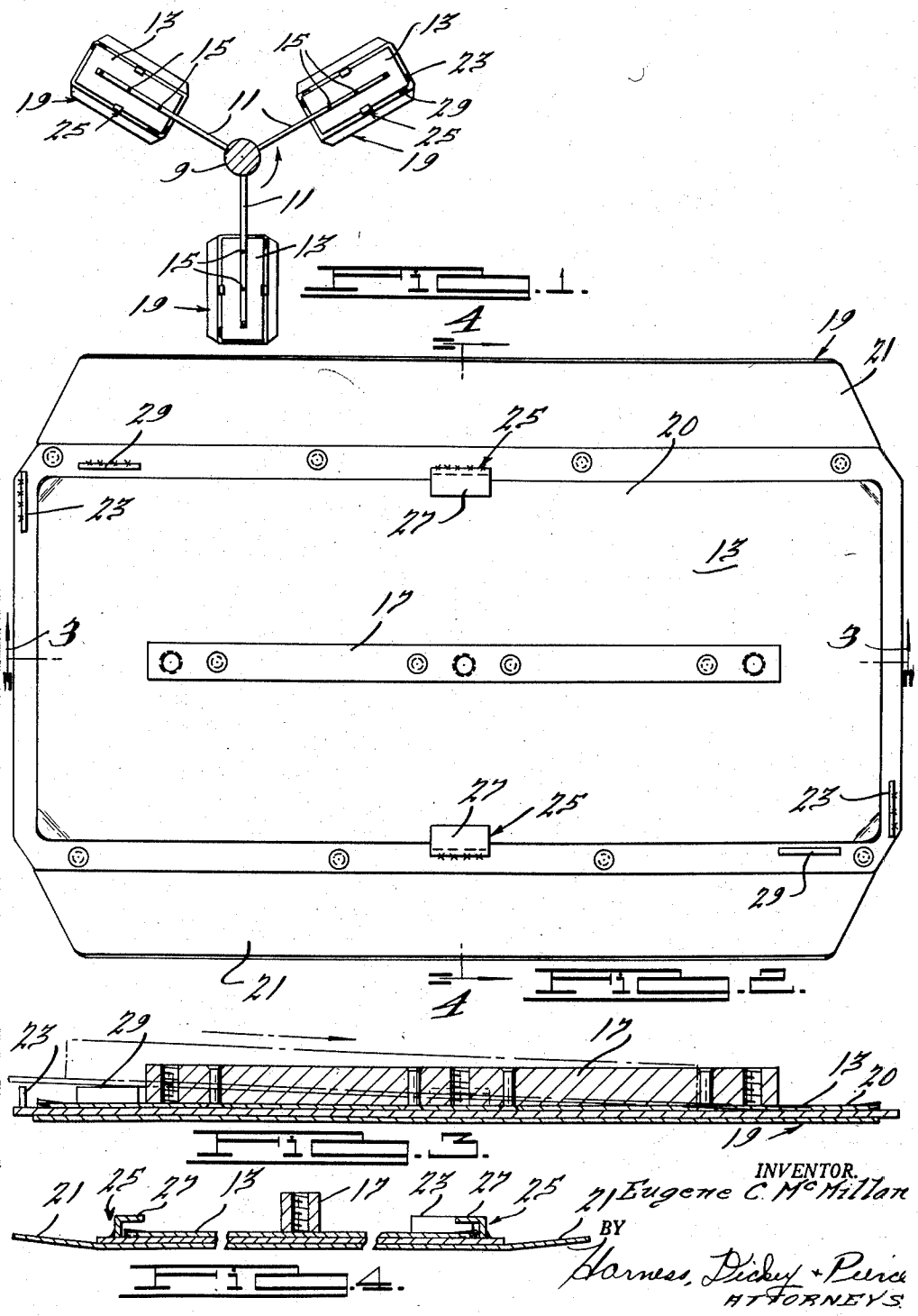
Dec. 23, 1958 E. C. McMILLAN 2,865,269

CONCRETE FLOAT PLATE ASSEMBLY

Filed Jan. 27, 1956 2 Sheets-Sheet 1



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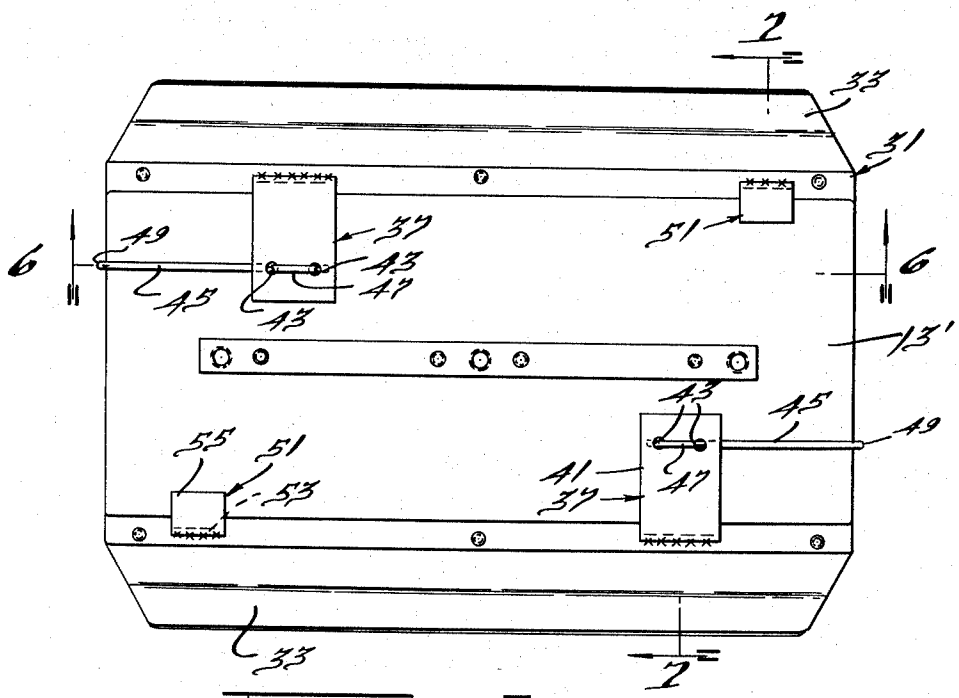


FIG. 5.

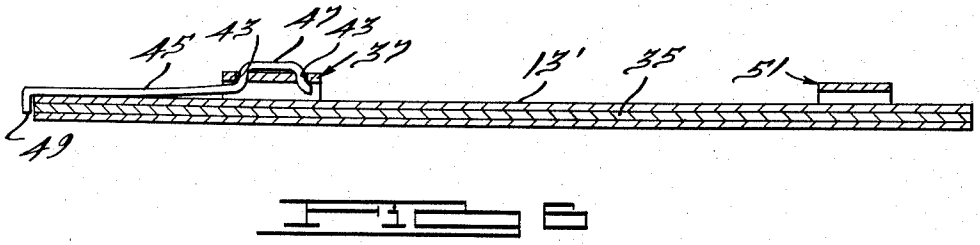


FIG. 6

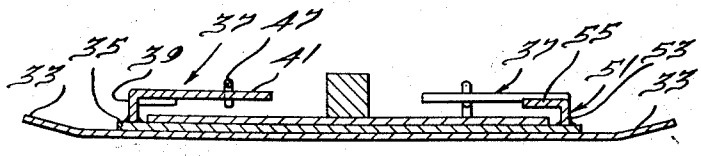


FIG. 7.

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CONCRETE FLOAT PLATE ASSEMBLY

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Application January 27, 1956, Serial No. 561,852

3 Claims. (Cl. 94—45)

This invention relates to a float plate assembly for use in performing a floating operation in the finishing of concrete floors or the like.

In the pouring of concrete floors, the wet concrete is initially screeded by pulling a wooden plank or the like across the top of concrete forms so as to bring the concrete roughly to a predetermined height and level. After the concrete is partially set, it is then floated. The floating operation is performed to true up the floor level, settle large stones, and bring the fine particles of cement or the like toward the surface. Thereafter, the concrete is troweled to its finished condition.

At the present time troweling machines are employed for both the floating and troweling operations. These machines are generally of the type having a center vertical shaft which is rotatably driven by a motor and which carries horizontally extending and circumferentially spaced arms, on each of which a troweling blade is mounted. A float plate is normally mounted on each troweling blade so that after the floating operation has been completed, the float plates can be removed and the troweling operation then performed. The troweling blades are generally of the substantially flat, rectangular shaped, metal plate type, and the float plates, which have heretofore been used, are of the type having a plate portion and a member connected to the top of the plate portion, along one edge thereof, to provide an elongated pocket or recess so that the float plate can be inserted sidewise onto the troweling blade with one edge of the troweling blade disposed in the pocket or recess of the float plate. A suitable clip cooperates with the pocket to retain the float plate in its properly assembled relationship on the troweling blade. In view of the fact that the troweling blades are rotatably driven in one direction, either clockwise or counterclockwise, and in view of the fact that they are mounted on the troweling blades in a slightly cocked position, excessive wear on one side of the float plate occurs. With such an arrangement, it is not possible to reverse the float plate on the troweling blade, and thus as soon as one side of the float plate wears out, the float plate must be discarded. Furthermore, with this type of float plate, the pocket or recess becomes clogged with concrete, and as workmen often do not properly clean the same, the plates soon become unusable or require the chiseling of hardened concrete from the pocket.

It is an object of this invention to provide an improved float plate adapted to be mounted on a troweling blade so that it cannot accidentally become disengaged therefrom, and so that the float plate may be reversibly connected with the troweling blade to compensate for wear and to thus provide a float plate which will have a longer life than any heretofore known.

It is a still further object of this invention to provide a float plate of the aforementioned type which may be easily cleaned and which will not tend to become clogged with concrete or the like in the same manner as with previous devices.

It is a still further object of this invention to provide

a float plate of the aforementioned type which is exceptionally rugged in construction, durable in use and relatively inexpensive to manufacture.

These and other objects of this invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings, in which:

Figure 1 is a plan view partially in section and partially in elevation illustrating float plates of this invention mounted on the troweling blades of a troweling machine;

Fig. 2 is a top plan view of a float plate of this invention mounted on a troweling blade which is disassembled from the machine;

Fig. 3 is a sectional view of the structure illustrated in Fig. 2, taken along the line 3—3 thereof;

Fig. 4 is a sectional view of the structure illustrated in Fig. 2, taken along the line 4—4 thereof;

Fig. 5 is a plan view, similar to Fig. 2, illustrating a further embodiment of the invention;

Fig. 6 is a sectional view of the structure illustrated in Fig. 5, taken along the line 6—6 thereof; and

Fig. 7 is a sectional view of the structure illustrated in Fig. 5, taken along the line 7—7 thereof.

Referring now to the drawings, and more particularly to Figs. 1 to 4, it will be seen that a rotatably driven vertical shaft 9 of a troweling machine of the aforementioned type is illustrated having a plurality of circumferentially spaced radially projecting arms 11 connected therewith. A troweling blade 13 is rigidly connected to each of the arms by means of suitable fasteners 15 which extend into a longitudinally extending bar-like portion 17 mounted on the upper surface of the troweling blade 13. Troweling blade 13 is of a generally rectangular shape and is preferably made of sheet metal.

One form of a float plate 19 is illustrated in Figs. 1 through 4 which is adapted to be removably connected with the troweling blade 13, but which will not become accidentally disengaged therefrom. The float plate 19 is preferably a sheet steel member or the like of generally rectangular configuration and the opposite side edges 21 extend angularly upwardly so that they will not tend to dig into the concrete or the like which they are finishing. A reinforcing plate 20 is secured to the top surface of the float plate 19. An upstanding abutment member 23 is secured to reinforcing plate 20 adjacent each end of the float plate. The abutment members 23 are in the form of an upstanding narrow plate-like member and they are laterally offset from each other so that one plate 23 is disposed adjacent one longitudinal edge and the other plate 23 is disposed adjacent the opposite longitudinal edge. A second pair of abutment members 25 are provided adjacent each side edge of the float plate 19 and in an opposed and aligned relationship with each other. Each of the abutment members 25 includes an upwardly extending vertical portion and an inwardly extending horizontal portion 27 which is disposed above the top surface of the float plate 19, and is adapted to overhang a troweling blade when the float plate is connected therewith so as to retain the float plate and troweling blade against accidental disengagement in a vertical direction. A third pair of abutment members 29 are provided adjacent each of the side edges of the float plate and adjacent opposite ends of the float plate 19.

The abutment members are so spaced and arranged that either end of the float plate may be inserted onto one end of the troweling blade 13 by merely tipping the float plate and sliding the plate underneath the troweling blade so that the troweling blade can pass underneath the horizontal portions 27 of the abutment members 25. Thereafter, when the float plate is pushed fully onto the troweling blade, the end of the troweling blade will engage one of the abutments 23, and the abutments 23

will prevent any substantial endwise movement of the float plate relative to the troweling blade, so that the float plate cannot become accidentally disengaged from the troweling blade through endwise movement. The abutment members 25 and 29 act to retain the float plate against any substantial sidewise movement relative to the troweling blade, and therefore the abutment members cooperate to retain the float plate on the troweling blade but permit easy removal therefrom. Furthermore, it will be appreciated that as the float plate is substantially symmetrical in configuration and as the abutment members are symmetrically located, either end of the float plate may be inserted onto the troweling blade so that as one portion of the float plate tends to wear out, as pointed out above, the float plate may be reversed relative to the troweling blade to add considerably to the life of the float plate. Still further, it will be seen that the float plate may be easily cleaned, and there are no pockets or recesses into which concrete can easily accumulate to render the float plate useless or difficult to clean.

In the embodiment illustrated in Figs. 5 through 7, a preferred form of the invention is illustrated wherein a troweling blade 13' is illustrated which is identical with the troweling blade 13 previously described, and is adapted to be connected with the troweling machine arms in the same way. The float plate 31 is again of a generally rectangular configuration and has its opposite side edges 33 extending angularly upwardly. A reinforcing plate 35 is secured to the top surface of the float plate, and abutment members 37 are secured to the float plate portion 35 adjacent opposite edges thereof. The abutment members 37 are longitudinally offset or spaced from each other so as to be disposed adjacent the opposite ends of the float plate assembly. Each of the abutment members 37 includes a vertically extending portion 39 and an inwardly extending horizontal portion 41 which is spaced above the top surface of the float plate portion 35 sufficiently to permit the troweling blade 13' to be disposed between the float plate portion 35 and the underside of the abutment member horizontal portions 41. Each of the horizontal abutment portions 41 has a pair of longitudinally spaced apertures 43 therein and a spring finger 45, in the form of a spring wire or the like, is connected with each abutment member 37. In this connection, one end of the spring fingers 45 is bent to provide a generally inverted U-shaped end portion 47 which engages in the apertures 43 so as to support the spring finger and urge the free end thereof downwardly toward the top surface of the float plate. The free end of the spring fingers extends beyond the adjacent end of the float plate and has a downwardly bent vertical portion 49.

A second pair of abutment members 51 is connected with the float plate portion 35 and each of the abutment members 51 includes an upwardly extending vertical portion 53 and an inwardly extending horizontal portion 55. The abutment members 51 are disposed in substantial longitudinal alignment with the abutment members 37 and are disposed in a longitudinal spaced apart relationship adjacent the opposite ends of the float plate assembly.

With this arrangement, either end of the float plate assembly may be inserted over one end of the troweling blade by merely putting a troweling tool or the like underneath one of the spring fingers 45 and lifting the same up and then sliding the float plate assembly into engagement with the troweling blade. When the float plate assembly is fully inserted on the troweling blade, the opposite end of the troweling blade will engage the down-turned portion 49 of the opposite unraised spring finger 45, and when the spring finger which has been raised is released, the down-turned portion 49 thereof will engage the opposite end of the troweling blade to retain the float plate assembly on the troweling blade against accidental endwise movement. The abutment members 37 and 51 also act to prevent any substantial sidewise movement between the troweling blade and the float plate and prevent any substantial vertical movement between the troweling blade and the float plate. Thus, the float plate cannot be accidentally disengaged from the troweling blade or thrown therefrom by centrifugal force, but can be readily removed by merely inserting a troweling tool or the like under one of the spring fingers 45 and raising the same so that the lower end of the down-turned portion 49 at the free end of the spring is disposed above the top surface of the troweling blade, and then the float plate may be merely slid from the troweling blade. It will be apparent that when one side of the float plate wears, the float plate may be turned around and reversibly inserted onto the troweling blade, thus giving longer life to the float plate. Furthermore, it will be appreciated that there are no pockets or recesses which may become clogged by concrete, and the float plate may be easily cleaned to prevent concrete from adhering thereto.

Thus, in both embodiments of this invention, a float plate assembly is provided which may be easily connected with a troweling blade and may be easily removed therefrom but will not accidentally become disengaged therefrom, and in both embodiments, the float plate may be reversed on the troweling blade and may be easily cleaned, thus providing a float plate which has longer life, which is more easily usable, and which is relatively inexpensive in construction.

What is claimed is:

1. A float plate assembly adapted to be removably mounted on a generally rectangular shaped plate-like troweling blade, said assembly including a plate portion having its side edges extending angularly upwardly, a pair of abutment members disposed adjacent opposite side edges of said plate in a longitudinally spaced apart relationship and adjacent to opposite ends thereof, each of said abutment members including a rigid vertical portion connected with the top surface of said plate and a generally horizontal inwardly extending portion, spring finger means connected with each of said horizontal portions and having the free end thereof extending beyond the adjacent end of said plate portion and terminating in a vertically depending portion having the lower end thereof normally disposed below the top surface of said plate portion, and a second pair of abutment members disposed adjacent opposite side edges of said plate portion in reversed longitudinally offset relationship, each of said second pair of abutment members including a vertical portion connected with the top surface of said plate portion and a horizontal surface extending inwardly from said vertical portion in spaced relation to the top surface of said plate portion, whereby either end of said plate portion may be inserted under one end of a blade by lifting up the free end of the adjacent spring finger to permit the assembly operation and whereby when said plate is fully inserted onto said blade said plate will be held against accidental disengagement from said blade by said spring fingers and said abutment members.

2. A float plate assembly adapted to be removably mounted on a troweling blade, including a plate portion, a plurality of aligned longitudinally spaced abutment members rigid with and projecting upwardly from the top surface of said plate portion adjacent to one side thereof, a plurality of aligned longitudinally spaced abutment members rigid with and projecting upwardly from the top surface of said plate portion adjacent to the other side thereof, at least certain of said abutment members adjacent each side of said plate portion having a horizontal portion extending toward the abutment members adjacent the opposite side of said plate portion and generally parallel to and spaced above the top surface of said plate portion, spring finger means connected with said plate portion adjacent the opposite ends thereof, said spring finger means including a portion adapted to engage a blade on which said plate assembly is to be mounted to prevent accidental disengagement therefrom,

said spring fingers being adapted to be raised to permit either end of said plate to be inserted into engagement with a blade so that said abutment members and said spring fingers will retain the plate assembly against accidental disengagement from the blade while permitting easy removal thereof when desired.

3. A float plate assembly adapted to be removably mounted on a troweling blade, including a plate portion, a plurality of aligned longitudinally spaced abutment members rigid with and projecting upwardly from the top surface of said plate portion adjacent to one side thereof, a plurality of aligned longitudinally spaced abutment members rigid with and projecting upwardly from the top surface of said plate portion adjacent to the other side thereof, at least certain of said abutment members adjacent each side of said plate portion having a horizontal portion extending toward the abutment members adjacent the opposite side of said plate portion and generally parallel to and spaced above the top surface of said plate portion, spring finger means carried by said abutment members disposed adjacent opposite ends of said plate portion, said spring fingers having the free ends thereof extending beyond the edges of said plate portion and having a downturned portion adapted to engage the opposite ends of a blade on which said plate portion is to be mounted to prevent accidental disengagement of the plate portion endwise relative to the blade, the free ends of said spring fingers being adapted to be raised to permit either end of said plate to be inserted into engagement with a blade so that said abutment members and said spring fingers will retain the plate assembly against accidental disengagement from the blade while permitting easy removal thereof when desired.

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