

No. 846,596.

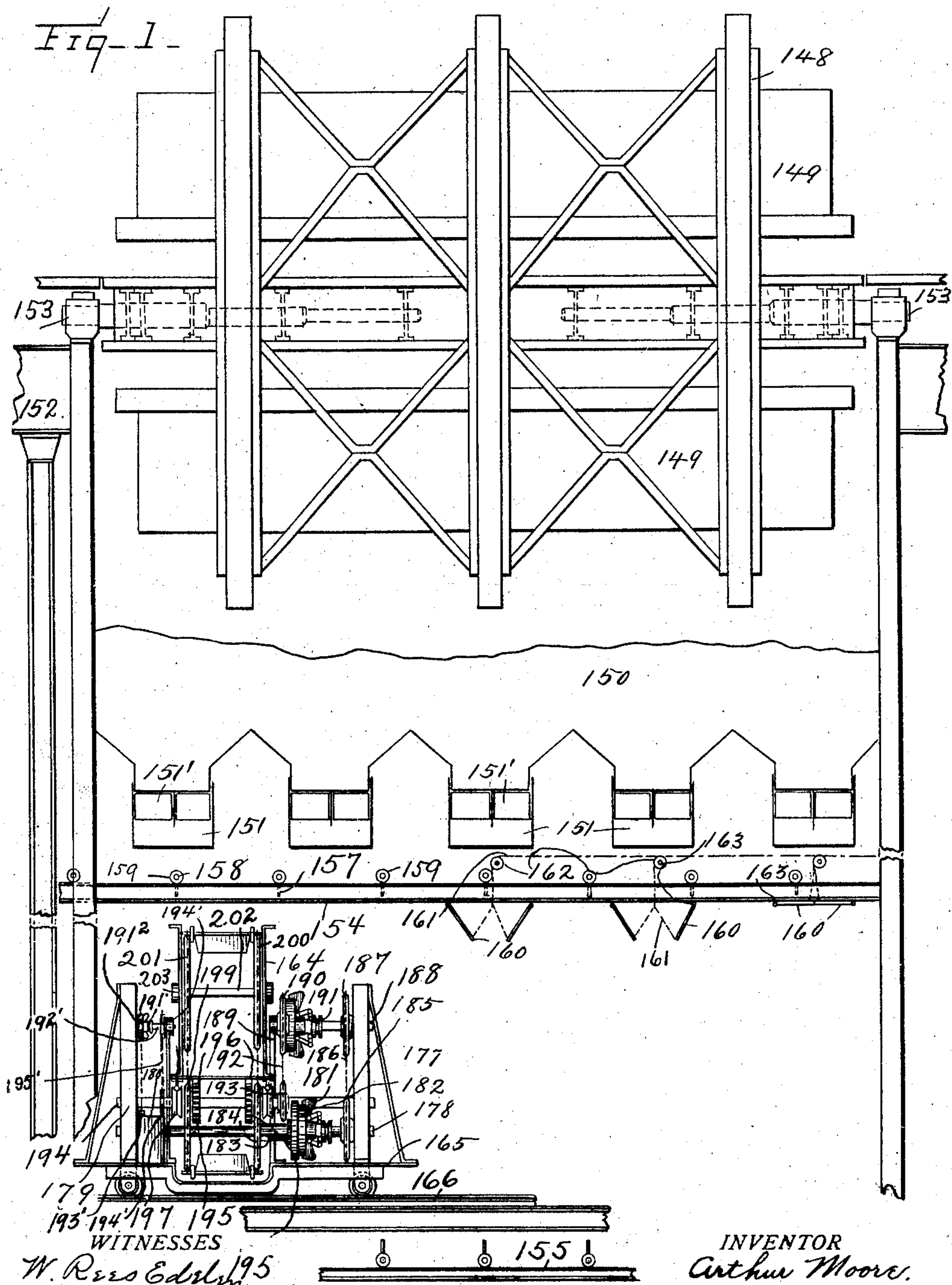
PATENTED MAR. 12, 1907.

A. MOORE.

DUMPING AND DISTRIBUTING APPARATUS.

APPLICATION FILED DEC. 14, 1905.

4 SHEETS—SHEET 1.



WITNESSES
W. R. Reed Edr.
195

Frank G. Campbell.

INVENTOR

Arthur Moore.

By

Shepherd Parker.
Attorney S.

No. 846,596.

PATENTED MAR. 12, 1907.

A. MOORE.

DUMPING AND DISTRIBUTING APPARATUS.

APPLICATION FILED DEC. 14, 1905.

4 SHEETS—SHEET 2.

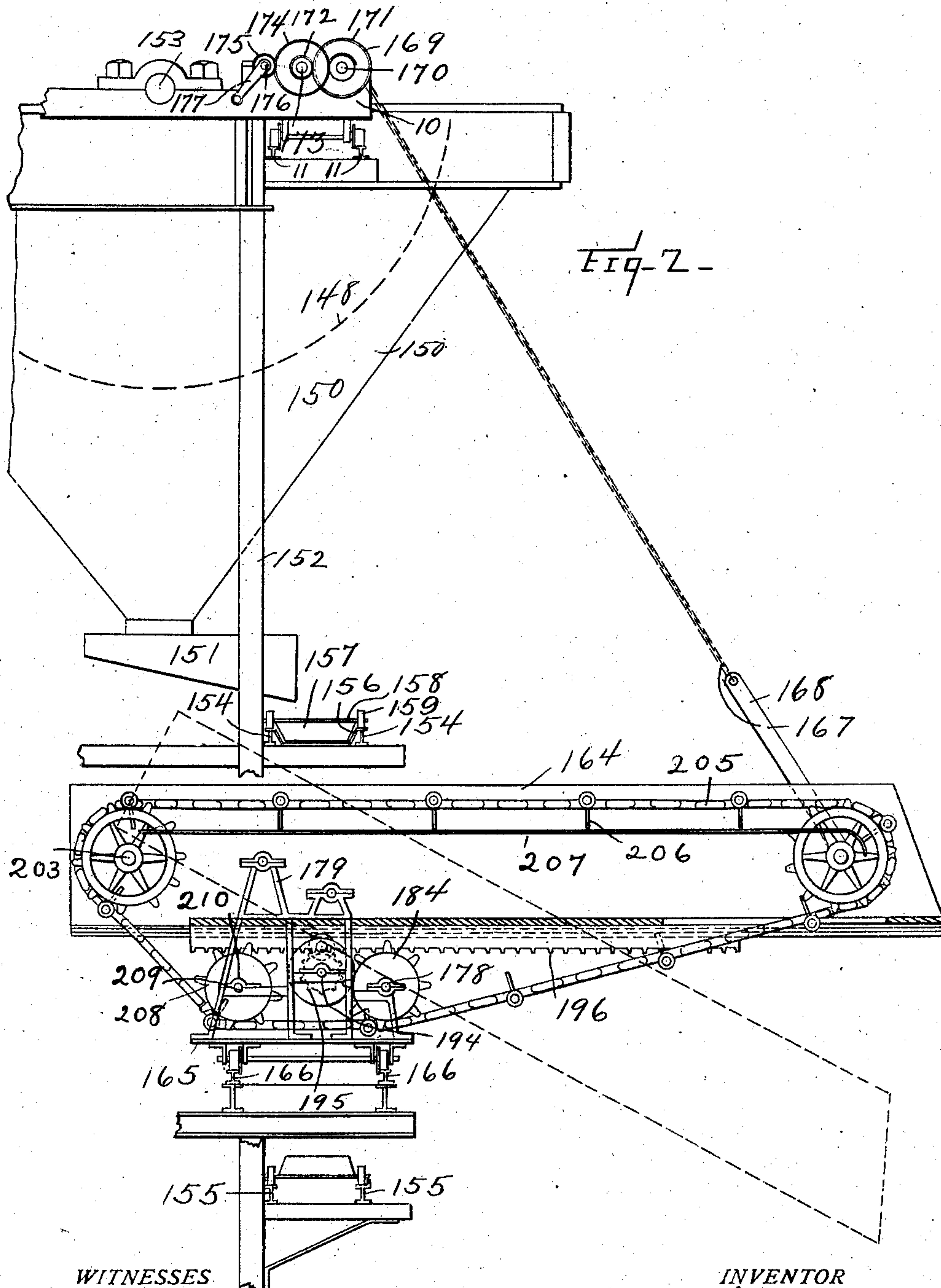


Fig. 2-

WITNESSES
W. Rees Edslen
Frank J. Campbell

INVENTOR
Arthur Moore
by Shepherd & Parker
Attorneys

No. 846,596.

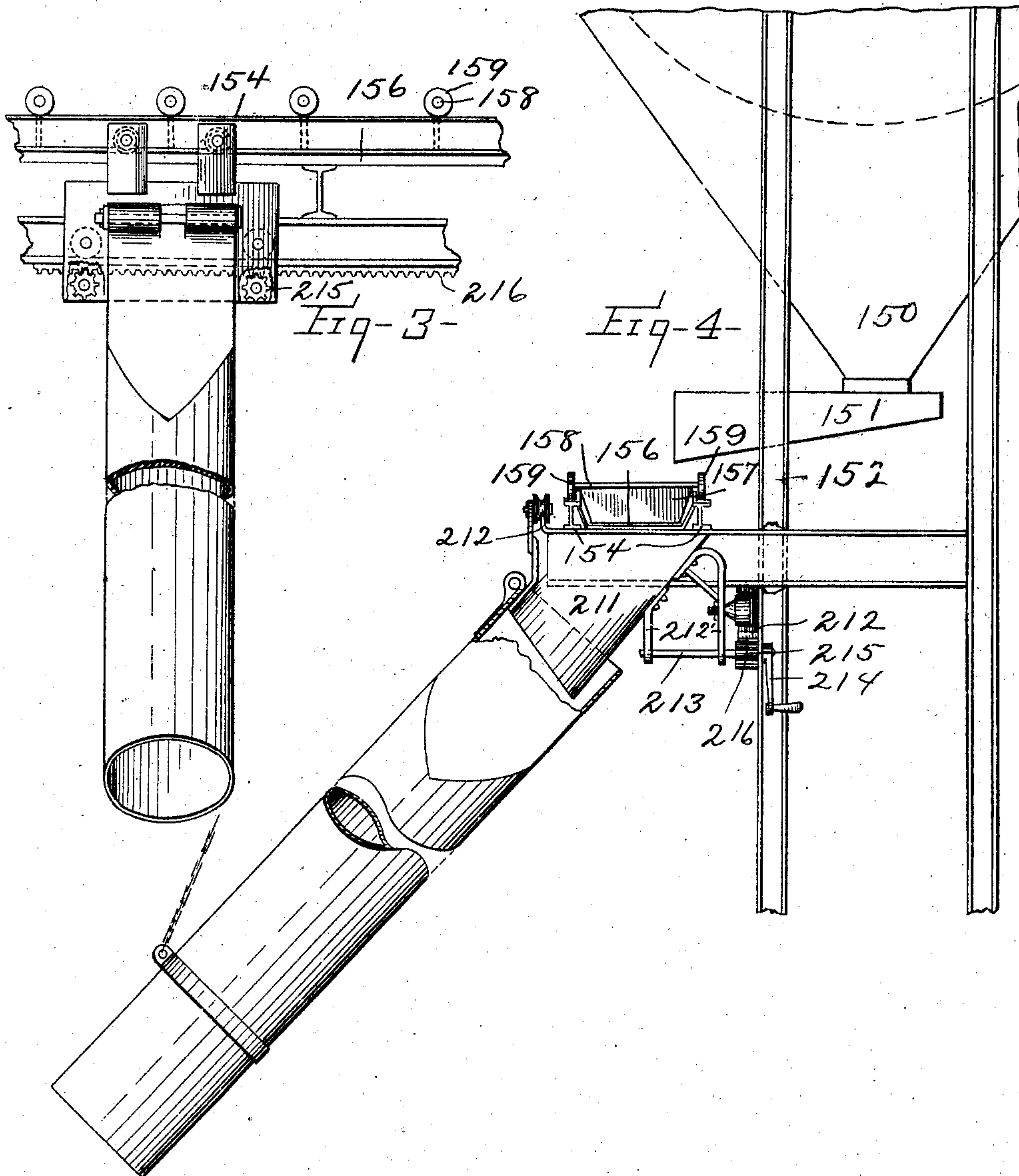
PATENTED MAR. 12, 1907.

A. MOORE.

DUMPING AND DISTRIBUTING APPARATUS.

APPLICATION FILED DEC. 14, 1905.

4 SHEETS—SHEET 3.



WITNESSES
W. R. R. Edson.
Frank J. Campbell.

INVENTOR
Arthur Moore
by Shepherd & Parker.
Attorneys

No. 846,596.

PATENTED MAR. 12, 1907.

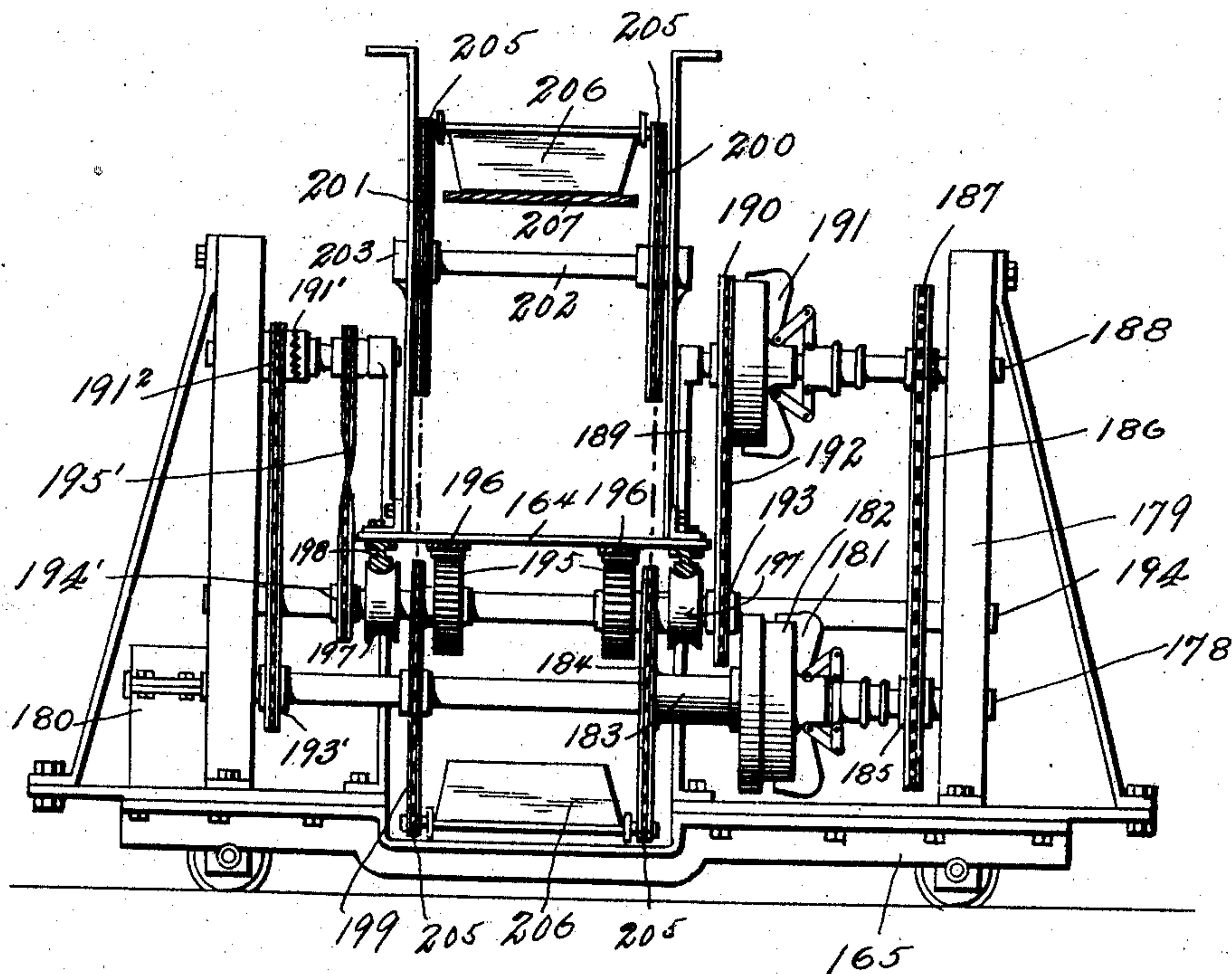
A. MOORE.

DUMPING AND DISTRIBUTING APPARATUS.

APPLICATION FILED DEC. 14, 1905.

4 SHEETS—SHEET 4.

Fig. 5



Inventor

Arthur Moore

Witnesses

Chas H. Davies.

John Brown

 \mathfrak{B}_1

Shepherd Parkes

Attorneys

UNITED STATES PATENT OFFICE.

ARTHUR MOORE, OF WAR EAGLE, WEST VIRGINIA.

DUMPING AND DISTRIBUTING APPARATUS.

No. 846,596.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed December 14, 1905. Serial No. 291,769.

To all whom it may concern:

Be it known that I, ARTHUR MOORE, a citizen of the United States, residing at War Eagle, in the county of Mingo and State of West Virginia, have invented certain new and useful Improvements in Dumping and Distributing Apparatus, of which the following is a specification.

My invention relates to dumping and distributing apparatus, and has for its object to provide means for dumping an entire load of coal, ore, or any similar material by turning the car completely over, thereby allowing the contained material to fall out, together with means for conveying the material dumped to points beyond the range of the dumping apparatus proper.

Mining cars and appliances of the construction in common use are commonly emptied by opening a gate at one end of the car and by tilting the car, allowing the contents to slide out. The repeated sliding of the contents soon wears the bottom of the car to such an extent that repairs become necessary, entailing considerable expense.

When it is desired to use the dumping apparatus herein described to unload cars the contents of which are to be loaded into vessels which, owing to their height, cannot be moved directly under the revolving dump, the conveying devices hereinafter described provide efficient means for completing a system of dumping and distributing apparatus which renders it possible to unload coal or other material directly from the cars into the holds of vessels, and not only into the holds of the vessels, but also to so distribute said material as to maintain said vessels upon an even keel at all times.

In the accompanying drawings, Figure 1 is a side elevation of a rotatable dump mounted in operative relation to a conveyer hereinafter described. Fig. 2 is an end elevation of said dump and conveyer. Fig. 3 is a detail side elevation of a manually-operated trough hereinafter described. Fig. 4 is an end elevation of said trough; and Fig. 5 is an end elevation, on an enlarged scale, of a discharge-spout operating and controlling mechanism, to be hereinafter specifically described.

Like numerals designate corresponding parts in all of the figures of the drawing.

In carrying out my invention a rotatable dump 148, such as is shown in my pending application for automatic revolving car-

dump, filed April 18, 1904, Serial No. 203,755, is used. This dump is arranged to discharge the contents of cars 149 into a hopper 150. This hopper is provided with a series of discharge-spouts 151, adapted to discharge the contents of the hopper into an endless conveyer, hereinafter described, through gates 151'. The hopper and dump are mounted upon a trestle or framework 152, said dump resting in bearings 153.

Supported by the framework 152 is an endless conveyer, which is arranged to travel in one direction upon tracks 154 and in the return direction upon tracks 155. This conveyer comprises a U-shaped trough 156. Depending blades 157, carried by shafts 158, which are mounted upon rollers 159, serve to scrape the coal longitudinally through the trough 156.

Swinging doors 160, which normally close openings formed in the bottom of the conveyer-trough 156, may be opened or closed by cables 161, which pass over idler-rolls 162. These doors are hinged to the bottom of the trough, as at 163, and when open permit coal to fall through the bottom of the trough 156 into a spout 164. Spout 164 is carried by a truck or car 165, which is mounted for longitudinal movement with relation to the frame 152 upon a track 166.

The outer end of trough 164 is supported by a cable 167 and a yoke 168. The upper end of the cable passes over a drum 169, mounted upon a shaft 170, located and supported upon the top of frame 152. A gear-wheel 171, mounted upon shaft 170, meshes with a pinion 172, mounted upon a shaft 173. A gear-wheel 174, mounted upon shaft 173, meshes with a pinion 175, mounted upon a shaft 176, to which is secured a crank 177.

A drive-shaft 178, mounted in frame 179 of car 165, has motion imparted thereto by a motor 180. Secured to shaft 178 is a clutch 181, adapted to clutch a disk 182 to the shaft 178. A sleeve 183 is secured to the disk 182 and to a sprocket-wheel 184. Sprocket-wheel 185, sprocket-chain 186, and sprocket-wheel 187 are adapted to transmit motion from shaft 178 to a shaft 188, which is journaled in frame 179 and a standard 189. Mounted loosely upon shaft 188 is a sprocket-wheel 190, adapted to be clutched to said shaft by a clutch 191. A sprocket-chain 192, which passes over sprocket-wheel 190 and over a sprocket-wheel 193, serves to trans-

mit motion from shaft 188 to a shaft 194, which is also journaled in frame 179. Mounted upon this latter shaft are gear-pinions 195, which mesh with racks 196, formed upon the
 5 bottom of trough 164 for the purpose of moving said trough transversely of the frame 179. Grooved pulleys 197 are adapted to receive rails 198, formed upon the bottom of the trough to aid in supporting the same.

10 Sprocket-wheels 184 and 199, the latter of which is loosely mounted upon shaft 178, and sprocket-wheels 200 and 201, mounted upon a spindle 202, supported at 203 by the trough 164, are adapted to receive sprocket-chains 205, to which are secured blades or
 15 scrapers 206, the lower edge of which scrape along a bottom 207, formed in the trough 164 to convey coal therethrough. An idler-roll 208, which is carried by a shaft 209, journaled at 210 in the frame of the car, aids in directing the movement of the conveyer-sprocket chains.

The operation of this form of the device is as follows: Coal is dumped from the cars
 25 149 into a hopper 150. From this hopper it passes through the gates 151' and falls into the trough 156. It is forced along this trough by the blades 157 until it reaches an opening in the bottom of the trough, when it falls
 30 through into the trough 164. The wheeled car 165 provides means for moving the trough longitudinally to bring it under any desired opening, while the arrangement of driving-shafts in the frame of said car provides means for driving the conveyer car-
 35 ried in the trough and for moving said trough bodily transversely of the car. If it be desired to move said trough transversely of the car, clutch 191 is actuated to clutch
 40 sprocket-wheel 190 to shaft 188. This causes motion to be imparted to shaft 194. Pinions 195 then impart bodily movement to the trough in one direction, through their engagement with racks 196. When sprocket
 45 184 is clutched to shaft 178 by clutch 181, the movement of said shaft is transmitted through said sprocket to sprockets 200, 201, and 199, and to sprocket-chain 205 and blades 206.

50 A clutch 191' is adapted to clutch a sprocket 191² to a short shaft 192', said sprocket being connected by a driving-chain with a sprocket 193', secured upon the shaft 178. Reverse motion is imparted to shaft
 55 194 by sprockets 194' and a crossed drive-chain 195' when it is desired to impart a reverse bodily movement to the trough 164, as will be readily understood.

It will be readily understood that motion
 60 imparted to crank 177 will result in raising or lowering the outer end of trough 164 as desired, said crank and the gear-wheels actuated thereby being mounted upon a wheeled frame 10, movably mounted upon tracks 11.

65 In Figs. 3 and 4 means for manually mov-

ing a trough or spout are shown. In this form of the device the dump and endless conveyer are like that shown in Figs. 1 and 2.

A short spout 211 is mounted upon tracks 212, and carries brackets 212', in which is
 70 mounted a crank-shaft 213. A crank 214 provides means for manually rotating said shaft. A pinion 215, which is also mounted upon shaft 213, meshes with a rack 216, which is carried by the lower track 212.
 75 It will thus be seen that means are provided for imparting movement to the spout by hand.

From the foregoing description it will be seen that efficient means are herein provided for accomplishing the objects of the inven-
 80 tion; but while the elements shown are well adapted to serve the purpose for which they are intended it is to be understood that the invention is not limited to the precise construction set forth, but includes within its
 85 purview such changes as may be made within the scope of the appended claims.

Having thus described my invention, what I claim, and desire to secure by Letters Pat-
 90 ent, is—

1. In a dumping and distributing apparatus the combination with a dump of a hopper arranged to receive the material dumped, an endless conveyer comprising a trough and
 95 blades traveling in said trough, doors or gates located in the bottom of the trough, and a movable spout adapted to be moved bodily beneath any of said doors.

2. In a dumping and distributing apparatus the combination of a hopper, discharge-
 100 spouts leading from said hopper, an endless conveyer located below the mouth of said discharge-spout, a trough adapted to receive material from said endless conveyer, an endless flight located in said trough, and means
 105 for imparting movement to said endless flight and for imparting bodily movement to the trough transversely of the car.

3. In a distributing apparatus an endless conveyer comprising a trough, doors or gates
 110 arranged in the bottom of said trough, means for conveying material through said trough, and a trough or spout adapted to be bodily moved beneath any of said doors.

4. In a distributing apparatus the combi-
 115 nation with an endless conveyer comprising a U-shaped trough having doors or gates located in the bottom thereof, of a spout adapted to be moved bodily beneath any of said doors or gates, a car upon which said
 120 spout is mounted, and means for moving said spout bodily with relation to said car.

5. In a distributing apparatus the combination with an endless conveyer comprising
 125 a trough having doors or gates located in the bottom thereof, of a second trough adapted to be moved bodily beneath any of said doors or gates, an endless flight mounted in said second trough, a car upon which said
 130 second trough is mounted, and means carried

by said car for imparting movement to the endless flight and for imparting bodily movement to said trough with relation to said car.

6. In a dumping and distributing apparatus, the combination of a hopper, discharge-spouts leading from said hopper, an endless conveyer located beneath said discharge-spouts, a trough adapted to receive material from said endless conveyer, means for moving said trough longitudinally with respect to said conveyer and means for moving said trough transversely with respect to said conveyer.

7. In a dumping and distributing apparatus, the combination of a hopper, discharge-spouts leading therefrom, an endless conveyer located beneath said discharge-spouts, a fulcrumed trough adapted to receive material from said endless conveyer, means for moving said trough longitudinally with respect to said conveyer, means for moving said trough transversely with respect to said conveyer and means for swinging said trough upon its fulcrum.

8. In a dumping and distributing apparatus, the combination of a hopper, discharge-spouts leading therefrom, an endless conveyer located beneath said discharge-spouts, a trough adapted to receive material from said endless conveyer, a car or truck longitudinally movable with respect to said conveyer, and supporting said trough and means for moving said trough transversely with relation to said conveyer.

9. In a dumping and distributing apparatus, the combination of a hopper, discharge-spouts leading therefrom, an endless conveyer located beneath said discharge-spouts, a platform movable longitudinally with respect to said conveyer, a movable trough pivotally mounted upon said platform, means for moving said trough transversely with respect of said platform, and means for swinging said trough in either direction upon its pivot.

10. In a dumping and distributing apparatus, the combination with an endless conveyer of a car, a trough adapted to receive material from said conveyer and movably mounted on said car, means for imparting longitudinal movement to said trough, with respect to said conveyer and means for imparting transverse movement to said trough with respect to said conveyer.

11. In a dumping and distributing apparatus, the combination with an endless conveyer of a car movable longitudinally with respect to said conveyer, a trough adapted to receive material from said conveyer and movably mounted upon said car transversely, with relation thereto and to said conveyer.

12. In a dumping and distributing apparatus, the combination with an endless conveyer of a car movable longitudinally with respect to said conveyer, a trough adapted

to receive material from said conveyer pivotally mounted upon said car and movable as a whole transversely with relation thereto, means for raising and lowering said trough upon its pivot and means for imparting transverse movement to said trough with relation to said car and said conveyer.

13. In a dumping and distributing apparatus, the combination with an endless conveyer, of a pivoted trough adapted to receive material therefrom, means for moving said trough upon its pivot, means for moving said trough longitudinally with respect to said conveyer, and means for moving said trough transversely with respect to said conveyer, all of said means being capable of independent or simultaneous and coöperative action.

14. In a dumping and distributing apparatus, the combination with a conveyer comprising a trough, doors or gates located in the bottom of said trough and means for conveying material through said trough, of a second trough, adapted to be moved bodily beneath any of said doors or gates, an endless flight mounted in said second trough, a car upon which said second trough is mounted, and means carried by said car for imparting movement to the endless flight and for imparting bodily movement to said trough, with relation to said car.

15. In a distributing mechanism, an endless conveyer comprising a trough, doors or gates arranged in the bottom of said trough, means for conveying material through said trough, a suspended spout and means for moving said spout along the line of the longitudinal axis of said trough beneath a selected one of said doors or gates.

16. In a distributing mechanism, an endless conveyer comprising a trough, doors or gates arranged in the bottom of said trough, means for conveying material through said trough, a suspended spout and means for moving said spout along the line of its own axis beneath a selected gate and transversely with relation to said trough.

17. In a distributing mechanism, an endless conveyer comprising a trough, doors or gates arranged in the bottom of said trough, means for conveying material through said trough, a suspended spout, means for moving said spout along the line of the longitudinal axis of said trough beneath a selected one of said doors or gates and means for moving said spout along the line of its own longitudinal axis beneath a selected gate and transversely with relation to said trough, both of said last-named means being capable of simultaneous or independent operation.

18. In a dumping apparatus the combination with a trough having discharge-gates and a material-feeding mechanism in said trough of a car, a second trough mounted thereon, and capable of movement along the line of its axis, an endless feed-belt extend-

ing through said second trough, a motor on
said car, transmission-gearing driven from
said motor and means for engaging said gear-
ing independently or simultaneously with
5 the driving connections of said feed-belt and
said second trough as and for the purpose set
forth.

19. In a dumping apparatus the combina-
tion with a conveyer designed to automatic-
ally discharge its material at any selected
10 point, of a car, a trough mounted thereon
and capable of movement along the line of
its axis, a motor on said car, transmission-
gearing driven from said motor, means for
15 actuating said trough to move the same for-
wardly, means for actuating said trough to
move the same rearwardly and means for en-
gaging said transmission-gearing with either
one of said last-named means.

20. In a dumping apparatus the combina-
tion with a conveyer designed to automatic-
ally discharge its material at any selected
point, of a car, a trough suspended thereon
and having rack-teeth, supporting-pinions

engaging said teeth, a motor, a transmission- 25
gearing driven thereon, and independent
means for driving said pinions in either di-
rection and means for operatively engaging
said transmission-gearing with either one of
said independent means. 30

21. In a dumping apparatus, a car, a spout
pivotally suspended therefrom, a suspension-
rope, a winding and unwinding means there-
for and a wheeled frame supporting said last-
named means. 35

22. In a dumping apparatus, a car, a spout
pivotally suspended therefrom, a suspension-
rope, a winding and unwinding means there-
for and a wheeled frame supporting said last-
named means and adapted to have move- 40
ment in the same direction as said car.

In testimony whereof I affix my signature
in presence of two witnesses.

ARTHUR MOORE.

Witnesses:

E. C. WEBSTER,
N. V. JAMES.