No. 787,964. PATENTED APR. 25, 1905.

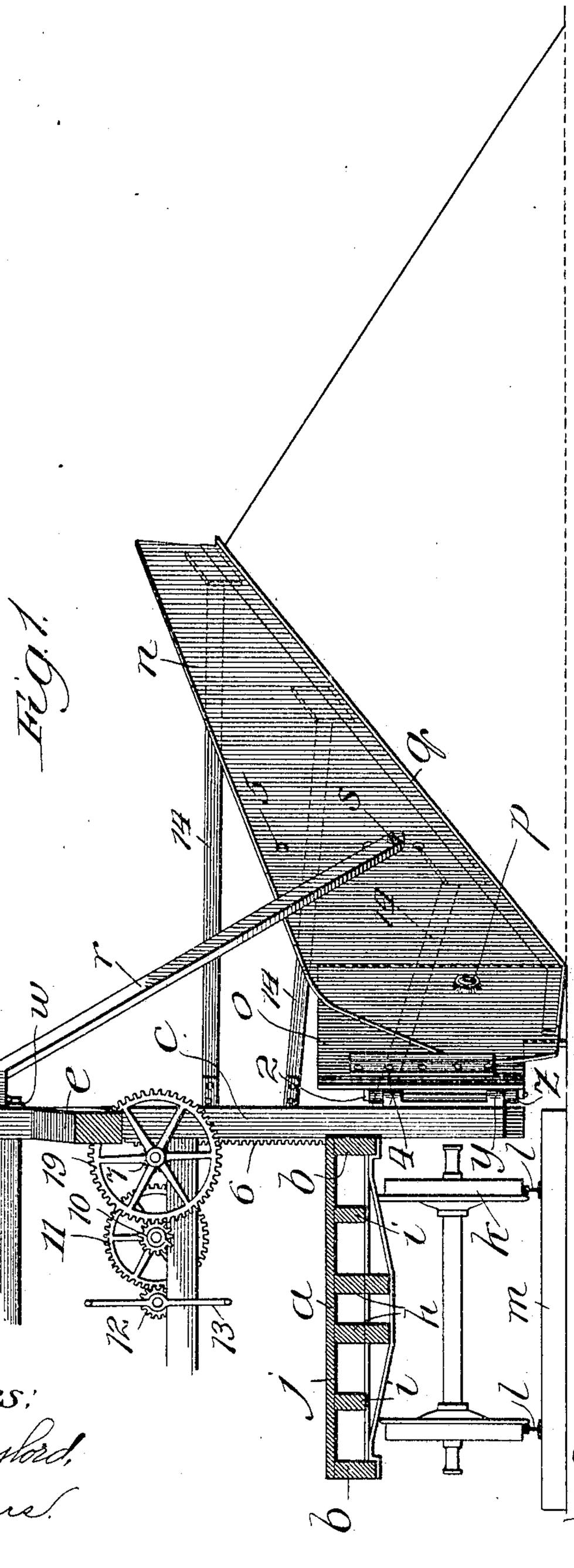
A. TORREY, DEC'D.

C. F. TORREY, ADMINISTRATRIX.

BALLAST SPREADER.

APPLICATION FILED JULY 18, 1904.

4 SHEETS—SHEET 1.



Witnesses:
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By Thomas F. Sheridan,
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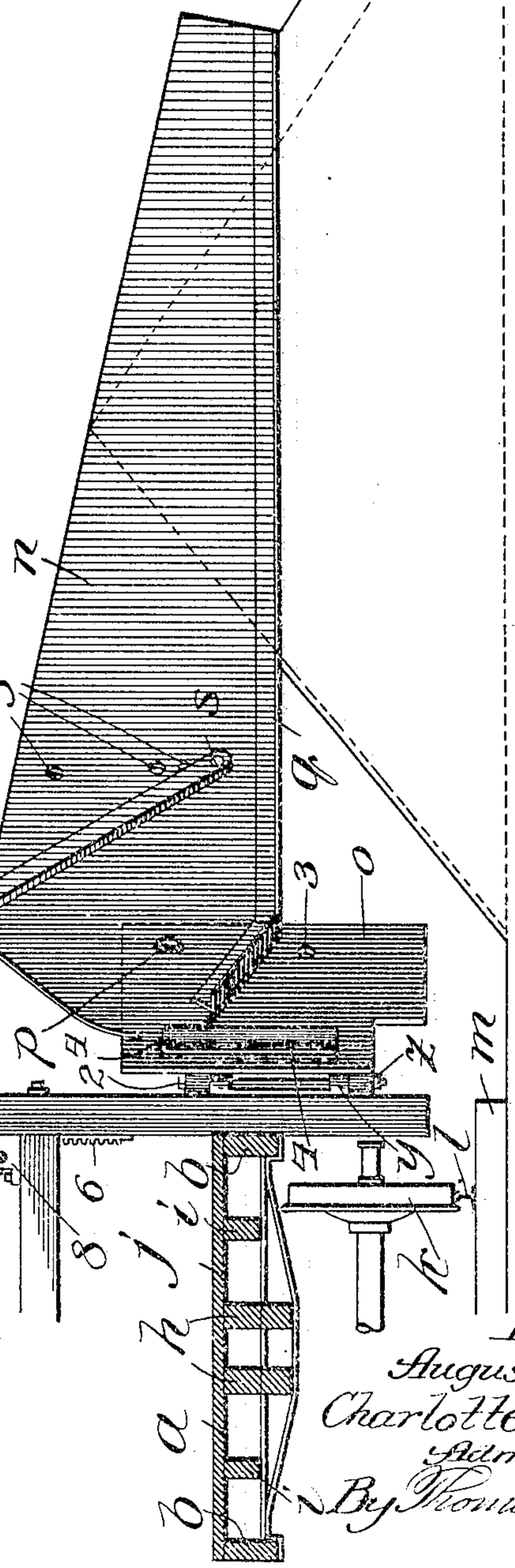
4 SHEETS—SHEET 2.

FIG. 2.



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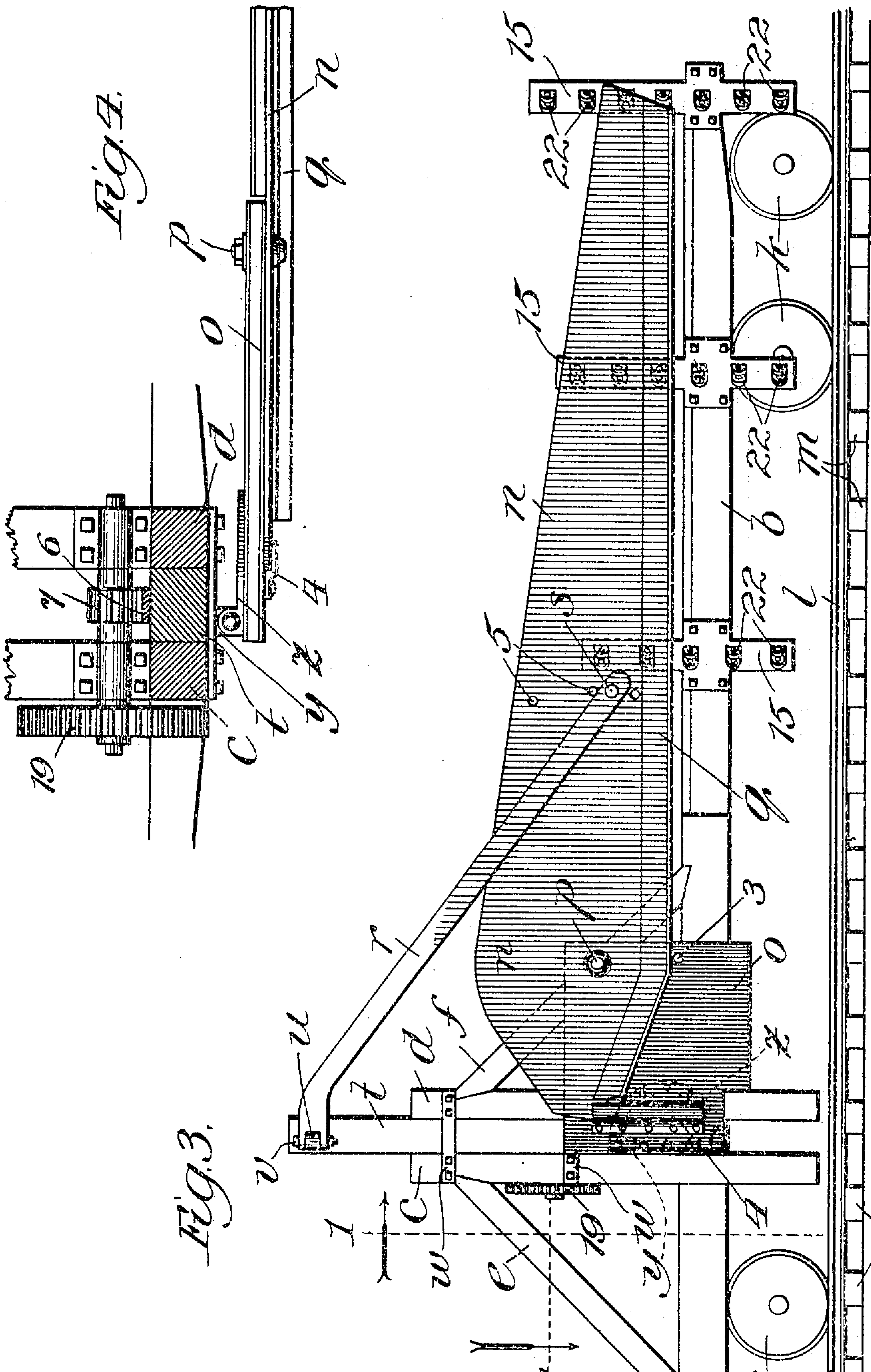

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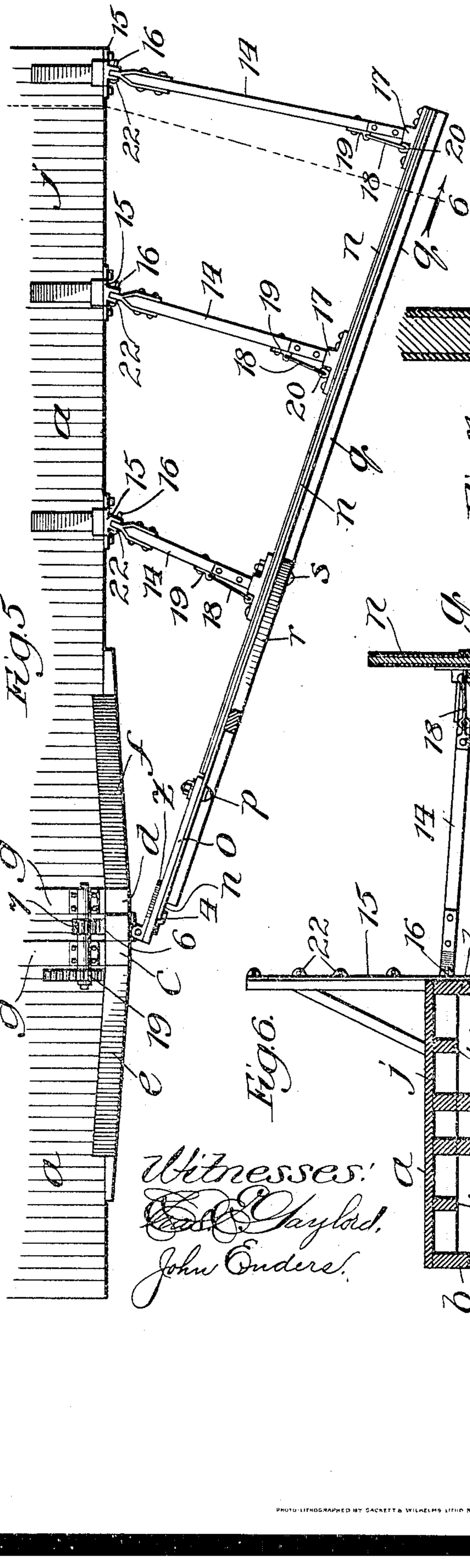

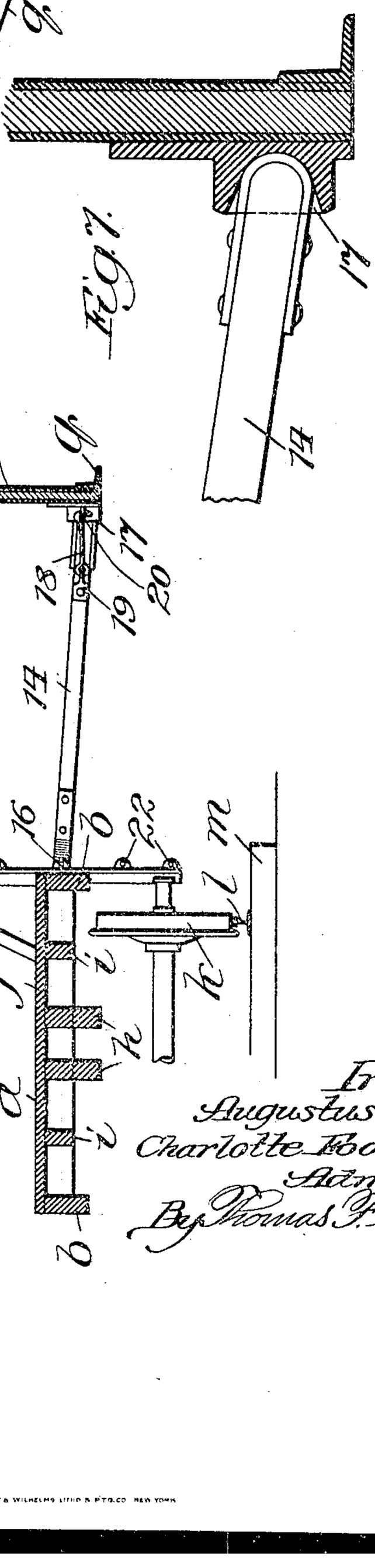

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UNITED STATES PATENT OFFICE.

CHARLOTTE FOOTE TORREY, OF DETROIT, MICHIGAN, ADMINISTRATRIX OF AUGUSTUS TORREY, DECEASED.

BALLAST-SPREADER.

SPECIFICATION forming part of Letters Patent No. 787,964, dated April 25, 1905.

Application filed July 18, 1904. Serial No. 217,014.

To all whom it may concern:

Be it known that I, CHARLOTTE FOOTE TORREY, a citizen of the United States, residing at Detroit, Michigan, administratrix of the estate of AUGUSTUS TORREY, deceased, late a citizen of the United States, residing at the time of his death at Detroit, Michigan, state that the said AUGUSTUS TORREY, deceased, invented certain new and useful Improvements in Ballast-Spreaders, of which the following is a specification.

The invention relates to that class of ballast and earth spreading machines having wing mechanism extending laterally and rearwardly at an angle to the side of the supporting-framework and movable to different inclined and horizontal positions.

It relates particularly to machines having wing mechanism extending laterally and rearwardly at an angle and at an upward incline when elevating earth and ballast and adapted to extend horizontally when leveling or grading, such wing mechanism being adapted to raise ballast and earth to any desired height alongside the track upon which the machine is mounted, to spread such ballast and earth at the necessary distance from such track, and level it at any desired elevation above such track.

It relates particularly to the means by which the dirt or ballast of which the road bed or grade is to be formed may be raised above the level of the track upon which the machine is mounted and leveled on a plane above such track and to the means for permitting and making the adjustments of the wing mechanism.

The principal object of the invention is to provide a simple, economical, and efficient machine for raising, spreading, and leveling ballast and earth.

A further object is to provide a machine for raising, spreading, and leveling ballast and earth alongside and at the desired distance from the track upon which the machine is mounted and for building and leveling such grade to any desired height above the level of such track.

A further object is to provide a machine of the class described with simple and efficient means for adjusting the spreading and leveling wings to any desired angle or incline and extending such wings laterally of the framework and beyond the side thereof the necessary distance and to the desired elevation, whereby the ballast or dirt may be raised to any desired height and graded above the level of the track upon which the machine is mounted.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a transverse sectional elevation taken on line 1 of Fig. 3, showing a part of the supporting-framework and the ballast spreading and leveling wing in an inclined position for raising dirt above the level and at one side of the track upon which the machine is mounted; Fig. 2, a similar view showing the ballast-spreading wing in position to level the grade at an elevation above the track upon which the machine is mounted; Fig. 3, a side elevation showing the blade or wing folded out of operative position and extending longitudinally of the supporting-framework; Fig. 4, a detail view of the mechanism for connecting the wing to the supporting-framework and raising and lowering it bodily and for permitting the necessary adjustments and pivotal movements thereof; Fig. 5, a broken plan view showing the wing in operative position and means for holding it in operative position and permitting the necessary movements and adjustments thereof; Fig. 6, a transverse sectional elevation in detail showing one of the pivoted braces and its end connections with the wing and framework; and Fig. 7, a sectional detail in elevation showing the arrangement of the socket, in which each brace is mounted to form an articulate joint between such brace and the wing.

In constructing a machine in accordance with the improvements a supporting-framework *a* is provided, comprising a longitudi-

nal sill or boom *b* and suitable uprights *c* and *d*, held firmly in position by means of braces *e*, *f*, and *g*, all of which may be mounted upon an ordinary flat-car or ballast-spreader frame. The car or frame is provided with suitable longitudinal center sills *h*, intermediate sills *i*, and a floor *j*, mounted upon suitable trucks having supporting-wheels *k*, all of which may be of any ordinary and well-known type. Ordinary railway-rails *l*, secured upon ties *m*, form a railway-track upon which the car or pivotal frame is mounted. Such a track is adapted to support the structure and hold the same in operative position, so as to withstand the great strains to which it is subjected in use.

The ballast-spreader is driven or propelled by means of an ordinary locomotive-engine or any well-known means.

It is desirable to provide means by which ballast and earth may be raised to any required elevation alongside the track upon which the machine is mounted and leveled to any desired grade above, beneath, or on an even plane with such track and on either or both sides thereof. For this purpose adjustable lateral wings are provided, one on each side of the car or supporting-frame. In operation it becomes desirable and necessary to raise and lower either or both of such wings bodily with relation to the supporting-frame without disturbing the inclined position or pitch thereof and to swing them pivotally in both vertical and horizontal planes to any desired angle, as hereinafter described. Both wings, with the mechanisms for raising, lowering, and holding them adjustably, are identical, and therefore only one is here described in detail.

In order to accomplish the above purposes, a wing *n* is provided and pivotally mounted upon a wing-supporting plate or member *o* by means of a horizontally-extending pivot *p*, which extends through suitable horizontal perforations in the wing of such supporting member. This permits the pivotal movement of the wing in a vertical plane to any desired incline. The wing is provided at its lower edge with a blade portion *q*, which is preferably formed of angle-iron. This blade portion may extend forwardly beyond the main front surface portion of the wing at any desired incline and to any desired distance. The blade is also pivotally connected to a swinging arm *r* by means of a horizontal pivot *s*. This swinging arm is hinged or pivoted to a vertically movable or sliding wing-support *t* by means of a hinge *u*, having a vertical pivot *v*. The supporting-arm *r*, and with it the wing, is thus permitted to swing upon the vertically-movable supporting mechanism in a horizontal plane. This vertical wing-supporting slide is made in the form of a wooden beam slidably mounted between the standards or uprights *c* and *d*, already described, and is held in place by means of metallic guides *w*, secured to such standards or uprights, so as to extend from one to the other and hold the vertically-movable wing-supporting member slidably in position between such standard portions of the framework. The vertically-movable wing-supporting member is provided with a horizontally-swinging wing-supporting plate *o*, pivotally connected thereto at or near its lower end by means of hinge portions *y* and *z* and a vertical pivot 2, extending through suitable vertical perforations in such hinge portions. A strong pivotal connection is thus formed between the wing and the vertically-sliding support. The pivoted portion *o* of the wing-supporting mechanism being hinged to the sliding support near its bottom and the supporting-arm *r* being pivoted near the top, it will be readily seen that the wing is thus held with great firmness against the vertical and transverse strains, while permitted to swing in a horizontal plane to any desired position. It may also be swung vertically upon either the pivot *p* or the pivot *s* to any desired incline. The inner end of the wing is also rendered adjustable vertically with relation to the pivoted supporting-plate *o* by having a plurality of perforations 3 therein, into any desired one of which the pivot-pin *p* may be placed and the wing correspondingly adjusted. An upright flange 4 is mounted on the horizontally-swinging wing-support in engagement with the end of the wing and serves, in connection with the pins *p* and *s* and the swinging arm *r*, to hold the wing securely upon such supporting member. The wing may be also adjusted to different inclined positions and raised and lowered bodily with relation to the vertically-sliding supporting member by changing the pin *s* to any desired one of the perforations 5 in the wing and the pin *p* to any desired perforation in the plate *o*. In Fig. 1 the wing is shown extending at an incline sufficient to raise the ballast or earth from the lowermost position to which the inner end of the wing may be adjusted to a plane high above the track upon which the machine is mounted and spread it at the necessary distance from the track to form a second grade or road-bed parallel with such track. In Fig. 2 the wing is arranged in a horizontal position adapted to level the grade on a plane above the track upon which the machine is mounted after the ballast or dirt has been raised to the desired elevation by the wing in its inclined position.

In order to provide means for raising the wing bodily to the desired elevation without disturbing the incline at which it may be adjusted, the sliding support *t* is provided with a rack 6, and a pinion 7 is rotatably mounted upon the supporting-frame in brackets 8 and in toothed engagement with such rack, such pinion being connected, by means of suitable gears 9, 10, 11, and 12, with a crank 13 or other suitable source of power. By this ar-

rangement the rotation of the pinion 7 in the desired direction will cause the sliding support to be raised or lowered, carrying with it the pivoted members *o* and *r* of the wing-supporting mechanism, so as to raise the wing bodily to any desired elevation without disturbing the inclined position in which it is adjusted.

It is desirable that means be provided for holding the wing firmly in position, so as to resist the strains to which it is subjected in use, and for permitting the wing to be adjusted to any of the above-suggested positions. It should be permitted to swing in a horizontal plane to any desired angle with relation to the supporting-framework and movable to any desired incline from end to end of the wing without tipping it from its vertical position—that is to say, without tipping it sidewise or inclining it otherwise than from end to end. In order to accomplish this, braces 14 are provided and pivotally attached at one end to the supporting-framework by means of upright posts or brackets 15, having studs 22, arranged at different elevations and to which such braces are connected by means of pivot-pins 16. The outer ends of the braces are articulately mounted in sockets 17 upon the inner side of each wing, and hooks 18 are attached by means of an eye 19 to the ends of these braces and by means of an eye 20 to the wing. This enables the inner ends of some or all of the braces 14 to be raised or lowered to any required elevation and pivotally attached to the main frame in any necessary relation to each other, so that when desired their points of pivotal connection with the upright posts or plates 21 may form a line extending at any desired incline upward and downward from the front end or main pivotal point of the wing. Thus no matter at what incline the wing may be adjusted the braces extend at the desired angle to the wing, so as to hold it firmly in position and resist the great strains accompanying the raising of the ballast and earth to the necessary elevation upon and by means of such wing.

The inner and out ends of the wing may each be adjusted to any desired elevation, so as to incline the wing from end to end to such elevation without tipping it in any direction except endwise. This enables the wing to retain the dirt or ballast until it passes to the upper end thereof and to the desired elevation, where it is discharged.

In order to enable either or both wings to be swung out of operative position, so as to extend longitudinally of the ballast-spreader or supporting-framework or car upon which it is mounted, it is only necessary to disconnect the braces 14 at either or both ends and raise the wing bodily to the desired height, adjusting it to its horizontal position either before or after raising it.

In operation the wing is swung outward to the desired angle with relation to the supporting-framework, as shown in Fig. 5, and the braces adjusted and connected to such wing and supporting-frame at suitable intervals to enable the parts to withstand the strains to which they are subjected in use. The wing may then be adjusted to any desired incline by adjusting the pin *s* to any desired perforation in the wing and the pin *p* to any desired perforation in the horizontally-swinging pivot-support *o*. The wing may then be raised or lowered bodily without disturbing the incline to which it has been adjusted by raising or lowering the vertically-sliding support *t* with the entire wing and wing-supporting mechanism to any desired position. The angle of the wing with relation to the framework longitudinally and its incline vertically having been determined and the necessary adjustments made, the machine is driven forward, so as to raise the ballast and earth upon the front surface of the wing or blade to the desired height and spread it the desired distance from the track on which the machine is mounted. The wing is then adjusted to a horizontal position upon any desired horizontal plane and the machine again driven forward, so as to level the ballast and earth at any height to which it may be necessary to build and level the road-bed or other grade to be constructed.

What is claimed is—

1. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework and adjustable in a vertical plane to different inclined positions, and means for holding such wing rigidly in any position to which it is adjusted, substantially as described.

2. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework and adjustable in a vertical plane to different inclined positions, means for raising and lowering such wing bodily with relation to the framework and permitting it to be adjusted to any desired inclined position, and means for holding it rigidly in such inclined position, substantially as described.

3. In a machine of the class described, the combination of a portable framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework and adjustable in a vertical plane to different inclined positions, vertically-movable wing-supporting mechanism mounted in such framework, and a vertical pivot intermediate such vertically-movable supporting member and the wing pivotally connecting such members for permitting the pivotal movement of the wing in a horizontal plane, substantially as described.

4. In a machine of the class described, the

combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame and adjustable in a vertical plane to different inclined and horizontal positions, vertically-movable supporting mechanism mounted in such main supporting-frame, means for raising and lowering such vertically-movable supporting mechanism and thereby the wing bodily to different horizontal planes, and a vertical pivot arranged intermediate such vertically-movable supporting member and the wing for permitting the pivotal movement of the wing in a horizontal plane, substantially as described.

5. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame and adjustable to different inclined positions, vertically-movable supporting mechanism mounted in such main supporting-frame, means for raising and lowering such vertically-movable supporting mechanism and thereby the wing bodily to different horizontal planes, and vertical and horizontal pivots arranged intermediate such vertically-movable supporting member and wing for permitting the pivotal movement of the wing in horizontal and vertical planes, substantially as described.

6. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame adjustable to different inclined positions for raising ballast and earth and to different horizontal positions for leveling the same, vertical and horizontal pivot mechanism arranged intermediate such wing and supporting-frame for permitting the pivotal movement thereof in vertical and horizontal planes, and means for holding such wing in any position to which it is adapted to be adjusted, substantially as described.

7. In a machine of the class described, the combination of a portable main supporting-frame, a wing extending laterally and rearwardly at an angle beyond the side of such frame adjustable to different inclined positions for raising ballast and earth and to different horizontal positions for leveling the same, vertically-movable supporting mechanism mounted in such main supporting-frame, means for raising and lowering such vertically-movable supporting mechanism and thereby the wing bodily to different horizontal planes, vertical and horizontal pivots arranged intermediate such vertically-movable supporting member and the wing for permitting the pivotal movement of such wing in vertical and horizontal planes, and means for holding such wing in any position to which it is adjusted, substantially as described.

8. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework, vertically-movable wing-supporting mechanism slidably mounted in such framework, a depending arm having its lower end connected to such wing and its upper end pivotally connected to such vertically-movable member for supporting and permitting the pivotal movement of the wing in a horizontal plane and holding it in position, and horizontal pivot-pin mechanism connected with the wing for permitting the pivotal movement of the wing in a vertical plane to any desired incline, substantially as described.

9. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework, vertically-movable wing-supporting mechanism slidably mounted in such framework, a depending arm having its lower end connected to such wing and its upper end pivotally connected to such vertically-movable member for supporting and permitting the pivotal movement of the wing in a horizontal plane and holding it in position, horizontal pivot-pin mechanism connected with the wing for permitting the pivotal movement of the wing in a vertical plane to any desired incline, braces pivotally attached to the wing and supporting-framework for holding such wing in any desired inclined position, and means for raising and lowering the wing-supporting mechanism and thereby such wing to any desired position with relation to the supporting-framework, substantially as described.

10. In a machine of the class described, the combination of a portable supporting-framework, a wing extending laterally and rearwardly at an angle beyond the side of such framework, vertically-movable wing-supporting mechanism mounted in such framework having a vertical pivot mounted thereon and connected with the wing for permitting the pivotal movement of the wing in a horizontal plane, horizontal pivot mechanism for permitting the pivotal movement of the wing in a vertical plane to any desired incline, a rack mounted upon such vertically-movable wing-supporting mechanism, and a pinion rotatably mounted in the framework in toothed engagement with such rack adapted to be connected with a suitable source of power, substantially as described.

11. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, and a wing extending laterally beyond the side of such framework and pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism, substantially as described.

12. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, and a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism and extending laterally beyond the side of the car, substantially as described.

13. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism movable in a vertical plane and extending laterally beyond the side of the car, and a depending arm pivotally connected at its upper end with the vertically-slidable wing-supporting member and its lower end connected with the wing, substantially as described.

14. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism movable in a vertical plane and extending laterally beyond the side of the car, a depending arm pivotally connected at its upper end with the vertically-slidable wing-supporting member and its lower end connected with the wing, and braces pivotally connecting such wing with the main supporting-frame, substantially as described.

15. In a machine of the class described, the combination of a portable supporting-framework, wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism movable in a vertical plane and extending laterally beyond the side of the car, and means for holding such wing in any desired incline position, substantially as described.

16. In a machine of the class described, the combination of a portable supporting-framework, vertically-movable wing-supporting mechanism slidably mounted in such framework and provided with a horizontally-swinging pivoted portion, vertical pivot-pin mechanism connecting such horizontally-swinging pivoted portion of the wing-supporting mechanism to the slidably-mounted portion thereof, a wing pivotally connected to such horizontally-swinging portion of the wing-supporting mechanism and extending laterally beyond the side of the car, means for raising and lowering such vertically-movable wing-supporting mechanism and thereby the horizontally-swinging portion thereof with the wing, and means for holding such wing in position to extend outward and rearward at an angle beyond the side of the framework and for permitting the outer end of the wing to be raised or lowered with relation to the inner end thereof, substantially as described.

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