

No. 712,335.

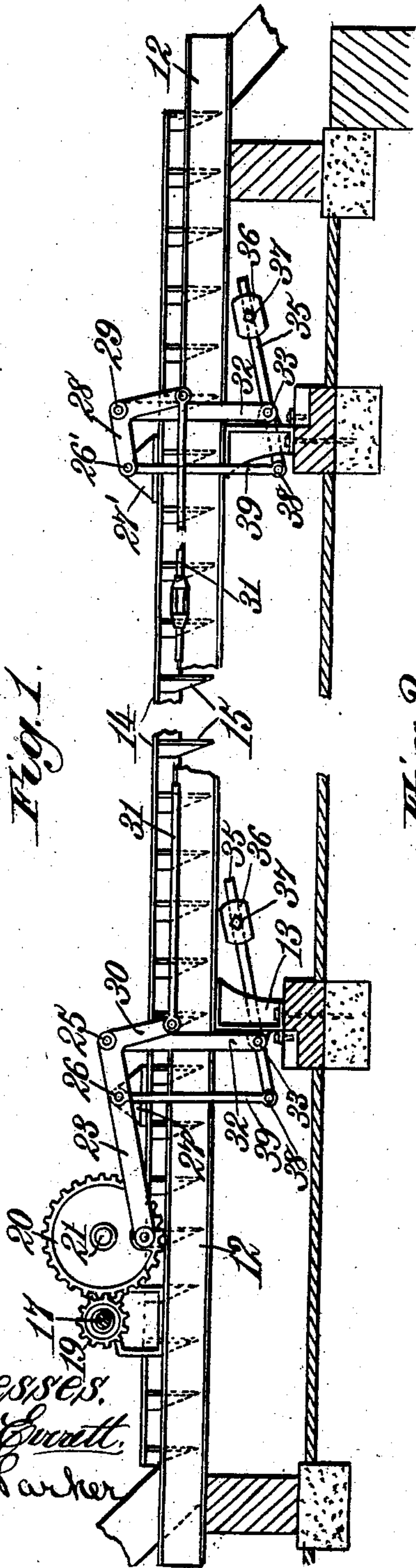
Patented Oct. 28, 1902.

J. ROGER.
CONVEYER.

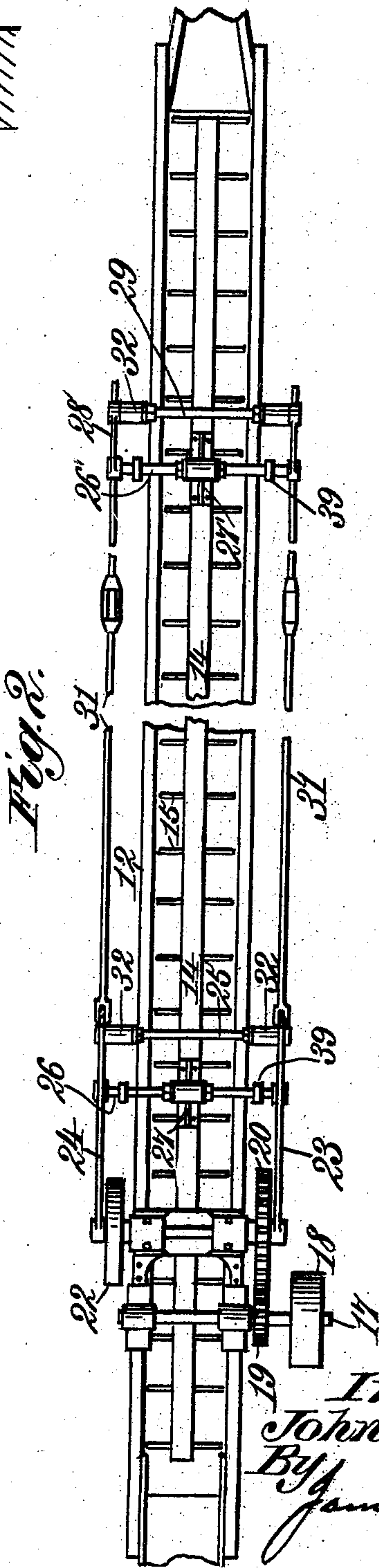
(Application filed June 20, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
Robert E. Smith
S. O. Parker



Inventor:
John Roger.
By James L. Norris
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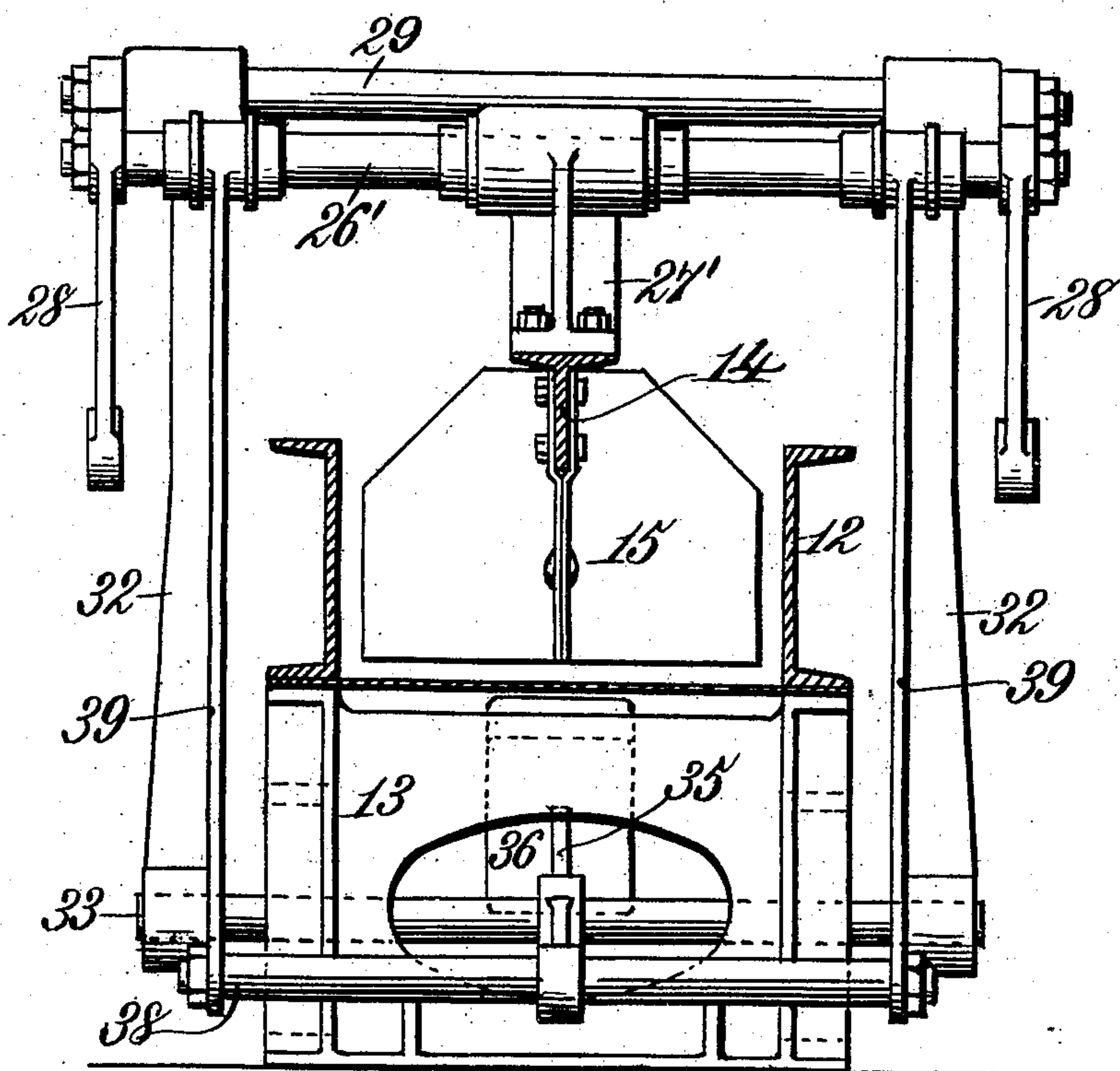
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(No Model.)

2 Sheets—Sheet 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN ROGER, OF DENVER, COLORADO.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 712,335, dated October 28, 1902.

Application filed June 20, 1902. Serial No. 112,531. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROGER, a subject of the King of Great Britain, residing at Denver, in the county of Arapahoe and State of Colorado, have invented new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to a conveyer; and the primary object of the invention is to provide simple and efficient means for counterbalancing the reciprocatory feed member or hoe-bar of such an apparatus, so that the same may run smoothly and uniformly throughout the complete motion thereof, and the counterbalancing means is so situated that it is not reciprocated by the feed member and is preferably placed below the same and is connected thereto by means of a link or links, so as to secure the desired effect. In other words, the counterbalancing device is supported independently of the feed member, but is operatively connected therewith.

While I do not limit the use of the invention to incorporation in any particular kind of conveyer, still for the purpose of indicating the nature of the same I have shown it embodied in a conveyer of the kind disclosed by Letters Patent No. 696,273, granted to me March 25, 1902, to which reference may be had.

The invention will be set forth in detail in the following description, while the novelty thereof will constitute the basis of the claims succeeding such description; and said invention is clearly illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of a conveyer including my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a cross-sectional elevation.

Like characters refer to like parts in all the figures of the drawings.

Referring to the drawings, the numeral 12 indicates a trough sustained at suitable intervals by standards or brackets 13, two of the latter being shown, although of course this is not essential. The trough 12, which is fixed, may be of any suitable length and is adapted to receive the material which is to be carried from one place to another. The

material can be delivered to the trough at any suitable point and is discharged from one end thereof, the trough being of channel form.

A bar is shown at 14, and it is shown as being T-shaped in cross-section, it constituting the body of a feed member and being provided with a series of substantially equidistantly disposed depending hoes 15. The hoes 15 consist of complementary flat plates set at right angles to the bar 14 and having flanges along their inner edges. These flanges of the plates are riveted or otherwise suitably secured together for a portion of their height, and they are slightly separated near their upper ends to fit against the opposite faces of the vertical flange of the T-shaped bar 14. Bolts passing through the flanges of the plates and bar, respectively, or other fastening means may be provided to secure the plates to the bar. The bar 14, which is disposed substantially centrally between the sides of the trough 12, is of a less length than the said trough and is given, by suitable mechanism hereinafter more particularly described, a reciprocatory motion through a substantially-elliptical path, so that the depending hoes thereon are adapted to force the material in the trough either to the right or to the left, in accordance with the direction of the initial movement of said bar.

A power-shaft is shown at 17 extending across the trough at one end thereof and supported by suitable bearings and provided at one end with a suitable driving member, as the pulley 18, connected by belting with a suitable motor. (Not shown.) This shaft 17 also carries a pinion 19, meshing with the peripheral teeth of the gear or disk 20, fastened on a suitably-supported cross-shaft 21. This shaft 21 carries at one end the disk or gear 20 and is provided at its opposite end with a fixed disk 22. To the outer faces of the disks 20 and 22 are pivoted, by means of crank-pins, the pitmen or connecting-rods 23 and 24, located at opposite sides of the trough and extending forward in transverse alignment from the disks. Said connecting-rods 23 and 24 have at their forward ends hubs to receive for rotation the ends of a transverse shaft 25. Said connecting-rods have bear-

ings shown as located a short distance to the left of their forward ends to rotatively receive the ends of another transverse shaft 26, which supports at its middle the bracket 27, suitably fastened to the upper side of the body or bar 14. At a point in advance of the bracket 27 is a similar bracket 27', which is adapted to receive the shaft 26' in a manner just like the shaft 26, and to the ends of said shaft 26' are freely connected the upper arms of alined angle-levers 28, the elbows of the angle-levers, which levers, it will be seen, are arranged in alined pairs, being adapted to receive the ends of the shaft 29.

What is shown as the inner ends of the connecting-rods 23 and 24 are provided with downwardly-disposed right-angular extensions or arms 30, and to the lower ends of said arms are pivoted the connecting-rods 31, said connecting-rods being likewise united to the lower arm of the angle-levers 28. The connecting-rods 31, which, it will be evident, are located at the outer sides of the trough, are divided into sections connected, respectively, with the several angle-levers and the angular extensions of the connecting-rods or pitmen 23 and 24 and in turn are united by right and left handed nuts or turnbuckles in order to secure longitudinal adjustment of the respective connecting-rods. The ends of the shafts 25 and 29 are rotatively supported by the upper ends of the rockers 32, sustained for oscillation by the shafts 33, carried by suitable boxes on the standards or brackets 13, which, it will be remembered, sustain the trough.

With the exception of the hoes the mechanism hereinbefore described is substantially like that illustrated in Letters Patent previously mentioned, and it will be evident that by rotating the primary shaft 17 the feed member or hoe-bar 14 will be reciprocated in a substantially elliptical path, so as to push the material in the trough 12 either to the right or to the left, in accordance with the direction the reciprocatory feed member moves on its initial operation.

In connection with the reciprocatory feed member I provide counterbalancing means which insure the even and smooth operation of said feed member at all times, and the counterbalancing means is not sustained by the feed member, so that it does not reciprocate therewith, and for the sake of economy in space I prefer to support the counterbalancing means below the feed member; but I do not desire to restrict the invention in this respect, and the counterbalancing means now to be described is simple and effective.

The levers 35 are fulcrumed at suitable points in their length to the shafts 33, to which, it will be remembered, the rockers 32 are united, and what is shown as the right ends of the levers carry weights 36, adjustable thereon in order to regulate their counter-

balancing effects and held in fixed positions by set-screws 37. The left ends of the levers freely receive the shafts 38, to the opposite ends of which the links 39 are pivoted, the upper ends of said links being likewise united to the shafts 26 and 26'. It will be understood, of course, that the levers may be otherwise mounted, though the number of parts is reduced by fulcruming them to the shafts 33, and in like manner they may be otherwise connected to the feed-bar 14, and while two of the counterbalancing-levers are shown this number may of course be varied, and one of them, if desired, may be omitted, although I prefer to employ the arrangement illustrated. As the feed-bar rises during its elliptical reciprocatory motion the weights 36 of course are lowered, and naturally the reverse operation takes place on the lowering of the said feed-bar.

The invention may of course be variously modified within the scope of the accompanying claims, for it will be evident that my invention comprehends, broadly, a feed member mounted for movement in an elongated orbital path and counterbalancing means for the conveyor supported independently of and operatively connected to said conveyor.

Having described the invention, what I claim is—

1. The combination of an orbitally-movable feed member, and a counterbalancing device supported independently of the feed member and operatively connected thereto.

2. The combination of an orbitally-movable feed member, and a weighted lever supported independently of the feed member, and operatively connected thereto.

3. The combination of an orbitally-movable feed member, and a counterweighted lever supported independently of and below the feed member, and operatively connected thereto.

4. The combination of an orbitally-movable feed member, and a counterweighted lever supported independently of the feed member, and a link connection between said parts.

5. The combination with a feed member, rockers for supporting the feed member, means for reciprocating the feed member in the orbital path, a shaft for pivotally receiving said rockers, a lever fulcrumed upon said shaft and carrying a weight and a link connection between the lever and feed member.

6. The combination of a feed member, a pair of rockers, a shaft for carrying the rockers, a shaft supported by the rockers, angle-levers connected with said last-mentioned shaft at their elbows, and also connected with the feed member, pitmen connected with the feed member and having angular extensions, a connection between an angular extension and one of the said angle-levers, a shaft carried by said connecting-rods, rockers supported by said last-mentioned shafts, a

weighted lever fulcrumed upon the shaft which supports the first-mentioned rockers, a link connection between said lever and feed member, and means for operating said connecting-rods.

5 7. A feed member having a horizontally and vertically depending flange and hoes consisting of plates having flanges along their inner edges, the flanges being secured to each

other and to the opposite sides of the vertical flange of the said feed member.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN ROGER.

Witnesses:

N. HADFIELD,
A. B. KENNEDY.