

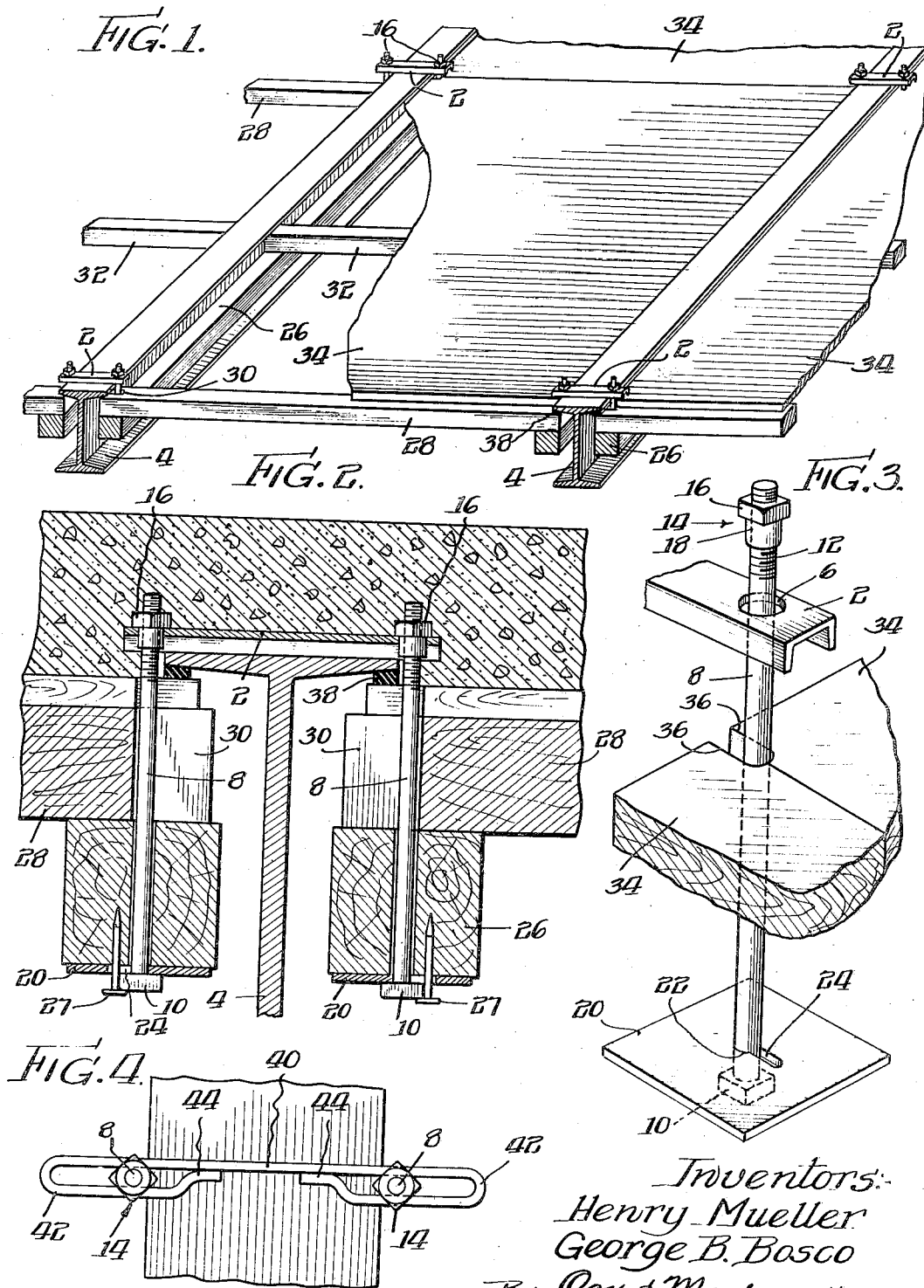
Sept. 24, 1940.

H. MUELLER ET AL

2,215,972

FORM HANGING DEVICE

Filed July 10, 1937



Inventors:
Henry Mueller
George B. Bosco
By: Cox & Moore attys.

UNITED STATES PATENT OFFICE

2,215,972

FORM HANGING DEVICE

Henry Mueller and George B. Bosco, Chicago, Ill.

Application July 10, 1937, Serial No. 153,025

7 Claims. (Cl. 25—131.5)

This invention relates to a device for hanging floor forms from supporting beams and to a method of assembling floor forms on which cementitious material is poured to form a concrete floor.

An object of the invention is to provide an economical, positive, strong, fool proof, adjustable, readily assembled and disassembled device for hanging floor forms on floor supporting beams.

Another object of the invention is to provide a device of the above stated character by which the floor forms may be placed without the aid of scaffolding and from above the supporting beams for said forms.

Another object of the invention is to provide a method of assembling floor forms upon supporting beams from a position above said beams.

Another object of the invention is to provide a simple, economical and easily assembled floor form structure supportable directly upon the permanent supporting beams for the floor.

Another object of the invention is to provide means for supporting the floor forms upon the supporting beams in such manner that upon removal of the forms no projecting parts, members or metallic surfaces shall be left exposed to mar either surface of the newly laid floor.

Another object of the invention is the provision of means of the above stated character in combination with simple and economical sealing means for preventing spilling over the soft concrete on the external surfaces of the lower flange and/or web of the supporting beam, which is commonly a steel I-beam.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawing, wherein:

Fig. 1 is a view in perspective showing floor forms constructed and supported in accordance with this invention.

Fig. 2 is a transverse vertical section showing the supporting device of the invention and a floor laid upon the floor form supported thereby.

Fig. 3 is a fragmentary view in perspective of the supporting device of Fig. 2 and showing the manner of assembling the flooring of the floor forms upon said device.

Fig. 4 is a plan view of a modified form of the supporting device.

The preferred embodiment of the floor form supporting device consists of a bar or a piece of channel iron 2 slightly longer than the width of the I-beams 4 upon which the floor forms are

to be mounted. The channel irons 2 are provided at their opposite ends with openings 6 to receive elongated bolts or threaded rods 8, the bolts or rods 8 each being provided with a head 10 at one end and with threads 12 at their other ends. Bolts 14, each having a retaining head 16 and an integral sleeve portion 18, are threaded to receive the threads 12 of the bolts 8. The heads 10 of the bolts support metallic plates 20, each of which has an opening 22 to receive the shank of the bolt 8 and a slot 24 extending radially from the opening 22.

The floor forms are assembled upon these supporting devices and the I-beams 4 in the following manner. Longitudinal supports, stringers of joists 26 are drilled at their ends, and intermediately if desired, to receive the shanks of the bolts 8. These beams, which may be 4 x 4 wooden beams or their equivalent, are assembled on the bolts 8 and rest upon the plates 20 disposed at the ends of the beams. A common nail 27 or other fastening device is received in the slot 24 of each plate and secures the beams against movement relative to the bolts, the head of each nail or other fastening device preferably engaging the head 10 of its associated bolt 8 as shown in Fig. 2. The assembly of the stringers 26 with the bolts 8 and plates 20 may be effected on a work bench and thereafter a pair of stringers with the bolts 8 attached thereto are transported to and assembled upon the I-beams from a position above said beams. The bolts 8 are passed through the openings 6 in the channel irons 2 and the sleeved nuts 14 are then loosely threaded on the bolt to retain the assembly on the I-beams 4 during the subsequent construction of the remaining portions of the floor forms on said stringers. On top of the stringers 26 are placed transverse beams 28, which are preferably 4 x 4 wooden beams slotted at their ends, as at 30, to receive the bolts 8 associated with transversely spaced I-beams. An additional transverse beam 32 may be positioned upon the stringers 26 intermediate the beams 28 and may be fastened, if desired, in any suitable manner to the stringers 26. Flooring strips 34 are placed upon the transverse beams 28 and 32 and are provided at their corners with slots or recesses 36 receiving the bolts 8. The floor strips 34 may comprise panels of wood or any other desired material extending between each set of supporting devices.

To insure against slopping over or spilling of the soft concrete onto the external surfaces of the I-beams, rubber strips 38 are placed between the under surface of the top flange of said I-beams

and the floor panels 34 to provide a seal. The floor panels having been placed in position, the sleeved nuts 14 are drawn up tightly to clamp the rubber strips 38 securely in position between the top surface of the panel and the I-beams.

If desired the floor forms may be assembled in their entirety on a work bench and then placed in position on the I-beams, the assembling on the I-beams being accomplished from above said beams.

The sleeves 18 of the nuts 14 prevent binding of the bolts against the channel irons 2 when the structure is finally clamped in place.

The floor forms having been clamped on the I-beams as stated, concrete is now poured in the usual manner over the top of the I-beam, the channel irons 2 and floor panels 34. After the concrete has set, all the elements of the floor forms and the clamping devices may be removed, with the exception of the channel irons 2 and the sleeved nuts 14. This is accomplished by first loosening or withdrawing the nails 27 or other fastening devices employed to secure the beams or stringers 26 to the plates 20 and then rotating the bolts 8, by conventional tools applied to the heads 10 thereof, to withdraw the same from the sleeved nuts 14. Upon withdrawal of the bolts 8, the floor forms are removed from below the set concrete leaving only the small openings from which the bolts 8 have been withdrawn to be pointed up. It will be noted that the under surface of the concrete floor, which comprises the ceiling of the floor below, is left clear and without projections, parts, or metallic members to mar the appearance of said surface. The upper surface of the floor is similarly clear and unbroken.

If desired, each section or panel of the floor forms may be removed as a unit when the concrete has become set and immediately transported to and reused in another location by simply inserting the bolts 8 of each withdrawn section in new channel irons 2, new nuts 14 being provided to replace the nuts left embedded in the concrete.

In Fig. 4 is shown a modified form of channel member for supporting the bolts 8 and floor forms on the floor beams. In this form, a relatively heavy wire 40 is bent at its ends to form looped portions 42, the outer ends 44 of the wire being bent inwardly beyond the loops and secured in any convenient manner, as by welding, to the forward, straight, intermediate portion of the wire. The bolts 8 pass through the looped portions 42 of the wire and are clamped thereto by the sleeve nuts 14. It will be seen that in this construction a limited amount of adjustment is provided between the supporting channel and the bolts 8 whereby said supporting device may serve for various sizes of floor beams.

The invention is hereby claimed as follows:

1. In a device for hanging floor forms on floor beams, the combination of a supporting bar adapted to rest upon the floor beam and having openings at opposite ends, rods passing through said openings and depending from said bar, means for removably securing said rods to said bar, floor forms, centrally apertured supporting plates carried by said rods passing through said apertures, said supporting plates having elongated slots therein extending radially from said apertures and fastening means passing through said slots and engaging into the forms for fastening said floor forms to said supporting plates.

2. In a device for hanging floor forms on floor

beams, the combination of a supporting bar comprising a relatively heavy wire resting on the beams and bent at opposite ends to form loops, rods passing through said loops and depending from said bar, means for adjustably and removably securing said rods to said bar, an individual floor form supporting plate carried by each said rod, said floor forms comprising stringer members, said rods extending through apertures in said stringer members and having the individual floor form supporting plates engaging therebeneath and fastening means for fastening said supporting plates to the stringer members.

3. In a device for hanging floor forms on floor beams, the combination of a supporting bar comprising a relatively heavy wire bent at opposite ends to form loops, rods passing through said loops and depending from said bar, means for adjustably and removably securing said rods to said bar, floor form supporting plates carried by said rods, said supporting plates having slots therein and means passing through said slots for fastening said floor forms to said plates.

4. In a device for hanging floor forms on permanent floor beams, the combination of a channel iron adapted to extend transversely of a floor beam, said channel iron having openings at opposite ends, bolts loosely passing through said openings and depending from said channel iron, each of said bolts having an enlarged head at its lower end and a threaded portion at its upper end, means for removably securing said bolts to said channel iron, said means comprising nuts having each a sleeved portion adapted to fit within an opening in the channel iron whereby to space the bolt from the channel iron to prevent binding thereof in the channel iron and an enlarged head adapted to rest upon said channel iron, floor form supporting plates resting upon the enlarged heads of said bolts and means for fastening said floor forms to said supporting plates.

5. In a device for hanging floor forms on permanent floor beams, the combination of a channel iron adapted to extend transversely of a floor beam, said channel iron having openings at opposite ends, bolts loosely passing through said openings and depending from said channel iron, each of said bolts having an enlarged head at its lower end and a threaded portion at its upper end, means for removably securing said bolts to said channel iron, said means comprising nuts having each a sleeved portion adapted to fit within an opening in the channel iron whereby to space the bolt from the channel iron to prevent binding thereof in the channel iron and an enlarged head adapted to rest upon said channel iron, floor form supporting plates extending laterally from said bolts, said plates having each an opening to receive a bolt and a slot extending outwardly of said opening, said plates resting upon the enlarged heads of said bolts and means passing through said slots for fastening said floor forms to said supporting plates.

6. For use in a structure for forming a floor of concrete or like material between spaced supporting beams having laterally extending flanges, stringers adapted to extend longitudinally of said supporting beams, transverse beams extending between said longitudinal stringers, a floor panel resting upon said transverse beams and extending beneath the upper flanges but above the lower flanges of said supporting beams and means fastened to said longitudinal stringers for hanging said longitudinal and transverse beams and said floor panels from said supporting beam.

5 7. In a device for hanging floor forms on floor beams, the combination of a supporting bar adapted to rest on a floor beam and comprising a relatively heavy piece of elongated material bent at opposite ends to form elongated loops, said elongated loops having rods passing through the openings and depending therefrom, said rods having laterally extending portions adapted to

receive and support the floor forms, the elongated loops of said supporting bar being adapted to receive the said rods in a plurality of predetermined positions longitudinally of the loop for adjusting the relative positioning of the rods in accordance with the dimensions of the floor beams. 5

HENRY MUELLER.
GEORGE B. BOSCO.