Sept. 23, 1924. 1,509,534

G. TODD

ELECTROPLATING MACHINE

Filed June 26, 1923 3 Sheets-Sheet 1

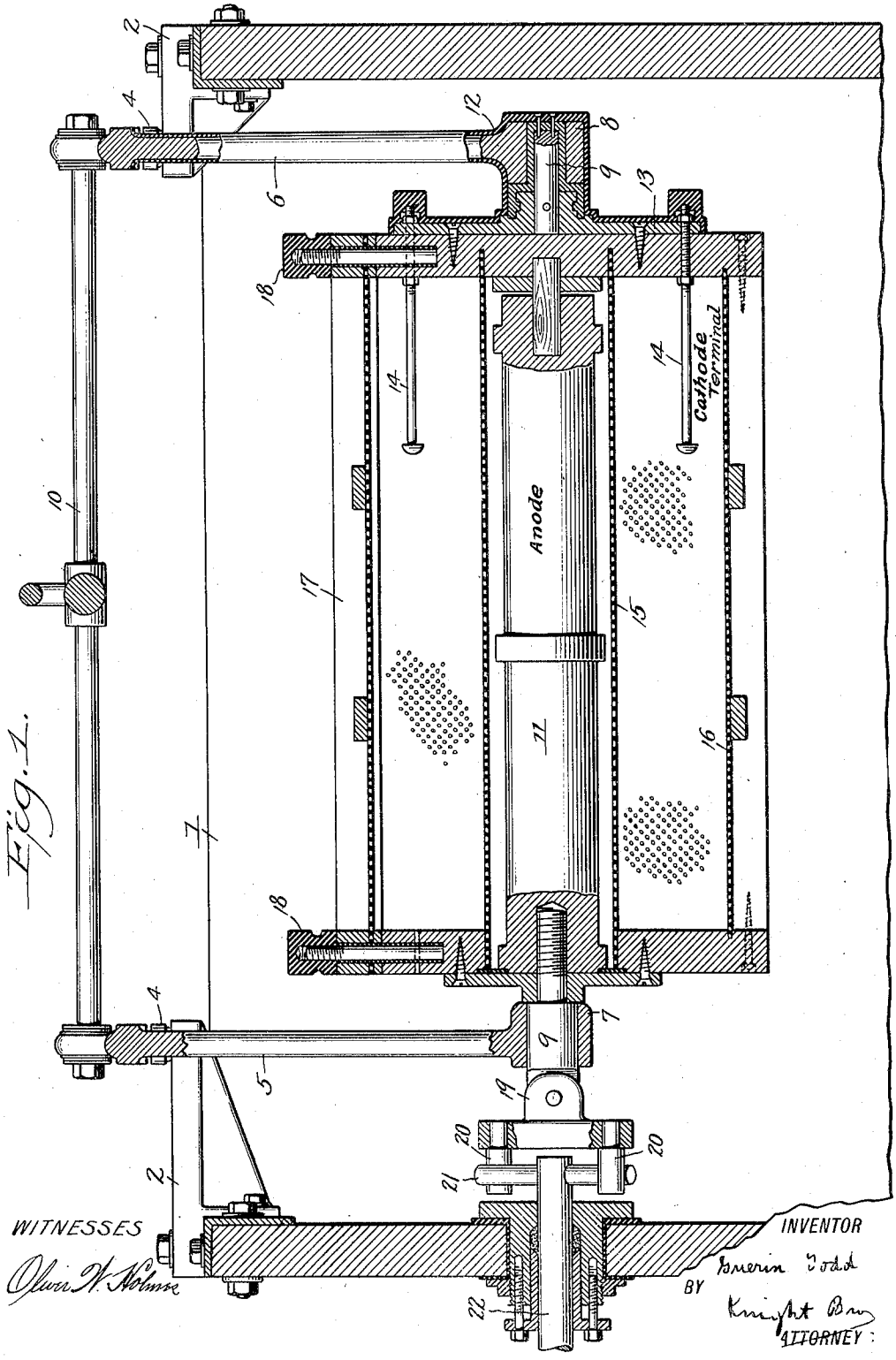


Fig. 1.

WITNESSES

Olive W. Holmes

INVENTOR

Guerin Todd

BY

Knight Bros

ATTORNEY

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ELECTROPLATING MACHINE

Filed June 26, 1923 3 Sheets-Sheet 2

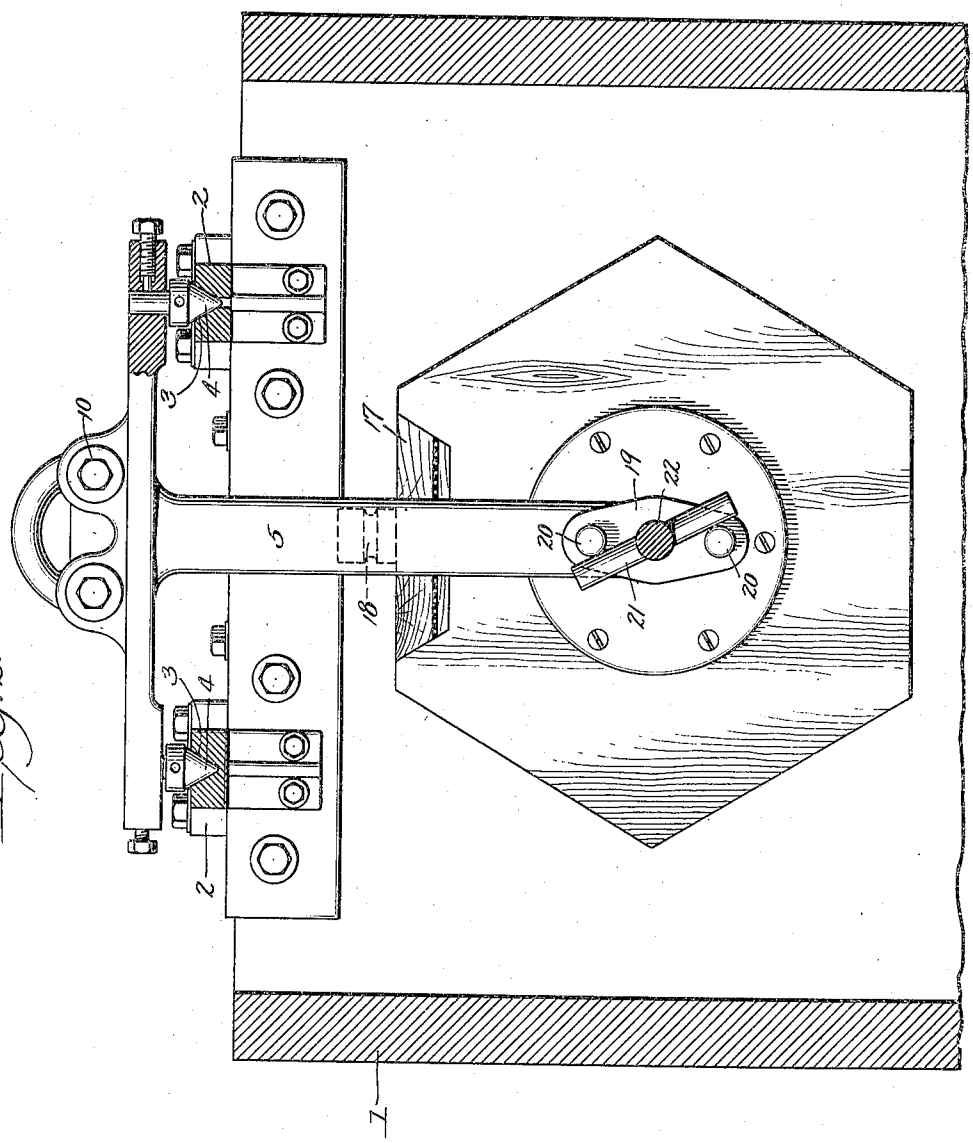


Fig. 2.

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Fig. 3.

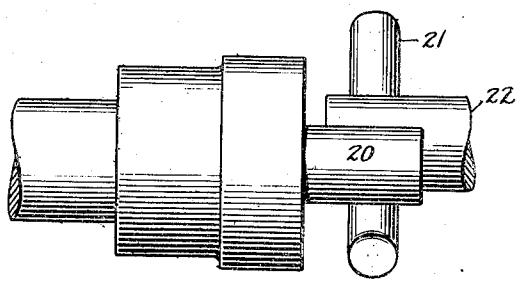


Fig. 4.

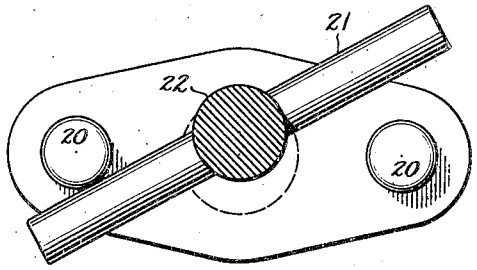


Fig. 5.

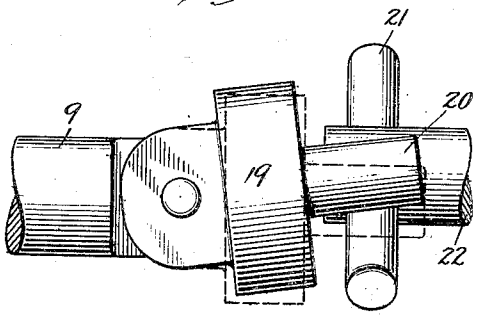
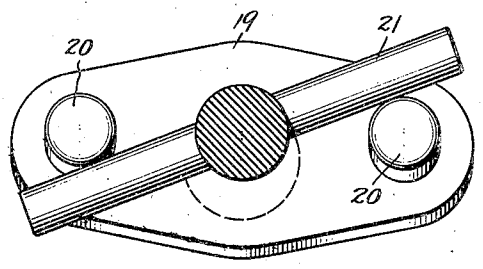


Fig. 6.



WITNESSES

Olive W. Holmes

INVENTOR

Guerin Todd

BY

Knight Bros

ATTORNEYS

Patented Sept. 23, 1924. 1,509,534

UNITED STATES PATENT OFFICE.

GUERIN TODD, OF MILLBURN, NEW JERSEY, ASSIGNOR TO THE HANSON & VAN WINKLE COMPANY, OF MILLBURN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ELECTROPLATING MACHINE.

Application filed June 26, 1923. Serial No. 647,857.

To all whom it may concern:

Be it known that I, GUERIN TODD, a citizen of the United States, and a resident of Millburn, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Electroplating Machines, of which the following is a specification.

My invention relates to electroplating machines in which articles to be electroplated are packed in a barrel or a container, which is then immersed and rotated in an electrolytic bath contained in a suitable vat. In such machines the articles themselves form the cathode and suitable cathode terminals in the barrel or container maintain contact with the articles and serve to carry off the current. The anode is kept out of contact with the articles to be plated by means of a perforated septum of non-conducting material. The barrel is rotated by means of a shaft protruding thru the side of the electroplating vat, connection between the driving shaft and the shaft of the rotatable barrel being made by a loose coupler that permits the ready removal of the barrel and its contents from the vat. Such a coupler comprises in general a transverse pin on one shaft engaging with longitudinal studs which extend from the other shaft to embrace it. The barrel is carried in journals on the lower end of depending brackets which at their upper ends rest on suitable supports fastened to the edges of the vat; the brackets and their supports forming parts of the electric circuit to the anode and the cathode. In such machines there has been difficulty found in that the cathode terminals which have heretofore been placed at the periphery of the barrel in close contact with the perforated outer wall have brought about the clogging of the perforations of said wall due to the accretions of the metal deposited on the cathode terminal. It has also been found that when the alignment between the driving shaft and the shaft of the rotatable container were not perfect which is very often the case, the loose coupling between the two shafts, has, owing to such misalignment, given rise to a tendency to lift the barrel at certain periods of the rotation with the result that the circuit becomes interrupted at the point where the barrel supports rest on the contacts. Such misalignment also causes an excessive strain to be placed on the driving shaft and stuffing box, which would make the latter leak.

The object of my present improvement is to obviate these objectionable defects by certain constructions of the cathode terminals and loose couplers as will be hereinafter more fully described with reference to the accompanying drawings in which;

Figure 1 is a longitudinal section of an electroplating machine thru the axis of the barrel;

Figure 2 is a transverse section in partial elevation of the machine;

Figure 3 is a side view; and

Figure 4 is an end view of a loose coupler such as has been heretofore used;

Figure 5 is a side elevation; and

Figure 6 is an end view in partial section of the loose coupler provided with my improvement.

The vat 1 has supports 2, securely fastened to it at either end. These supports are provided with cup contacts 3 which form sockets that support the contact points 4 that are adjustably secured in the brackets 5 and 6. These brackets at their lower end carry journals 7 and 8 in which turn the shafts 9 that carry the barrel container. A handle 10 connects the two brackets 5 and 6 and forms a means whereby the barrel with its contents may be removed from the bar. The brackets 5 and 6 form the means whereby the current is led to and from the barrel, bracket 5 being in electric communication with the anode 11 and the bracket 6 covered with insulation as shown at 12 is in electric communication thru insulated flange 13 with cathode terminal bars 14 that extend from said flange thru the end wall of the barrel or container into the space which is to be occupied by the articles to be plated. This space is formed by an interior perforated cylinder 15 and the exterior perforated cylinder 16 of insulating material such as celluloid, hard rubber, wood or the like. The space is made accessible by means of a lid 17 which forms one side of the barrel and is held securely to the barrel by means of clamping nuts 18. It will be understood that the articles to be plated are packed loosely in the annular space between the two perforated cylinders and as the bar-

rel slowly revolves makes contact with each other and with the cathode terminal rods 14.

The cathode terminal rods 14 projecting as they do into the middle of the space between the perforated cylinders will have no tendency to build along and into the interstices of the cylinder 16 which has been the case heretofore when the cathode rods or terminals were contiguous to the outside barrel.

To overcome the objections of undue strains on the stuffing box and of the lifting of the barrel by a misalignment at the loose coupler with the resultant objection of the breaking of the circuit at the contacts 3, I provide a hinged clevice 19, pivoted to one or the other of the shafts, either the driving or the driven member which engages thru its pin 20 with the transverse pin 21 in the other shaft. In the example shown, the transverse pin is in the driving shaft 22.

In Figures 3 and 4 it may be seen how the transverse pin 21 when each shaft is out of alignment with the other shaft, tends to lift the barrel or put an undue strain upon the stuffing box because it will impinge upon one of the longitudinal pins 20, as clearly shown in Figure 4. When, however, the loose coupler has the clevice member 19 pivoted to the shaft as shown in Figures 5 and 6, it will be seen that the transverse pin 21 will bear upon both the longitudinal pins 20 and thus transmit only a torsional force so that the contacts 3 and 4, will remain undisturbed.

While I have shown a particular form of loose coupler, it is obvious that other equivalents may be used as long as the function of transmitting the rotary motion thru a detachable coupling is accomplished without any upthrust.

I claim:—

1. An electroplating machine, comprising in combination, a vat, a rotatable cylindrical container suspended in the vat, said container having heads and an interior and an exterior perforated drum, an anode bar within the inner drum and cathode terminals supported entirely from the head and extending into the annular space between the drums free of contact with the perforated drums, and also extending through the head and a conducting plate outside the head to which said cathode terminals are secured.

2. An electroplating machine, comprising in combination, a vat, a rotatable container, current carrying suspension means for said container, rotary driving means and a loose coupling between said driving means and said rotatable container to accommodate misalignment between the driving and driven members without lifting the suspension means out of contact.

3. An electroplating machine, comprising in combination, a vat, a rotatable container, current carrying suspension means for said container, rotary driving means and a loose coupler between the container and its driving means, one member of the loose coupler being pivoted on its shaft so as to accommodate itself to any misalignment of the rotating members and transmit torsional force only.

4. An electroplating machine, comprising in combination, a vat, a rotatable container, current carrying suspension means for said container, rotary driving means and a detachable loose coupler between the container and its driving means, one member of the loose coupler being pivoted on its shaft so as to accommodate itself to any misalignment of the rotating members and transmit torsional force only.

5. An electroplating machine comprising in combination, a vat, a rotatable container suspended in the vat, supporting means on the vat for said container, said container having a perforated cylindrical drum of insulating material and supporting heads of insulating material, a supporting metallic collar on the outside of one of the heads, said collar pivoted in the supporting means and cathode terminals extending from the collar through the head at a point removed from the perforated drum.

GUERIN TODD.