A cathode formed of laminae is shown in Fig. 1 in the accompanying drawings. 1 is the preferably cylindrical rotating anode which is fed with electric current through lead 2. 3 is the cathode with its lead 4. The cathode is shown again in side elevation in Fig. 2 and is indicated together with its side rings by 5. As seen from Fig. 3 the cathode consists of several laminae 6 which are threaded on bolts 7 (see Fig. 4) in such a manner that they form narrow chambers directed toward the anode having as their walls the metal laminae. It is to be noted that the working surface of the cathode is that which is presented to the suspended mass on its way to the anode. Through these chambers the suspension is guided toward the anode. Advantageously the passage of the suspension through the cathode toward the anode is aided by revolving blades indicated by 8 in Figs. 1 and 2. The direction of rotation of the blades is shown by the curved arrows and the direction of flow of the suspension by the arrows directed toward the anode.

The whole apparatus is housed in a casing 9 supported on legs 10 the upper part of which carry bearings 11 to receive shaft 12 upon which is mounted anode 1. The cathode supports 13 are secured to the casing 9, while the blades 8 are mounted upon shaft 14. The shafts may be rotated by any mechanism not shown. The fresh material may be brought into the casing 9 by the pipe 15 and the impoverished material may flow off through pipe 16, although this is not the only means which may be employed to set up a circulation through the casing. This action is strengthened by the comparatively long time during which the substance is in the neighborhood of the highly active cathode surface. By the rapid passage of the solid phase toward the anode there is produced at the cathode, and between this and the anode, a layer comparatively rich in water, which on account of the enhanced migration of the acid residues which are present (in the working up of clay and kaolin for example, carbolic acid, sulfurous acid or the like) toward the anode contains alkali in excess. This, however, is an advantageous electrolyte for working up the substances in question by electric osmose, which accelerates the osmosis and
increases the degree of dryness of the separated substances. Moreover, to these advantageous effects there are added in most cases the improvement that owing to the purely geometrical enlargement of the cathode surface, the current density at the anode is relatively increased, which is advantageous particularly in the osmotic treatment of clay.

What we claim is:

1. An apparatus for electro-osmotic processes having a suspension container and a suspension agitating means, which comprises an anode and a cathode locked between the anode and the agitating means, the cathode being provided with openings of much greater length than width.

2. An apparatus for electro-osmotic processes having a suspension container and a suspension agitating means, which comprises a cylindrical anode and a cathode locked between the anode and the agitating means, said cathode being formed of laminae assembled to define openings of much greater length than width through which the suspension passes when directed toward the anode by the agitating means.

3. An apparatus for electro-osmotic processes having suspension container and an agitating means, which comprises an anode, rods extending parallel to the anode, comparatively wide laminae mounted upon the rods to form a cathode and defining therebetween spaces of considerably greater length than width, said laminae being substantially in a plane perpendicular to the axis of the anode and locked between the agitating means and said anode.

4. An apparatus for electro-osmotic processes having a suspension container and an agitating means, which comprises an anode, rods substantially parallel to the anode, laminae of greater length than thickness assembled on the rods to form a cathode provided with slots of greater length and width than thickness, said cathode being locked between the agitating means and the anode.

5. An apparatus for electro-osmotic processes having a suspension container, which comprises an anode, a cathode adjacent to the anode provided with slots of greater length and width than thickness and means to force the suspension in a stream from the container through the slots toward the anode.

In testimony whereof we affix our signatures in presence of two witnesses.

HANS ILLIG.
BOTHO SCHWERIN.

Witnesses:
JEAN GRUND,
CARL GRUND.