

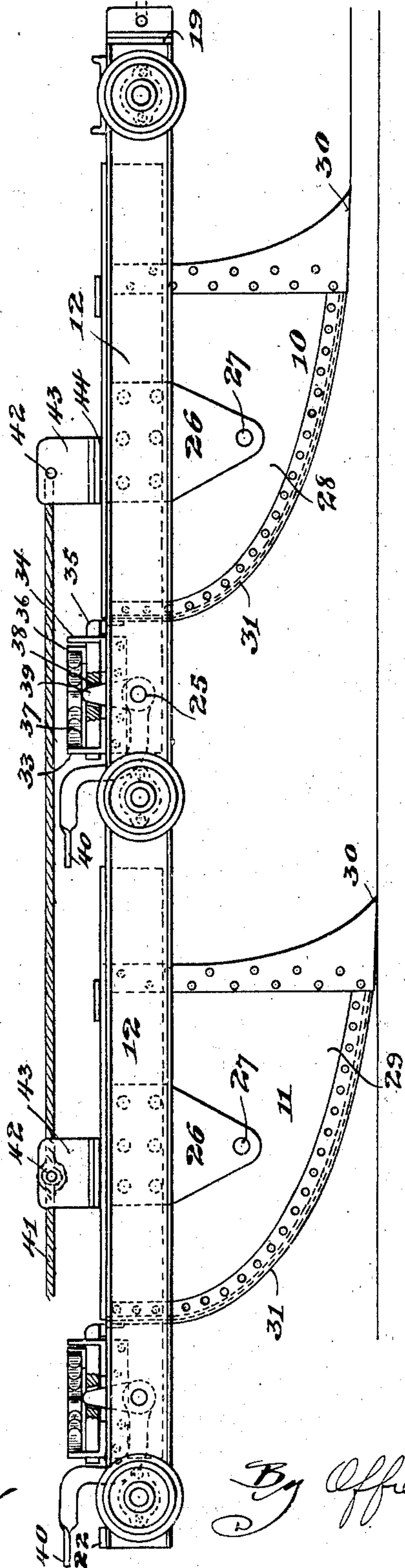
C. C. JACOBS.
TANDEM EXCAVATOR SHOVEL.
APPLICATION FILED JULY 5, 1906.

928,258.

Patented July 20, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



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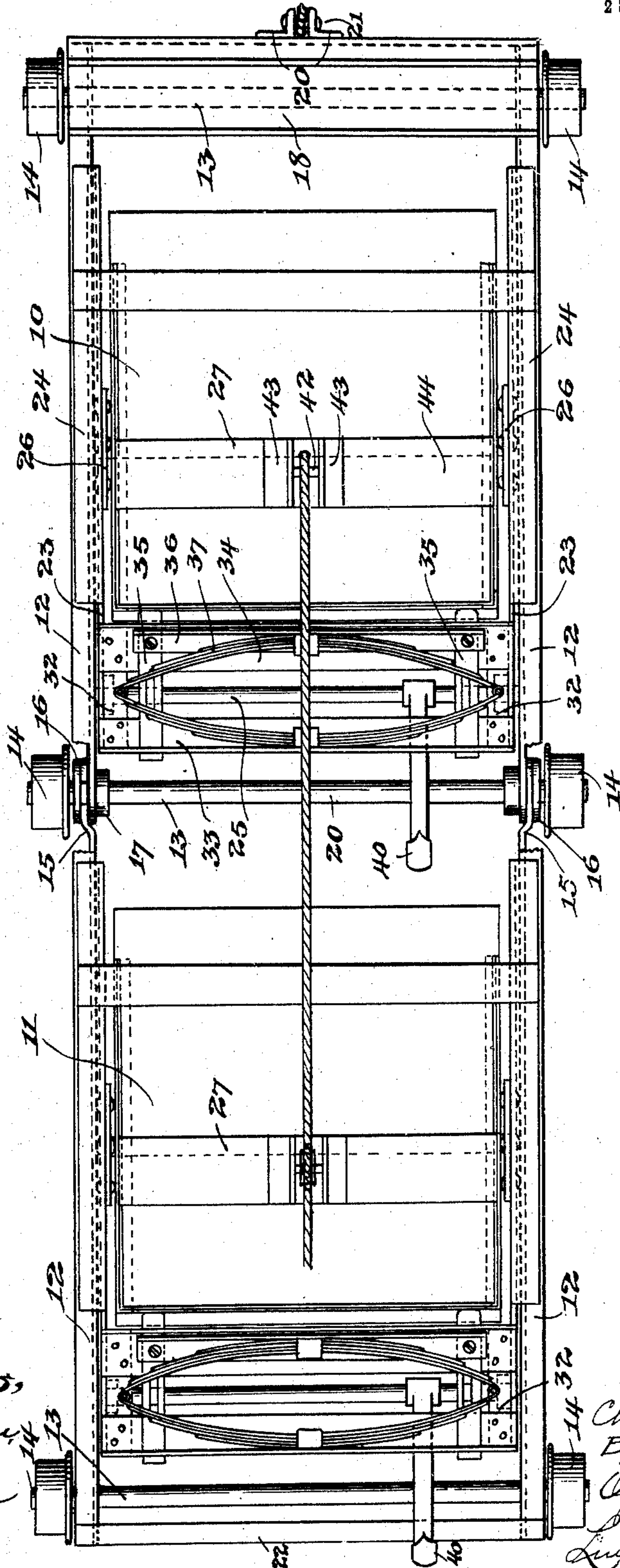
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES C. JACOBS, OF CHICAGO, ILLINOIS, ASSIGNOR TO F. C. AUSTIN DRAINAGE EXCAVATOR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TANDEM EXCAVATOR-SHOVEL.

No. 928,258.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed July 5, 1906. Serial No. 324,839.

To all whom it may concern:

Be it known that I, CHARLES C. JACOBS, 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 Tandem Excavator-Shovels, of which the following is a specification.

My invention pertains to excavating buckets or shovels having two or more scoops or shovels with sharp cleaving edges adapted to shave off layers of dirt as the scoops or shovels are moved on a track or templet, preferably one shaped to conform to the cross-sectional profile of the trench to be dug.

The preferred embodiment of my invention, as illustrated in the drawing, involves the use of two such shovels or buckets arranged in tandem with the cutting edge of one lower than that of the other whereby, as they advance along the track, each will scrape off a suitable layer of earth and retain it until intentionally dumped, but obviously any number of such buckets may be employed. These shovels or scoops may be secured to a single truck or to two or more trucks suitably fastened together and by using a plurality of scoops of this character the dirt to be excavated may be removed more expeditiously from the trench than when a single bucket is employed.

Referring to the accompanying drawings for an understanding of the details of the device: Figure 1 is a side elevation partly in section of the tandem shovels; and Fig. 2 is a plan view of the same, parts being broken away.

In this device I have illustrated the two trucks as hinged or pivoted together and each of said trucks 10 and 11 includes two side channel bars 12 equipped with forward and rear axles 13 with wheels 14 attached thereto. The rear axle of shovel 10 constitutes the front axle of shovel 11 and it is to this axle that the two truck frames are connected, the bars 12 of the rear shovel being offset slightly at 15 to escape the bars of the front shovel. Suitable collars 16 and 17 on this axle keep the bars 12 spaced apart properly. At the front end of shovel 10 bars 12 are held in position by a top transverse channel and an end plate or bar 19 to which is secured means such, as the two angle plates 20 and pin 21, for the attachment of an advancing cable.

A smaller bar or plate 22 fastens together the rear ends of bars 12 belonging to shovel 11.

Just inside of each bar 12 is a plate 23 pivoted on a shaft 25 and having a top flange 24 overlapping the upper flange of its adjacent side channel 12 to limit the downward turning of the plate but yet permitting its upward swinging. To each plate 23 is riveted a depending bearing plate 26 and rotatably mounted in the two pairs of bearing plates are the two shafts 27. Rotatably mounted on these shafts are the tandem shovels 28 and 29 each of which has an open forward mouth with a lower marginal sharp edge 30 and an upwardly curved bottom and back 31. These buckets are so pivoted that they turn, when free, to dump or discharge their contents out of their mouths. A short angle bar 32 is riveted to the rear end of each plate 23 and connecting each pair are two cross angle bars 33 and 34, the upstanding flanges of which are slotted to receive a pair of sliding catches whose front ends overlap the top edge of the shovel to maintain it in load-retaining position. To compel the two catches to work in unison, I unite them by a bar 36 between which and the flange of bar 33 is interposed an elliptical spring to project the catches into position to engage the shovel. Each catch is slotted at 38 and on shaft 25 are two arms 39 fitting in these slots to slide the catches simultaneously. In order to turn shaft 25 so as to make arms 39 pull the catches 35 back in opposition to spring 37, thereby releasing the bucket or shovel and permitting its dumping, I equip each shaft 25 with a trip arm 40 which may be actuated by the foot or in any other convenient manner. To right the buckets after they have dumped, and also to retract the trucks and attached shovels, I use a cable suitably secured to the pins extended between angle plates riveted to bars 44 across the tops of the shovels.

The device is operated as follows:—As the trucks and scoops are pulled along the trackway (not shown) by an advancing cable attached to pin 21, each shovel shaves off a layer of earth and retains the same, the cutting edge of the trailing or rear bucket being somewhat lower than that of the forward bucket. At the proper time the shovels are dumped, either separately or together, by manipulating the levers 40 which draw back

catches 35, thereby allowing the buckets to turn on their shafts 27 and discharge their loads. A pull on cable 41 rights the buckets or shovels, their curved surfaces 31 pressing back catches 35 until the latter spring over their top edges. Further pulling on cable 41 retracts the tandem shovels on the trackway.

Various minor mechanical changes may be made in the structure without departing from the substance of the invention as defined by the appended claims.

I claim:

1. In a device of the character described, the combination of a track shaped to conform substantially to the cross sectional profile of the proposed trench, a bucket supporting means adapted to travel on said track, and a plurality of sharp-edged buckets arranged in tandem and supported and actuated by said bucket supporting means, the sharp edges of said buckets facing in the same direction and each being lower than the one in front of it, substantially as described.

2. In a device of the character described, the combination of a track shaped to conform substantially to the cross-sectional profile of the proposed trench, a plurality of trucks secured together, and adapted to travel on said track and a sharp-edged bucket fastened to each of said trucks, said sharp edges facing in the same direction and each being farther from its truck than the one in front of it, substantially as described.

3. In a device of the character described, the combination of a track shaped to conform substantially to the cross-sectional pro-

file of the proposed trench, a plurality of trucks secured together, and adapted to travel on said track a sharp-edged bucket pivoted to each of said trucks, said buckets being so pivoted as to turn to discharge the load, said sharp edges facing in the same direction and each being farther from its truck than the one in front of it, and means to maintain said buckets in load retaining position, substantially as described.

4. In a device of the character described, the combination of a plurality of trucks secured together, a sharp-edged bucket pivoted to each of said trucks and adapted to turn on its pivot to discharge its load, a catch to maintain each of said buckets in load retaining position, means to actuate said catches, and means to simultaneously bring said buckets to load retaining position, substantially as described.

5. In a device of the character described, the combination of a plurality of trucks pivoted to one another, a sharp-edged bucket pivoted to each of said trucks and adapted to turn on its pivot to dump its load, a spring-pressed catch for each bucket to maintain it in load retaining position, means to operate said catches to free said buckets and allow them to discharge their contents, and means to simultaneously bring said buckets to load retaining position, said buckets being arranged in tandem and with the cutting edge of each lower than that of the one in front of it, substantially as described.

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Witnesses:

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