No. 883,458. PATENTED MAR. 31, 1908.

L. L. GIBBS.

GALVANIZING APPARATUS.

APPLICATION FILED JULY 23, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

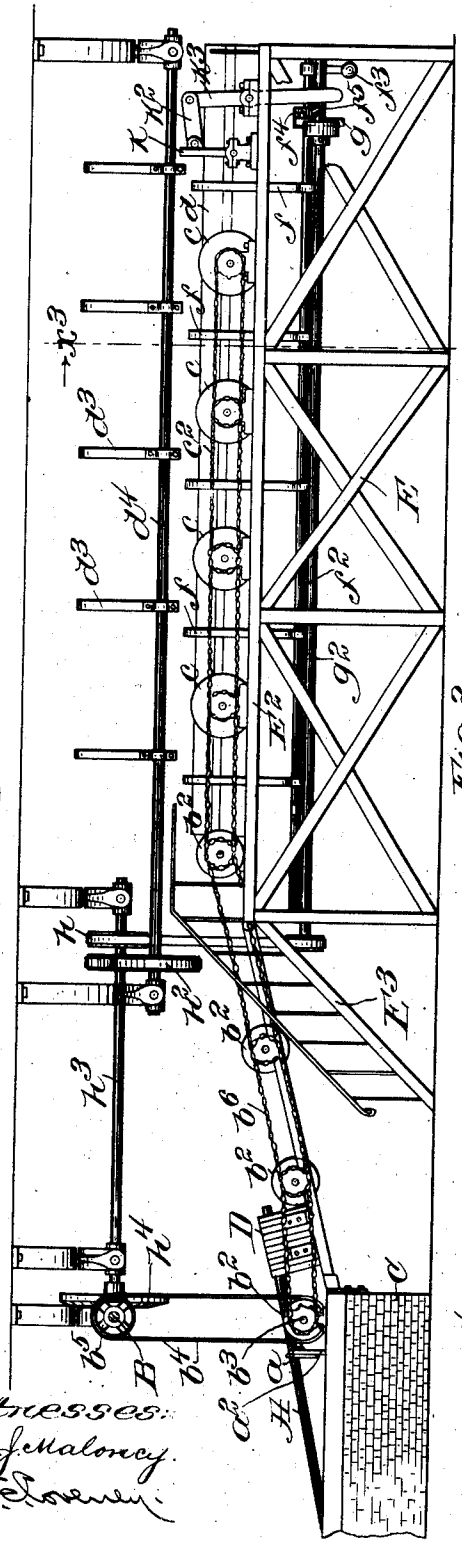
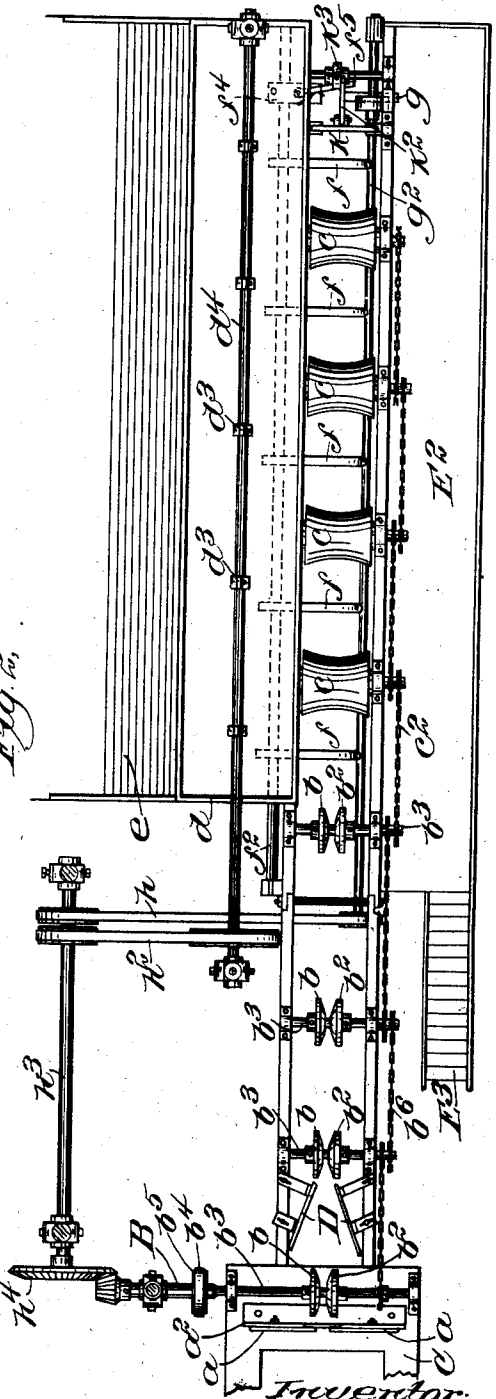


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

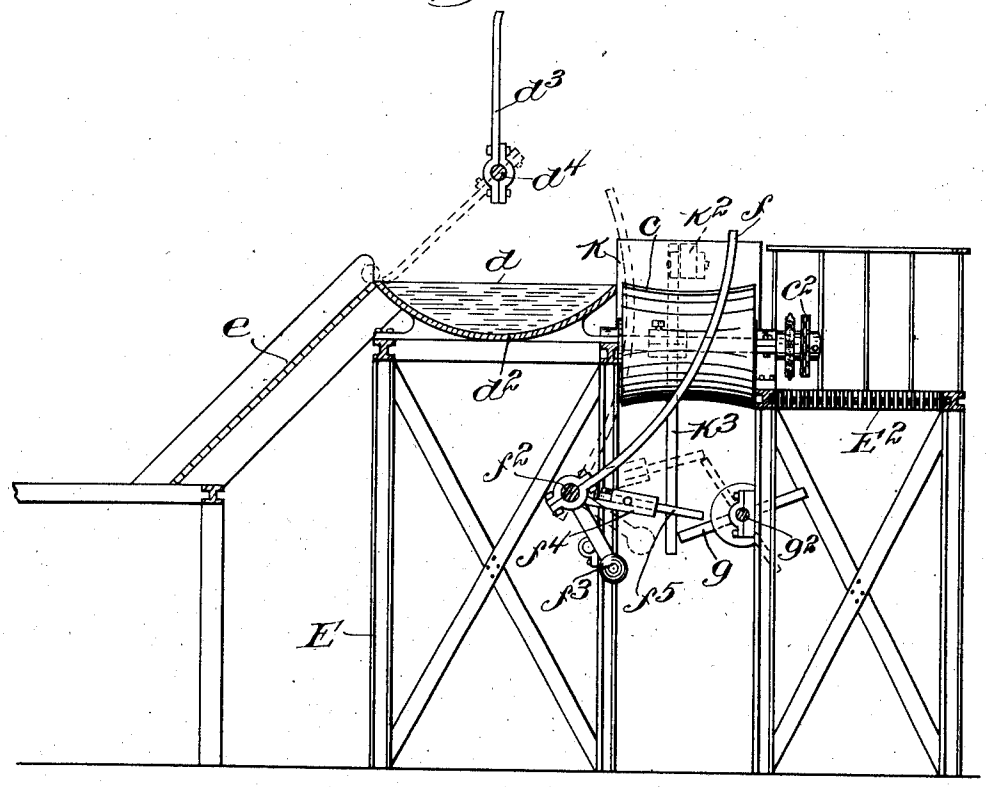
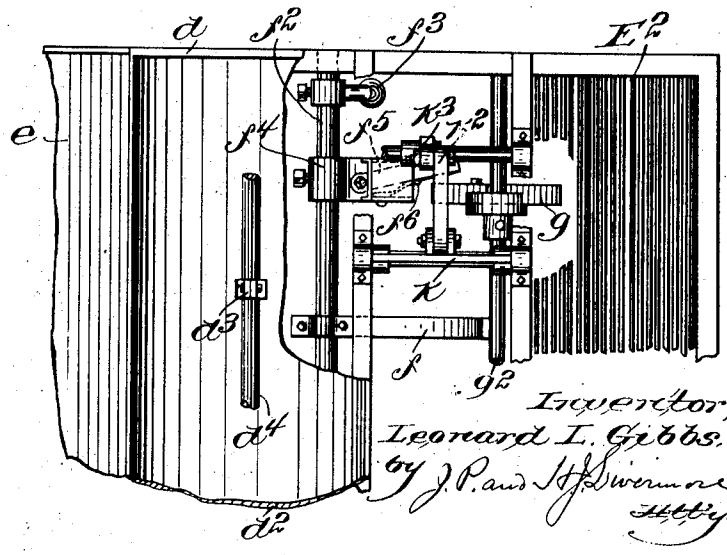


Fig. 4.



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GALVANIZING APPARATUS.

No. 883,458. Specification of Letters Patent. Patented March 31, 1908.

Application filed July 23, 1906. Serial No. 327,273.

To all whom it may concern:

Be it known that I, LEONARD L. GIBBS, a citizen of the United States, residing in South Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Galvanizing Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to a galvanizing apparatus, and is mainly embodied in automatic devices for handling the material in that part of the process which is carried out after the material has been taken out of the galvanizing tank. In the galvanizing process, the material, after removal from the galvanizing tank, is drained, being preferably subjected to the action of wipers in the draining operation, and then immersed in a tank of water from which it must be subsequently removed.

In the apparatus embodying the invention, the handling of the material after it leaves the galvanizing tank is entirely automatic, the material being carried along and subjected to the action of the wipers, then discharged into the water tank and finally discharged from the water tank down a chute or run-way.

The apparatus is herein shown as intended to operate on pipes or rods, and comprises a series of conveying wheels which act upon the rod to draw the same from the tank as soon as the end of the rod is lifted to the periphery of the first wheel, the wipers being so located as to act on the rod before it reaches the wheels, and, subsequently during its travel thereon. As soon as the rod has reached a point adjacent to the water tank, the distance traveled being sufficient for wiping, draining and setting, the end of the rod acts upon an automatic device in the nature of a clutch which causes the operation of discharging means to throw the rod from the conveyer into the water tank. The water tank, in turn, is provided with a continuously operating discharge apparatus which carries the rod through the water and over the edge of the tank.

Figure 1 is a side elevation of an apparatus embodying the invention; Fig. 2 is a top plan view of the same; Fig. 3 is a transverse section, on a larger scale, on the line x^3 of Fig. 1, looking towards the right; and Fig. 4 is a plan view, on the same scale as Fig. 3, of the parts shown in said figure.

The material being galvanized, herein indicated as a rod or pipe A, is lifted by the attendant, and the end moved through the wipers a into contact with the periphery of the conveyer wheel b, b^2, the parts b, b^2 being beveled, as shown, so that the weight of the rod or pipe will cause the same to be frictionally gripped between the beveled surfaces. The parts b, b^2 are shown as adjustably mounted on a revolving shaft b^3 so that they can be separated or drawn together in accordance with the size of the pipe or tube to be operated upon. Similarly, the wipers a are laterally adjustable upon a support a^2, so that the distance between them can be varied correspondingly. The shaft b^3 is driven by a belt b^4 from a pulley b^5 on the main driving shaft B which shaft is herein indicated as extending across the top of the machine to any suitable motor, not herein shown.

In Fig. 2 of the drawings, the shaft B is indicated as broken away, so as not to obscure the parts below. As herein shown, there are a series of conveyer wheels b, b^2, so as to divide the work of drawing the rod A upward from the tank C, the successive wheels being driven by chains b^6 which extend over sprockets on the successive shafts b^3. To facilitate the handling of the material, the guides D are located between the first and second conveyer wheels, these guides alining the material as the rear end is drawn from the tank.

Beyond the conveyer wheels b, b^2, at a point where the material may be carried in a substantially horizontal direction, the machine is provided with a number of concave rolls c driven by chains c^2 from the last of the shafts b^3, the frictional grip upon the material being unnecessary at this point, while it is necessary that the material should be freely disengaged from the conveyer when discharged into the water tank. The water tank d is located adjacent to the conveyer rolls c, and is provided, as best shown in Fig. 3, with a concave bottom d^2, so that the rod A, when discharged into the tank, will roll down to the middle where it lies in the path of a series of disengaging arms d^3 mounted on a shaft d^4 which rotates continuously at a slow speed. The ends of the arms d^3 follow the curve of

the bottom of the tank *d*, so that they will engage and push the material up to the further edge of the tank, so that it will fall by gravity down the chute *e*. It will be seen, therefore, that the material is submerged during its entire travel through the water tank, so that sufficient water action is obtained.

In order that the operation may be completely automatic, the apparatus is provided with a device adapted to be acted upon by the end of the traveling material after the latter has reached the proper position, to cause the operation of a set of arms or lifters to throw the material from the rolls *c* over the edge of the tank *d*. As herein shown, the lifters consist of a series of arms *f* which normally stand in the position shown in full lines, Fig. 3, so that the material will stand upon the conveyer rolls *c* between the arms and the edge of the tank *d*. These arms are mounted on a rock shaft f^2 held in the normal full line position by means of a weight f^3, but adapted to be moved from said position to the dotted line position Fig. 3 at the proper time to discharge the material into the tank *d*. For this purpose, the rock shaft f^2 is provided with a radial member f^4 having an arm f^5 pivotally connected therewith and held as by a spring f^6 out of the path of a continually traveling member, shown as an arm or arms *g* on the rotating shaft g^2. The shaft g^2, as well as the shaft d^4, are driven respectively by belts *h* and h^2 from a countershaft h^3 connected by means of a bevel gear h^4 with the driving shaft B. In order to cause the shaft g^2 to produce the rocking movement of the rock shaft f^2 at the proper time, the end of the material is arranged to act upon a member *k* connected by means of a link k^2 with a pivotally supported lever k^3, the lower end of which is arranged to engage the arm f^5 and throw the same into the path of the projecting part *g* on the rotating shaft g^2. As soon, therefore, as the material acts upon the member *k*, the rock shaft f^2 is tipped by the action of the arm *g*, as shown in dotted lines, Fig. 3, this tipping being only momentary, and the arm *f* being restored by the weight f^3 as soon as the material is disengaged. The discharge of the material further releases the member *k*, so that the spring f^6 carries the arm f^5 out of the path of the arm *g*, so that the further rotation of the shaft g^2 produces no result.

The apparatus is shown as mounted upon a staging E having a platform E^2 for the operator in case it is necessary to inspect the conveyer wheels or assist the movement of the material, this platform being shown as accessible by means of steps E^3.

Claims.

1. In a galvanizing apparatus, the combination with the galvanizing tank; of an automatic conveyer to act upon the material which has been in the tank; supports for the material beyond said conveyer; wipers between the tank and the conveyer; a water tank located at one side of the conveyer; and means for laterally transferring the material from the supports into the water tank.

2. In a galvanizing apparatus, the combination with a galvanizing tank; of an automatic conveyer to act on the material which has been in the tank; rotating supports for the material beyond the conveyer; a water tank located at the side of said rotating supports; means for laterally transferring the material from the said supports into the water tank; and means for automatically discharging the material from the water tank.

3. The combination with a galvanizing tank; of a conveyer wheel having a concave beveled surface to afford a frictional grip on the material; a series of rotating supports beyond the said conveyer; a water tank adjacent to said supports; and arms movable across the path of said supports to engage the material thereon and discharge it into the water tank.

4. The combination with the galvanizing tank; of adjustable wipers located adjacent thereto; an adjustable conveyer wheel to engage the material issuing from the tank at a point beyond said wipers; a conveying support beyond the conveyer wheels; a water tank having a concave bottom and located adjacent to said support; and revolving arms, the ends of which travel through said water tank adjacent to the bottom thereof to engage and eject the material therein.

5. In a galvanizing apparatus, the combination with a galvanizing tank; of an automatic conveyer to act upon the material which has been treated in the tank; wipers between said tank and said conveyer; a water tank; means for discharging the material from the conveyer into the water tank; and means operated by the material for causing the operation of the discharging means.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

LEONARD L. GIBBS.

Witnesses:
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