March 24, 1959 G. C. HARDIE 2,879,110

SCAFFOLDING

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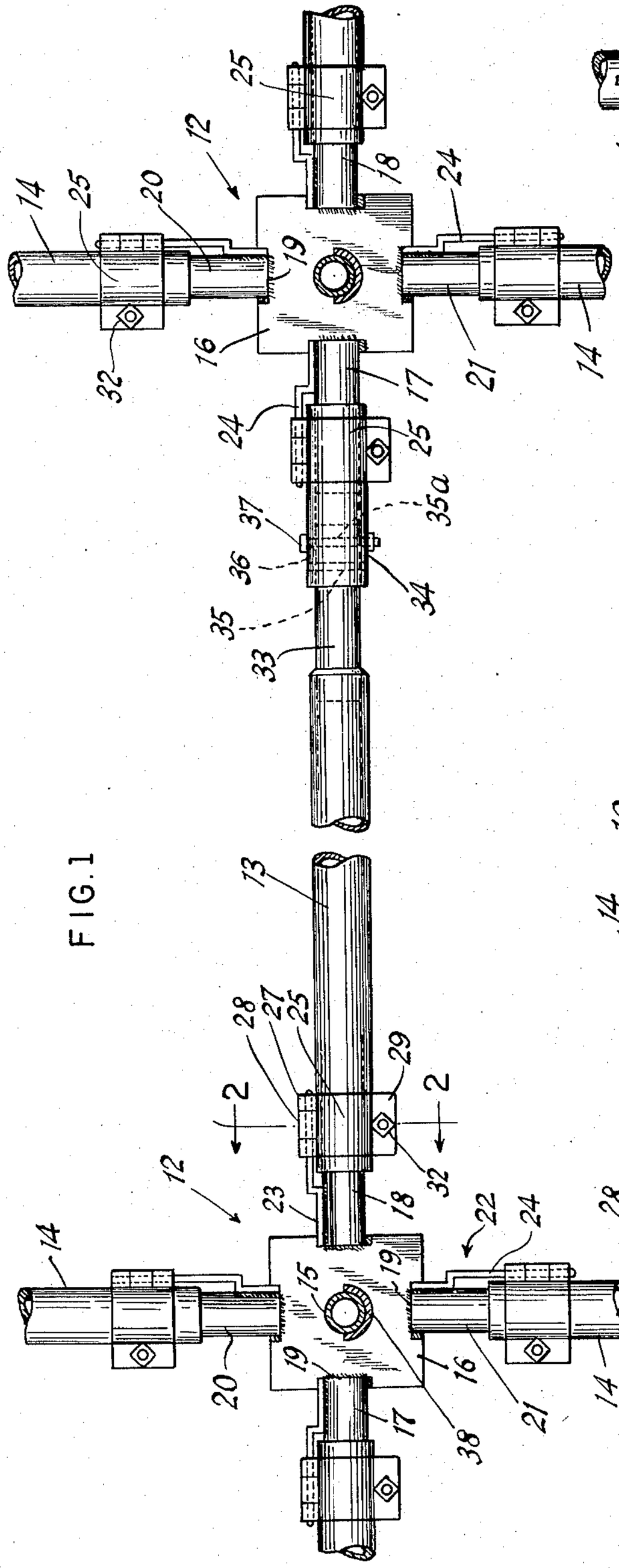


FIG. 1

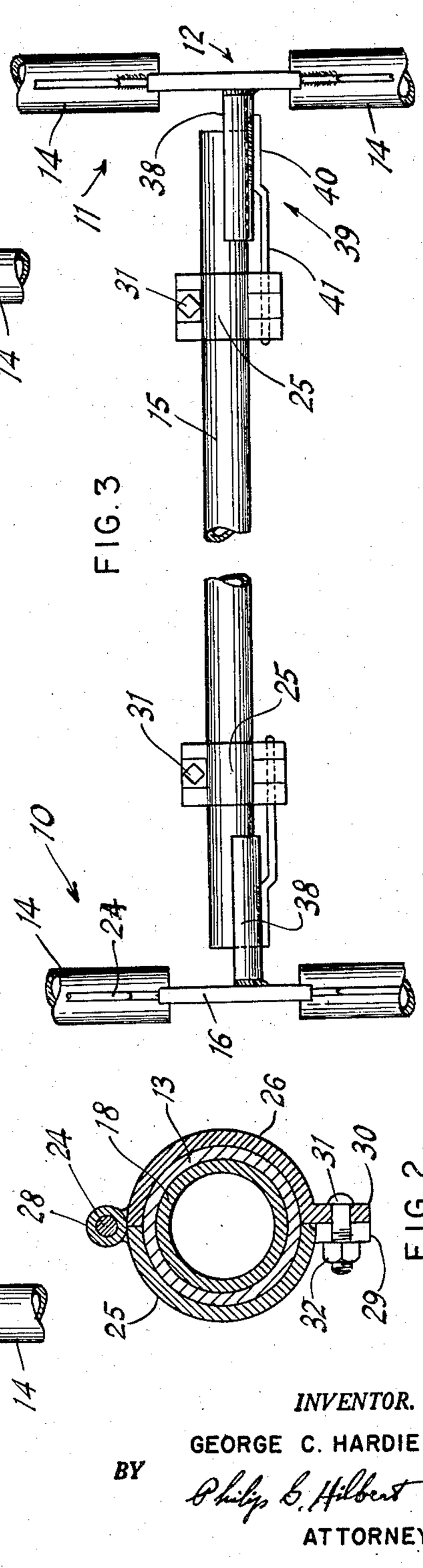


FIG. 3

FIG. 2

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SCAFFOLDING

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4 Claims. (Cl. 304—40)

This invention relates to scaffolding and scaffold connector means. More specifically, the invention concerns scaffolding adapted for use with the exterior or interior portions of a building.

An object of this invention is to provide improved scaffolding comprising scaffold members and connectors therefor which may be rapidly assembled for use and quickly disassembled for storage when not in use, yet being adapted to sustain while in assembled and erected form, unusually large loads.

Another object of this invention is to provide in a scaffolding construction of the character described, improved connector means for the horizontal and vertical scaffold members and including improved clamping means for retaining the interconnected members and to withstand unusually large loads which may be applied to the scaffolding.

A further object of this invention is to provide in a scaffolding construction of the character described, improved connector means and horizontal scaffold members so interrelated as to permit the initial assembly of the connector means and the vertical scaffold members, positioning such assemblies at fixed distances from each other in both longitudinal and transverse directions, and finally interconnecting such assemblies by horizontal and transverse scaffold members.

Another object of this invention is to provide an improved connector for scaffolding which includes projecting spoke members adapted for telescopic engagement with horizontal and vertically disposed tubular scaffold members, together with quick release clamping means for gripping the end portions of the scaffold members.

Still a further object of this invention is to provide an improved scaffolding construction including a pair of scaffold frames in parallel relation and including horizontally aligned connector means provided with open supporting means extending toward each other for receiving a transverse scaffolding member for interconnecting the frames, together with clamping means for gripping end portions of the transverse member and retaining the same on the supporting means.

Other objects of this invention will in part be obvious and in part hereinafter disclosed.

In the drawing,

Fig. 1 is a front elevational view showing the interconnected elements of a scaffolding construction embodying the invention;

Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1; and

Fig. 3 is a front elevational view of a portion of a pair of scaffolding frames and the transverse interconnection thereof.

Referring in detail to the drawing, 10, 11 generally indicate similar scaffold frames arranged in opposed, parallel relation. As shown in Fig. 1, frame 10 includes connector means generally indicated 12 for interconnecting elongated, horizontally extending tubular members 13 and elongated, vertically extending tubular members 14. The horizontally aligned connector means 12 of frames 10, 11, are interconnected by transversely extending tubular members 15, as shown in Fig. 3.

Each connector means 12 comprises a metal plate 16 which may be square in shape and of the order of about six inches on a side and about ½ inch in thickness. Obviously these dimensions may be varied. A pair of horizontally aligned tubular spokes 17, 18 extend from the vertical edges of plate 16, such edges being recessed as at 19 to receive the inner ends of the spokes which are welded in place. Similarly, a pair of vertically aligned tubular spokes 20, 21 extend from the recessed horizontal edges of plate 16.

The outer diameter of spokes 17, 18, 20, 21 is proportioned to the inner diameter of tubular members 13, 14 to allow telescopic engagement thereof while erecting the frames and quick disassembly of the same to allow transportation or storage of the scaffolding elements.

Means is provided for tightly gripping the telescoped end portions of said members 13, 14 in relation to the respective spokes. Accordingly, hinge pins 22 are associated with each spoke, said pins extending parallel to the axis of the spokes and including a rear portion 23 welded to the outer surface of the spoke and a forwardly extending portion 24 displaced from said outer surface.

A pair of semi-cylindrical clamping members 25, 26 having radially extending, interfitting ear portions 27, 28 are pivotally mounted on pin portions 24, said clamping members being coaxially related to the spoke with which the same is associated. Members 25, 26 also include radially extending flanges 29, 30 having transverse openings which may be aligned when said flanges are brought into registration. A bolt 31 and nut 32 holds members 25, 26 in clamped relation to the end portions of the tubular member engaged with the spoke, as shown in Fig. 2.

The clamping members 25, 26 have a longitudinal extent sufficient to firmly grip the ends of the tubular scaffold members 13, 14 while the same are in telescoped relation to the spokes of the connector means 12. Accordingly, the connector means makes possible the application of very substantial loads to the scaffolding without danger of collapse of the interconnected scaffold elements.

In the conventional manner of erecting scaffold frames, the vertical tubular members 14 would initially be connected to connector plates 16 and the vertical assemblies thus produced would be located at fixed distances from each other with the horizontal spokes 17, 18 of successive, longitudinally spaced connector plates, extending toward each other.

The horizontal tubular scaffold members 13 are provided with extensions 33 on one end thereof, on which a tubular sleeve 34 is mounted for slidable movement thereon. The extension 33 is formed with a transverse opening 35 and sleeve 34 is formed with aligned openings 36 adapted to register with opening 35 when sleeve 34 is in its retracted position and may be retained in such position by a bolt 37. While in such retracted position, the member 13 may be located between spokes 17, 18 and in alignment therewith, and then the sleeve 34 may be extended so that the opposite ends of member 13 may telescopically engage the spokes 17, 18. A second transverse opening 35*a*, forwardly of opening 35 in extension 33, allows the bolt 37 to retain the sleeve 34 in such extended position.

Means is provided for interconnecting the horizontally aligned connector plates 16 of frames 10, 11. To this end, a semi-cylindrical support member 38 has its inner end welded to one face of plate 16, the member 38 extending at right angles to the plane including spokes 17, 18, 20, 21. Clamping means generally indicated at 39 and including a hinge pin with a rear portion 40 welded to the

bottom of support member **38**; an off set forwardly extending portion **41** on which are hinged semi-circular clamping members **25**, **26**, is adapted to clamp end portions of the transverse tubular member **15**.

The support members **38** extend toward each other and open upwardly so that the transverse members **15** may be dropped in place and the clamping members **25**, **26**, which are disposed forwardly of the outer ends of support members **38**, may be brought into direct clamping engagement with member **15**. The members **25**, **26** are similar to those previously described and bolt **31** draws the members together to achieve maximum clamping effect.

It will be apparent that the arrangement of parts as described, allows rapid assembly of the connector means and scaffold members and that the clamping means can be quickly adjusted to effect maximum resistance to substantial loads which may be applied to the scaffolding. Furthermore, the erected scaffolding may be quickly disassembled as required.

This application is a continuation in part of application Ser. No. 239,234, filed July 30, 1951 now abandoned.

As various changes might be made in the embodiment of the invention herein shown and described without departing from the spirit thereof, it is understood that all matter herein shown and described is to be interpreted in an illustrative sense and not by way of limitation.

Having thus disclosed my invention, I claim as new and desire to protect by Letters Patent:

1. A scaffold connector means comprising a plate, a pair of horizontally aligned spokes and a pair of vertically aligned spokes projecting radially from the edges of said plate, a hinge pin associated with each spoke, each pin having a forwardly extending portion extending parallel with the axis of said spoke and spaced from the outer surface thereof, a pair of semi-cylindrical clamping members having interfitting ear portions pivotally mounted on the forwardly extending portion of said pin, said clamping members being coaxially related to said spoke.

2. A scaffold connector means comprising a plate, a pair of horizontally aligned spokes and a pair of vertically aligned spokes projecting radially from the edges of said

plate, releasable clamping means associated with each spoke and including a pair of semi-cylindrical clamping members coaxially related to said spoke, a semi-cylindrical support member extending from one face of said plate and at right angles to said spokes, releasable clamping means associated with said support member and including a pair of semi-cylindrical clamping members coaxially related to said support member.

3. A scaffold connector comprising a rectangular plate, a plurality of spokes respectively extending radially from the edges of said plate, a hinge pin disposed axially of each spoke, each pin including an offset portion in welded engagement to a surface portion of the pin, and a pair of semi-cylindrical clamping members coaxially related to each spoke, said clamping members being pivotally mounted on another portion of said hinge pin.

4. A scaffold connector comprising a plate, a semi-cylindrical support member extending from one face of said plate and at right angles thereto, a hinge pin disposed axially of said support and including one end portion in welded engagement to an outer surface portion of said support and another end portion projecting beyond the end of said support, and a pair of semi-cylindrical clamping members coaxially related to said support, said clamping members being pivotally mounted on the projecting end portion of said hinge pin.

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