

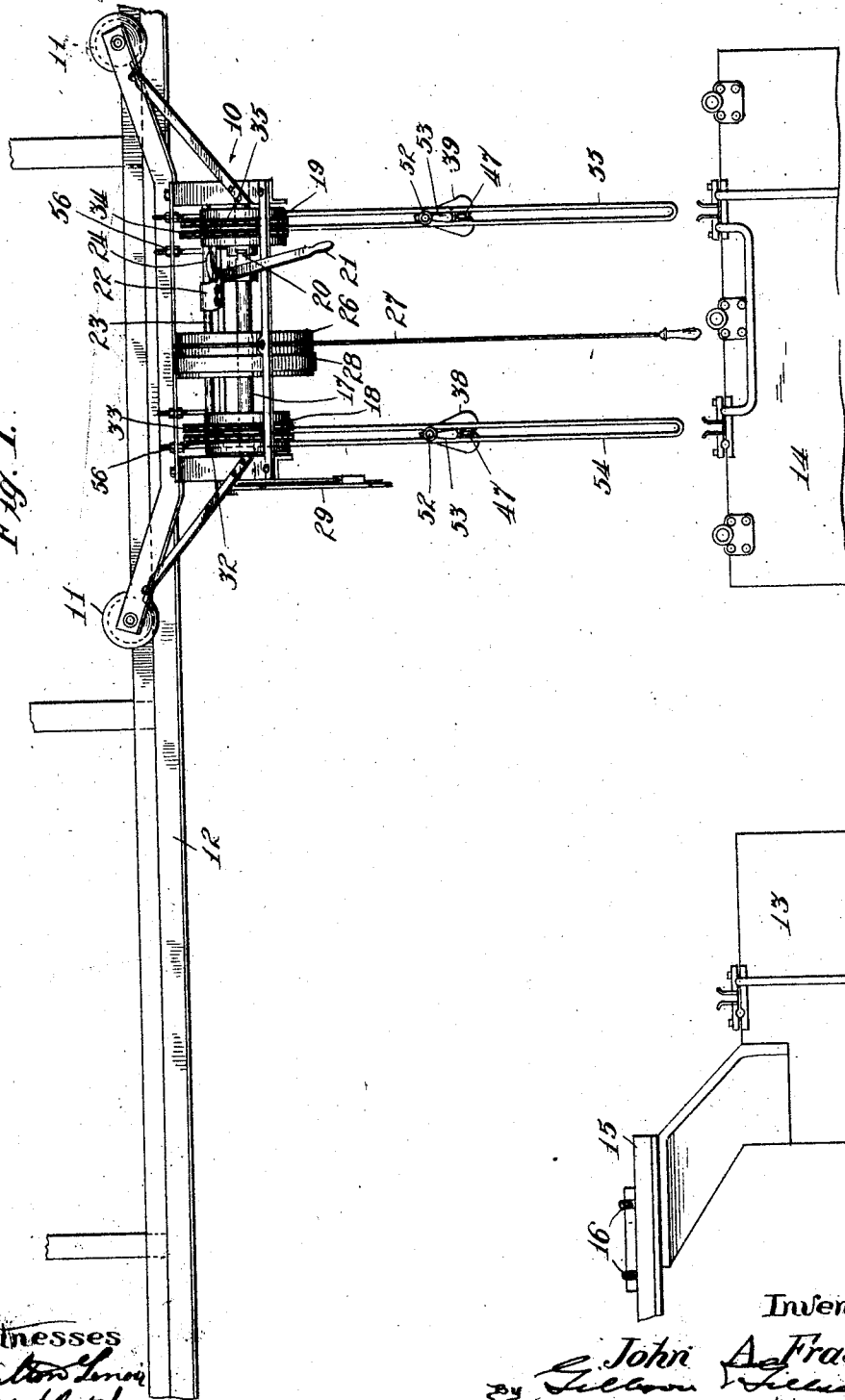
J. A. FRASER.
 APPLIANCE FOR ELECTROPLATING PLANTS.
 APPLICATION FILED APR. 26, 1912.

Patented Jan. 7, 1913.

3 SHEETS—SHEET 1.

1,049,839.

Fig. 1.



Witnesses
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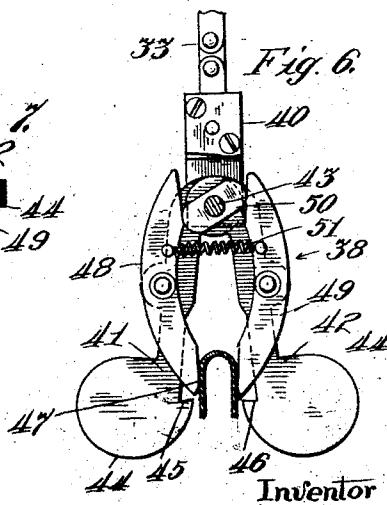
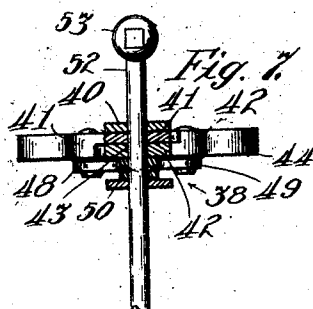
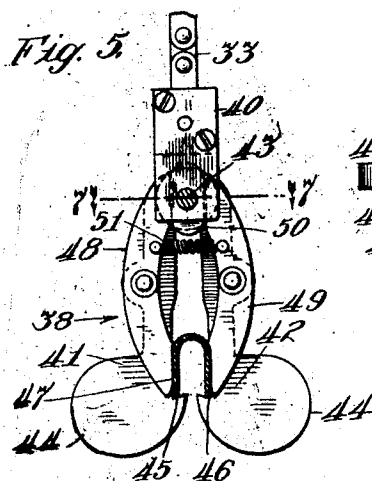
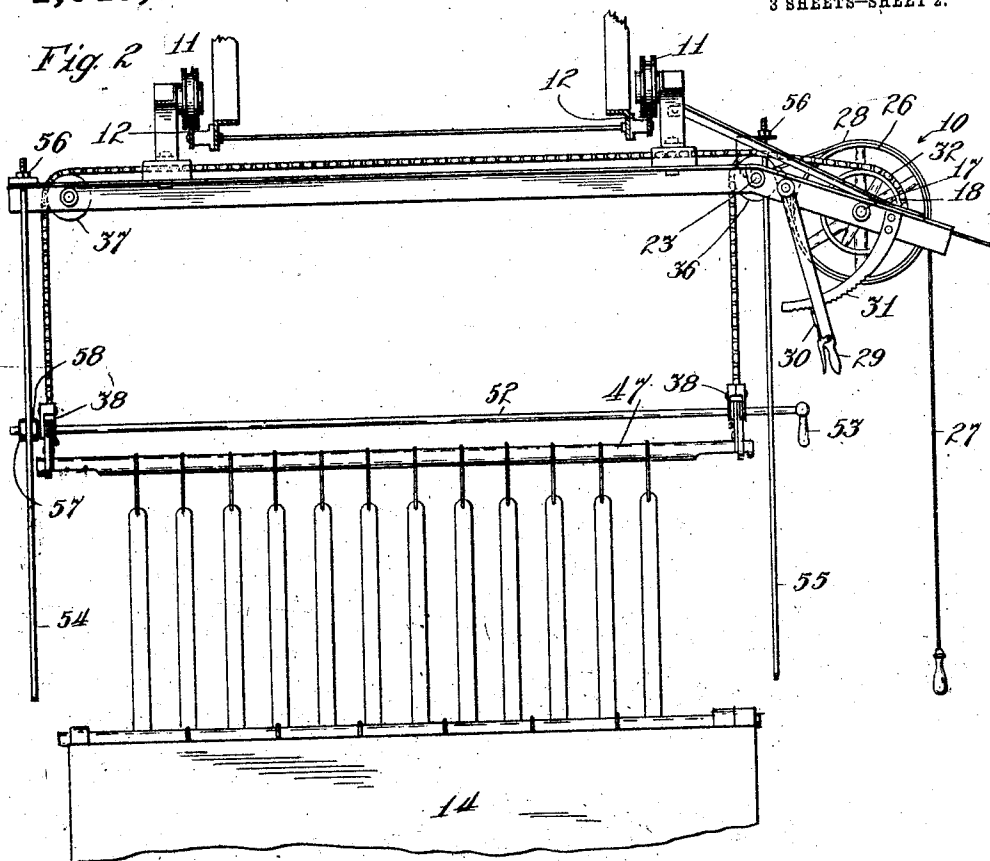
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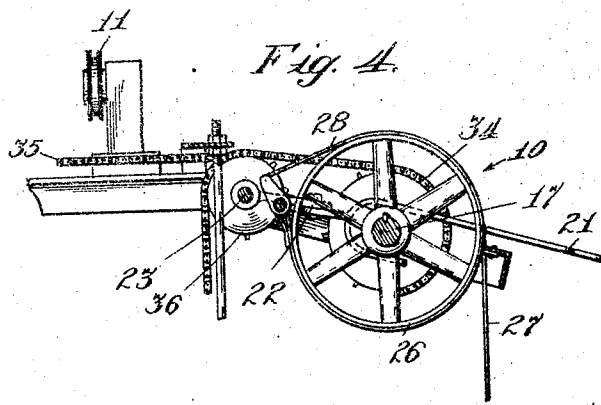
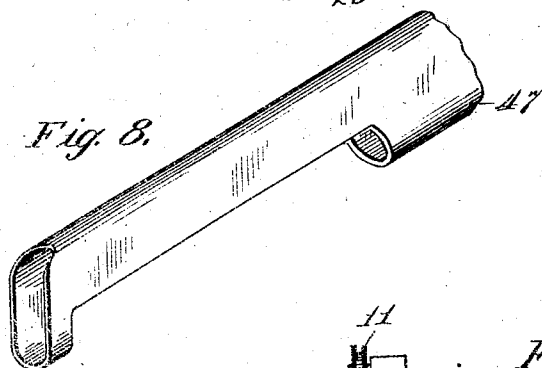
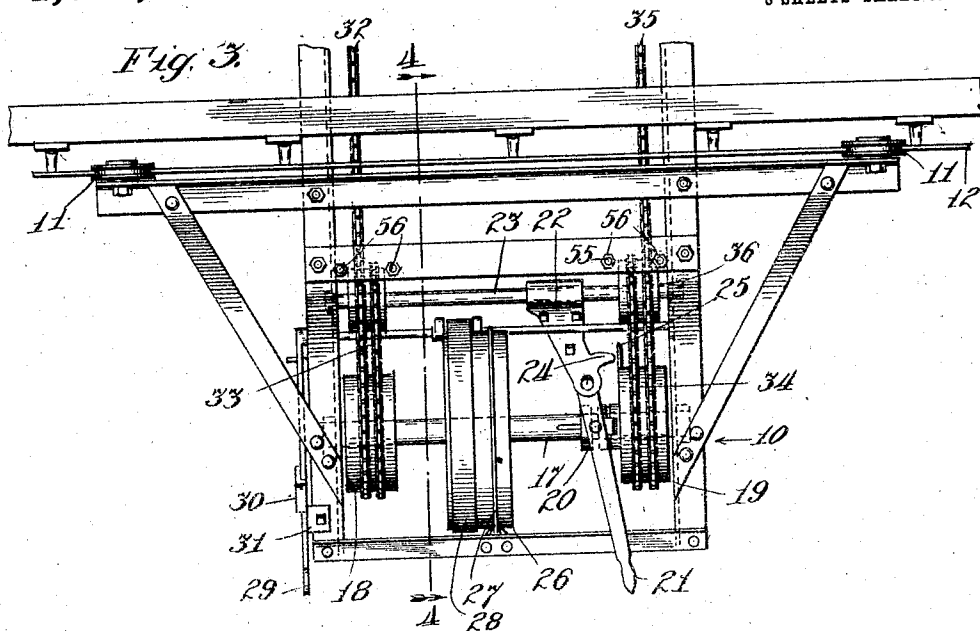
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

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APPLIANCE FOR ELECTROPLATING PLANTS.

1,049,839.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed April 26, 1912. Serial No. 693,367.

To all whom it may concern:

Be it known that I, JOHN A. FRASER, a citizen of the United States, and resident of Benton Harbor, county of Berrien, and State of Michigan, have invented certain new and useful Improvements in Appliances for Electroplating Plants, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to electroplating plants, and particularly to the means for transferring from tank to tank rods carrying the articles being treated; its object being to provide means whereby the operations of an electroplating establishment may be simplified and expedited.

The invention consists of the device which is fully hereinafter described, and which is illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the crane showing a portion of the track upon which it is mounted and a pair of tanks with which it cooperates; Fig. 2 is a side elevation of the crane, its supporting track being shown in cross-section, a detail of one of the tanks appearing in the drawings; Fig. 3 is a detail plan view of the crane and its track; Fig. 4 is a detail section on the line 4—4 of Fig. 3; Figs. 5 and 6 are detail views of the grip forming a part of the crane, the cathode rod of an electroplating tank being shown in section, the parts of the grip being shown in different positions in the two figures; Fig. 7 is a detail section on the line 7—7 of Fig. 5; and Fig. 8 is a detail in perspective of the end of the cathode rod.

In electroplating establishments it is the more common practice to employ a fixed cathode rod in connection with the tank containing the electrolyte, to which rod the articles to be plated are attached by wires.

In a copending application Serial No. 693,368 I have shown a tank provided with a removable cathode rod adapted to enter between jaws forming the negative terminal of an electric circuit, and which may be loaded away from the tank and may, with its load, be transferred from tank to tank as the treatment of the articles proceeds. The present invention appertains to means for transferring these cathode rods with their loads.

The crane comprises a carriage 10 which may be formed of metal bars, preferably angle bars being mainly relied upon. This carriage is provided with wheels 11, preferably four in number, which run upon an overhead track 12, which track is located above the various tanks in the electroplating operation, two of which are represented at 13, 14. The tank 13, which may be regarded as the first of a series, will be used for cleansing the articles to be treated preliminary to their introduction into the plating tank 14.

There is associated with the tank 13 a loading table 15 upon which the cathode rods 16 may be placed for loading. The articles to be plated having been wired to these rods the latter are transferred first to the cleansing tank 13 and then to the plating tank 14, and from that to such other tanks as may be required for their cleansing and finishing.

A shaft 17 is journaled upon the carriage 10, being disposed parallel with the line of travel thereof, and upon this shaft there is mounted a pair of drums 18, 19, the latter being loose upon the shaft and a clutch 20, controlled by a hand lever 21, being provided for locking it thereto. The lever 21 is pivoted upon a bracket 22 fixed to a bar 23 mounted upon the carriage, the inner end of the lever being provided with a laterally extending finger 24 which, when the clutch is fully retracted, crosses the path of an arm 25 projecting radially from the drum, thereby preventing the rotation of the latter. The drum 18 is preferably fixed upon the shaft 17.

The shaft may be turned by any suitable means. For this purpose there is provided a drum 26 mounted thereon, and upon which there is wound a pull cord 27. A band brake 28 encircles the drum 27 and is controlled by a hand lever 29 having a latch 30 cooperating with a notched quadrant 31. To each of the drums 18, 19, there are attached cables 32, 33, 34 and 35, chains being preferably used for this purpose. The cables of each pair turn, respectively, over sheaves 36, 37, located at opposite ends of the carriage, that is to say, at opposite sides of the track upon which the carriage runs. To the free end of each cable there is attached a grip 38, 39. The several grips being alike, the description of one is sufficient. This grip comprises

a head 40 to which the cable 32 is attached and to which there is pivoted a pair of jaws 41, 42, which preferably, and as shown, oscillate about a common center 43. The outer ends of these jaws are weighted, as shown at 44, in order that they normally swing together. The inner face of each jaw is provided with a hook, as shown at 45, 46, the rearward face of which is rounded, as shown. As these grips are lowered upon a cathode rod 47, their jaws automatically spread to permit their hooks to pass below the rod and then close together. The cathode rod is preferably so shaped as to facilitate the engagement with it of the grips and a suitable form is shown, the rod being tubular and having its ends flattened, the lower side of the flattened portion being cut away to afford shoulders for engagement by the hooks of the grips, while the upper face of this flattened portion, being rounded, forces the jaws apart as the grip passes down upon it.

The releasing mechanism for the grip comprises a pair of levers 48, 49, one pivoted upon each jaw 41, 42, their outer or free ends being adapted for engagement as the levers are rocked on their pivots and there being a cam block 50 located between their inner or power ends, by means of which they may be actuated. A spring 51 normally holds the outer ends of the levers apart. The cam-block 50 is fixed upon a rod 52, which serves as the pivot for the jaws 41, 42, and is common to the two grips of a pair, that is to say, grips carried by the cables 32, 33, thereby providing for the simultaneous release of both grips. The rod 52 is provided with a suitable handle 53 at its forward end, which is within easy reach of the operator who controls the drums by means of the pull cord 27 and the clutch and brake levers.

In order that lateral swaying of the grips may be prevented guide loops 54, 55, are provided at each end of the rods 52, these loops being formed of rods bent to U-shape, their upper ends extending through a cross-bar of the carriage and being fitted with nuts, as shown at 56, whereby they may be longitudinally adjusted. The guide loops are sufficiently rigid to prevent vibration. The rod 52 slides freely within a pair of these loops, and the grips are thus guided with certainty to the rod with which they are to be engaged. The lower ends of the loops being closed the rod is prevented from dropping below them should the grip-carrying cables be paid out beyond the required limit. Longitudinal movement of the rod 52 is also prevented by the guide loops by placing upon the rod at either side of one of the loops, as 54, a pair of collars 57, 58.

In operation the crane is shifted on its track to bring it over one or more cathode

rods which are to be transferred, the brake is released, permitting the grips to fall or be drawn down by hand, when they automatically engage the rod. The drums 18, 19, being now rotated by means of the pull cord 27, the rod or rods are elevated and the brake set to hold them, and the crane is moved to convey them to the position where the articles are next to be treated. Either of the rods may now be lowered by manipulation of the clutch and brake, or both may be lowered simultaneously by leaving the clutch in engagement with the drum 19 and releasing the brake.

I claim as my invention—

1. In combination, a frame, a shaft mounted on the frame, means for turning the shaft, a pair of drums on the shaft one thereof being loosely mounted on the shaft, clutch mechanism for fixing the loose drum to the shaft and being engageable with the drum to lock the drum against rotation when released from the shaft, a pair of cables on each drum, two pairs of sheaves for carrying the cables, the members of each pair being located at opposite ends of the frame, rod grips attached to the ends of the several cables, releasing means for each grip, and a controlling rod common to the releasing means of each pair of grips.

2. In combination, a frame, a shaft mounted on the frame, means for turning the shaft, a pair of drums on the shaft one thereof being loosely mounted on the shaft, clutch mechanism for fixing the loose drum to the shaft and being engageable with the drum to lock the drum against rotation when released from the shaft, a pair of cables on each drum, two pairs of sheaves for carrying the cables, the members of each pair being located at opposite ends of the frame, rod grips attached to the ends of the several cables, releasing means for each grip, a controlling rod common to the releasing means of each pair of grips, and a brake for locking the shaft against rotation.

3. In combination, a frame, a rotatable drum mounted on the frame, means for turning the drum, a pair of cables wound on the drum, sheaves at opposite ends of the frame over which the cables run, rod grips attached to the ends of the cables, releasing means associated with both grips, a controlling rod common to the releasing means of both grips, and rigid guide loops depending from the frame and receiving the controlling rod.

4. In combination, a frame, a rotatable drum mounted on the frame, means for turning the drum, a pair of cables wound on the drum, sheaves at opposite ends of the frame over which the cables run, rod grips attached to the ends of the cables, releasing means associated with both grips, a controlling rod common to the releasing means of

both grips, and rigid longitudinally adjustable guide loops depending from the frame and receiving the controlling rod.

5 In combination, a frame, and a hoisting device mounted on the frame and comprising a rotatable drum, cables mounted on the drum, and sheaves at opposite ends of the frame over which the cables turn; and rod grips attached to each cable, each 10 comprising a pair of pivotally united jaws, a pair of releasing levers pivotally mounted on the jaws and arranged to have their outer ends engage, a cam for spreading the inner ends of the levers, and a rod control- 15 ling the cams of both grips.

6. In a grapple in combination, a head, a pair of oppositely facing hooked jaws pivotally mounted upon the head, a pair of levers, a pivot uniting each of the levers 20 with one of the hooked jaws and each of such pivots being located intermediate the ends of both members which it connects, a

spring acting to close the hooked jaws, and means for spreading the higher ends of the levers. 25

7. In a hoisting device in combination, a frame, a winding drum mounted in the frame, a cable extending about the drum and hanging from the frame, a rigid guide rod depending from the frame, and a 30 grapple mounted upon the lower end of the cable and slidingly engaging the guide rod.

8. In a hoisting device in combination, a frame, a winding drum mounted in the frame, a cable extending about the drum and 35 hanging from the frame, a rigid longitudinally adjustable guide rod depending from the frame, and a grapple mounted upon the lower end of the cable and slidingly engaging the guide rod.

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Witnesses:

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