No. 797,893. PATENTED AUG. 22, 1905.

J. W. HUMPHREYS.

DREDGING MACHINE.

APPLICATION FILED DEC. 31, 1904.

2 SHEETS—SHEET 1.

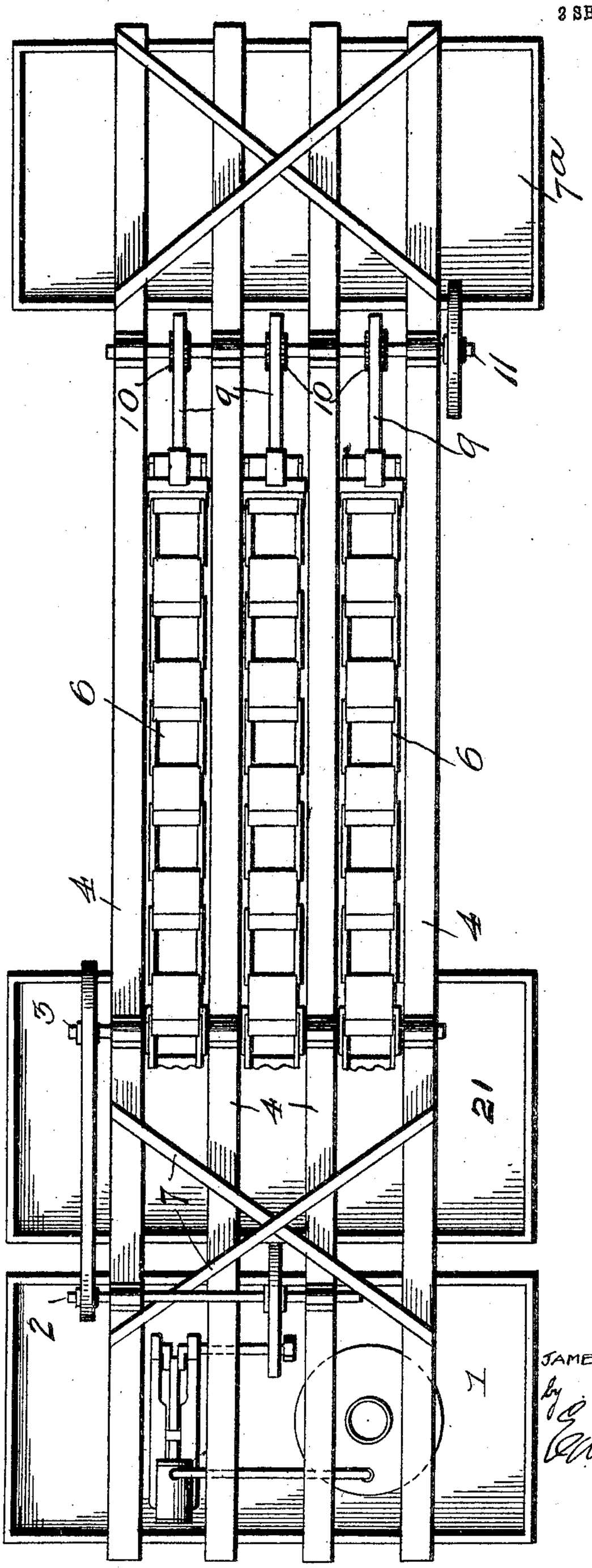

Fig. 1.

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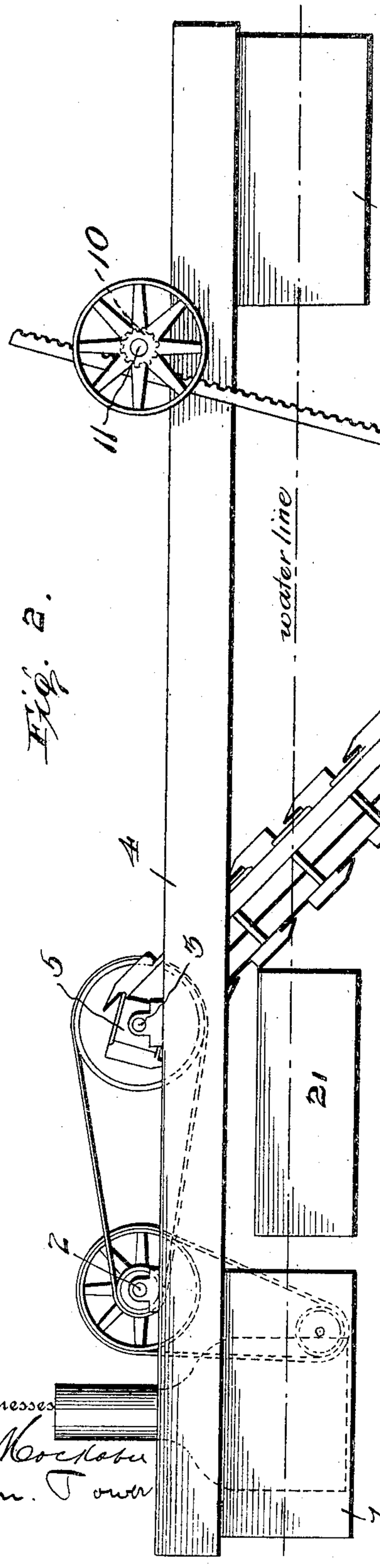

Fig. 2.

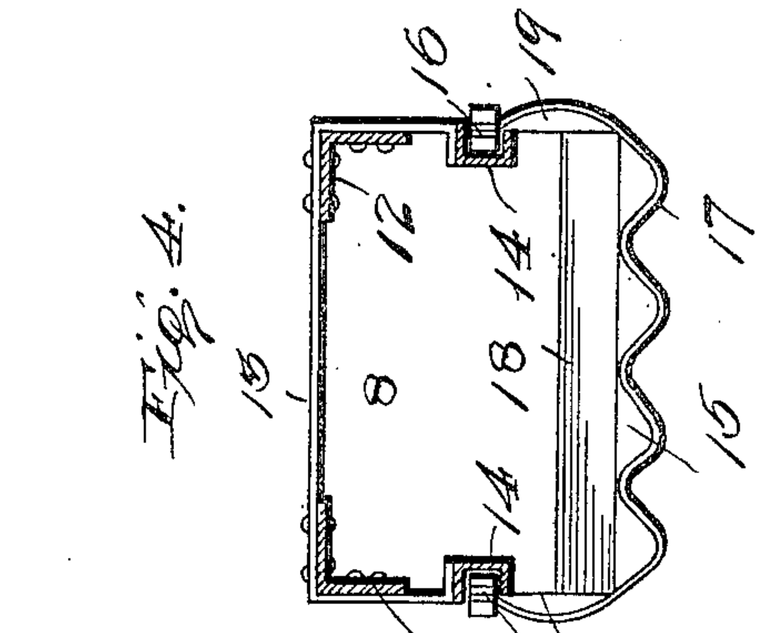

Fig. 4.

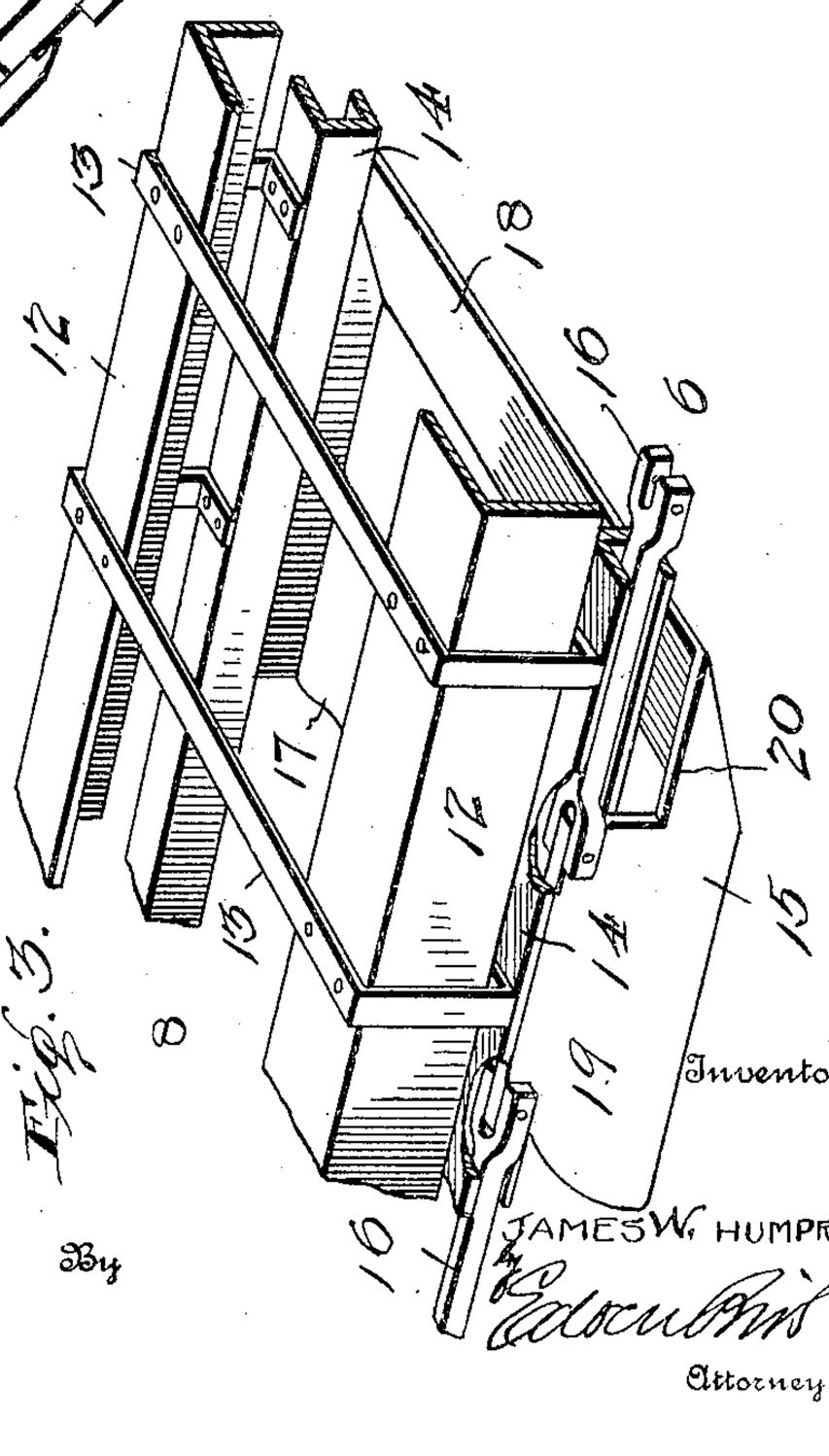

Fig. 3.

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UNITED STATES PATENT OFFICE.

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DREDGING-MACHINE.

No. 797,893. Specification of Letters Patent. Patented Aug. 22, 1905.

Application filed December 31, 1904. Serial No. 239,167.

To all whom it may concern:

Be it known that I, JAMES W. HUMPHREYS, a citizen of the United States, residing at Alva, in the county of Woods and Territory of Oklahoma, have invented certain new and useful Improvements in Dredging-Machines; and I do hereby 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.

My invention relates to improvements in dredging-machines.

It has for its object to provide a compound machine which will have a capacity for doing more work than a single dredge.

The invention consists in arranging a plurality of endless bucket-chains side by side on a suitable supporting-frame and providing means to operate said chains of scoops at the same time, whereby a much wider field of operation is provided, with corresponding saving of time and labor.

The invention also consists in the details of construction and combinations of parts hereinafter described, and more particularly pointed out in the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a plan view of a machine made in accordance with my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a broken perspective view of a portion of the scoop-carrying frame, showing the arrangement of the scoops thereon; and Fig. 4 is a cross-sectional view through a portion of said scoop-carrying frame.

While the preferred embodiment of my invention is fully shown in the accompanying drawings and its construction and operation are clearly described in this specification, the right is reserved to make such changes from the construction shown and described herein as the scope of the claims hereto appended will permit.

In carrying out my invention I hang a series of endless scoop-carrying frames, preferably operated by a common shaft, between cross-bars arranged between two boats. Each frame may be separately raised and lowered by means similar to that shown in my ditching-machine, Patent No. 601,688. One of the boats carries the boiler, engine, &c., adapted to operate the scoops and supports one end of the framework formed of the series of cross-bars between which the scoops work. Said cross-bars are suitably secured together at each end, and the outer end of said framework is supported by a second boat, said boats being arranged parallel to each other and at a sufficient distance apart to permit of the operation of the scoops between them. The upper or delivery ends of said scoops are arranged some distance out from the engine-carrying boat to permit a third boat to be brought up thereunder to receive the material dug out by said scoops and carry the same away. By this means a number of boats may be used for carrying off the dirt without bringing the dredge-boats to the shore to deliver each load, so that the dredge can be continuously operated. The endless scoop-chains are made up of a series of scoops having their rear floor portions turned up at an angle to retain the dirt therein and having their front or scooping edges flared in the form of corrugations, which form has been found to more easily scoop up the dirt and sand. Said buckets or scoops are connected together by link-bars adapted to move in the groove of a double angle-bar secured below to the swinging frame, forming a path for said scoops on their way up. At the ends of said frame said links engage the sides of an angular hub which turn each scoop and starts it on its return way.

Referring more particularly to the drawings, the actuating mechanism, consisting of a boiler and engine, is mounted on the boat 1. The engine is connected up with a shaft 2, mounted near the edge of the boat, which in turn is connected by belt to the shaft 3, mounted out on the cross-bars 4. Said shaft 3 extends all the way across said bars and carries a series of square hubs 5, one for each endless scoop-chain 6. The several bars 4 are secured together by suitable cross-bars 7 to make a rigid framework, the outer end of which rests upon a second boat 7^a. The swinging frames 8 for said endless scoop-chains are hung in a similar manner as in my above-referred-to patent and each is adapted to be raised and lowered independently by a toothed arm 9, engaging a gear-wheel 10 on a shaft 11, mounted across the bars 4 near their outer ends.

The frame for the endless chains of scoops is constructed of angle-bars 12, secured together by bent rods or brackets 13, having doubled angled bars 14 secured to their lower ends. Said bars 14 are arranged with their grooves outward and form guides and supports for the line of scoops 15, which are connected together by links 16, adapted to run in the grooves in said bars. Each scoop has

its cutting or forward edge flared, as at 17, in the form of corrugations, and the rear portion of its floor or bottom is turned up at an angle, as at 18. The sides 19 are cut away at their upper edges, as at 20, so that the scoops can be connected nearer together without shortening the link-bars. It will be noted that by raising the rear portion of the bottom it prevents the dirt from falling out as it moves up the incline of the frame, while at the same time the back of the scoop is open to permit of the discharge of the contents of the scoop when it reaches the top and turns upon the hub. The dirt is dumped into a third boat 21, which is brought up between the other bars and beneath the scoop-turning hubs 5 on the shaft 3. When one boat is filled with dirt, it can be taken to shore and another substituted therefor, so that the dredging-machine can be operated almost continuously.

It is obvious that the machinery, consisting of the series of scoop-frames and their operating mechanism, may be mounted between wagons or other vehicles and used for ditching purposes on shore, as well as for dredging purposes, as described and shown herein, without departing from my invention, which consists, primarily, in the provision of a series of scoops adapted to be operated simultaneously and in the peculiar construction of said scoop-frames.

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

1. In a machine of the character described the combination with a framework consisting of a series of spaced-apart bars, supports for each end of said framework, of a series of endless scoop-frames, each mounted between two of the bars of said framework, and means to simultaneously actuate said scoops.

2. In a machine of the character described, the combination with a framework consisting of a series of spaced-apart bars, supports for each end of said framework, of a series of adjustable endless scoop-frames each mounted between two of the bars of said framework, and means to simultaneously actuate said scoops.

3. In a machine of the character described, the combination with two supports, of a series of bars arranged between said supports, a series of endless scoop-frames arranged between said bars, the delivery ends of said frames arranged intermediate of said supports, whereby a conveyance may be brought up between said supports below said delivery ends of said frame to carry off the material.

4. In a machine of the character described, the combination with two supports, of a series of bars arranged between said supports, a series of endless scoop-frames arranged between said bars, the delivery ends of said frames arranged intermediate of said supports, whereby a conveyance may be brought up between said supports below said delivery ends of said frame to carry off the material, and means to simultaneously operate said scoops.

5. In a machine of the character described, the combination with two supports, of a series of bars arranged between said supports, a series of endless scoop-frames arranged between said bars, means to simultaneously actuate said scoops, and means to raise and lower said frames independently of each other.

6. In a machine of the character described, an endless scoop-frame composed of angle-bars secured together at intervals by angular braces and double angle-bars secured to the ends of said angular braces and forming guides and supports for said scoops.

7. In a machine of the character described, an endless chain of scoops comprising a series of scoops pivotally connected together by link-bars, and a frame for said chain having grooves to guide and support the scoops as they are carried up full of material.

8. In a machine of the character described, an endless chain of scoops comprising a series of scoops, each having the upper rear portion of its sides cut away, and links connecting said scoops, and means to support and actuate said scoops.

9. In a machine of the character described, an endless chain of scoops comprising a series of scoops, each having both ends open, the front or cutting edge flared in the form of corrugations and the rear portions of the bottom turned up at an angle, and links connecting said scoops, and means to support and actuate said scoops.

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

JAMES W. HUMPHREYS.

Witnesses:
G. F. McKNIGHT,
JOSEPH E. JOHNSTON.