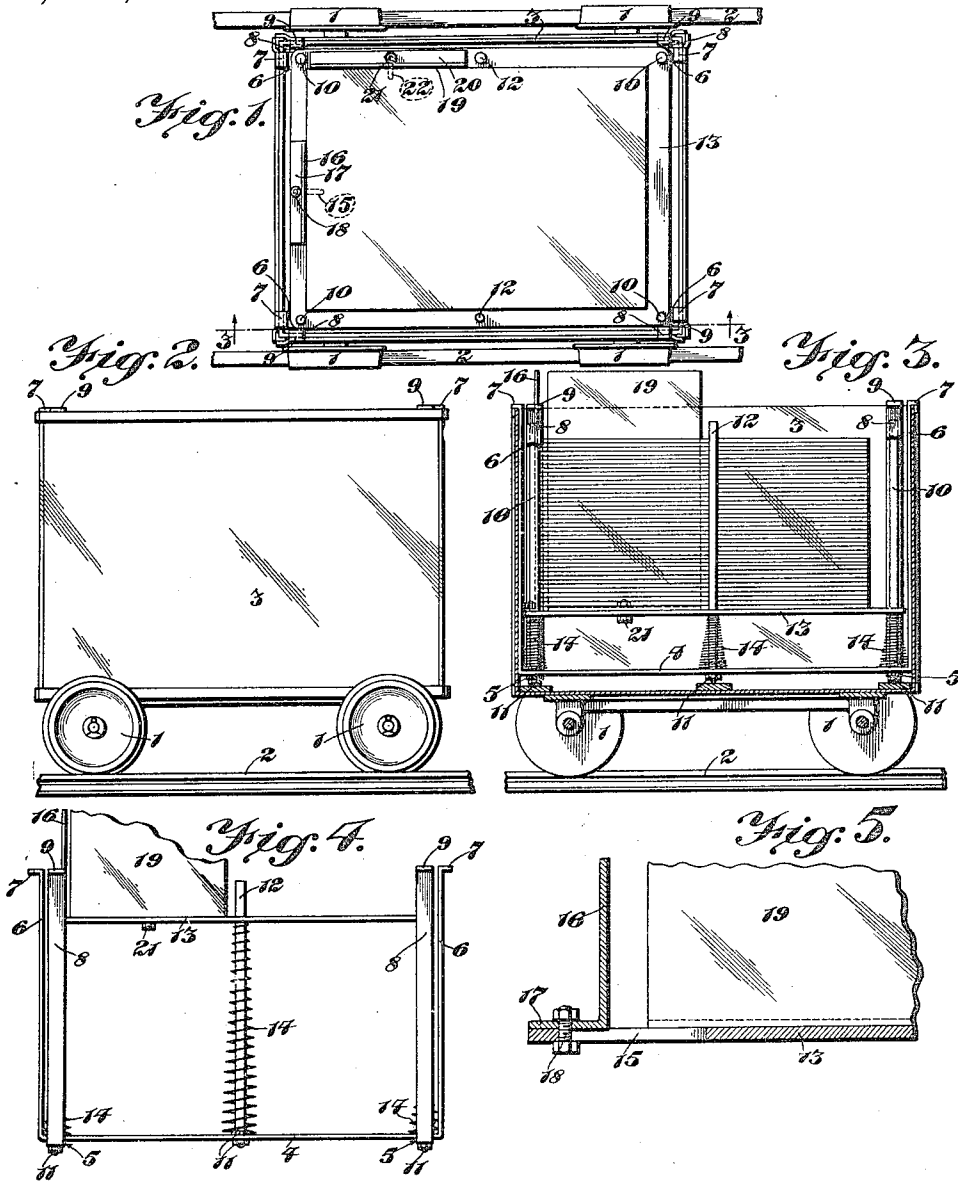


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 AUTOMATIC SHEET METAL TANK.
 APPLICATION FILED AUG. 14, 1916.

1,212,341.

Patented Jan. 16, 1917.



Attest:
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UNITED STATES PATENT OFFICE.

JAMES FOWLER, OF GRANITE CITY, ILLINOIS.

AUTOMATIC SHEET-METAL TANK.

1,212,341.

Specification of Letters Patent.

Patented Jan. 16, 1917.

Application filed August 14, 1916. Serial No. 114,931.

To all whom it may concern:

Be it known that I, JAMES FOWLER, a citizen of the United States, residing at Granite City, county of Madison, and State of Illinois, have invented a new and useful Automatic Sheet-Metal Tank, of which the following is a specification.

This invention relates to automatic sheet metal tanks of the type adapted for use in rolling mills.

According to present usage in rolling mills the sheet metal is placed vertically within the tank so that as the sheet metal is delivered from the machine the entire time of one man is required to receive and place the sheet metal within the tank. Also, in removing the sheet metal from the tank for further treatment the entire service of one man is required to remove the sheet metal, while the time of another man is required to receive the metal and give attention to the treatment of it. This is necessary because the sheet metal is delivered from the machine in a nearly horizontal plane, thus necessitating manual service in order to place the sheet metal vertically in the tank according to custom and requirements of the construction of the tanks now in use. Removal of the sheet metal from the tank for further treatment also requires that the person moving the metal stand beside the tank, whereas it is well known that the person giving attention to the further treatment of the metal must be beside the machine, or place of treatment. Thus, for placing the metal within the tank, the entire time of one man is required and for removing the metal from the tank the entire time of another man is required, both in addition to the persons operating the machines, or giving attention to the treatment of the metal.

The object of the present invention is to provide a device for use within the tank, whereby the service of the additional men required to place the sheet metal vertically in the tank and to remove the sheet from the tank may be dispensed with. The attainment of this object involves the provision of a movable platform or table within the tank supported normally near the top of the tank and arranged to yield or depress gradually and in proportion to the thickness and weight of the sheets of metal as they are placed successively thereon from the ma-

chine, or any other source of delivery, so that the uppermost plate of metal is always at or near the plane occupied by the upper surface of the table or platform when the tank is empty. By this construction the sheet metal is also raised gradually as the sheets are successively removed from the tank, so that the person giving attention to the further treatment of the metal can conveniently remove the metal from the tank without the necessity of an additional attendant.

Another object of the invention is to provide adjustable means for squaring or placing the sheets of metal in the tank so that the edges will be in approximate vertical alinement.

Other objects and advantages attained by my invention will appear from the following description, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of a sheet metal tank embodying my present invention. Fig. 2 is a side elevation. Fig. 3 is a sectional view on the line 3—3 of Fig. 1. Fig. 4 is a detailed view illustrating the position of the table or platform when there are no sheets of metal thereon. Fig. 5 is a detailed view illustrating the arrangement of the adjustable devices for effecting proper adjustment of the sheets of metal.

As usual the tank is mounted upon a truck supported by the flanged wheels 1 operating upon a track composed of parallel rails 2. According to the present custom the tanks are composed of wood which rapidly deteriorate under the influence of the chemically treated water. The tank 3 in which I have illustrated the preferred embodiment of the invention is composed of metal and is mounted upon the truck so that the tank may be readily transmitted or moved from one point to another in the mill.

Within the tank 3 I place a frame composed of longitudinal bars 4 and transverse bars 5. The longitudinal bars are positioned near the side walls of the tank and are integrally united with upright arms 6 provided on their upper ends with lateral extensions 7 which project over the upper edges of the end walls of the tank. The transverse bars 5 are adjacent to and parallel with the end walls of the tank and are integrally united with vertical arms 8 pro-

vided on their upper ends with lateral extensions 9 extending over the upper edges of the side walls of the tank. The bars of the frame thus composed are provided with registering holes through which extend the upright rods 10. The lower extremities of the rows 10 are threaded and the bars composing the frame are clamped together between nuts 11 screwed on the threaded ends of the rods. Thus, there is provided an upright rod 10 near each corner of the tank. In addition, each of the said bars 4 of the frame supports an upright rod 12 parallel with the rods 10 and of equal length.

The movable platform or table hereinbefore mentioned comprises a plate 13 provided with holes for receiving the rods 10 and 12, so that when the plate 13 is placed within the tank and in connection with the rods, said plate will be freely movable vertically. The plate is supported upon a series of conical springs 14 which encircle the rods 10 and 12, respectively, and rest upon the bars 4 of the frame. The springs 14 are of the expansion type and normally support the table or platform 13 near the top of the tank, but are arranged to yield gradually under the weight of the sheet metal so that the upper surface of each successive sheet placed within the tank upon the table will be approximately in the same place as that occupied by the upper surface of the table when no sheet metal is thereon. Thus, the sheet metal will be submerged as it is placed upon the table and the table will yield or depress gradually until the tank becomes filled. Of course, as the sheets of metal are successively removed from the tank the springs 14 expand and raise the table 13 and the remaining sheets of metal, so that the sheet metal is at all times supported in a convenient and available position near the top of the tank and is readily accessible from any side of the tank, irrespective of the quantity of sheet metal therein.

The conical springs 14 when compressed occupy a less vertical space than springs of uniform diameter in which the coils compress against each other, for the reason that in springs of the conical type the reduced ends of the springs are received within the enlarged ends.

At one end of the table 13 a longitudinal slot 15 is formed and, in connection with the end of the table, I provide an end stop wall 16 having an angular base 17 seated on the table and held in connection therewith by a clamp device including a bolt 18 passing through the slot 15 and through the angular base 17. The wall 16 is vertical and may be adjusted in any desired position upon the table to accommodate the sheets of metal of various sizes. To cooperate with the end stop wall 16, I provide a side stop wall 19

having an angular base 20 bearing upon the table and connected thereto by a clamp device including a bolt 21 passing through the base and through the slot 22 in the table. Thus, the side stop wall may also be adjusted to accommodate sheets of metal of various sizes.

It will be apparent that the construction and arrangement of the frame and the other parts of the invention may be changed or varied to meet different conditions and requirements, or the preference of individual users without departing from the principles of the invention. I do not restrict myself to precise features of construction and arrangement, but

What I claim and desire to secure by Letters Patent of the United States, is:—

1. A tank for sheet metal, comprising a tank, a table within the tank adapted to receive and support superimposed sheets of metal and capable of vertical movement in the tank in order to support the uppermost plate at a constant level irrespective of the number of plates upon the table, and springs within the tank supporting the table and arranged to yield under the weight of the plates as they are successively placed on the table, whereby the uppermost plate is maintained at approximately a constant level irrespective of the number of plates thereon.

2. A tank for sheet metal, comprising a tank, a table within the tank arranged to receive and support superimposed sections of sheet metal and to support the sheet metal plates in position so that the uppermost one is at a constant level for manual discharge, and a series of springs within the tank supporting the table and arranged to yield under the weight of the sheet metal plates as they are successively placed on the table and to raise the table and the plates thereon as the plates are successively removed therefrom, whereby the uppermost plate is constantly maintained at approximately the same level.

3. A tank for sheet metal, comprising a tank adapted to contain an immersing liquid, a table within the tank arranged to support superimposed sections of sheet metal immersed within the liquid, and springs within the tank supporting the table and tensioned to support the table and the sections of sheet metal thereon in position to maintain the uppermost section of sheet metal constantly at approximately the same level as the sections are successively placed within the tank or removed therefrom.

4. A tank for sheet metal, comprising a transportable tank arranged to contain an immersing liquid and superimposed sections of sheet metal immersed therein, a table within the tank for supporting the superimposed sections of sheet metal, springs within the tank supporting the table and

5 tensioned to maintain the uppermost section of sheet metal constantly at approximately the same level as the sections are successively placed upon the table or removed therefrom, and means for maintaining the table and the springs in proper relative position within the tank.

In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

JAMES FOWLER.

Witnesses:

N. G. BUTLER,
JOHN D. RIPPEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."