

No. 881,874.

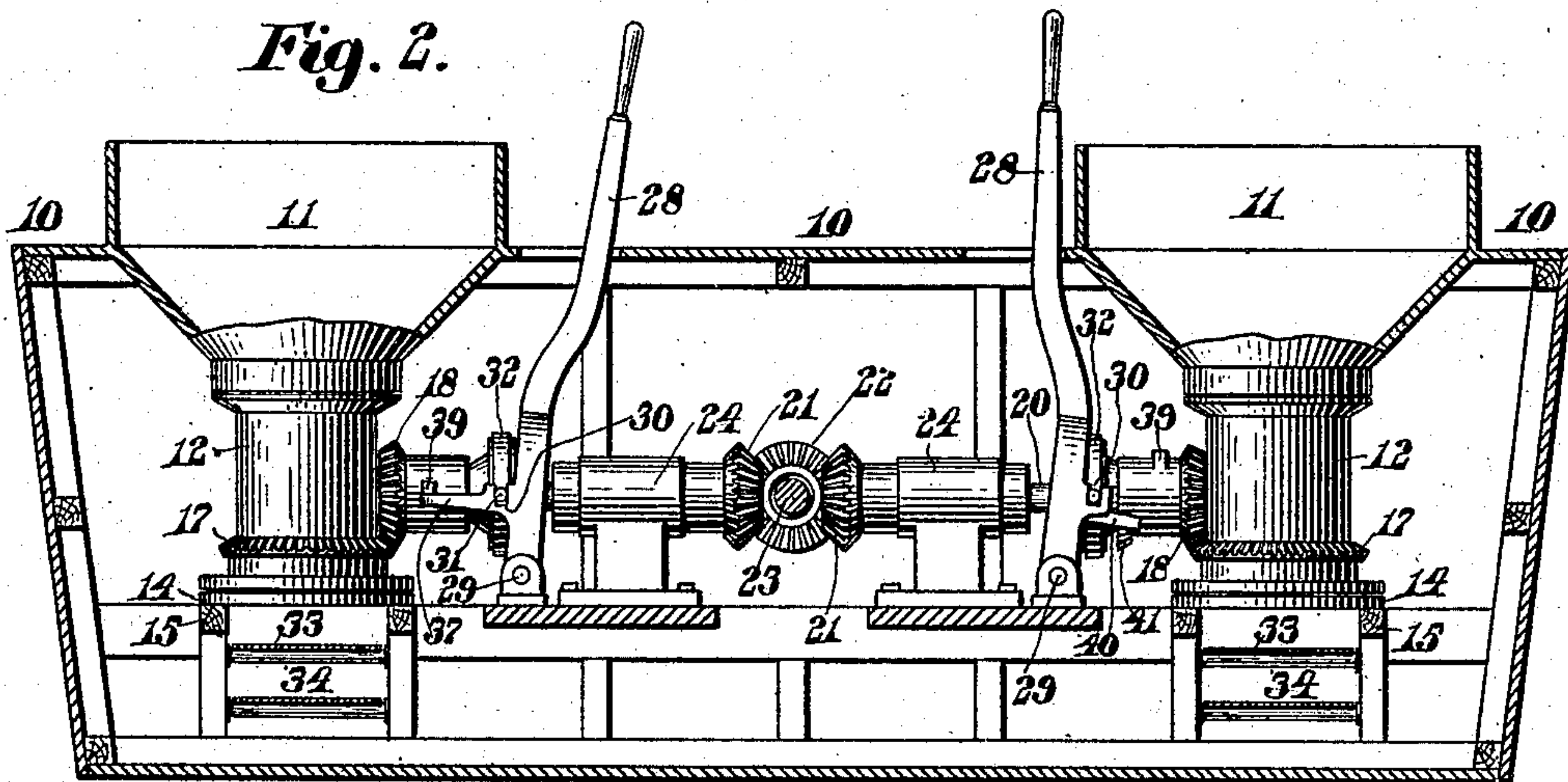
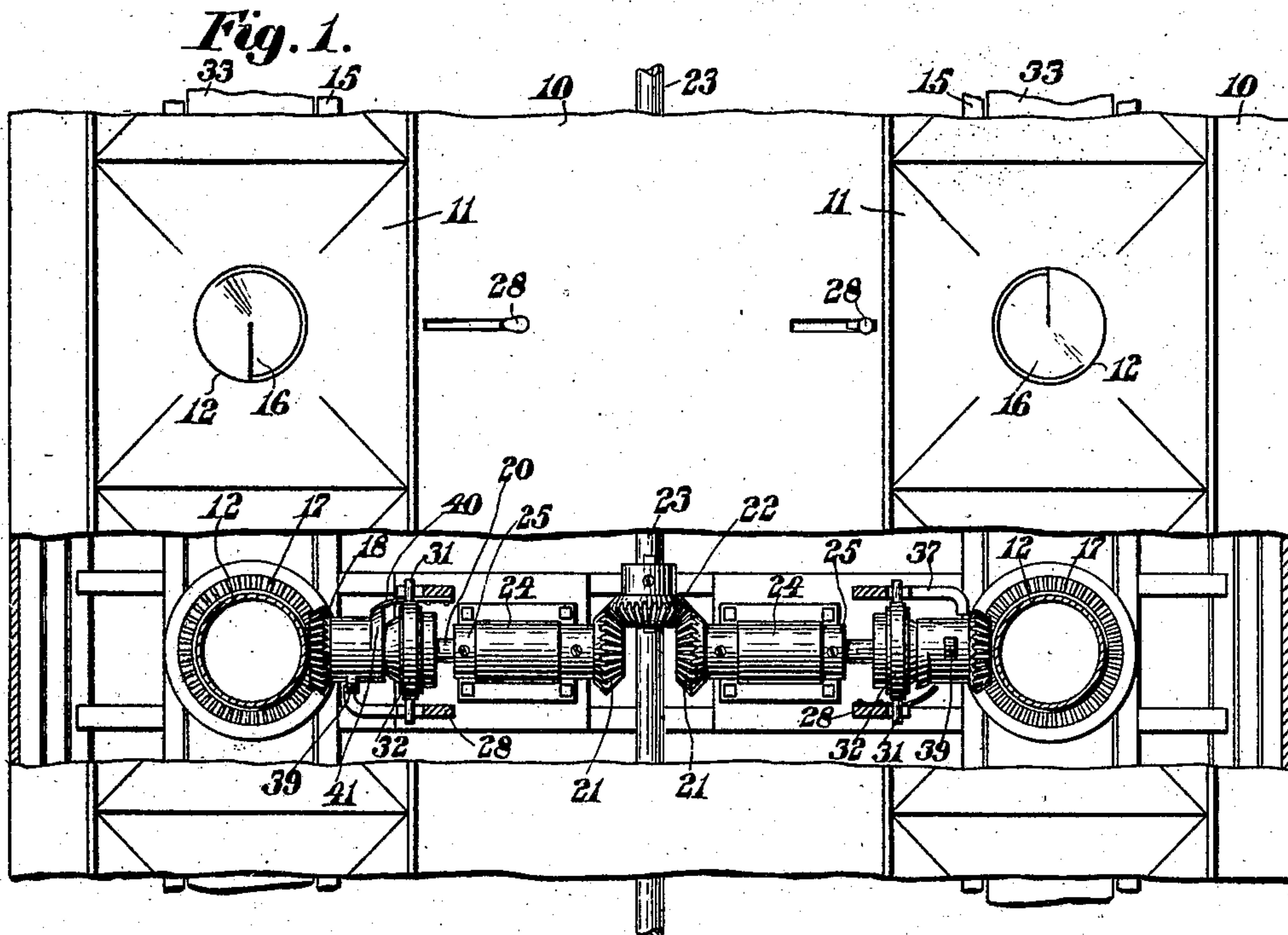
PATENTED MAR. 10, 1908.

A. SCHWARTZ.

APPARATUS FOR UNLOADING VESSELS.

APPLICATION FILED JULY 27, 1907.

2 SHEETS—SHEET 1.



**Witnesses:**

Howard Hanson  
Nathan C. Lombard.

**Inventor:**

Aaron Schwartz,  
by Walter E. Lombard  
Atty.

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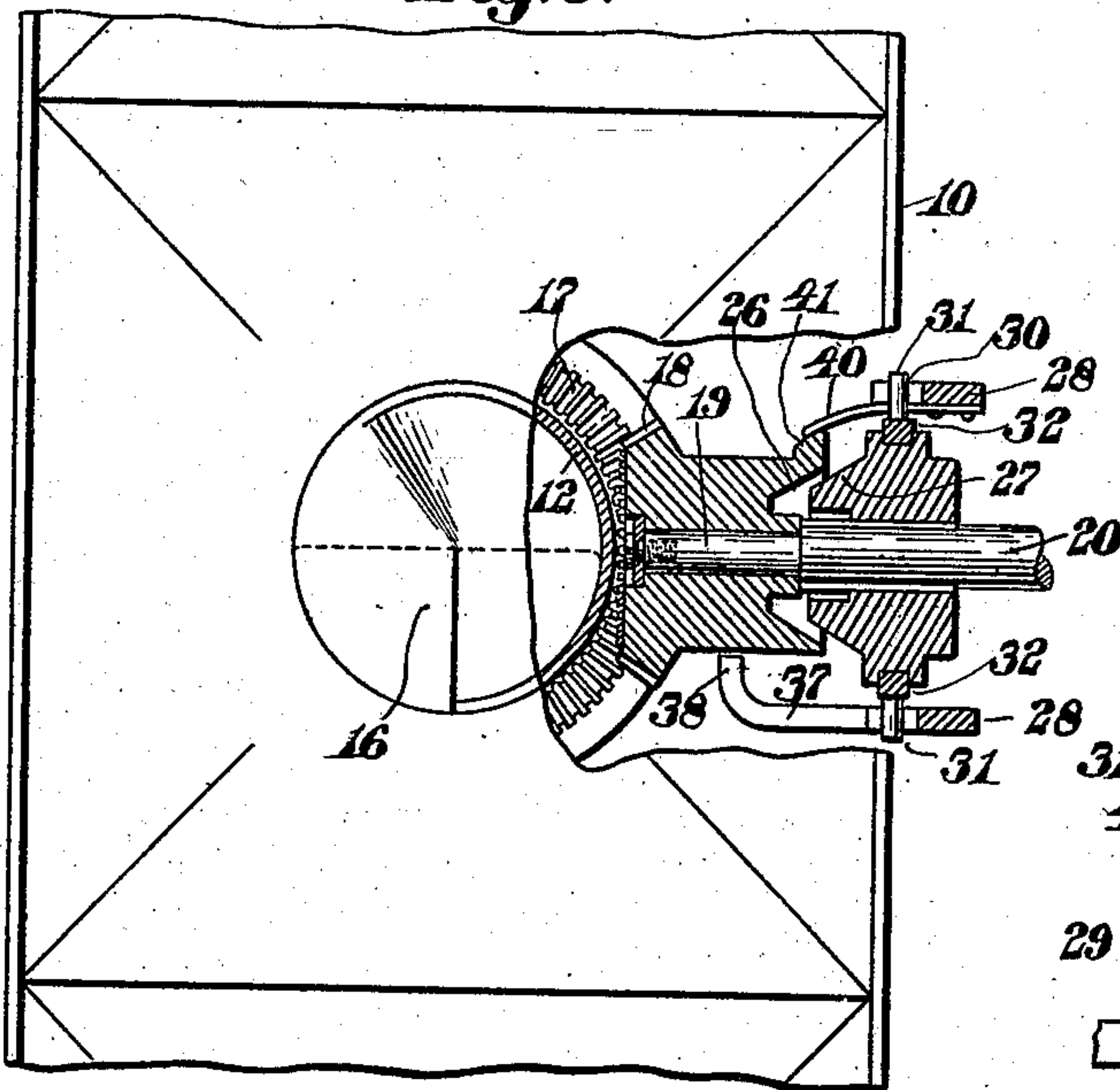
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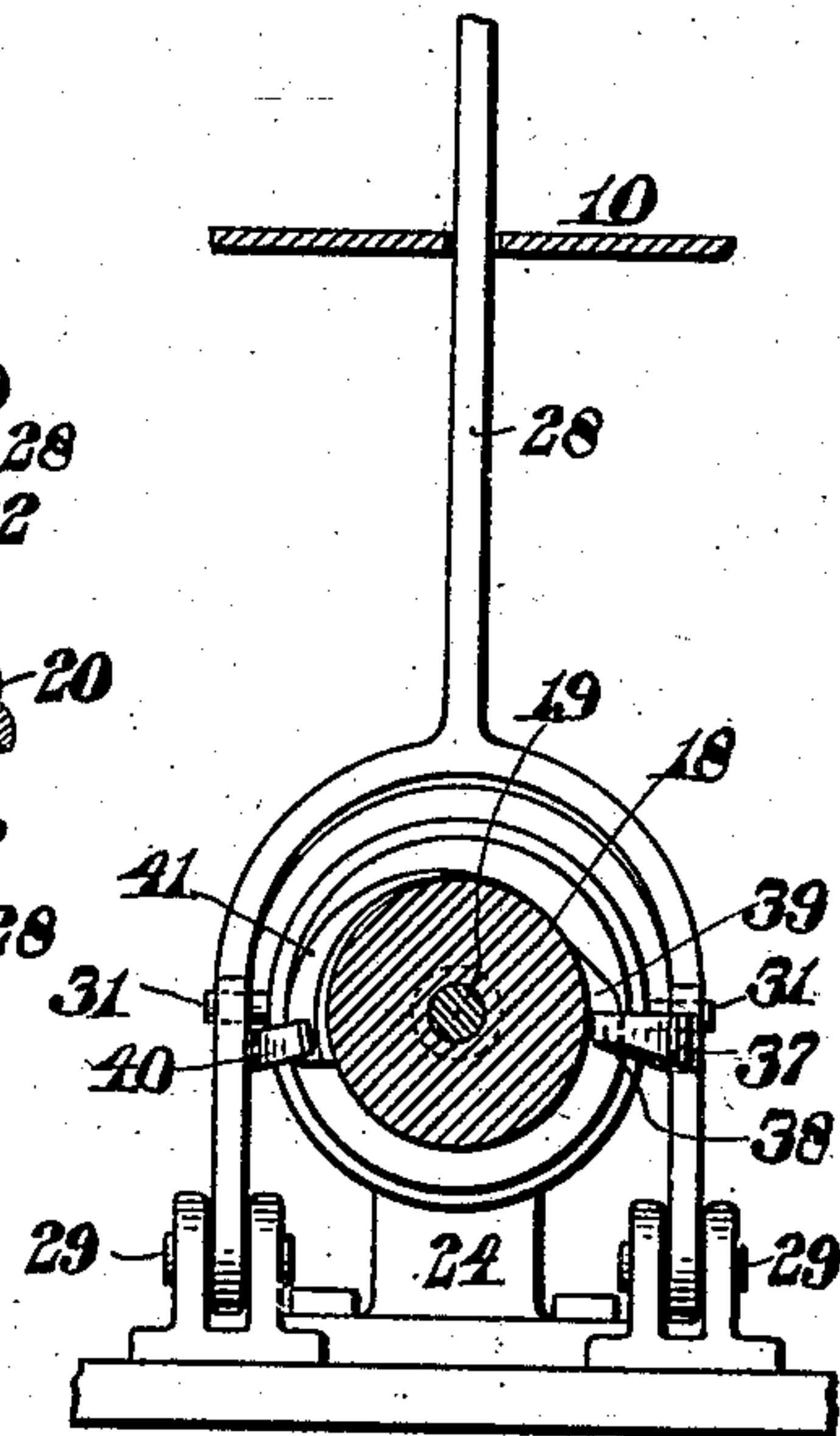
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2 SHEETS—SHEET 2.

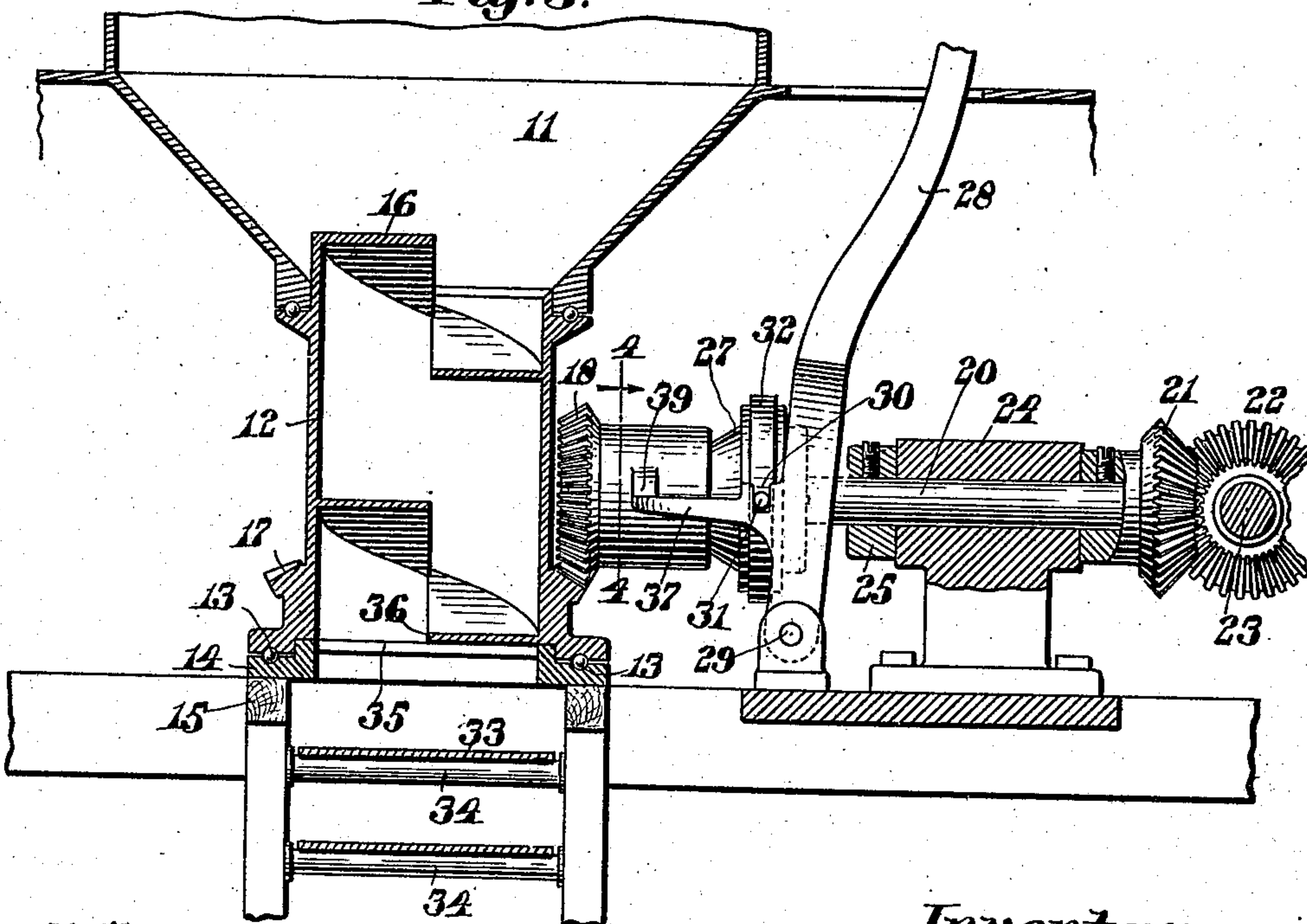
*Fig. 5.*



*Fig. 4.*



*Fig. 3.*



*Witnesses:*

*Howard Hansen*  
*Nathan C. Lombard*

*Inventor:*  
*Aaron Schwartz,*  
*by Walter E. Lombard,*  
*Atty.*



# UNITED STATES PATENT OFFICE.

AARON SCHWARTZ, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO AUTOMATIC RAPID UNLOADING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

## APPARATUS FOR UNLOADING VESSELS.

No. 881,874.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed July 27, 1907. Serial No. 385,787.

*To all whom it may concern:*

Be it known that I, AARON SCHWARTZ, a citizen of the United States of America, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Unloading Vessels, of which the following is a specification.

This invention relates to movable carriers for sand, coal, and similar material and especially to such carriers as barges, scows, etc.

The special object of the present invention is to provide a ready means of rapidly unloading the material from the barge or scow, dispensing as far as possible with manual labor and the laborious lifting usually attending the unloading.

The invention consists in providing a carrier with a plurality of bins or openings each of which has its discharge outlet provided with a vertical screw conveyer which extends upwardly into the hopper or bin and is provided with a means for revolving the same to stir up the material in the hopper and force it down through the discharge outlet.

It consists further in providing a means whereby, when it is desired to discontinue the delivery of the material from a bin, the screw conveyer will be stopped at a predetermined point to cause an effectual closing of the discharge outlet and prevent further material from passing therefrom.

The invention consists further in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 represents a plan of a portion of a scow embodying the features of this invention, one part of which is shown in section. Fig. 2 represents a vertical transverse section of the same. Fig. 3 represents an enlarged vertical section of the discharge outlet and the mechanism for controlling the delivery therethrough. Fig. 4 represents a vertical section of the same, the cutting plane being on line 4—4 on Fig. 3, looking in the direction of the arrow, and Fig. 5 represents a partial plan and partial horizontal section of a discharge outlet and the mechanism for controlling the delivery therethrough.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, 10 represents a scow of any well-known construction provided with a plurality of bins or hoppers 11 preferably located in two parallel rows. At the discharge outlet of each of the hoppers is mounted a revoluble tubular member 12 supported upon anti-friction members 13 mounted in a path in an annular plate 14 upon the framework 15.

The tubular member 12 extends upwardly for a short distance into the bottom of the hopper 11 and is provided with an internally projecting spiral flange 16 which forms a screw conveyer when the tubular member is revolved about its axis of rotation, this revolution of the tubular member being secured by means of a gear 17 formed upon said tubular member meshing with the driving gear 18 freely revoluble about the reduced end 19 of the secondary shaft 20, the opposite end of which has secured thereto a gear 21. The gear 21 meshes with a gear 22 upon the driving shaft 23 which extends lengthwise of the scow intermediate the conveyer belt and is driven in any well-known manner.

The shaft 20 is mounted in suitable bearings 24 in which it freely revolves. Lateral movement of the shaft 20 on the bearing 24 is prevented by the collar 25. The hub of the gear 18 is provided with a female clutch member 26 into which fits the male clutch member 27 which is keyed to and slidable upon the shaft 20. This movement of the male clutch member 27 lengthwise of the shaft 20 is effected by means of the operating lever 28 pivoted at 29, said lever having suitable notches 30 in which are mounted the trunnions 31 of the annular band 32 mounted in a groove in the male clutch member 27 in such a manner as to permit the clutch member to freely revolve in said band.

It is obvious that a movement of the operating lever 28 to engage the clutch members 26 and 27 will cause the gear 18 to revolve and rotate the tubular member 12 by means of its co-acting gear 17. This rotation of the tubular member 12 will cause the blades or projecting flanges 16 of said tubular member to stir up the material within the bin 11 and as the member 12 continues to rotate the blades will cut into the material and force it downward through the tubular member for delivery upon the belt conveyer 33 mounted upon a plurality of



rollers 34, the material thus delivered to said belt 33 being carried thereby to any desired point.

It is obvious that some provision should be made to prevent the finer material from passing through the screw conveyer even when at rest and in order to accomplish this result the plate 14 is provided with a flange 35 extending half way across the opening through the tubular member 12 and the lower end of the flange 16 as at 36 is diverted from its spiral direction into a horizontal direction extending half way around the tubular member so that in one position the part 36 of the blade 16 will be in the same vertical plane with the half disk flange 35 leaving a clear opening through the plate 14 equal to one-half the area of the opening through the tubular member 12. When in a diametrically opposite position, however, the plate 14 will be opposite the opening extending through the tubular member 12 thereby preventing any further delivery of the material to the belt conveyer 33 if the revolution of the tubular member 12 is stopped in this particular position. In order to effect this stoppage at this particular position the lever 28 is provided with an arm 37 having an inturned end 38 which normally is in the position shown in Fig. 3 in the plane of the movement of the projecting lug 39 on the hub of the gearing 18. The lever 28 is also provided with a spring 40 adapted normally to bear against the friction face 41 onto the hub of said gear 18.

When it is desired to effect a delivery from either of the bins 11 its particular operating lever 28 is moved toward the bin which movement will cause the spring 40 to be disengaged from the friction face 41, the inturned end 38 moved from the path of the projection 39 on the gear 18, and the two parts 26 and 27 of the clutch mechanism will be brought into engagement thus causing the revolution of the gear 18 and the rotation about its vertical axis of the tubular member 12 and its screw conveyer mounted therein. This movement of the tubular member will cause the material in the bins to be forced through the tubular member and delivered onto the conveyer belt 33 in an obvious manner. When, however, it is desired to stop the delivery from the bins before it has been emptied, a movement of the lever 28 in the opposite direction will disengage the clutch members 26 and 27 thus preventing any further transmission of power to the tubular member 12 while the spring 40 will be brought into contact with the frictional face 41 on the hub of the gear 18 thereby reducing its momentum to a minimum so that when the projection 39 thereon in the continuation of the movement of the gear 18 contacts with the inturned end 38 of the arm 37 the further movement

of the gear 18 will be effectually stopped without shock. This projection 39 must be so placed on the periphery of the hub of the gear 18 that when it contacts with the inturned end or shoulder 38 to prevent further rotation of the tubular member 12 the plates 35 and 36 will be in such position as to entirely shut off the passage from the tubular member through the blade 14.

It is believed that from the foregoing the operation of the invention and the many advantages accruing therefrom will be fully apparent without going into a further detailed description.

Having thus described my invention, I claim:

1. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a fixed hopper located with its discharge outlet above said conveyer; a vertical tubular member interposed between said belt conveyer and the bottom of said discharge outlet provided with inwardly extending flanges extending to the axis of said tubular member; and means for revolving said tubular member to effect a delivery.

2. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a fixed hopper located with its discharge outlet above said conveyer; a vertical tubular member interposed between said belt conveyer and the bottom of said discharge outlet; a screw conveyer within and forming a part of said tubular member the inner edge of which is at the axis of said tubular member and means for revolving said tubular member to effect a delivery.

3. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a fixed hopper located with its discharge outlet above said conveyer; a tubular member forming an extension to said discharge outlet and provided with inwardly extending flanges; a gear on said tubular member; and a driving gear to revolve said tubular member.

4. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a tubular member forming an extension to said discharge outlet; a fixed plate extending partly across said discharge outlet; and a co-acting plate movable with said tubular member adapted to close the discharge outlet when at rest.

5. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a screw revoluble about a vertical axis in said outlet and adapted to open and close said outlet; means for revolving said screw; and means for affecting a closing of said discharge outlet upon the stopping of said revoluble screw.



6. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a vertical revoluble device for opening and closing said outlet; means for causing the revolution of said device; and mechanism for insuring the stoppage of said revoluble device in closed position.

7. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a vertical revoluble device for opening and closing said outlet; and a revoluble member for causing the revolution of said device.

8. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a vertical revoluble device for opening and closing said outlet; a revoluble member for causing the revolution of said device; and a clutch mechanism for controlling the operation of said revoluble member.

9. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a vertical revoluble device for opening and closing said outlet; a revoluble member for causing the revolution of said device; a clutch mechanism for controlling the operation of said revoluble member; and a pivoted lever for operating said clutch mechanism provided with a device secured thereto for creating a friction upon said revoluble member when said clutch is disengaged.

10. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a ver-

tical revoluble device for opening and closing said outlet; and a revoluble member for revolving said device provided with a stop shoulder thereon; and a pivoted lever provided with a projection adapted to be thrown into position to engage with said shoulder to stop the revolution of said member.

11. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a vertical revoluble device for opening and closing said outlet; a revoluble member for revolving said device provided with a stop shoulder thereon; a clutch mechanism for operating said revoluble member; and a pivoted lever for operating said clutch mechanism provided with a device secured thereto for creating a friction upon said revoluble member when said clutch is disengaged.

12. In a movable carrier for sand, coal, and similar material, the combination with a plurality of belt conveyers; of a plurality of hoppers located with their discharge outlets above each of said belt conveyers; a vertical revoluble device for opening and closing each of said discharge outlets; mechanism for causing a revolution of said device; a driving shaft intermediate said belt conveyers; secondary shafts on either side thereof driven thereby; clutch mechanisms on an end of each of said secondary shafts; and means for operating each of said clutch mechanisms to throw into action one of said revoluble devices for controlling the delivery from a hopper.

Signed by me at Boston, Massachusetts.  
this 12th day of July, 1907.

AARON SCHWARTZ.

Witnesses:

EDNA C. CLEVELAND,  
WALTER E. LOMBARD.