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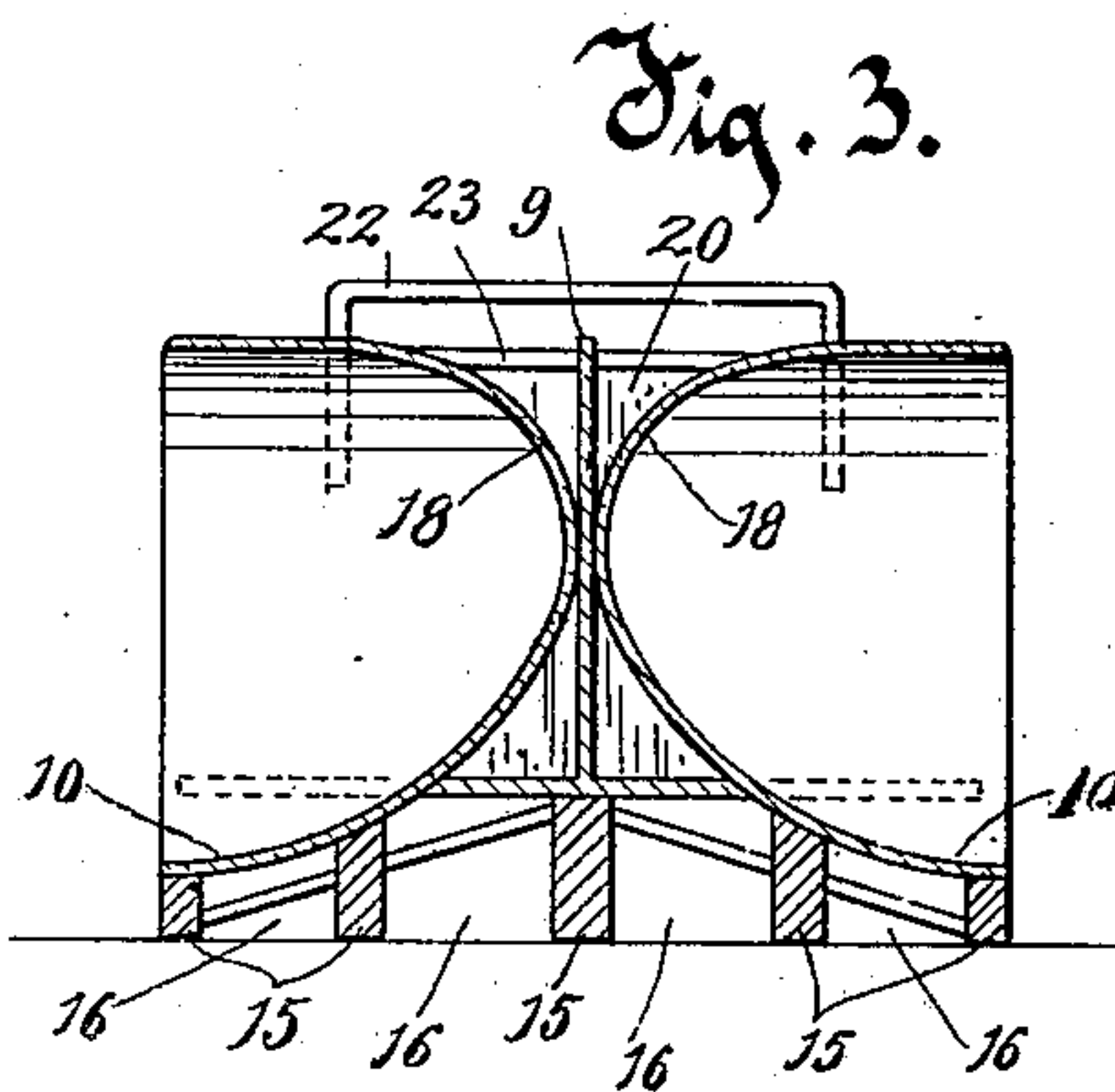
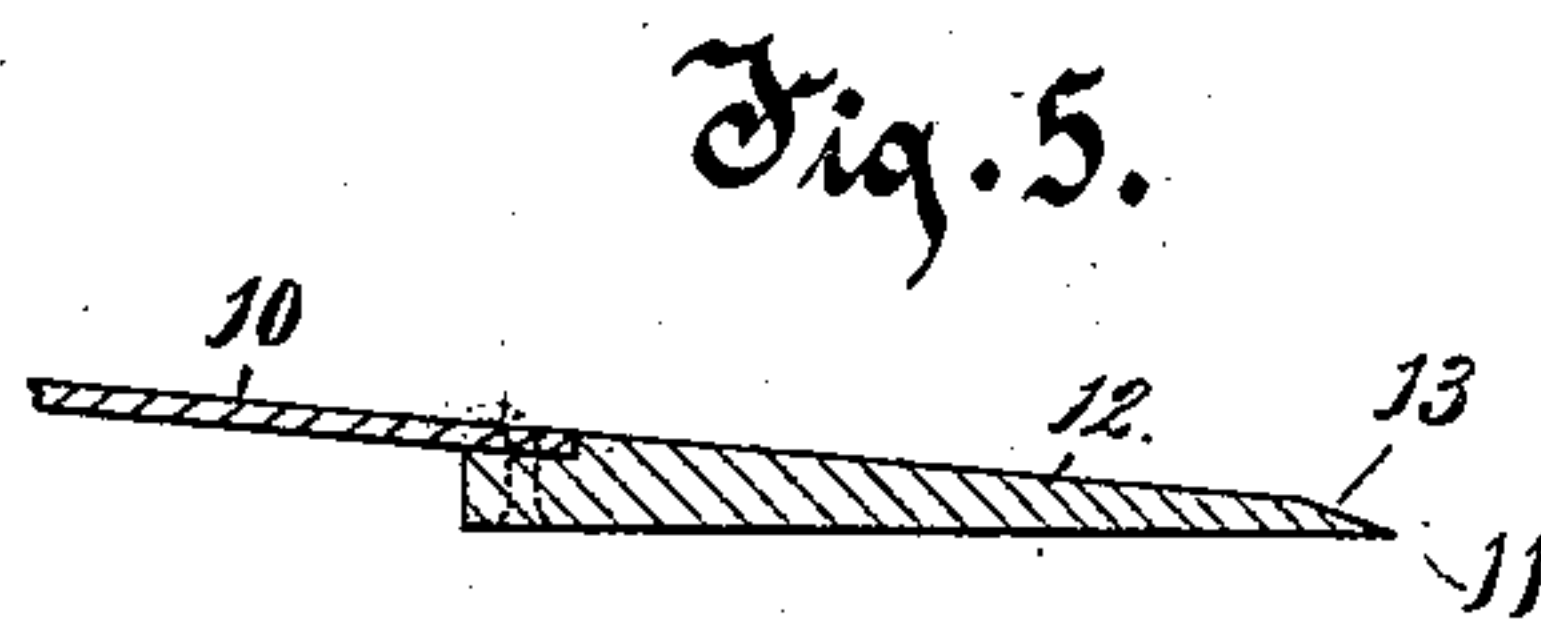
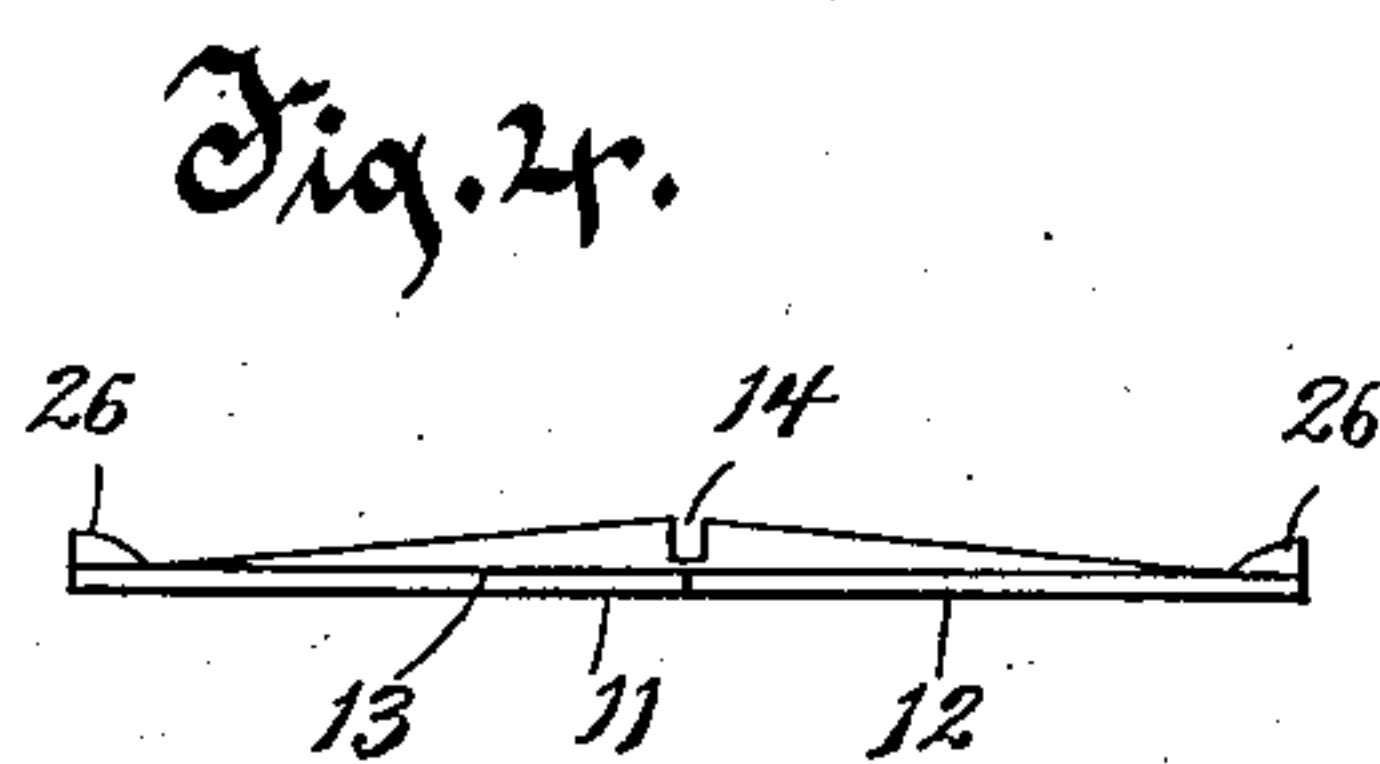
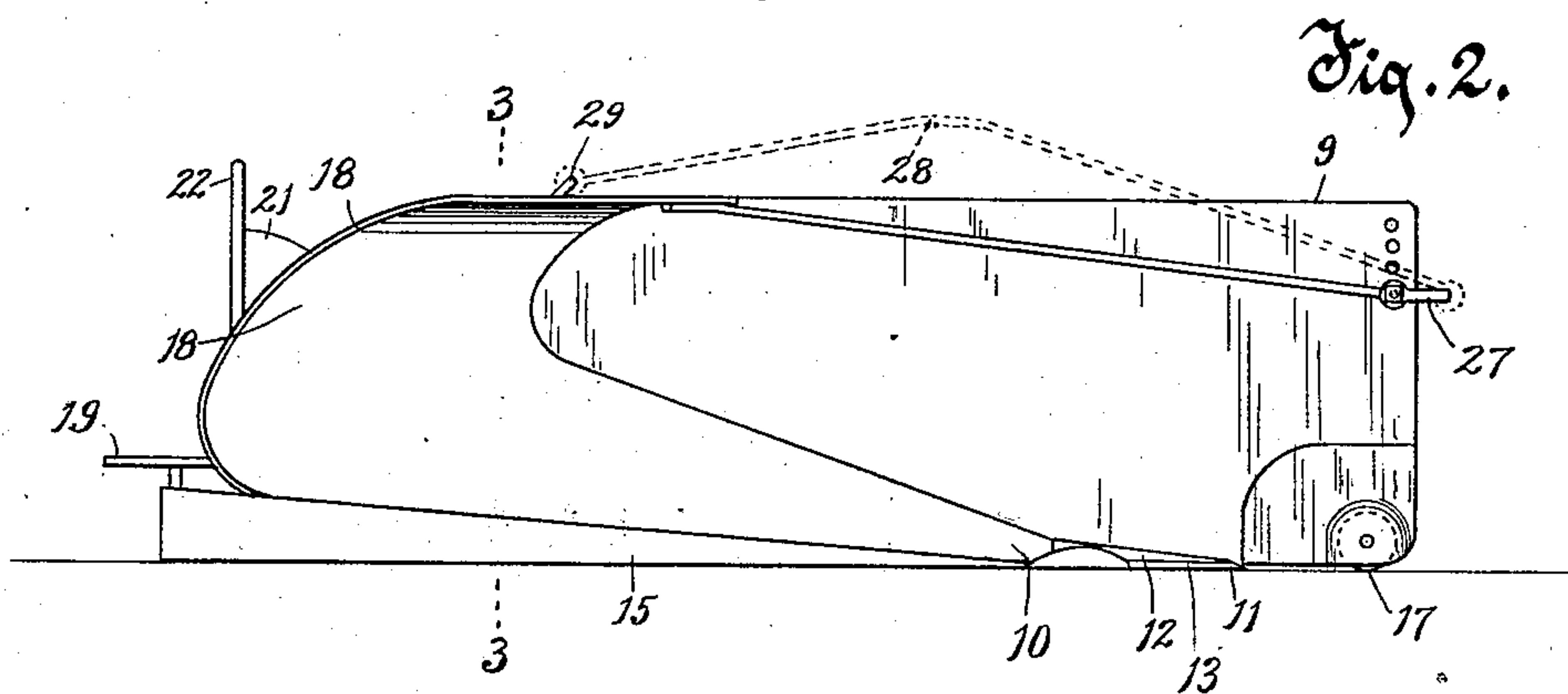
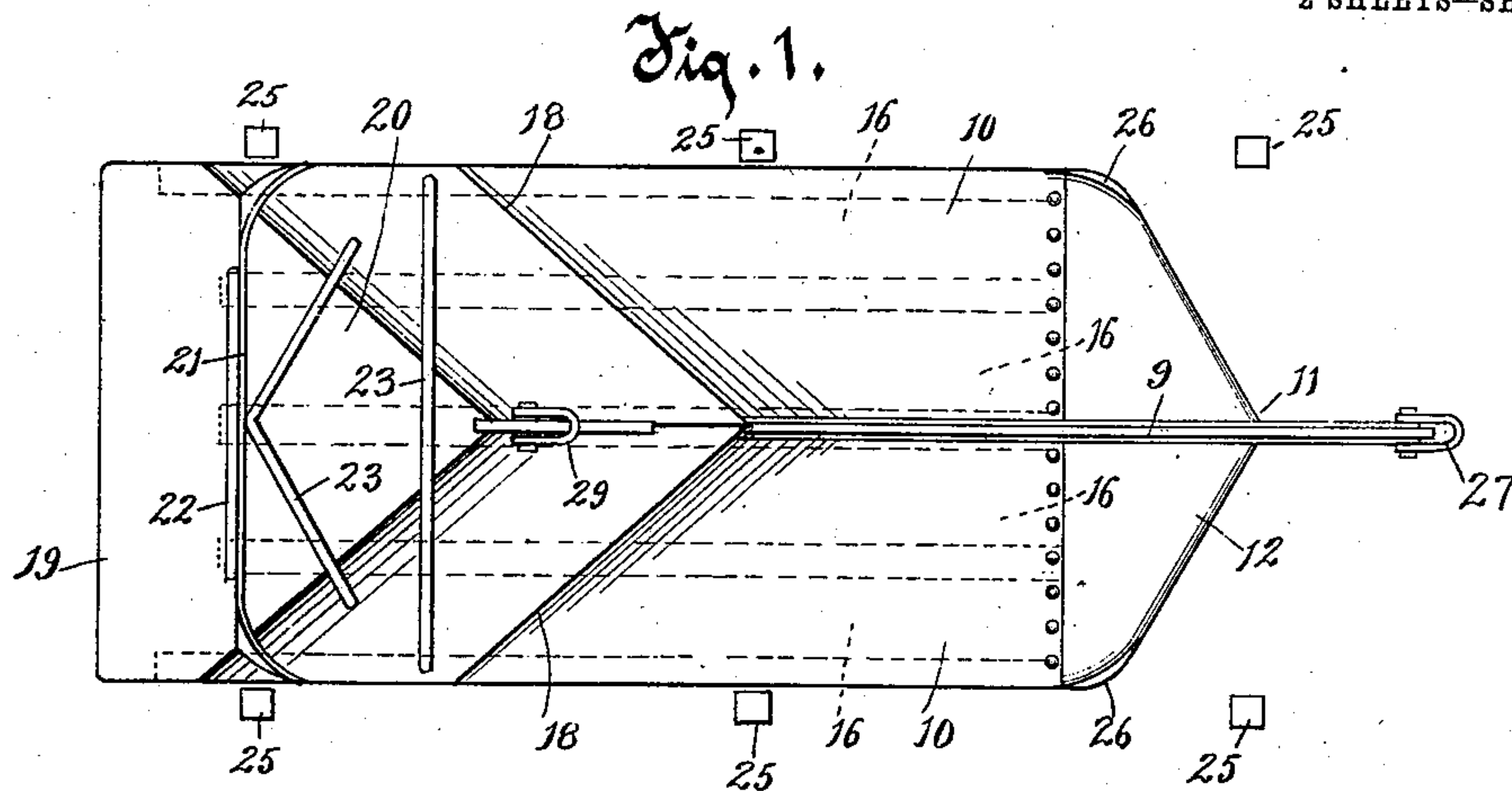
PATENTED MAR. 15, 1904.

J. KHEIL.
PLOW.

APPLICATION FILED OCT. 1, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.

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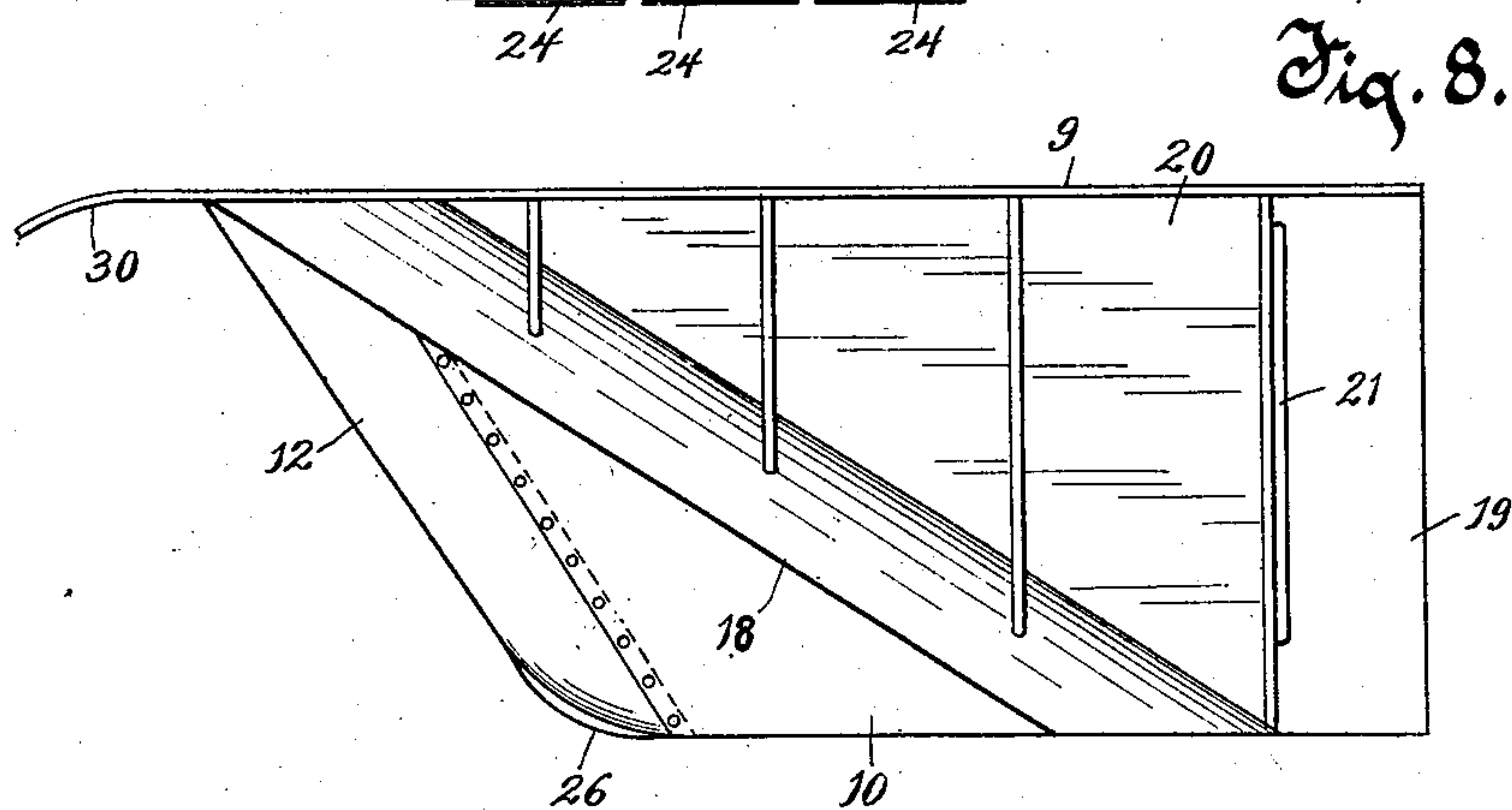
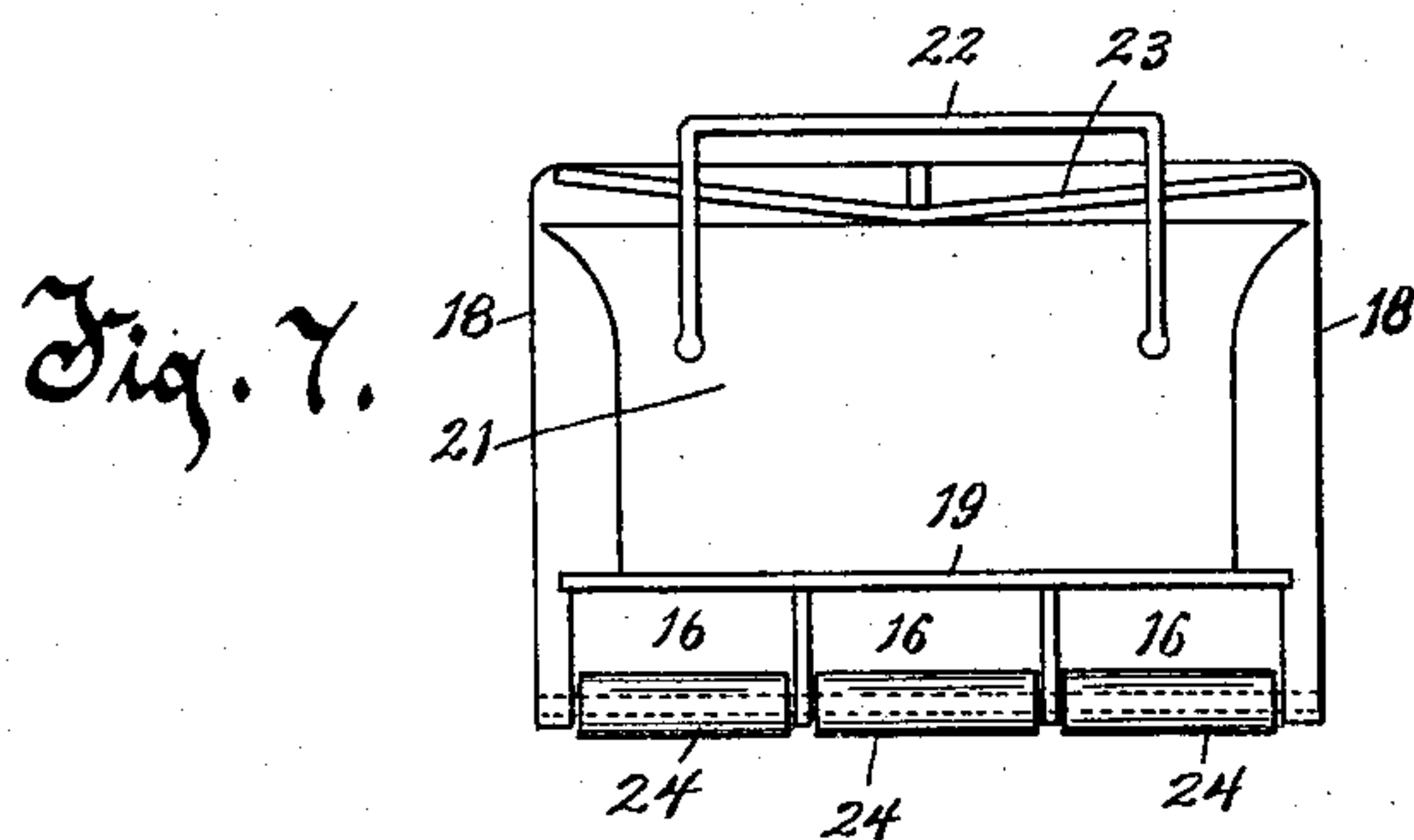
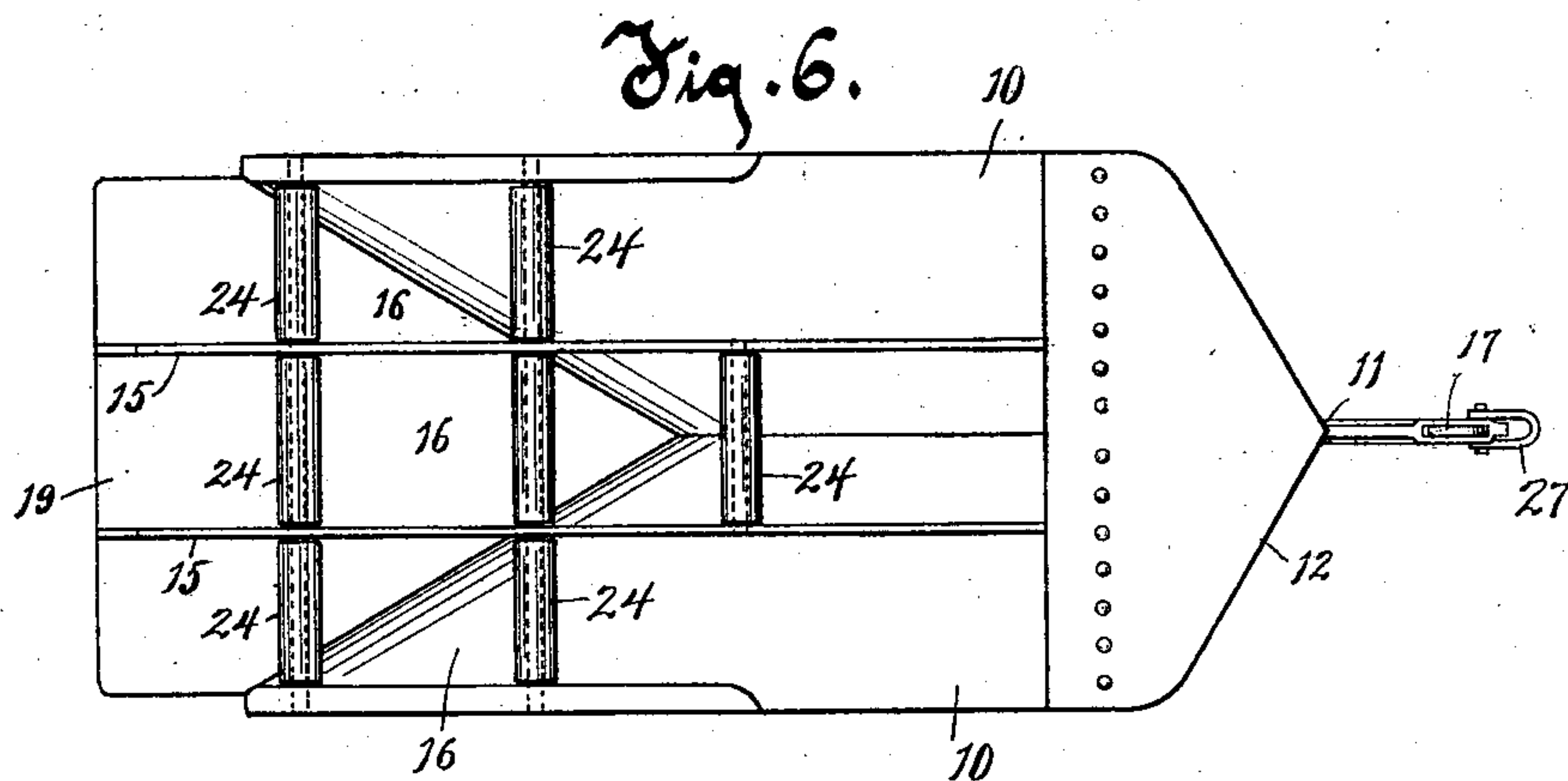
PATENTED MAR. 15, 1904.

J. KHEIL.
PLOW.

APPLICATION FILED OCT. 1, 1902.

NO MODEL.

2 SHEETS—SHEET 2:



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UNITED STATES PATENT OFFICE.

JOHN KHEIL, OF FOND DU LAC, WISCONSIN.

PLOW.

SPECIFICATION forming part of Letters Patent No. 754,572, dated March 15, 1904.

Application filed October 1, 1902. Serial No. 125,464. (No model.)

To all whom it may concern:

Be it known that I, JOHN KHEIL, residing at Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented a new and useful Improvement in Plows, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in gravel-plows for railroad-construction work—that is to say, plows adapted for travel along flat or ballast cars for the purpose of forcing or throwing the gravel sidewise off the floors or platforms of said cars.

In the construction now ordinarily used for the purpose of throwing gravel or the like off of flat or ballast cars the plow is of V-shaped form, and the point of the plow is connected to a leader, and to this leader in turn is connected one end of a wire cable, the opposite end of said wire cable either passing around and being wound upon a winding spool or drum or being carried to the engine, the winding-drum or the engine, as the case may be, thereby serving to draw the plow longitudinally along the cars. To the rear of this V-shaped plow is connected the trailer, which trailer fits between short side posts extending upwardly from the platform or flooring of the cars at the outer edges of said car, and thereby guides the plow in its longitudinal movement and prevents sidewise-swinging motion thereof.

It is one of the important objects of my invention to provide a construction which will dispense entirely with the necessity of providing the leader and trailer above referred to.

A further object is to provide a form of plow in which the gravel is lifted off the floor or platform of the car and discharged over the outer longitudinal edge of the car without being first pushed sidewise or laterally over the car floor and platform before being finally discharged, as is the case with constructions now in use.

A further object is to provide a simple means for regulating the depth which the plow digs into the gravel when the plow is not intended to travel on the platforms of the cars

A still further object is to provide a plow of such construction that when it reaches the limit of its travel in either direction it may be readily reversed or turned, so as to be in position to travel in the opposite direction.

With the above and other incidental objects in view the invention consists of the devices and parts or their equivalents, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a plan view of my improvements, showing a form of plow capable of discharging from both sides of the car. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 2. Fig. 4 is a rear edge view of the forward plate of the plow. Fig. 5 is a longitudinal section through the forward plate of the plow and through a fragment of the base or bottom of the plow to the rear of said forward plate. Fig. 6 is an inverted plan view of the plow, showing rollers which may be employed for facilitating the travel of the plow. Fig. 7 is a rear view of Fig. 6, and Fig. 8 is a plan view of a form of plow capable of discharging only over one side of the car.

The form of plow illustrated in Figs. 1 to 7, inclusive, will first be described. Referring to these figures, the numeral 9 indicates a central longitudinal partition which extends upwardly from the center of the base or bottom piece of the plow, the portions of said base or bottom piece on opposite sides of the partition being indicated by the numerals 10 10. Each base portion 10 slants downwardly to the front edge of the plow, and said front edge is preferably pointed, as indicated by the numeral 11, and is also beveled downwardly to a sharp edge. Each base portion 10 also preferably slants downwardly from the partition 9 outwardly to the outer edge of said base portion. The pointed front portion of the plow is preferably formed by a separate plate 12, riveted or otherwise suitably secured to the main base portions 10 and which plate is advisably of thicker metal than the base and has the front beveled edge 13, as is clearly shown in Fig. 5. This plate 12 is provided with an intersecting groove 14, (see Fig. 4,) which receives the lower edge of the partition 9. Plate 12

slants forwardly, as clearly shown in Fig. 5, and also slants downwardly laterally from opposite sides of the partition, as shown clearly in Fig. 4, so that it may conform to the slants of the base portions 10, of which it forms a continuation. In order to prevent gravel or dirt which may pass beneath the base of the plow from elevating the front end of said plow to such an extent as to prevent effective work, I provide on the under side of the base a series of longitudinal runners 15, which runners gradually increase in height toward their rear ends. (See Figs. 2 and 3.) Between these runners are necessarily formed a series of longitudinal grooves or recesses 16 of gradually-increasing depth rearwardly. By this construction of beveled runners and the recesses therebetween the plow is constantly tilted forwardly downwardly to a slight extent, and hence any gravel or dirt which may pass beneath the base will enter the grooves or recesses and gradually work rearwardly to the deepest portions of said grooves, whereby the front end of the base is prevented from being raised, and hence will still lie close to the platform of the car. On the under edge of the front end of the partition 9 I prefer to provide a roller 17 to facilitate the travel of the plow along the cars. The numerals 18 18 indicate two deflecting-wings which project upwardly from the rear higher portions of the base portions 10 and extend rearwardly and obliquely from opposite sides of the partition 9 in gradual divergent lines. Each wing is concavo-convex in a plane intersecting the longitudinal axis, with the concavity in the front side thereof. These wings may be integral with and bent up from the base portions 10, or they may be separate pieces secured to and projecting upwardly from said base portions, as preferred. A platform upon which an attendant can stand may be provided, and in the drawings I have shown such a platform projecting rearwardly from the rear of the plow and indicated by the numeral 19.

In plows of the class to which my improvement relates the plow-point frequently digs too deep into the gravel, and hence it is desirable to regulate the depth of the incision of the plow-point. To provide for this, I employ a plurality of holes in the upper portion of the front edge of the partition 9, and in order to change the depth of incision the clevis 27 is changed from one hole to another. If this does not prove sufficient, I utilize a pocket or receptacle 20 at the rear of the wings 18, the bottom of said receptacle being formed by the bottom or base of the plow, the front wall of said receptacle by the rear faces of the wings, and the rear wall of said receptacle by a transverse plate 21, extending from one wing to the other. With this construction if the plow-point digs too deep into the gravel a quantity of the gravel may be

dumped into the receptacle, and the weight at the rear end of the plow is augmented to that extent and the front end of the plow thereby prevented from entering too deep into the gravel.

A hand-rail 22 is advisably provided, which the attendant standing on the platform 19 may grasp. The ends of this rail are bent downwardly and connected to the rear side piece 21 of the receptacle 20.

In order to brace and strengthen the wings 18, I provide brace-rods 23, connected at their outer ends to said wings.

If desired and in order to decrease as much as possible the friction caused by the travel of the plow along the cars, rollers may be provided on the under side of said plow. In Figs. 6 and 7 I show elongated rollers 24, which are disposed between the runners 15 and are journaled on suitable axial pins.

The width of the base of the plow is such that said base fits snugly between short standards 25, extending upwardly from the platform of the car at the outer edges of said platform. It will therefore be seen that as the plow is pulled along it is compelled without the necessity of employing the usual leader and trailer to keep in a straight line, as the uprights effectually prevent any sidewise movement of the plow.

The lateral side edges of plate 12 are thickened to form shoulders 26 26. (See Figs. 1 and 4.) These shoulders act to first bear against the short standards 25 in the travel of the plow longitudinally along the car, and hence serve as guides to properly guide the plow, especially around curves on a train of cars standing on a curved track, the guides being preferably rounded slightly to facilitate the turning of the plow.

To the front edge of the partition 9 is secured a clevis 27, to which the wire cable (not shown) leading to the winding-drum or the engine is connected.

In the use of my improved plow as the same is pulled along the cars in the manner hereinbefore explained the point 11 of the plow 12 digs into the gravel and lifts the gravel onto the base portions 10. This gravel then travels backwardly on said base portions and to the wings 18 18. The outward slant of the base portions 10 and the outward curve and slant of the wings 18 cause an outwardly-rolling motion to be given to the gravel, and hence finally cause said gravel to be discharged over the opposite longitudinal side edges of the car. By this arrangement it will be seen that the gravel is not pushed laterally over the floor or platform of the car, as in other forms of construction, and thereby wear of the car platforms or floors is lessened to a very great extent.

Another important advantage possessed by my invention is its capability of being turned or reversed when it reaches the limit of its

movement in one direction, so as to be in position to travel along the cars in the opposite direction. In the form of plows now in use and which are connected to the forward leader and the rear trailer it is necessary when the plow reaches the limit of its travel in one direction to pull the train of cars to the nearest turn-table, so that the entire train is turned or reversed. This obviously entails considerable labor, as well as time, especially when the turn-table is located at a considerable distance. My improved plow is of such construction that when it reaches the end of its travel in one direction it can be elevated and then swung around in position to travel in the opposite direction. For conveniently accomplishing this I provide a rod 28, which at one end is connected to the clevis 27 and is then extended rearwardly and connected to another clevis, 29. A chain may be connected to this rod 28 and passed upwardly over a steam-shovel tooth or derrick, and by a pull being exerted on the chain the plow is thereby elevated, and when elevated to a sufficient extent it may be readily swung around in reverse position and then again lowered.

Various changes and modifications may be resorted to without departing from the spirit and scope of my invention. For instance, in the form of construction illustrated in Figs. 1 to 7, inclusive, the partition 9 could be omitted and successful results obtained in dumping some materials. This partition, however, is advisably employed, inasmuch as it divides the quantity of gravel taken up by the plow and discharges equal quantities from opposite sides of the plow. Said partition also preferably projects in advance of the forward edge of the base portion in order that the earth or gravel may be cut thereby before the base portion has to lift it and, further, to serve as a vane or rudder to prevent lateral displacement and tend to keep the course of the plow in a straight line, so as to assist the standards 25 and relieve them of pressure. Again, I desire to include within the spirit and scope of my invention a plow for discharging only over one side of the car, and in Fig. 8 of the drawings I have illustrated such modified form of construction. Referring to this figure, which illustrates the modification in plan, it will be seen that it is equivalent to one-half of the plow illustrated in Figs. 1 to 7 when said Figs. 1 to 7 form of construction is divided longitudinally through its center. In Fig. 8, therefore, the same reference-numerals are employed to indicate the corresponding parts which appear in the Figs. 1 to 7 form of construction. The upright plate corresponding to the partition 9 of the principal form of construction in this modified structure is curved inwardly at its forward end, (indicated by the numeral 30,) said inwardly-curved portion forming one of the guides to contact with the standards 25, while

the edge shoulder 26 of the plate 12 forms the other guide.

What I claim as my invention is—

1. In a plow, the combination of an upright partition, a base or bottom portion from which the upright partition extends, said base or bottom portion slanting downwardly to its forward edge, said upright portion extending in advance of the forward edge of the base or bottom portion, a wing projecting upwardly from the rear portion of the base or bottom of the plow, and extending to the upright partition, and projecting therefrom laterally and rearwardly and at an obliquity, said wing being concavo-convex in cross-section, with the concavity in the front side thereof.

2. In a plow, the combination of an upright partition, a base or bottom portion from which the upright partition extends, said base or bottom portion slanting downwardly to its forward edge, and also slanting downwardly to its lateral edge, and a wing projecting upwardly from the rear portion of the base or bottom of the plow, and extending to the upright partition and projecting therefrom laterally and rearwardly and at an obliquity, said wing being concavo-convex in cross-section, with the concavity in the front side thereof.

3. In a plow, the combination of an upright partition, a base or bottom portion from which the upright partition extends, the front edge of said base or bottom portion being pointed and beveled downwardly, and said base or bottom portion slanting downwardly to its forward edge, and a wing projecting upwardly from the rear portion of the base or bottom of the plow, and extending to the upright partition, and projecting therefrom laterally and rearwardly, and at an obliquity, said wing being concavo-convex in cross-section, with the concavity in the front side thereof.

4. In a plow, the combination of a base or bottom portion, said base or bottom portion on each side of a longitudinal line therethrough slanting downwardly to the forward edge of the plow, wings projecting upwardly from the rear portions of the slanting portions of the base or bottom, and extending rearwardly obliquely in divergent lines from their converged forward edges, each wing being concavo-convex in cross-section, with the concavity in its forward side and a ballast-receptacle between the wings capable of balancing the plow when said plow is desired to travel at a distance above the platforms of the cars.

5. In a plow, the combination of an upright partition, a base portion from which the partition extends, said partition projecting in advance of the forward edge of the base portion, said base portion on each side of the partition slanting downwardly to the forward edge of the plow, and wings projecting upwardly from the rear portions of the base on opposite sides of the partition and extending rear-

wardly obliquely in divergent lines from the converged forward edges thereof which extend to or against the opposite faces of the partition, each wing being concavo-convex in cross-section, with the concavity in the forward edge thereof.

6. In a plow, the combination of an upright partition, a base portion from which the partition extends, said base portion on each side of the partition slanting downwardly to the forward edge of the plow, and also slanting downwardly to the lateral edges of the plow, and wings projecting upwardly from the rear portions of the base on opposite sides of the partition, and extending rearwardly obliquely in divergent lines from the converged forward edges thereof which extend to or against the opposite faces of the partition, each wing being concavo-convex in cross-section, with the concavity in the forward face thereof.

7. A plow provided with a plow-point and having on its under side a series of longitudinal runners with intervening recesses or grooves between the runners, and rollers dis-

posed between the runners and journaled on axial pins.

8. A plow provided with a pointed forward end, the lateral edges of said pointed end being thickened to form shoulders adapted to bear against the inner sides of standards projecting upwardly from a car, in the travel of the plow along said car.

9. In combination with a plow adapted to travel along a flat-car, of a device extending longitudinally along the upper portion of the plow and connected at its opposite ends to the plow, said device adapted for the connection thereto of a chain or other elevating mechanism, whereby the plow may be elevated and swung around, in order to reverse its line of travel.

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

JOHN KHEIL.

Witnesses:

A. G. DANA,
LEO F. DANA.