

No. 714,149.

Patented Nov. 25, 1902.

P. B. CLARKE.

REVERSING CAM FOR ENDLESS CONVEYERS.

(Application filed Jan. 4, 1901.)

(No Model.)

4 Sheets—Sheet 1.

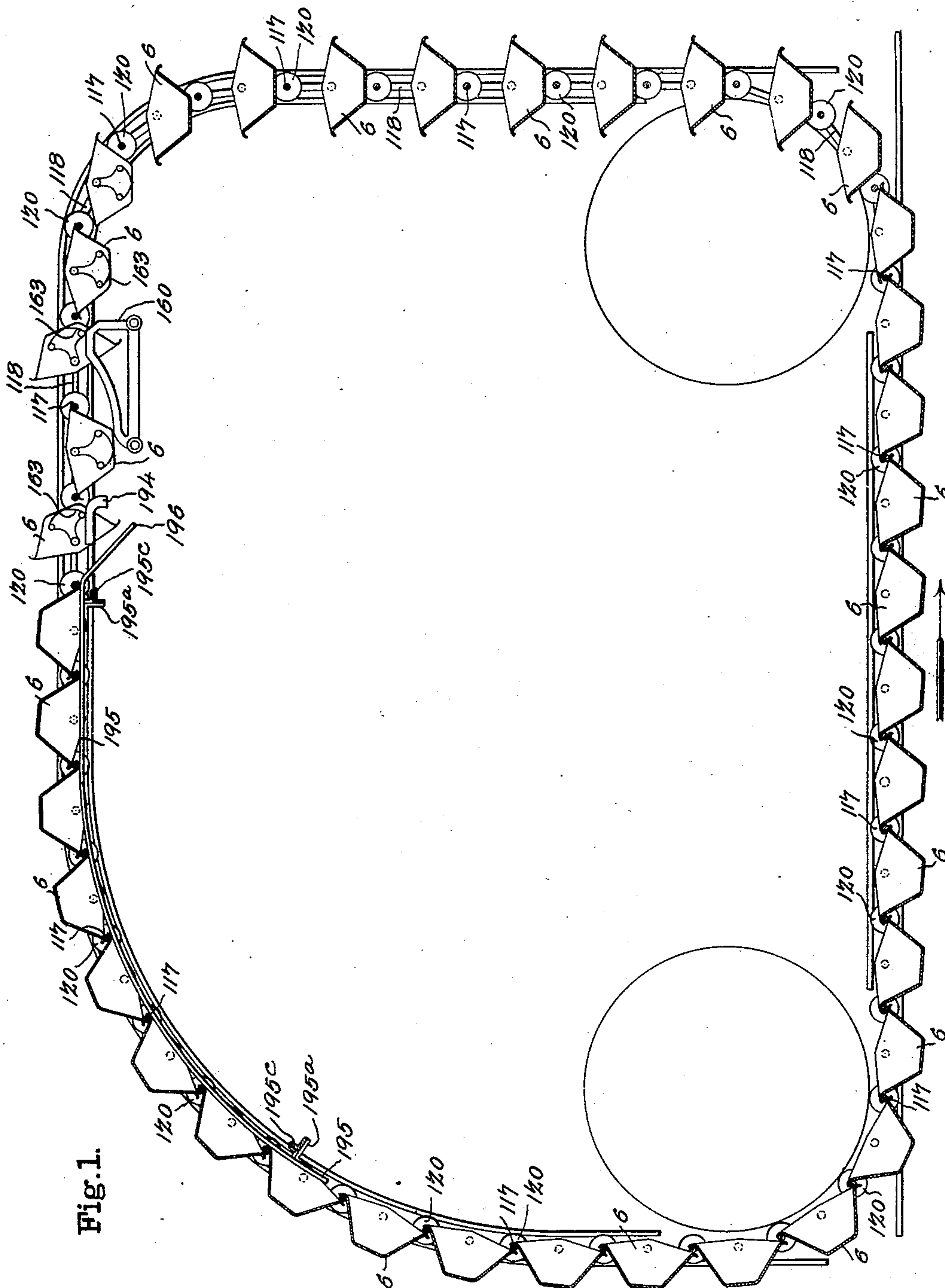


Fig. 1

Witnesses

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Fig. 2.

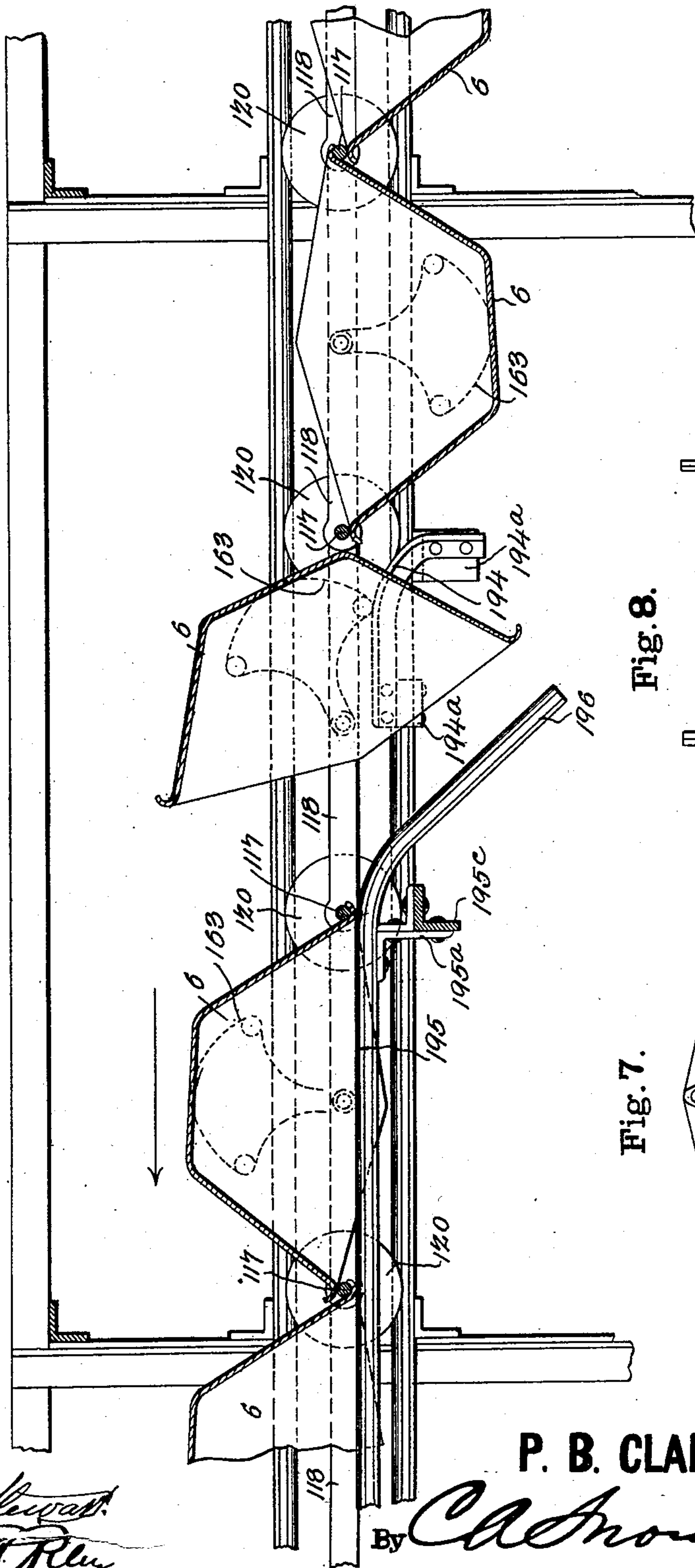


Fig. 8.

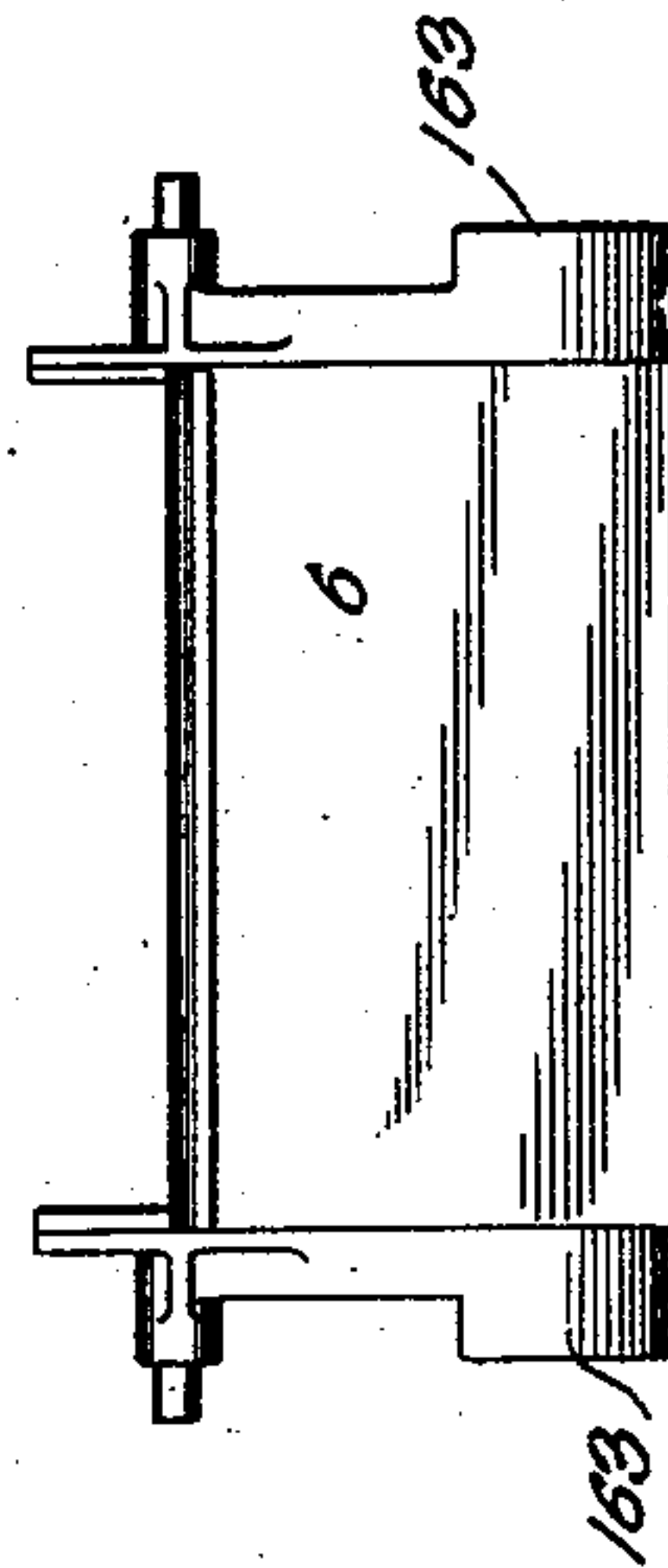
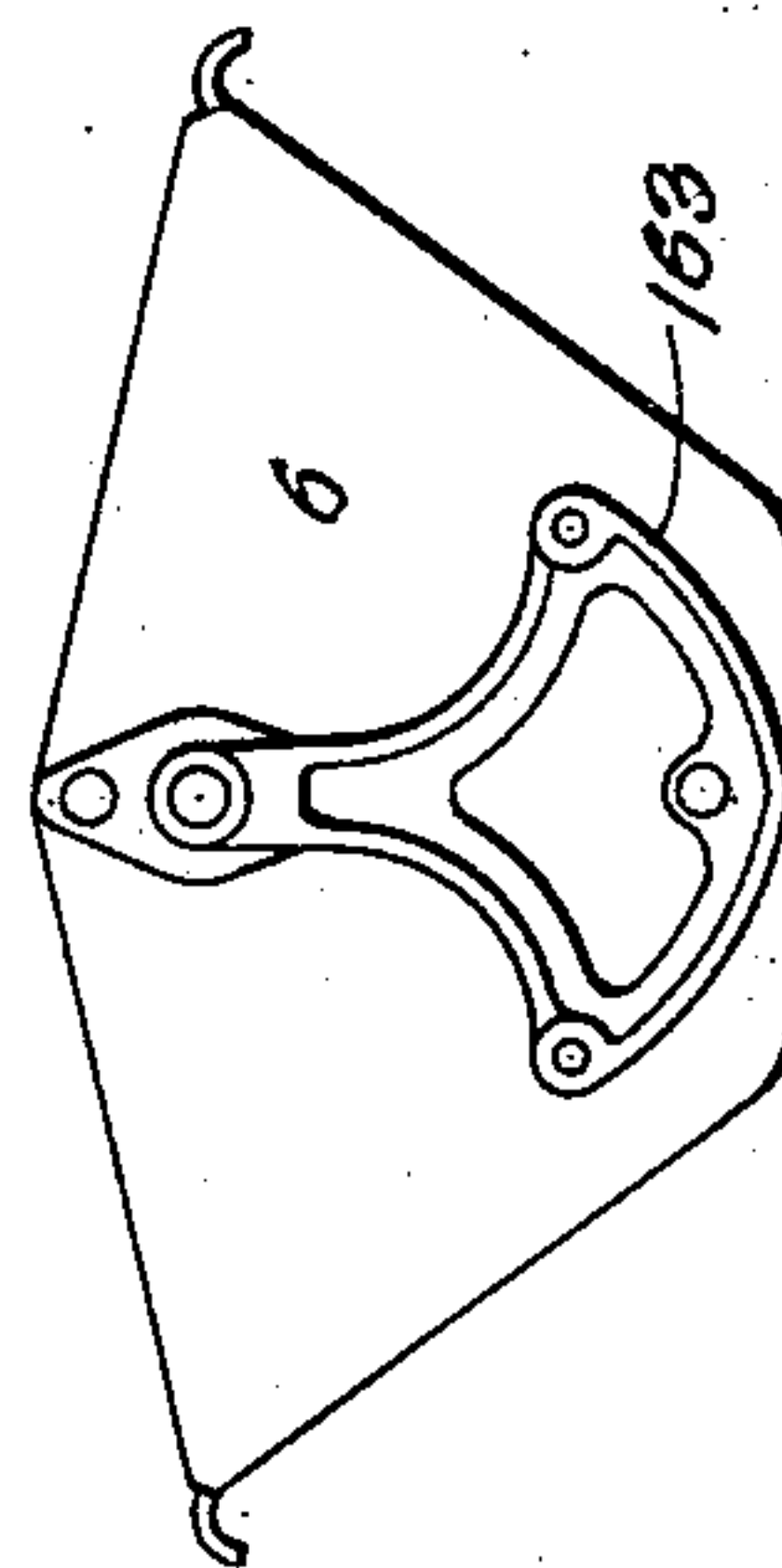


Fig. 7.



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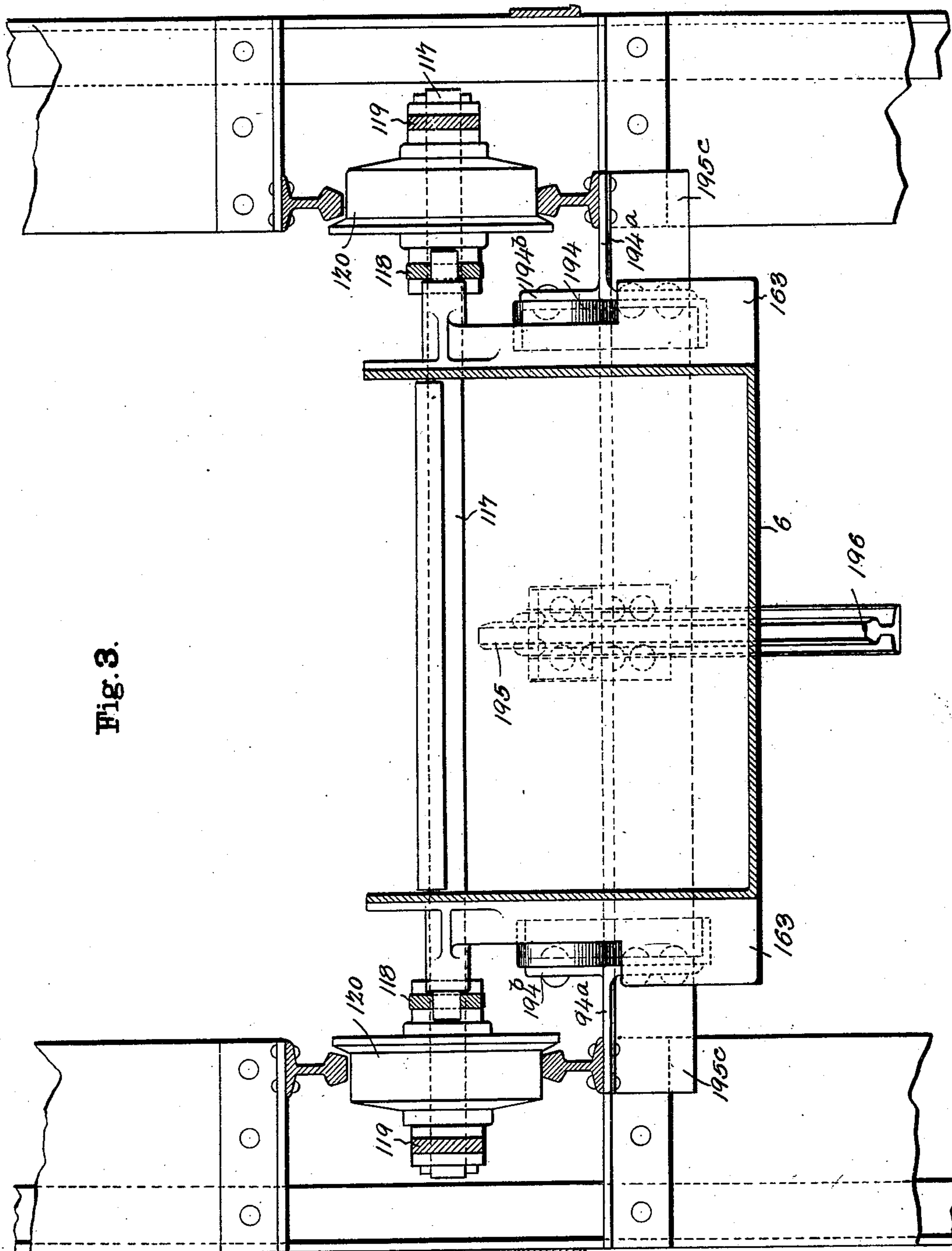
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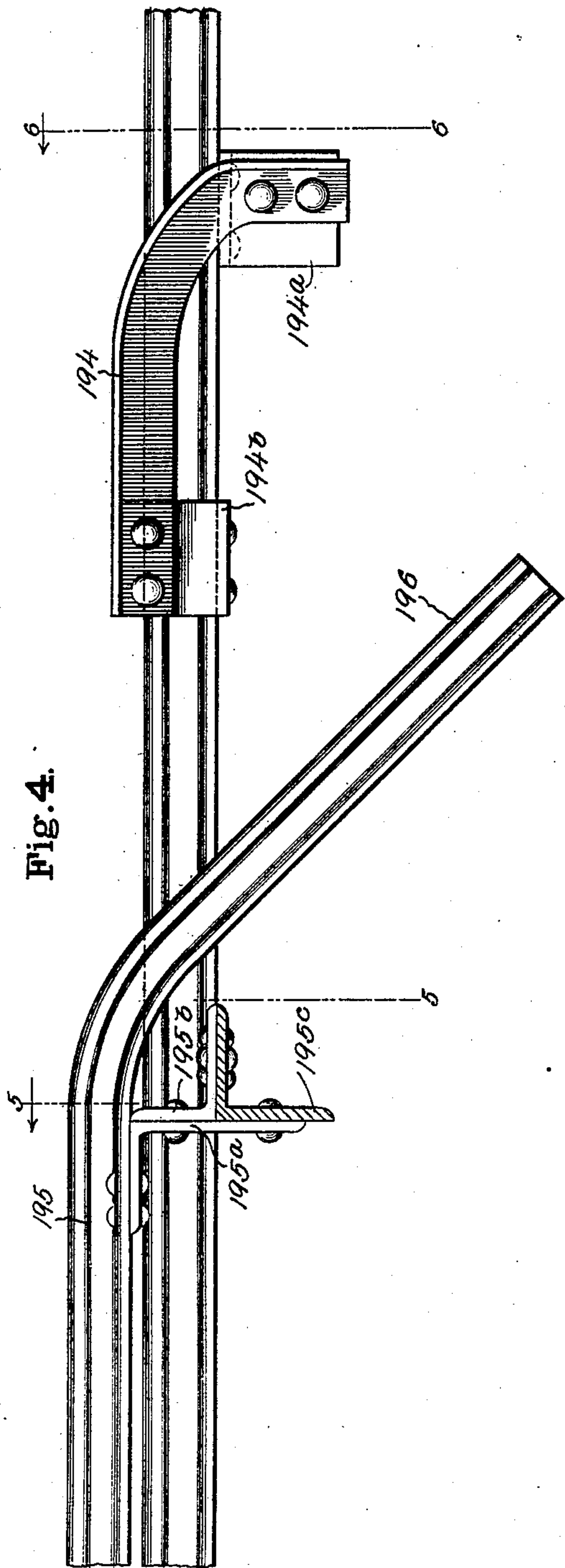


Fig. 4.

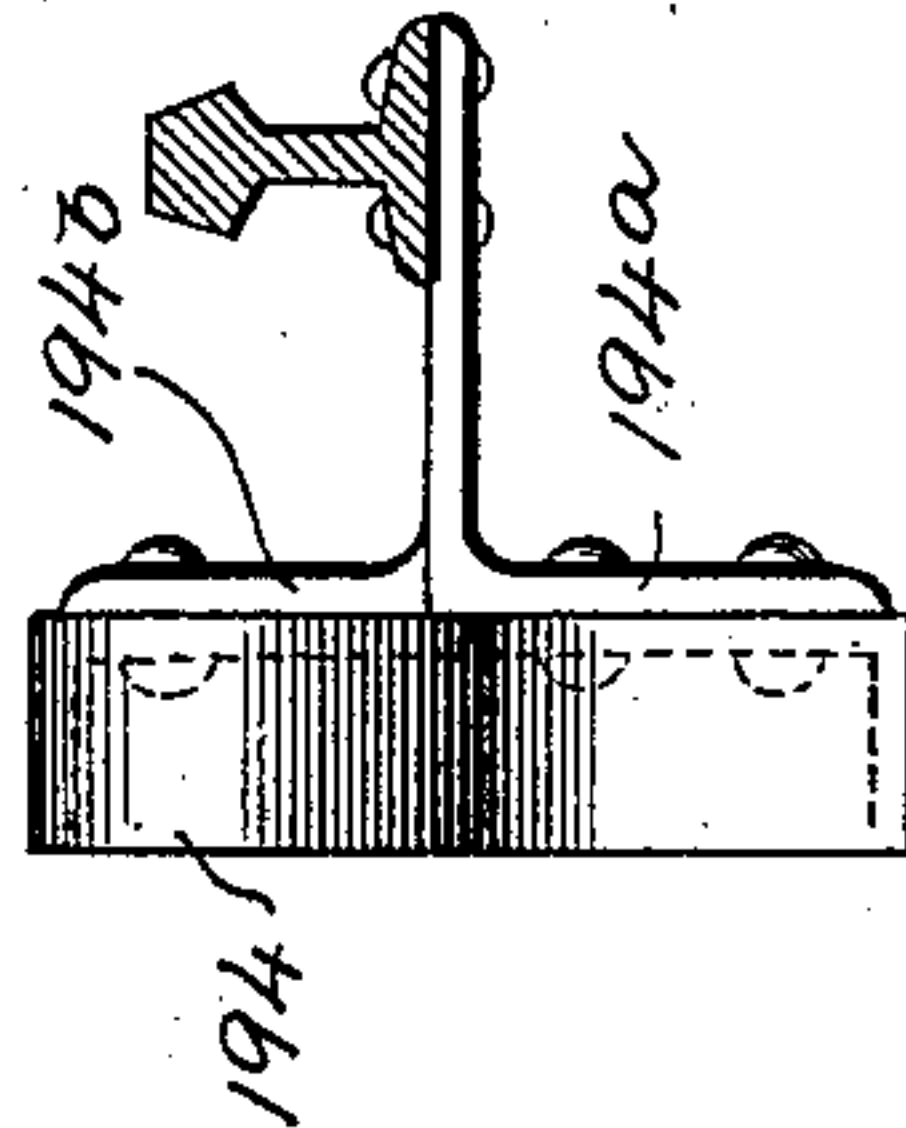


Fig. 6.

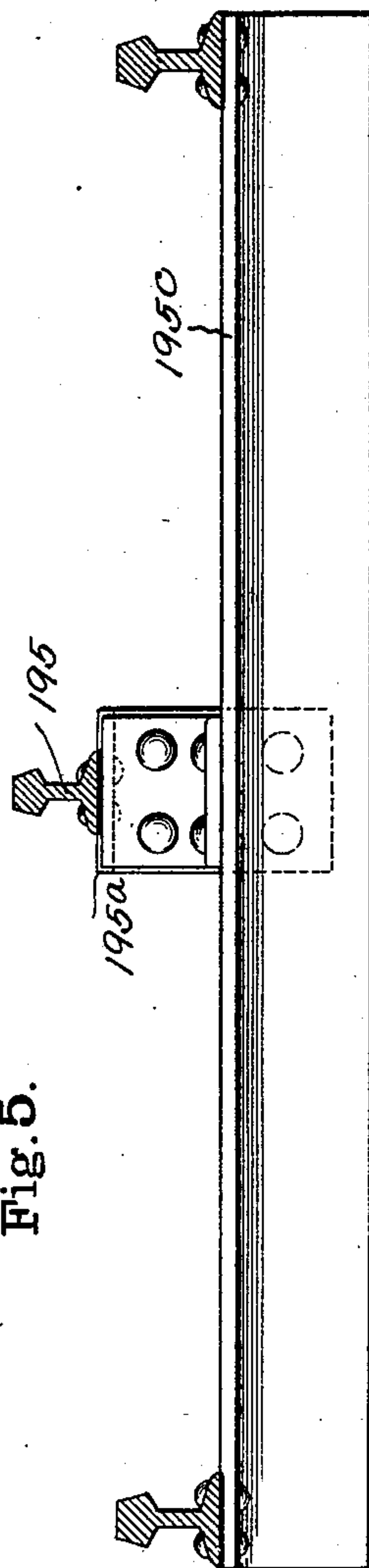


Fig. 5.

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UNITED STATES PATENT OFFICE.

PEETE B. CLARKE, OF NEW YORK, N. Y.

REVERSING-CAM FOR ENDLESS CONVEYERS.

SPECIFICATION forming part of Letters Patent No. 714,149, dated November 25, 1902.

Application filed January 4, 1901. Serial No. 42,119. (No model.)

To all whom it may concern:

Be it known that I, PEETE B. CLARKE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Reversing-Cam for Endless Conveyers, of which the following is a specification.

The invention relates to a reversing-cam for endless conveyers having pivoted buckets.

10 The object of the present invention is to provide a simple and comparatively inexpensive device designed for use in connection with endless conveyers and adapted after the pivoted buckets thereof have traveled from
15 the point of supply to the point of discharge and have been emptied to reverse the buckets and change them from one side of the conveyer to the other to arrange them in proper position for receiving another charge
20 of material.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed
25 out in the claims hereto appended.

In the drawings, Figure 1 is a vertical sectional view of an endless conveyer provided with reversing-cams constructed in accordance with this invention. Fig. 2 is an enlarged longitudinal section of a portion of the endless conveyer, illustrating the construction of the reversing-cams and the guide rail or bar for completing the reversal of the buckets. Fig. 3 is a transverse sectional view
35 of the endless conveyer. Fig. 4 is a detail view of a portion of the guide rail or bar and one of the reversing-cams. Fig. 5 is a detail view illustrating the manner of mounting the guide rail or bar. Fig. 6 is a detail view illustrating the manner of mounting the reversing-cams. Figs. 7 and 8 are detail views of the bucket.

Like numerals of reference designate corresponding parts in all the figures of the drawings.
45

6 designates pivoted buckets of an endless conveyer, which is designed to be arranged approximately as illustrated in Fig. 1 of the accompanying drawings, the endless conveyer being designed to be provided with a
50 bottom flight to receive the material and be-

ing adapted to convey the same upward to a suitable point, where the material is discharged. The buckets after being discharged of their contents are returned to the bottom
55 flight and are reversed by the means hereinafter described in order that they will be in proper position to receive the material when they arrive at the said bottom flight. The buckets receive the material in an upright
60 position and are maintained in an upright position by the weight of the same until they are dumped to discharge their contents, and the weight of the buckets will cause them to lie at the inner or lower side of the upper
65 horizontal flight, (illustrated in Fig. 1 of the accompanying drawings,) from which position they must be changed in order to arrange them properly for the reception of the material.
70

The buckets are provided at opposite sides with cams 163, secured to the exterior of the buckets by any suitable means and provided with pivots or trunnions which are arranged in suitable bearing-openings of inner links
75 118 of the endless conveyer-chain. The endless conveyer is provided with inner and outer links 118 and 119, which are connected at their ends by transverse shafts or axles 117, having wheels 120 mounted upon their
80 ends and arranged to run upon suitable rails arranged above and below or at the inner and outer sides of the wheels, according to the disposition of the conveyer. The cams are provided with tapered upper portions and
85 have sloping or oppositely-inclined lower edges forming a rounded bottom, and they are adapted to engage a dumping-block 160, as indicated in Figure 1 of the accompanying drawings; but as the dumping-block does not
90 constitute a portion of the present invention a detailed description and illustration are deemed unnecessary.

The pivoted buckets are inverted and swung upward from a point beneath the links
95 of the conveyer, as clearly illustrated in Figs. 1 and 2 of the accompanying drawings, by reversing-cams 194 to position the buckets properly, as before explained. The reversing-cams 194, which are located at opposite sides of the
100 conveyer, are approximately L-shaped, being composed of a vertical front portion, a hori-

zontal rear portion, and a curved intermediate portion. They are supported by approximately L-shaped brackets 194^a and 194^b, as clearly illustrated in Fig. 6 of the accompanying drawings. The brackets, which are approximately L-shaped, have horizontal and vertical arms, the bracket 194^a being located at the front of the reversing-cam and having its vertical arm depending from the horizontal arm. The other bracket 194^b has its vertical arm extending upward from its horizontal arm, and it is riveted or otherwise secured to the rear end of the adjacent reversing-cam. The reversing-cams are preferably constructed of flanged metal, and they are arranged within the paths of the cams of the buckets and are adapted to be engaged by the same, whereby as the buckets travel forward they will be successively swung upwardly and rearwardly to an inclined position by the reversing-cams.

The movement of the buckets is completed by means of a central longitudinal guide bar or rail 195, located midway between the pairs of rails and provided with an inclined front portion 196, arranged to engage the lower portion of each bucket after the same has been brought to an inclined position by the reversing-cams. As each bucket is drawn over the inclined portion 196 of the guide bar or rail it is gradually brought to an inverted position above the links of the endless conveyer. The guide bar or rail 195 may be of any desired length, and it is adapted to maintain the buckets at the outer or upper side of the endless conveyer until the buckets arrive at a descending flight and are in a position in which the center of gravity will prevent them from swinging backward. In Fig. 1 of the accompanying drawings the endless carrier is shown with the descending flight at the back, and the guide bar or rail 195 is curved and is of a sufficient length to maintain the buckets in an inverted position until the center of gravity of the buckets lies beyond the pivots of the same.

The buckets are provided at their ends with curved lips which are located, respectively, at the opposite sides of the adjacent shafts of the endless conveyer, and the longitudinal guide bar or rail engages the contiguous lip of each bucket and holds the same against the adjacent transverse shaft of the conveyer. The guide bar or rail is supported at intervals by suitable brackets 195^a and 195^b, mounted on a transverse angle-iron beam 195^c. The angle-iron beam 195^c is secured at its ends to the adjacent side rails, and the bracket 195^a, which is centrally arranged, is approximately L-shaped, its horizontal portion being at the top and being secured to the flanges of the guide bar or rail 195. The other portion of the bracket 195^a extends downward and is secured to the transverse beam 195^c. The other bracket 195^b is secured to the top of the transverse angle-iron beam and to the upper portion of the bracket 195^a, and it serves to brace

the latter and assists in supporting the longitudinal guide bar or rail 195.

It will be seen that the device for reversing the buckets is exceedingly simple and inexpensive in construction, that it possesses great strength and durability, and that the reversing-cams, which are located at opposite sides of the conveyer, are spaced apart to permit the buckets, or rather the body of the buckets, to pass between them, and that they are adapted to engage the cams at the exterior of the buckets to swing the latter upwardly and rearwardly to an inclined position. Furthermore, it will be apparent that after the curved intermediate portion of the cams have brought the buckets to an inclined or partially-inverted position the rearwardly-extending horizontal portions of the reversing-cams will maintain the buckets in such position until they are relieved by the inclined front portion of the longitudinal guide bar or rail, which completes the movement of the buckets and maintains them in an inverted position until they are acted on by gravity to effect such result. Furthermore, it will be clear that the reversal of the buckets is quickly and accurately performed and that the buckets are not injured by their engagement with the cams and the guide-rail, as the movement is gradual and as the buckets are free to swing on their pivots and also as the cams of the buckets receive the first shock.

What I claim is—

1. The combination with a conveyer having pivoted buckets, of a cam arranged in the path of the buckets and adapted to partially reverse the same to swing the said buckets from one side of the conveyer-chain to the other, and a guide arranged in rear of the cam and adapted to engage the buckets to complete the movement thereof, substantially as described.

2. The combination with a conveyer having pivoted buckets, of a cam arranged in the path of the buckets and adapted to be engaged by the same to partially reverse the buckets, and means for completing the revolution of the buckets, substantially as described.

3. The combination with a conveyer having pivoted buckets, of a device arranged to be engaged by the buckets, whereby the latter are partially reversed, and a guide arranged to be engaged by the buckets to complete the movement thereof, substantially as described.

4. The combination with a conveyer having pivoted buckets, of an approximately L-shaped cam arranged to be engaged by the buckets, whereby the latter are partially reversed, and a guide arranged to complete the movement of the buckets, substantially as described.

5. The combination with a conveyer having pivoted buckets, of a cam arranged to be engaged by the buckets, whereby the latter are partially reversed, and a guide having

an inclined portion arranged to receive the buckets, and capable of completing the movement of the same, substantially as described.

5 6. The combination of a conveyer having pivoted buckets, an approximately L-shaped cam arranged to be engaged with the buckets, whereby the latter are partially reversed, and a guide having an inclined portion arranged to receive the buckets and capable of
10 completing the movement of the same, substantially as described.

15 7. The combination of a conveyer having pivoted buckets, a pair of cams located at opposite sides of the conveyer and arranged to be engaged by the buckets, and a guide located at a point between the sides of the conveyer and arranged to be engaged by the buckets, substantially as and for the purpose described.

20 8. The combination of a conveyer having pivoted buckets provided at opposite sides

with cams, the reversing-cams located at opposite sides of the conveyer and arranged in the path of the said cams, and a guide located between the sides of the conveyer and
25 arranged to engage the buckets, substantially as described.

9. The combination with an endless conveyer having pivoted buckets and provided with a horizontal flight, of devices located
30 between the ends of the horizontal flight and arranged to engage and reverse the buckets before the same leave the horizontal flight, substantially as described.

In testimony that I claim the foregoing as
35 my own I have hereto affixed my signature in the presence of two witnesses.

PEETE B. CLARKE.

Witnesses:

JOHN FRENCH,
CHARLES ENGEL.