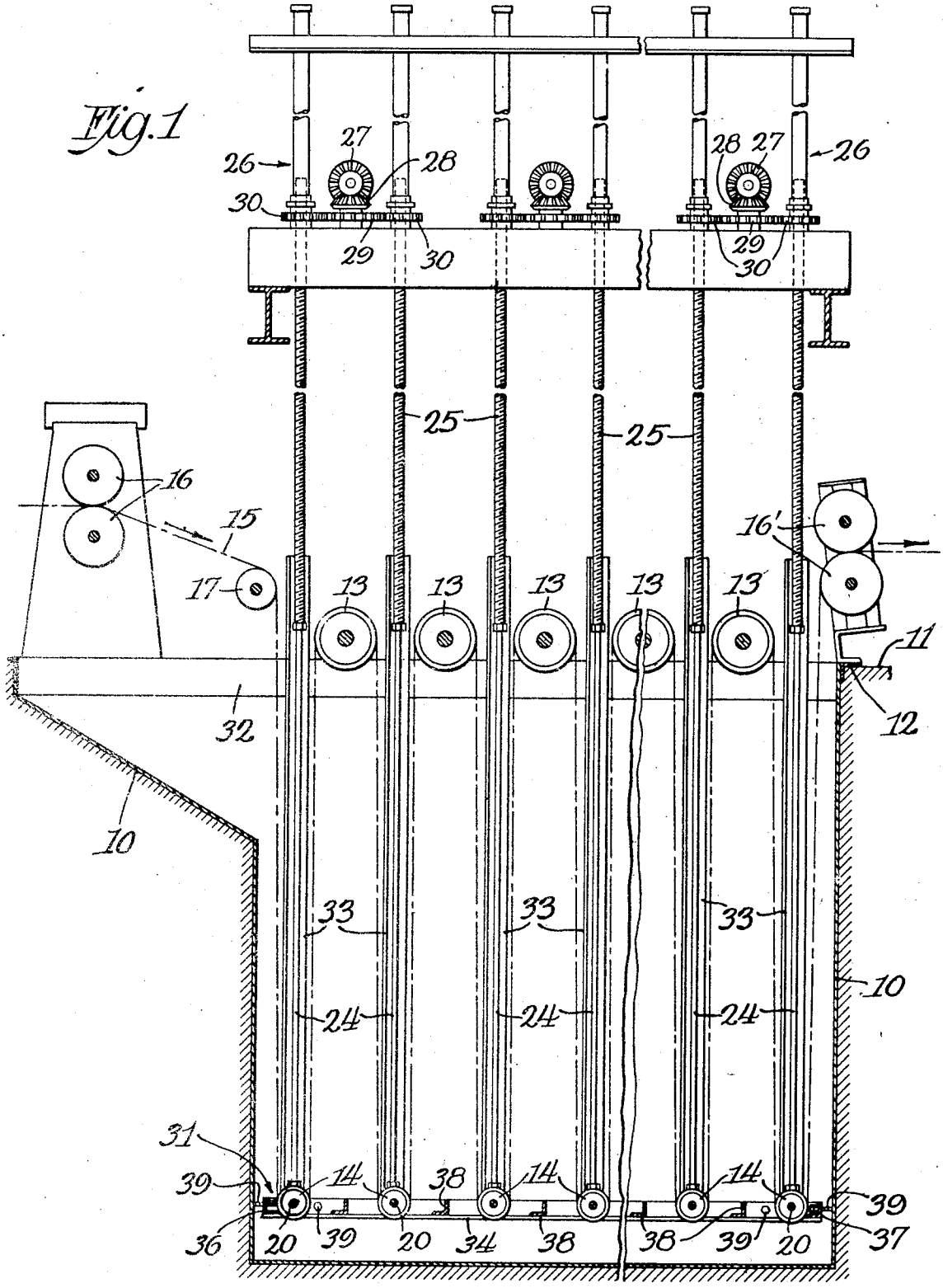
Feb. 16, 1932. A. E. F. MOONE 1,845,317

SATURATOR

Filed Oct. 30, 1929 2 Sheets-Sheet 1

Fig. 1




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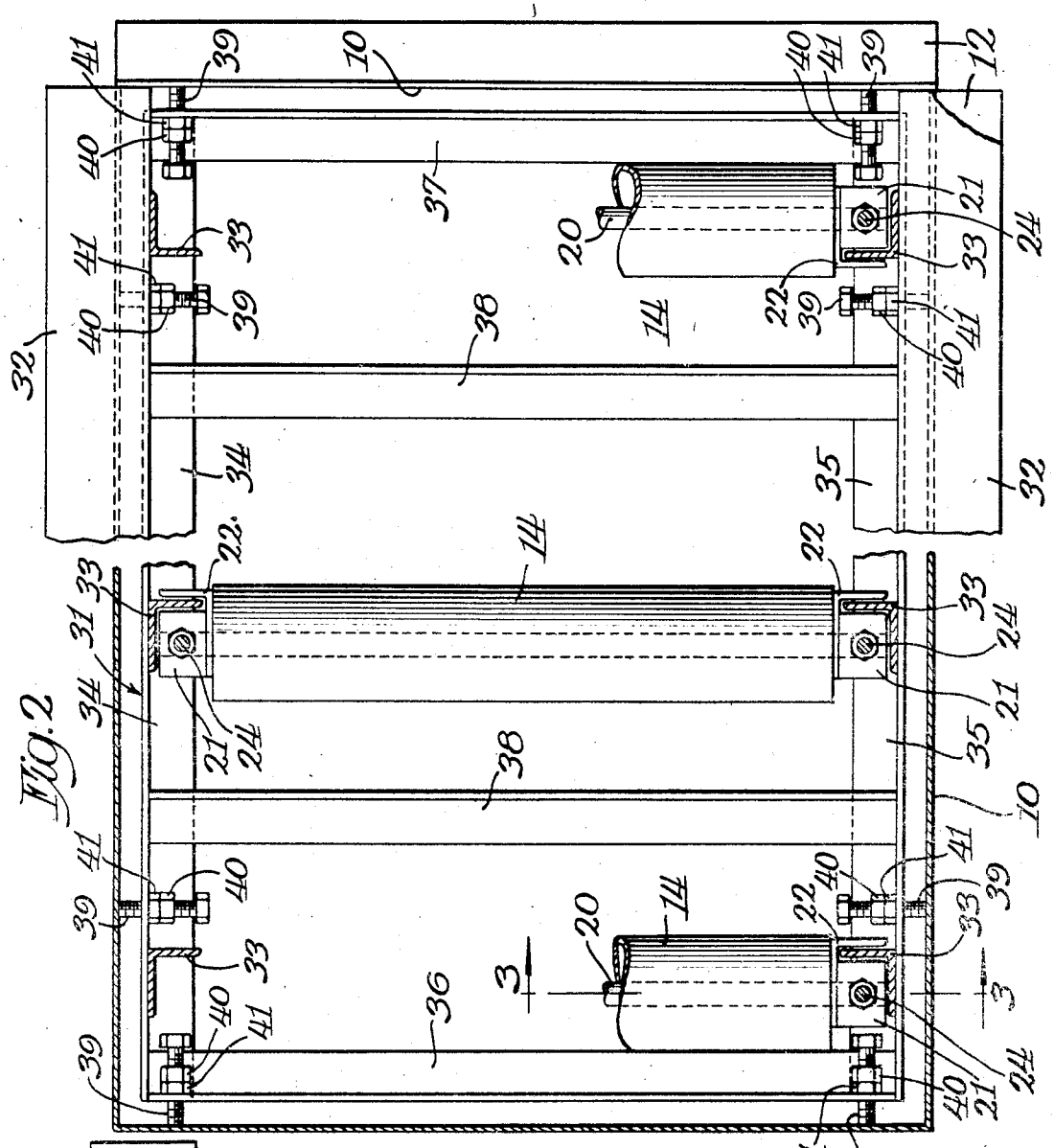


Fig. 2

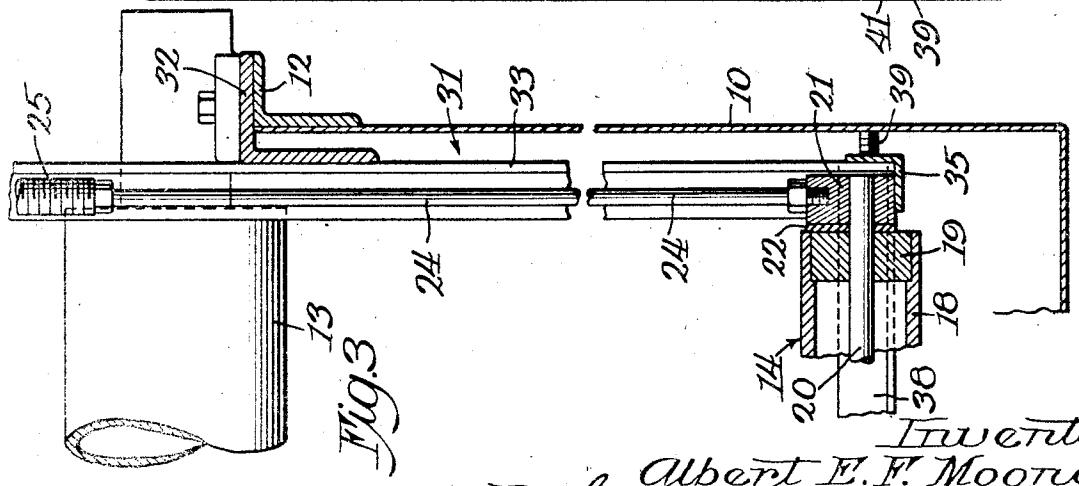


Fig. 3

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# UNITED STATES PATENT OFFICE

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## SATURATOR

Application filed October 30, 1929. Serial No. 403,401.

This invention relates to saturators, such as are employed in the manufacture of prepared roofing and the like, and has for its primary object to provide an improved form of gate roll guide frame for use in connection therewith, which will remedy defects in existing structures.

Other and further objects and advantages will become apparent as the disclosure proceeds and the description is read in conjunction with the accompanying drawings, in which

Fig. 1 is a longitudinal, sectional view of a saturant tank;

Fig. 2 is a plan view, partly in section and partly in elevation, of the saturant tank and frame; and

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

One of the steps in the manufacture of prepared roofing, weatherproof sheeting, insulating paper, and the like, consists in passing the foundation sheet, which is to form the basis of the desired product, through a tank containing a hot asphaltic compound or saturant. To insure thorough impregnation, it is customary to pass the foundation sheet through the saturant a number of times which is accomplished by providing a series of upper loop forming rolls above the level of the saturant, and a series of lower loop forming rolls, commonly known in the art as gate rolls, adjacent the bottom of the saturant tank. To facilitate threading the foundation sheet through the loop forming rolls, the gate rolls are usually adapted to be raised by a suitable hoisting mechanism to the level of the upper rolls thus permitting the rolls to be threaded without the necessity of removing the saturant from the tank.

The upright members employed to guide the gate rolls in their vertical travel have usually heretofore been riveted in one way or another to the side walls of the saturant tank, but such practice has met with difficulty due to warping and buckling of the walls of the tank brought about by the high temperature of the contained material. As a consequence, the guide members are often distorted and the normal operation of the gate rolls is greatly interfered with.

Referring now to the drawings, the reference character 10 refers to a saturant tank located below the floor line 11. The tank may be of any suitable shape and is provided with a marginal flange 12 along its upper edge. A series of upper loop forming rolls 13 are journaled in suitable bearings preferably near the floor line and are in staggered relation to a series of lower loop forming rolls or gate rolls 14 located adjacent the bottom of the tank. The bibulous base or foundation sheet 15 enters the tank after passing between squeeze rolls 16 and over a guide roll 17, and is looped between alternate rolls of the upper and lower series after which it passes between other suitable squeeze rolls 16′ for further treatment. The upper series of rolls and the squeeze rolls are preferably power driven in unison, as is usual in such constructions.

The gate rolls 14 are preferably formed from pipe sections 18 and are provided with plugs 19 which carry an axial shaft 20 extending beyond the ends of the pipe section to form trunnions. These trunnions are journaled in bearing blocks 21 to which are secured angle guide members 22 having their transverse webs spaced from the block to form guide pockets. Rods 24, secured at their lower ends to the bearing blocks 21, extend upwardly parallel to the sides of the tank and are suitably joined at their upper ends to threaded hoisting rods 25. Hoisting mechanism, generally designated 26, cooperates with the threaded rods 25 to raise the gate rolls 14 to any desired adjustment and permits a ready threading of the foundation sheet through the series of upper and lower rolls when the latter are raised to a position above the level of the saturant.

The hoisting mechanism 26 may be of any suitable form and is here illustrated as operating through a train of gears 27, 28, 29 and 30 to raise and lower the gate rolls as desired.

Suspended from the flanged walls 12 of the saturant tank 10 is a guide frame generally designated 31 which cooperates with the angle member 22 and bearing block 21 to maintain the gate rolls in proper alinement

and to guide them in their vertical travel. The outside dimensions of the guide frame 31 are somewhat less than the inside dimensions of the saturant tank so as to allow the frame to be freely suspended within the tank. The guide frame 31 comprises angle bars 32 which rest upon and are secured in any suitable manner to the flanged walls 12 of the saturant tank. The horizontal web of the angle bar 32 is of sufficient breadth as to space the vertical web of the bar away from the side walls of the tank. Upright guide members 33, preferably in the form of angle bars, are secured to the bars 32, as by riveting, the lower ends of which extend downwardly to a point adjacent the bottom of the tank. Horizontal, longitudinal beams 34 and 35 and transverse beams 36 and 37 are secured to the lower ends of the upright members 33, and with suitable cross braces 38 form a rigid frame member.

The transverse webs of the upright members 33 extend into the pockets formed between the transverse webs of the angle members 22 and the blocks 21 to guide the gate rolls when they are moved vertically and to maintain the said rolls in proper alinement.

Means are advantageously provided for adjusting the frame 31 with reference to the side walls of the tank. These means may take the form of spacer or adjusting bolts 39 provided adjacent the ends of the horizontal beams 34, 35, 36 and 37, and are provided with lock nuts 40 to maintain the adjustment. The nuts 41 which are welded to the vertical webs of the horizontal beams 34, 35, 36 and 37, is but an expeditious way of furnishing a threaded connection between the lower portion of the frame 31 and the adjusting bolts 39.

It will thus be seen that by providing a gate roll guide frame independent of the side walls of the saturant tank, the frame will be practically unaffected by any warping or buckling of the said walls. In any event, such warping or buckling will not distort or injure the upright guide members 33, and should the lower portion of the frame 31 be moved from its adjusted position through contact of the walls of the tank with the frame 31 by the adjusting bolts 39, it is but an easy matter to bring the frame back to its proper position.

It is apparent that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and the present embodiment of the invention is to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims, rather than to the foregoing description, to indicate the scope of the invention.

I claim as my invention:

1. In a saturator, in combination, a tank for saturant, a plurality of upper loop forming rolls, a plurality of vertically shiftable lower loop forming rolls, and a frame suspended within the tank for maintaining the lower rolls in alinement, said frame being spaced away from the walls of the tank.

2. In a saturator, in combination, a tank for saturant, a plurality of upper loop forming rolls, a plurality of vertically shiftable gate rolls, a frame suspended within the tank for alining the gate rolls, said frame being adjustably spaced away from the walls of the tank.

3. In a saturator for impregnating the foundation sheet of roofing material with a hot bituminous substance, in combination, a tank for saturant, and a gate roll guide frame suspended within the tank and spaced apart therefrom.

4. In a saturator for impregnating the foundation sheet of roofing material with a hot bituminous substance, in combination, a tank for saturant, a gate roll guide frame suspended within the tank and spaced apart therefrom, and means for adjusting the frame relative to the tank walls.

5. In a saturator for impregnating the foundation sheet of roofing material with a hot bituminous substance, in combination, a tank for saturant, a gate roll guide frame suspended within the tank and spaced apart therefrom, and spacer bolts for adjusting the frame relative to the tank.

6. In a saturator, in combination, a tank for saturant, a plurality of vertically shiftable gate rolls, and a guide frame within the tank furnishing guides for the gate rolls during vertical displacement thereof, said frame being spaced from the walls of the tank.

7. In a saturator, in combination, a tank for saturant, a plurality of vertically shiftable gate rolls, a guide frame within the tank furnishing guides for the gate rolls during vertical displacement thereof, said frame being spaced from the walls of the tank, and means for adjusting the frame relative to the tank.

8. In a saturator, in combination, a tank for saturant, a frame suspended within the tank and spaced from the walls thereof, and means adjacent the lower end of said frame for adjusting the frame relative to the walls of the tank.

9. In a saturator, in combination, a tank for saturant, a plurality of upper loop forming rolls, a plurality of gate rolls, and a guide frame for said gate rolls spaced from the walls of the tank, the guide frame comprising a plurality of upright guide members, horizontal beams forming a rigid base for the said guide members, and means carried by said base for adjusting the frame relative to the walls of the tank.

In testimony whereof I affix my signature.

ALBERT E. F. MOONE.