No. 833,749. PATENTED OCT. 23, 1906.

H. PIKE.

CLEANER FOR BUCKETS OF EXCAVATING MACHINES.

APPLICATION FILED FEB. 23, 1906.

2 SHEETS—SHEET 1.

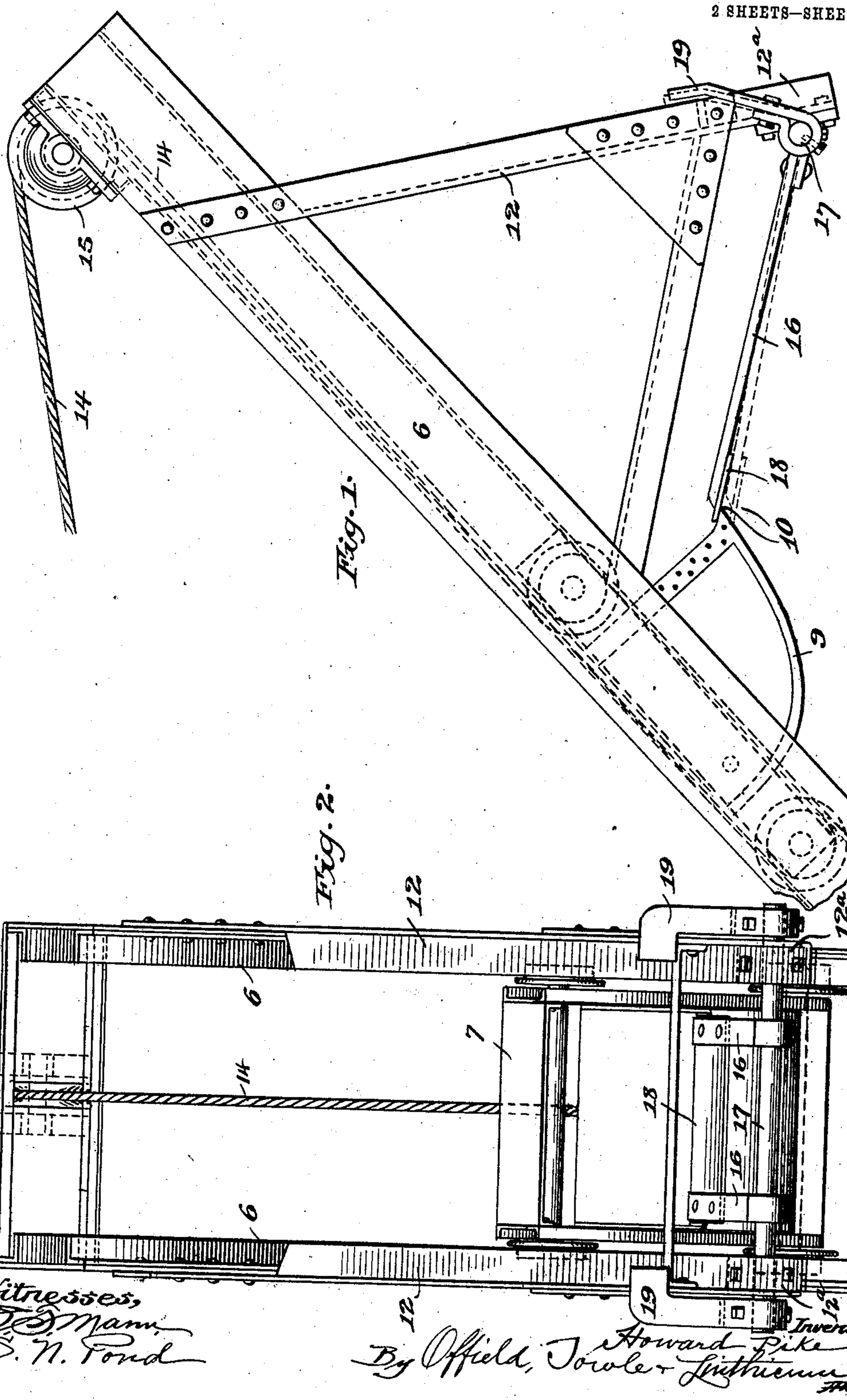

Fig. 1.

Fig. 2.

Witnesses,
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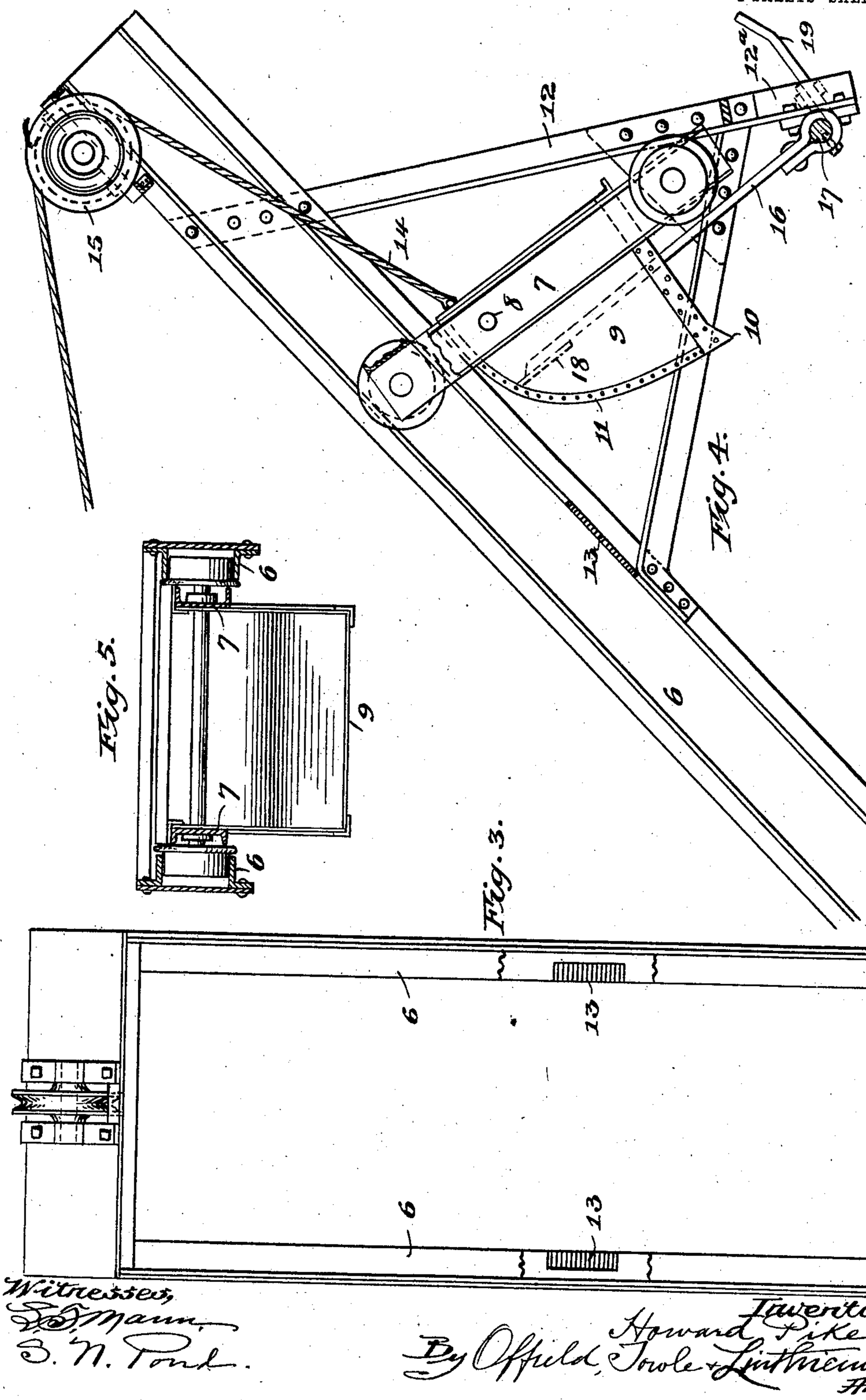

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UNITED STATES PATENT OFFICE.

HOWARD PIKE, OF CHICAGO, ILLINOIS, ASSIGNOR TO F. C. AUSTIN DRAINAGE EXCAVATOR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CLEANER FOR BUCKETS OF EXCAVATING-MACHINES.

No. 833,749. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed February 23, 1906. Serial No. 302,529.

To all whom it may concern:

Be it known that I, HOWARD PIKE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cleaners for the Buckets of Excavating-Machines, of which the following is a specification.

My invention relates to excavating-machines of that type wherein self-dumping scoops or buckets are employed, and has reference more particularly to a means for insuring the complete discharge of the contents of the bucket at its intended point of delivery.

It has been found in practice that when operating upon certain kinds of soil, such as sticky clay, the inversion of the bucket above the intended point of delivery is insufficient to effect the complete discharge of the contents, some of which tend to adhere to the bottom and rear walls of the bucket. To remedy this, I have provided, in association with that part of the machine which effects or permits the inversion of the bucket, a scraper device which automatically engages the bottom wall of the bucket at or near its forward cutting edge and as the bucket is inverted in the discharging operation scrapes the bottom and rear wall thereof to an extent sufficient to detach and break up any sticky portions of the load and insure their delivery.

My invention is applicable to any excavating-machine employing a reciprocatory scoop and effecting the discharge of the load by a partial or complete inversion of the scoop at the end of its travel; but for convenience of illustration I have shown my improvements as applied to and embodied in a machine such as is shown in Reissue Letters Patent to Charles C. Jacobs, No. 12,441, granted January 30, 1906.

In the accompanying drawings, which illustrate the preferred mechanical embodiment of the invention, Figure 1 is a side elevational view of the end portion of a bucket-support and guide, showing the bucket-inverting devices and my improved cleaning device applied thereto and just about to engage a loaded bucket. Fig. 2 is an outer end view of the same. Fig. 3 is a top plan view, partly broken out, of the bucket guiding and supporting track. Fig. 4 is a longitudinal sectional view of Fig. 1, showing the bucket partly in side elevation and in the discharging position; and Fig. 5 is a cross-sectional view through the bucket-supporting track, illustrating the general form and construction thereof.

Referring to the drawings, 6 designates each of a pair of parallel channel-shaped tracks, on which travel the wheels of a truck 7, in and between the side frame members of which is pivotally mounted at 8 an open-faced bucket or scoop 9 having a lower forward cutting edge 10 and a rounded bottom and rear wall, (indicated at 11.)

Secured to and depending from the end portion of the track is a bucket-discharging device, comprising substantially a pair of V-shaped frames 12, secured to the track members themselves, respectively. The lower supporting-rails of the tracks 6 are notched at 13, and the lower bars of the V-shaped frames 12 are joined thereto at points coincident with the lower edges of the notches, as shown in Fig. 4. The forward wheels of the truck are of a width to pass through the notches 13, while the rear wheels are of wider tread and will ride over said notches. An operating-cable 14 is attached at or near the rear end of the scoop and passes over a guide-sheave 15 at the end of the track, being led thence to a suitable winding-drum. (Not shown). From the foregoing construction, for a more complete description of which reference may be had to the Letters Patent above specified, if desired, it will be seen that as the loaded bucket is drawn up the inclined track when it reaches the point indicated in Fig. 1 the forward wheels will drop through the rails of the main track and onto the lower bars of the V-shaped discharge-frames, the continued upward travel of the rear portion of the truck effecting an inversion of the bucket above the intended point of discharge, as shown in Fig. 4.

Referring now more particularly to those features of improvement wherein the present invention resides, 16 designates each of a pair of arms that are secured at their lower ends on a transverse hinge-pintle 17, journaled in downward-extensions 12^a of the outer members of the V-shaped frames 12. The inner or upper ends of said arms are connected by a transverse plate 18, constituting a scraper. To the outer overhanging ends

of the hinge-pintle 17 are secured stops 19, which by contact with the outer sides of the frame-bars 12 limit the drop of the scraper-plate 18 to the position shown by dotted lines in Fig. 1.

In operation as the bucket or scoop reaches the point at which the forward wheels of its truck-frame drop through the notches 13 the forward edge of the scraper 18 is engaged by the forward cutting edge of the scoop in the manner clearly indicated in Fig. 1, and as the bucket enters the discharging device said scraper moves rearwardly over and relatively to the concave bottom and rear wall of the scoop in the manner clearly indicated in Fig. 4, thereby detaching and loosening up any sticky portions of the load that may tend to adhere to said wall and insuring a free and full discharge of the load by gravity. As the empty bucket is retracted the scraper automatically drops by gravity to the position shown in Fig. 1, ready for a similar operation upon the next bucket-load of material.

From the foregoing it will be seen that the bucket-cleaner of my invention always maintains itself in a position favorable for action upon the loaded bucket as the latter reaches the point of discharge and engages and operates upon said bucket in an entirely automatic manner. The open-work or skeleton form of cleaner shown is preferred and has a distinct advantage in that it allows the dirt or clay detached from the wall of the bucket by the scraping-blade to readily fall through the cleaner and clear the machine.

While I have shown what I consider to be the best location and practical construction of cleaner for coöperation with a bucket of the particular form herein shown, yet it will be understood that this particular construction and location might be varied to adapt it to coöperate with other forms of buckets and bucket-inverting devices without departing from the spirit and principle of the invention so long as the cleaner automatically engages and rides over one or more walls of the bucket as the latter is being inverted.

I claim—

1. The combination with an excavator-bucket and means for effecting the inversion thereof, of a cleaner pivotally mounted externally of said bucket, said cleaner having an operating edge adapted to engage the forward edge of the bottom wall of the bucket and scrape over said bottom wall during the inverting of the bucket, substantially as described.

2. The combination with a bucket guiding and supporting track, a bucket mounted to travel thereon, and a device for effecting the inversion of the loaded bucket at a point on said track, of a cleaner mounted on said bucket-inverting device and adapted to engage the forward edge of the bottom wall of the bucket and scrape over the same rearwardly during the inverting of the bucket, substantially as described.

3. The combination with a bucket guiding and supporting track, a bucket mounted to travel thereon, and a frame depending from said track adapted to guide the forward edge of the bucket in the discharging operation, of a cleaner mounted on said depending frame adapted to engage the forward edge of the bottom wall of the bucket and scrape over said bottom wall during the inverting of the bucket, substantially as described.

4. The combination with a bucket guiding and supporting track, a bucket mounted to travel thereon, and a frame depending from said track adapted to guide the forward edge of the bucket in the discharging operation, of a scraper pivotally mounted on said depending frame and normally lying in the path of the forward cutting edge of the bucket as the latter enters upon said depending frame, said scraper sliding over the bottom wall of the bucket during the inverting of the latter, substantially as described.

5. The combination with a bucket guiding and supporting track, a bucket mounted to travel thereon, and a frame depending from said track adapted to guide the forward edge of the bucket in the discharging operation, of a scraper pivotally mounted on said depending frame and normally lying in the path of the forward cutting edge of the bucket as the latter enters upon said depending frame, and means limiting the swinging movement of said scraper, substantially as described.

HOWARD PIKE.

Witnesses:
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