

DRAWINGS ATTACHED

1 332 372

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 107 895 16 March 1971 in
 (33) Canada (CA)
 (44) Complete Specification published 3 Oct. 1973
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 (72) Inventors ERNEST OTTO BUTTS and JOHN STUART HALL



(54) COLD ROLLED SHEET STEEL JOIST

- (71) We, HAMBRO STRUCTURAL SYSTEMS LIMITED, a Canadian Company of P.O. Box 5170, Postal Station F, Ottawa, Ontario K2C 3H4, Canada, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- 10 This invention relates to a joist for use in supporting panels used to support a poured concrete floor.
- 15 In accordance with the present invention there is provided an elongated cold rolled sheet steel joist for use in supporting shuttering for cast concrete, comprising a top chord, a bottom chord and a web interconnecting said chords, said bottom chord having a generally hollow rectangular shape in cross-section, said web being substantially flat and provided with a plurality of openings arranged longitudinally thereof and said top chord being Z-shaped in cross-section.
- 20 An embodiment of the present invention will now be described with reference to the accompanying drawings in which:
- 25 Figure 1 is a perspective view of a cold rolled sheet steel joist in accordance with the present invention;
- 30 Figure 2 is a vertical section through a composite floor system using the cold rolled steel joists;
- 35 Figure 3 is a vertical section illustrating the shuttering and the cold rolled sheet steel joist and,
- 40 Figure 4 is a plan view of an interconnecting bar for use with the steel joists according to the invention.
- 45 Referring to Figure 1, there is shown in perspective a cold rolled sheet steel joist constructed in accordance with the present invention. The joist is indicated generally at 110 and consists of a bottom chord 111 having a hollow generally rectangular shape, a vertical flange 112 and a generally Z-

shaped top chord 113. In erecting a composite floor system of concrete such as described and claimed in our United Kingdom Patent Application No. 15821/71 (Serial No. 1,332,371), cold rolled sheet steel joists 110, in properly spaced-apart parallel relationship, are supported at opposite ends upon any usual and conventional supports.

Positioned between two such joists 110 are interconnecting bars 114 (Figures 3 and 4) which have tapered and notched ends 115. The ends 115 co-operate with the joists 110 and are wedged into openings 116 provided in the vertical flange 112 of each joist 110. The plurality of openings 116 are generally rectangular in shape with one side edge inclined so that the openings are tapered from one end to the other so that when interconnecting bar end 115 is inserted and hammered into the opening 116 interconnecting bar 114 becomes wedged securely. Supported on the interconnecting bar 114 is a reusable panel 119. Wet concrete is prevented from spilling off the panels 119 by the Z-shaped top chord 113 and by the vertical face 112 of each joist 110.

Such a shaped interconnecting bar as seen in Figure 4 permits the easy installation and removal of interconnecting bars 114 so that they may be reused. Once the interconnecting bars are removed the openings 116 serve as pass-ways for electrical and mechanical conduits thereby permitting a saving in the height required between floors.

The top chords 113 of this joist 110 may be embedded in the concrete floor 117 and the reinforcing mesh 118 hangs in a catenary shape between the joists 110 to provide a proper reinforcement for the concrete floor 117. Thus the top chord 113 becomes part of the concrete floor.

WHAT WE CLAIM IS:—

1. An elongated cold rolled sheet steel

[Price 25p]

PATENT SPECIFICATION (11)

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10 This invention relates to a joist for use in supporting panels used to support a poured concrete floor.

15 In accordance with the present invention there is provided an elongated cold rolled sheet steel joist for use in supporting shuttering for cast concrete, comprising a top chord, a bottom chord and a web interconnecting said chords, said bottom chord having a generally hollow rectangular shape in cross-section, said web being substantially flat and provided with a plurality of openings arranged longitudinally thereof and said top chord being Z-shaped in cross-section.

25 An embodiment of the present invention will now be described with reference to the accompanying drawings in which:

30 Figure 1 is a perspective view of a cold rolled sheet steel joist in accordance with the present invention;

Figure 2 is a vertical section through a composite floor system using the cold rolled steel joists;

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Figure 4 is a plan view of an interconnecting bar for use with the steel joists according to the invention.

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WHAT WE CLAIM IS:—

1. An elongated cold rolled sheet steel

[Price 25p]



joist for use in supporting shuttering for cast concrete, comprising a top chord, a bottom chord and a web interconnecting said chords, said bottom chord having a generally hollow rectangular shape in cross-section, said web being substantially flat and provided with a plurality of openings arranged longitudinally thereof and said top chord being Z-shaped in cross-section.

2. An elongated cold rolled sheet steel joist as claimed in claim 1, in which said openings are of generally rectangular shape having one side edge inclined relative to the opposed side, said openings being located at regular spacings to support support-

ing bars extending between two of said joists.

3. An elongated cold rolled sheet steel joist for use in supporting shuttering for cast concrete, substantially as hereinbefore described with reference to and as illustrated in Figures 1 to 3 of the accompanying drawings.

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