

J. A. SCHMIDT.
ADJUSTABLE FORM SUPPORT FOR CONCRETE CONSTRUCTION.
APPLICATION FILED JAN. 22, 1918.

1,287,770.

Patented Dec. 17, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

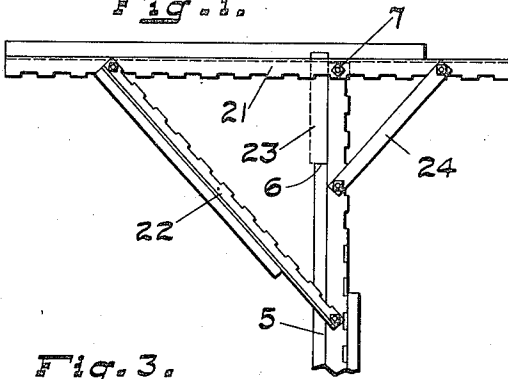
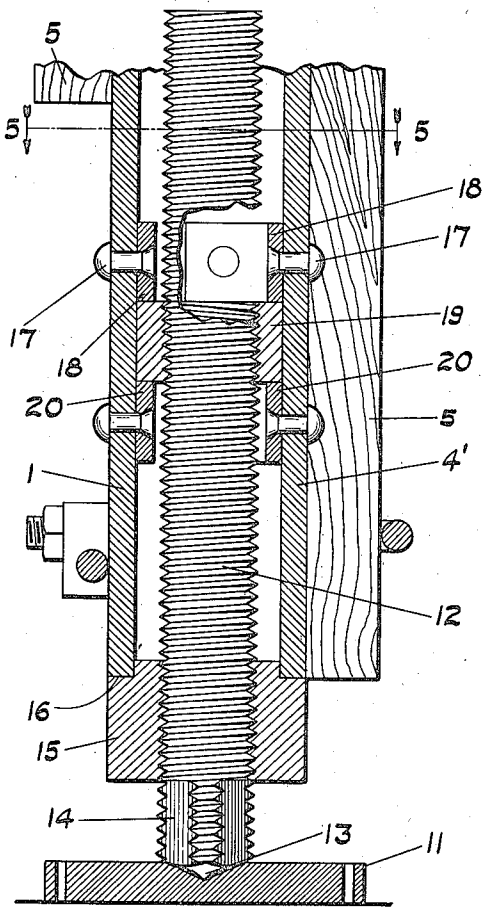


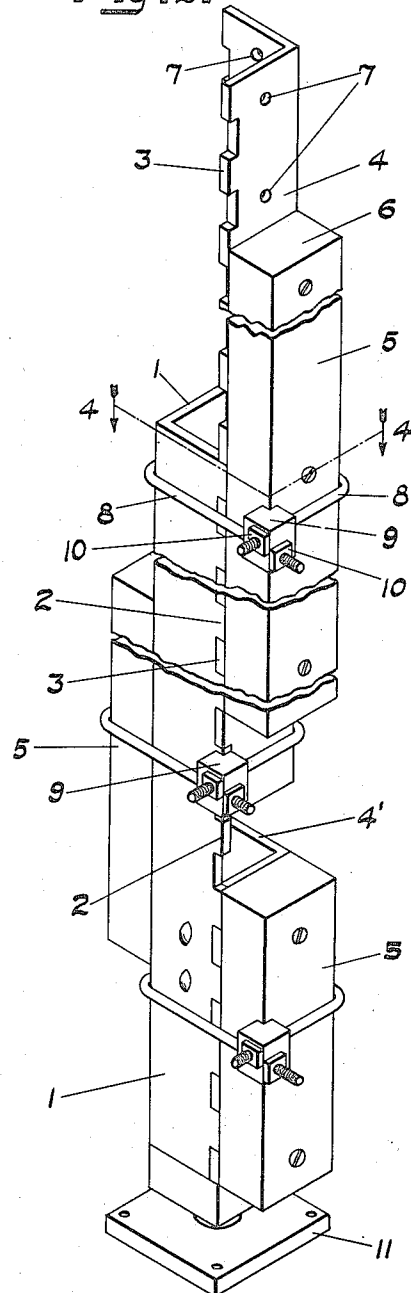
Fig. 3.



WITNESSES:

Walter H. T. Trowel.

Fig. 2.



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Fig. 4.

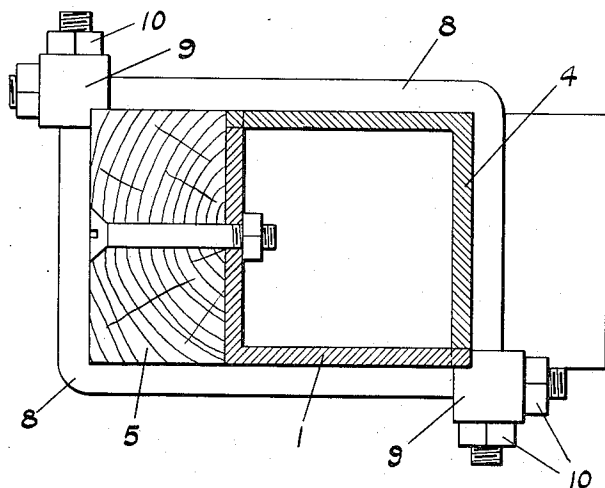


Fig. 6.

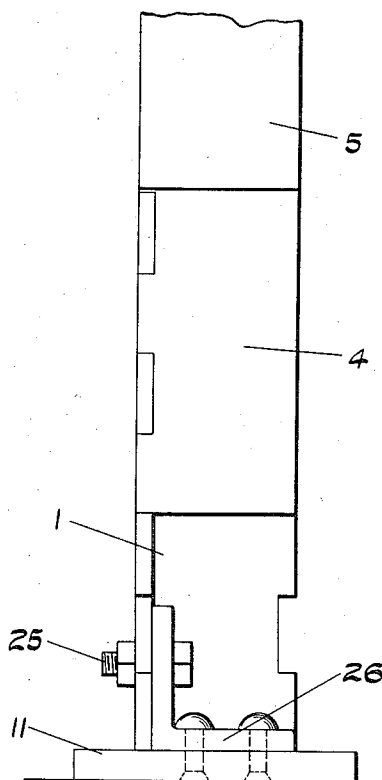
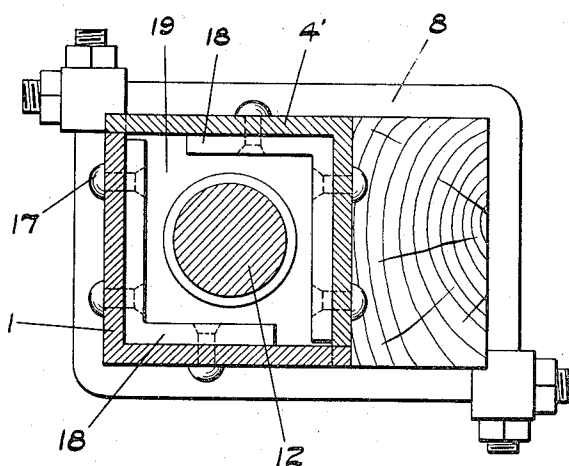


Fig. 5.



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JOHN ADAM SCHMIDT, OF INDIANAPOLIS, INDIANA.

ADJUSTABLE FORM-SUPPORT FOR CONCRETE CONSTRUCTION.

1,287,770.

Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed January 22, 1918. Serial No. 213,239.

To all whom it may concern:

Be it known that I, JOHN ADAM SCHMIDT, a citizen of the United States, residing at Indianapolis, Marion county, and State of Indiana, have invented and discovered certain new and useful Improvements in Adjustable Form-Supports for Concrete Construction, of which the following is a specification.

My invention relates to adjustable form supports for concrete construction. The object of the invention is to provide adjustable members which shall be of permanent construction and which may be made in units of different lengths with the corresponding units identical in construction and interchangeable and in which some of the supports may be used as shores and others, of the same construction, employed as the T beams and braces going to make up the frame work which supports the forms or the temporary joists therefor.

Heretofore it has been the custom to employ wooden frame work members for supporting the forms and the parts of the frame work must be sawed and cut at the time of use to accommodate them to the particular dimensions of the work in which they are employed, which operation results in great waste of material owing to the trimming operation and also owing to the fact that as much as twenty-five per cent. of the frame work material cannot be again utilized for other work. To obtain fine adjustment of the shores it also has been necessary in connection with the wooden frame work to drive wooden wedges against the lower ends of the forms which operation entails considerable labor.

In my invention the supports are made of metal and provided with means whereby they may be readily adjusted to accommodate them to forms of different height above the ground, and they may be used indefinitely in repeated operations and means are also provided whereby if necessary a fine adjustment, incapable of accomplishment by the principal means of adjustment, may be obtained without the use of extra wedges, and also the metallic members of the shores are provided with means whereby wooden braces may be nailed thereto as by the attachment of wooden connecting members permanently attached to the metallic members. My invention is embodied in preferable form in the construction and arrangement

hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a side view in elevation of the part of a frame work adapted to support concrete forms or supporting joists therefor; Fig. 2, is an enlarged perspective view of a pair of supporting members employed as a shore; Fig. 3, is a vertical enlarged section through the structure shown in Fig. 2, and Fig. 4, is a cross section on the line 4-4 of Fig. 2; Fig. 5, is a cross section on the line 5-5 of Fig. 3, and Fig. 6, a detail elevation at right angles to Fig. 2 of a modified form of support for the shore.

Referring to the drawings, 1 indicates one of the metallic members of the supporting units employed as a vertical shore. This member consists of a metallic L-shaped angle iron having the outer edges of each flange provided with a longitudinal series of teeth 2, which are adapted to be engaged by similar teeth 3, formed on the outer edges of the flanges of a complementary metallic shore member 4, whereby when the two members are pressed together with their flanges inward, in any vertically adjusted position thereof, the teeth will be interlocked and a hollow square column formed, as illustrated in Fig. 2. The members 1 and 4 may be adjusted relatively at any desired vertical height within the limits of adjustment permitted by the length between adjacent teeth of the members. 4' designates a short metallic shore member, preferably eighteen inches in length, which is used as the lower section on one side of the shore when the fine adjustment screw shown in Figs. 2 and 3 is employed.

Each metallic member is provided on the exterior of one of its flanges with a wooden attaching strip 5, which is secured to the metallic member by means of bolts or rivets. These strips terminate short of the ends of the metallic members in order to provide lateral shoulders 6, which at the upper ends of the strips may constitute supporting ledges on which the temporary joists for the forms may be carried when such joists are called for by the particular character of the construction being erected. The primary function of these strips, however, is to constitute means whereby the wooden braces for the shores may be nailed to the latter. The separation of the wooden strips from the ends of the metallic members also provides an ar-

rangement whereby the end portions of the latter are left free for the formation therein of connecting holes 7, whereby the shores may be connected either to the temporary joists referred to, or to the metallic unit which may be employed as the horizontal T on which the forms are mounted.

The two interlocked compound shore members are adapted to be clamped rigidly together against lateral disengagement by means of clamps passing around the wooden strips of one member and the metallic body of the other member and arranged at suitable vertical intervals. These clamping devices consist preferably of rigid L-shaped angle bolt straps 8, the ends of which are threaded and adapted to pass through loose angle corner blocks 9 which are adapted to bear against the shore members at diagonally opposite corners of the latter. These angle corner blocks are provided with enlarged holes through which the threaded ends of the clamping bolts pass and the bolt straps and blocks are forced against the shore by means of nuts 10.

11 is a base plate for each shore. Preferably in connection with each set of shores there is provided a special intermediate and auxiliary adjusting support between the base plate 11 and the shore. As shown in Figs. 2 and 3, this arrangement comprises a screw member 12 having a tapered end portion 13 adapted to rotatably fit within a socket in the plate 11 so that the screw is free to turn. This screw extends up within the hollow column formed by the metallic shore members 1, 4' and 4, and mounted thereon are suitable supporting and abutment members on which the weight of the shore members is carried and whereby when the screw is turned said supporting members will be raised so as to lift the shore members or lower them in order to obtain a finer degree of adjustment than is possible by means of the teeth on the metallic members of the shores. To enable this rotation of the screw, the lower portion of the latter is provided with a squared or otherwise polygonally formed surface 14 adapted to be engaged by a suitable wrench. The threads are cut through this portion. Mounted on this screw is a square nut 15 against which the lower ends of the metallic shore members 1 and 4' bear, the nut being provided with shoulders 16 on which they rest. Secured to the inner faces of the members 1, 4 and 4' that may be employed in making up the shore, by means of rivets or bolts 17, are angle bars 18 adapted to constitute projections from the members 1 and 4 to project over a nut 19 fitting against the walls of the members 1 and 4 and engaging the screw. This nut centers the screw and is held against downward movement by means of angle bars 20 similar to the bars 18 whereby the screw is held

against escape from the inclosing column, should the shore be moved.

By this arrangement when it is desired to obtain an adjustment finer than that capable of being secured from the relative engagement of the teeth on the edges of the metallic shore members, the screw 12 may be turned by means of the engagement of a wrench with the squared portion 14 to any desired extent whereby the nuts 15 and 19 will be raised or lowered, correspondingly lifting or lowering the compound shore members.

As indicated in Fig. 1, the horizontal cross T to which the shore members are adapted to be connected, may be and preferably is, of identical construction with that of the shore members proper so as to be interchangeable with the latter. This T member is indicated by the numeral 21. Similarly the main diagonal brace 22 may be of the same construction as the other units.

A complete frame work assembly comprises supporting units of the construction above described, of various lengths which lengths are standard in construction work such length being usually eight feet, five, three feet and eighteen inches, and all the units of the same length are identical in respect to construction and in respect to the holes formed therein for the connections to the T, the joists and the braces, so that all units of the same length are interchangeable. With this arrangement, it is possible for the contractor to be provided with a permanent set of supports which may be adjusted to suit work of any required dimensions.

When the T head cross member is not employed and joists are used in lieu thereof, for supporting the forms, such joists as indicated at 23 in Fig. 1, may be supported on the upper ends of the wooden strips 6, and fastened to the metallic shore members by bolts extending through the hole 7.

24 indicates a small brace bar adapted to connect one of the shore members with the T. The wooden braces for the shores proper may be nailed to the wooden strips at any point desired and braced against the floor or ground. These wooden braces are not herein shown as they are merely temporary expedients and form no part of the invention.

If desired, the auxiliary means for obtaining the fine adjustment provided by the screw 12 may be dispensed with and the shore supported merely as indicated in Fig. 6 in which one of the metallic members 1 is extended down to the base plate 11 and suitably secured to the latter by a bolt 25 engaging an angle iron 26 mounted on said base plate. This combination provides a cheaper construction and may provide sufficient adjustability for the usual run of work. In this arrangement complementary shore members of the same length may be employed,

the use of the short section 4' at the lower end of the shore shown in Fig. 2 not being necessary.

Any combination of units of the same or different lengths may be employed in an assembly to accommodate the frame work to the dimensions of the work.

Having thus described my invention, what I claim is:—

10 1. In supporting means for concrete forms, a shore comprising a pair of metallic L-shaped angle irons having opposing interlocking vertical edges, and a wooden attaching strip permanently fixed to one face of
15 each of said metallic members, and exterior clamping means surrounding the connected members and operable to hold them against lateral separation.

20 2. In supporting means for concrete forms, a shore comprising two similar L-shaped metallic angle irons each provided with teeth along their vertical edges, said members being placed together with their edges in engagement to form a square hollow column, a wooden attaching strip se-
25 cured upon a face of each shore, a clamping

band surrounding the metal members and attaching strips of said pair, and means for tightening said band against the said parts.

3. In supporting means for concrete forms, a shore comprising a pair of L-shaped metallic members separable from one another and provided with interlocking teeth on their vertical edges whereby relative adjustment of the members may be obtained, said members forming a square hollow column, wooden attaching strips secured to the faces of said members, a threaded supporting block for said members, a supporting and adjusting screw on which said block is mounted, a base for said screw, and means for enabling said screw to be turned to adjust said shore vertically.

In witness whereof, I have hereunto set my hand and seal at Indianapolis this 18th day of January, A. D. nineteen hundred and
45 eighteen.

JOHN ADAM SCHMIDT. [L. S.]

Witnesses:

H. P. DOOLITTLE,
M. L. SHULER.