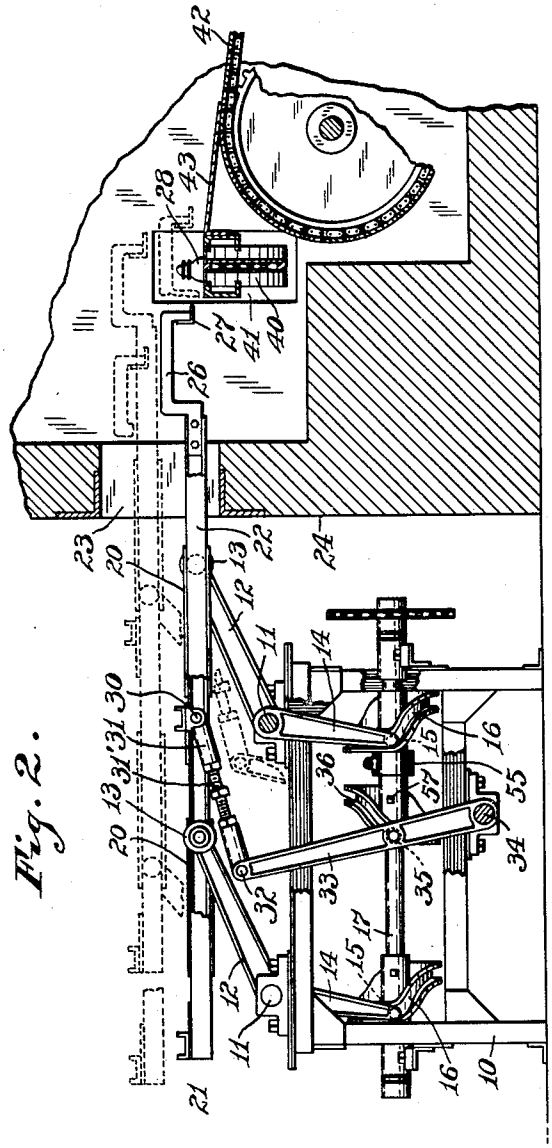


Fig. 2.

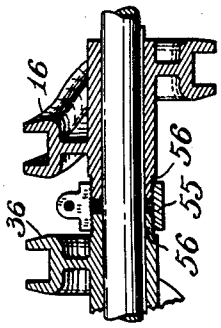


Fig. 3.

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UNITED STATES PATENT OFFICE.

MINOT K. HOLMES, OF MUNCIE, INDIANA, ASSIGNOR TO HEMINGRAY GLASS COMPANY, OF MUNCIE, INDIANA, A CORPORATION OF KENTUCKY.

LEER FEEDER.

Application filed November 20, 1922. Serial No. 602,270.

To all whom it may concern:

Be it known that I, MINOT K. HOLMES, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Leer Feeder, of which the following is a specification.

The object of my invention is to provide a simple and efficient mechanism by means of which freshly formed glass articles, and other similar articles, may be delivered into the leer or other treating mechanism, automatically.

The accompanying drawings illustrate my invention. Fig. 1 is a plan, with the receiving end of the leer shown in horizontal section; Fig. 2 is a side elevation, in partial vertical section, and Fig. 3 a sectional detail.

In the drawings, 10 indicates a suitable supporting frame arranged in front of the leer and supporting a pair of parallel rock shafts 11, 11, each of which carries a pair of upwardly and forwardly extending arms 12, 12, each equipped at its free end with a flanged roller 13. Each rock shaft 11 is provided with an operating arm 14, provided with a roller 15 at its lower end, said roller taking in the groove of a cam 16 carried by an operating shaft 17, journaled in suitable bearings on the frame.

Supported upon the rollers 13, by means of suitable channel tracks 20, is a frame 21 provided with forwardly extending arms 22, 22, which are projected through suitable small openings 23 in the front wall of the leer 24. The forward ends of bars 22, inside the leer 24, are provided with arch pieces 26 connected at their forward ends by a pusher bar 27, the height of the arches being sufficient to permit the unobstructed passage of the articles 28 which are to be delivered into the leer.

Pivoted at 30 on frame 21 is a link 31, the opposite end of said link being pivoted at 32 to the upper end of an operating lever 33 carried by a rock shaft 34 journaled in frame 10, and provided with a roller 35 taking into the track of a cam 36 mounted on shaft 17.

The articles 28, to be automatically delivered into the leer, are brought into position opposite the pusher bar 27, in a substantially continuous stream, by means of an endless conveyor 40, which is preferably provided with a smooth article-receiving face so that, in case of need, the conveyor may slide freely beneath the articles if the flow of the articles is obstructed. This conveyor 40 is projected through suitable openings 41, 41′ in the side walls of the leer and is arranged so that its upper run lies at about the level of the upper run of the leer belt 42, conveniently a trifle higher, and the space between the belt 40 and belt 42 is bridged by one, or a series of, bridge plates 43.

In the manufacture of glass articles by machinery, such articles are delivered to the carrier 40 in a substantially continuous stream with the articles slightly separated, and it is desirable that the movement of belt 40 be synchronized with the movements of the pusher bar. For that purpose, I provide a common motor 50 driving a counter shaft 51 which is connected by a suitable driving train 52 with shaft 17, and is connected by a suitable driving train 53 with belt 40.

In order that pusher bar 27 may be caused to move fairly closely to the upper surface of belt 40, so that the articles 28 may be engaged as nearly as possible at their bases, and in order to compensate for any variations in the pusher bar position due to temperature distortions, I have found it convenient to provide for a ready adjustment of that cam 16 which acts upon the forward rock shaft 11. This adjustment is obtained by means of an adjusting sleeve 55 internally threaded at its opposite ends with right and left threads and mounted upon correspondingly threaded hubs 56 of cam 36 and adjacent cam 16, the cams being conveniently splined upon shaft 17 and cam 36 being normally held in axial position by any suitable means, such for instance as the set screw 57.

The link 31 is preferably of turn buckle type, comprising the threaded member 31′ having oppositely threaded ends in order that the push frame 21 may be adjusted longitudinally relative to the carrier 40.

It is quite desirable that the starting and stopping movements of the ware laterally of the conveyor 40 be as gentle as possible, and for that reason great care should be exercised in designing the cam 36 so that the movements may be "soft." Cams 16 and 36 are preferably so proportioned that the vertical movements of the push frame will take

place at times when the longitudinal movement is substantially zero.

It has heretofore been considered necessary, in apparatus of this general type, to provide some sort of stop mechanism projectable over the belt 40 in position to interrupt the flow of articles along said conveyor immediately adjacent the path of travel of the pusher bar, in order that the pusher bar may not engage articles in such manner as to break them, this being due to the fact that occasionally an article may be so placed upon the conveyor as to arrive adjacent the initial end of the pusher bar in such way as to be pinched between the pusher bar and the side of the leer.

I have found that the necessity of such a stop mechanism may be avoided in the following manner:

Within the leer, adjacent the receiving opening 41, and just over the initial end of the bridge plates 43, I arrange a guard 60 which serves to limit the spread of the articles on the leer belt.

The initial end of the pusher bar 27 is then spaced from the line of guard 60 a distance just a trifle in excess of the largest diameter of the articles 28 which are to be handled, and this initial end is preferably tapered, as indicated at 27′, although this is not essential. I have found that, by thus proportioning the parts, it is not possible for an article to arrive within the leer in such manner that it can become pinched by the pusher bar and thereby injured.

The conveyor 40 and the pusher bar reciprocating mechanism are so synchronized that, under normal conditions, no article will reach the farther end of the pusher bar before such article has been pushed laterally from the conveyor 40 but, in order to guard against any ejection of articles from the leer by belt 40, the opening 41′ in the leer is guarded by a guard finger 61.

I claim as my invention:

1. A leer feeder comprising a main frame, a pair of rock shafts mounted on said main frame and carrying push frame supports, a push frame slidably mounted on said supports, means for intermittently rocking said shafts to raise and lower the push frame supports, and means for intermittently reciprocating the push frame on such supports.

2. A leer feeder comprising a main frame, a pair of rock shafts journaled on said main frame, a pair of arms carried by each rock shaft, each of said arms being provided with a push frame support, a push frame slidably mounted upon said push frame supports, means for intermittently rocking said shafts to raise and lower the push frame supports, and means for intermittently reciprocating the push frame longitudinally on said supports.

3. A leer feeder comprising a main frame, a pair of rock shafts journaled on said main frame, a pair of arms carried by each rock shaft, each of said arms being provided with a push frame support, a push frame slidably mounted upon said push frame supports, a main drive shaft, cam mechanism on said shaft, connections between part of said cam mechanism and the rock shafts and connections between another part of said cam mechanism and the push frame whereby rotation of the shaft will produce vertical and horizontal reciprocations of the push frame, and means for relatively adjusting the cam mechanism to adjust the push frame vertically.

4. A leer feeder comprising a main frame, a pair of rock shafts journaled on said main frame, a pair of arms carried by each rock shaft, each of said arms being provided with a push frame support, a push frame slidably mounted upon said push frame supports, a main drive shaft, cam mechanism on said shaft, connections between part of said cam mechanism and the rock shafts, connections between another part of said cam mechanism and the push frame whereby rotation of the shaft will produce vertical and horizontal reciprocations of the push frame.

5. A leer feeder comprising a main frame, a push frame, a push bar supported by said push frame and mounted at the forward end thereof, means for bodily reciprocating said push frame vertically, and means independent of, but synchronized with, said last mentioned means for horizontally reciprocating the push frame.

6. A leer feeder comprising a main frame, a push frame, a main drive shaft, means directly connected with said drive shaft for vertically reciprocating the push frame, another means directly connected with the drive shaft for horizontally reciprocating the push frame, said last two means being relatively adjustable to cause vertical adjustment of the push frame.

7. A leer feeder comprising a main frame, a push frame, a push bar supported by said push frame and mounted at the forward end thereof, a main drive shaft, means directly connected with said drive shaft for bodily vertically reciprocating the push frame, and another means directly connected with the drive shaft for horizontally reciprocating the push frame.

8. The combination, with a leer provided with a ware receiving and supporting means, of a feeding conveyor leading laterally to said leer and its article-receiving member, a pusher bar arranged alongside said feeding conveyor, means for reciprocating said pusher bar laterally and vertically relative to said feeding conveyor, the said pusher bar having its initial end spaced, longitudinally of the feeding conveyor, a distance

slightly in excess of the diameter of the articles to be handled from the nearest obstruction to transverse displacement of the articles relative to the feeding conveyor.

9. The combination, with a leer provided with a ware receiving and supporting means, of a feeding conveyor leading laterally to said leer and its article-receiving member, a pusher bar arranged alongside said feeding conveyor, means for reciprocating said pusher bar laterally relative to said feeding conveyor, the said pusher bar having its initial end spaced, longitudinally of the feeding conveyor, a distance slightly in excess of the diameter of the articles to be handled from the nearest obstruction to transverse displacement of the articles relative to the feeding conveyor.

In witness whereof I have hereunto set my hand at Muncie, Indiana, this 15th day of November, A. D. one thousand nine hundred and twenty-two.

MINOT K. HOLMES.