F. E. TICKNOR & G. MANIERRE.

LOADING MACHINE.

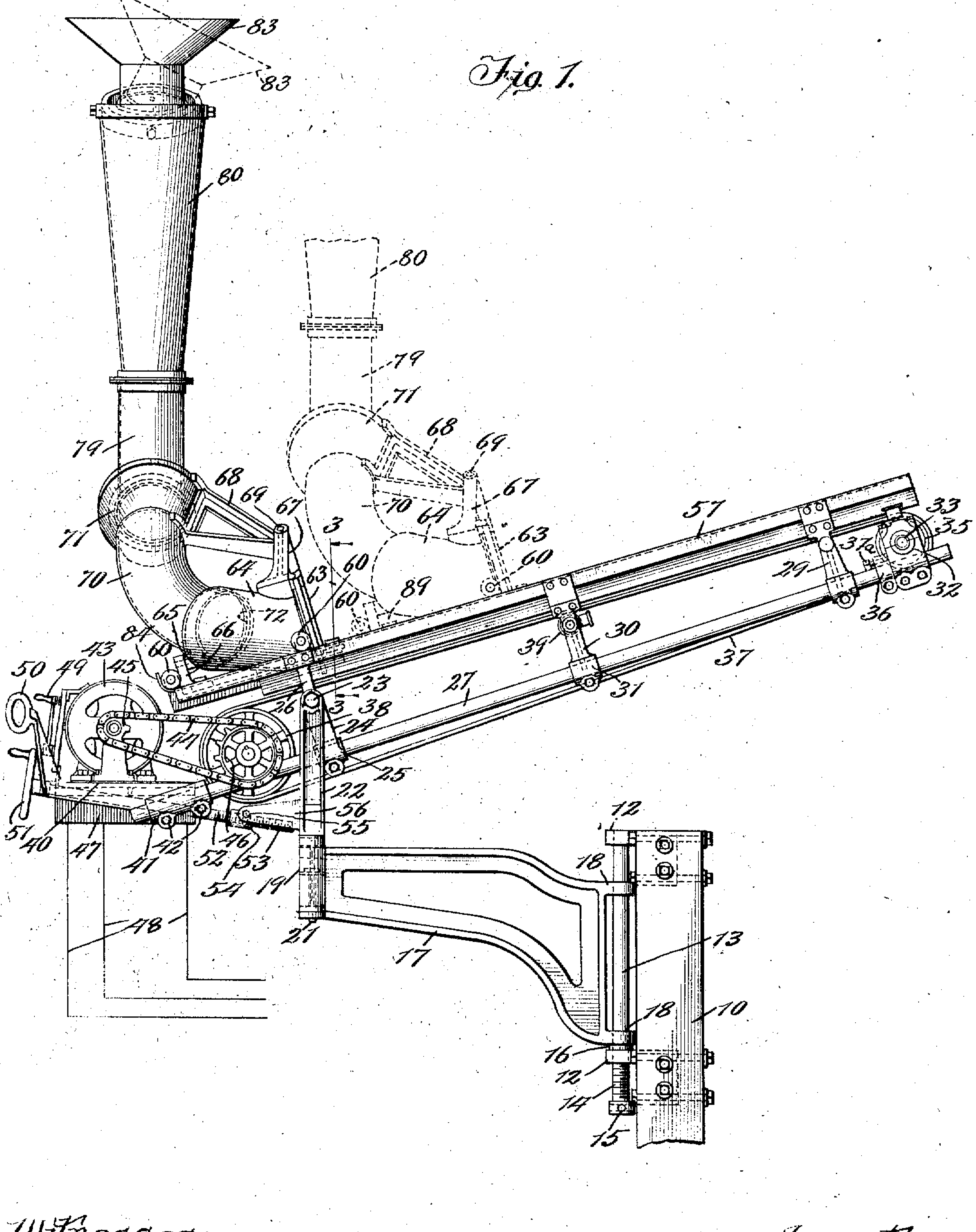
APPLICATION FILED MAY 10, 1909.

988,674.

Patented Apr. 4, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



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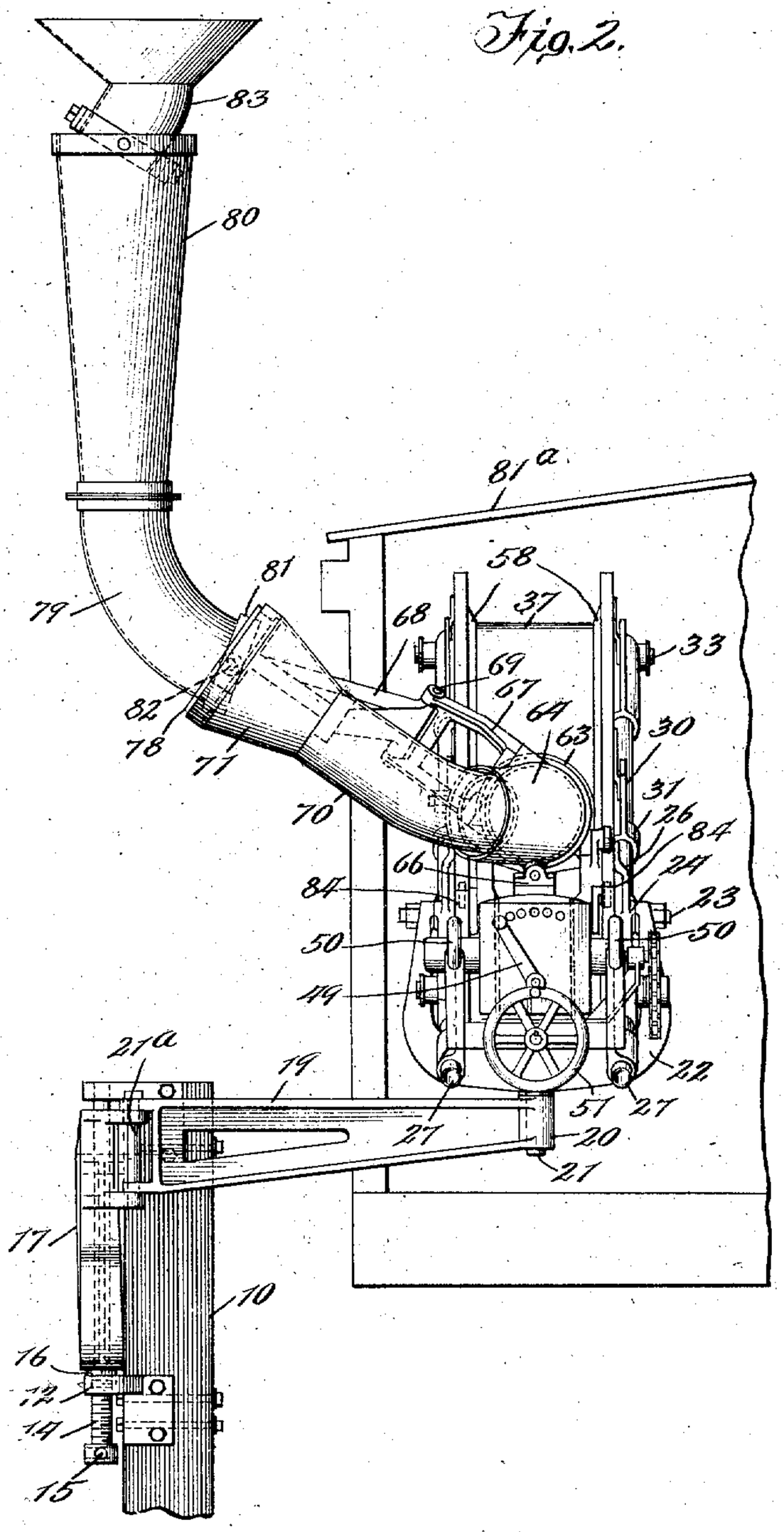
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

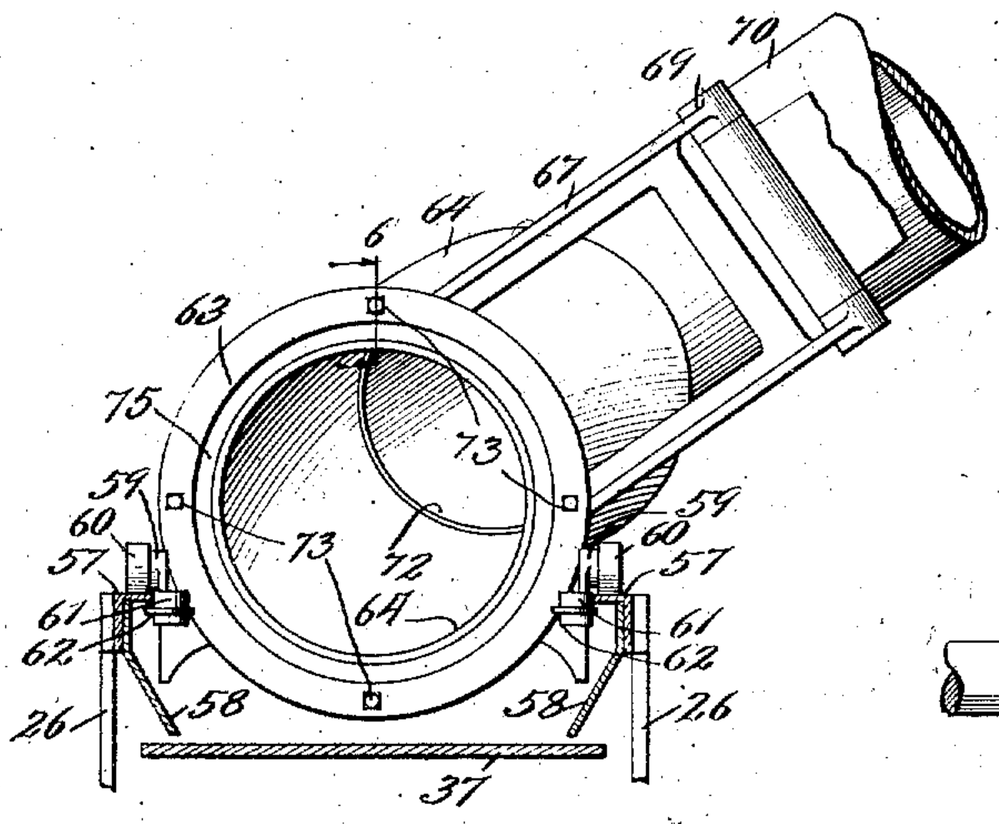


Fig. 4.

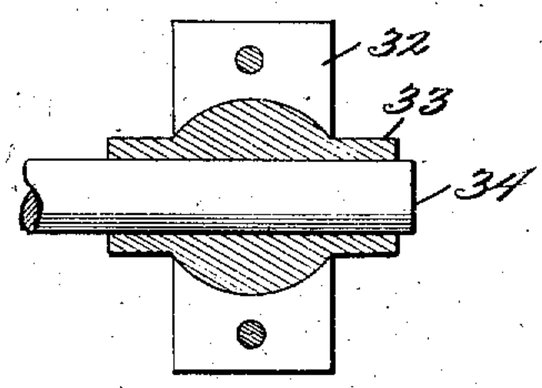


Fig. 5.

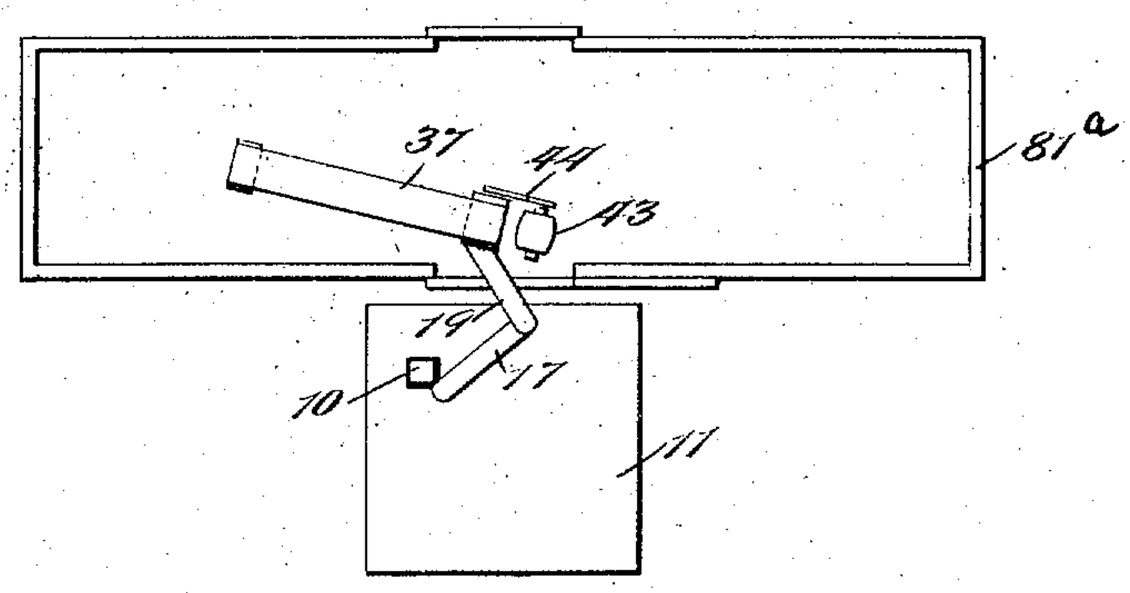
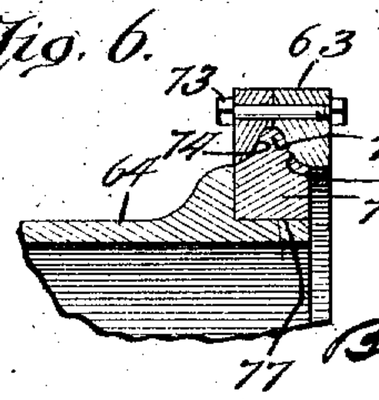


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANK E. TICKNOR AND GEORGE MANIERRE, OF MILWAUKEE, WISCONSIN.

LOADING-MACHINE.

988,674. Specification of Letters Patent. Patented Apr. 4, 1911.

Application filed May 10, 1909. Serial No. 495,062.

To all whom it may concern:

Be it known that we, FRANK E. TICKNOR and GEORGE MANIERRE, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Loading-Machines, of which the following is a specification.

This invention relates to improvements in loading apparatus particularly adapted for loading box cars and the like, and one of the primary objects of the invention is to provide an improved device of this character in which the material is delivered to the conveyer in the direction in which the conveyer is moving and when the conveyer is in any position.

A further object is to provide an improved device of this character which will be simple, durable and compact in construction and which will be entirely under the control of and readily adjustable by a single operator and which is at the same time capable of ready withdrawal from and insertion into the car.

A further object is to provide an improved construction of this character in which the feed hopper may be readily and automatically adjusted to permit the car to be filled at the center and at the same time will maintain the hopper in an accessible and proper position.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings, illustrating an embodiment of the invention, and in which—

Figure 1 is a side elevation of an improved device of this character constructed in accordance with the principles of the invention. Fig. 2 is a left-hand end elevation of Fig. 1, showing a portion of the car into which the conveyer is inserted. Fig. 3 is an enlarged detail sectional view taken on line 3—3 of Fig. 1. Fig. 4 is an enlarged detail sectional view of the bearing for the outer end of the conveyer. Fig. 5 is a diagrammatic view of a car showing the relative position of the apparatus within the car. Fig. 6 is an enlarged detail sectional view on line 6—6 of Fig. 3.

Referring more particularly to the drawings and in the present exemplification of the invention, the numeral 10 designates a suitable support for the apparatus and this support is provided with a base or platform 11, which may be of any suitable construction. The support 10 is provided with alined bearings 12 which project beyond one side thereof, through which bearings projects an upright axle or pin 13. One extremity 14 of the axle projects below the bearing 12 and is screw-threaded as shown and the extremity of this threaded portion is provided with a head 15, by means of which the axle may be rotated. The bearing 12 is preferably screw-threaded to cooperate with the threaded extension 14 and a collar 16 is provided on the axle above the bearing 12 so that when the axle is adjusted longitudinally in its bearings, the collar 16 will be moved away from or toward the bearing according to the direction of adjustment.

An arm or bracket 17 is provided with spaced bearings 18 through which the axle 13 passes and the bracket is adapted to swing about the axle 13 as a pivot. When the axle is adjusted, the bracket 17 will also be adjusted with respect to the support 10 to raise or lower the apparatus which is supported from the arm or bracket 17.

Pivotally supported at the free end of the arm or bracket 17 is a second arm or bracket 19, the free extremity of which is provided with an upright bearing 20, in which a lug 21 on a yoke 22 is loosely journaled.

Supported by the yoke 22 and on a horizontal pivot 23 is a member 24, preferably in the form of a casting, which extends across the yoke and is provided with spaced bearings 25 adjacent the lower edge thereof. The member 24 is provided with spaced arms 26 which preferably extend above the top of the yoke for a purpose to be set forth.

Spaced bars or members 27 of any desired length and configuration are provided and these bars or members extend through the bearings 25 and are secured against longitudinal movement with respect thereto. The extremity of the rods or members project beyond each side of the yoke 22 and the outer

ends of the members are connected by a casting 29, which is located adjacent the extremities. The casting 29 coöperates with the member 24 to form a base or support for the conveyer to be hereinafter described, and if desired, a casting or member 30 may be disposed between the members 24, 29, to support the conveyer intermediate its length. This member 30 is provided with bearings 31 through which the bars or members 27 pass and the member 30 is secured against movement with respect to the bars or members 27 in any desired or suitable manner.

Secured adjacent the outer extremities of each of the bars or members 27 is a support 32 in which is arranged a bearing 33 of the ordinary and usual construction and journaled in the bearings 33 and connecting the extremities of the bars or members 27 is a shaft 34 to which is secured a pulley 35, and secured to each of the bars or members 27 is a support 36, in which are mounted adjusting screws or members 37ª, which latter engage the supports 32 and are adapted to adjust the supports on the bars or members 27 to vary the tension of the endless conveyer or belt 37.

Arranged adjacent the other extremities of the bars or members 27 and preferably on the other side of the yoke 22 from that on which the pulley 35 is supported is another pulley 38, over which the endless conveyer belt passes and journaled to the member or casting 30, which is arranged preferably intermediate the length of the bars or members 27, is an idle pulley 39, over which the upper run of the endless conveyer passes and this pulley serves as a means for supporting such run intermediate its length.

A platform or support 40 is provided with tubular portions 41, adjacent each side thereof and are adapted to receive the inner extremities of the bars or members 27 so as to hold the platform or support 40 in a position adjacent said end so that a portion of the platform will project between the bars or members and suitable fastening bolts or devices 42 are provided for securing the platform against movement with respect to the bars or members 27.

A suitable motor 43 is supported by the platform 40 and is adapted to drive or impart motion to the pulley 38 for driving the endless conveyer 37, in any suitable manner, preferably by means of a chain or belt 44 which passes over a suitable sprocket 45 on the motor shaft and a sprocket 46 on the pulley shaft. The platform 40 also serves as a means for supporting the controller resistance coils, designated generally by the reference numeral 47 and the lead wires 48 are connected to these coils in any convenient manner. The controller switch 49 is arranged in a convenient position for the operator and the platform or support 40 is provided with handles 50 which are also conveniently placed for the operator, so that the entire conveyer and the mechanism supported thereby, together with the platform and motor, may be readily adjusted about the horizontal pivot 23, and also about the upright pivots 21, 21ª and 13.

The outer end of the conveyer may be adjusted in a vertical plane in any desired or convenient manner but there is preferably provided an operating or adjusting wheel or handle 51 which is connected to a shaft 52, and the shaft is supported in suitable bearings on the platform 40. The free end 53 of the shaft 52 projects beyond the platform and is screw-threaded. This screw-threaded extremity passes through a suitable collar 54, which is also screw-threaded to coöperate with the threads on the extremity 53 of the shaft and the collar is pivotally mounted as at 55 upon a suitable support 56, which latter is preferably in the form of an ear or extension projecting from the yoke 22. When it is desired to raise or lower the outer or free end of the conveyer, the wheel or handle 51 is manipulated to rotate the shaft 52 to feed the extremity 53 thereof into or out of the collar 54.

Supported by the extensions 26 of the member 24 and also by the castings or members 29, 30, above the upper run of the conveyer 37, and extending substantially the entire length of the bars or members 27 are spaced angle irons 57, shown more clearly in Fig. 3. Secured to these angle irons and depending therefrom are skirt boards or deflectors 58, which are inclined inwardly toward each other and extend over the edges of the upper run of the endless conveyer to direct the material toward the longitudinal center of the conveyer and to prevent it from falling over the edges of the conveyer.

A truck or frame 59, is provided with rollers 60, which latter rest upon and are movable on the angle irons 57, so that the truck or frame will be supported directly over the endless conveyer. Pulleys or rollers 61 are also provided, which are journaled to the truck or frame and are arranged on upright axes to engage the inner edges of the angle irons and these pulleys or rollers 61 are provided with projecting peripheral flanges 62 which extend under the edges of the angle irons to prevent the truck or frame from being accidentally displaced.

Supported by the truck or frame adjacent the forward end thereof is a ring or circular bearing 63, which is adapted to receive one end of a tubular member 64 and projecting from the tubular member 64 adjacent its other end is an extension 65 (see Fig. 1) which coöperates with a bearing 66 on the truck or frame 59 and in which bearing the extension 65 is journaled so that the tubular member 64 may be rocked about the pivot

formed by the extension 65 and the bearing 66 to axially rotate the forward end of the tubular member in the ring or bearing 63.

An arm or bracket 67 is secured to and projects above the tubular member 64 adjacent the forward end thereof and a second arm or bracket 68 is journaled or pivotally connected to the bracket 67 as at 69. A tubular member 70 is provided with an enlarged extremity 71, which latter is secured to the other extremity of the arm or bracket 68 to be supported thereby, and the other extremity 72 of the tubular member 70 telescopes with the extremity of the tubular member 64 adjacent its pivot 65 so that when the arm or bracket 68 is moved about its pivot 69 the extremity 72 of the tubular member 70 will be telescoped into or withdrawn from the tubular member 64. The bearing 63 in which the free end of the tubular member 64 is journaled is supported in close proximity to the upper run of the endless conveyer 37 and is disposed in the same direction as the direction of movement of the conveyer so that the material which is discharged through the tubular members 70, 64, in a manner to be set forth, will be delivered onto the conveyer in the direction of movement of the conveyer. This bearing is preferably of a sectional construction comprising coöperating rings secured together by fastening devices 73 and provided with cut away portions 74 in adjacent portions to form a groove, and secured to the member 64 is a bearing ring 75 having a reduced periphery 76 which enters the groove in the bearing 63. If desired, the member 64 may be provided with a shouldered portion 77 to assist in holding the ring 75 in position.

Secured within the enlarged extremity 71 of the tubular member 70 and for axial rotation is a bearing ring 78 and secured to the extremity 79 of a tubular member 80 is a bearing ring or member 81, which is of an external diameter less than the internal diameter of the bearing ring 78. The bearing ring 81 is adapted to be inserted into the ring 78 and is pivotally connected thereto by means of pivot members 82 so that the tubular member 80 will be supported for pivotal movement with respect to the member 70 and is also adapted to be axially rotated with respect thereto. This extremity of the member 79 of the member 80 is curved to coincide with the tubular member 70, and increases in diameter toward its upper or free end. Pivotally mounted for universal movement in the enlarged extremity of the member 80 is a funnel or hopper 83 and this funnel or hopper is mounted for universal movement with respect to the adjacent extremity of the member 80 in order to always maintain the hopper in an upright position.

In use, the support 10 stands adjacent the car 81ª and the conveyer is inserted through the door opening. After the conveyer has been adjusted to the proper height, it may be swung into one end of the car, as shown in the diagram in Fig. 5 so that the truck or support 59 will stand adjacent the motor end of the conveyer. One extremity of each of the angle irons 57 may be bent upwardly as shown in Figs. 1 and 2, as at 84, to form stops for the truck or support. The material is then fed into the hopper 83 and is conveyed to the endless conveyer 37 which may be traveling at any desired speed and from the conveyer it is discharged or thrown into the end of the car. As the end of the car is filled, the conveyer may be swung backwardly toward the other end of the car by means of the arms or brackets 17 and 19 and as the height of the pile of material increases the conveyer may be raised by moving it about the pivots 23 by means of the wheel 51. As the end of the car is filled, the conveyer frame and hopper are moved backwardly until the tubular member 70 engages one of the upright edges of the door of the car to arrest the movement of the hopper with the conveyer frame. A further movement of the conveyer frame in the same direction will cause the conveyer frame to be drawn backwardly under the carriage or truck, which movement will be permitted owing to the fact that the tubular member and hopper are supported upon the truck or carriage thereby causing the conveyer frame to move with respect to the carriage to draw the free end of the conveyer frame toward the carriage. When the car has been filled to a point adjacent the center, the conveyer may be readily removed from the car through the door opening and after being reversed may be again inserted so that the material will be discharged at the other end. When all of the car has been filled with the exception of the center, the conveyer may be removed readily through the medium of the handles 50 so that the center may be then filled. By constructing the tubular members 64 and 70 on the same center line, which center line is an arc described about the pivot 69 as a center, the tubular members 70 and 64 will telescope with each other.

With this improved construction it will be apparent that the hopper and tubular members will always be in a proper position to receive material and also in such a position that the material will be directed by gravity to the conveyer. By discharging the material onto the conveyer in the direction in which the conveyer is moving, it will be apparent that the conveyer will be relieved of all sudden jars caused by the dropping of the material thereonto and the danger of the material jumping off of the conveyer.

It will also be apparent that the conveyer is at all times under the control of a single operator and the hopper will always be in the proper position no matter what adjustment is made to the conveyer.

In order that the invention might be fully understood the details of the foregoing embodiment thereof have been thus specifically described but

What we claim as new is—

1. A car loader comprising a support, a conveyer pivoted adjacent one extremity to the support for movement on a horizontal and an upright pivot, a motor supported adjacent one extremity of the conveyer for counter-balancing the conveyer on its horizontal pivot, a connection between the motor and conveyer, a handle secured to the conveyer frame for moving the conveyer and motor into and out of the car and for adjusting the conveyer about its upright pivot at will, a supply chute, means whereby the angle of inclination of the chute may be varied, one end of the chute being arranged adjacent the conveyer and disposed to deliver the material thereon in the direction of travel of the conveyer, means for supporting the chute from the conveyer frame, and means permitting the receiving end of the chute to always be maintained in an upright position.

2. A car loader comprising a support, a conveyer frame, a conveyer supported thereby, a motor also supported by the frame for operating the conveyer, said conveyer frame mounted for movement into and out of the car, a delivery chute, a support for the chute mounted upon the conveyer frame, means whereby the angle of inclination of the chute may be varied with respect to its support, and means whereby the conveyer frame and chute support may be relatively adjusted one with respect to the other.

3. A car loader comprising a support, a conveyer frame, a conveyer supported thereby, a motor also supported by the frame and connected with the conveyer for operating the latter, said conveyer frame being movable into and out of the car, a delivery chute, a support for the chute mounted upon the conveyer frame, means whereby the angle of inclination of the chute may be varied with respect to its support, and means whereby the conveyer frame and chute support may be automatically adjusted, one with respect to the other.

4. A car loader comprising a support, a conveyer frame supported thereby, a motor also supported by the frame and connected with the conveyer for operating the latter, said conveyer being movable into and out of the car, a chute for delivering material to the conveyer in the direction of travel of the conveyer, a support for one end of the chute mounted upon the conveyer frame, the other end of the chute being arranged in an upright plane, means whereby the chute may be adjusted with respect to its support, and means whereby the frame and the chute and support may be relatively adjusted one with respect to the other.

5. A car loader comprising a support, a conveyer supported thereby for free movement about an upright and a horizontal pivot, said conveyer being mounted for movement into and out of the car, a chute for delivering the material to the conveyer in the direction of travel of the conveyer, a support on the conveyer frame and to which one end of the chute is secured, the other end of the chute extending outside of the car, means whereby the chute may be adjusted with respect to its support, means whereby the support and chute and the conveyer frame may be relatively adjusted one with respect to the other, and means whereby the receiving end of the chute may be maintained in an upright position.

6. A car loader comprising a support, a conveyer supported thereby for movement about an upright and a horizontal pivot, said conveyer being movable into and out of the car, a chute for delivering the material to the conveyer in the direction of travel of the conveyer, a support on the conveyer frame and to which one end of the chute is secured, the other end of the chute extending outside of the car, means whereby the chute may be adjusted with respect to its support, means whereby the support and chute and the conveyer frame may be adjusted one with respect to the other, said chute being laterally adjustable with the frame and means for preventing accidental displacement of the chute support with respect to the conveyer frame.

7. A car loader comprising a support, a conveyer supported thereby for universal movement, said conveyer being movable into and out of the car, a chute for delivering the material to the conveyer in the direction of travel of the conveyer, a support on the conveyer frame and to which one end of the chute is secured, the other end of the chute extending outside of the car, means whereby the chute may be adjusted with respect to its support, means whereby the support and chute and the conveyer frame may be adjusted longitudinally with relation to the chute, said chute being laterally adjustable with the conveyer frame, and a stop for limiting the movement of the chute support with respect to the conveyer frame in one direction.

8. A car loader comprising a support, a conveyer frame supported thereby and adapted to be moved into and out of the car, a conveyer, a support mounted upon the frame, a tubular member secured to the support and having one end disposed substan-

tially parallel with the conveyer and in the direction of travel of the conveyer, a chute, one end of the chute extending into the tubular member, and means for supporting the chute for free telescoping movement with the tubular member.

9. A car loader comprising a support, a conveyer frame supported thereby and adapted to be moved into and out of the car, a conveyer, a support mounted upon the frame, a tubular member secured to the support and having one end disposed substantially parallel with the conveyer and in the direction of travel of the conveyer, a chute, one end of the chute extending into the tubular member, means for supporting the chute for free telescoping movement with the tubular member, and means whereby the support, tubular member and chute and the conveyer frame may be bodily adjusted one with respect to the other.

10. A car loader comprising a support, a conveyer frame supported thereby and adapted to be moved into and out of the car, a conveyer mounted on the frame, a support mounted upon the frame, a tubular member mounted upon the support for pivotal movement on a longitudinal axis, a tubular chute, means for supporting one end of the chute for telescoping movement with the tubular member and for axial movement with the tubular member, means whereby the receiving end of the chute may be maintained in an upright position, and means permitting the said support and associated elements and the conveyer frame to be adjusted one with respect to the other.

11. A car loader comprising a support, a conveyer frame supported thereby and adapted to be moved into and out of the car, a conveyer mounted on the frame, a support mounted upon the frame, a tubular member mounted upon the support for pivotal movement on a longitudinal axis and arranged to discharge the material onto the conveyer in the direction of travel of the conveyer, a tubular chute, means for supporting one end of the chute for telescoping movement with the tubular member and for axial movement with the tubular member, means whereby the receiving end of the chute may be maintained in an upright position, and means permitting the said support and associated elements and the conveyer frame to be adjusted one with respect to the other.

12. A car loader comprising a conveyer, means supporting said conveyer for universal movement, a hopper or chute having its delivery end arranged in operative relation to the conveyer, means supporting the chute for universal movement with the conveyer, and means whereby the conveyer may be moved longitudinally independently with respect to the hopper or chute.

13. A car loader comprising a counterbalanced conveyer, means supporting said conveyer for universal movement, a hopper or chute having its delivery end arranged in operative relation to the conveyer, means supporting the chute for movement universal with the conveyer, and means whereby the conveyer may be moved longitudinally independently with respect to the hopper or chute.

14. In a car loader, the combination of a support, a pair of arms connected for movement about an upright pivot, means connecting one arm to the support for movement about an upright pivot, a yoke supported by the other arm for movement about an upright pivot, and a conveyer pivotally supported by the yoke for movement on a horizontal pivot, whereby the conveyer may be projected through the car door and universally adjusted within the car.

15. In a car loader, the combination of a support, a pair of arms connected for movement about an upright pivot, means connecting one arm of the support for movement about an upright pivot, a yoke supported by the other arm for movement about an upright pivot, a conveyer pivotally supported by the yoke for movement on a horizontal pivot, whereby the conveyer may be projected through the door and universally adjusted within the car, and means for bodily adjusting the arms with respect to the support.

16. In a car loader, the combination of a support, a pair of arms connected together for movement about an upright pivot, means connecting one arm to the support for movement about an upright pivot, an upright pivoted to the free end of the outermost arm for movement about an upright pivot, and a conveyer pivotally supported intermediate its ends to the upright whereby the conveyer may be bodily projected through the car door and adjusted within the car.

17. In a car loader, the combination of a support, a pair of arms connected together for movement about an upright pivot, means connecting one arm to the support for movement about an upright pivot, an upright pivoted to the free end of the outermost arm for movement about an upright pivot, a conveyer frame pivotally supported intermediate its ends to the upright, and a motor for driving the conveyer supported by the frame for counterbalancing the latter, said frame and motor being adapted to be projected through the car door and manipulated within the car.

18. In a car loader, the combination of a support, a pair of arms connected together for movement about an upright pivot, means connecting one arm with the support for movement about an upright pivot, an up-

right connected with the free end of the other arm for movement about an upright pivot, a conveyer, means pivotally connecting the conveyer to the upright for movement about a horizontal pivot whereby the conveyer will be mounted for universal movement, a delivery chute having its end arranged in operative relation to the conveyer, supported thereby and movable laterally with the conveyer, and means whereby the conveyer may be moved longitudinally independently with respect to the delivery chute.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, on this 27th day of April A. D. 1909.

FRANK E. TICKNOR.
GEORGE MANIERRE.

Witnesses:
JNO. HALL,
D. H. BLAINE.