Feb. 19, 1929. 1,702,251

E. B. DOWD

TEMPORARY SUPPORT

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FIG. 1

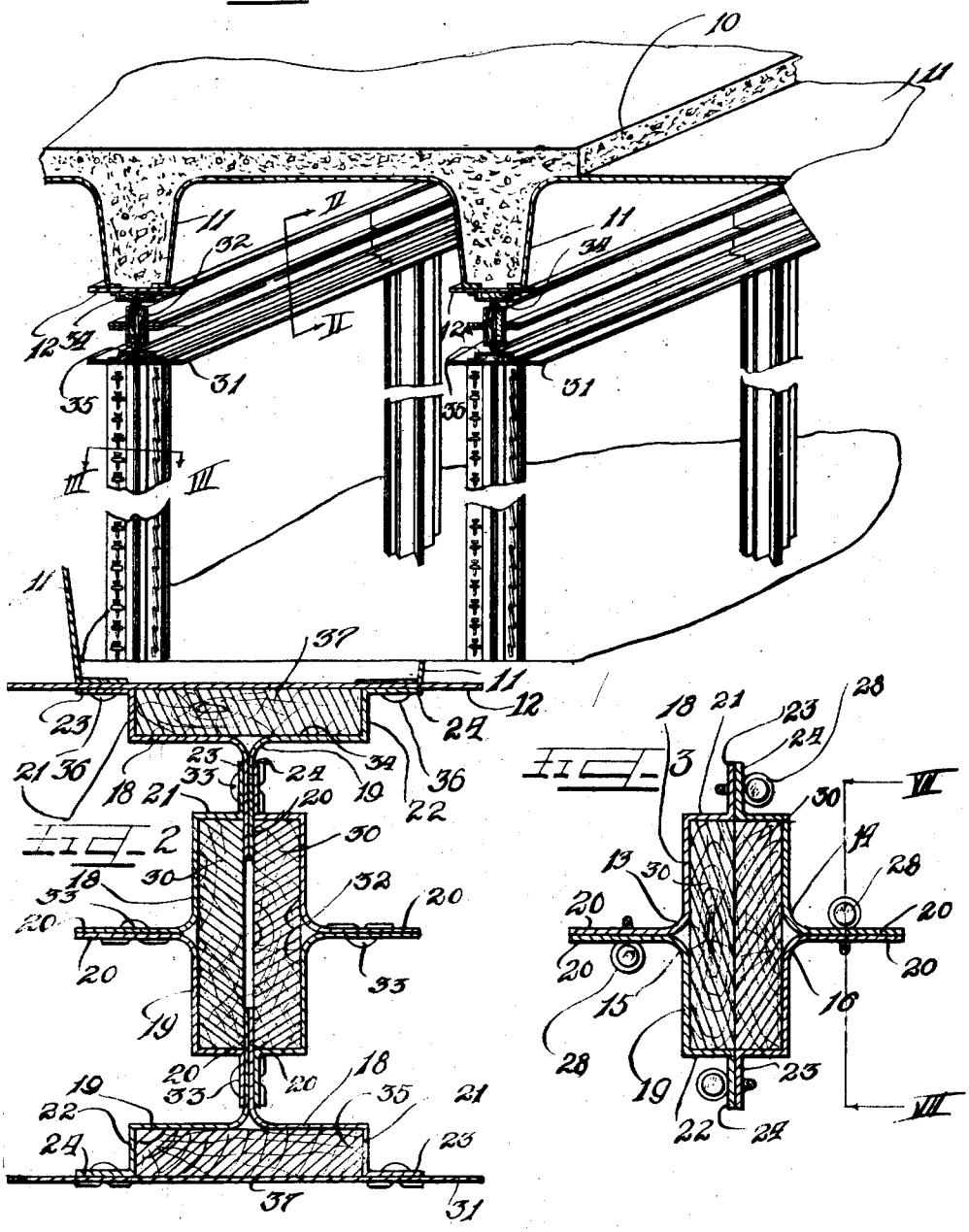


FIG. 2

FIG. 3

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Fig. 4.

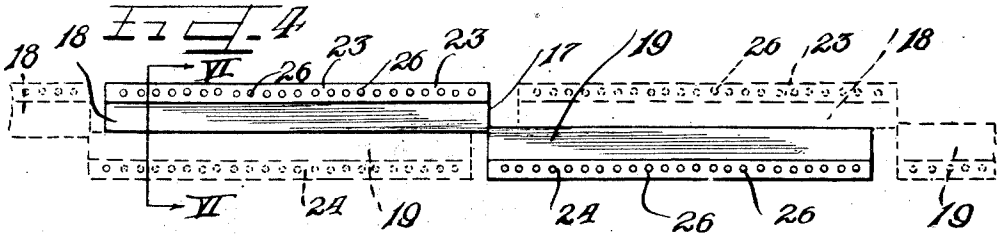


Fig. 5.

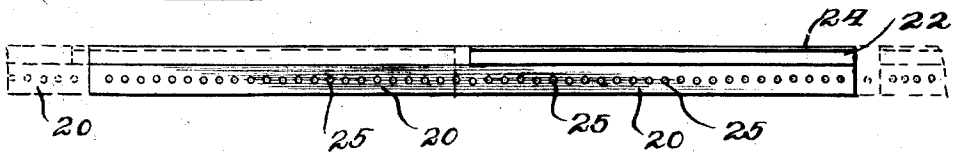


Fig. 6.

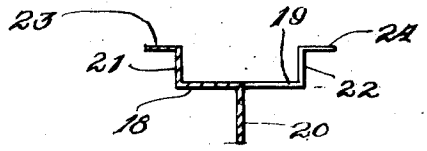


Fig. 7.

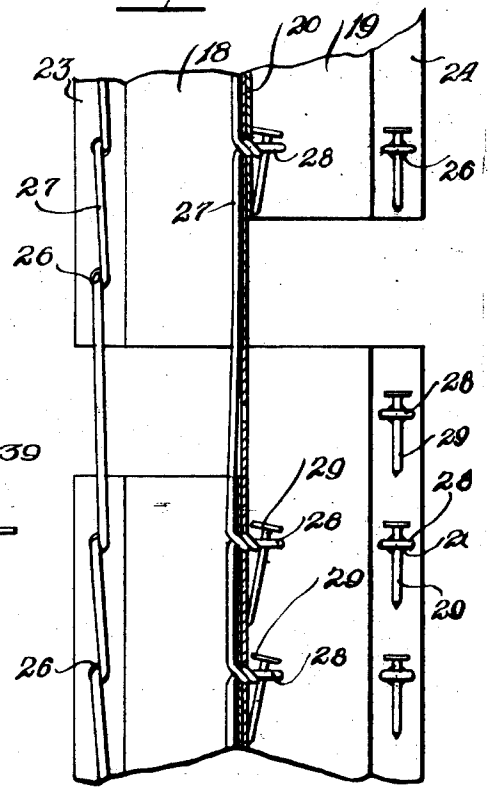
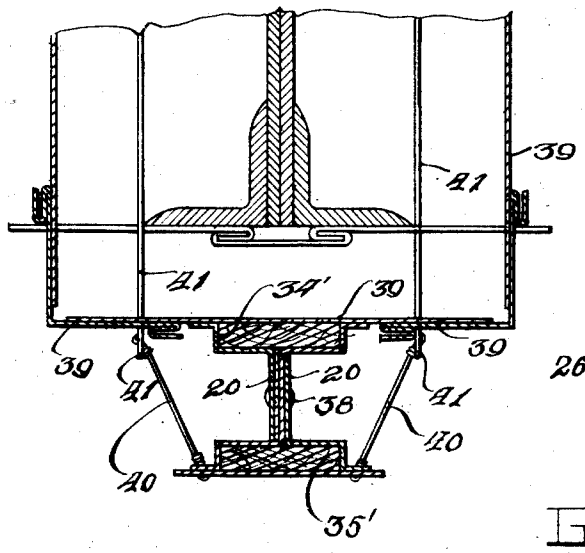


Fig. 8.



INVENTOR

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Patented Feb. 19, 1929. 1,702,251

UNITED STATES PATENT OFFICE.

EDMUND B. DOWD, OF CHICAGO, ILLINOIS.

TEMPORARY SUPPORT.

Application filed September 23, 1926. Serial No. 137,195.

This invention relates to supports and more particularly to temporary supports for elevated structures, although it may be used with equal advantage for other puposes.

It contemplates more especially the provision of novel means constituting related standard units which may be readily assembled with ease to provide a temporary adjustable support to sustain structures in position during the erection or formation thereof.

Numerous expedients have heretofore been employed to temporarily sustain plastically formed elevated structures, such as floors, but these have not proven entirely satisfactory, in that they must necessarily be especially erected to meet particular conditions. In view thereof, the known methods are extremely laborious and expensive, it being necessary that the means heretofore proposed for the purpose set forth, be partially or wholly destroyed to effect the removal thereof, thereby rendering them of little value for repeated use.

One object of the present invention is to simplify the construction and improve the operation of devices of the character mentioned.

Another object is to provide a temporary support such as a beam or column constituting standard units which may be readily assembled and dismantled without impairing their utility.

A further object is to provide adjustable means for supporting structures which are inexpensive, durable, and of light construction.

A still further object is to provide means which are preferably adjustable and capable of association and disassociation with other means to serve as a stabilizer therefor.

Other objects and advantages will appear from the following description of an illustrated embodiment of the present invention.

In the drawings:

Figure 1 is a perspective view of a structure embodying features of the present invention.

Figure 2 is a sectional view taken substantially along line II—II of Figure 1.

Figure 3 is a view taken substantially along line III—III of Figure 1.

Figure 4 is a plan view of a constituent unit disclosed in Figures 2 and 3.

Figure 5 is a view in elevation of the structure shown in Figure 4.

Figure 6 is a sectional view taken substantially along line VI—VI of Figure 4.

Figure 7 is an enlarged detail sectional view taken substantially along line VII—VII of Figure 3.

Figure 8 is a fragmentary sectional view, similar to Figure 2, showing a further use of the present invention.

In the particular embodiment of the present invention which has herein been selected for illustration, the structure is shown in connection with the construction of an elevated floor 10 formed in the usual manner from plastic material such as concrete of standard consistency. Floor pans 11 of standard construction, are suspended in an elevated position to receive the plastic material which is retained therein prior to and during the setting thereof. Disposed below the adjacent edges of the pans 11, are the substantially rectangular plates 12 preferably of sheet material which are maintained in position by the centering or supports to be hereinafter described.

In order to properly support the floor pans 11, suitable shores constituting standard units are provided which are readily adjustable and capable of assembly with ease to meet varied conditions without impairing their utility. The shores in this instance, are composed of four sections, 13, 14, 15, and 16 preferably of sheet material, each section being slitted transversely along a median line as at 17 (Figure 4) so as to permit the slitted portion to be bent transversely along a longitudinal line to define oppositely extending wings 18 and 19, which, in the present embodiment, project normally of the base 20 or unslitted portion thereof. The wings 18 and 19 of each section terminate in an upstanding portion 21 and 22 (Figure 6), respectively, which have normally projecting flanges 23 and 24 disposed outwardly and parallel to their respective wings 18 and 19.

To enable the sections 13, 14, 15, and 16, in this instance four, to be readily assembled to define a light but rigid member capable of sustaining a load, the base 20 and flanges 23 and 24 of each section are apertured along the length thereof as at 25 and 26, respectively. With this arrangement it is possible to combine the sections so that the alternately arranged wings thereof (Figure 4) will define a tubular portion by having their bases 20 and flanges 23 and 24 in confronting adjacent re-

lation to permit the insertion of a fastener through the aligned apertures 25 and 26 provided therein. The fastening means, in this instance, consist of a metallic wire 27 twisted at intervals to provide loops 28 spaced to correspond with the spacing of the apertures 25 and 26. As shown, the loops 28 are projected through the aligned apertures provided in the adjacent sections, thereby effectively securing the complemental sections together, there being suitable means such as the nails 29 inserted in the loops 28 to prevent accidental withdrawal thereof and consequent displacement of the sections.

With the arrangement of parts above described, it will be apparent that the fastening means may be readily removed, and the sections rendered longitudinally extensible to provide a shore of any desirable length within the limits defined substantially by the summation of the lengths of the complemental sections. To rigidify and stiffen the shores, fillers are provided within the tubular portions thereof to enable it to carry appreciable loads. The fillers, in this instance, consist of wooden planks 30 of standard cross-sectional dimensions which are inserted therein after being cut to the desired length. It is to be noted that the sections which embrace the fillers are extensible independent thereof and may be repeatedly used, it only being necessary to adjust the length thereof to meet varied conditions.

Metallic plates 31 are superimposed on the shores in confronting, spaced relation with the plates 12, supra. Interposed between the plates 12 and 31, are beams embodying features of the present invention. The beams constitute standard sections, in this instance, identical in construction to the sections employed to produce the shores, supra, the former comprising a mid-section 32 substantially identical to the shores. Positioned within the mid-section, are the fillers 30 constituting separate planks which define a dividing line coincident with longitudinal median line of the sections whereby the latter may be separated therealong to receive end sections as will hereinafter appear. It is to be noted that in this instance the complemental sections are secured together by means of the rivets 33, it being obvious that any other suitable fastening means may be employed for the purpose set forth.

The end sections 34 and 35, in the present embodiment, serve to stabilize the mid-sections so as to constitute a temporary beam to support the floor pans as is apparent from the showing in Figure 1. Each comprises a pair of complemental units of the type hereinabove described, which have their adjacent base portions 20 inserted intermediate the confronting flanges 23 and 24 (Figure 2) which are secured together and maintained in position by the fasteners 33 or preferably by other appropriate fastening means, such as the wire 27 (Figure 7) having spaced loops 28 projecting through suitable apertures 25 provided in the base of the units constituting the end sections 34 and 35. The flanges 23 and 24 of the end sections 34 and 35 are fixed in any suitable manner to the soffit plates 12 and 31, respectively, the flanges of the section 34 being secured to the adjacent edges of the floor pans 11 by appropriate fasteners such as the rivets 36 which extend through aligned apertures provided in the flanges, 23 and 24, and the soffit plate 12, as will be understood from the showing in Figure 2. The wings 18 and 19 of the end sections 34 and 35 are spaced from the plates 12 and 31, respectively, owing to the upstanding flanges 21 and 22 of the standard units so as to receive therebetween a filler 37 preferably of wood such as planks identical in size and conforming in shape with the fillers 30, thereby rigidifying the beam structure and rendering it stable to enable it to sustain appreciable loads.

It is important to note that the beams comprising the mid-section 32 and end-sections 34 and 35 are extensible longitudinally thereof in much the same manner as the shores described hereinabove, so that they may be varied and adjusted to sustain structures at any desired elevation and of various spreads. Obviously, after the plastic structure such as the floor 10 has set sufficiently so that its internal reinforcements can properly support the same, the shores and beams may be dismantled without impairing their utility for further use, they being readily assembled for repeated use.

It will thus be apparent that a beam embodying features of the present invention is composed of standard units of the type employed in the shores thereby enabling the units to be freely interchanged which requires a minimum amount of units to produce sufficient supports for any construction.

The modified structure disclosed in Figure 8 is similar to the beam construction described above, save that in this instance, the mid-section 32 is omitted and the bases 20 of the end section secured together by any suitable means such as the fasteners 38 disposed along the length thereof to maintain the end sections 34′ and 35′ in the desired relation, they being especially adaptable to be disposed in a vertical position adjacent sectional lagging 39 specifically described in my co-pending application, Serial No. 126,144. Suitable struts such as the wires 40 are secured at one extremity thereof to the section 35′, and at their other extremity to the spacing bands 41 which project through the lagging 39 in a manner more fully described in the above identified co-pending application. With this arrangement of parts the stresses created by the plastic material confined within the lagging 39 before the setting thereof is reduced to a

minimum due to the external reinforcing feature of the stabilizing structure constituting the sections 34′ and 35′. Obviously, section 35′ may be omitted and the struts associated with the section 34′ to maintain it in adjacent contacting relation with the lagging for the purpose set forth. It is to be understood that these external reinforcements are vertically adjustable and can be applied to any portion of the lagging wherever the stresses and strains appear to be appreciable.

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

I claim as my invention:

1. In a support, a pair of parallel spaced plates, sectional members detachably secured to said plates in spaced relation thereto, reinforcing means interposed between said plates and sectional members, and means intermediate said members to rigidly maintain said plates in spaced relation.

2. In a support, a par of parallel spaced plates, sectional members detachably secured to said plates in spaced relation thereto, reinforcing means interposed between said plates and sectional members, and means intermediate said members to rigidly maintain said plates in spaced relation, said means including a tubular member, and a reinforcing filler within said tubular member.

3. In a support, a pair of parallel spaced plates, sectional members detachably secured to said plates in spaced relation thereto, reinforcing means interposed between said plates and sectional members, means intermediate said members to rigidly maintain in said plates in spaced relation, said means including a tubular member, and a reinforcing filler within said tubular member, said sectional and tubular members being extensible independent of the reinforcing means associated therewith.

4. A support comprising an extensible mid-section constituting units defining a tubular member, a filler within the tubular portion of said mid-section, and end sections detachably associated with said mid-section, said end sections being extensible.

5. A support comprising an extensible mid-section constituting units defining a tubular member, a filler within the tubular portion of said mid-section, end sections detachably associated with said mid-section, said end sections being extensible, end plates associated with said end sections, and a reinforcing filler embraced by said end sections and plates.

6. In shoring and the like, a plurality of extensible supporting members formed from a plurality of units defining tubular members, sectional members in spaced relationship and detachably associated with said supporting members, and means disposed between said sectional members to mantain the same in spaced relationship.

7. In a support, a tubular member formed from a plurality of sections, reinforcing means in said member, each of said sections having oppositely disposed and staggered wings thereon, whereby wings on one of said sections are complemented by oppositely disposed wings on another of said sections to equalize the stresses in said tubular member.

In testimony whereof I have hereunto subscribed my name.

EDMUND B. DOWD.