

No. 709,203.

Patented Sept. 16, 1902.

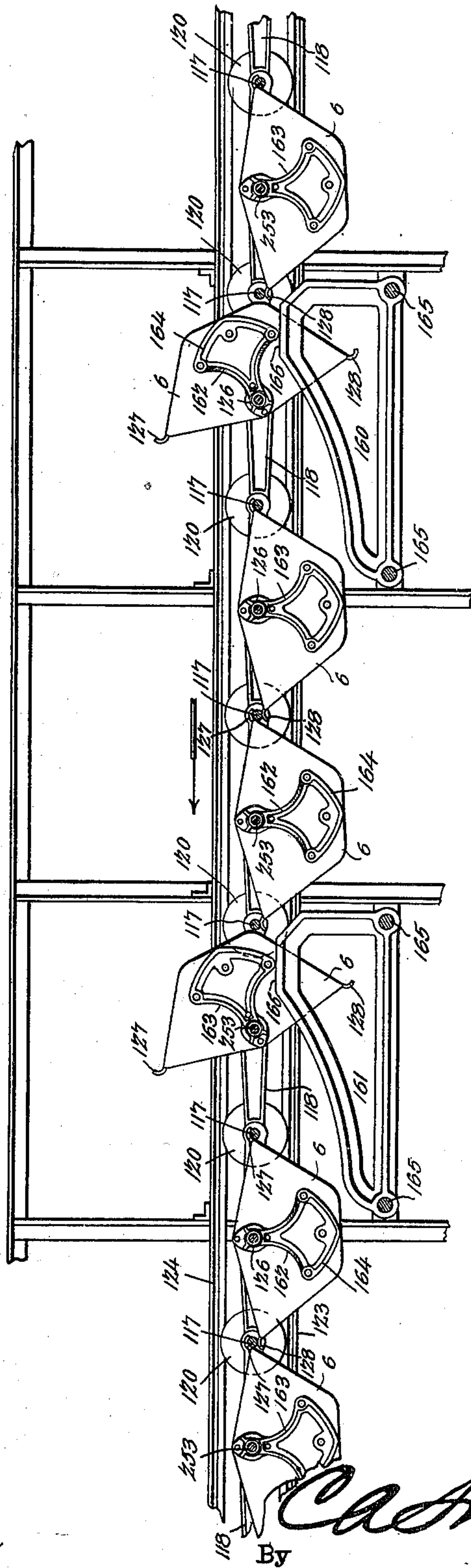
P. B. CLARKE.
BUCKET FOR ENDLESS CONVEYERS.

(Application filed Jan. 28, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



Witnesses
B. F. Newcomb
J. H. H. Key

P. B. CLARKE
Inventor

Chas. Snow & Co.
By Attorneys

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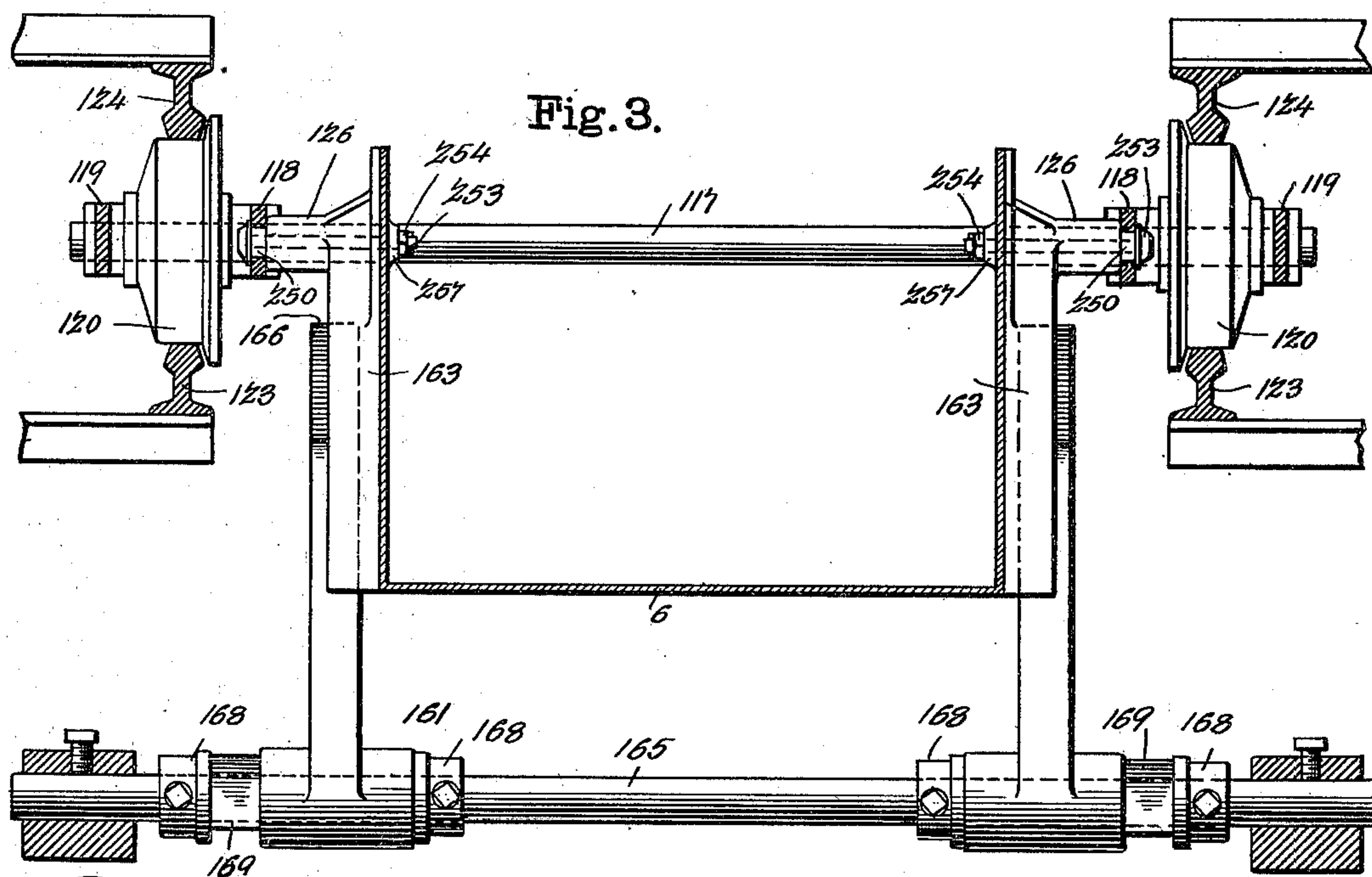
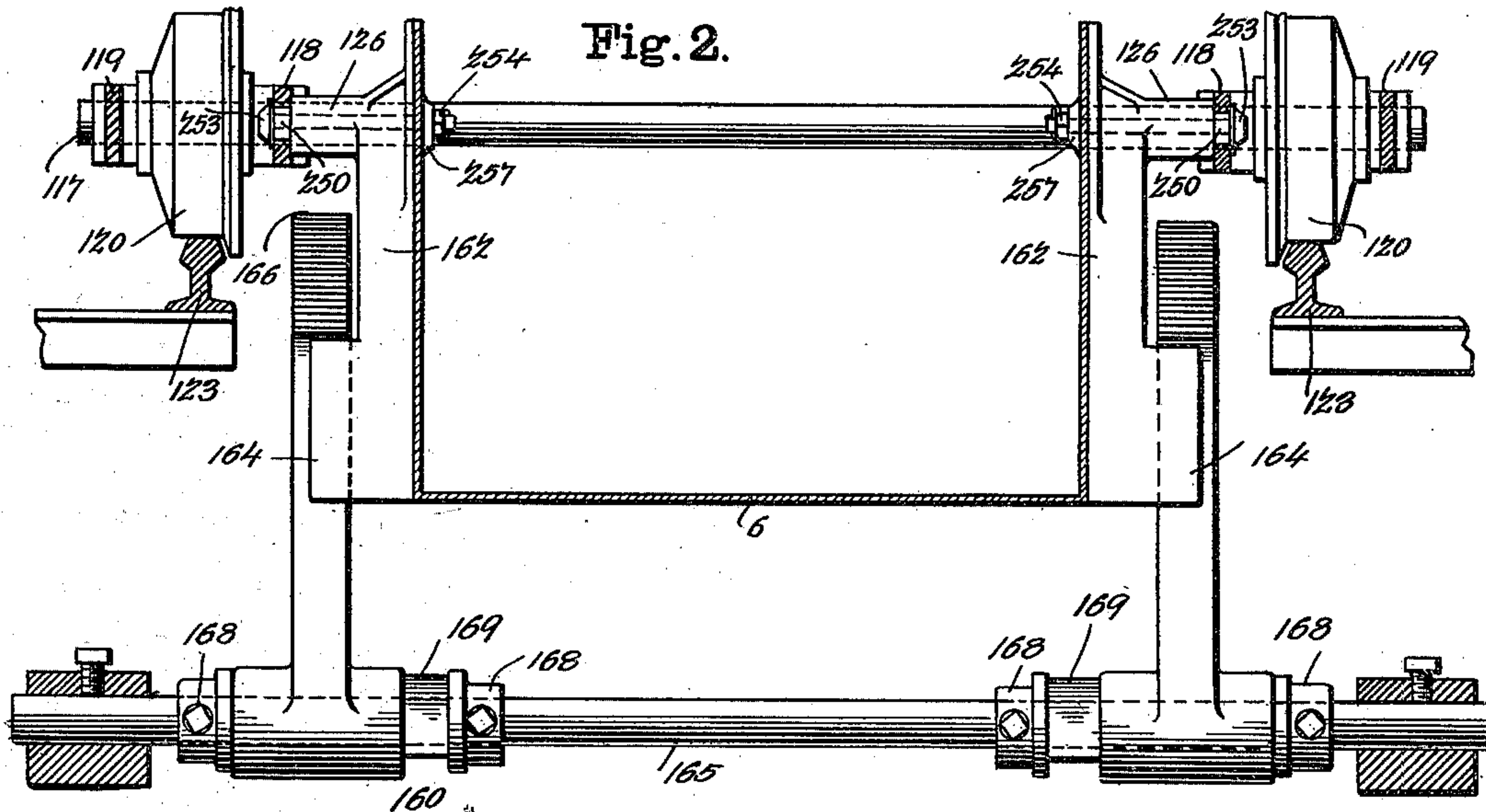


Fig. 9.

Witnesses
E. J. Stewart
J. H. Riley

P. B. CLARKE Inventor
 By *C. A. Snow & Co.* Attorneys

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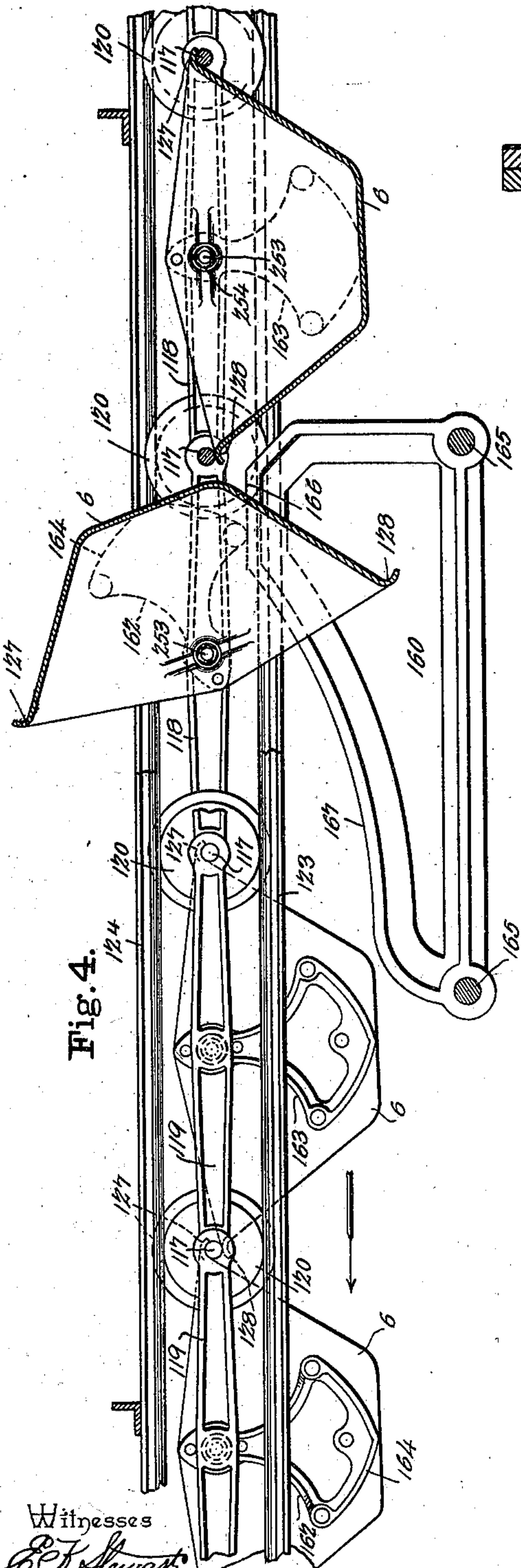


Fig. 4.

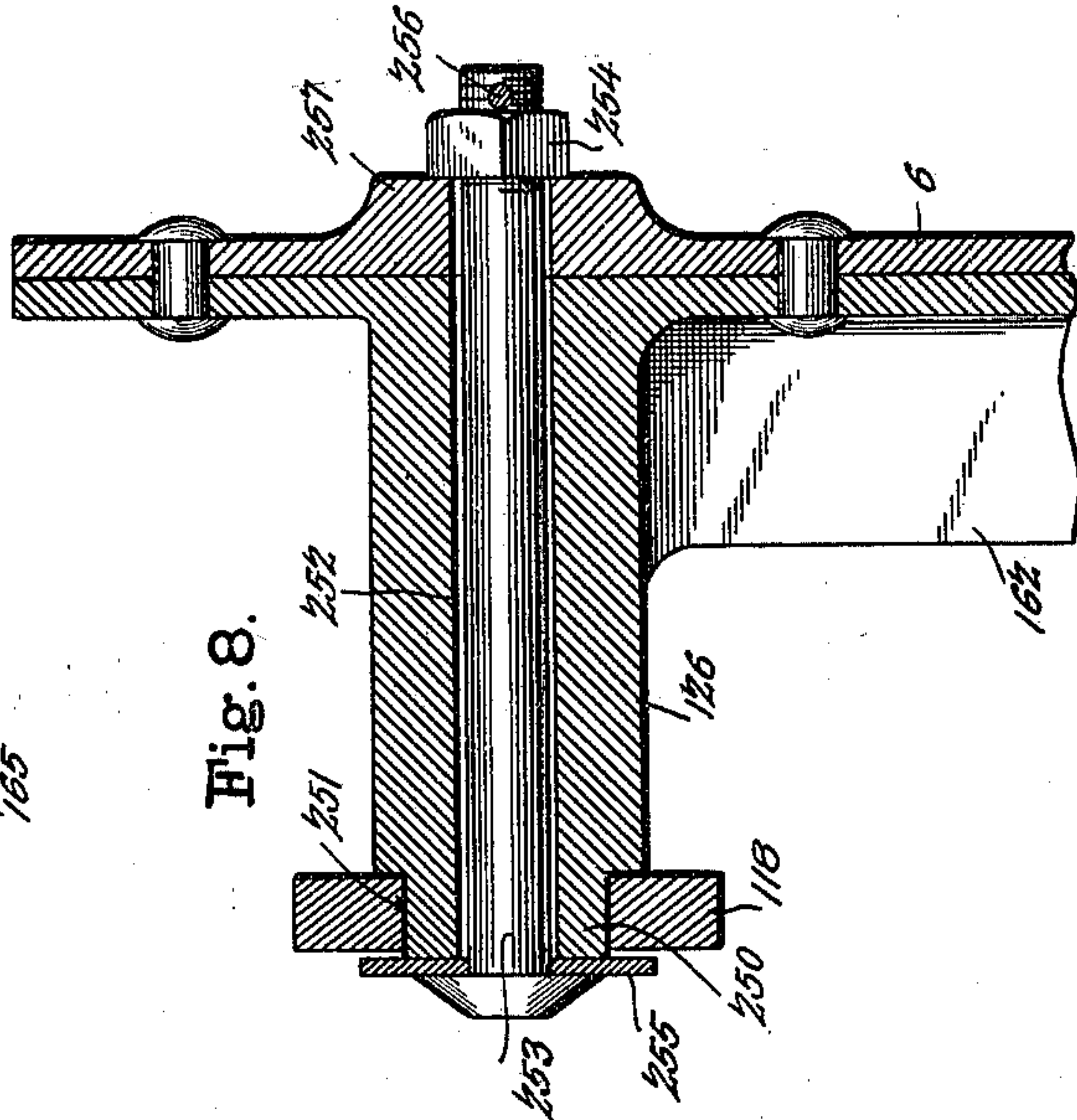
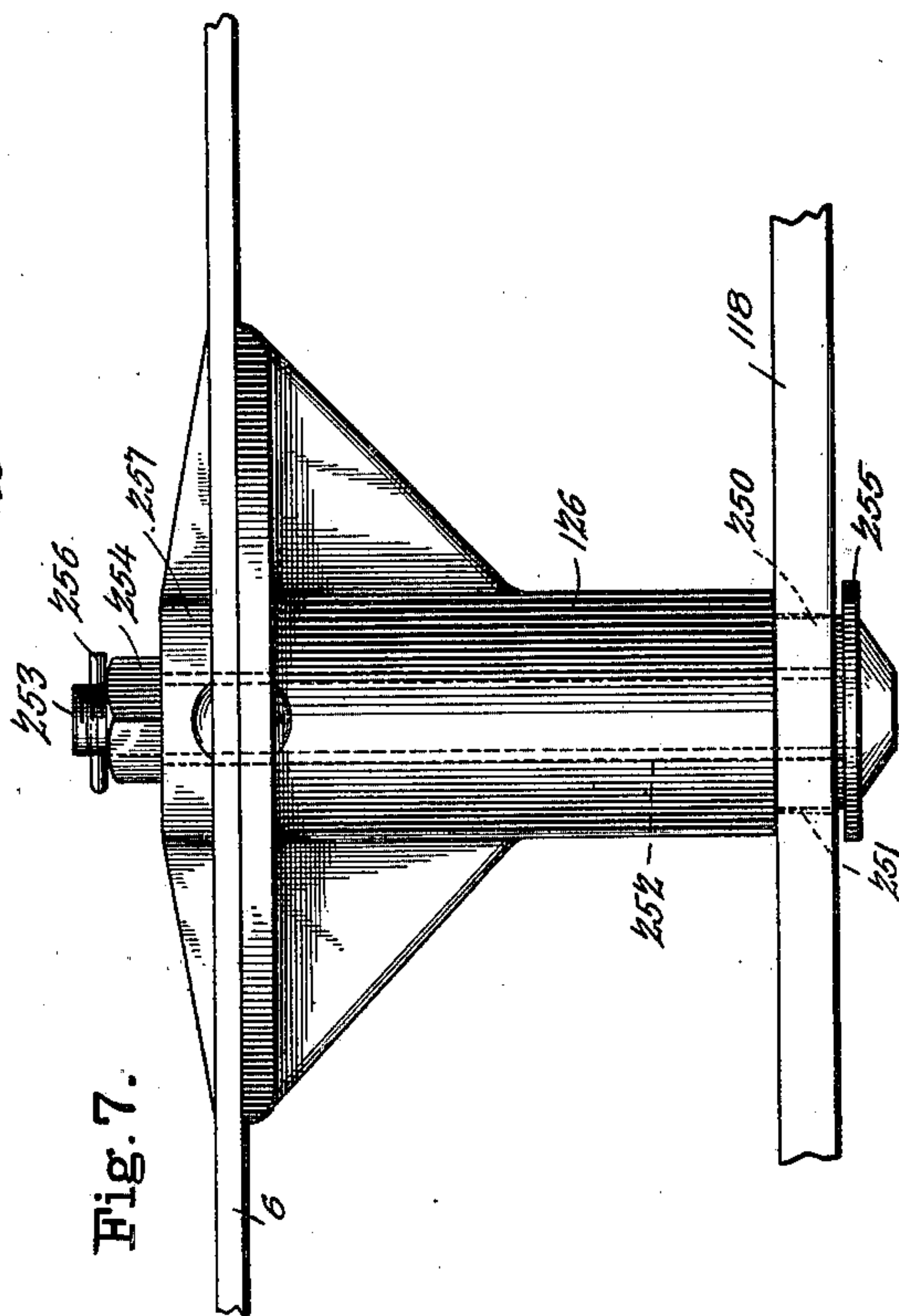


Fig. 8.



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4 Sheets—Sheet 4.

Fig. 5.

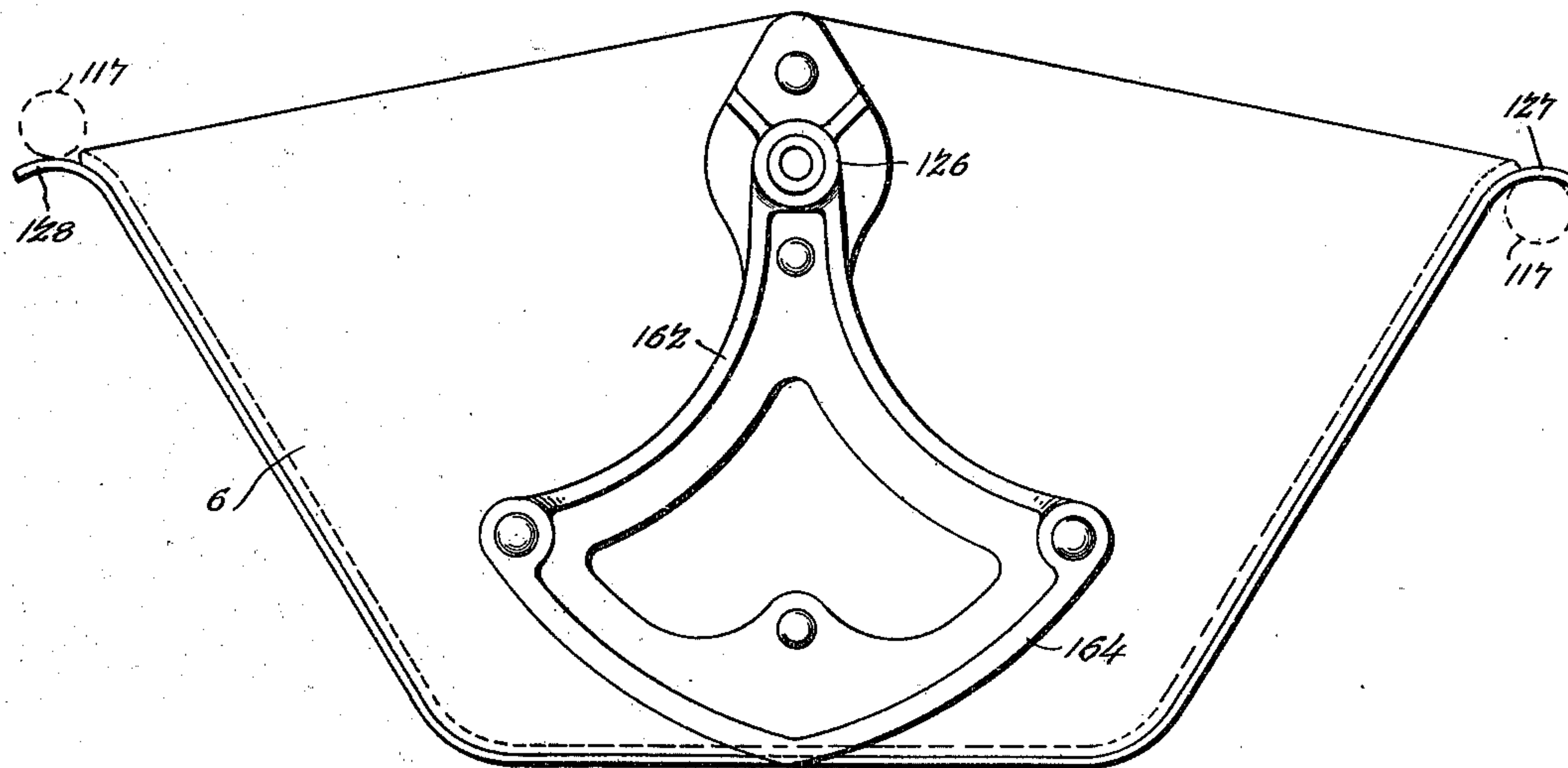
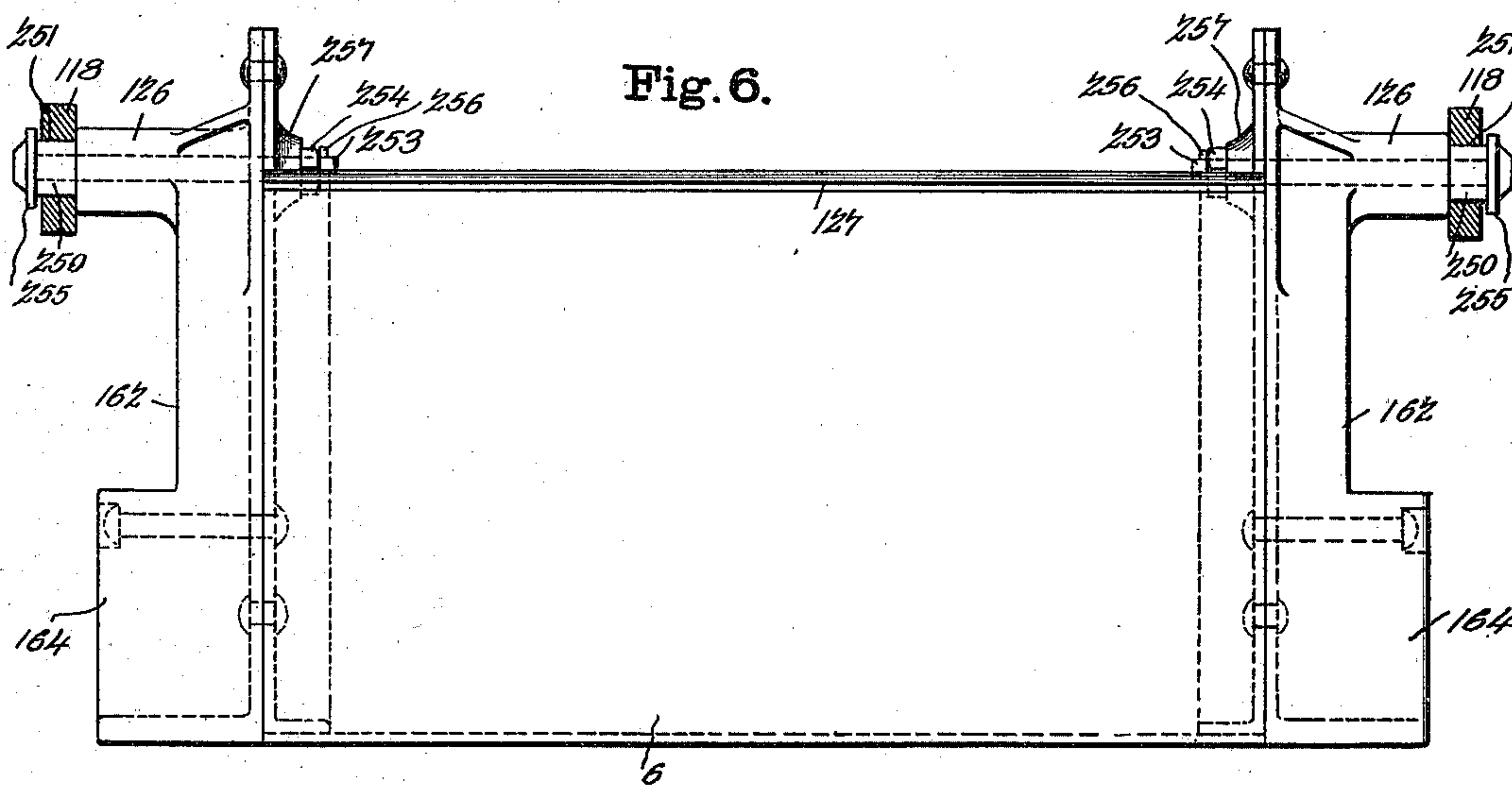


Fig. 6.



Witnesses
E. J. Stewart
H. J. Riley

P. B. CLARKE
Inventor
By *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

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

BUCKET FOR ENDLESS CONVEYERS.

SPECIFICATION forming part of Letters Patent No. 709,203, dated September 16, 1902.

Application filed January 26, 1901. Serial No. 44,782. (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 Bucket for Endless Conveyers, of which the following is a specification.

The invention relates to improvements in buckets for endless conveyers.

10 The object of the present invention is to improve the construction of endless conveyers, more especially the construction of the buckets, and to provide an endless conveyer having pivoted buckets adapted to be alternately operated on by dumping mechanism, so that the contents of the buckets may be equally distributed to several chutes, bins, or other receptacles arranged to receive the material as the same is discharged from the
20 buckets.

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 side elevation of a portion of a conveyer, partly in section, constructed in accordance with this invention. Figs. 2 and 3 are transverse sectional
30 views illustrating the arrangement of the dumping-blocks and the cams of the buckets. Fig. 4 is a longitudinal sectional view, partly in elevation, illustrating the construction of the bucket and the links of the conveyer. Figs. 5 and 6 are detail views of one of the
35 buckets. Figs. 7 and 8 are detail views illustrating the construction for securing the buckets to the inner links. Fig. 9 is a detail view of one of the locking-bars for holding the
40 dumping-blocks.

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

6 designates buckets of an endless conveyer, which is provided at intervals with transverse shafts 117, connected by inner and outer links 118 and 119, arranged in pairs at opposite sides of the conveyer. The shafts 117, which support the buckets 6, as hereinafter explained, are provided at their ends with suitable spindles or journals for the reception of wheels 120, provided at their inner faces with

peripheral flanges arranged to run on suitable rails 123 and 124 and located between the inner and outer links, as clearly indicated in
55 Figs. 2 and 3 of the accompanying drawings. The buckets 6, which are pivotally suspended from the conveyer, when loaded, are provided at opposite sides with journals or trunnions 126, having reduced outer ends 250, arranged
60 in bearing-openings 251 of the inner links, as clearly illustrated in Figs. 7 and 8 of the accompanying drawings. The buckets, which taper from top to bottom, are provided at their ends with curved lips 127 and 128, arranged, respectively, at the back and front
65 of the buckets and located above and below the transverse shafts of the conveyer when they form a part of a horizontal flight of the same, as illustrated in Figs. 1 and 4 of the
70 drawings. The curved lips, which are adapted to bear against the transverse shafts, prevent the buckets from completely rotating, and the said shafts also serve to assist in supporting the buckets when the lips rest upon
75 them. The lips, however, do not interfere with the necessary pivotal movement of the buckets to retain an upright position when they are loaded.

The pivots or trunnions 126 are formed integral with cams 162 and 163 and are provided
80 with longitudinal bores or openings 252, receiving fastening devices 253. The fastening devices 253, which preferably consist of bolts, are provided at their outer ends with
85 heads and at their inner ends with nuts 254. The head 253 of the bolt is approximately of the same diameter as the reduced outer end of the pivot or trunnion 126, and a washer or plate 255 is interposed between the head of
90 the bolt and the outer end of the trunnion or pinion and it extends beyond the opening 251 of the inner link to prevent the trunnion from leaving the same. The inner end of the bolt is perforated for the reception of a key 256 to
95 prevent the nut from unscrewing. The nut 254 abuts against an enlargement 257, arranged at the inner face of each side of the bucket and preferably formed integral therewith.
100

The cams 162 and 163, which are adapted to be engaged by dumping-blocks 160 and 161, are secured to the opposite sides of the buckets at the outer faces thereof and have

the pivots or trunnions 126 extending from their upper portions. The said cams 162 and 163 are alternately arranged, so that every other bucket will be engaged by the first dumping-block 160, while the other buckets will pass these dumping-blocks 160 and engage the other dumping-blocks 161, whereby the conveyer will discharge its contents at two different points and will distribute the material evenly. The cams 162 and 163, which have their sides and bottoms of the same contour, are provided with tapered upper portions and have sloping or oppositely-inclined lower edges, forming approximately a rounded bottom. The cam 162 is provided with a projection or enlargement 164 to enable it to engage the first set of dumping-blocks 160, which are located out of the paths of the cams 163 of the other buckets. These enlargements or projections 164, which are clearly illustrated in Figs. 2 and 6 of the accompanying drawings, are arranged at the lower portions of the cams.

The dumping-blocks 160 and 161 are slidably mounted on transverse rods 165 and are provided at their front ends with vertical edges and with upper inclined edges, and they have horizontal upper or top edges 166 extending from the inclined portions of the front edges to the upper terminals of long inclined rear edges 167. When a bucket arrives at the front set of dumping-blocks, it is tilted by the same if its cams be provided with the said enlargements or extensions 164, which project laterally from opposite sides of the bucket. These extensions or enlargements 164 first engage the vertical front edges of the dumping-blocks, and as the bucket is carried forward through its pivotal connection with the inner links it is gradually tilted, and a continuous forward or onward movement of the bucket draws the cams upward on the front edges of the dumping-blocks to the horizontal top edges, which are of sufficient length to hold the buckets in a substantially inverted position, as illustrated in Fig. 1 of the accompanying drawings, to enable their contents to be completely discharged before they assume an upright position. After the cams leave the horizontal top edges of the dumping-blocks they are drawn down the inclined or rear sloping edges 167, which permit the buckets to resume gradually an upright position and prevent them from swinging against the transverse shafts of the conveyer with any force, whereby the buckets are prevented from being injured through contact with the dumping-blocks. The second set of dumping-blocks 161 are arranged in the paths of the cams 163 and they of course are engaged by all of the cams; but as every other bucket has had its contents previously discharged only one-half of the coal or other material will be dumped at the second point. The operation at the second set of dumping-blocks is exactly the same as

that heretofore described in connection with the first set of dumping-blocks. The number of dumping-blocks may be varied by varying the width of the cams and arranging the same for engaging the respective dumping-blocks. The dumping-blocks preferably consist of open frames, and they are provided at their bottoms with openings for the reception of transverse rods or bars 165, which are preferably round, and annular enlargements or sleeves are preferably provided at the said bottom openings of the dumping-blocks to increase the bearing-surface. The transverse rods or bars 165 are provided at opposite sides with collars 168, arranged in pairs and located at opposite sides of the dumping-blocks and secured to the said rods or bars by means of clamping-screws or other suitable fastening devices. The distance between the members of the pairs of collars is sufficient to receive the dumping-blocks and a detachable locking-bar 169, provided at its ends with hooks 258 and adapted to rest upon and be supported by the transverse rods or bars 165. These locking-bars 169 are adapted to be arranged at either side of the dumping-blocks to position the latter for engaging either of the cams 162 and 163. By arranging the locking-bars at the outer sides of the first set of dumping-blocks the latter will lie in the path of all of the cams and each bucket will be dumped at that point.

The transverse rods or bars which support the dumping-blocks may be mounted in any suitable framework, and they are located beneath the adjacent flight of the endless conveyer, as clearly shown in Fig. 1 of the accompanying drawings.

The inner and outer links of the endless conveyer may be constructed in any suitable manner; but they are preferably provided between their centers and ends with longitudinal openings to increase the lightness of the said conveyer, and the said openings 251 of the inner links are formed at the centers thereof. The hollow trunnions or pivots of the buckets are preferably supported by webs or flanges formed integral with the cams and arranged as clearly shown in Fig. 7. These webs or flanges at the outer faces of the sides of the buckets and the enlargements at the inner faces of the said sides provide a construction of great strength at the points where the bucket is attached to the links.

It will be seen that the buckets are securely fastened to the inner links of the endless conveyer, and that they are provided with cams of different widths and are capable of discharging their contents with regularity at several points, and that the material will be uniformly and evenly distributed to the hoppers, bins, chutes, or other receptacles for such material.

What I claim is—

1. A conveyer having pivoted buckets and provided at intervals with cams of different

widths, projecting laterally from the buckets different distances, combined with dumping-blocks located different distances from the center of the conveyer and adapted to be engaged by the said cams, whereby the conveyer is adapted to discharge at several points, substantially as described.

2. In a conveyer, the combination with dumping-blocks, of pivoted buckets provided with cams projecting laterally from the buckets different distances and arranged to be engaged by the said dumping-blocks, whereby the conveyer will discharge at different points, substantially as described.

3. The combination with dumping-blocks, of pivoted buckets provided with cams 162 and 163 extending laterally from the buckets, the cams 162 being provided with lateral projections extending beyond the cams 163, substantially as and for the purpose described.

4. The combination of a conveyer having pivoted buckets provided at their sides with cams 162 and 163, the cam 162 being provided with lateral extensions or enlargements and the front and rear dumping-blocks located at different distances from the center of the conveyer, the front set of dumping-blocks being arranged in the paths of the extensions or enlargements and the other dumping-blocks be-

ing arranged to be engaged by the cams 163, substantially as described.

5. In a conveyer, the combination of the inner links provided with openings, the buckets provided at opposite sides with pivots or trunnions having reduced outer ends to fit the openings of the inner links and provided with longitudinal bores, a fastening device passing through the longitudinal bore, and a plate secured by the fastening device to the outer end of each of the pivots or trunnions and arranged to engage the inner links, substantially as described.

6. The combination of the inner and outer links, transverse shafts connecting the inner and outer links, pivoted buckets provided with hollow trunnions having reduced ends receiving the inner links, and fastening devices passing through the hollow trunnions and through the inner links and securing the buckets to the latter, substantially as described.

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

PEETE B. CLARKE.

Witnesses:

JOHN FRENCH,
CHARLES ENGEL.