No. 839,819. PATENTED JAN. 1, 1907.

W. E. DE LHORBE.

FORM FOR PLASTIC BUILDING WALLS.

APPLICATION FILED MAY 18, 1906.

Fig. 1.

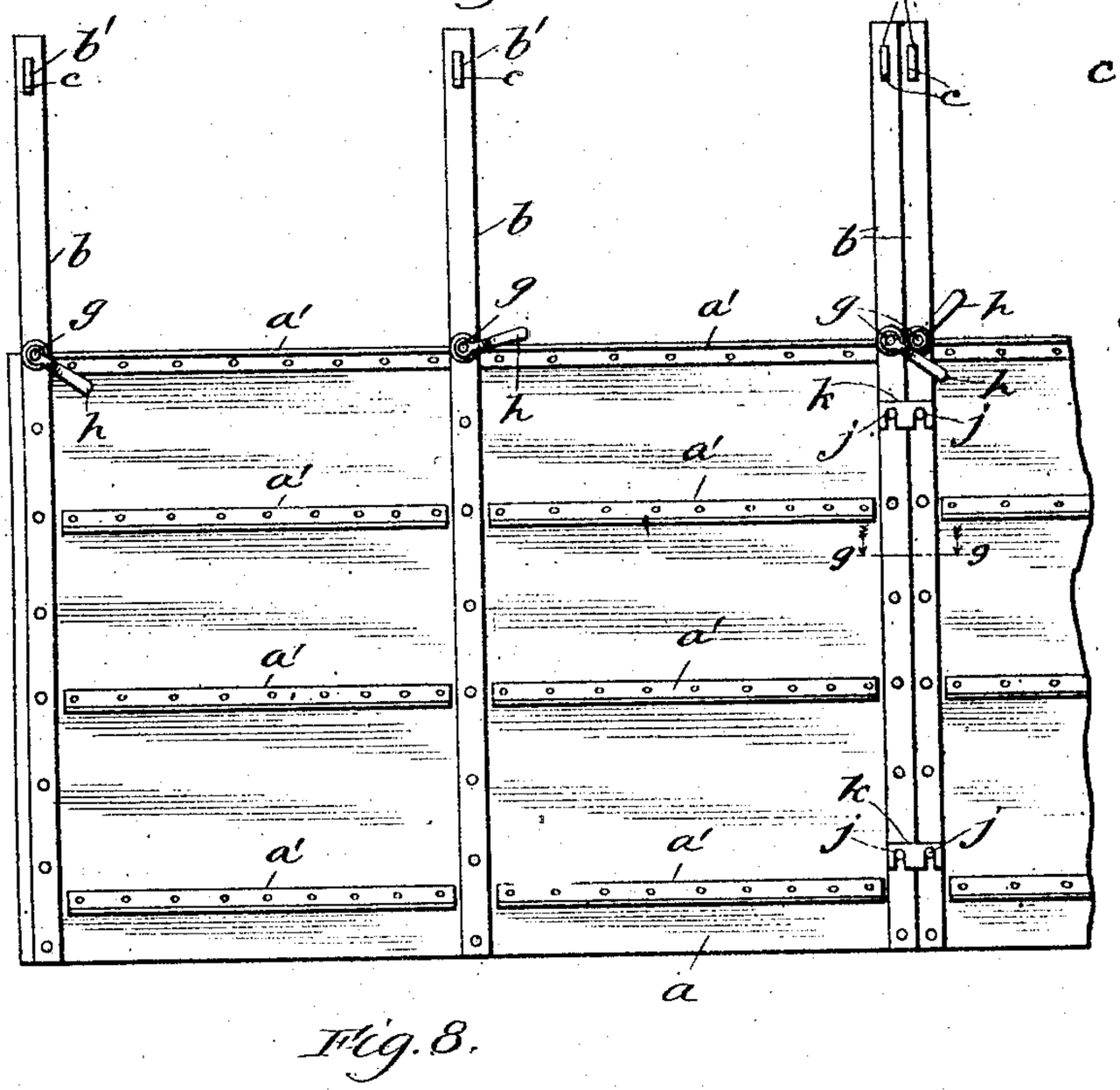


Fig. 8.

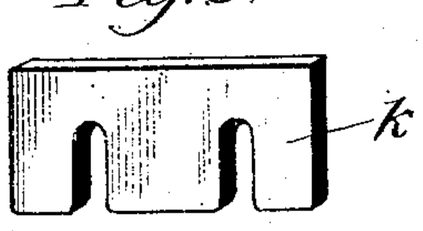


Fig. 2.

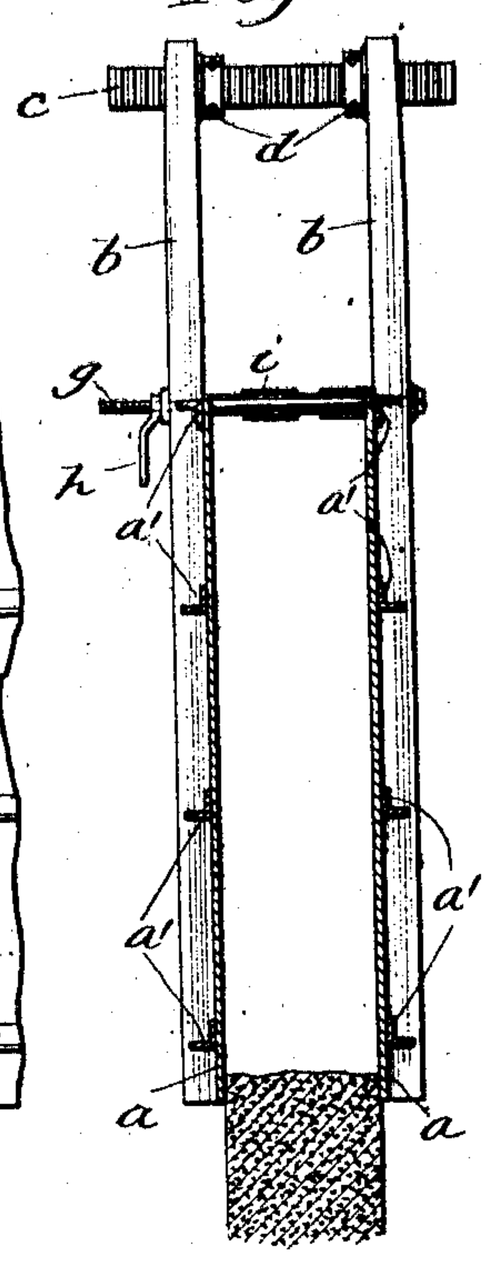


Fig. 3.

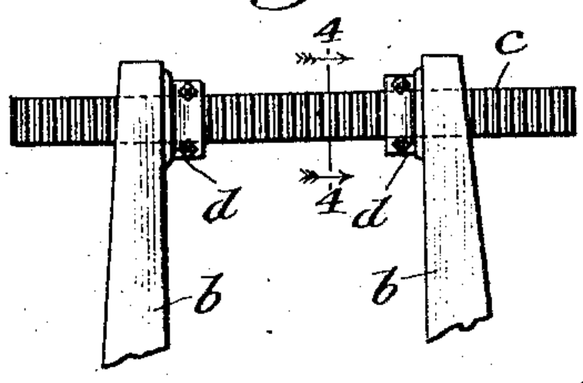


Fig. 4.

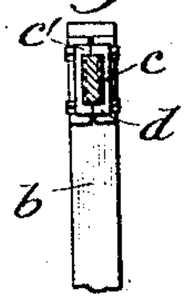


Fig. 5.

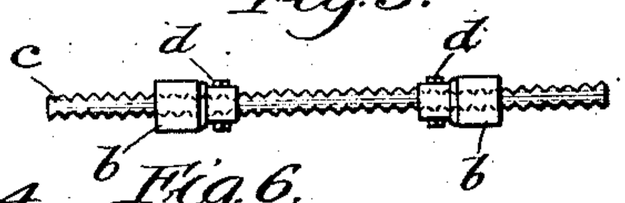


Fig. 6.

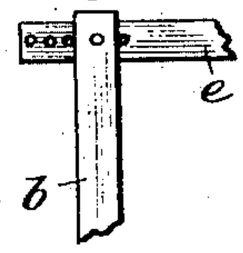


Fig. 9.

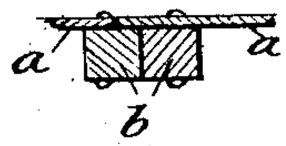
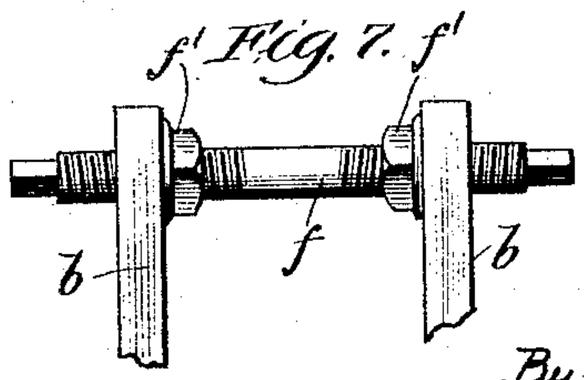


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM E. DE LHORBE, OF CHICAGO, ILLINOIS.

FORM FOR PLASTIC BUILDING-WALLS.

No. 839,819. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed May 18, 1906. Serial No. 317,461.

To all whom it may concern:

Be it known that I, WILLIAM E. DE LHORBE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Forms for Plastic Building-Walls, of which the following is a specification.

My invention relates to forms for use in the construction of building-walls formed of cement, concrete, or other plastic material.

It is common practice in building walls of plastic material to employ forms of lumber or other material, which are built up in place and then removed, with the consequent loss or deterioration of the material which constitutes such forms.

The object of my invention is to provide a form which may be used over and over again, shall be, practically speaking, indestructible, and may be adapted to walls of various thicknesses and dimensions.

It is also an object to provide a form which may be used continuously—that is, a form by means of which the wall may be built up continuously without actually removing the form, but merely elevating it from time to time as the wall rises during the process of construction.

I obtain my objects by the apparatus illustrated in the accompanying drawings, in which—

Figure 1 is a side view of two interlocked forms. Fig. 2 is a sectional view taken transversely through the wall, showing the forms in position. Fig. 3 is an enlarged view of the spreading mechanism shown at the upper portion of Fig. 2. Fig. 4 is a sectional view taken on line 4 4, Fig. 3. Fig. 5 is a plan view of the part shown in Fig. 3. Fig. 6 is a fragmentary view showing a modification in the form of spreader. Fig. 7 shows another modification in the form of spreader. Fig. 8 is a detail view of a locking-block for securing adjacent forms together. Fig. 9 is a detail view illustrating the manner in which the ends of adjacent plates are matched.

Similar letters refer to similar parts throughout the several views.

The main body of the form exhibiting my invention consists of two plates *a*, preferably of sheet metal, reinforced on the outside by angle-irons or other braces *a'*. Also located on the outside of said plates and rigidly attached thereto are the uprights *b*, which project above the upper edge of plate *a*. These uprights consist of stiff beams of any suitable material and near their upper extremities carry a spreading device, which may be constructed in a variety of ways. In the preferred form (shown in Figs. 1 to 5, inclusive) said uprights are apertured at *b'* to receive a notched, corrugated, or otherwise roughened spreading-bar *c*, which I prefer to arrange up on edge in the manner shown. Said apertures *b'* are large enough to permit the free passage of bar *c* without engaging it, and in order to maintain the upper extremities of uprights *b* at a sufficient distance apart clamps *d* are located just inside of said uprights and are adapted to be bolted or otherwise rigidly adjustably secured to said spreading-bar. The spreading device, however, may assume other forms—for example, the one shown in Fig. 6.

In the form of spreader shown in Fig. 6 the spreading-bar *e* is perforated at regular distances, and the uprights *b* are correspondingly perforated to receive a pin which when passed through both the upright and the spreading-bar holds the upper ends of two opposite uprights at a fixed distance apart. A second modification in the form of spreading-bar is shown in Fig. 7, in which bar *f* has right and left threads thereon adapted to screw into the nuts *f'*, contacting the inner edges of two opposite uprights.

Preferably at or near the upper edges of plates *a* are located tension devices for coöperating with the spreading-bars to draw the lower portions of the plates together. In the preferred form this drawing means consists of screw-threaded rods *g*, adapted to pass through the suitably-apertured uprights *b* and receive the tail-nuts *h* in such position that said nuts contact the outer surfaces of said uprights. In order to protect rods *g* from the cement or other material which is thrown between the plates for the formation of the wall, said rods are protected by suitable armor, which consists in the illustration, Fig. 2, of telescoping or interfitting pieces of pipe *i*. The reason for employing telescopic sections of pipe is to render it possible to protect the full length of the screw when the plates are at different distances apart. The ends of the plates are matched, for example, in the manner shown in Fig. 9, in which the uprights at the ends of the plates are set in slightly from the end of one plate

and set out slightly over the edge of the other plate. In order to fasten the ends together, any suitable device may be employed, the preferred form being shown in Figs. 1 and 8. In this form studs *j* project perpendicularly from the surface of the uprights, and a yoke or double clip *k* is provided, which is so constructed as to fit over said studs, and thus hold the plates together at the ends.

In operation the plates are brought to a proper distance apart by adjusting the uprights *b* upon the spreading-bar *c* and draw-rod *g*. The cement or other plastic material of which the wall is to be composed is then introduced between the form-plates *a*, over the upper edge thereof, until the top of the wall has reached up to, or nearly up to, the upper edge of said plates. The wall is then permitted to harden sufficiently to maintain itself, when the nuts *h* are backed off, thus loosening the plates from the wall, at which time the entire apparatus may be lifted until the lower edges of the plates engage the upper extremity of the wall as far as finished. The nuts *h* are then tightened again until the plates are again brought to a proper distance apart, when the operation of introducing more of the plastic material is repeated. Thus the operation is continuous, for the form-plates may be raised up from time to time as the wall grows higher and the same apparatus, although comparatively small in height, will serve to build the wall from bottom to top. After the wall is completed the apparatus may be entirely removed and employed for other walls in a similar manner.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. Apparatus for forming plastic building-walls consisting of plates adapted to form the surfaces of the walls mechanism for adjusting position of one plate with reference to an opposite one and telescoping cylinders between the plates covering one or more portions of the adjusting mechanism for protecting the same.

2. Apparatus for forming plastic building-walls consisting of plates adapted to form the surfaces of the walls mechanism for adjusting position of one plate with reference to an opposite one and telescoping cover members between the plates covering one or more portions of the adjusting mechanism for protecting the same.

3. Apparatus for forming plastic building-walls consisting of plates adapted to form the surfaces of the wall; uprights rigidly fastened to said plates and extending above the upper edge thereof; adjustable spreading-bars at the upper ends of said uprights; a threaded rod located below said spreading-bars; telescoping cylinders on the outside of said rod for protecting the same; and nuts screwing on said rod and contacting the outsides of the apparatus for governing the distance between the lower portion of said plates.

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

WILLIAM E. DE LHORBE.

Witnesses:

HOWARD M. COX,

HENRY KAHN.