

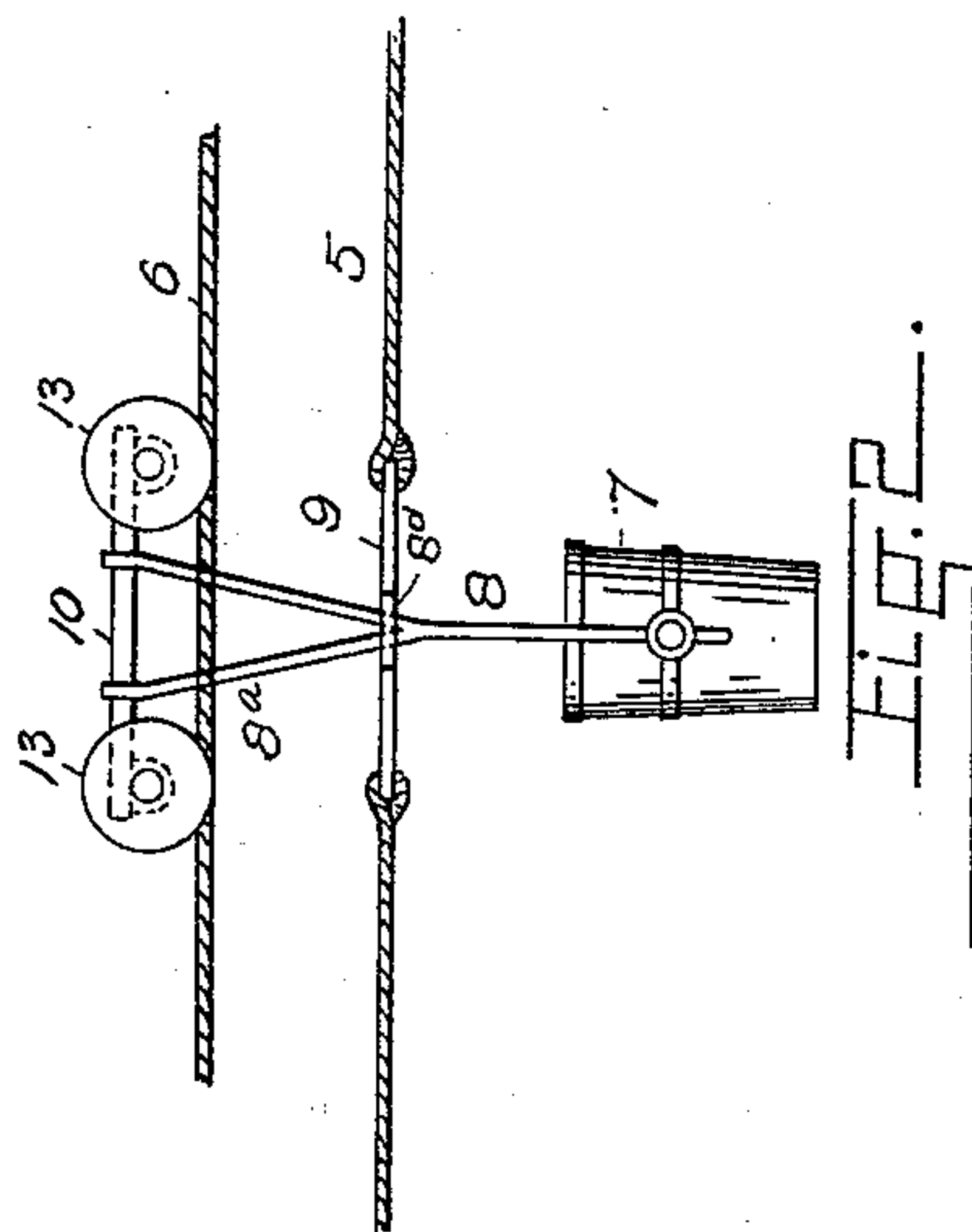
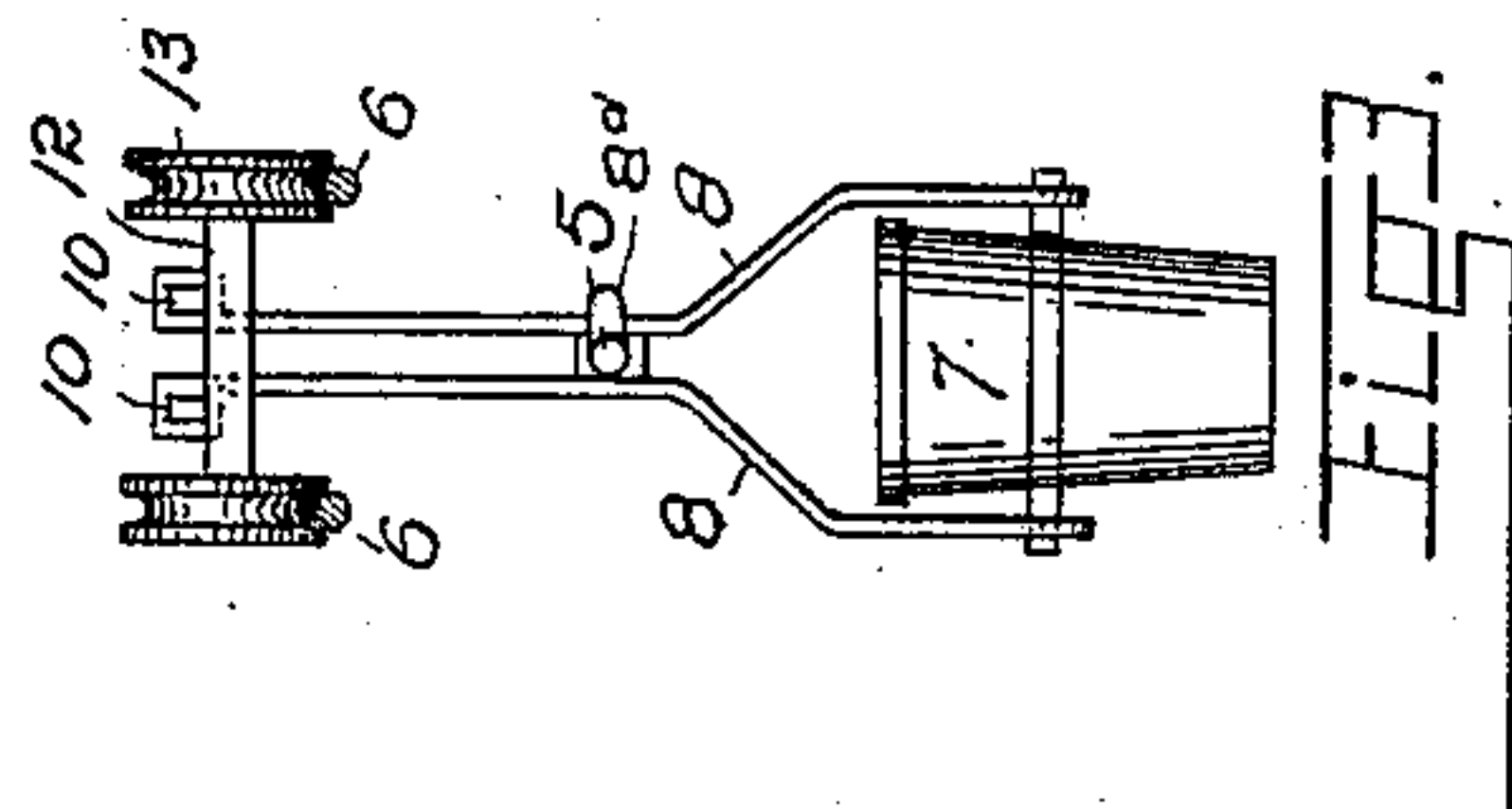
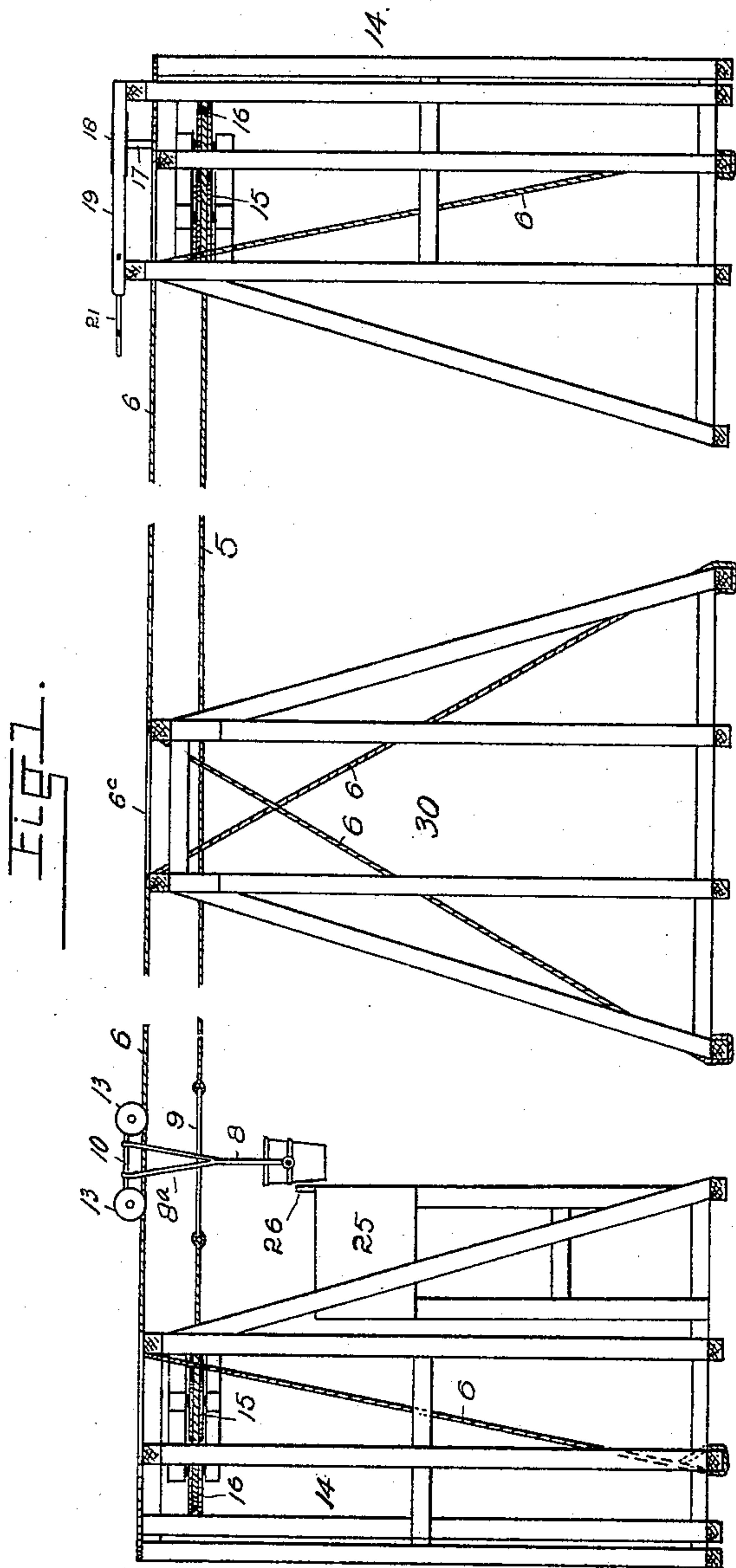
(No Model.)

3 Sheets—Sheet 1.

J. M. SWEM.
ORE TRAMWAY.

No. 538,202.

Patented Apr. 23, 1895.



WITNESSES:
G. J. Delandet
Chas. E. Dawson

INVENTOR
J. M. Swem.

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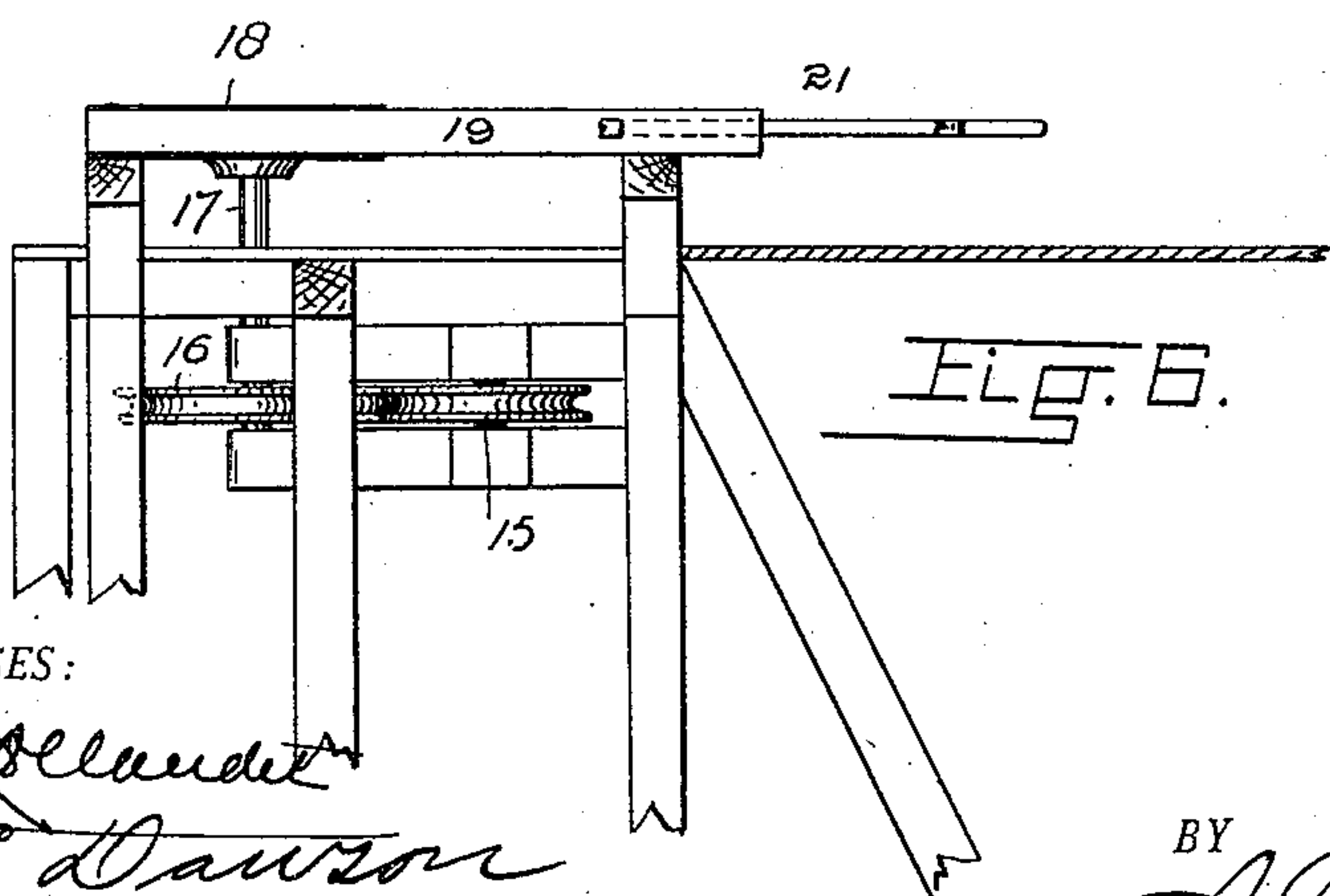
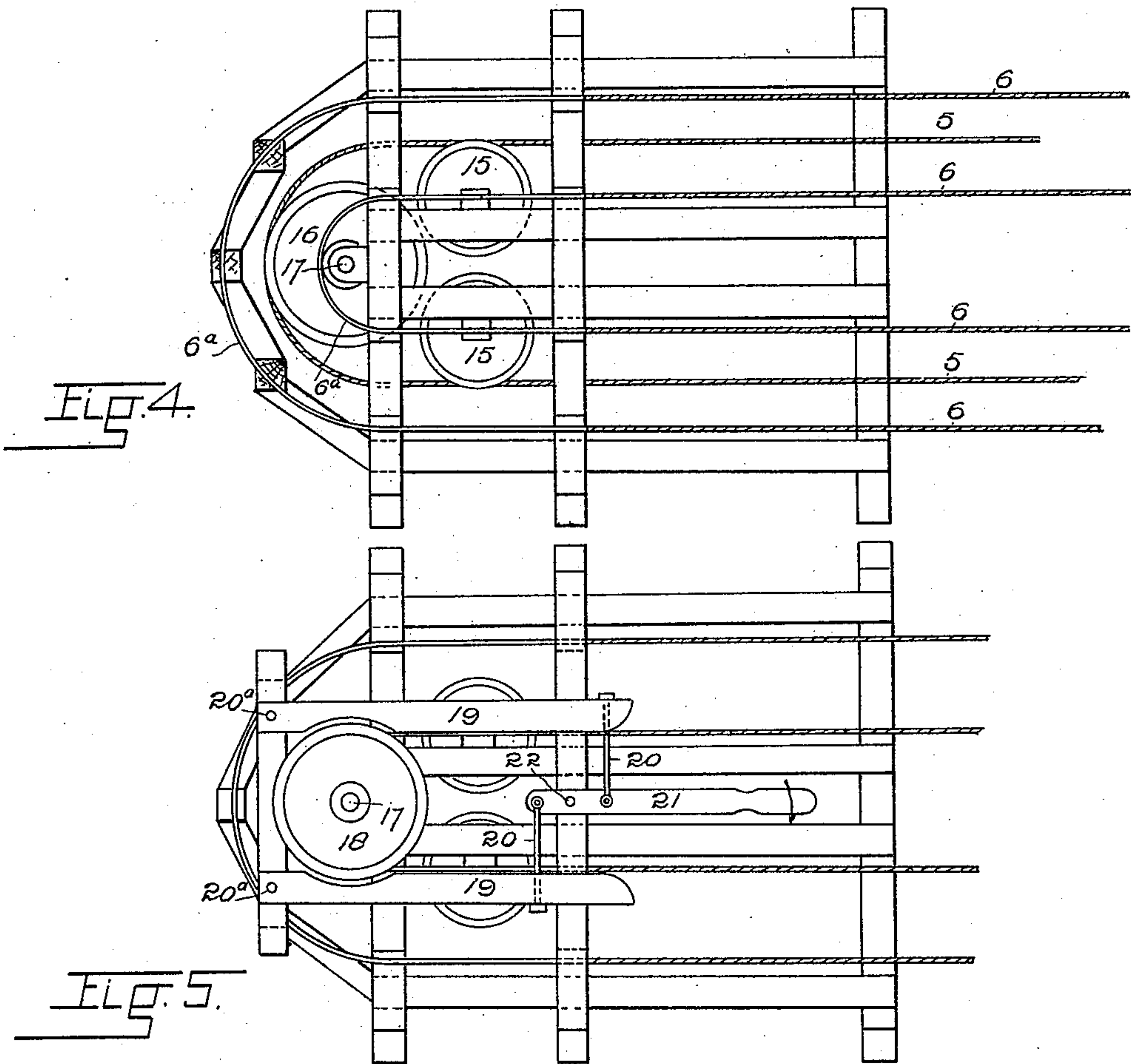
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3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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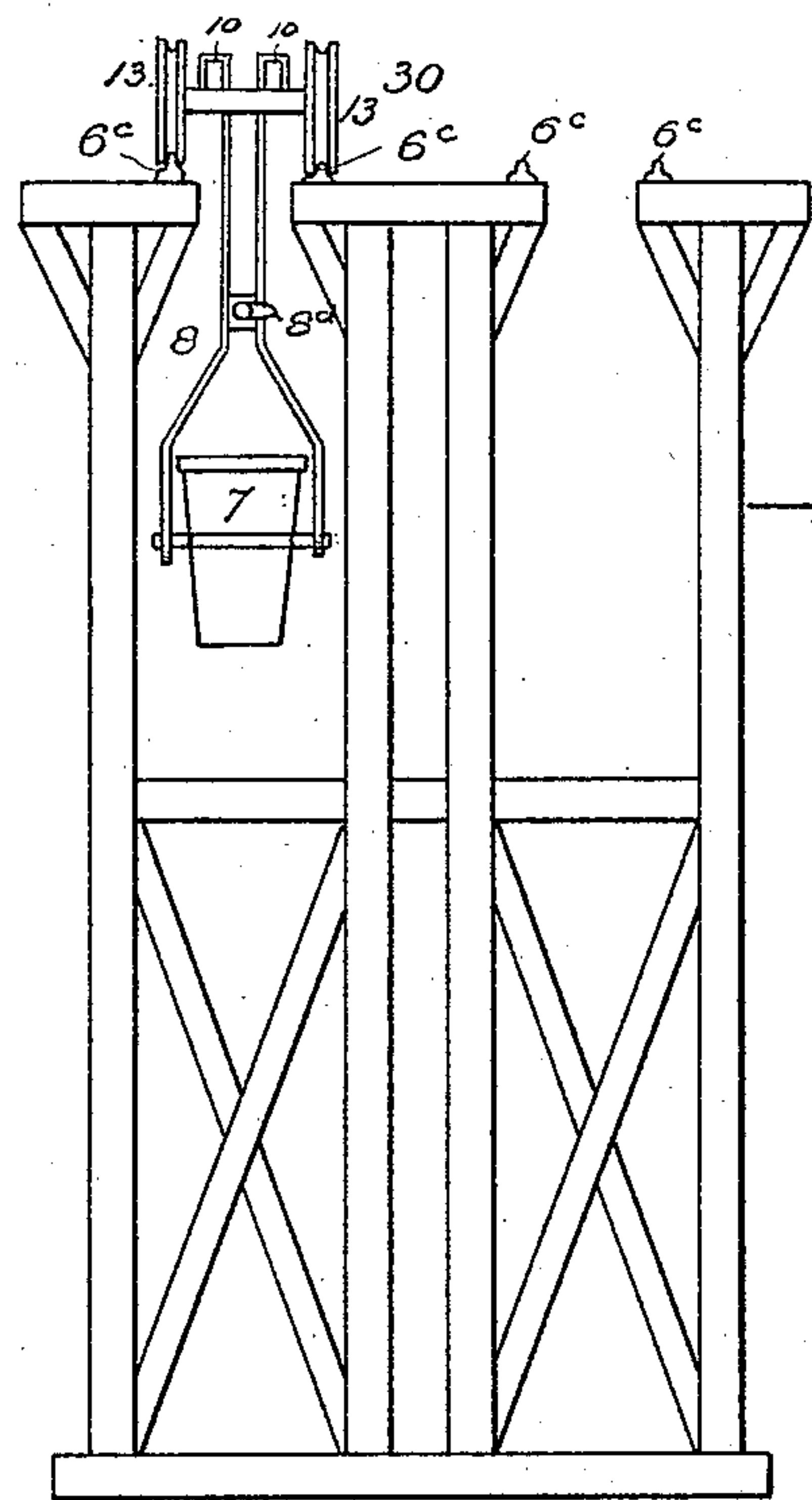


Fig. 8.

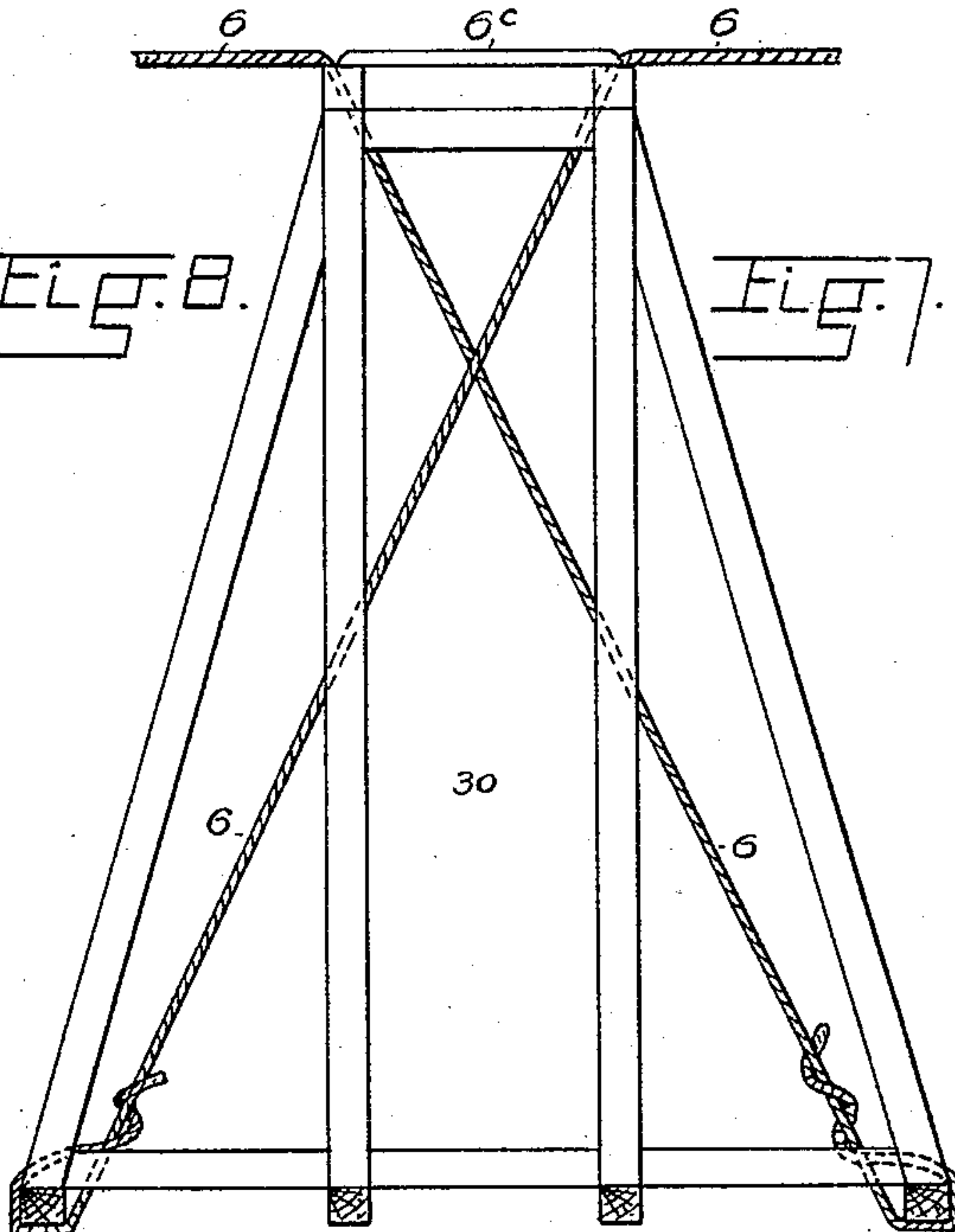


Fig. 7.

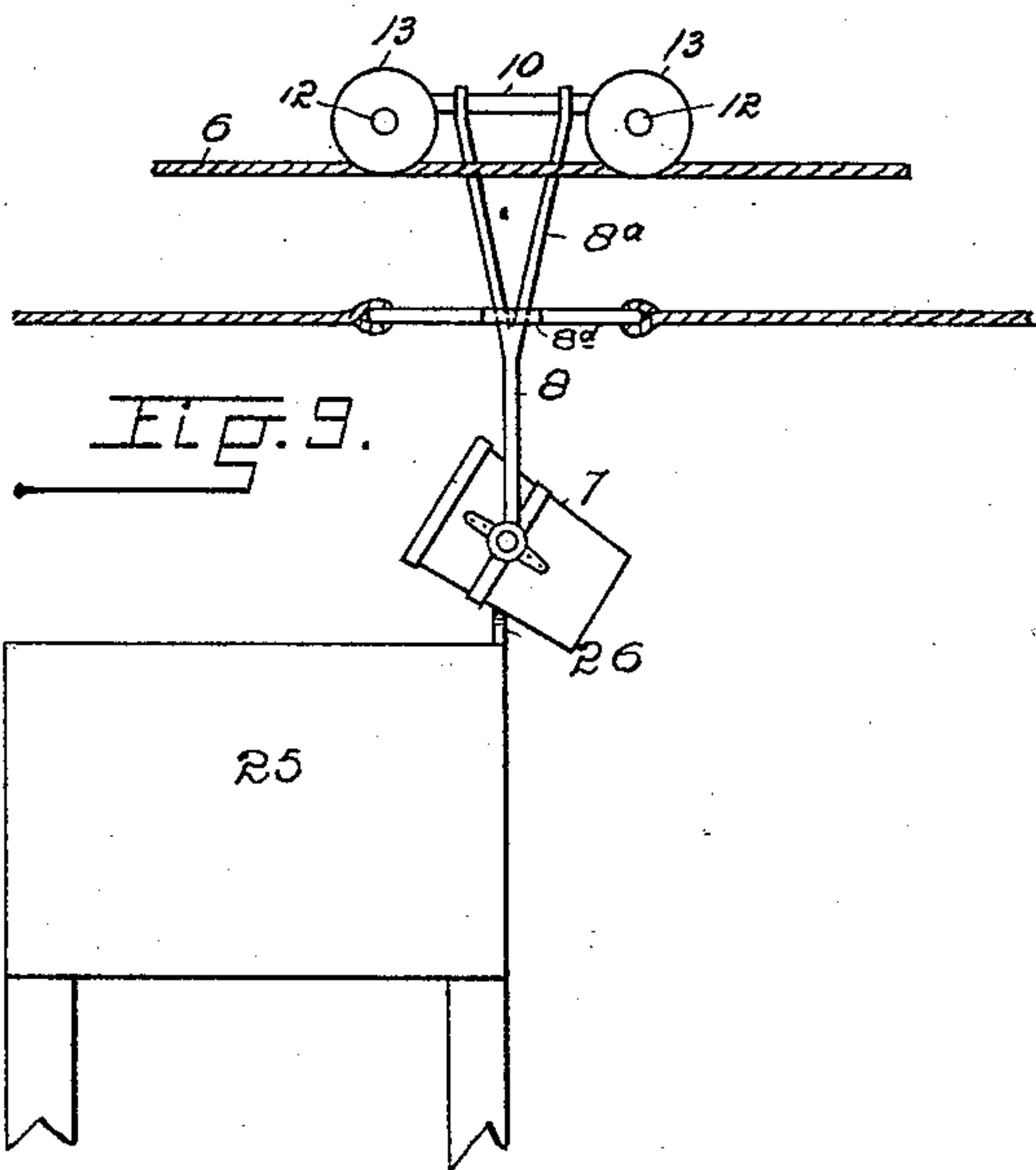
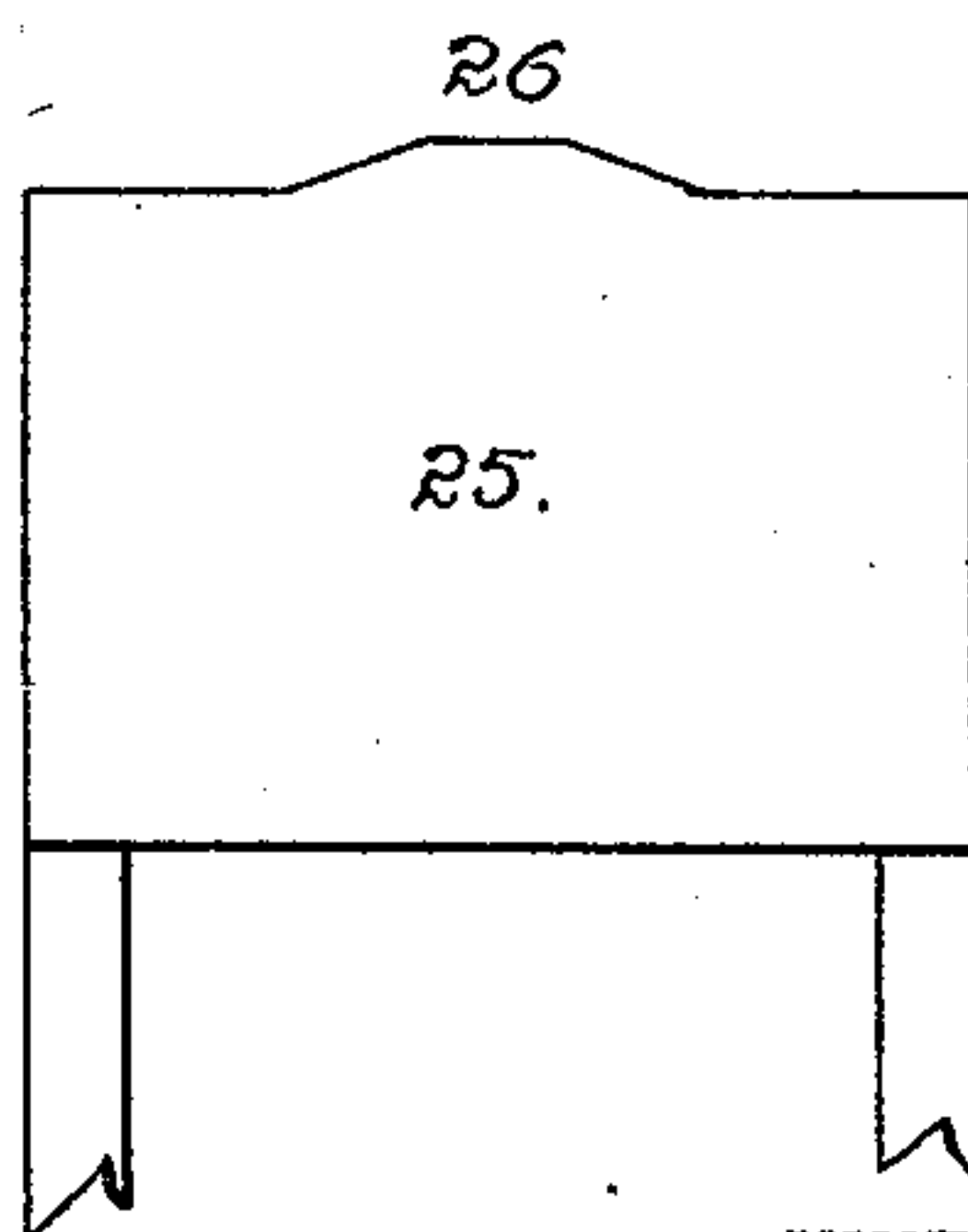


Fig. 9.

Fig. 10.



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UNITED STATES PATENT OFFICE.

JAMES M. SWEM, OF DENVER, COLORADO, ASSIGNOR TO THE SWEM TRAMWAY COMPANY, OF SAME PLACE.

ORE-TRAMWAY.

SPECIFICATION forming part of Letters Patent No. 538,202, dated April 23, 1895.

Application filed January 14, 1895. Serial No. 534,834. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. SWEM, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Ore-Tramways; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in overhead tramways of the class designed for carrying ore down mountains or over rugged sections of country where other means of transportation are impracticable.

To this end, the invention consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of the tramway showing the two terminals and one of the intermediate supports. Fig. 2 is a side elevation of one of the buckets shown in connection with the supporting track and the propelling cable. Fig. 3 is an end elevation of the same. Fig. 4 is a top or plan view of one of the terminal stations, the brake mechanism being removed. Fig. 5 is a similar view, the brake mechanism being shown in position. Fig. 6 is a side elevation of the upper terminal. Fig. 7 is a side elevation in detail showing one of the intermediate supports. Fig. 8 is an end elevation of the same. Fig. 9 is a side elevation of the bucket and trolley shown in connection with the ore bin and the dumping trip. Fig. 10 is an end elevation of the ore bin and trip-cam.

Similar reference characters indicating corresponding parts or elements in these views, let the numeral 5 designate the movable cable carrying the buckets; and 6 the four stationary cables forming the double track for the bucket trolley. The bucket 7 is trunnioned on the depending arms 8 of the trolley. These arms form a fork which pass over the bucket. Above the bucket the arms 8

approach each other and are made fast to a short rod 9 which extends at right angles to the vertical extension of the trolley arms. Above the horizontal rod 9 each arm 8 is forked as shown at 8^a. The extremities of the forks 8^a are made fast to a frame 10 connecting the axles 12 of two pairs of sheave wheels 13 which engage the stationary track 6 of the tramway. The movable cable 5 is attached to the extremities of the rod 9.

The terminal stations are composed of a suitable framework which may be designated as a whole by the numeral 14, but need not be described in detail as nothing is claimed on the special arrangement of posts, beams and braces which make up said structure. One of these terminals may be called the upper, and the other the lower terminal or station for the reason that the ore or other material for which the tramway is used in transporting is generally carried from an elevated point to another point below. Hence, in Fig. 1 of the drawings, it is assumed that the upper terminal is located at the extreme right, and the lower terminal at the extreme left of the view. The only difference between these two terminal stations is that the upper terminal is provided with brake mechanism for controlling the movable cable, while the lower terminal has no mechanism of this character. For convenience, in the drawings both terminals are shown occupying the same plane. In fact, the tramway is operative when both terminals are in the same plane; also when the terminals are arranged for carrying from one point to a more elevated point; except that in the last two cases special propelling mechanism will be required to operate the movable cable, while in carrying material down an incline, the tramway is automatic in action. Each terminal is provided with three horizontal pulleys 15, 15 and 16. The pulleys 15, 15 are exactly alike and are located on opposite sides of the station. The pulley 16 is located at the end of the terminal between the pulleys 15. All the pulleys are made fast to shafts journaled in the stationary framework or station structure. The shaft 17 of the pulley 16 (belonging to the upper terminal) extends upward to the top of the framework. To the upper extremity of this

shaft 17 is made fast a brake wheel 18 located between two pivoted brake arms 19. These arms 19 are connected by means of rods 20 with a lever 21 fulcrumed on the framework at 22. The connecting rods 20 are movably attached to the lever on opposite sides of the fulcrum 22, whereby as the lever is moved in the direction indicated by the arrow (see Fig. 5), the brake wheel 18 will be clamped between the two arms 19. The movable cable may be stopped, and its movement may be regulated and controlled at will through the instrumentality of this brake mechanism. The movable cable 5 engages the pulleys 15, 15 and 16 at the terminal stations.

As shown in the drawings, the stationary track upon which the bucket trolley or trunnion carriage runs, is composed of cable sections 6, the curved rods 6^a and the straight track irons 6^c. The cable sections are anchored at the terminals and at the intermediate supports. The extremities of these sections are carried downward and secured to the bases of the said stationary structures. The curved track rails 6^a are secured to the framework of the terminals and form a continuation of the track from the points where the cable sections pass downward to the anchoring points of the terminal framework. The straight track irons 6^c are attached to the intermediate supports, and bridge the space between the points where the cable sections pass downward from the plane of the track to the anchoring base. It must be understood that this stationary track may be otherwise constructed without departing from the spirit of the invention. The construction shown in the drawings is preferred from a standpoint of economy, since it permits the use of sections, lengths or pieces of cable which otherwise could not be utilized in the construction of the tramway.

Wherever it is desired to dump the ore or unload the buckets, a bin 25 is located, provided with a trip-cam 26 lying in the path of the bucket bottom. This cam causes the bucket to tip sufficiently to discharge its contents into the bin. The dumping is thus accomplished without arresting the movement of the supporting carriage or trolley upon which the bucket is trunnioned.

The intermediate supports, designated as a whole by the numeral 30, must each be so constructed as to support four track irons 6^c to correspond with the four cables 6 and the two curved rails at each terminal, thus making a continuous double track. The supports 30 must also be of such construction as to allow the buckets and their trolley to pass between them when the trolley is on either side of the double track. As shown in the drawings (see Fig. 8), the buckets pass between the upright or vertical posts constituting the said supports, while the trolley wheels engage the track irons 6^c above. The trolley is provided with a short lug or projection 8^d adapted to engage the pulleys 15, 15 and 16 as the trol-

ley is rounding the terminals. This device prevents any tendency on the part of the trolley to throw the movable cable off the terminal pulleys.

Any suitable means may be arranged at the upper or loading station for filling the buckets. This means for filling the buckets may consist of a chute leading from the ore supply bin which must be suitably elevated for the purpose. The movable cable must be momentarily stopped during the operation of filling each bucket. This stopping of the movable cable as the buckets pass beneath the feed chute is accomplished through the instrumentality of the brake mechanism heretofore described.

The feed mechanism is not shown in the drawings as nothing is claimed on any special construction for accomplishing this object.

Having thus described my invention, what I claim is—

1. In a tramway of the class described, the combination with the terminal stations and intermediate supports, of the movable cable engaging pulleys supported on the framework of the terminals, a stationary track, and a trolley comprising the arms forked to receive a bucket, the frame attached to the upper extremities of the arms and carrying wheels adapted to engage the stationary track, and a rod made fast to the trolley intermediate its extremities and adapted to connect with the movable cable, substantially as described.

2. In a tramway of the class described, the combination with the terminals and the intermediate supports, of the stationary track attached thereto, the movable cable, the pulleys attached to the terminals and engaged by the movable cable, a trolley comprising the arms forked to receive the bucket, a frame attached to the upper extremities of the arms and carrying wheels adapted to engage the stationary track, a rod made fast to the trolley intermediate its extremities and adapted to connect with the movable cable; a brake wheel made fast to the shaft of one of the terminal pulleys, pivoted brake arms adapted to embrace the brake wheel, and means connected with the arms for applying the brake, substantially as described.

3. In a tramway of the character described, the combination with the terminals and intermediate supports, of a stationary track, pulleys mounted on the terminal framework, a movable cable engaging the pulleys, the trolley comprising the arms forked to receive the bucket, the frame attached to the upper extremities of the arms and carrying wheels adapted to engage the stationary track, and a rod made fast to the trolley intermediate its extremities and adapted to connect with the movable cable; the brake wheel made fast to the axle of one of the terminal pulleys, the brake arms located on either side of the brake wheel, a lever fulcrumed on the framework, and rods connected with the brake arms and

attached to the lever on either side of the fulcrum, substantially as described.

4. The trolley comprising the arms forked to receive the bucket, the frame attached to the upper extremities of the arms and carrying wheels adapted to engage the track, a rod made fast to the trolley intermediate its extremities and adapted to connect with the movable cable, and a short lug or projection adapted to engage the terminal pulleys, substantially as described.

5. The trolley comprising the arms forked to receive the bucket, the frame attached to the upper extremity of the arms and carrying wheels adapted to engage a track, and a rod made fast to the trolley intermediate its

extremities and adapted to connect with the movable cable, substantially as described.

6. The trolley comprising the arms forked at their lower extremities to receive the bucket, the frame attached to their upper extremities and carrying wheels adapted to engage a double track, and a rod or bar located intermediate the said wheels and the bucket, substantially as described.

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

JAMES M. SWEM.

Witnesses:

CHAS. E. DAWSON,
ALFRED J. O'BRIEN.