June 14, 1960 D. J. SULLIVAN 2,940,299

CONCRETE FLOOR FINISHER

Filed March 25, 1958

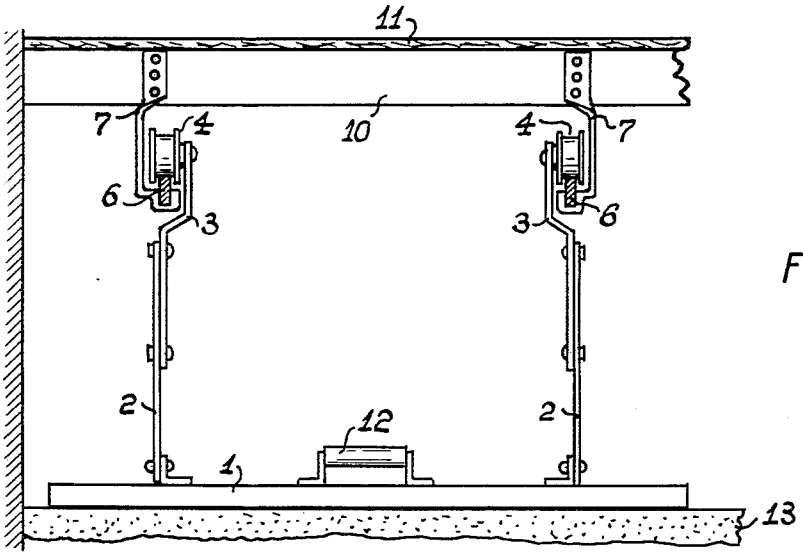


FIG. 1

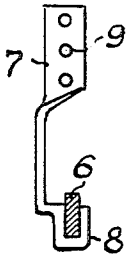


FIG. 3

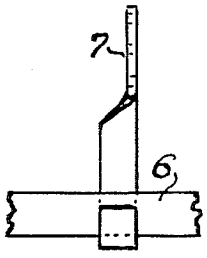


FIG. 4

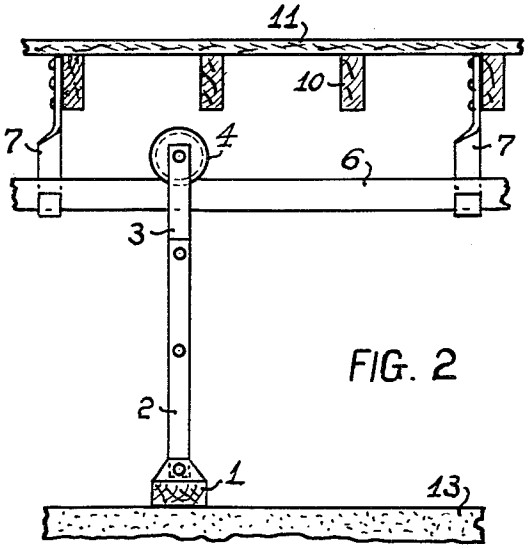


FIG. 2

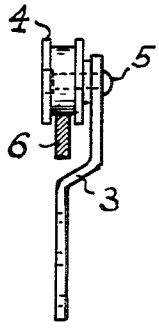


FIG. 5

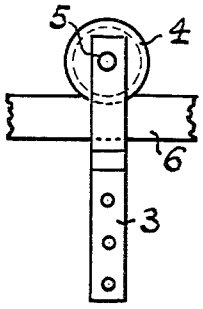


FIG. 6

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CONCRETE FLOOR FINISHER

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1 Claim. (Cl. 72—136)

My invention relates to concrete floor finishers.

The tool commonly employed in the art for the finishing of the concrete floors is the straight edge and in order to obtain a level floor surface the straight edge must be guided by rails which are perfectly horizontal. These rails are customarily laid on the ground prior to the pouring of the concrete and after careful leveling they are secured in position by stakes; then the concrete is poured surrounding the rails and the floor surface is finished by sliding the straight edge on the rails. Following this, the rails are removed from the concrete floor, leaving long gaps in the floor, which afterward must be filled with concrete and the surface finished in level with the floor. This customary method has two obvious disadvantages: The positioning of the rails and the finishing of the gaps caused by the removal of the rails require considerable time and costly labor; secondly, even with the greatest care the finished gaps often leave visible marks on the surface of the floor.

One of the important objects of my invention is to provide a concrete floor finisher which permits the positioning of the rails quickly, conveniently, and very accurately without the need of any leveling operation.

Another important object of my invention is to provide a concrete floor finisher in which the rails are positioned above the concrete floor so that after the finishing of the concrete floor the removal of the rails can be accomplished without disturbing the finished floor surface.

Other objects and advantages of my invention will be apparent during the course of the following description.

In the accompanying drawing, forming a part of the present application, wherein for the purpose of illustration is shown a preferred embodiment of my invention,

Figure 1 is a frontal view of my device mounted on the floor joists,

Figure 2 is a side view of the same,

Figure 3 is an enlarged frontal view of the rail supporting hanger,

Figure 4 is an enlarged side view of the same,

Figure 5 is an enlarged frontal view of the roller and the roller bracket,

Figure 6 is an enlarged side view of the same.

Referring to Figs. 1 and 2 of the drawing, the numeral 1 designates the straight edge used for leveling and finishing the surface of the concrete floor 13. For greater convenience of handling the straight edge 1 may be provided with a handle 12. This straight edge is secured to a pair of straps 2 and the free end of each strap 2 is attached to a roller bracket 3. Each roller bracket 3, shown in larger scale in Figs. 5 and 6, has at its upper end a double flanged roller 4, rotatably mounted on the pin 5 secured to said bracket 3. The roller 4 is adapted to run on the rail 6.

It is essential in my invention that the mechanical coupling between the bracket 3 and the strap 2 is adjustable so as to be able to obtain any required distance between the rail 6 and the straight edge 1. In the preferred form illustrated this coupling between the bracket 3 and the strap 2 consists of a multiplicity of holes in the strap and bracket located at various predetermined distances from the ends and detachable bolts, joining the strap 2 and the bracket 3 through the properly selected holes to give the desired distance between the roller 4 and the straight edge 1. In alternative forms of my invention this adjustable distance between the roller 4 and the straight edge 1 may be obtained by other mechanical coupling between the strap 2 and the bracket 3, such as the various sliding and threaded connections well known in the art. In the preferred form the two straps 2 supporting the straight edge 1 are symmetrically arranged and the junctions between the straps 2 and the straight edge 1 are pivotal permitting the tilting of the straight edge around its long axis.

The rails 6 supporting the rollers 4 are, in this preferred form, of rectangular cross section and each rail is supported on hangers 7, which are fastened to the floor joists 10 by nails passing through the holes 9 of the hangers. These hangers 7, shown in detail in Figs. 3 and 4, have hook-shaped lower ends 8, so formed as to engage and hold the rail 6 securely and at the same time to permit the passage of the roller 4. In alternative forms the hook-shaped end 8 may be provided with set screws for a more secure holding of the rail 6.

As a further modification the rollers 4 may be equipped with ball bearings or roller bearings for easier movability, also the flanges of the rollers may be modified to accommodate rails of different cross sections.

It is fundamental in my invention that all the hangers 7 employed in a device must be so dimensioned that the distance from the upper end of the hanger to the rail is exactly the same. This feature of my device is of great importance because it enables the operator to set up and position the rails horizontally quickly, conveniently and without the time consuming leveling work necessary in the prior art.

My invention utilizes the fact that, the finishing of the concrete floors being one of the last operations in the building, the overhead beams or joists and the flooring resting on the beams or joists are already installed when the concrete floor below is to be poured and finished, and, as these beams, joists and wooden flooring are always in perfect level, whenever the tops of the hangers 7 touch the overhead flooring 11 (see Fig. 2) the rail 6 supported by these hangers is automatically in a horizontal position.

The operation of my invention is as follows:

In the installation of my device the first step is to establish the two parallel lines corresponding to the desired location of the two rails. Then, following these lines, the hangers 7 are nailed to the joists 10 (see Figs. 1 and 2), with the tops of the hangers touching the flooring 11. After this, the two rails 6 are inserted into the hook-shaped ends 8 of the hangers 7, as shown in Figs. 3 and 4. Finally, the two rollers 4, carrying the straight edge 1, are deposited on the respective rails and the connection between the strap 2 and bracket 3 is adjusted to give the desired distance from the rail 6 to the straight edge 1, thereby making my device ready for operation.

After the completion of the finishing of the concrete floor my device can be readily removed and transported to a new location without disturbing in any manner the finished concrete floor.

The operation of my invention herein described shows two important advantages over the prior art: The elimination of the leveling work in the positioning of the rails, and the avoidance of the breaking up of the concrete floor surface when the rails, guiding the straight edge, are re-

moved. These important advantages are the result of two novel concepts underlying my invention: The placing of the rails above the surface of the concrete floor and by the utilization of the horizontal position of the overhead building structure for the accurate positioning of the rails.

It is to be understood that the form of my invention herein described and illustrated is to be taken as a preferred example of the same, and that various changes in the size, shape, and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claim.

I claim:

A concrete floor finisher for finishing, without leveling operation, the horizontal concrete floor of a room having horizontal overhead beams and horizontal overhead flooring resting on said beams, comprising a straight edge; a pair of straps, vertically disposed with their lower ends secured to said straight edge adjacent to its opposite ends; a pair of brackets, the lower end of each being connected to the upper end of one of said straps by an adjustable coupling permitting the variation of their total length; a pair of rollers, each being rotatably mounted at the upper end of one of said brackets; a pair of rails located above the concrete floor to be finished, each rail serving as a track for one of the said rollers and carrying said straight edge and the connected parts; a multiplicity of hangers, each having a hook-shaped lower end engaging and holding one of said rails, and an upper portion with holes, said hangers being secured to said beams by nails passing through said holes so that the upper ends of said hangers touch said overhead flooring and thereby are positioned without a leveling operation, and said hangers being so dimensioned that each hanger has the same distance from its upper end to the rail held by the hanger in order to obtain a horizontal positioning of the rail.

References Cited in the file of this patent

UNITED STATES PATENTS

1,245,632	Straub	Nov. 6, 1917
1,545,888	Evans	July 14, 1925
1,768,547	Englund	July 1, 1930
2,038,416	Clifford	Apr. 21, 1936

FOREIGN PATENTS

62,058	Netherlands	Nov. 15, 1948
305,977	Switzerland	June 1, 1955
1,129,377	France	Sept. 3, 1956