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ADJUSTABLE SHORING

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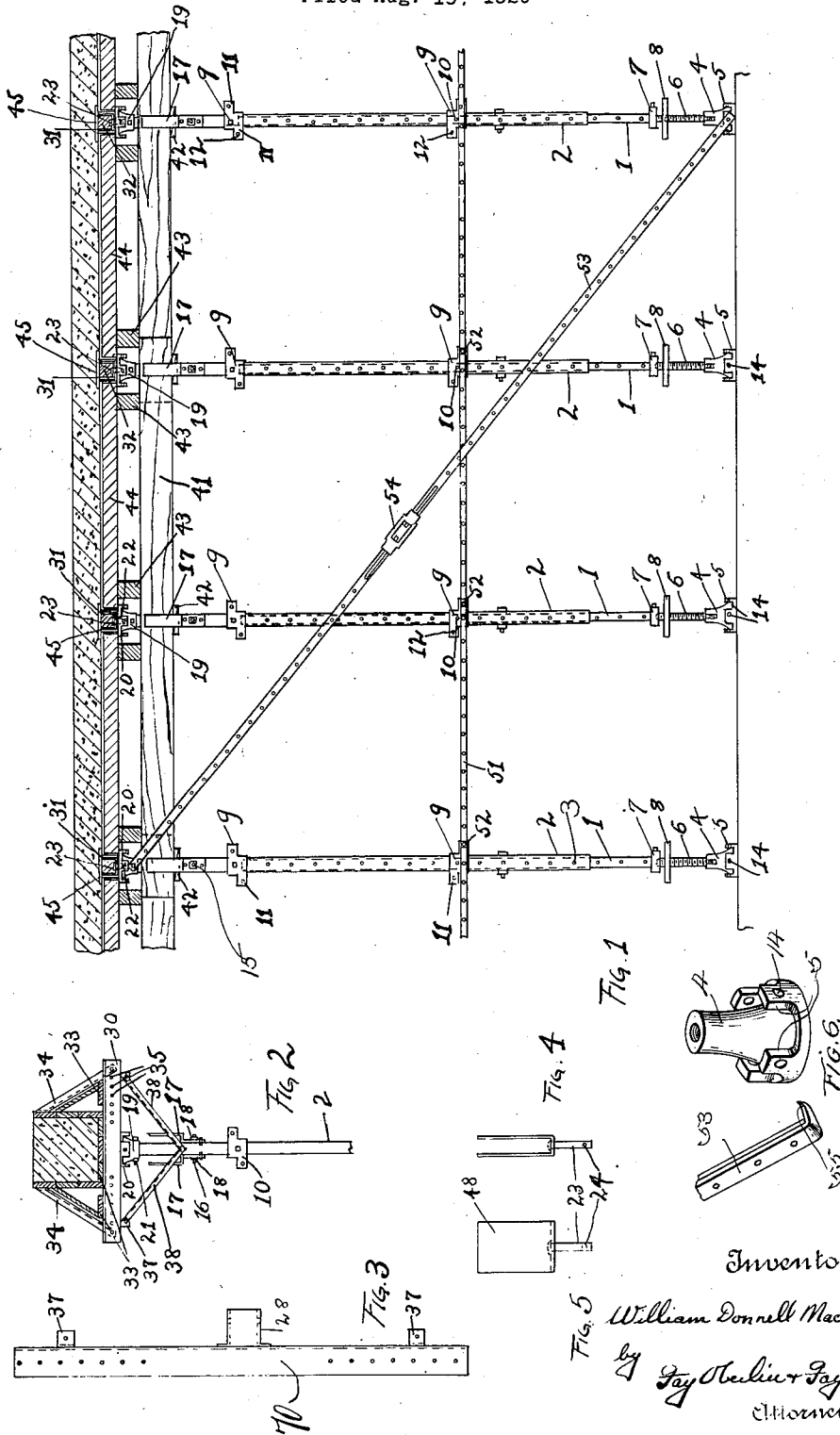


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE SHORING.

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To all whom it may concern:

Be it known that I, WILLIAM DONNELL MACIVOR, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Adjustable Shoring, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates to adjustable shoring for use with the concrete construction. More particularly, it relates to adjustable uprights and to head construction on which the forms for beams and flooring may be quickly and easily assembled. To the accomplishment of the foregoing and related ends, the said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is an elevational view of shoring showing a floor construction.

Fig. 2 is an elevation partly in section showing a shore head such as used for beam construction; Fig. 3 is an elevation of another shore head construction; Fig. 4 is an end view of another form of shore head, Fig. 5 is a side elevation and Fig. 6 is a perspective view of the end of the brace and the foot, showing the method of attaching the former to the latter.

The present apparatus consists of adjustable uprights made of two telescoping tubes 1 and 2 which have spaced apertures 3 adapted to receive pins to hold the upper tube 2 in desired position. At the bottom is provided an adjustable foot or base 4 having apertured flanges 5 and being internally threaded to receive an adjusting screw 6 which is mounted in a bearing cap 7 attached to the tube 1, a handle 8 being provided for turning the screw.

Along the upper tube are mounted one or more bracing clips 9, each clip being a collar

adapted to encircle the tube and being provided with holes 10 to receive pins to secure it in place. These clips have extending arms 11 having apertures 12 to receive the braces or bolts. The base 4 is likewise provided with the four arms or flanges 5 having apertures 14 to receive braces or the like.

Near the upper end of the tube 2 is an aperture 15 which is adapted to receive a threaded pin 16 on which are mounted two offset members 17, these being removably held in place by nuts 18. On the tube is removably mounted a collar or cap 19 fitting over the tube and having a plurality of downwardly extending apertured flanges 20. This cap is held in place by a bolt 21 adapted to pass through aligned apertures in the tube and cap.

The cap is provided with a central aperture 22 which is adapted to receive a pin 23 attached to the shore heads, the pin having an aperture 24 which will be in alignment with the apertures in the tube and cap to receive the bolt 21.

The shore heads may be of several types, each being provided with a pin 23, as shown in Figs. 1, 4 and 5, or with a collar 28, as shown in Fig. 3.

For floor construction work, such as is illustrated in Fig. 1, the shore head is a channel section having a pin 23 by which it is secured to the cap 19. In this construction the offset members 17 are used to receive carrying joists 41, which are wedged into position by the wedges 42. Across these joists are placed sleepers 43 which have their upper surfaces at the same height as the tops of the caps. In the channels of the shore heads are placed wooden fillers 32 which extend from one shore head to the next. The pans or floor forms 44 rest on the sleepers and a flat strip 45 is employed to cover the joints between the pans 44 and the shore heads, these strips 45 also covering the wooden filler and resting on the heads.

The shore head 30, shown in Fig. 2, likewise consists of a channel section 31 adapted to receive a wooden filler as in the form shown in Fig. 1, and to this filler (not shown) the form boards 33 for beam construction are secured. These boards rest on the shore heads and may be nailed to the wooden filler. This head is supplied with

pivotal braces 34 which may be moved into contact with certain of the form boards and secured thereto. The sides of the channel are provided with apertures 35, the braces
5 being bolted through the apertures so as to be readily moved and positioned as required. To aid in positioning this shore head it is provided on its under surface with two apertured lugs 37 to which are pivotally con-
10 nected braces 38 adapted to have their lower ends fastened to the tube.

In Figs. 4 and 5 another form of shore head 48 is shown, and this form is a narrow channel section having the pin 23 for attach-
15 ment to the cap 19. The section is short and this form is used as a support for joists or the like and may be provided with a wood filler if desired. The form of shore head 70 shown in Fig. 3 is similar to that illus-
20 trated in Fig. 2, but in place of the pin 23 this head is provided with a collar 28 adapted to fit over the tube 2 when the cap 19 is removed. Where the pin 23 is used on a
25 shore head it may be placed off center to allow the head to be used for cornice work or the like.

To brace the shoring, apertured straps or braces 51 are employed which are attached to the clips 9 by means of bolts 52, these
30 braces being placed substantially parallel to the floor. Other cross braces 53 are also used, these braces having hooked ends, 55, as shown in Fig. 6, which are adapted to be received in the apertures in the caps and feet
35 and turnbuckles 54 are employed so the braces can be pulled tight. These braces are all provided with spaced apertures so that they may be bolted together where they cross and thus tie the entire structure together.

40 In ordinary construction each shore or upright must be plumbed and wedged at the bottom and then all the uprights must be crossed braced and have the joists and sleepers attached. In the present form the
45 posts are set in place and may be rapidly adjusted, the screw adjustment at the bottom being sufficient to take up any variation, the standard post height being first determined. The various shore heads for beam,
50 floor or other construction are easily put in place and as easily taken down. The shoring is substantial and when braced, extremely rigid and satisfactory from the view point of safety. The use of removable head,
55 caps, offset members and braces, allows the shoring to be rapidly put up or taken down and it may be employed over and over as the only parts which would wear would be the wooden fillers for the heads which can easily
60 be replaced. The same general construction is employed for both beam and floor work, the heads only being changed, and as these are interchangeable on the posts, the number of posts and heads required is reduced.

65 Other modes of applying the principle of

my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the fol-
70 lowing claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In adjustable shoring the combination of adjustable uprights, offset members
75 mounted adjacent the tops of such uprights and carrying joists supported on said offset members and connecting said uprights, caps on said uprights, shore heads removably mounted on said caps, said shore heads be-
80 ing of less width than said caps and forming shoulders and form pans received within said shoulders, said shore heads being of the same height as the pans to form a por-
85 tion of the finished form.

2. In adjustable shoring, the combination of an adjustable upright, a cap removably mounted on said upright, said cap having a central aperture, and a shore head removably mounted on said cap, said shore head having a pin normally received in such aper-
90 ture in said cap, and means to secure said cap and shore head to said upright.

3. In adjustable shoring the combination of adjustable uprights, caps removably
95 mounted on said uprights, said caps being each provided with a central aperture and apertured flanges, shore heads removably mounted on said caps, said shore heads each having a pin adapted to be received in the
100 central aperture in its respective cap, means to secure each of said caps and shore heads to one of said uprights, and means for tying said uprights together including a brace adapted to be secured to the apertured
105 flanges of said caps.

4. In adjustable shoring the combination of adjustable uprights, offset members
mounted adjacent the tops of such uprights, and carrying joists supported by said offset
110 members and connecting said uprights, caps on said uprights, shore heads removably mounted on said caps, said shore heads being adapted to form a portion of the form and being so mounted on said caps as to
115 form shoulders therewith adapted to receive form pans.

5. In adjustable shoring the combination of an adjustable upright, a cap removably mounted on said upright, said cap having a
120 central aperture, and a shore head removably mounted on said cap, said shore head having a pin normally received in such aperture in said cap, and means to secure said cap and shore head to said upright.

6. In adjustable shoring the combination of an adjustable tubular upright having an aperture near the top, a cap fitting over said upright and having an aperture adapted to be in alignment with such aperture in said
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upright, said cap having a centrally disposed aperture in the top, a shore head removably mounted on said top, and having a pin adapted to pass through said central
5 aperture, said pin having an aperture adapted to be aligned with such first named apertures in said cap and upright, and a removable pin normally received through such aligned apertures in said upright, cap and pin to secure said cap and shore head to said upright. 10

Signed by me, this 11th day of August, 1920.

WILLIAM DONNELL MacIVOR.