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PATENTED FEB. 23, 1904.

J. P. SCHMITZ.
RECIPROCATORY GOLD SEPARATOR.

APPLICATION FILED JAN. 28, 1903.

NO MODEL.

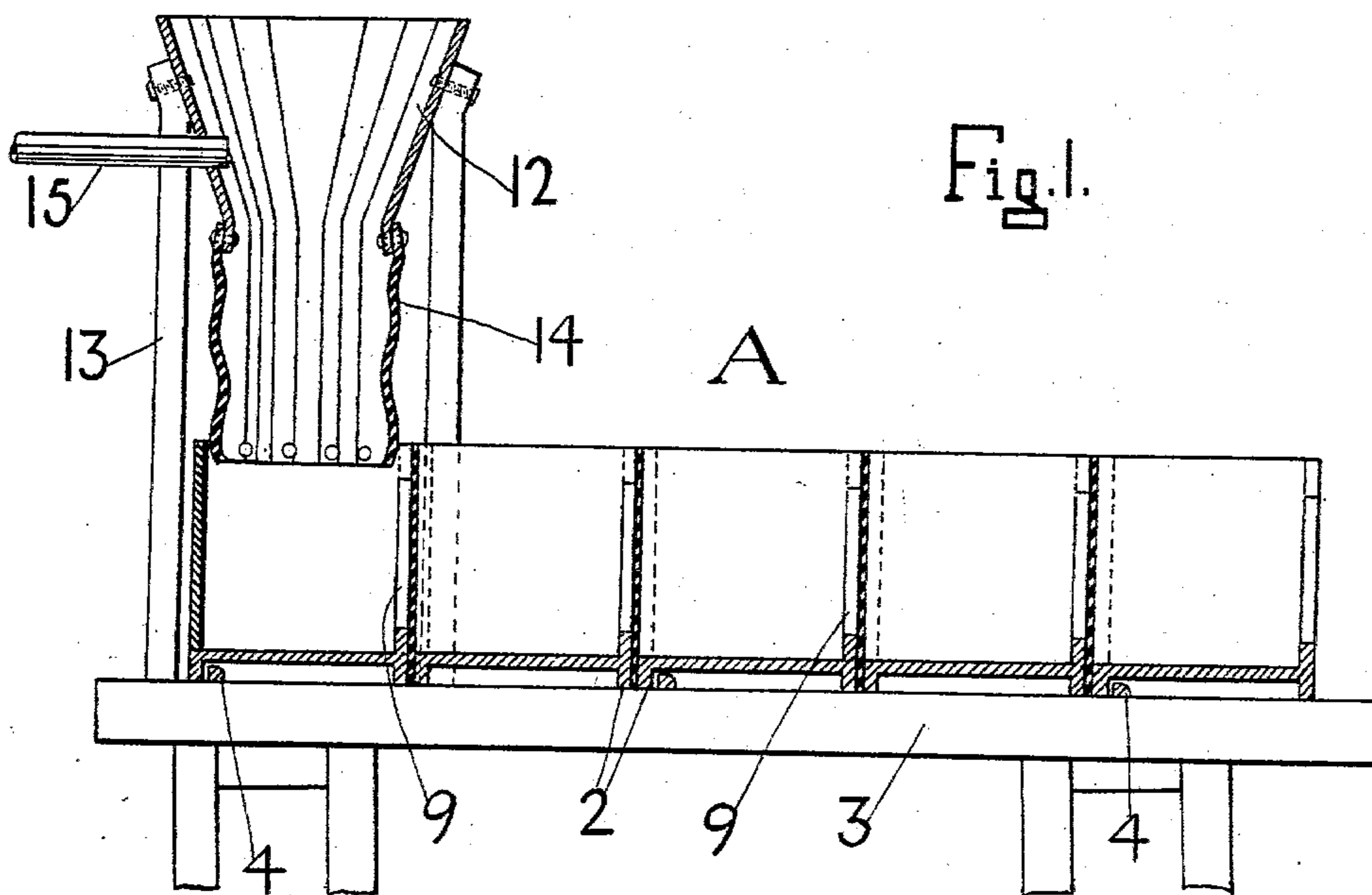


Fig. 1.

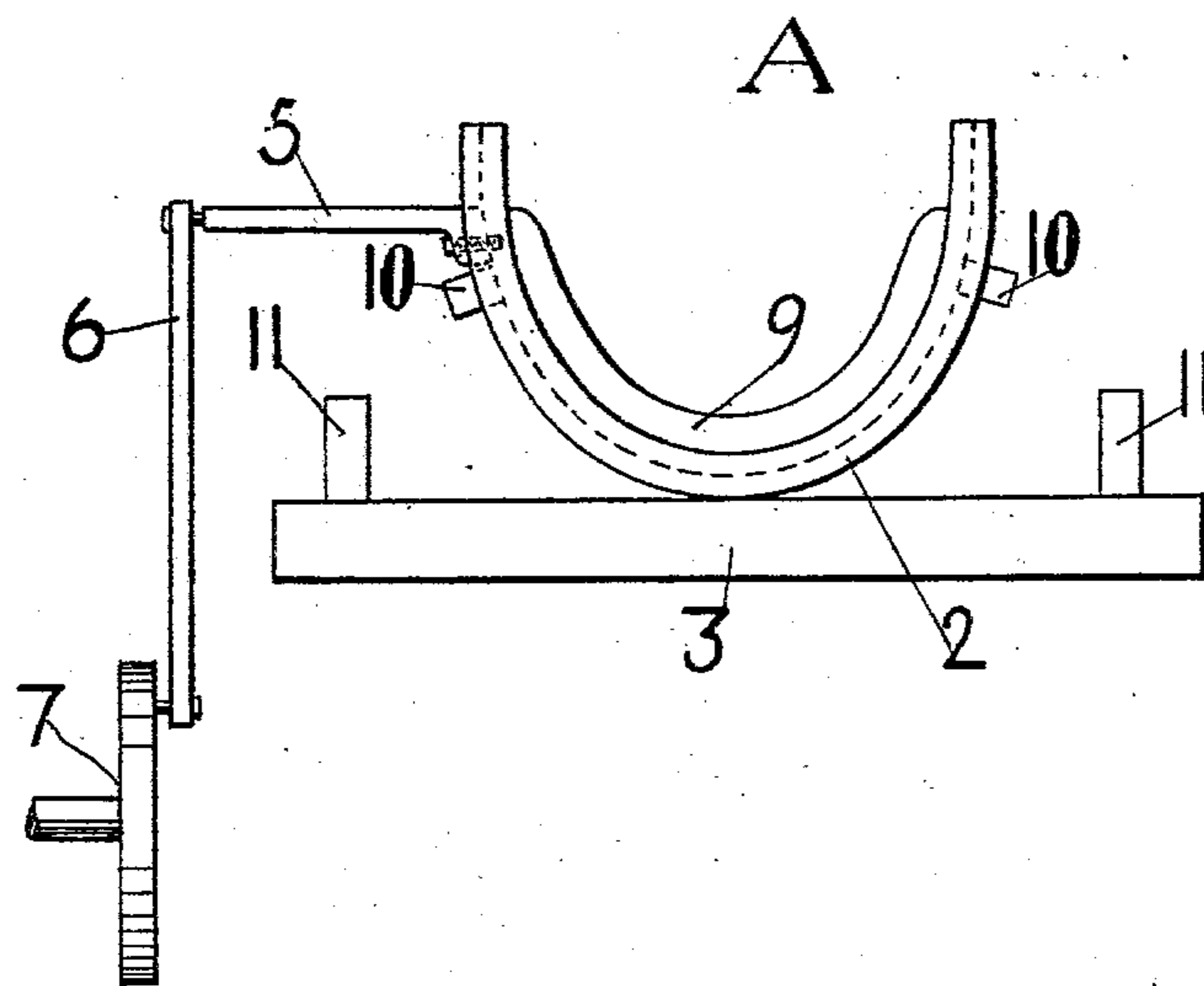


Fig. 2.

WITNESSES:

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JOHN P. SCHMITZ, OF SAN FRANCISCO, CALIFORNIA.

RECIPROCATORY GOLD-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 752,926, dated February 23, 1904.

Application filed January 28, 1903. Serial No. 140,906. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. SCHMITZ, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Reciprocatory Gold-Separators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is designed for the separation of gold or other heavy material from lighter sand or gangue with which it may be associated.

It consists, essentially, of semicircular segments formed in sections and secured together to any desired length, said segments having correspondingly-shaped transverse internal riffles and means for supplying material to be treated and water thereto. An inclined surface is provided upon which the apparatus rests upon its semicircular base, means by which it may be oscillated from side to side, means for preventing it from moving down the incline while at work, and stops against which the apparatus is caused to alternately strike to give an abrupt shaking jar or motion at the end of each oscillation.

My invention also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a section through my separator. Fig. 2 is an end view of same.

It is the object of the present apparatus to provide an easily-movable rocking or oscillating trough having a circular segmental form and interior dams or riffles over which the pulp and water constantly flow during its transverse agitation and in conjunction with this of stops or abutments against which the oscillations in each direction are abruptly checked, whereby a tossing motion is given to the material as it passes through.

I have shown my apparatus as constructed of iron in the form of short cylindrical segments A, having exterior flanges at each end, as shown at 2, so that any number of these sections may be bolted together with an intermediate packing to make tight joints. These externally-projecting flanges also serve to support the apparatus upon any suitable

bed upon which it is placed, and upon these circular flanges the apparatus may be rocked from side to side. The bed 3 is a floor of sufficient strength and slightly inclined from the receiving toward the discharge end.

4 represents upwardly-projecting blocks against which one or more of the rocking flanges contact, so as to prevent the apparatus from gradually moving down the incline, these stops keeping it in its proper position while it is oscillated.

Any suitable means may be applied for oscillating the apparatus from side to side, as an arm or arms extending across the top or outwardly from one side, as at 5, and this arm having sufficient leverage to operate the device is connected by a rod or pitman 6 with a crank or crank-disk, as at 7. This may be revolved by any suitable motor. If water is available in sufficient quantity, a small water-wheel will serve or an electrical or other form of motor whereby the device is constantly oscillated from side to side.

Within the semicircular trough formed of the united sections and at the lower end of each section is an internally-projecting lip or flange 9, which is also semicircular, and its interior edge is approximately concentric with the inner periphery of the section. Each section may be provided with one of these internal flanges, which extends up along the sides sufficiently far to prevent the pulp from passing beyond the ends during the oscillations of the apparatus, so that all the pulp will be acted upon, first, by the oscillations from side to side to cause it to alternately move up one side and the other, and by reason of the inclination the flow will cause the lighter portions to be gradually carried over the internal flanges, thus leaving all the heavier material to be deposited behind these flanges, from which it may afterward be recovered by any well-known or suitable method. In order to more perfectly settle and separate the material, I have shown lugs, as at 10, fixed upon each side of the oscillatory segments and in line beneath. Projecting upwardly from the platform are standards or posts 11, so placed that at the termination of the oscillation in each direction the lugs will strike upon the

posts and abruptly check the oscillation. This oscillation having already started the pulp to move toward the side to which the device is being tilted the abrupt checking of the
 5 oscillation will cause it to move forward the remainder of the distance with a sudden jump, and this has the effect of more rapidly and more perfectly separating the heavier material from the light, allowing the former to
 10 settle to the bottom and eventually to be caught behind the internal flanges, as before described.

It will be understood that the upper or receiving end of the segmental apparatus will
 15 be closed, so as to prevent any escape of material in that direction.

Various devices may be employed to feed material to the apparatus—such as a chute discharging into the upper end, with a flexible connection whereby the pulp and water
 20 are directed into the oscillating trough if the oscillations are so great as to carry the sides beyond the vertical plane of the chute. I have here shown a suitable device consisting
 25 of a chute or hopper 12, supported upon fixed standards 13. The lower or discharge end has connected with it a flexible continuation 14, and the lower edges of this connection are
 30 in like manner secured to the sides of the oscillating trough, so that as the latter tilts from side to side the lower end of the flexible conductor will move with it, and thus insure the

delivery of the pulp into the apparatus. Water may be introduced as desired through a pipe 15. 35

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

An improved gold or like separator comprising a flat smooth table inclined in the direction of its length, and having stops or
 40 abutments along its sides; an inclined trough of equal diameter throughout and consisting of segmental sections abutting endwise, each of said sections having a flange at one end
 45 which projects both above and below the bottom of the section and a flange at the opposite end which projects below only, each of said outwardly-extending flanges forming rockers
 50 for the section; transversely-disposed stops on the table engaged by said rockers to prevent end movement of the trough; packing-strips between abutting sections; means for oscillating the trough; and lugs on the outer
 55 sides of said trough and adapted to contact with said abutments at the end only of each transverse oscillation of the trough.

In witness whereof I have hereunto set my hand.

JOHN P. SCHMITZ.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.