

No. 617,607.

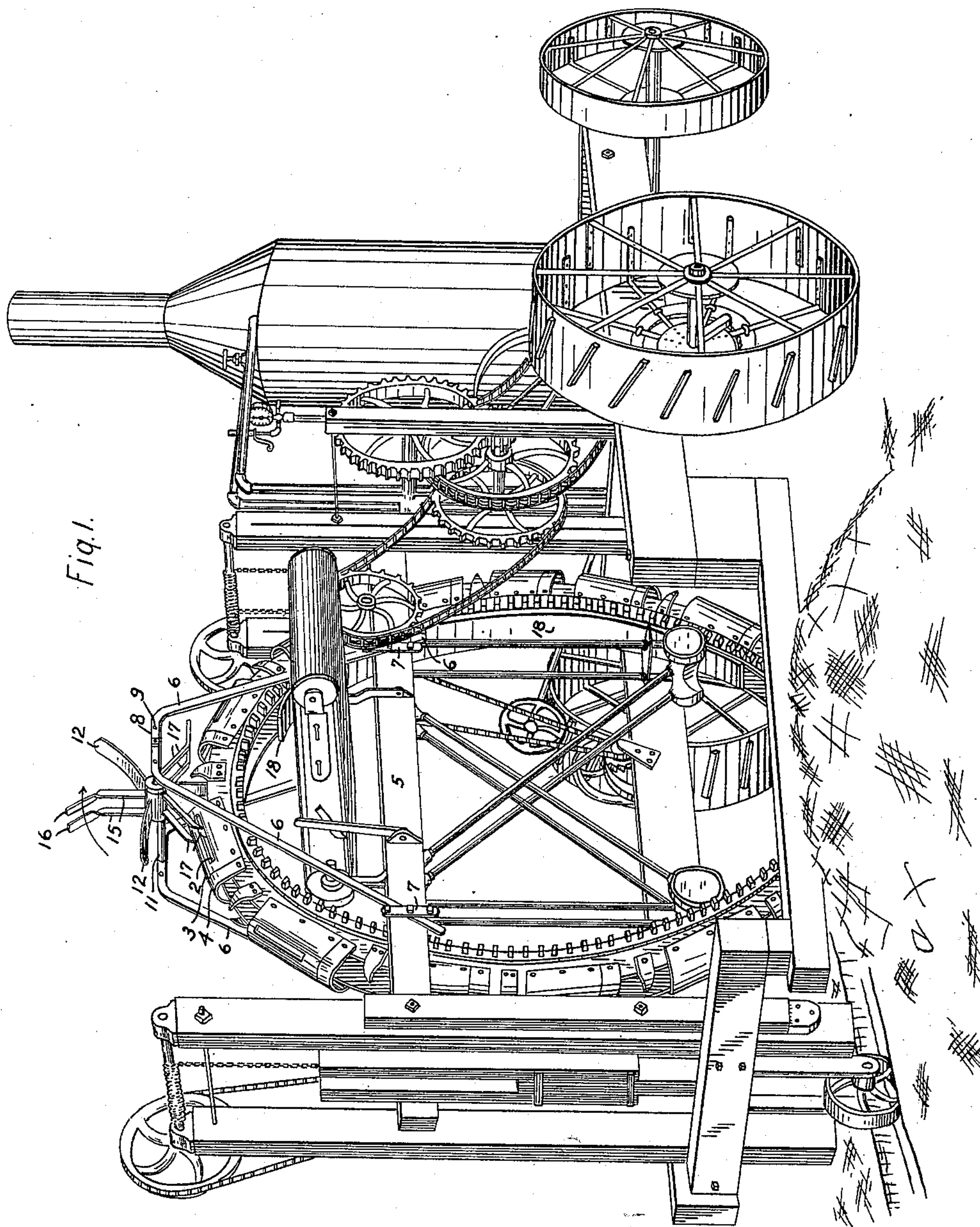
Patented Jan. 10, 1899.

J. J. SCEARCY & O. S. MARTIN.  
TRACTION DITCHING MACHINE.

(No Model.)

(Application filed June 8, 1896. Renewed Oct. 20, 1898.)

2 Sheets—Sheet 1.



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FIG. 2.

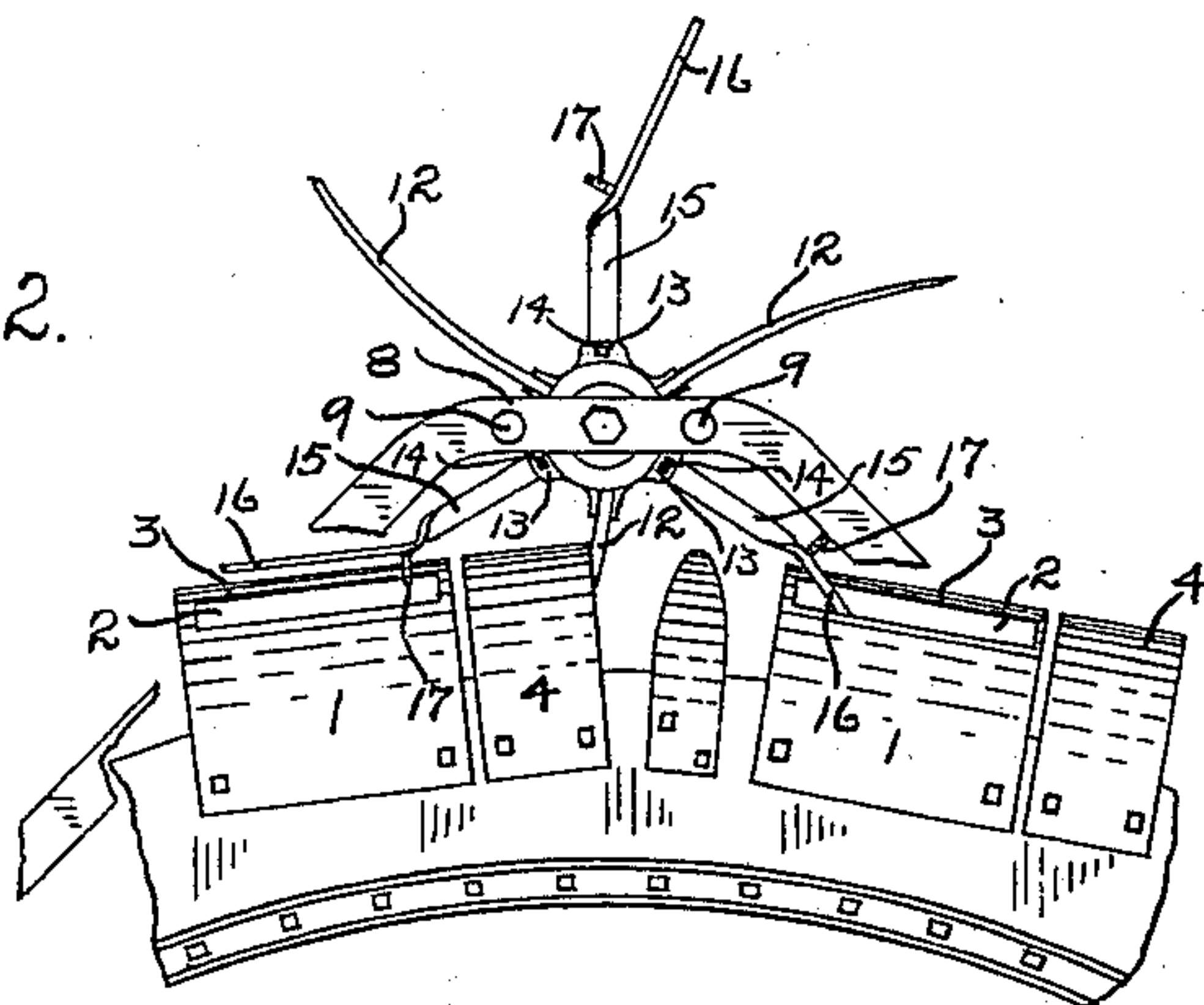


FIG. 3.

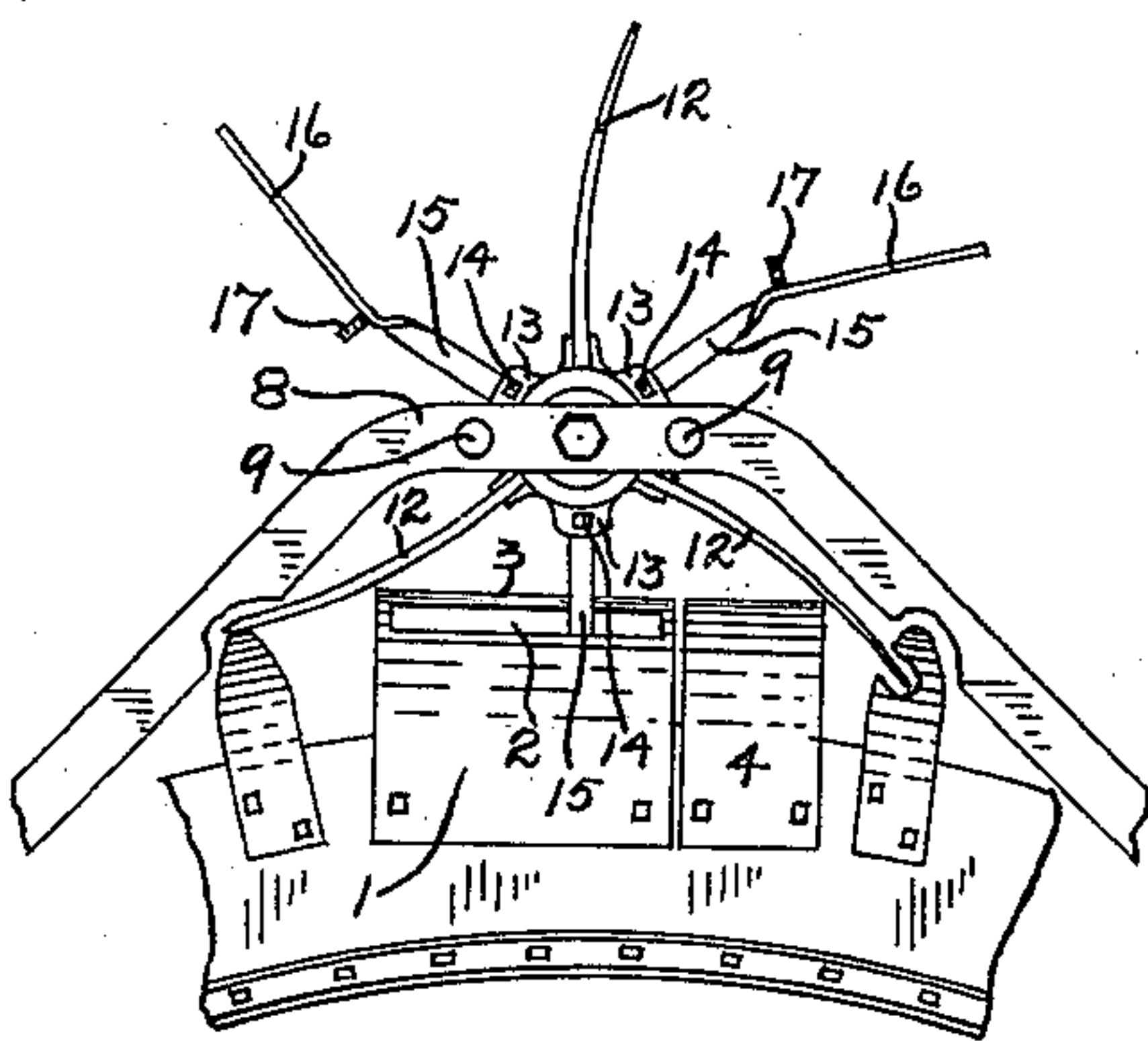


FIG. 4.

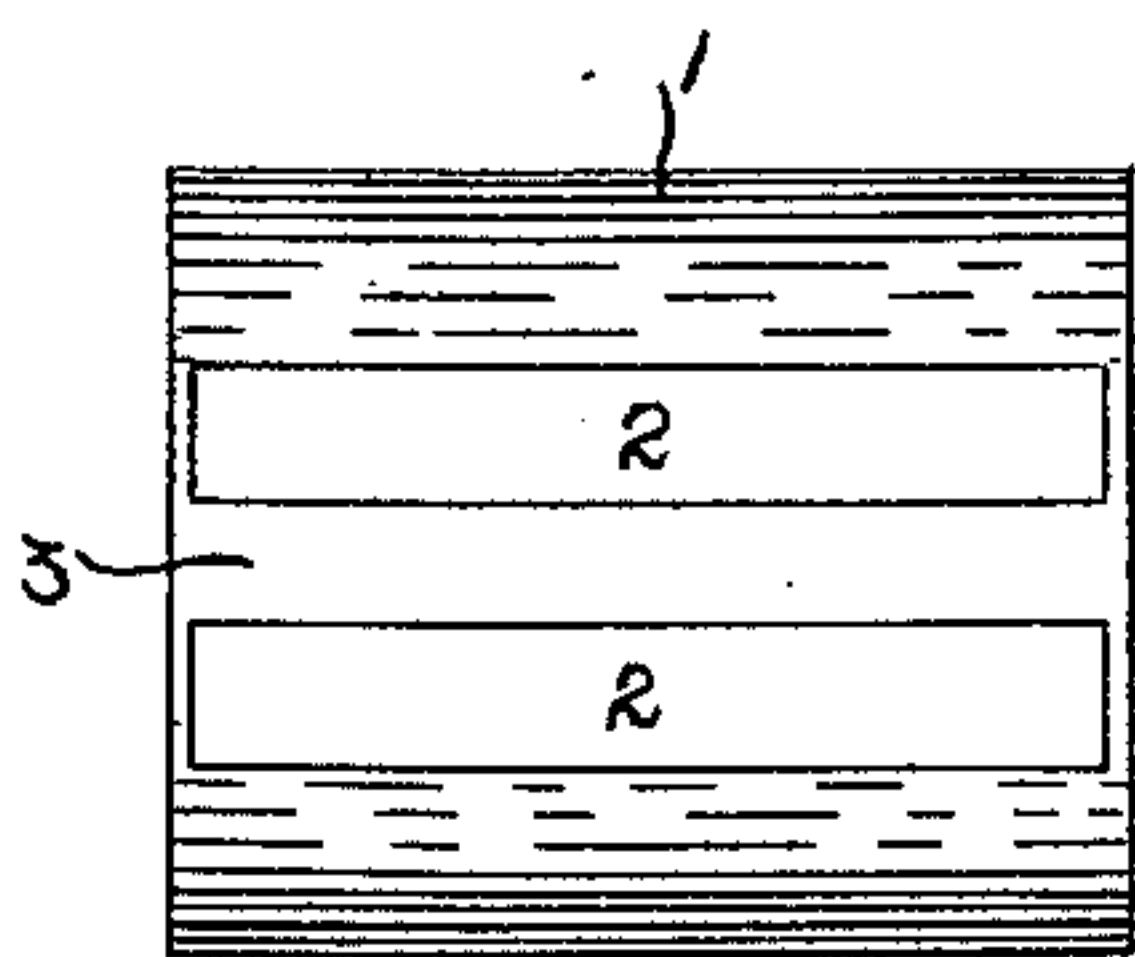


FIG. 5.

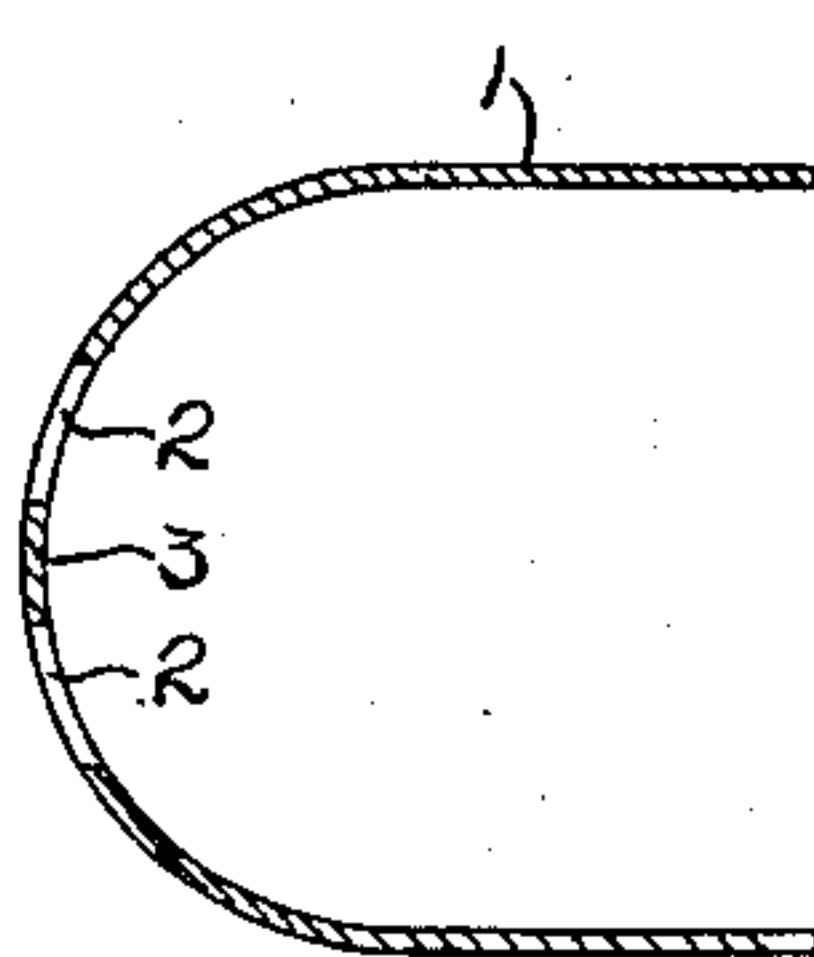
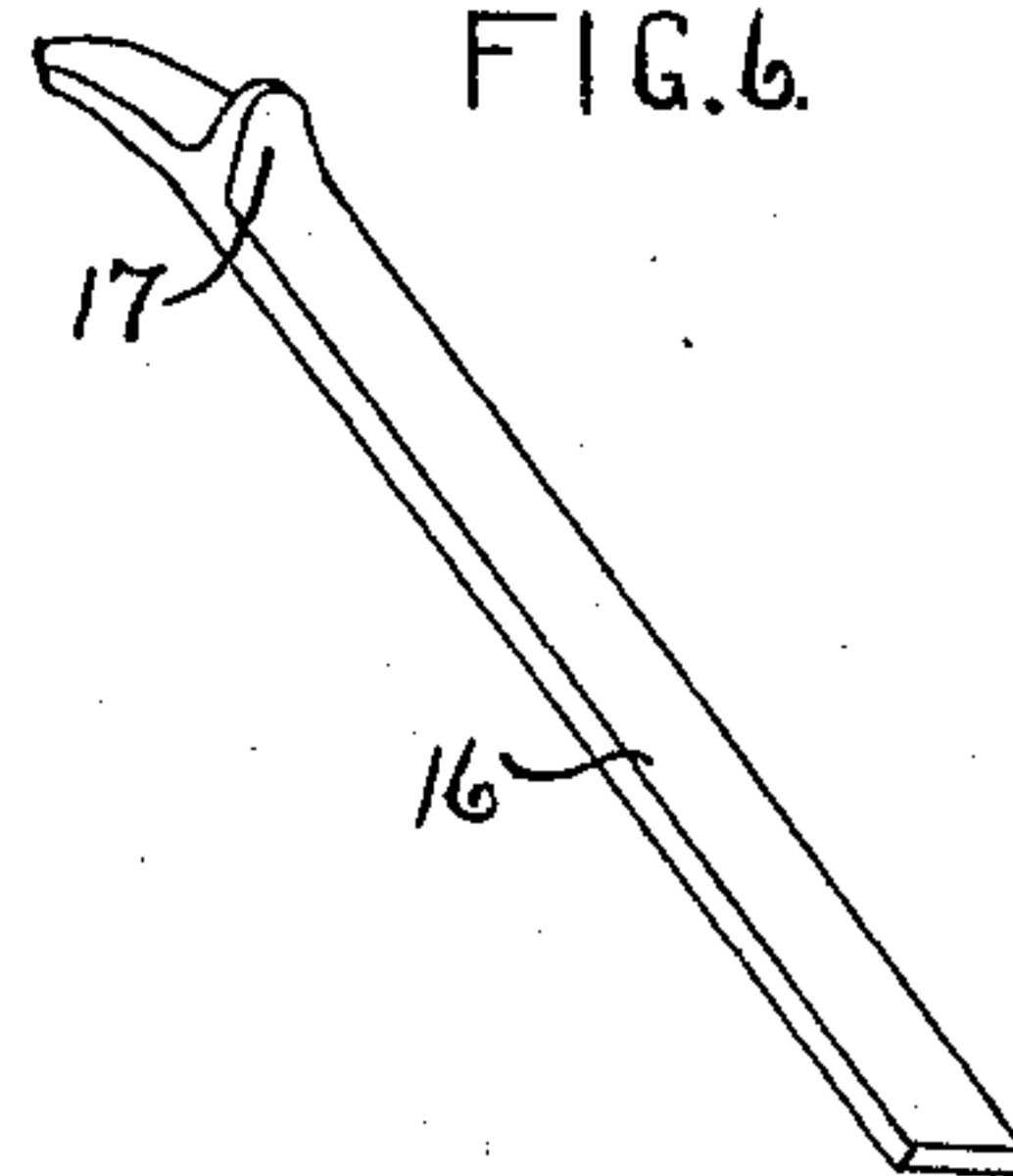


FIG. 6.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JAMES J. SCEARCY, OF REYNOLDS, AND OLIVER S. MARTIN, OF MONON,  
INDIANA; CHARLES F. MARTIN ADMINISTRATOR OF SAID SCEARCY,  
DECEASED.

## TRACTION DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 617,607, dated January 10, 1899.

Application filed June 8, 1896. Renewed October 20, 1898. Serial No. 694,095. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES J. SCEARCY, of Reynolds, and OLIVER S. MARTIN, of Monon, county of White, and State of Indiana, have  
5 invented a certain new and useful Improvement in Traction Ditching-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

This invention is an improvement upon a ditching-machine shown and described in Letters Patent of the United States issued to James B. Hill on July 31, 1894, No. 523,790.

15 The purpose of the improvement is to enable the machine or buckets therein to discharge their contents at the right time and to do so at all times and positively, however sticky the contents may be and however solidly it may be packed in the buckets. The device shown in the above-named patent has failed completely to discharge where the material worked in has been sticky or hard. Gravity alone in this case is insufficient to cause the  
20 dirt to drop out of the buckets. In fact, when the dirt is sticky or moist the force of gravity tending to discharge the bucket is counteracted by the suction between the bucket and its contents.

30 Our invention affords a means for positively forcing the contents out of the bucket, and it will do so under all circumstances.

This invention grew out of the failure of the machine described in the above-named  
35 patent to perform a piece of work which we had contracted to do. The mud was sticky, and the force of the wheel when the buckets were scooping the mud up caused the mud to pack so tightly in the buckets that they  
40 would not discharge. The machine could make no progress until we devised a forcible discharging mechanism.

The full nature of our invention will appear from the accompanying drawings and the description and claims following.

45 Figure 1 is a perspective of the ditching-machine with our improvement thereon. Fig. 2 is a side view of the portion of the machine provided with our improvement, parts being broken away and the discharging-arms

ready to enter a bucket. Fig. 3 is the same with the discharging-arms in the position occupied when the bucket is being discharged. Fig. 4 is a plan view of a bucket. Fig. 5 is a sectional view thereof. Fig. 6 is the outer  
55 portion of a discharging-arm.

The machine shown in Fig. 1 is the same as that shown and described in said Letters Patent No. 523,790, excepting the buckets and the discharging mechanism, and for a description of said machine reference is made to said Letters Patent. The buckets 1 are secured as set out in said Letters Patent. They likewise are of the same form in cross-section and in all their features excepting  
60 that they are here provided on their backs with a pair of longitudinal slots 2, as seen in Fig. 4. These slots extend almost the full length of the buckets, as there seen. Between them there is a section of the bucket 3, forming a rib. These buckets, it is understood, are semicircular, so that when they are turned upward on the ditching-wheel of the machine they have no bottom and their ends are likewise open. Adjacent to the forward ends of the buckets are the knives 4,  
65 whose nature and functions are explained in said Letters Patent above referred to.

The ditching mechanism is made as follows: A frame is supported on a cross-piece 5 of the machine, and consists of the brace-bars 6, secured at their lower ends to said cross-piece 5 by the clamps 7. At their upper ends they are preferably integral and so formed as to provide a horizontal portion 8 at that point.  
85 This horizontal portion has in it a series of bearing-holes 9, in which the shaft 10 has its bearing. On the shaft 10 there is provided a hub 11, which carries a series of preferably three spurs 12, arranged about one hundred  
90 and twenty degrees apart. These spurs are flat metallic bars about four inches wide and ten inches long with tapering ends. They are longitudinally curved somewhat, as shown.

As the buckets are carried about on the ditching-wheel the forward edge or knife end  
95 of them engages one of the spurs. The end of the spur extends in this case somewhat into the bucket, as seen in Fig. 3, and as the bucket is carried farther around on the wheel it is  
100



obvious that the spur will extend farther into the bucket and take out a portion of its contents. It is likewise obvious that as the bucket proceeds farther in this process it will move the spur, and thereby rotate the hub on which the spurs are secured and will continue to rotate the spurs through such engagement until the bucket passes by the discharging apparatus. As soon as one spur has become disengaged from the bucket another spur is engaged by the succeeding bucket, the buckets being so placed relatively to each other and to the spurs as to bring about this result. While these spurs to some extent discharge the buckets, their most important function is to cause a rotation of the hub on which the discharging-arms are secured. The discharging-arms are secured to the hub by means of the ears 13 and bolts 14. These arms consist of a shank 15 and a blade 16. The arm is twisted between the blade and shank a quarter-twist, as seen in Figs. 2 and 3. They are likewise bent at the point of twisting. While this is the preferable form of the arm, still it is not necessary, as the shank could be otherwise formed. The purpose of bending the arm, as shown, is to cause the blade when it approaches the slot in the bucket to be parallel with the bucket, as seen in Fig. 2. On the blade near the shank we provide a guide-lug 17 for the purpose of guiding the blade into the slot and the bucket.

As has been stated, the arms are constantly rotated by the engagement of the buckets with the spurs. As the bucket is approaching the discharging apparatus a pair of the arms is turned down, so that they enter the slots in the buckets, as seen in Fig. 2. As the bucket is carried farther and the arms are rotated and carried farther downward it is obvious that the flat arms will force the dirt out of the bucket upon the conveyer below, and it will force all of the dirt out however sticky or compact it may be. During the remainder of the passage of the bucket in proximity to the discharging apparatus the arm is rotated further, occupying in the middle stage of this operation the position shown in Fig. 3 and in the final stage that shown in Fig. 1.

18 is a transverse plate secured to the skeleton frame within the ditching-wheel and extends from the lower portion of the wheel to the upper portion, ending at a point over the conveyer and curved so as to be parallel with the internal periphery of the wheel. The function of this plate is to prevent the escape of the dirt from the buckets while they are

being elevated until they reach a point over the conveyer.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a traction ditching-machine, the combination of a rotating wheel provided on its periphery with a series of buckets having longitudinal slots in their backs, and a series of discharge-arms so mounted near the point of discharge that they are engaged by the buckets as they pass along and are thereby rotated and caused to enter the slots in the buckets and discharge their contents.

2. In a traction ditching-machine, the combination with skeleton buckets on the ditching-wheel, of a hub mounted upon a suitable framework above the wheel, a series of spurs extending from the hub that are engaged by the buckets and thereby rotated, and discharge-arms secured to such hub which when rotated enter the buckets and expel their contents.

3. In a traction ditching-machine, buckets secured to the ditching-wheel having longitudinal slots in their backs, a hub carried on a suitable framework, arms secured to the hub provided with flattened blades that as they are rotated enter the slots in the buckets and expel their contents, and means for rotating the discharging-arms.

4. In a traction ditching-machine, a series of buckets secured to the ditching-wheel having in their backs longitudinal slots, a frame extending above the wheel, a rotatable hub mounted in said frame, spurs extending from the hub that are engaged by the buckets and rotated, and discharge-arms that enter the slots as the arms are rotated and expel the contents of the buckets.

5. In a traction ditching mechanism, buckets secured to the ditching-wheel having longitudinal slots in their backs, a hub mounted in a suitable framework above the wheel, discharge-arms secured to such hub with flattened blades which enter and rotate the buckets through the slots and discharge the contents, guide-lugs on such discharge-arms to guide them in the slots in the buckets, and means for rotating the discharge-arms.

In witness whereof we have hereunto set our hands this 9th day of May, 1896.

JAMES J. SCEARCY.  
OLIVER S. MARTIN.

Witnesses:

B. A. VOGEL,  
S. W. FIRTH.