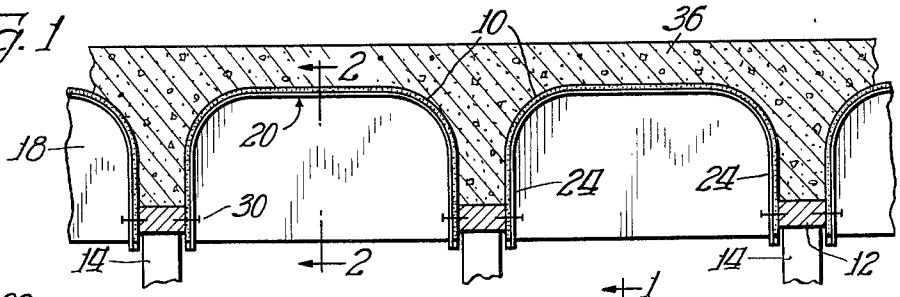
Dec. 21, 1965 W. J. MATTESON 3,224,725

FLOOR PAN FORM

Filed March 9, 1962

Fig. 1



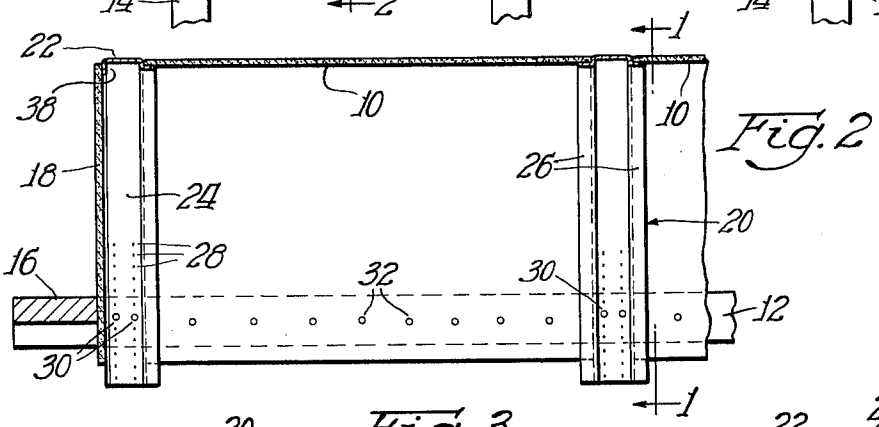


Fig. 2

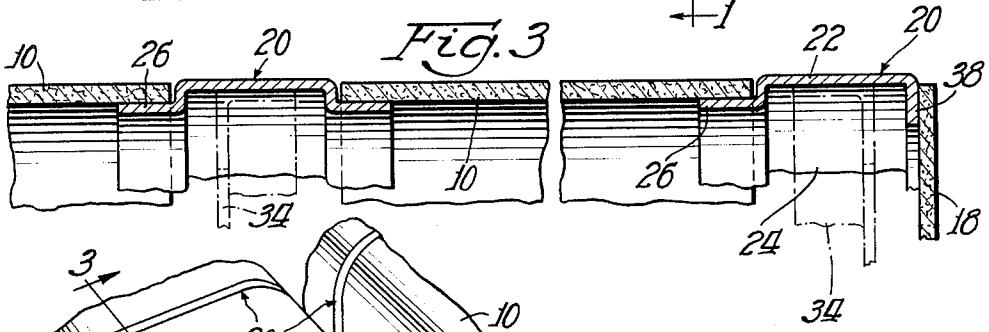


Fig. 3

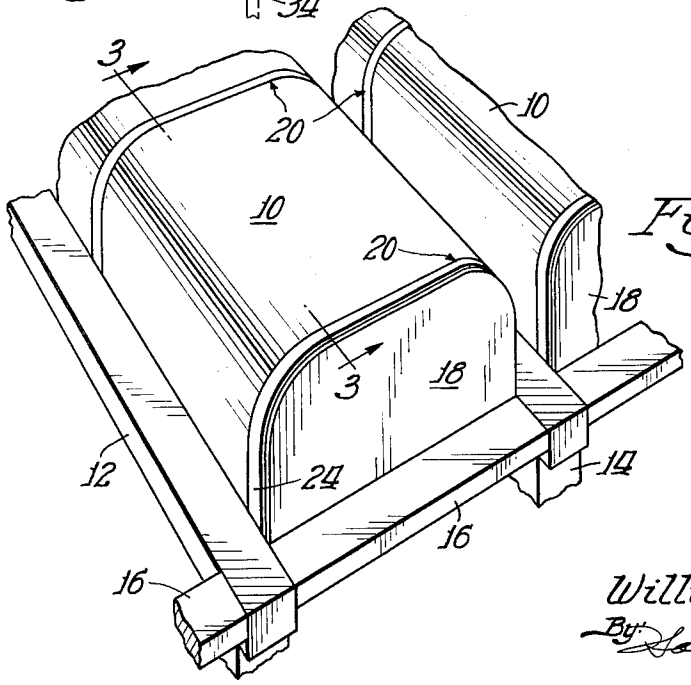


Fig. 4

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FLOOR PAN FORM

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6 Claims. (Cl. 249—28)

This invention relates to an improved type of concrete form pan, and in particular to a novel type of inexpensive, reusable concrete floor pan. This application is a continuation-in-part of my copending application, Serial Number 862,373, filed December 28, 1959, now abandoned.

It is presently a common practice in the erection of concrete structures to fabricate concrete floor portions with a series of parallel ribs on the underside. This technique provides maximum strength using only a minimum amount of concrete material. Heretofore, the usual method of fabricating such ribbed concrete flooring has been to first construct an open lattice support or scaffold. Steel pans, used to form the thin sections of the floor, are positioned in parallel rows on the scaffold and secured in place. The support scaffold is then completed and concrete poured over the top of the pans. The concrete is then finished and cured in the conventional manner. After the cure is complete the scaffolding is removed, the steel pans broken loose from the solidified concrete and taken down.

The steel pans used in the conventional procedure are quite heavy and obviously expensive. Because of their expense only a limited number of sizes are available. Also because of the weight of steel and the manner in which steel pans must be used, large sizes are too heavy and cannot be used. The heavy steel pans require a considerable amount of labor and pose a serious safety problem, because they must be removed from below the floor. In addition, being of unitary construction, they are difficult to remove after the concrete has set and the floor is frequently damaged in removal.

It is therefore an object of my invention to provide a lightweight, inexpensive, reusable pan for use in ribbed cement floor construction.

Another object is to provide a collapsible pan which can be installed from above and which can be removed after the concrete has set with minimum danger to workers and minimum damage to the floor.

In the accompanying drawings:

FIG. 1 is a cross-sectional view of a concrete floor with the pans and scaffolding in place taken along a line corresponding to 1—1 of FIG. 2.

FIG. 2 is a lateral cross-section taken along a line corresponding to 2—2 of FIG. 1.

FIG. 3 is an enlarged sectional view on line 3—3 of FIG. 4, and FIG. 4 is a perspective view illustrating the positioning of the pans of my invention on a typical support scaffold.

Referring to the FIGS. 1, 2 and 4, there is illustrated a plurality of the shaped pans or cowls 10 of my invention supported on a scaffold. The scaffold is conventional having spaced joist bottoms 12 supported by vertical shores 14. Headers 16 are positioned between joist bottoms 12 to receive the end closure 18 of the pans 10.

A plurality of U-shaped channel members 20, having flat tops 22 and downwardly extending leg portions 24, are positioned at spaced intervals between joist bottoms 12. Such channel members are preferably made from rolled steel. The U-shaped channel members 20 have flanges 26 extending outwardly from the channel edges of member 20. A plurality of holes 28 are located in the leg portions 24 of the U-shaped channel 20 to receive fastening means 30, thus securing the channels 20 to the

joist bottoms 12 and thereby holding the channels 20 securely in position.

The shaped pans 10 are made to conform to the general contour of the U-shaped channel member 20. The pans 10 are usually made of hardboard or similar material, which may readily be shaped through conventional shaping means as by heat and pressure. Such pans are generally 20 to 40 inches in width, depending primarily on the type of concrete floor being poured. The longitudinal dimension or length of the pans 20 are generally about 2 feet for 30 to 40 inch width pans to about 4 feet for 20 inch width pans, but this dimension may be varied in accordance with the spacing of the U-shaped channel member 20 between the joist bottoms 12. Since the pans are preferably made from hardboard, the dimensions of the pan may readily be changed on the job with conventional carpenter tools. The thickness of the material usually may be $\frac{3}{16}$ to $\frac{5}{16}$ inch. It is obvious that the longitudinal and transverse dimensions as well as thickness of pans 10 may be varied with the job at hand, but must be made to conform to the general contour of and the dimensions of the U-shaped channel members 20 used on the job.

Pans 10 are placed over the top of the entire assembly and dropped into place between the joist bottoms 12 and the positioned U-shaped channel members 20. When the pans are in position the longitudinally extending side walls of the pans contact the side walls of the joist bottoms, and are secured thereto by means of conventional fastening means 32, such as nails. Also, when the pans are in proper position, the end portions or edges of the pan are positioned or rest in the angular recess formed between flanges 26 and the outside walls of channel 20. At the time the pans are secured in proper position, the exterior surfaces of pans 10 and U-shaped channel members 20 form a substantially continuous plane as illustrated in FIGS. 2, 3 and 4.

In a modification, in cases where the transverse dimension of the designed floor to be poured is over about 30 inches, an angle iron or center brace 34 may be used to reinforce the U-shaped channel member 20, as by welding such angle iron 34 to the under side of the channel wall.

Usually four or five pans are aligned longitudinally in substantially abutting relationship, as shown in FIGS. 3 and 4, before end enclosures 18, which are secured to headers 16, are used to seal the ends of the form arrangement. This will prevent the fluid concrete from flowing through the end areas when concrete 36 is poured over the arranged pan forms in making the floor. In order to place end forms 18 in place, the U-shaped channel member 20 used at the ends of the group of pans is modified to the degree that member 20 has only one outwardly extending flange 26 as shown in FIG. 3. In this case end closure 18 rests directly against the channel wall 38.

When the U-shaped pans 10 and U-shaped channel members 20 have been secured in place with reference to the scaffolding made up of joist bottoms 12, headers 16 and vertical shores 14, concrete 36 is poured from above over the prepared forms. After the concrete has set, the surface thereof smoothed and the concrete allowed to cure, the scaffolding is taken down from below the floor, and the pans 10 and channel members 20 are readily removed.

Although fastened together at only a few points with small nails, the pans of my invention are quite capable of supporting the weight of large amounts of concrete, since all the forces are directel inwardly. The ease in removing the pans after curing the concrete, and setting such pans up again for the next job are labor-saving and cost-cutting operations. The pans are light in weight and can be removed from below with minimum danger

to workmen. Being lightly held together in the form structure, the pans can be removed without special tools and without damaging pan parts, thus permitting repeated re-use. Due to the manner in which the pans and U-shaped channel member can be disassembled, a large number of them can be stored in a relatively small amount of space. This feature offers a substantial advantage over conventional steel pans in view of storage and transportation costs necessarily involved in moving to and from various locations. The lighter weight and ease of disassembling is very important because of savings in both labor and transportation costs as well as for safety reasons.

As many apparently widely different embodiments of the invention may be made without departing from the spirit and scope thereof, it is to be understood that the invention is not to be limited to specific embodiments thereof except as defined in the attached claims:

I claim:

1. A form pan arrangement useful in fabrication of ribbed concrete floors and the like, which comprises a pair of spaced substantially parallel joist bottom members, a plurality of spaced U-shaped channel members positioned between the joist bottoms with the leg portions of the U-shaped channels secured to the joist bottoms, said U-shaped channels having flanges extending from the edge of at least one of the channel walls to form an angular recess between the flange surface and the outside wall of the channel, a U-shaped pan member of generally uniform cross section with the longitudinally extending side wall portions thereof contacting the spaced joist bottoms, and the end portions thereof resting in the angular recesses of the U-shaped channels to form a substantially continuous plane between the exterior surface of the pan member and the exterior surface of the U-shaped channel members.

2. A form pan arrangement as defined in claim **1** in which angle irons are secured to the underside of the flat top portions of the U-shaped channel members.

3. A form pan arrangement useful in fabrication of ribbed concrete floors and the like which comprises spaced substantially parallel joist bottom members, a plurality of spaced U-shaped channel members having flat top portions and downwardly extending leg portions with the leg portions secured to the joist bottom members, said U-shaped channel members having flanges extending from the edges of the channel walls to form an angular recess between the flange surface and the outside walls of the channels, a longitudinally extending U-shaped pan member of generally uniform cross section with the longitudinally extending side wall portions thereof contacting the spaced joist bottom members and the end portion of the pan member resting in the angular recess of the U-shaped channel members thereby forming a substantially continuous plane between the exterior surfaces of the pan member and the exterior surfaces of the U-shaped channel members.

4. A form pan arrangement as defined in claim **3** in which angle irons are secured to the underside of the flat top portions of the U-shaped channel members.

5. A system of longitudinally extending form pans useful in fabrication of ribbed concrete floors and the like, which comprises a pair of spaced substantially parallel joist bottom members, a plurality of spaced U-shaped channel members positioned between the joist bottom members, said U-shaped channel members having flanges extending from the edge of at least one of the channel walls to form an angular recess between the flange surface and the outside wall of the channel, a plurality of U-shaped pan members of generally uniform cross section with the longitudinally extending side wall portions thereof contacting the side walls of the spaced joist bottom and the end portions of each U-shaped pan member resting in the angular recesses of the U-shaped channels to form a substantially continuous plane between the exterior surface of the plan member and the exterior surface of the U-shaped channel members, spaced headers positioned between said joist bottom members, and end closures positioned to contact said spaced headers and the side walls of said U-shaped channel members.

6. A system of form pans as described in claim **5**, in which angle irons are secured to the underside of the flat top portions of the U-shaped channel members.

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