

[54] GUARD RAIL POST

[76] Inventor: Wayne E. Warren, 3801 41st St.,
Tampa, Fla. 33610

[22] Filed: Apr. 19, 1972

[21] Appl. No.: 245,447

[52] U.S. Cl. 256/59, 256/65, 248/226 B,
248/251, 182/113

[51] Int. Cl. E04h 17/20

[58] Field of Search 256/59, 39, 47;
248/226 A, 226 C, 228, 226 B, 316 A, 316 B;
182/113; 269/55, 60, 69; 24/263 PJ, 263 FS,
263 LS, 248 SA, 248 A, 248 E, 248 F, 263 A,
263 B

[56] References Cited
UNITED STATES PATENTS

3,480,257 11/1969 Bourn et al. 182/113
3,373,988 3/1968 McKelvey 248/226 A

3,383,101 5/1968 Albert 24/263

FOREIGN PATENTS OR APPLICATIONS

81,397 1/1952 Norway 248/226 C

Primary Examiner—Jordan Franklin

Assistant Examiner—Conrad L. Berman

Attorney—William M. Hobby et al.

[57] ABSTRACT

A perimeter guard rail post apparatus for rapid installation of a temporary safety barrier post to a concrete slab and having means for attaching wooden rails directly to the post. The quick attaching post has a clamping system utilizing one fixed jaw and one movable jaw, with the movable jaw being movably pinned to a lever at one end thereof and fulcrumed on the post. A threaded member is threaded to the other end of the lever and drives against the post to tighten the clamp.

4 Claims, 7 Drawing Figures

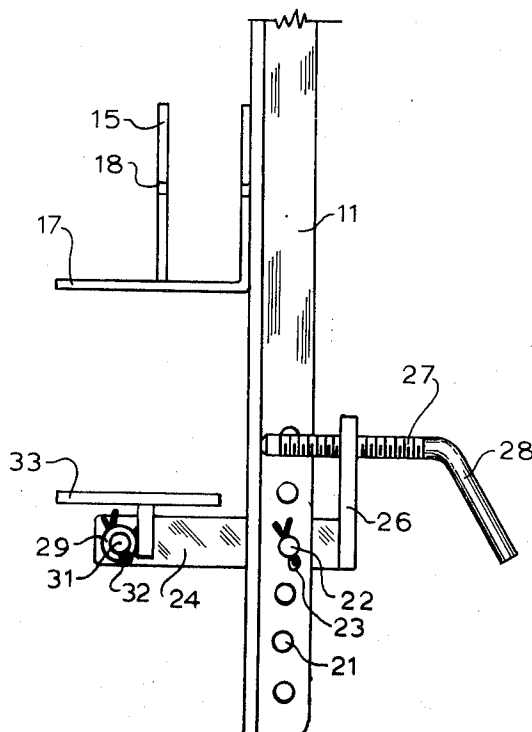


Fig. 1.

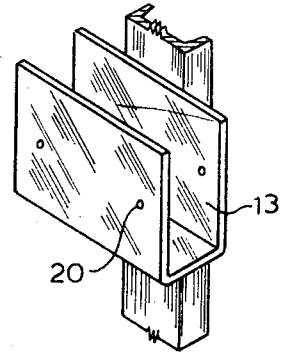
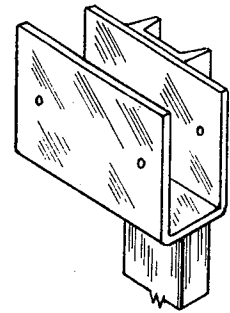
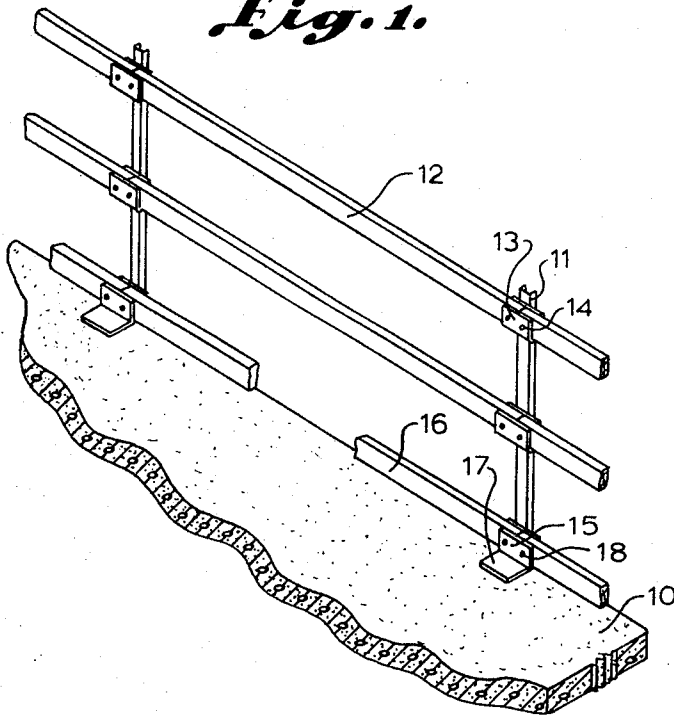


Fig. 2.

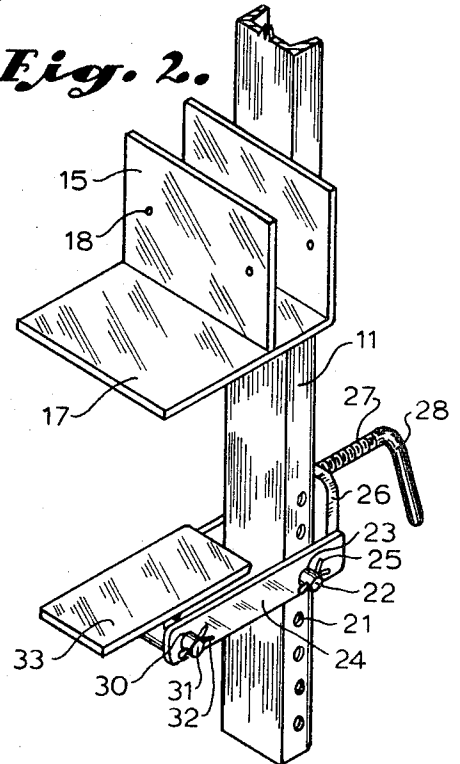


Fig. 3.

Fig. 4.

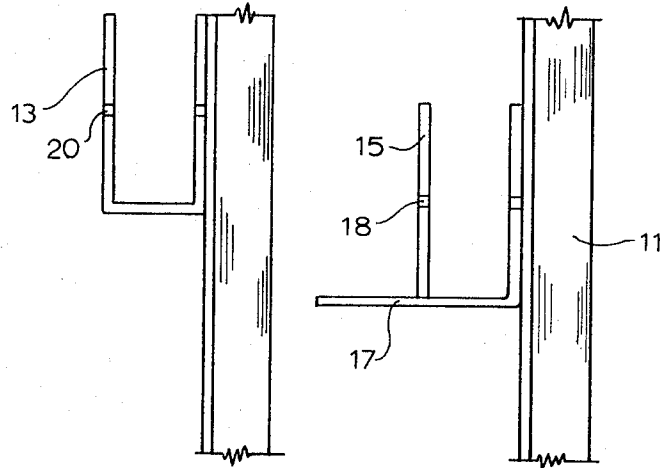
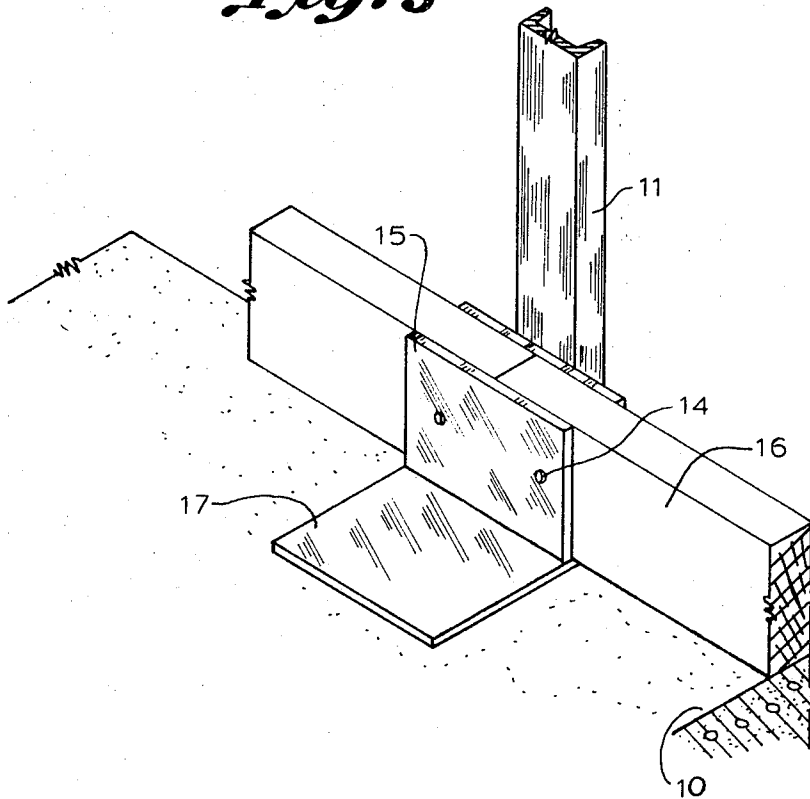


Fig. 5



SHEET 3 OF 3

Fig. 6.

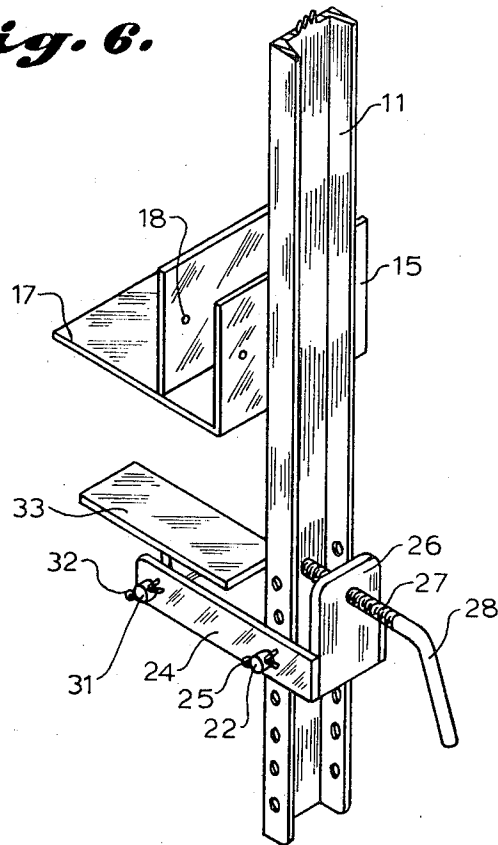
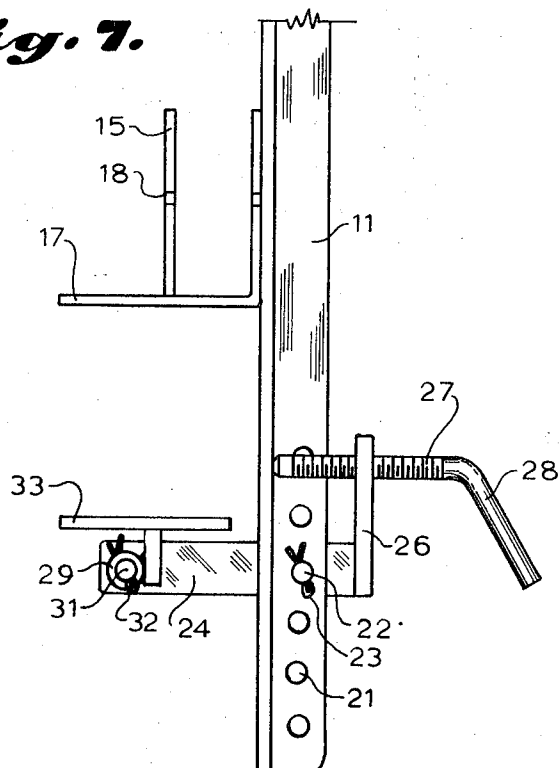


Fig. 7.



GUARD RAIL POST

BACKGROUND OF THE INVENTION

The present invention relates to safety barriers and more particularly to a perimeter guard rail system adapted for placement around the perimeters of floors above ground level during construction of multi-storied buildings to protect workmen and equipment from falling.

The present system is easily movable yet provides a sturdy clamping system along with a system for holding wooden guard rails and toe boards to quick attaching and detaching posts for providing a complete safety barrier system.

In the past it has been common practice to provide safety barriers, but safety codes now require safety barriers around areas being worked on above ground level during the construction of multi-storied buildings to prevent workmen from falling from the upper stories and also to prevent the accidental dropping of materials or equipment with the potential dangers to other workmen and equipment below.

Because of the dangers involved, it is common to provide in building codes for barricades or other safety barriers meeting safety codes. However, it is still common to provide barriers built from inexpensive lumber assembled at the worksite by simply nailing lumber to the slabs. This type of prior art barrier is not uniformly constructed and is generally made from the cheapest lumber available which may be adversely affected by the cumulative effects of rain, dampness, swelling, drying and weakening that may result from reuse of the same materials. To overcome some of these prior art problems, it has been suggested to provide a C-clamp such as shown in U. S. Pat. No. 3,351,311 for SUPPORT OF GUARD RAILS, in which a post has been connected to the C-clamp and then have metal guard rails which are attached to the post by wingnuts, or the like. It has also been suggested in U. S. Pat. No. 3,480,257 to provide a guard rail system having telescoping posts with a clamp for attaching to an I-beam, or the like, which post is adapted for attaching wooden rails to. This particular patent has a clamping system having a base member which sits on an I-beam with a bottom engaging member pinned thereto and driven by a threaded bolt attached to the base. This system, however, drives the bottom member of the clamp against a single point against the bottom of the I-beam, and thus provides a reduced frictional engagement between the engaging surfaces, and provides a plurality of openings for pinning the bottom jaw at different points for adjustment for different thickness slabs or I-beams. U. S. Pat. No. 3,439,898 provides a safety barrier and barrier fence post which post may be expanded or telescoped to apply pressure to the top of one slab and the bottom of the next slab up and then attaching cables between the posts. This of course assumes working between a pair of slabs and is not applicable to the topmost floor under construction at any given time.

Finally, U.S. Pat. No. 3,084,759 provides a post which is threadably clamped to a surface and provides brackets for attaching wooden guard rails to, and U.S. Pat. No. 3,632,089 has a safety barrier post having a clamp for each attachment to a concrete slab by having a first quick-adjustment of the bottom jaw of the clamp and then final adjustment by tightening a threaded member to pull the jaws together.

One advantage of the present invention is to provide a portable perimeter guard rail post which may be easily and quickly installed or removed from a concrete slab and which provides a generally uniform frictional engagement over the surface of the jaws of the clamp holding the post to the concrete slab.

Another advantage of the present invention is the simplicity with which the system can be manufactured and used.

SUMMARY OF THE INVENTION

A guard rail post for attaching to a concrete slab, or the like, for erecting a perimeter guard rail system, is provided having an elongated post member with a clamping system attached thereto and means for attaching wooden guard rails in between pairs of the posts. The clamping system has a pair of jaws for attaching to a concrete slab, or the like, for holding the elongated post member in place in an upright position. One of the pair of jaws is fixedly attached to the post and has the bracket for attaching the toe board thereto, while the second jaw is a movable engaging surface which is movably attached to a lever member which is in turn movably attached to the post member and is threaded on one portion thereof for driving the threaded member against the post for driving the movable jaw towards the fixed jaw for clamping a surface between the jaws. The lever which is fulcrummed to the elongated post has a generally L-shape for extending one portion in spaced relationship to one side of the post member so that a threaded driving member can be threaded therethrough, with a handle on one end for screwing the threaded member through the lever against the post. The lever is fulcrummed to the post with pins attached through openings in the post which post has a plurality of such openings for moving the fulcrummed point for different size slabs on different buildings. The post has brackets for nailing the wooden rails thereto.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features and advantages of this invention will be apparent from a study of the written description and the drawings, in which

FIG. 1 shows a perspective view of a perimeter guard rail system having posts in place on a surface with guard rails attached between a pair of posts;

FIG. 2 is a perspective view of a guard rail post in accordance with the present invention;

FIG. 3 is a sectional view of the bracket for attaching the guard rail to the post of FIGS. 1 and 2;

FIG. 4 is a sectional view of the upper jaw and toe board bracket for holding a toe board to a post in the embodiment shown in FIGS. 1 and 2;

FIG. 5 is a perspective view of the fixed jaw and toe board bracket attached to a surface with toe boards attached thereto;

FIG. 6 is a perspective view of a post in accordance with the embodiment of FIG. 2; and

FIG. 7 is a sectional view of the guard rail post in FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, a perimeter guard rail system is illustrated attached to a concrete slab 10 to form a safety barrier along the perimeter of a floor above

ground level during the construction of a multi-storied building to protect workmen and equipment from falling from the slab 10. The guard rail system includes a pair of upright extending posts 11 with a plurality of wooden guard rails 12 extending between the posts 11 and attached to the post 11. The guard rails may be 2x4 lumber, or the like, nailed to brackets 13 which are fixedly attached to the posts 11 and attach the boards 12 by driving nails 14 through openings in the brackets 13 into the wooden rails 12. The bottom bracket 15 is for attaching a toe board or rail 16 which is the same as the rails 12 and may be wooden lumber such as 2x4 studs nailed through openings in the bracket 15 into the boards. Bracket 15, however, is formed with the upper jaw 17 for the post 11 which upper jaw 17 is fixedly attached to the post 11. Each post has a bottom movable jaw with means for tightening the bottom movable jaw against the bottom of the slab 10 for holding the post in place, as will be described in more detail in connection with the remaining figures. It should, however, be pointed out at this point that the guard posts and most of the components used therewith would typically be made of steel, and may be made of commercially available stock such as commercially available steel channel iron as illustrated.

Referring now more specifically to FIGS. 2, 6 and 7, the guard rail post 11 has the upper jaw 17 with the toe board bracket 15 attached thereto fixedly attached to the post 11 and having openings 18 therein for driving nails therethrough. The post also has a pair of rail holding brackets 13 with openings 20 therein for driving nails for holding wooden rails between posts. The bottom portion of the post 11 has a plurality of openings 21 therein for sliding a pin 22 therethrough and also through openings 23 in a lever member 24 and locking the pins 22 in place with a cotter-pin 25. Lever member 24 is thus fulcrummed on the pin 22 for movement in a rotational manner at that point. The lever 24 has an end portion 26 protruding substantially perpendicular to the main portion of the lever 24 extending along the elongated post 11. This protruding portion 26 has a threaded opening therein with a threaded driving member 27 passing therethrough and having a handle 28 formed therein so that by rotating the handle 28 will rotate the threaded member 27 through the upper protruding portion 26 to drive the end of the threaded member 27 against the post 11, which in turn will drive the lever member 24 on its fulcrummed end 22. The other end of the lever 24 has an opening 30 therein with a pin or shaft 31 passing therethrough and held in place with a cotter pin 32. This pin 31 passes through a portion 29 of a bottom jaw engaging surface 33 so that the surface 33 can move or rotate on the pin 31. Driving the threaded member 27 against the elongated post 11 will drive the lever member 24 which will drive the flat surface 33 towards the fixed jaw 17 and the rotation of the movable jaw 33 on shaft 31 will allow it to be maintained flat against the surface it is being driven against. Additional mechanical advantage can be gained by extending the lever member portion 26 a greater distance from the fulcrummed point 22 and the fulcrummed point 22 can be changed to fit into any one of the plurality of holes 21 for a broader adjustment between slab sizes. It will of course be realized that once adjusted, the slab sizes will remain substantially the same for all floors of the same building.

The post 11 is used by simply sliding a post onto a slab 10 (FIG. 1) with the upper jaw 17 resting on top of the slab and the lower jaw 31 extending below the slab then rotating the handle 28 to tighten the lower jaw 33 against the slab. The rails 12 and toe boards 17 are then slipped in place between posts and nailed to the post which carries additional support by the rigid connection between the posts.

Turning now to FIGS. 3, 4 and 5, the post 11 can be seen having the brackets 13 and 15 attached thereto, with attachment can be by welding, riveting, bolting, or attached by any means desired, for fixedly attaching these brackets to the post 11. The post 15 has openings 18 therethrough while the brackets 13 have openings 20 passing therethrough. In FIG. 5 the post 11 is attached to the slab 10 and has the toe boards 16 attached with nails 14 and has the upper jaw 17 against the slab 10.

It should be clear at this point that a quickly attachable and detachable post for attaching to concrete slabs, or the like, has been provided for use in setting up perimeter guard rail systems, which is both simple to manufacture and to use. However, this invention is not to be construed as limited to the particular forms disclosed herein since these are to be regarded as illustrative rather than restrictive.

I claim:

1. A guard rail post for attaching to a concrete slab, or the like, for erecting a perimeter guard rail system comprising in combination: an elongated post member, a pair of jaws attached to said elongated post member for engaging a surface between said jaws to hold said elongated post member in an upright position to said surface, one of said pair of jaws being fixedly attached to said elongated post member and the other said jaw being located below said first mentioned jaw and movably attached to said post member for movement into engagement with said surface for locking said surface between said jaws; a lever member which is fulcrummed on said elongated post member with said movable jaw being pivotally attached to said lever member, said lever extending to the opposite side of said post member from said movable jaw and having a threaded member threaded therethrough for driving against said post for moving said movable jaw towards said fixed jaw, whereby the surface may be clamped therebetween, said threaded member having a handle formed therein for screwing said threaded member against said post member, and said movable jaw being movably attached to said lever with a pin, to allow said jaw to engage a surface at different angles of said lever for a uniform clamping pressure; said lever having a protruding portion extending generally perpendicular to said lever so that said threaded member will be threaded therethrough directly against said elongated post; and said post having a plurality of openings therein for receiving a pin member for movably attaching said lever to said post at any one of a plurality of positions along said post.

2. The apparatus in accordance with claim 1 in which said post has a plurality of brackets thereon adapted to receive a wooden guard rail, each bracket having holes therein for driving nails therethrough into said wooden rails.

3. The apparatus in accordance with claim 2 in which said fixed jaw includes a bracket formed therewith for attaching toe boards between posts.

4. The apparatus in accordance with claim 1 in which said movable jaw is attached to said lever with a pin passing through a portion of said lever and also through a portion of said movable jaw.

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