

No. 808,798.

PATENTED JAN. 2, 1906.

W. C. WOOD & B. OAKSFORD.

APPARATUS FOR THE AGITATION OF SOLUTIONS USED IN ELECTRODEPOSITION OF METALS.

APPLICATION FILED AUG. 31, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

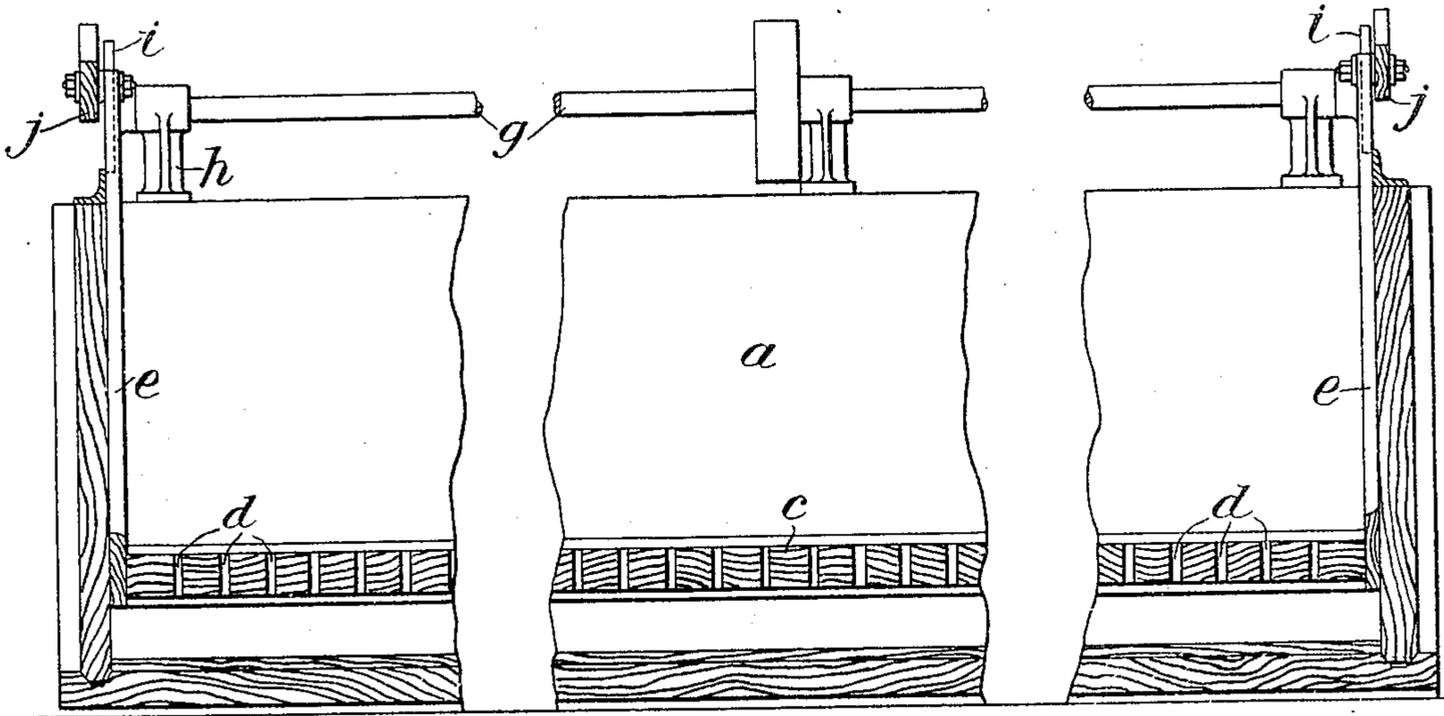
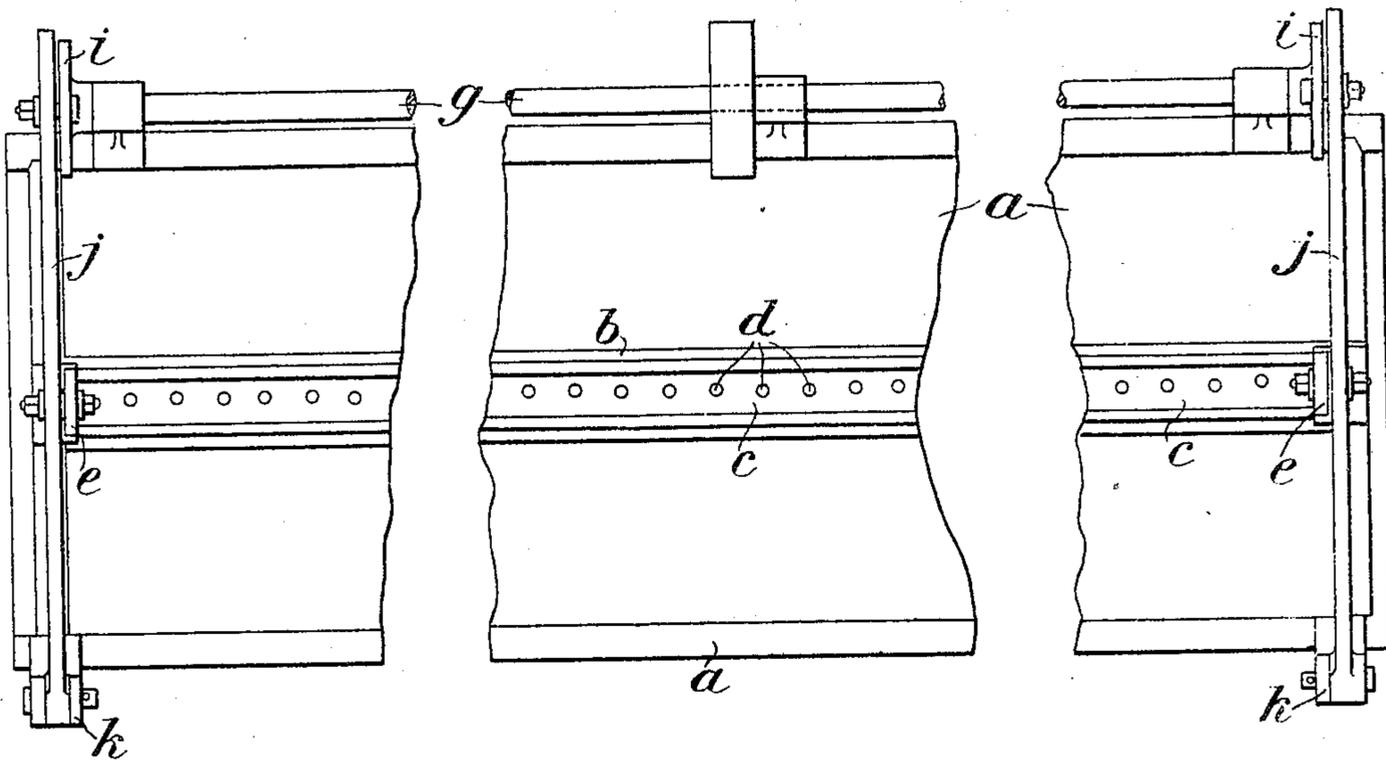


Fig. 2.



Witnesses.

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Fig. 3.

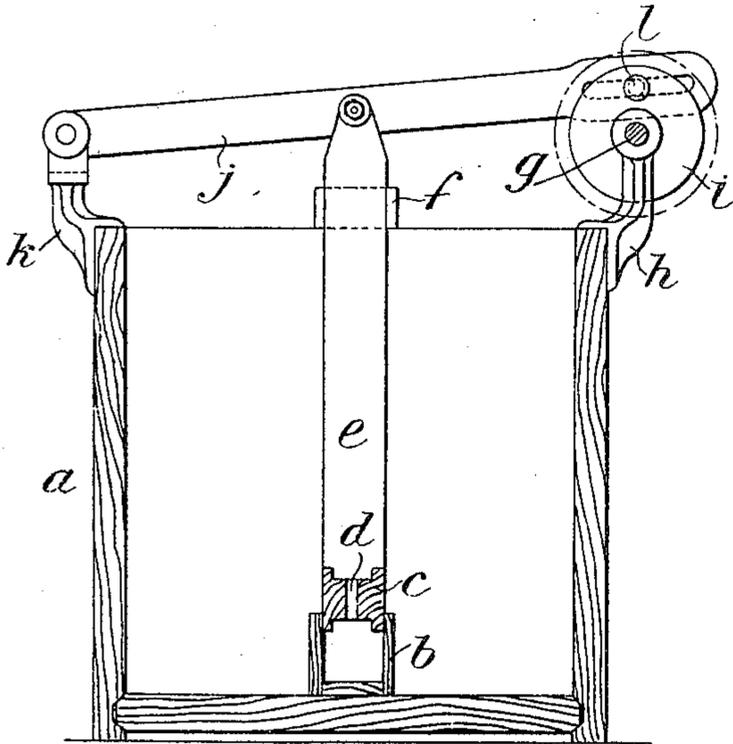
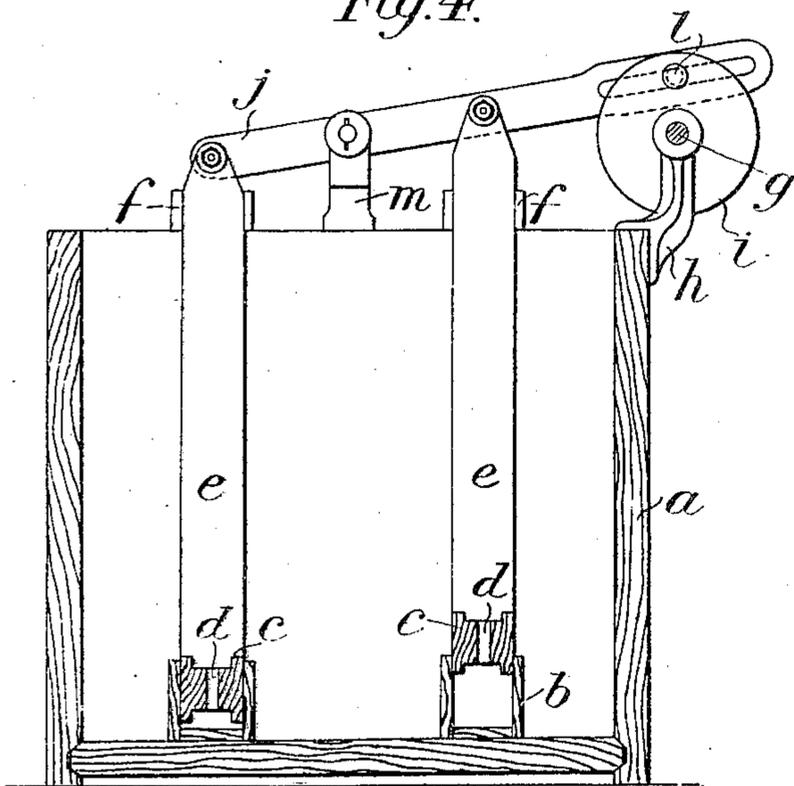


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM CHARLES WOOD AND BERTIE OAKSFORD, OF LONDON, ENGLAND, ASSIGNORS TO W. CANNING & CO., OF BIRMINGHAM, ENGLAND.

APPARATUS FOR THE AGITATION OF SOLUTIONS USED IN ELECTRODEPOSITION OF METALS.

No. 808,798.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed August 31, 1905. Serial No. 276,632.

To all whom it may concern:

Be it known that we, WILLIAM CHARLES WOOD, residing at 31^b Martell road, West Dulwich, and BERTIE OAKSFORD, residing at 5 33 Kenilworth Court, Putney, London, England, subjects of the King of Great Britain, have invented new and useful Improvements in Apparatus for the Agitation of Solutions and the Like Used in Electrodeposition of All 10 Metals, of which the following is a specification.

Our invention relates to apparatus for the electrodeposition of metals, and comprises improved means whereby the circulation or 15 agitation of the electrolytic solution in the bath may be maintained.

In apparatus constructed according to our invention we fix at or near the bottom of the electrolytic tank a trough of wood or other 20 material which is not injuriously affected by the electrolyte, and in this trough we insert a bar or plunger, also of wood or the like, which fits inside the trough and which is reciprocated vertically, this plunger having 25 formed in it a series of holes through which the liquid will pass into the trough during the upward movement of the plunger and through which it will be forced during the downward movement of the same, this ad- 30 mission and ejection of the fluid serving to create the necessary circulation in the tank.

To enable our invention to be fully understood, we will describe the same by reference to the accompanying drawings, in which—

35 Figure 1 is a longitudinal section, and Fig. 2 a plan, of an electrolytic tank provided with our improved agitating apparatus. Fig. 3 is a transverse section of the same. Fig. 4 is a view similar to Fig. 3, but illustrating a modi- 40 fication of the invention.

a is the usual tank for containing the electrolyte, and *b* is the trough, which according to our invention is arranged within the same, the said trough, as shown, being placed at 45 the bottom of the tank and being fixed so as to prevent it from moving. *c* is the bar or plunger, which fits into and slides within the said trough, the said plunger having formed in it a series of holes *d*, through which the liq- 50 uid can enter and escape from the trough as the plunger is reciprocated. The trough *b* preferably extends substantially from one end of the tank to the other, as shown in the drawings.

Any suitable means may be employed 55 for reciprocating the plunger. For instance, a longitudinal shaft may be arranged above slide-rods *e*, attached to the plunger and working in guides *f*, the said shaft carrying 60 eccentrics, the straps of which are united by connecting-rods to the said slide-rods. This arrangement, however, interferes with the free access to the tank. We therefore prefer to arrange the shaft *g* in bearings in brackets 65 *h* on one side of the tank, as shown, and to mount on this shaft two crank-disks *i*. The slide-rods themselves are jointed to levers *j*, which at one end are pivoted to brackets *k* on the side of the tank and at the other end slot- 70 ted to engage with the pins *l* of the crank-disks, so that when the latter are rotated the desired vertical movement will be imparted to the plunger. The shaft itself may be operated either by a belt running upon a pulley 75 or by any other suitable means.

In the arrangement of our invention shown in Figs. 1, 2, and 3 we have represented the tank as being provided with a single trough 80 only. It is to be understood, however, that two or more troughs and plungers may be arranged, if desired. In the arrangement shown in Fig. 4 we have represented a tank provided with two troughs *b b*, the plungers in which are both connected to the levers *j j*. 85 In this case, however, the lever at each end is mounted in a bracket *m*, carried on the end of the tank between the slide-rods *e e*. It will also be understood that instead of forming the holes in the plunger holes may be 90 formed in the walls of the trough.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In an apparatus for the electrodeposi- 95 tion of metals, the combination with the tank for containing the electrolyte of a trough arranged within the same, the said trough having within it a plunger designed for drawing the electrolyte into the trough 100 and ejecting it therefrom, substantially as, and for the purpose, described.

2. In an apparatus for the electrodeposi- 105 tion of metals, the combination with the tank for containing the electrolyte of a trough fixed within the said tank, the said trough containing a plunger provided with holes or apertures through which the electro-

lyte can enter and be discharged from the trough, substantially as described.

3. In an apparatus for the electrodeposition of metals the combination with the
5 tank adapted to contain the electrolyte, of a trough fixed within said tank adjacent to the bottom of the same and extending substantially from one end of the tank to the other, a plunger fitting said trough, means
10 for admitting the electrolyte to said tank and permitting its escape therefrom, and operating devices for reciprocating said plunger, substantially as described.

4. In an apparatus for the electrodeposition of metals the combination with the tank
15 adapted to contain the electrolyte, of a plu-

rality of troughs fixed in said tank adjacent to the bottom of the same, and extending substantially from one end of the tank to the other, a plunger fitting in each trough, 20 each trough and piston being provided with a series of holes for admitting and expelling the electrolyte, an operating-lever connected with said plungers for operating the same, an operating-shaft, and connections between 25 said shaft and lever, substantially as described.

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Witnesses:

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