May 8, 1934. A. A. VINCENT 1,958,076

CONCRETE FORM CONSTRUCTION

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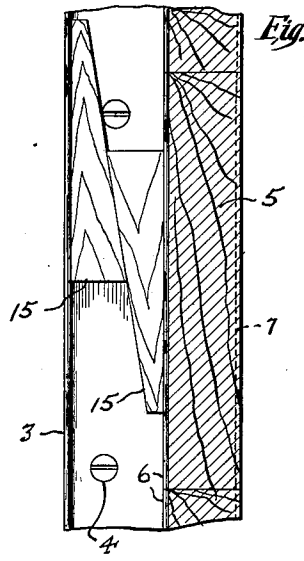

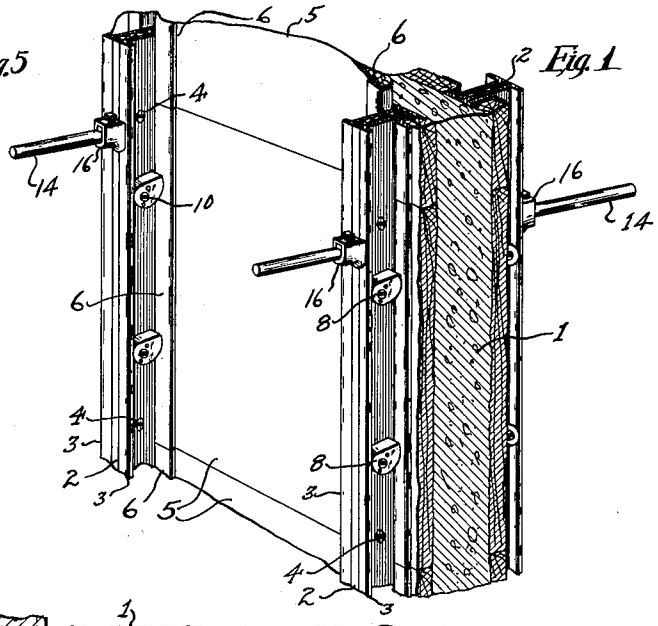

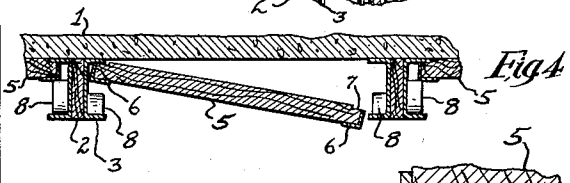

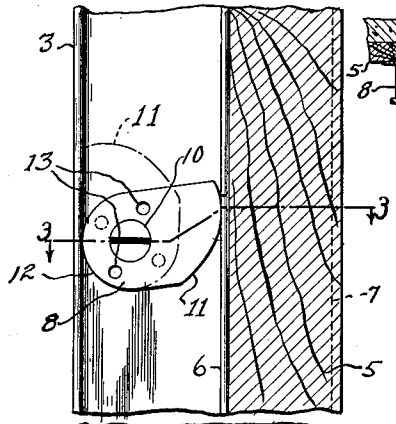

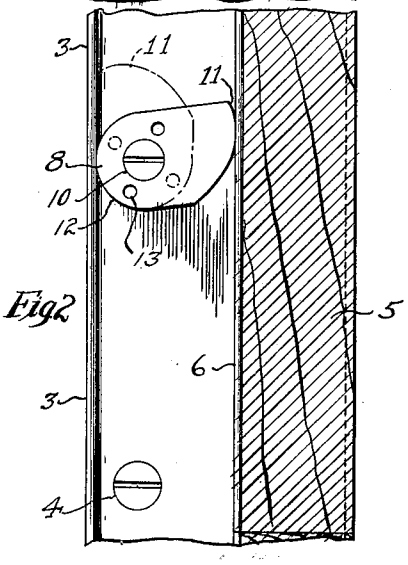

Fig. 2

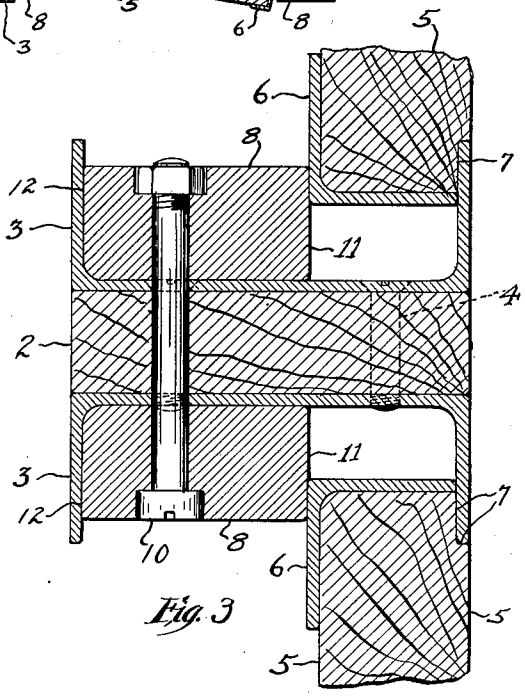

Fig. 3

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CONCRETE FORM CONSTRUCTION

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Application May 19, 1931, Serial No. 538,407

3 Claims. (Cl. 25—131)

This invention relates, generally, to concrete form construction or to forms used in the pouring of concrete walls, floors, partitions and the like; and the invention has reference, more particularly, to a novel adjustable concrete form construction adapted to be used an indefinite number of times.

Concrete forms which are intended to be used many times consist generally of studs which are spaced one from another and are interconnected by panels. Heretofore, as when it is desired to inspect the concrete, it has generally been either impossible or very difficult to remove a single panel without also dismounting and removing the studs supporting the panel. This is objectionable because it is often desired not only to inspect the concrete to see if the same has set, but to also plaster or otherwise finish the wall between the studs before the studs are actually removed so that these studs will be present to support the wall or other structure until the concrete has fully hardened.

The principal object of the present invention is to provide a novel concrete form construction wherein spaced studs of novel design are employed, which studs support panels therebetween, the said panels being adapted to be readily removed when desired without removing the studs.

Another object of the present invention lies in the provision of a novel concrete form construction employing studs having channel formations at their sides, within which channel formations the side edge portions of panels are adapted to be received, the said studs being provided with wedging members which are adapted by pressing against the outer flanges of the stud channel formations to releasably wedge the panel side edge portions against the inner flanges of the stud channel formations.

Still another object of the present invention is to provide a novel concrete form construction which is of simple, rugged, reliable construction and is easily used in practice and can be kept clean in use at low cost.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawing, in which:—

Fig. 1 is a fragmentary perspective view illustrating a portion of a poured concrete wall supported by the novel concrete form construction of this invention.

Fig. 2 is an enlarged view in elevation with parts broken away of a portion of the structure shown in Fig. 1.

Fig. 3 is an enlarged view taken along line 3—3 of Fig. 2.

Fig. 4 is a fragmentary sectional view illustrating the manner of assembling or removing the panels; and

Fig. 5 illustrates a different form of wedging members.

Similar characters of reference are employed in all of the above described views, to indicate corresponding parts.

Referring now to the said drawing, the reference numeral 1 designates a poured concrete wall which is illustrated as formed and supported by the novel concrete form construction of the present invention. This concrete form construction comprises vertical studs 2 which consist of a central wood block of rectangular cross section, together with channels 3 secured to the opposite sides of the central wood block as by screws 4 which extend through apertures in one of the channels 3 and in the central wood block and are threaded into the other channel 3.

The use of the central wood block in the studs 2 is desirable inasmuch as the same provides a nailing strip to which furring or other strips may be nailed, when desired. As is well known to those skilled in the art, it is ofttimes desired to set furring strips in poured concrete walls, and in order to hold these furring strips in place while the concrete is being poured, they may be nailed to the central wood block portion of the studs 2. The studs 2 are adapted to support panels 5 which may be of any suitable dimensions, but preferably are made of such size as to enable the ready manual handling of the same.

In the drawing, the panels 5 are illustrated as of wood and have angle bars 6 secured along their side edges, although it is to be understood that these panels may as well be made of steel or other metal suitably reenforced, if desired. The inner side edge portions of the panels 5 are formed with rabbets or grooves 7 for engaging the inner flanges of the channels 3. As especially shown in Fig. 3, the rabbets 7 have a depth which is equal to the thickness of the inner flanges of channels 3. This is necessary in order to cause the inner surface of the panels to be flush with the inner surface of the studs, thereby obtaining a uniform plane surface at the inner surface of the concrete form construction to provide a truly flat surface for the concrete to be poured against. The width of the rabbets 7 is made somewhat less than one-half the width of

the inner flanges of channel 3 so that the panels may readily be inserted laterally into the space between the consecutive studs, as illustrated in Fig. 4. In other words, the width of a panel 5 must be sufficiently less than the space between the opposed webs of consecutive studs so that the panel may be entered laterally in-between the studs or removed therefrom without disturbing or moving the studs.

In order to hold the panels 5 in position with respect to the studs, suitable wedging members 8 are used. In the form of the invention shown in Figs. 1 to 4, these wedging members 8 have the form of pivoted cam locks which are pivotally mounted upon bolts 10 carried by the studs 2. These wedging members 8 are positioned within the channels 3 and have curved camming or wedge surfaces 11 for engaging the angle bars 6 of the panels 5, together with cylindrical surfaces 12 for engaging the outer flanges of the channels 3, as especially shown in Fig. 3. The wedge members 8 are illustrated as provided with spaced circular recesses 13 therein for receiving a suitable spanner wrench which is used for turning these wedge members about their pivotal bolts 10.

When it is desired to hold a panel in place between studs 2, the wedging members 8 adjacent this panel are turned so that their camming surfaces 11 engage this panel and press the same against the inner flanges of channels 3. As pressure is brought to bear by camming surfaces 11 upon the panels 5, the cylindrical surfaces 12 of the wedging members engage the outer flanges of the channels 3 so that the force is directly transmitted from these outer flanges through the wedging members and the panels 5 to the inner flanges of the channels 3. In this way no appreciable stress is applied to bolts 10 at any time which is highly desirable and prevents the binding or bending of these bolts. Preferably, the wedging members 8 have a loose fit on the bolts 10 so that in no case do they apply stress to the bolts.

When it is desired to remove a panel from between consecutive studs 2, it is merely necessary to turn the wedge members 8 upwardly into the dotted line position shown in Fig. 2 so that their camming surfaces 11 disengage the panel, whereupon the same may be removed by shifting the same sidewise slightly, as illustrated in Fig. 4. Suitable tie rods 14 are adapted to be used with the concrete form construction of the present invention. These tie rods are illustrated as extending through apertures provided in the central portion of the studs 2 and are held in place by rod clamps 16.

It will be apparent that the novel concrete form construction of this invention may readily be used for floors, roofs, or other structures as well as for walls. By using the novel concrete form construction of the present invention, a panel 5 may be removed at any stage of the hardening of the concrete without removing panels above or below the same, thereby enabling the inspection of the concrete at any time, and consequently the determination of whether the same is sufficiently hard to permit either the removal of the panels alone or of the panels and studs. If it is desired to plaster or otherwise finish the surface of the concrete, the same may be done after a relatively short period of set by removing the panels 5 and permitting the studs 2 to remain standing, in which case these studs serve to support the wall until the same completely hardens, after which these studs may be removed and the concrete areas covered by the studs plastered or otherwise finished.

It will be apparent that other forms of wedging members may be used for gripping the side edge portions of the panels between the flanges of channels 3. Thus, in Fig. 5 ordinary wedging members 15 are used for so gripping the side edge portions of the panels to hold the same in place. If desired, screws could be threaded through the outer flanges of the channels to engage the panels for holding these panels in place.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:—

1. A concrete form construction comprising, spaced studs, each of said studs having a central wood block portion serving as a spacer and nailing strip together with channel formations secured to the sides of the central block portion, each of said channel formations being provided with a web and inner and outer flanges, panels adapted to be removably inserted between said spaced studs by moving the same laterally of said studs and disposed so that their side edge portions overlie the inner flanges of said channel formations, and turnable wedging members positioned within said channel formations and pivotally mounted on said webs, each of said wedging members having a curved camming surface at one end thereof and a cylindrical bearing surface at the other end thereof, the camming surfaces on said wedging members being adapted to engage said panel edge portions while said cylindrical bearing surfaces engage the outer flanges of said channel formations to thereby bind said panels against the inner flanges of said channel formations.

2. A concrete form construction comprising, spaced studs, each of said studs having a central wood block portion serving as a nailing strip together with channel formations secured to the sides of the central wood block portion, said channel formations being provided with webs and inner and outer flanges, panels adapted to be removably inserted between said spaced studs and disposed so that their side edge portions overlie portions of the inner flanges of said channel formations, said panel side edge portions being rabbeted to receive the inner flanges of said channel formations, turnable wedging members pivotally mounted on said webs and positioned entirely within said channel formations, each of said wedging members having a curved camming surface at one end thereof and a cylindrical bearing surface at the other end thereof, the camming surfaces of said wedging members being adapted to engage and bear against said panel edge portions while said cylindrical bearing surfaces engage and bear against the outer flanges of said channel formations to thereby bind said panels against the inner flanges of said channel formations, said wedging members being pivotally mounted within said channel formations and turnable so as to move out of engagement with said panels to thereby permit the removal of said panels from between said studs and without moving the studs.

3. A concrete form construction comprising, a stud provided with a channel formation at one

side thereof, said channel formation having a web and inner and outer flanges, a panel adapted to have its side edge portion overlie the inner flange of said channel formation, pivotal bolts carried by said web and extending parallel to said flanges, and cam locks turnably mounted on said pivotal bolts, said cam locks having semi-cylindrical outer end portions concentric with their pivotal bolts for bearing against the outer flange of said channel formation and having curved cam-shaped inner end portions for bearing against said panel to thereby hold said panel against the inner flange of said channel formation, the thrust of said cam locks against said panel being substantially entirely transmitted through the length of said cam locks and against the outer flange of said channel formation.

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