

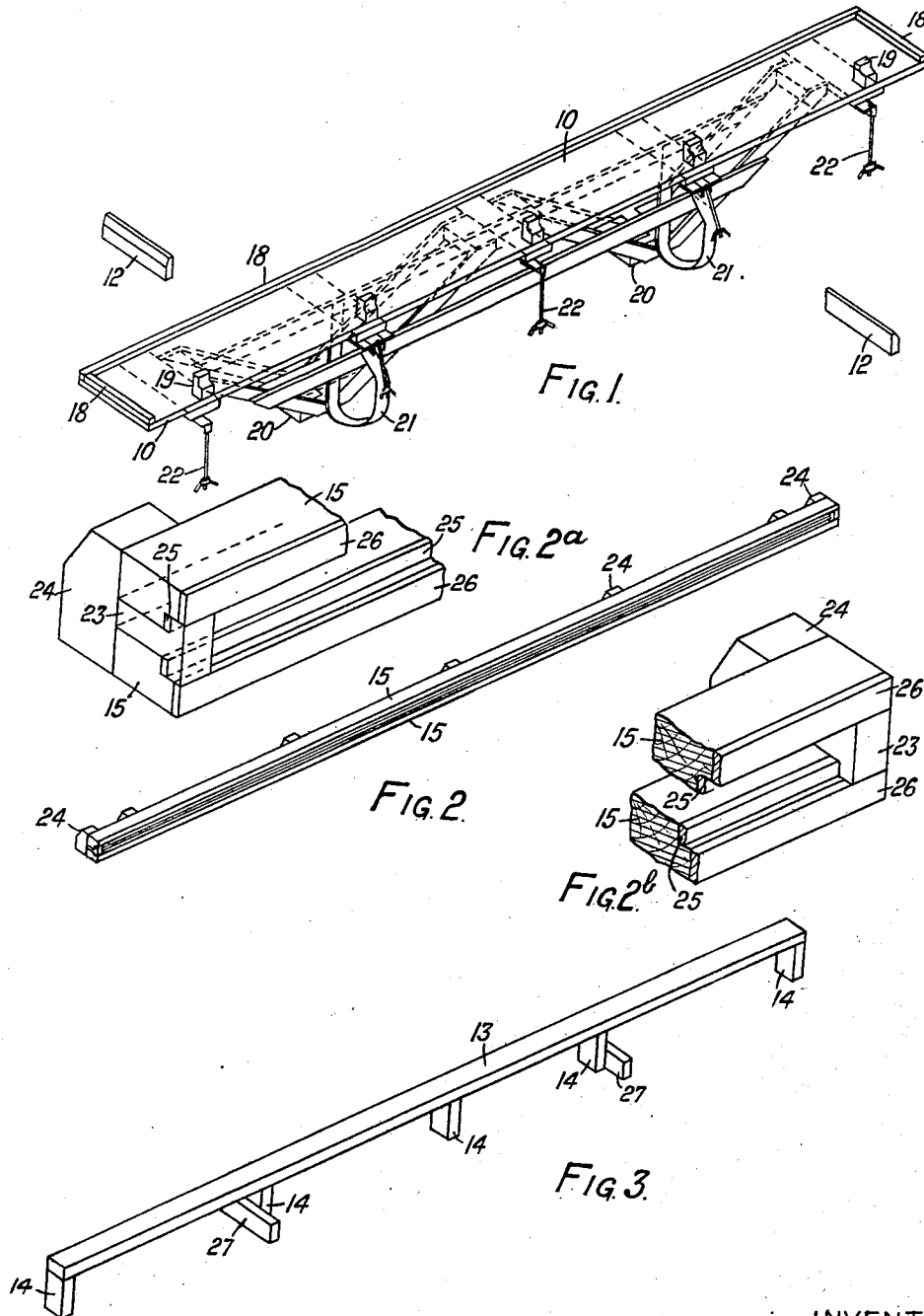
Sept. 22, 1942.

W. J. MAXWELL
CONCRETE PRODUCT MOLD

2,296,562

Filed July 1, 1941

4 Sheets-Sheet 1



INVENTOR

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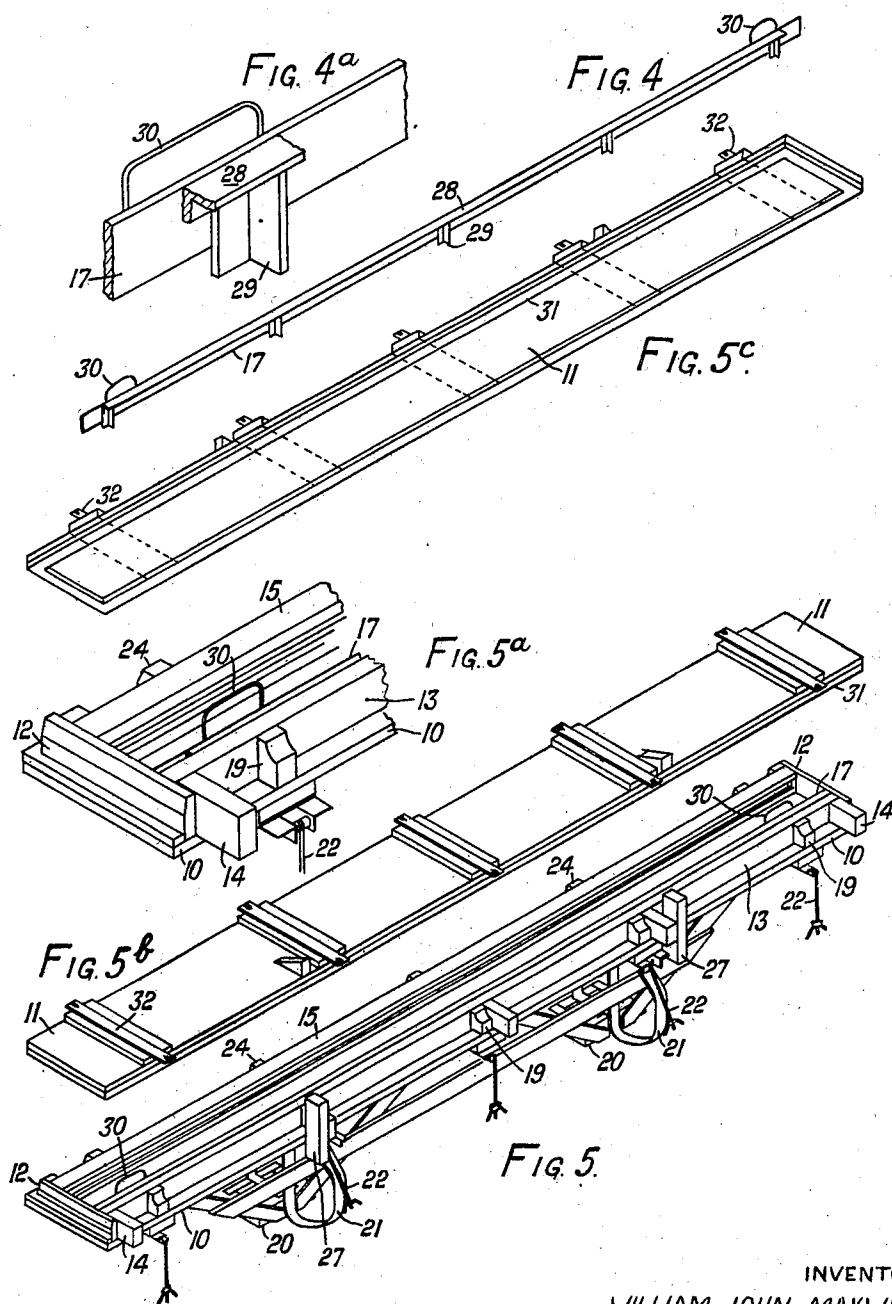
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4 Sheets-Sheet 2



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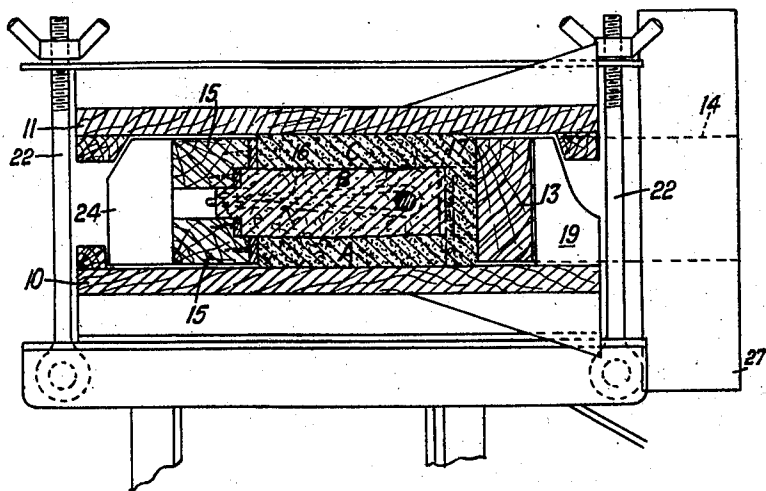


Fig. 6.

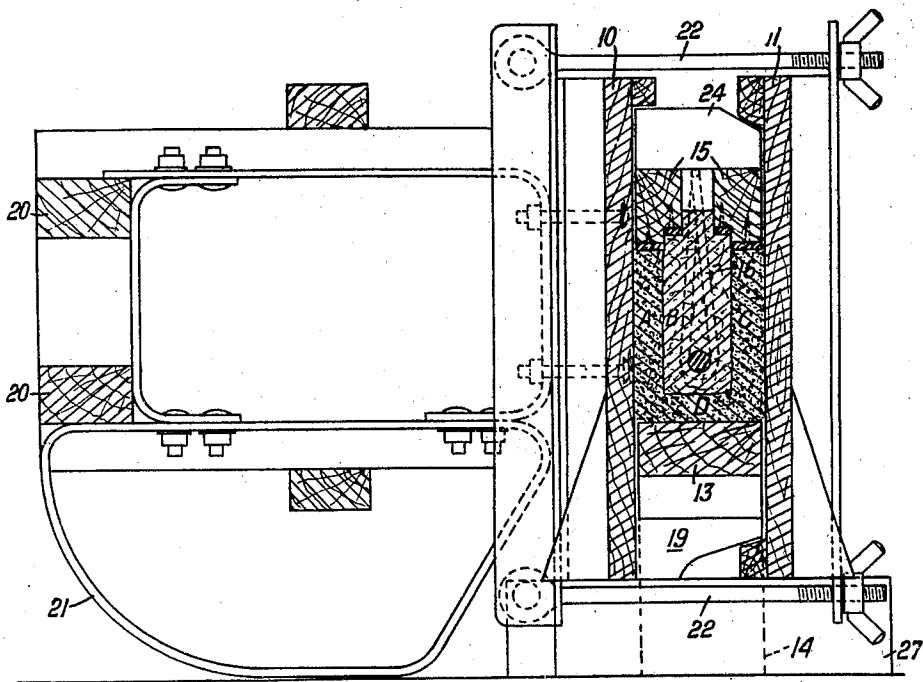


Fig. 7.

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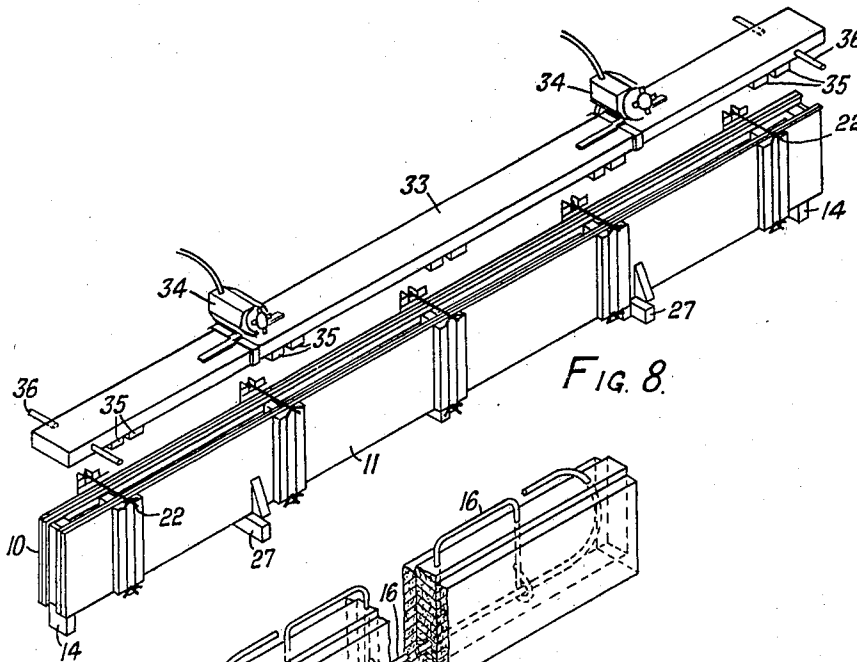


FIG. 8.

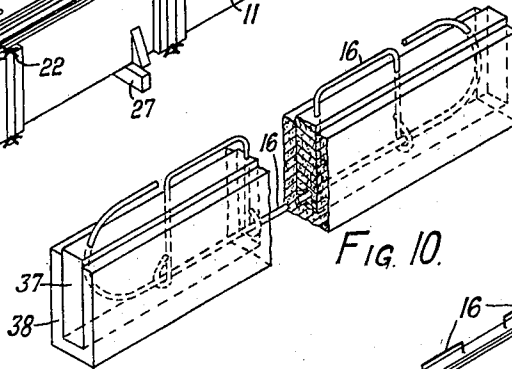


FIG. 10.

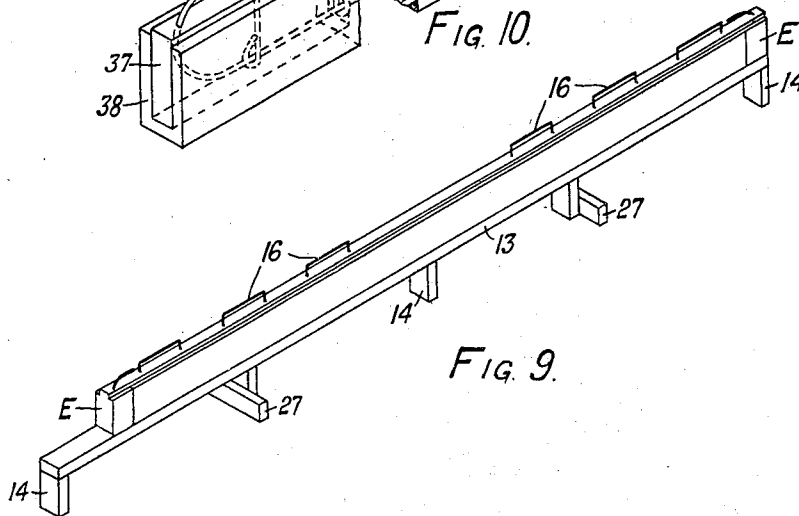


FIG. 9.

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UNITED STATES PATENT OFFICE

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CONCRETE PRODUCT MOLD

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Application July 1, 1941, Serial No. 400,583
In Great Britain May 24, 1940

3 Claims. (Cl. 25—121)

This invention relates to improvements in molding boxes for use in the manufacture of concrete products such as beams, stanchions, and the like.

According to the invention the concrete, which is to form the product, is filled into a molding box provided with a vertically loose pallet or base which is used to support the box while the box is subjected to vibration, so as to consolidate the concrete.

A concrete product which may readily be manufactured by the box according to the invention comprises a permanent shuttering or outer casing, of U-shape or of tubular shape in cross section, composed of foam slag concrete or other light concrete which is capable of receiving and holding nails without the use of extraneous nail-holding devices, and a core of stronger concrete incorporating metallic reinforcing members.

For the production of a cored product, the layers of concrete constituting the webs of the product, the reinforcing members, and the concrete forming the base, or the base and the top of the product, are laid into the molding box while the box is disposed horizontally on its side, and the box is subjected to preferably vertical vibration while it is supported on the pallet in upright position with its length substantially horizontal, so as to consolidate the concrete and so that, when the box structure is removed, the cast product is left sitting on the pallet.

A molding box according to the invention is illustrated in Figs. 1-8 of the accompanying drawings. Fig. 1 is an isometric view showing the bench which constitutes the lower side wall of the box and which is equipped with supporting rockers. Fig. 2 is an isometric view of a double check bar assembly and Figs. 2^a and 2^b are detail perspective views of opposite end portions of the double check bar assembly. Fig. 3 is an isometric view of the vertically-slidable pallet or base of the box. Fig. 4 is an isometric view of a removable spacer member. Fig. 4^a is a detail isometric view of one end portion of the spacer member. Fig. 5 is an isometric view showing the molding box assembly in condition ready to receive concrete and reinforcement. Fig. 5^a is a fragmentary detail isometric view of one end portion of the box. Fig. 5^b is an isometric view of the loose side wall or cover of the box. Fig. 5^c is an isometric view showing the underside of the cover. Fig. 6 is a transverse vertical section showing the box lying on its side and containing the concrete and the reinforcement which are to form a beam. Fig. 7 is a vertical transverse section showing the

box and its contents after they have been subjected to vertical vibration in upright position. Fig. 8 is an isometric view showing the molding box in upright position, together with a preferred form of vibrator unit. Fig. 9 is an isometric view showing a typical beam resting on the pallet after the other components of the box have been stripped from the beam. Fig. 10 is an isometric view showing a beam produced according to the invention.

Referring to the drawings, a beam with an outer casing of U-shape is produced, firstly, by filling a layer A (Fig. 6) of foam slag concrete or other nail-holding concrete into a molding box disposed horizontally on its side (Figs. 5 and 5^a) with its upper side or cover 11 removed and fitted with an internal loose spacer member 17, secondly, by filling into the box a core-forming layer B of stronger concrete with metallic reinforcement 16, thirdly, by withdrawing the spacer member 17 from the box and by filling into the box another layer C of foam slag concrete which is also packed downwardly into the space vacated by the spacer member 17 and formed between a vertically loose pallet 13 (Fig. 3) or base of the box and the concrete contents of the box, in order to form the base D (Fig. 7) of the U-shaped casing, fourthly, by closing the box and subjecting the box to vibration while it is supported on the pallet 13 in upright position (Fig. 8) with its length substantially horizontal, so as to consolidate the concrete contents of the box, and, fifthly, by removing the box structure after vibration thereof so as to leave the cast beam sitting on the pallet 13 (Fig. 9).

The molding box shown includes a side wall 10 (Fig. 1) which forms a bench when the box is disposed on its side for filling (Figs. 5 and 5^a), the side wall 11 which is placed in position after the box has been filled (Fig. 6) and two loose end walls 12. The pallet 13 (Fig. 3), which extends the full length of the box, is slidable vertically between the side walls 10, 11. 15 (Figs. 2, 2^a and 2^b) denotes two loose check longitudinal bars which are accommodated in spaced relation within the upper portion of the box so as to accommodate between them portions of the metallic reinforcing members 16 which project above the upper surface of the beam.

As shown in Fig. 1, the bench-forming side wall 10 of the box is provided along one marginal edge and at the ends with a fillet 18, the end portions of the fillet being adapted to form stops for the two loose end walls 12. 19 denotes spaced pallet stops attached to the wall 10. Sup-

ports 20 and rocker members 21 are attached to the underside of the bench, the rocker members 21 serving to facilitate tilting of the box into upright position. 22 denotes swing bolts attached to the bench and adapted for use in holding the box assembly together.

The double check longitudinal bar (Figs. 2, 2^a and 2^b) comprises two loose bar members 15 which are held apart by end spacer members 23. Spaced blocking pieces 24 are also provided on the bar members 15. The inner adjacent edges of the spaced longitudinally extending bar members 15 are rabbeted so that steps will be formed in the upper outer edges of the product being molded. Metallic strips 25, 26 are provided on the stepped checking faces formed by the rabbets in the bar members 15.

The sliding pallet 13 (Fig. 3) is provided with legs 14 which project downwardly through the bottom of the box. Some of the legs 14 are provided with cross feet 27.

The spacer members 17 (Figs. 4 and 4^a) consists of a metallic strip 17 attached to an angle iron bar 28 and provided with spacer legs 29. Bail handles 30 are provided on the strip 17.

The upper side wall 11 (Figs. 5^b and 5^c) of the box is provided on its underside with a fillet 31 and on its upper side with cross plates 32 the ends of which are forked for engagement by the swing bolts 22.

A short length of the space within each end of the box may be filled in wholly with strong concrete, as indicated at E, E (Fig. 9), for engagement with a beam support.

The vibrator unit shown in Fig. 8 consists of a plank 33 equipped with power vibrator devices 34 and with spaced pairs of fillets 35 adapted to straddle the upper bolts 22 when the unit is placed upon the molding box. Handles 36 for use in lifting the vibrator unit are provided at each end of the unit.

Fig. 10 shows a typical beam comprising a core 37 of high grade concrete and a U-shaped casing 38 of light nail-holding concrete.

As will be understood, the invention permits the continuous production of beams from a single molding box, it being necessary only to provide a plurality of pallets to support the newly cast beams while these are setting.

The components of the box may be constituted of wood with or without metallic linings.

I claim:

1. A molding box for use in the manufacture of concrete products such as beams, stanchions and the like, comprising side walls and end walls, a pallet between the side walls, said pallet form-

ing the bottom of the box and being slidable vertically between the side walls when the box is in upright position, a pair of longitudinally extending bars loosely mounted between the side walls at the upper portion of the box, said bars being spaced apart widthwise of the box to provide a space into which reinforcing members embedded in the concrete contents of the box may project to extend beyond the level of the product being molded, the inner adjacent edges of said longitudinally extending bars being rabbeted to form steps in the product being molded, at least one side wall of the box being removable to permit filling of the box from that side when the box is placed on its other side, and rocker members on said box to facilitate movement of the box from a position in which it is on a side to an upright position.

2. A molding box for use in the manufacture of concrete products such as beams, stanchions and the like, comprising side walls and end walls, a pallet between the side walls, said pallet forming the bottom of the box and being slidable vertically between the side walls when the box is in upright position, and a pair of longitudinally extending bars loosely mounted between the side walls at the upper portion of the box, said bars being spaced apart widthwise of the box to provide a space into which reinforcing members embedded in the concrete contents of the box may project to extend beyond the level of the product being molded, the inner adjacent edges of said longitudinally extending bars being rabbeted to form steps in the product being molded, at least one side wall of the box being removable to permit filling of the box from that side when the box is placed on its other side.

3. A molding box for use in the manufacture of concrete products such as beams, stanchions and the like, comprising side walls and end walls, a pallet between the side walls, said pallet forming the bottom of the box, and a pair of longitudinally extending bars between the side walls at the upper portion of the box when the box is in upright position, said bars being spaced apart widthwise of the box to provide a space into which reinforcing members embedded in the concrete contents of the box may project to extend beyond the defining sides of the product being molded, at least one side wall of the box being removable without disturbing the relative position of either of said longitudinally extending bars to permit filling of the box from that side when the box is placed on its side.

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