June 10, 1930. F. M. TIES 1,763,448

PUDDLER FOR TANKS OF SEWAGE DISPOSAL PLANTS

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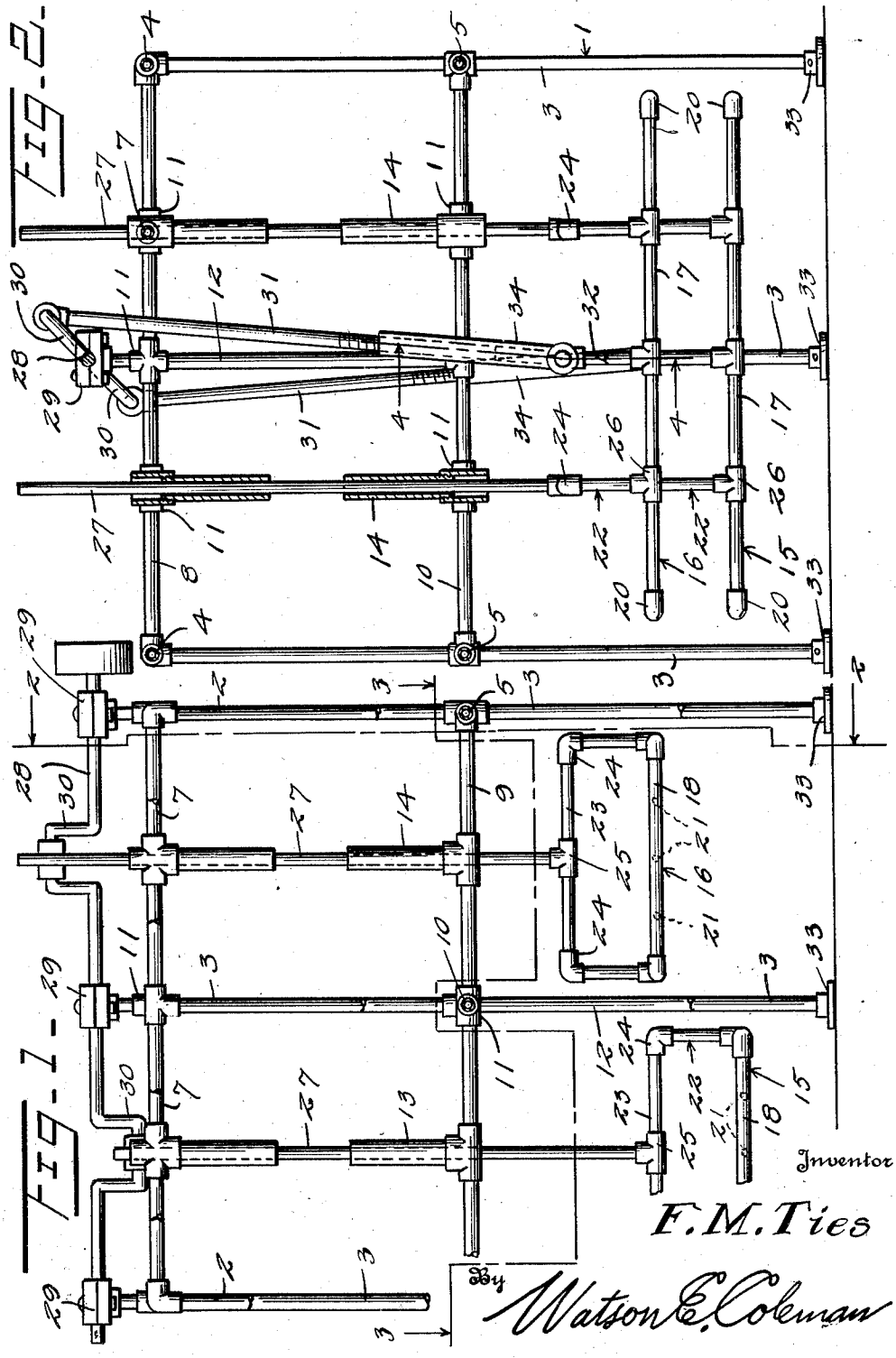


Fig. 2.

Fig. 1.

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FIG. 3.

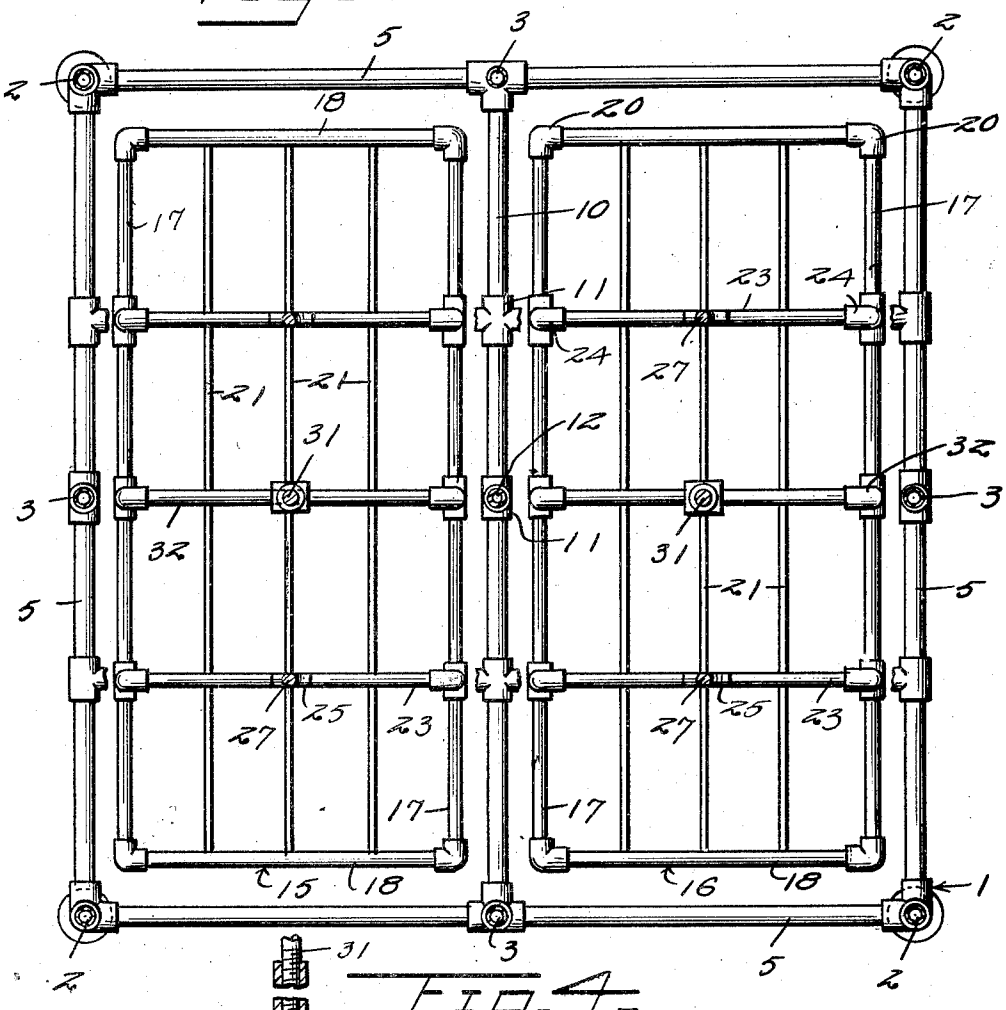
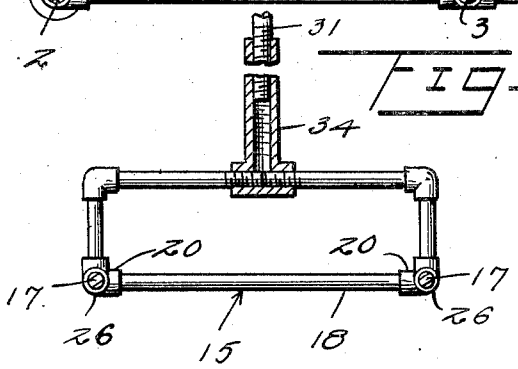


FIG. 4.



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UNITED STATES PATENT OFFICE

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PUDDLER FOR TANKS OF SEWAGE-DISPOSAL PLANTS

Application filed August 8, 1929. Serial No. 384,415.

This invention relates to puddlers, and has for one of its objects to provide a novel device of this character which shall be especially adapted to be used for the purpose of churning and breaking up all solids accumulating in the tanks of sewage disposal plants.

The invention has for a further object to provide a puddler of the character stated which shall be strong, durable and highly efficient, which may be manufactured and sold at low cost, and which may be readily placed within and secured to a sewage tank.

With the foregoing and other objects in view, the nature of which will appear as the description proceeds, the invention consists in the construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, wherein:—

Figure 1 is a view partly in vertical section and partly in end elevation of the puddler;

Figure 2 is a sectional view taken on the vertical planes indicated by the line 2—2 of Figure 1;

Figure 3 is a sectional view taken on the horizontal planes indicated by the line 3—3 of Figure 1, and

Figure 4 is a sectional view taken on the planes indicated by the line 4—4 of Figure 2.

The puddler comprises a frame 1, which by preference is of rectangular formation. The frame 1 consists of corner bars 2, vertical side bars 3, and upper and lower horizontal side bars 4 and 5, respectively.

The bars 2 to 5 are of hollow and sectional formation, and the sections thereof are connected together by couplings 6.

The frame 1 is reinforced and strengthened by upper brace bars 7 and 8, which are connected to the upper frame bars 4 by the couplings 6 of such bars, and by lower brace bars 9 and 10, which are connected to the frame bar 5 by the couplings 6 of such bars. The bars 7 and 9 are arranged at opposite sides of one vertical center of the frame, and the bars 8 and 10 are arranged at the other vertical center of the frame. The bars 7 and 10 are of hollow and sectional formation, and the sections thereof are connected by couplings 11. A brace bar 12 extends from the bar 8 and the bar 10, and is connected to the centers of said bars by the central couplings of the same. A pair of tubular guides 13 and a pair of similar guides 14 are arranged vertically within the frame 1 at opposite sides of the brace bars 8 and 10, and are secured to the brace bars 7 and 9 by certain couplings of such parts.

Paddles 15 and 16 are arranged horizontally within the lower portion of the frame 1. The paddles 15 and 16 are of elongated rectangular formation and each consists of side bars 17, end bars 18 and an intermediate cross bar 19. The bars 17 and 19 are of hollow and sectional formation and the sections are secured together by couplings 20. Each paddle 15 and 16 also comprises longitudinally extending bars 21, which are arranged between the side bars 17 and are secured to the end bars 18.

The paddles 15 and 16 are each provided with a pair of yokes 22, the yokes being arranged at the upper sides of the paddles and at opposite sides of their transverse centers. The yokes 22 are made up from hollow bars 23, which are secured together by couplings 24 and 25, and the yokes are secured to the paddles by couplings 26. The couplings 25 are arranged at the longitudinal centers of the paddles 15 and 16, and guide rods 27, which are slidably arranged in the guide tubes 13 and 14, have their lower ends engaged with the couplings 25. The guide tubes 13 and 14 and the guide rods 27 mount the paddles 15 and 16 for vertical reciprocation within the frame 1.

A shaft 28, which may be driven by an internal combustion engine, electric motor or the like and connected thereto by a worm or other suitable gearing is journaled in bearings 29 secured to the upper ends of the frame bars 3 and 12, and is provided with cranks 30. Connecting rods 31 are engaged with the cranks 30 and with yokes 32, which are similar to the yokes 22 and are secured to the frames 15 and 16 at the transverse center of the same. The cranks 30 extend in opposite directions from the shaft 28 in order to effect the simultaneous reciprocation of the paddles 15 and 16 in opposite directions. The con-

necting rods 31 are engaged with the yokes 32 through the medium of sleeves 34, which are pivotally connected to the yokes and to which the connecting rods are adjustably connected so as to permit the stroke of the paddles 15 to be varied.

In practice, the puddler is arranged within the tank of a sewage disposal plant in a manner to position the lower ends of the frame bars 2 and 3 upon the bottom of the tank, and the puddler is secured to the tank by elements engaging the bottom of the tank and passing through attaching flanges 33 secured to the lower ends of said frame bars.

The rotation of the shaft 28 reciprocates the paddles 15 and 16 in opposite directions, with the result that all solids accumulating in the tank will be churned and broken up. The paddles 15 and 16 are held against any tilting movement while in operation by the guide tubes 13 and 14 and guide rods 27, with the result that they will function at their highest efficiency at all times. The puddler may be made of any size. The small size puddlers will embody two paddles and the larger size puddlers will embody three, four or more paddles, the number of paddles to be employed depending upon the size of the tank in connection with which the puddler is to be used.

While I have described the principle of the invention together with the structure which I now consider the preferred embodiment thereof, it is to be understood that the structure shown is merely illustrative and that such changes may be made, when desired, as fall within the scope of the invention as claimed.

I claim:—

1. A puddler of the character set forth, comprising a frame, vertical guide tubes carried by the frame, elongated paddles arranged within the frame, yokes carried by the paddles at opposite sides of their transverse centers and in alinement with the guide tubes, guide rods fixed to the yokes and working in the guide tubes, yokes carried by the paddles at their transverse centers, a shaft journaled upon the frame and provided with oppositely directed cranks, and connecting rods engaged with the cranks and said last named yokes.

2. A puddler for a sewage disposal tank, comprising a frame consisting of vertical and horizontal bars and adapted to be arranged in the tank, pairs of upper and lower horizontal brace bars arranged within and secured to the frame at opposite sides of one vertical center thereof, upper and lower horizontal brace bars arranged within and secured to the frame at the other vertical center thereof, vertical guide tubes carried by said first brace bars, elongated paddles arranged horizontally within the frame below the brace bars, vertical guide rods connected to the paddles and working in the guide tubes, and means for reciprocating the paddles.

In testimony whereof I hereunto affix my signature.

FRED M. TIES.