

No. 664,635.

Patented Dec. 25, 1900.

A. C. HARTUNG.
ORE SEPARATOR.

(Application filed Apr. 19, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

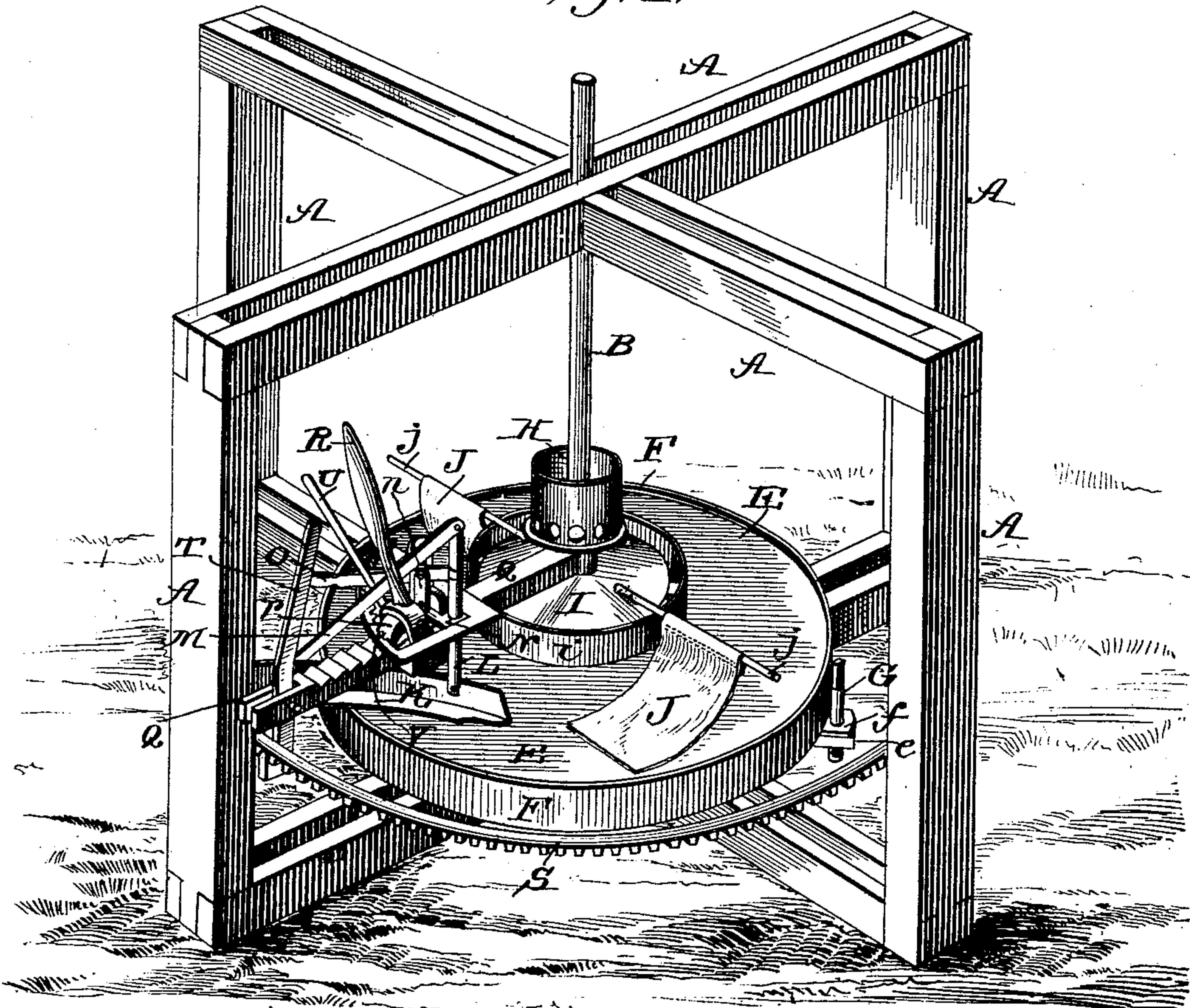
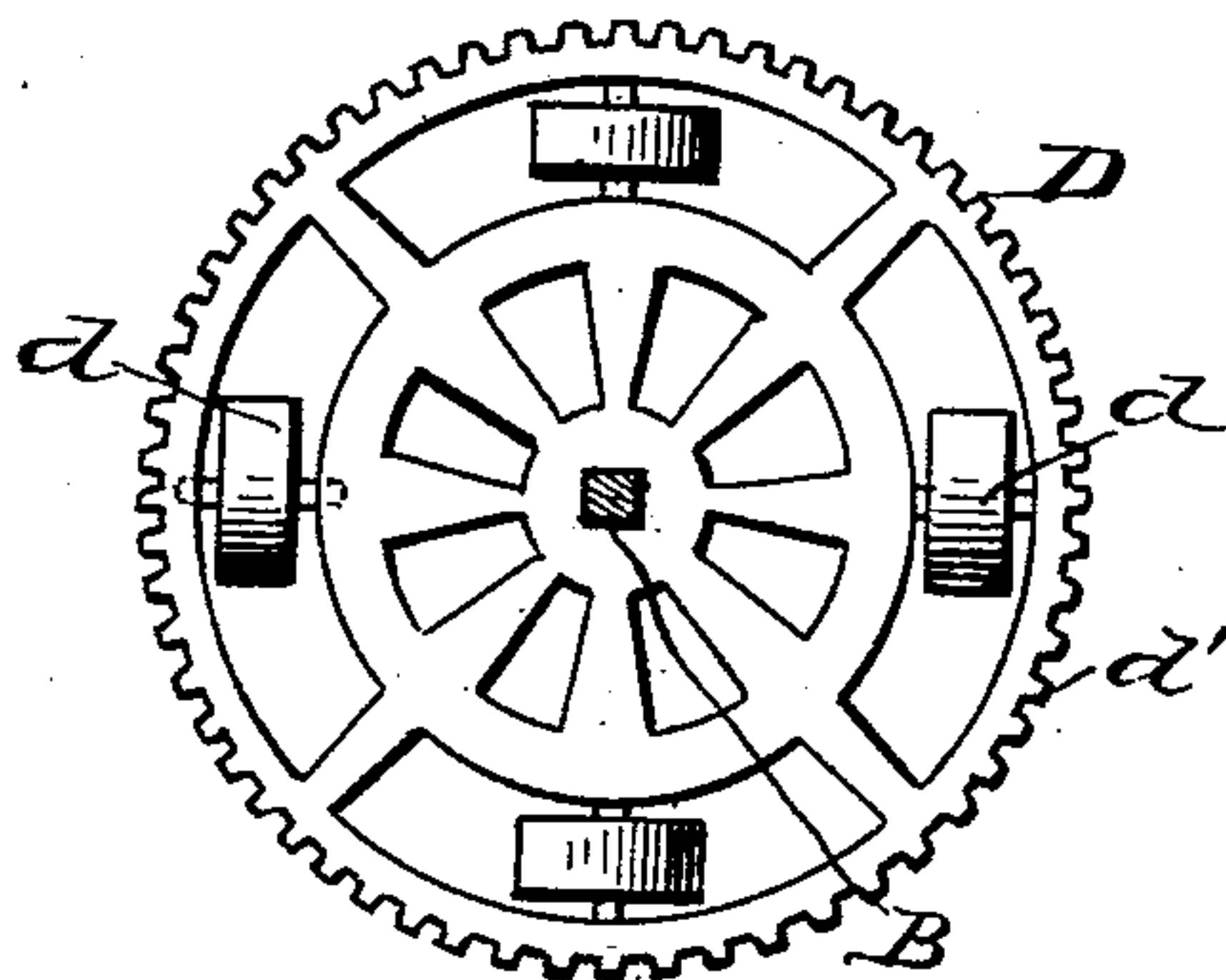


Fig. 2.



WITNESSES:

Geo. A. Ryan
Amos W. Hart

INVENTOR

A. C. Hartung

BY *Munn & Co.*

ATTORNEYS,

No. 664,635.

Patented Dec. 25, 1900.

A. C. HARTUNG.
ORE SEPARATOR.

(No Model.)

(Application filed Apr. 19, 1900.)

2 Sheets—Sheet 2.

Fig. 3.

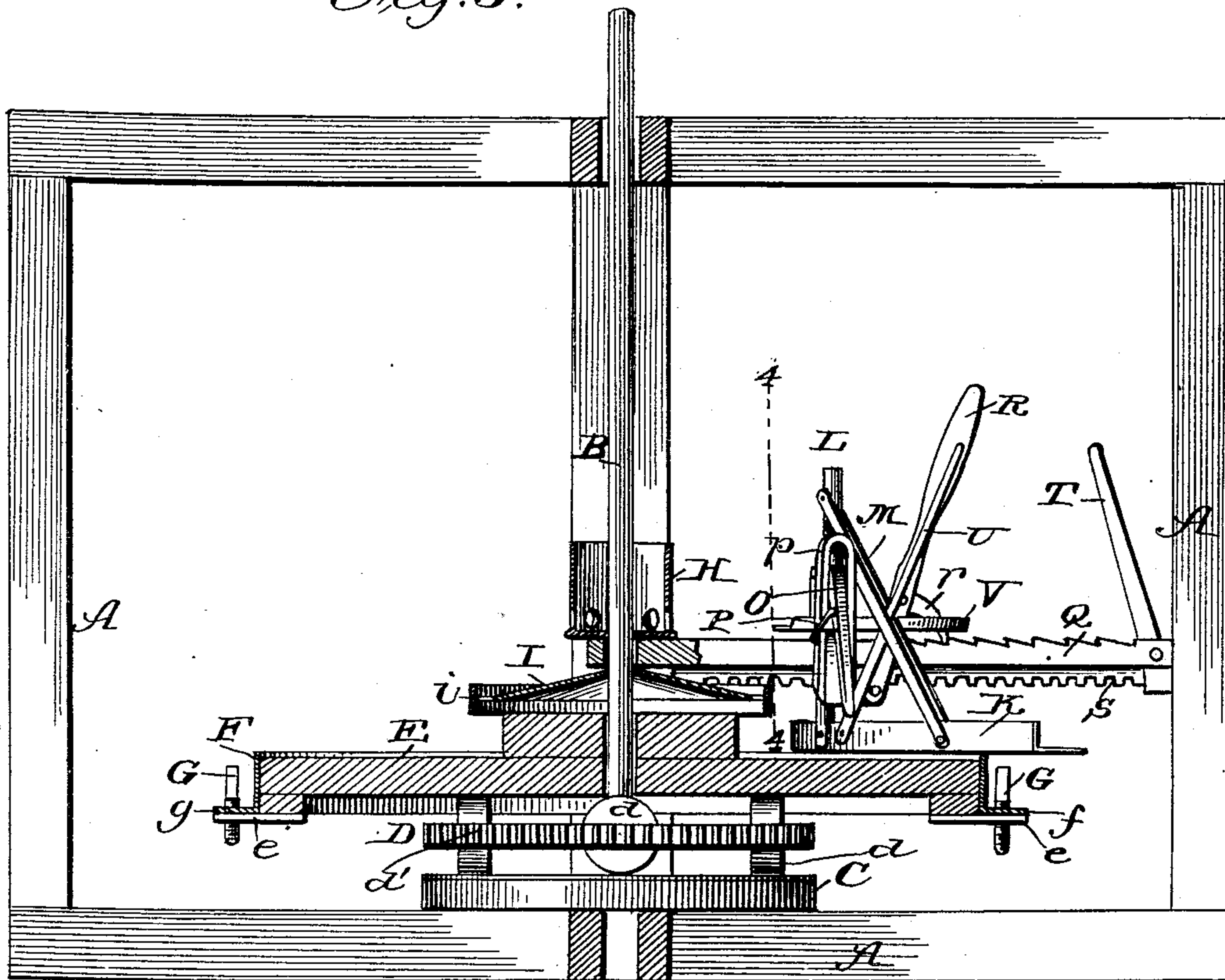
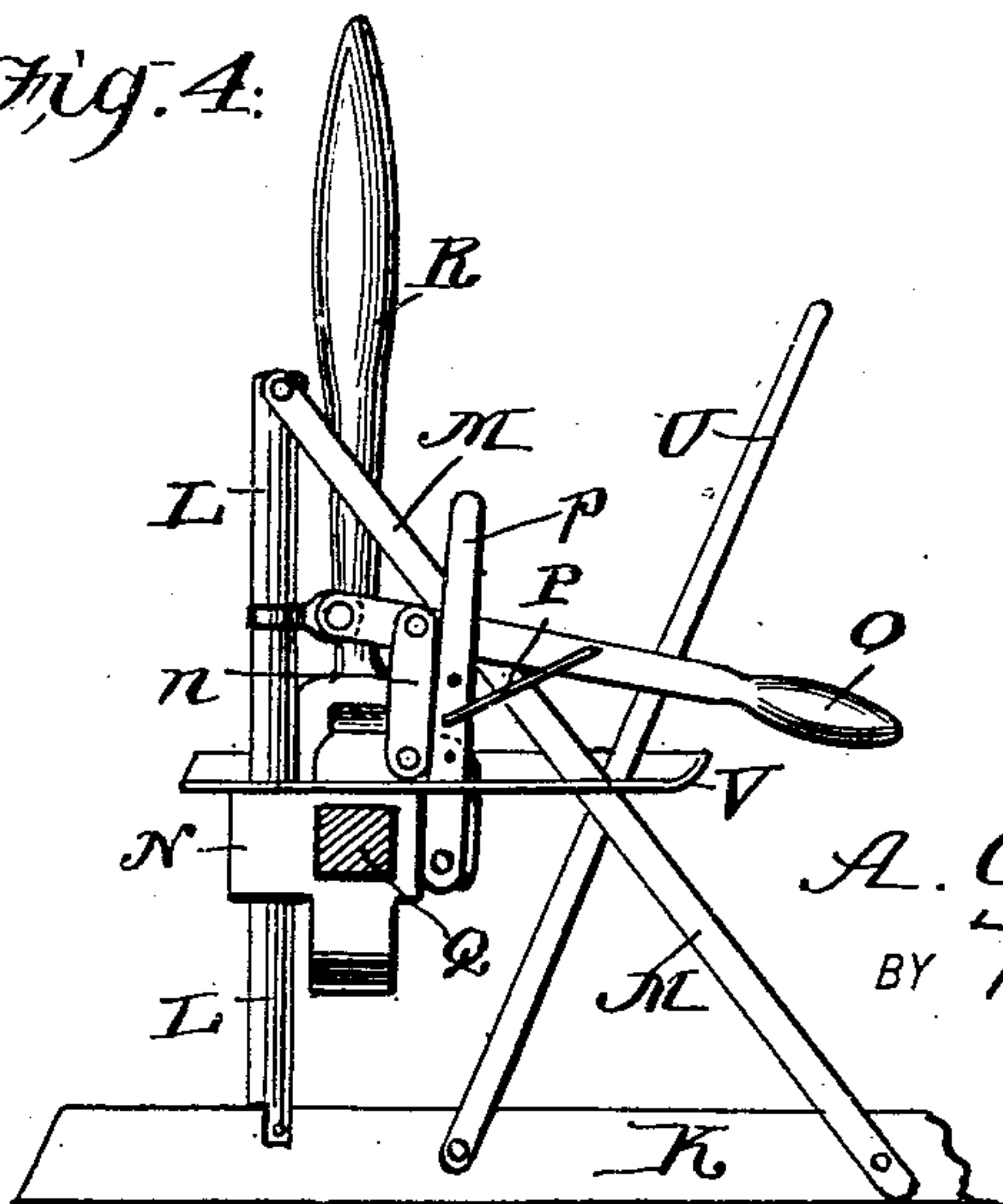


Fig. 4.



WITNESSES:
Gas. A. Ryan
Amos W. Hart

INVENTOR
A. C. Hartung
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

AGUSTUS C. HARTUNG, OF GALENA, KANSAS.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 664,635, dated December 25, 1900.

Application filed April 19, 1900. Serial No. 13,561. (No model.)

To all whom it may concern:

Be it known that I, AGUSTUS CARL HARTUNG, a citizen of the United States, residing at Galena, in the county of Cherokee and State of Kansas, have made certain new and useful Improvements in Ore-Separators, of which the following is a specification.

It is the object of my invention to provide an improved apparatus for separating ores from sand and dirt, the same being particularly adapted for the treatment of lead and zinc ores.

The construction, arrangement, and operation of parts are as hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved apparatus. Fig. 2 is a plan view of a roller bearing and gearing. Fig. 3 is a vertical transverse section of the apparatus. Fig. 4 is a vertical section on the line 4 4 of Fig. 3.

The working parts of the apparatus are arranged within and supported by a frame A, composed of two four-square or rectangular portions arranged vertically at right angles to each other. A vertical shaft B is arranged and fixed at the intersection of the frames A. Around this shaft B certain parts of the apparatus are adapted to rotate, while others are fixed thereon. As shown in Fig. 3, a circular base-plate C is fixed on the base of the frames A. Upon this base-plate C is arranged a roller-support D for the table E, upon which the material to be treated is deposited. The said support combines rollers d and a tooth-gear d' , exterior to the rollers, as shown in Fig. 2. The said tooth-gear d' meshes in practice with a driving-gear (not shown) and is therefore driven at any required rate of speed. The rollers d are journaled on axes arranged radially in the support D and are journaled on the base-support C. The table E rests on the rollers d and is caused to rotate around the shaft B by means of friction with said rollers. This table E is provided with a surrounding metal rim F, which may be adjusted higher or lower, as required, to maintain a certain depth of sludge or slime on the table. The means for thus adjusting it are screws G, which work through ears f , attached to the rim F, and also through ears e , attached

to the under side of the table proper, E. By rotating these screws G it is apparent that the rim F may be adjusted up or down, as required. The sand or crushed ore is received in a hopper H, which surrounds the shaft B, and is provided near its lower end with a series of openings, through which the material discharges upon a conical spreader I. The latter is preferably constructed of sheet metal and arranged concentrically with the shaft B. It is provided with a rim i , which is arranged vertically and at a short distance from its edge, as shown in Fig. 3, for the purpose of preventing the material from passing off the disk or spreader I, so as to strike on the table too far from the center. The mingled sand or ore, gangue, and water are thus delivered upon the table and spread out thereon, so that the heavier material remains nearest the center, while the lighter is disseminated nearer the periphery. In order to pack the material and spread it more evenly upon the table E, I employ canvas sweeps J, (see Fig. 1,) the same consisting of canvas attached to rods j , which project laterally from the spreader I. These sweeps occupy about one-half the width of the table E. They may be provided with transverse battens and weighted, if desired, to more thoroughly accomplish the object.

K indicates a scraper or plow which is right angular in cross-section and constructed of boiler-plate or some other material. It is slightly curved lengthwise, and its horizontal flange is cut out at the front end to better adapt it to take up material on the table E. The outer end of the scraper or plow K extends beyond the rim F of the table, so that the material taken up by it may be conveyed upward and delivered in any suitable receptacle provided for the purpose. The scraper is attached to a vertical bar or standard L and to a diagonal brace M, which is also attached to the head of the standard. The latter slides vertically through a bearing-block N and may be adjusted higher or lower by means of a hand-lever O, which is pivoted by a link n to the bearing N. For the purpose of holding the said lever in any position into which it may be adjusted, and thereby locking the scraper at any desired elevation, I employ the hook P, which is pivoted to said

lever and whose lower end is adapted to enter one of a series of holes provided in a guide-bar *p*, forming an attachment of the bar *N*. The latter is adapted to slide toward and from
 5 the post *B* upon a horizontal bar *Q*. The means for adjusting the bearing, and thereby the scraper *K*, toward the shaft is a hand-lever *R*, which is pivoted to the said bearing *N* and provided with a hinged pawl *r*, which en-
 10 gages ratchet-teeth on the bar *Q*. By vibrating the lever *R* in a vertical plane the bearing *N* and scraper *K* may be adjusted toward the shaft *B*, since the pawl *r* will automatically take a new hold on the ratchet at each
 15 vibration. This lever is requisite, since it requires considerable pressure to force the plow or scraper *K* inward against the pressure of the slime or solid material on the table *E*. For adjusting the bearing *N* and
 20 scraper *K* outward no mechanical device is required, since there is no pressure to be overcome, but simply the friction of the bar *Q*. The object of thus adjusting the scraper *K* farther inward or nearer the periphery of the
 25 table *E* is to take up and deliver from the table different grades of the material thereon—that is to say, the heavier material will be deposited nearer the center and the lighter will lie nearer the edge of the table—and by the
 30 adjustment of the scraper *K* higher or lower or nearer to or farther from the shaft *B* any desired quantity or grade of material may be removed and deposited in separate receptacles provided for the purpose. It will be un-
 35 derstood that this material is taken up by the plow in consequence of the rotation of the table as it travels on the roller-support *D*. To adapt the scraper to thus deliver into different receptacles, I provide for adjustment of
 40 the same in a circle concentric with the shaft *B*—that is to say, the ratchet-bar *Q* is adapted to swing horizontally on the shaft *B* and its outer end is supported upon an arc bar *S*, which is arranged horizontally concentric
 45 with the table and secured at its ends to two adjacent vertical supports of the frame *A*. The under side of said bar *S* is provided with notches, and a dog or locking-lever *T* is pivoted in a slot in the end of the bar *Q* and
 50 adapted to engage the said notches, as shown in Fig. 1. By this means the bar *Q* and its attachments, particularly the scraper *K*, may be located in any adjustment around shaft *B*.

The horizontal angle or inclination of the
 55 scraper *K* may be also varied at will, so as to

occupy a position more or less tangential to the table *E*. For this purpose the standard *L* is adapted to rotate in the bearing *N*, and its adjusting-lever *O* is attached thereto by means of a cuff or sleeve which permits such
 60 rotation. A locking-lever *U* is pivoted to the scraper and passes through a keeper on the brace *M*. A segmental rack-bar *V* is attached to the bearing *N* and arranged concentrically with the standard *L*. The inner side of this
 65 segment is notched to receive the lever *V*, by which construction it is apparent that the plow may be locked in any tangential adjustment required.

Having thus fully described my invention, 70
 what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a table adapted to rotate as described, of a plow or scraper, a bar arranged radially over the table, means
 75 for suspending the scraper from said bar, and a lever and pawl, the latter being adapted to engage teeth on the bar whereby the scraper may be forced inward, as shown and described. 80

2. The combination, with a rotating table, and a scraper adapted to work thereon, of a bar arranged radially above said table and adapted to be adjusted laterally, a notched
 85 arc bar arranged concentrically with the table and exteriorly thereto, and a dog for locking the radial bar to such arc bar, substantially as shown and described.

3. The combination, with the rotating table, of a scraper arranged to work on the sur- 90
 face of said table, a vertical rotatable standard to which the scraper is rigidly attached, a lever pivoted to the scraper, a curved rack-bar wherewith said lever engages, a guide for the standard and support for said rack-bar, 95
 all arranged as shown and described.

4. The combination, with a rotating table, a scraper arranged over and adapted to work on said table, a standard secured to said scraper and adapted to slide vertically, a sup- 100
 port or bearing for said standard, a lever having a jointed connection with the standard and adapted to swing in a vertical plane, and a device for locking said lever in any adjust- 105
 ment, substantially as shown and described.

AGUSTUS C. HARTUNG.

Witnesses:

H. A. FLOYD,
 G. G. MACDONALD.