No. 885,049. PATENTED APR. 21, 1908.

# A. E. HOLCOMB.

## EXCAVATOR BUCKET.

APPLICATION FILED AUG. 3, 1907.

2 SHEETS—SHEET 1.

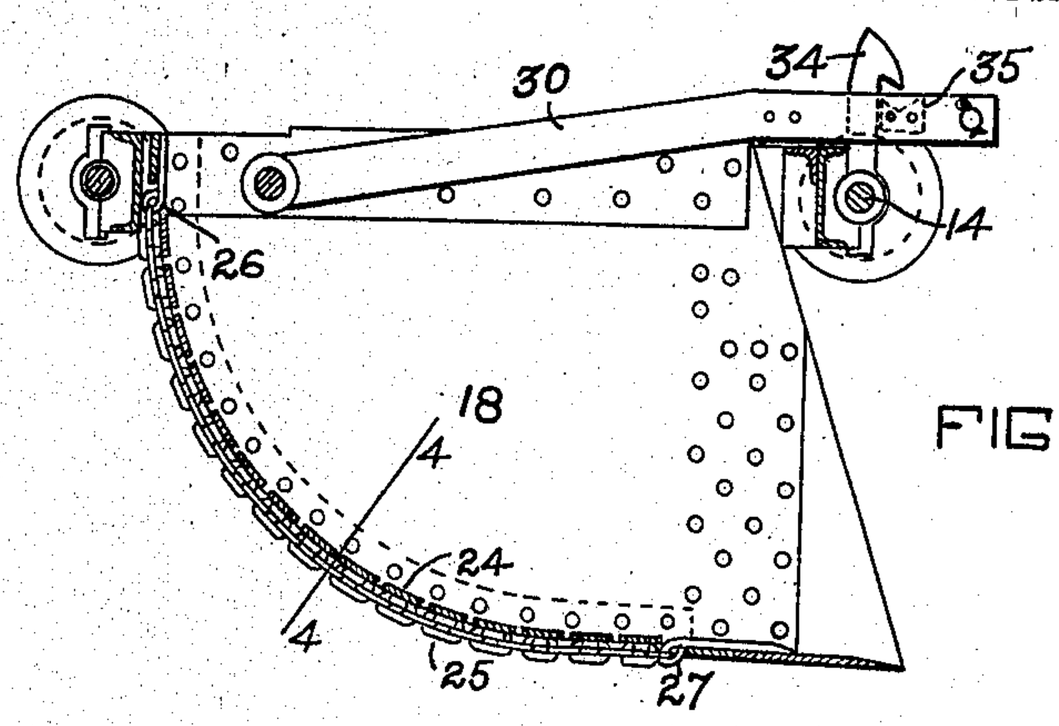



FIG. 1.

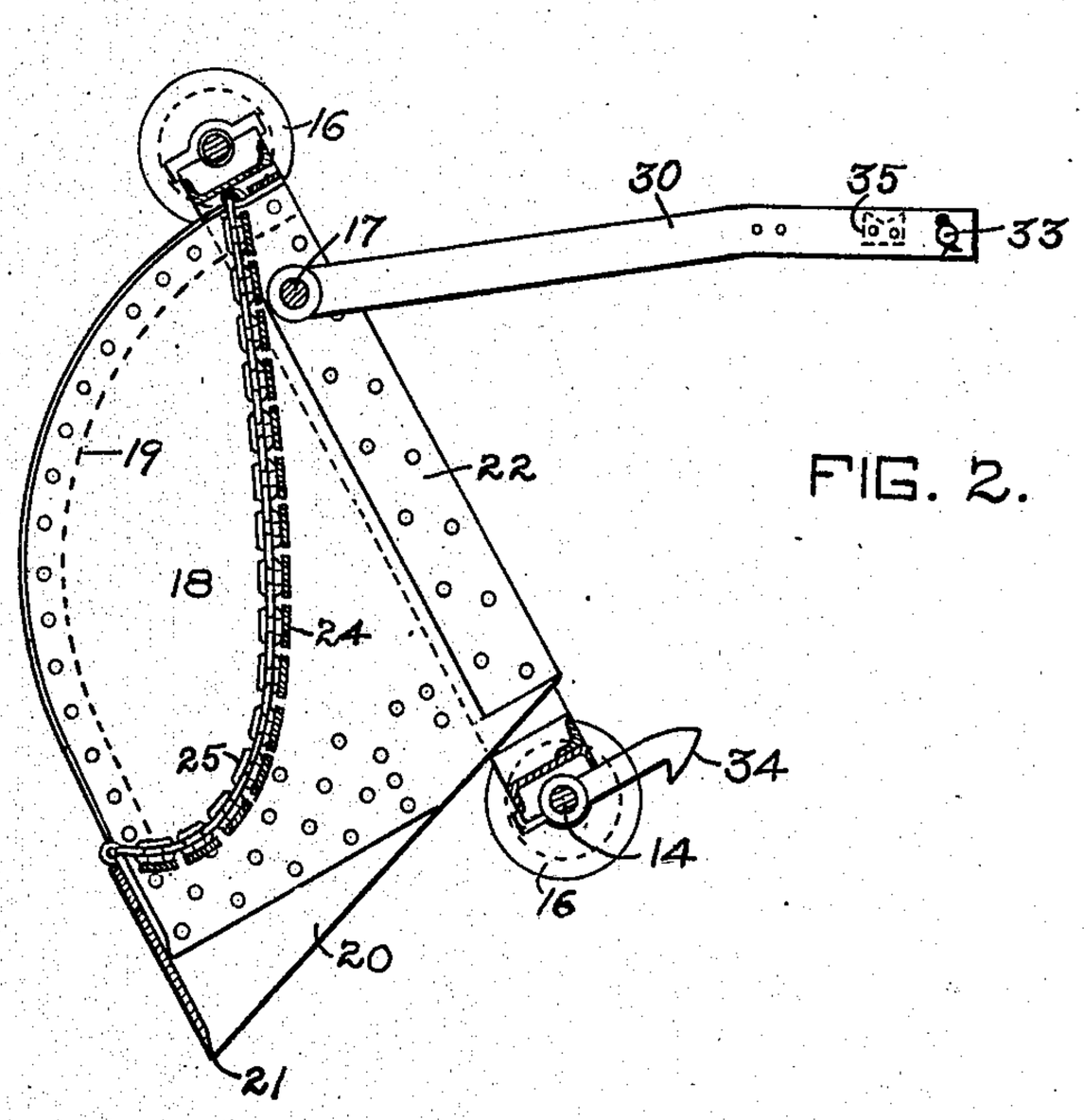



FIG. 2.

WITNESSES:
Walter M. Fuller
A. B. Fuller

INVENTOR
Alpheus E. Holcomb
BY
Offield Towle & Linthicum
ATTORNEYS

No. 885,049. PATENTED APR. 21, 1908.

A. E. HOLCOMB.

EXCAVATOR BUCKET.

APPLICATION FILED AUG. 3, 1907.

2 SHEETS—SHEET 2.

FIG. 4.

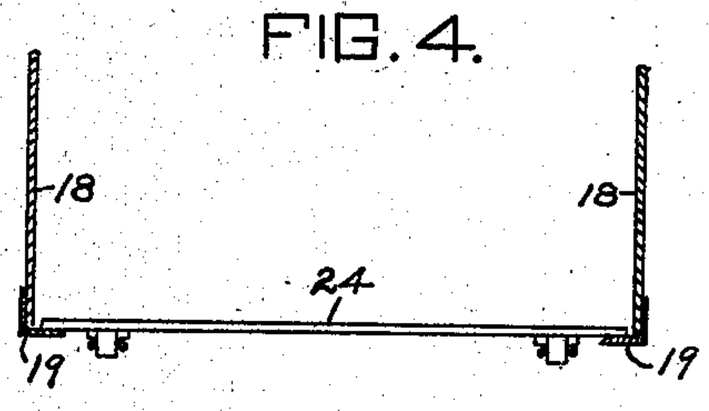



FIG. 5.

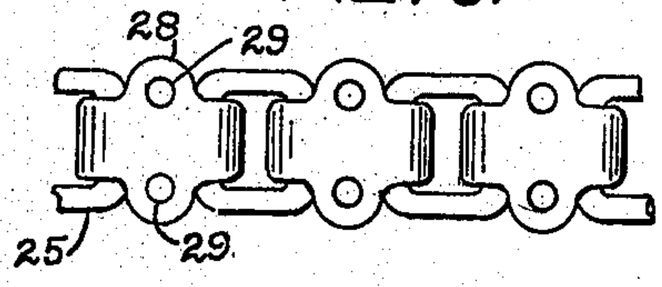



FIG. 6.

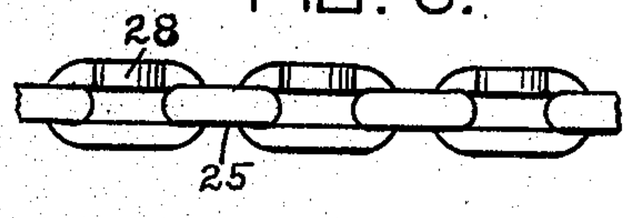
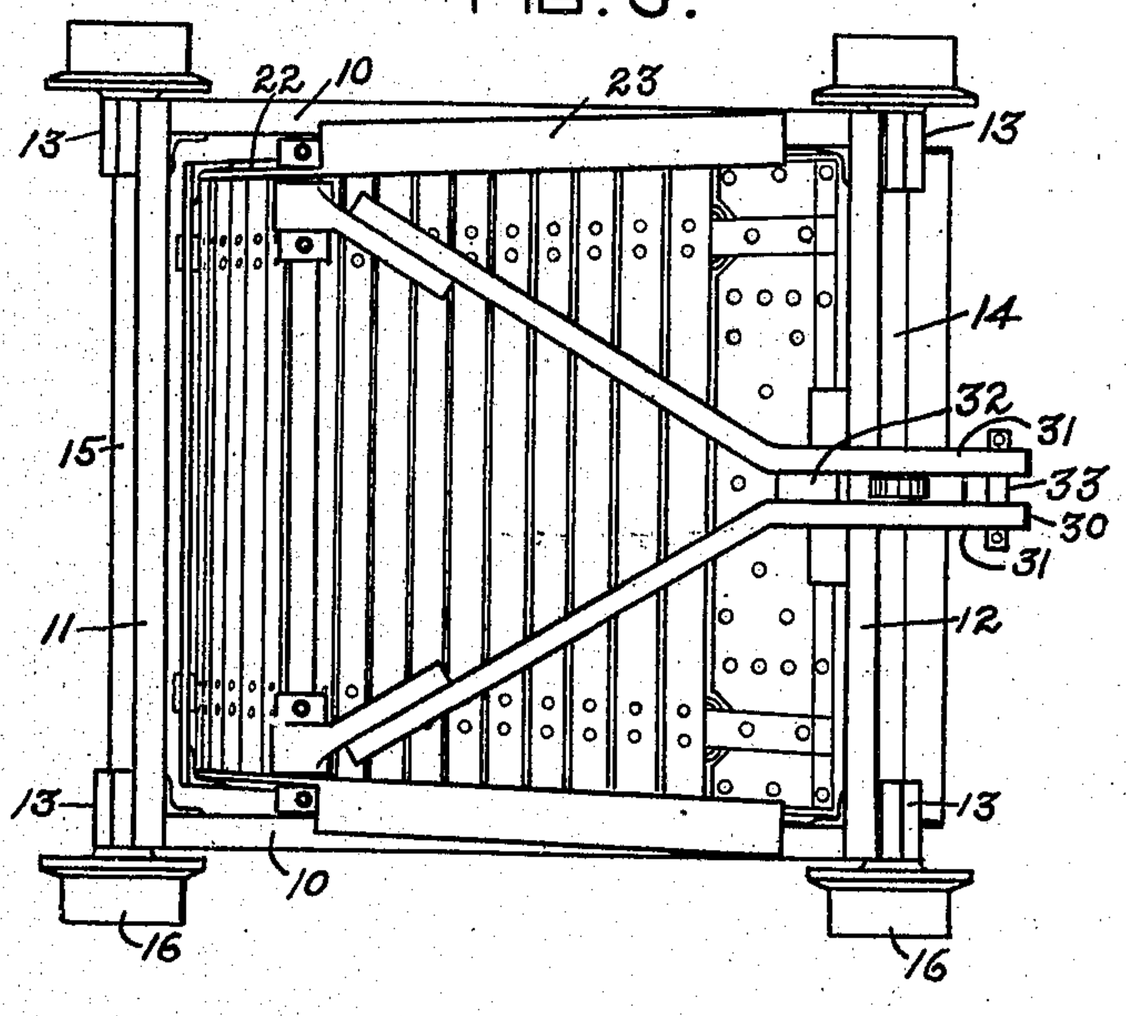



FIG. 3.




WITNESSES:

Walter M. Fuller

A. B. Fuller

INVENTOR

Alpheus E. Holcomb

BY

Offield Towle & Linthicum

ATTORNEYS

# UNITED STATES PATENT OFFICE.

ALPHEUS E. HOLCOMB, OF CHICAGO, ILLINOIS, ASSIGNOR TO F. C. AUSTIN DRAINAGE EXCAVATOR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## EXCAVATOR-BUCKET.

No. 885,049. Specification of Letters Patent. Patented April 21, 1908.

Application filed August 3, 1907. Serial No. 386,966.

*To all whom it may concern:*

Be it known that I, ALPHEUS E. HOLCOMB, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Excavator-Buckets, of which the following is a specification.

It has been proposed heretofore to use flexible bottoms for conveyer buckets, but I have invented a new form of excavator buckets or shovels which is especially valuable because it renders the bucket or shovel self-cleaning by causing a complete discharge of its contents even though the dirt may be of a more or less adhesive character. In my device the bottom of the bucket is composed of a plurality of transverse or cross slats, separated or spaced apart slightly so that during the dumping or discharge operation they may be pushed together somewhat to loosen up the dirt in the bucket and thereby effect a more complete discharge. Preferably these slats or cross-bars are mounted on and carried by a pair of parallel chains, or the like, supported at their opposite ends and longer than the distance in a right line between their points of support. When the bucket or shovel is receiving or transporting its load the chains and slats are at one side of the plane of their supports or points of attachment to the bucket, and when the bucket tips to discharge its load the chains and slats pass through this plane to the other side thereof. In so doing the links of the chains, and the attached slats or bars forming the bottom of the bucket, are pushed together somewhat and then expand again. This action causes a breaking up of the dirt, rendering the dumping easier and practically complete, and the weight of the bucket bottom and chains is imposed on the load, aiding in its discharge.

On the accompanying drawings forming a part of this specification, I have shown the preferred form of bucket embodying my improvement, and on said drawings—Figure 1 is a substantially central longitudinal vertical section of the bucket and its truck, showing the same in load-receiving and load-retaining position. Fig. 2 is a view similar to Fig. 1, showing the bucket in discharge or dumping position. Fig. 3 is a plan view of the bucket or shovel. Fig. 4 is a section on line 4—4 of Fig. 1. Fig. 5 is a plan on an enlarged scale of one of the chains. And Fig. 6 is a side elevation of the same.

The truck which supports the sharp-edged excavating bucket or shovel has a pair of parallel side channel bars 10, 10, cross-connected at the front and rear ends by channel bars 11 and 12. In suitable bearings 13 rotate front and rear axles or shafts 14 and 15, each equipped at its ends with flanged rollers or wheels 16 adapted to roll or travel on a bucket or shovel supporting and guiding trackway (not shown), which is shaped to conform substantially to the cross-sectional profile or outline of the trench to be dug. It is to be understood, however, that my improved form of bucket is not limited and restricted to use in an excavator of this character.

The bucket or shovel proper is pivoted or hinged on a transverse intermediate shaft 17, the bucket having plate-sides 18, each of which has a lower curved margin or edge equipped with an angle-bar 19 having its horizontal flange extended inwardly beyond the inner face of the side of the bucket, as is clearly indicated in Fig. 4. The forward mouth 20 of the bucket is open and its lower edge is sharpened at 21 to form a cutting medium for scraping or slicing off layers of earth as the bucket is reciprocated. The pivotal connection or mounting of the bucket on shaft 17 is for the purpose of allowing the same to tilt upwardly during its rearward travel so that it may ride over obstacles in its path. It is obvious, however, that during its forward travel, downward turning of the front edge of the bucket must be limited, and to accomplish this result there is riveted along the top of each side 18 a member 22 having a top outwardly-extended flange 23 adapted to overlie, and during normal conditions rest upon, the adjacent side channel 10 of the truck. It will be noticed that the center of gravity of the bucket is some considerable distance in advance of shaft 17, so that under its own weight the bucket normally maintains its horizontal position with the flanges 23 resting upon channels 10.

Parallel cross slats or bars 24, spaced apart a slight amount, form the bottom and rear wall of the bucket, and are mounted upon alternate links of a pair of parallel chains 25 fastened to the bucket by suitable loops or eyes at the points 26 and 27. As will be noticed from an inspection of Figs. 5 and 6, the alternate links 28 of each chain 25 have flat top surfaces, and are apertured at two places

29 for the passage of bolts or rivets which secure the slats or cross-bars thereto. Except when the bucket or shovel is in the dumping position shown in Fig. 2, the ends of the slats or cross-bars 24 rest upon the inwardly-extended flanges of angle-bars 19, as indicated in Fig. 4. It should also be noticed that the pair of chains 25 are somewhat longer than the direct distance between the supporting loops or eyes 26 and 27 mounted on the bucket.

Pivotally mounted on shaft 27 is a forwardly-extended bail 30 having a pair of arms 31, which for a portion of their length converge and then extend forwardly in parallel relation, being held apart by space-block 32. A pin or rod 33 passes through apertures in the front ends of the bars 31, and is adapted to have fastened thereto a forwardly-pulling or advancing cable for causing the forward travel of the bucket and truck on its supporting trackway. Hinged on shaft 14 is a hook or catch 34, coöperating with a block 35 located between and fastened to the parallel portions of arms 31. During a portion of the travel of the bucket, this hook holds the bail 30 down, thereby determining the direction of pull of the forwardly-advancing cable. Under certain conditions, however, the hook 34 may swing rearwardly, freeing the bail 30, so that the bucket and the bail may take the positions indicated in Fig. 2, which corresponds to the discharge position of the bucket.

Since the chains 25 are longer than the distance between their supporting loops 26 and 27, as they and their attached cross-slats 24 pass to the discharge position shown in Fig. 2, the links of the chains and the cross-slats are pushed together more or less and then expanded again, thereby loosening up the dirt constituting the load and permitting a complete discharge of the dirt, even though it be of a more or less adhesive or sticky character. It should be understood also that when the bucket or shovel is brought to the inclined position shown in Fig. 2, the weights of the chains and slats are imposed upon the top of the load, thereby aiding in discharging the same.

To those skilled in this art it will be apparent that the mechanical features of the bucket or shovel shown and described may be varied within wide limits without departing from the substance or essence of my invention, and without sacrificing its benefits and advantages.

I claim:

1. An excavator bucket having a bottom composed of transverse slats or bars mounted on flexible members supported at their ends, substantially as described.

2. An excavator bucket having a bottom composed of transverse slats or bars mounted on a pair of chains attached to and supported by the bucket at their opposite ends, substantially as described.

3. An excavator bucket having a bottom composed of transverse slats or bars mounted on a pair of chains attached to the bucket at their opposite ends, said chains being of a length greater than the right line distance between their points of support, substantially as described.

4. An excavator bucket having a bottom composed of slats or bars mounted on flexible members supported at their ends, substantially as described.

ALPHEUS E. HOLCOMB.

Witnesses:

WALTER M. FULLER,

CLARE L. ROSENOW.