J. C. WUELLNER.

KNOCKDOWN BUILDING STRUCTURE.

APPLICATION FILED OCT. 28, 1916.

1,237,137.

Patented Aug. 14, 1917.

3 SHEETS—SHEET 1.

Fig 1

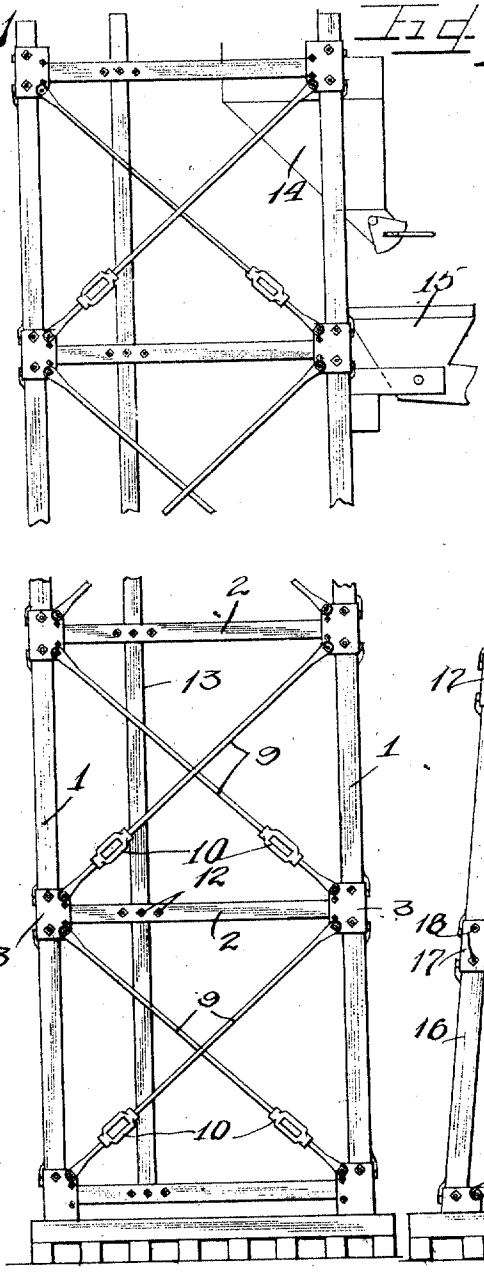
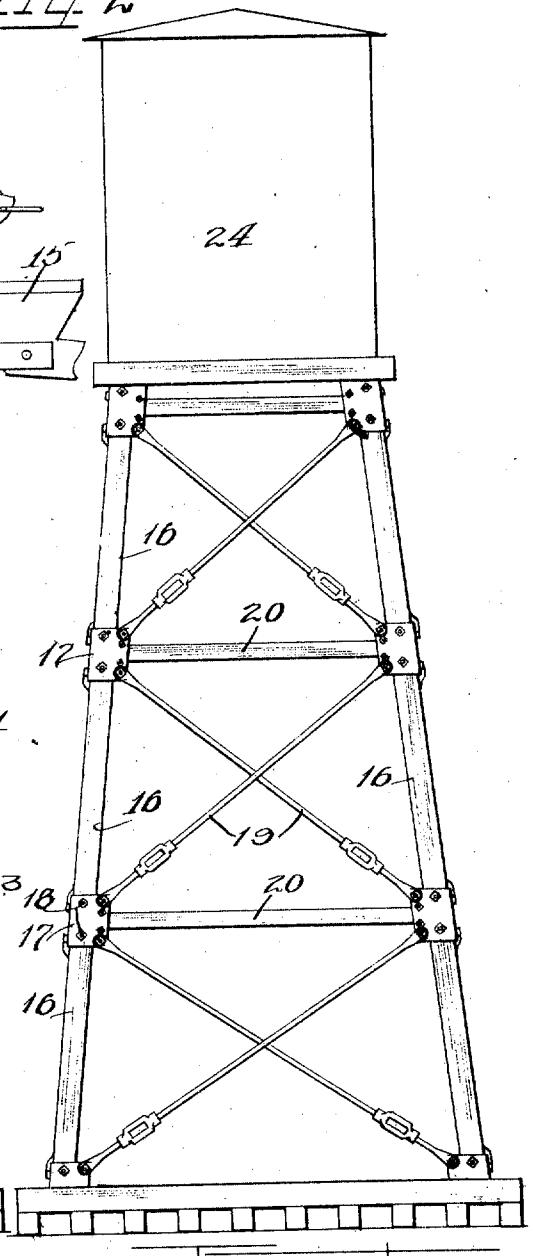


Fig 2



Witnesses

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3 SHEETS—SHEET 2.

Fig 3

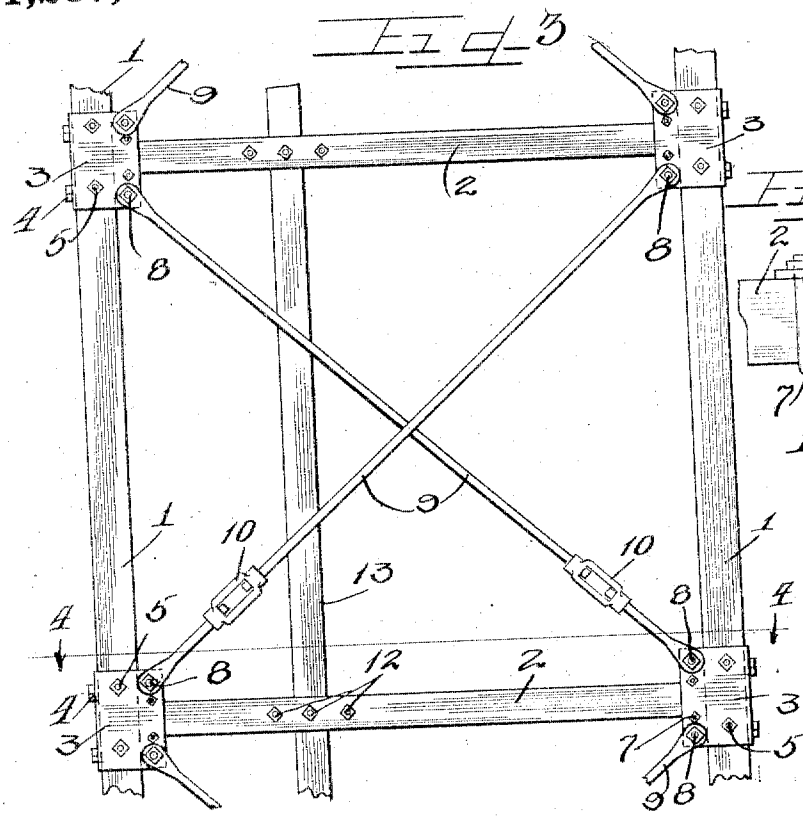


Fig 6

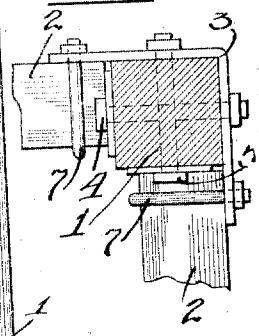
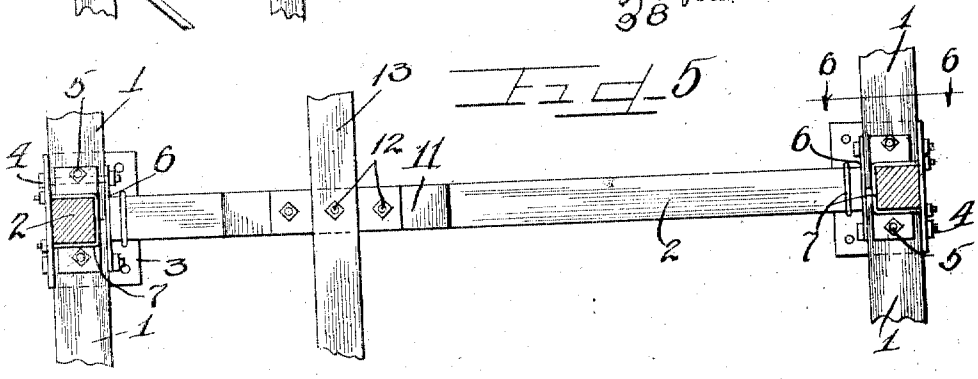


Fig 5



Witnesses

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3 SHEETS—SHEET 3.

Fig. 4

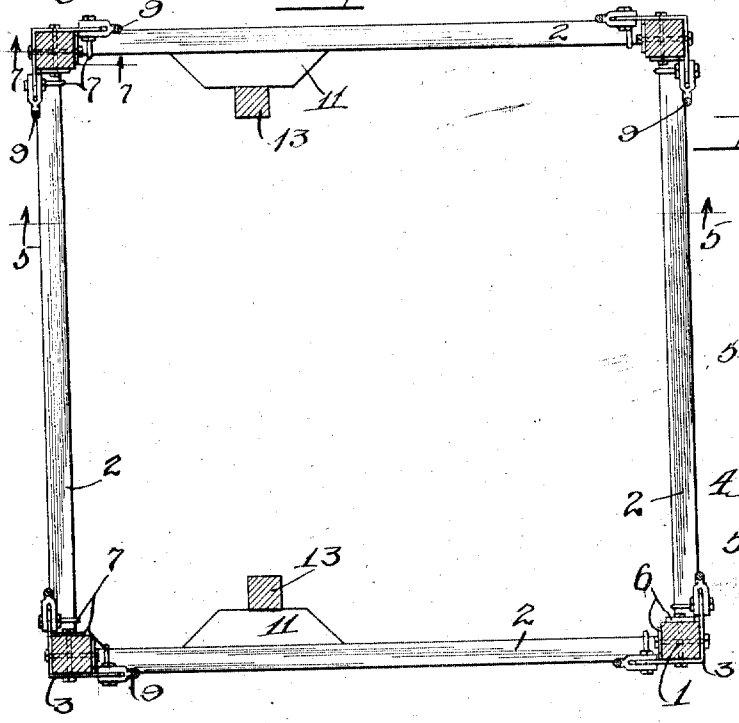


Fig. 7

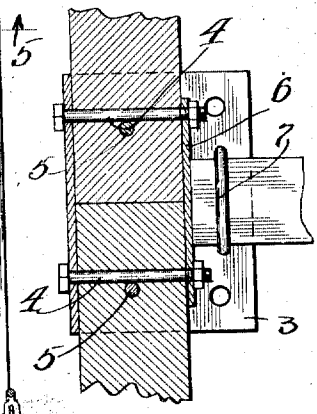


Fig. 8

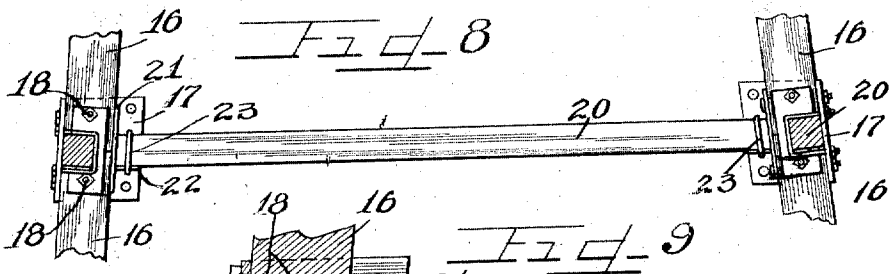
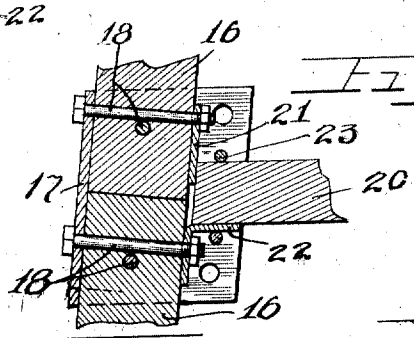


Fig. 9



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UNITED STATES PATENT OFFICE.

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KNOCKDOWN BUILDING STRUCTURE.

1,237,137. Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed October 28, 1916. Serial No. 128,165.

To all whom it may concern:

Be it known that I, JOHN C. WUELLNER, a citizen of the United States, and a resident of the city of Alton, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Knockdown Building Structures; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to an improved knock down construction for concrete distributing towers, pile drivers, derricks, and other structures, wherein rapid erection of the structure is desirable either for temporary or permanent use, and, in any event, capable of being rapidly taken down or dismantled for reconstruction at another point if so desired.

It is an object therefore of this invention to provide a knock down construction for towers and other similar structures which may be rapidly assembled, requiring only the attachment of bolts to hold the structural members assembled, and in rigid braced relation.

It is also an object of this invention to provide a knock down tower structure wherein the various members of the structure are held assembled by specially designed fittings requiring only the attachment of bolts in place to hold the members of the structure in erected assembled relation either for temporary or permanent use.

It is furthermore an important object of this invention to provide an easily assembled knock down form of tower or other structure for any purpose whatsoever, which may be erected to any height desired, and with all the members interchangeable, thus providing a standardized construction, easily erected without requiring the services of special workmen for the purpose.

It is finally an object of this invention to provide a knock down structure, wherein the parts are interchangeable, and are held assembled by the use of specially designed fittings, which are likewise interchangeable so that a standardized form of structure is provided, capable of erection to any height desired in a short space of time, either for temporary or permanent use.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a fragmentary side elevation of a tower structure, constructed according to the principles of my invention.

Fig. 2 is a similar view of a modified form of structure.

Fig. 3 is an enlarged fragmentary side elevation showing a typical panel in the form of structure shown in Fig. 1.

Fig. 4 is a detail section taken on line 4—4 of Fig. 3.

Fig. 5 is a detail section taken on line 5—5 of Fig. 4.

Fig. 6 is a detail section taken on line 6—6 of Fig. 5.

Fig. 7 is a detail section taken on line 7—7 of Fig. 4, with parts shown in elevation.

Fig. 8 is a view similar to Fig. 5, of a portion of the structure shown in the modification in Fig. 2.

Fig. 9 is a detail section similar to Fig. 7, of the form of structure shown in Figs. 2 and 8.

As shown on the drawings:

The structure illustrated in Fig. 1, is built up of a plurality of interchangeable members, the upright ones of which are denoted by the reference numeral 1, and the horizontal members of which are denoted by the reference numeral 2, said structure, as clearly shown in Fig. 4, having four sides, all identical and without interior connection. The various transverse and upright members of the structure are held assembled at the ends or at the junction of the ends thereof by corner brackets, all of which are identical in construction. Each of said corner brackets consists of an integral angled plate 3, the walls of which are bent at right angles

to one another, as clearly shown in Figs. 4 and 7, and said plates are fitted around the upright members 1, at the junction thereof, and are held rigidly secured thereto by bolts 4 and 5, respectively, which are at right angles to one another and are bolted through apertures provided therefor in the ends of the respective abutting upright members 1. Said bolts 4 and 5, serve to hold attached upon the inner surfaces of the respective abutting upright members 1, flat plates 6, against which the ends of the horizontal members 2, abut, as clearly shown in Figs. 4 and 7. The margins of the right angled bracket plates 3, extend beyond the uprights 1, on each side thereof, as shown in Figs. 6 and 7, and are provided with apertures to receive U-bolts 7, engaged therein which fit around the respective transverse horizontal members 2, to support the same in position.

Attached through apertures at the corners of the projecting ends of the corner plates 3, are bolts 8, which serve to hold connected thereto, tie rods 9, arranged in diagonal relation in each side panel of the erected structure. Each tie rod 9, is provided with a turn-buckle 10, whereby the same may be tightened, said tie rods thus acting as tension members, and the transverse member 2, acting as compression members in the erected structure. Attached by means of bolts 12, on the inner surface of each of the transverse horizontal member 2, are blocks 11, and extending vertically in parallel relation on the interior of the erected structure, are upright members 13, which are attached to said blocks 11, affording guides for an elevator by which material is carried to the upper end of the structure.

As shown diagrammatically in Fig. 1, a discharge hopper 14, is mounted at the upper end of the structure when the structure is used as a distributing tower, into which an elevator may discharge its contents such as concrete mixture, and below said hopper 14, is a mouth 15, of a gravity conveyer leading downwardly and by which the concrete is distributed.

In the modified form of structure illustrated in Figs. 2, 8 and 9, the upright members are denoted by the reference numeral 16, and as clearly shown in Fig. 2, are convergently arranged and are held attached at the junction of their ends by corner bracket plates 17, which are bolted to the ends of the upright members 16, by means of bolts 18, extending at right angles therethrough, as clearly shown in Fig. 9. Also, as in the construction previously described, tie rods 19, are connected in diagonal relation between each of the side corners of the structure in said vertical panel. As in the previous construction described, transverse members are provided, denoted by the reference numeral 20, those at different heights in the structure being of different lengths due to the convergence of the upright members. Plates 21, are held attached upon the inner surfaces of the upright members at the point of abutment of the ends of the members 20 thereagainst, and struck outwardly from each plate is an extension 22, which affords a support for the end of a transverse horizontal member 20. Said horizontal members 20, are each further supported by U-bolts 23, secured to the corner bracket plates 17.

In the form of structure illustrated in Fig. 2, a tank 24, is shown supported at the upper end thereof, merely to show one of the possibilities of this type of structure when erected for permanent use.

In the form of structure illustrated in Fig. 1, the elements are generally only assembled for temporary purpose, such as in a concrete distributing tower, and are usually erected to considerable height, and the structure is then held secured by guy wires or cables, (not shown) which extend from the upper end of the tower to points at a distance on the ground.

I am aware that the details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A knock-down structure, comprising upright members arranged abutting and in alined relation, transverse members arranged to abut said upright members at the junction thereof, corner attaching plates of angle shape bolted to the abutting ends of the upright members, and U-bolts engaged through said plates at the ends thereof and encircling said transverse members to support the same in position.

2. A knock-down structure, comprising a plurality of interchangeable upright and transverse members arranged with their ends abutting one another, angled corner plates fitted around the upright members, bolts extending through said upright members and through said plates, abutment plates held attached upon said upright members by said bolts against which the ends of said transverse members bear, and U-bolts engaged in said corner plates and around said transverse members to support the same in position.

3. A knock-down structure, comprising upright members arranged abutting and in alined relation, transverse members arranged to abut said upright members at the junction thereof, corner attaching plates of angle shape bolted to the abutting ends of the

upright members, U-bolts engaged through said plates at the ends thereof and encircling said transverse members to support the same in position, and tie rods connected in diagonal relation between the corner plates of a built up panel of transverse and upright members.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JOHN C. WUELLNER.

Witnesses:
HELEN STAMPER,
M. BRAUNAGEL.