

No. 622,019.

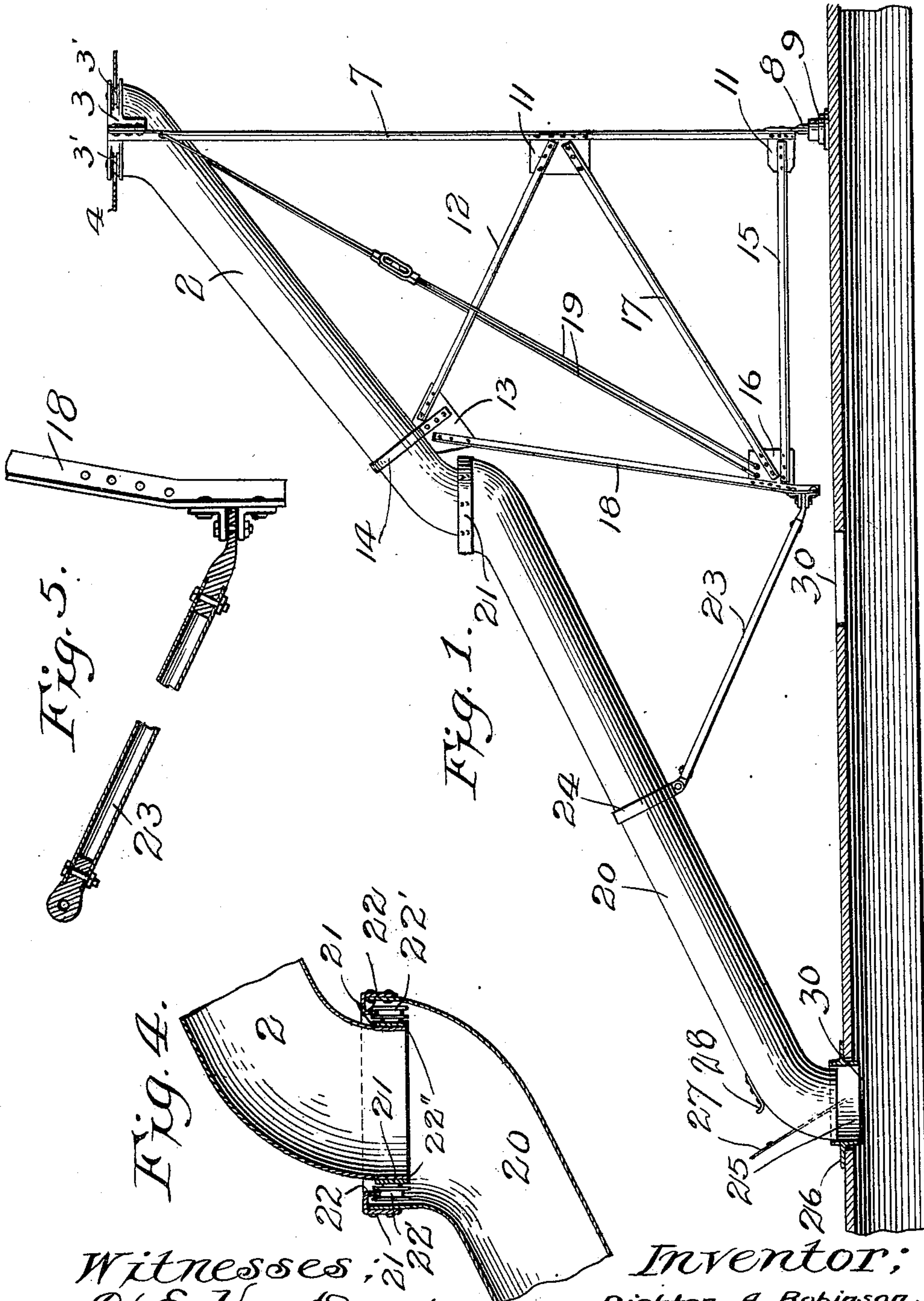
Patented Mar. 28, 1899.

D. A. ROBINSON.  
SWIVELED SPOUT FOR ELEVATORS.

(Application filed June 24, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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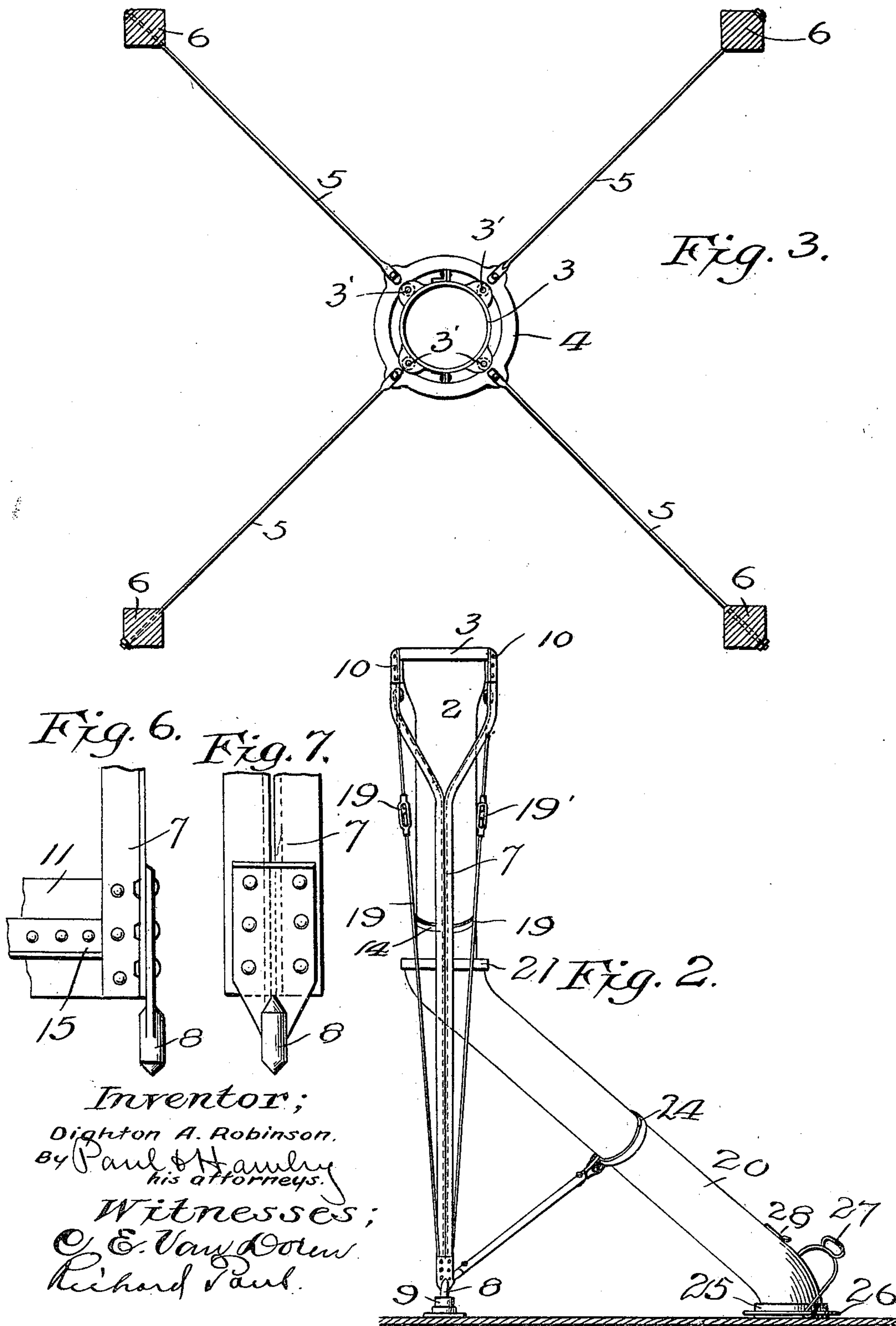
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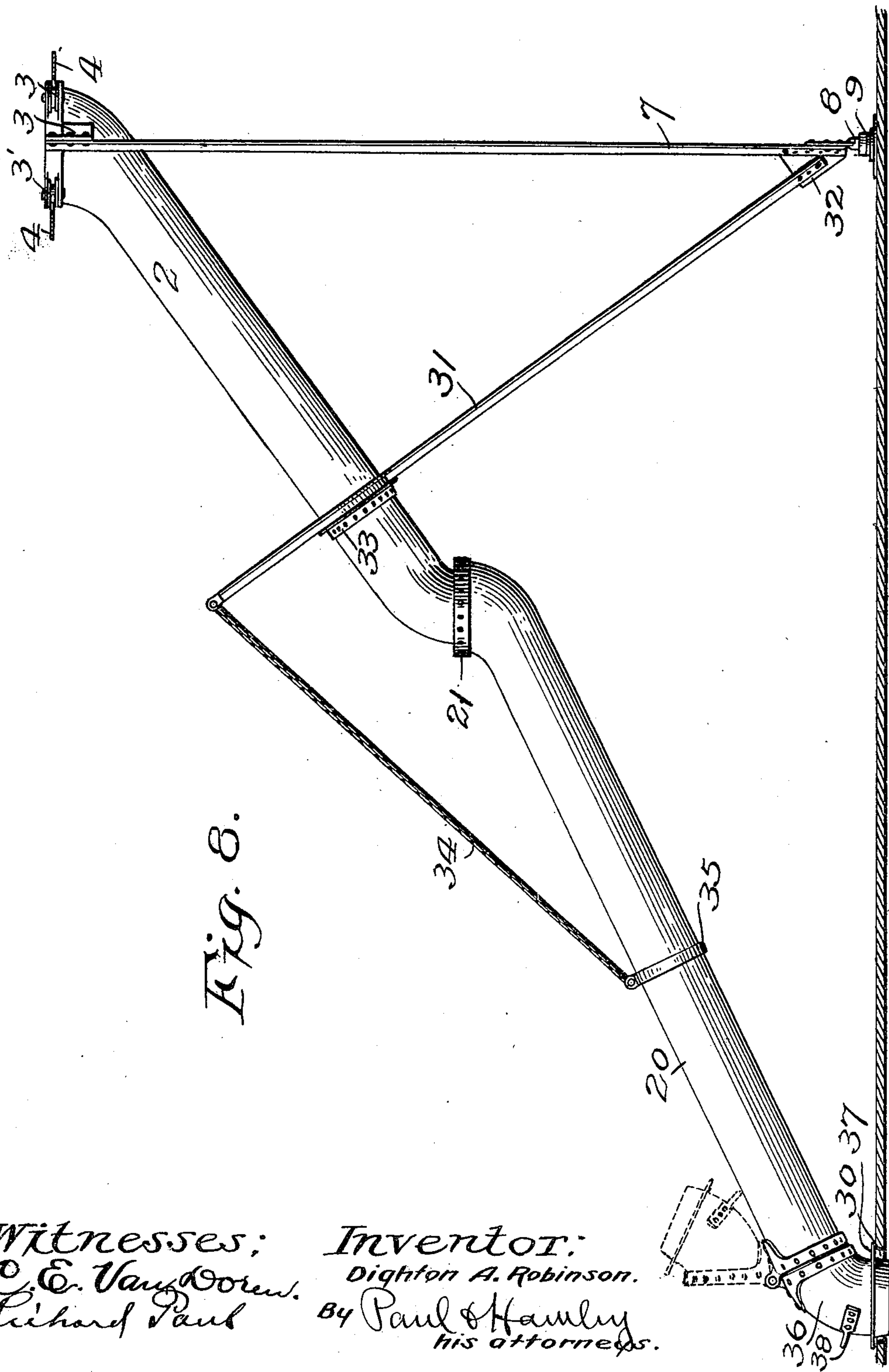
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# UNITED STATES PATENT OFFICE.

DIGHTON A. ROBINSON, OF MINNEAPOLIS, MINNESOTA.

## SWIVELED SPOUT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 622,019, dated March 28, 1899.

Application filed June 24, 1898. Serial No. 684,343. (No model.)

*To all whom it may concern:*

Be it known that I, DIGHTON A. ROBINSON, of Minneapolis, county of Hennepin, and State of Minnesota, have invented certain new and useful Improvements in Swiveled Spouts for Elevators, of which the following is a specification.

The invention relates to swiveled spouts for grain-elevators, and particularly to spouts for distributing grain from the scale-hopper to the different storage-bins, said spouts comprising jointed sections revolubly supported beneath the scale-hopper and adapted to discharge grain into openings in the floor at any point within the area of a circle described by the combined or aggregate lengths of the several sections.

The object of the invention is to provide means for supporting the lower section of the spout without the necessity of using rollers or carriages to travel upon the elevator-floor.

The invention consists generally in an upper inclined spout-section revolubly supported beneath the scale-hopper and a lower independent inclined section having its upper end revolubly connected to the lower end of said upper section and means supporting the lower end of said independent section independently of the elevator-floor.

Further, the invention consists in various constructions and combinations, all as herein-after described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a swiveled spout embodying my invention. Fig. 2 is a rear end view of the same. Fig. 3 is a sectional plan view. Fig. 4 is a detail of the swiveled connection between the upper and lower section. Fig. 5 is a detail of the pivoted braces supporting the lower section. Figs. 6 and 7 are details of the lower end of the mast or shaft whereon the upper section is supported. Fig. 8 is a side elevation of a modified means for supporting the lower end of the lower spout-section.

The distributing-spout is preferably made in two inclined sections, the upper section 2 being preferably provided at its upper end with a cast ring 3, wherein a series of friction-rolls 3' are mounted in position to engage the inner edge of an outer inclosing ring 4,

that is preferably held in position by horizontal guy rods or wires 5 5, adjustably secured to the posts 6 6 upon the four sides of the spout and holding the upper end of the spout concentric with the scale-hopper, while permitting the free revolution of the section.

As a vertical support for the spout I prefer to provide a mast or standard 7, having a stud 8 at its lower end journaled in a step or bearing 9 upon the elevator-floor, wherein the standard turns when the spout is revolved, said standard being preferably forked near its upper end, the arms or tines of the fork extending upon either side of the upper section and being rigidly secured to flanges 10, provided on the inner ring 3. At the lower end of the standard and at a point preferably near the middle thereof are gusset-plates 11, the upper plate being connected by a bar 12 with a similar plate 13, that is secured to the lower end of the upper section 2 by a collar or band 14. A horizontal bar 15 connects the lower plate 11 with a similar plate 16, which is in turn connected with the upper plate 11 and the plate 13 by braces or bars 17 and 18. These braces are preferably of channel or angle iron to increase the strength and rigidity of the truss-frame. To aid in supporting the spout and particularly to prevent any undue lateral twist or strain upon the mast, I may provide guy-rods 19, having turn-buckles 19', connecting the plate 16 with the forked upper end of the standard 7. The lower inclined section 20 of the spout is provided at its upper end with a ring 21, having a depending flange 22, engaging friction-rolls 22', provided on a ring 22'' at the lower end of the upper section, whereby the two parts are swiveled together and the lower section is permitted to revolve independently of the upper section.

To support the lower end of the lower section and at the same time permit the section to be moved independently of the upper section, I provide a brace 23, pivoted at one end to a band 24 upon the lower section and at its other end pivoted to an extension on the lower end of the brace 18. The lower pivot is located substantially in a line with the center or axis of the lower end of the upper spout-section. This bar or brace 23, while supporting the lower section and preventing it from



sagging or resting upon the floor, at the same time permits it to be swung around independently of the upper section or in conjunction with it, as the operator may desire, to direct the grain into openings located at any desired points within the circle described by the combined lengths of the spout-sections.

As the lower end of the lower section does not touch the floor it is desirable to provide a device to close the gap between the lower end of the section and one of the openings 30, irregularly arranged in the floor and leading to the bins beneath. Any suitable device may be used for this purpose. In Fig. 1 I show a sleeve 25, fitting the openings in the floor and adapted to slide over the lower end of the spout and provided with a laterally-projecting flange 26 to rest upon the floor about one of the openings therein and having a handle 27, which the operator may grasp to raise up the sleeve when it is desired to move the spout. To hold the sleeve in an elevated position, a hook 28 may be provided near the lower end of the spout, over which the operator may place the handle while changing the position of the spout.

Instead of using a truss-frame I may employ the device shown in Fig. 8 for supporting the lower end of the inclined lower spout-section above the elevator-floor, said device consisting of an inclined brace or bar 31, rigidly secured at its lower end to a plate 32, provided on the mast 7, preferably near its lower end. The bar 31 extends up beneath the upper spout-section, and at a point preferably near the lower end of said section is looped around it and rigidly secured to a flanged collar 33 thereon. The upper end of the bar 31 is coincident or in line with the vertical axis of the lower end of the upper section and is connected by a chain 34 or by a bar, if preferred, with a band 35 upon the lower section 20, said band being placed in such a position upon the lower spout-section that the lower end of said section is supported above the floor without the aid of rollers or carriages and the whole section permitted to revolve independently of the upper section or in conjunction with it, as may be desired.

In Fig. 8 I have shown another construction for making a close fit with the openings in the floor. As here shown, at the lower end of the lower section I provide a short elbow 36, having a flange 37 near its lower end to rest upon the floor about an opening therein and pivoted at its upper end to the lower section and forming when in use a continuation of said section and filling the gap between the lower end of the section and the floor. When it is desired to change the position of the section, the elbow may be turned back with the aid of the handle 38 to the position indicated by dotted lines in the figure.

In other respects the construction shown in Fig. 8 is substantially the same as that heretofore described with reference to Figs. 1, 2, and 3.

A distributing-spout comprising upper and lower inclined sections constructed and mounted in the manner heretofore described may be revolved about the vertical axis of the receiving end of the upper section without touching the floor or being supported by carriages or rollers resting thereon, and the lower inclined section may be revolved not only in conjunction with the upper inclined section, but also independently of said upper section and about the vertical axis of the lower end of said upper section. This arrangement permits the operator to adjust the lower end of the lower section to discharge the contents of the spout into an opening in the floor at any point in the area of a circle whose radius is equal to the combined lengths of the spout-sections. This construction also permits me to dispense with the usual rollers or carriages for supporting the lower spout-section, and the rigid frame between the vertical standard and the spout-sections prevents any sagging of the spout and supports the lower spout-section at the desired distance from the floor and permits it to be easily revolved to adjust its discharge end over the opening leading to the bin into which it is desired to convey the grain.

The important feature of the invention is that the lower inclined spout-section be revolvably supported on the lower end of the upper spout-section with the lower end of the lower spout-section above the floor, so as to swing clear thereof. It is therefore immaterial whether the support for the lower spout-section be arranged below the upper spout-section, as in Fig. 1, or above it, as in Fig. 8. In either instance the support for the lower spout-section will be provided with a pivot or axis located substantially in a vertical line with the center or axis of the lower end of the upper spout-section and either above or below said lower end of said upper spout-section. I do not therefore limit myself to the details of construction shown and described.

By supporting the lower spout-section above the floor I am able to dispense with the use of rollers or carriages which have been generally used to support the lower end of the lower spout-section, and as distributing-spouts are frequently used before the elevator is completed and when numerous obstructions are scattered through the building it is of great advantage to be able to use the spout independently of a support that rests directly upon the floor. Furthermore, the elevator-floor is frequently covered with grain, and it has been found inconvenient and difficult to push rollers or carriages through and over the grain that lies upon the floor while moving the lower spout-section from one position to another during the operation of distributing the grain from the scale-hopper to the various bins. By suspending the lower spout-section in the manner described I have avoided all these difficulties that are attendant upon the use of a support resting directly upon the floor,



and the operator is able to swing the distributing-spout easily and quickly to any point within the area of the circle, whose radius is equal to the combined lengths of the two spout-sections.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A distributing-spout for grain-elevators, comprising an inclined upper revoluble spout-section, and an inclined lower revoluble spout-section supported upon, and free to revolve with and about, the lower end of said upper spout-section, and the lower end of said lower spout-section being above and free from the floor, substantially as described.

2. A distributing-spout for grain-elevators, comprising a revoluble upper section, a lower independent section having its upper end supported by said upper section and revoluble independently of the same, and means, independent of the elevator-floor, for supporting the lower end of said lower section, substantially as described.

3. A distributing-spout for grain-elevators, comprising an upper inclined revoluble spout-section and a lower inclined section, a swiveled connection between said upper and lower sections, and means substantially coincident with the vertical axis of the lower end of said upper section for supporting the lower end of said lower section above, and independent of the elevator-floor, substantially as described.

4. A distributing-spout for grain-elevators, comprising an upper inclined revoluble section, a lower inclined section swiveled upon said upper section and revoluble therewith, or independently thereof, a support for said upper section, and a pivotal connection supporting the lower end of said lower section above the elevator-floor and independently thereof, the vertical axis of the lower end of said upper section being substantially coincident with the axis of said pivotal connection at its junction with said support, substantially as described.

5. A distributing-spout for grain-elevators, comprising in combination an upper inclined section revolubly arranged, a standard or mast supporting the same, a lower inclined section revolubly connected to the lower end of said upper section, a brace or bar arranged between said mast and said upper section, a

connection between said bar and said lower section, and the junction of said bar and said connection being coincident with the vertical axis of the lower end of said upper section, substantially as described.

6. The combination, with the upper inclined revoluble spout-section, of a lower inclined spout-section, a swiveled connection between said sections, means supporting said upper section, means supporting the lower end of said lower section above and independently of the elevator-floor, and an elbow provided at the lower end of said lower section and adapted to close the gap between said section and the elevator-floor, substantially as described.

7. A distributing-spout for grain-elevators, comprising in combination an upper section revolubly arranged, a standard or mast supporting the same, a lower section revolubly connected to the lower end of said upper section, a brace or bar arranged between said mast and said upper section and having a looped portion to embrace said section, and the upper end of said bar being coincident with the vertical axis of the lower end of said upper section, and a flexible connection between said upper end and said lower section; substantially as described.

8. A distributing-spout for grain-elevators, comprising an upper section, a lower section having its upper end revolubly connected to the lower end of said upper section, and means substantially coincident with the vertical axis of the lower end of said upper section for supporting the lower portion of said lower section, substantially as described.

9. A distributing-spout for grain-elevators, comprising an upper revoluble section, a lower section connected at its upper end to the lower end of said upper section and revoluble therewith or independently thereof, and means substantially coincident with the vertical axis of the lower end of said upper section for supporting the lower portion of said lower section, substantially as described.

In testimony whereof I have hereunto set my hand, this 20th day of June, A. D. 1898, at Minneapolis, Hennepin county, Minnesota.

DIGHTON A. ROBINSON.

In presence of—

RICHARD PAUL,  
M. C. NOONAN.