A. H. DENNISTON.

CONCRETE WALL FORM.

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1,399,751.

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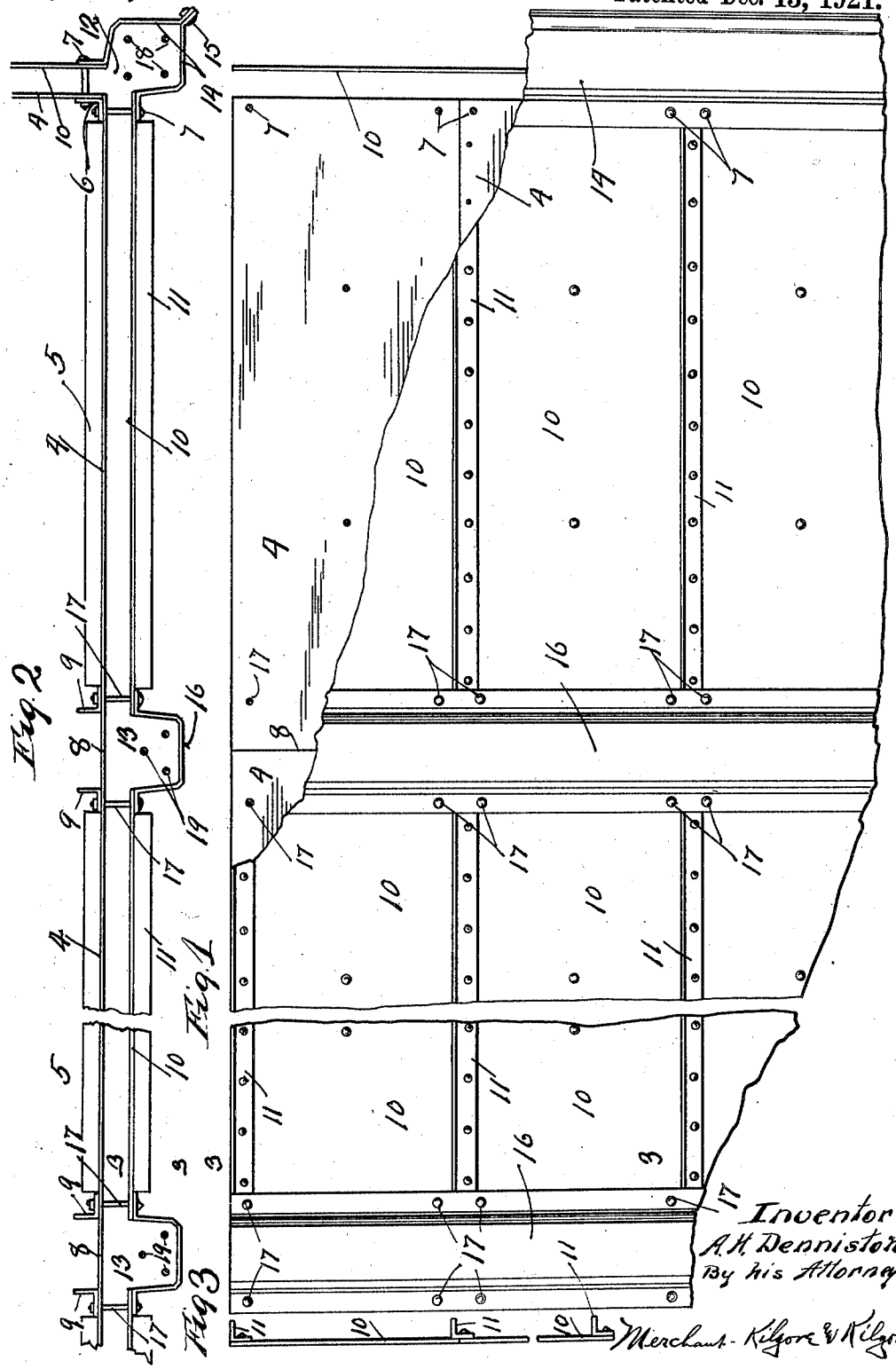


Fig. 2

Fig. 1

Fig. 3

Inventor
A. H. Denniston
By his Attorneys
Merchant - Kilgore & Kilgore

UNITED STATES PATENT OFFICE.

ALBERT H. DENNISTON, OF FERGUS FALLS, MINNESOTA.

CONCRETE-WALL FORM.

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To all whom it may concern:

Be it known that I, ALBERT H. DENNISTON, a citizen of the United States, residing at Fergus Falls, in the county of Ottertail and State of Minnesota, have invented certain new and useful Improvements in Concrete-Wall Forms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved wall form adapted for use in constructing monolithic or "slushed-in" concrete walls, and to such ends, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

This wall form may be used for constructing walls of various different kinds of buildings, but is primarily designed and particularly adapted for use in building the concrete walls of barns, bins and like buildings that are capable of being erected on the unit plan, so that standard wall plates and the like may be employed.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 is a fragmentary side elevation, with some parts broken away, illustrating the improved wall form;

Fig. 2 is a plan view of the wall form shown in Fig. 1; and

Fig. 3 is a vertical section taken on the lines 3—3 of Figs. 1 and 2.

The inner side of the form is made up of a plurality of flat plates 4, preferably of sheet metal, reinforced at the horizontal edges by angle strips 5. Said plates 4, at the corners of the structure, are rigidly but detachably secured to vertical angle bars 6, by nut-equipped bolts 7 that perform the functions presently to be noted.

In the wall structure, at points where intermediate corners are to be formed, the ends of the plates 4 are abutted together at 8 and, on each side of these abutting ends, vertically extended angle bars 9 are rigidly secured.

The outer side of the wall form is made up of a plurality of plates 10, preferably of sheet metal, reinforced at their horizontal edges by angle bars 11 riveted or otherwise rigidly secured thereto. These plates 10, at the corners of the building and at places where intermediate columns are to be formed, are spaced apart, respectively, at 12 and 13.

To form the corner columns, approximately rectangular so-called corner column plates 14 are applied. Said plates 14, at their inner edges, have flanges through which the nut-equipped bolts 7 are passed so that the latter not only clamp said plates 14 to the outside wall plates 10 but properly space the inside and outside wall plates. At their outer edges, said plates 14 have outstanding flanges rigidly but detachably connected by short nut-equipped bolts 15.

For forming the intermediate wall columns at the gaps 13, I provide approximately U-shaped so-called intermediate column plates 16 having edge flanges that overlap the ends of the plates 10. Nut-equipped bolts 17, passed through the edge flanges of the column plates 16, through the ends of the outside wall plates 10 and through the inside wall plates 4 and angle bars 9, serve to space the inside and outside plates and to securely hold said column plates 16 in position to form the intermediate wall columns.

The outstanding flanges of the angle bars 9 afford means to which plates, not shown, may be bolted or otherwise secured when partitions are required in the building being erected. The column plates 14 and 16 not only form the wall columns where required, but they very greatly stiffen the entire form and prevent the same from being bulged by the pressure of the soft slushed-in concrete which, of course, will be poured or shoveled into the space between the inside and outside wall plates and within the column forming plates. A wall thus constructed will be integral or monolithic with its reinforcing columns. The form is designed on the unit plan so that the building may be increased or decreased in units representing distances between columns, while using the same wall plates. The walls will usually be designed of a standard height, but, of course, the form can be varied as to height and, moreover, the wall plates may be of any desired horizontal length so as to vary the unit used in erection of the building.

Preferably, the horizontal reinforcing angles applied to the inside and outside wall plates will be applied substantially as shown in Fig. 3, where it will be noted that the uppermost angle is flush with the top of the upper wall plate while the lower or inter-

mediate angles are offset vertically so that they will lap the joints between wall plates.

In constructing concrete buildings or walls with this form, it will usually be desirable to insert metal reinforcements in the concrete and this may be done in many different ways so far as this invention is concerned. Certain of the reinforcements may be supported temporarily by the bolts 7 and 17. These bolts, after the concrete has set so as to support its own weight and maintain a set form, will be driven out and the bolt holes thereafter filled with cement. In Fig. 2, the numeral 18 indicates vertical rods for reinforcing the corner columns, and the numeral 19 indicates vertical rods for reinforcing the intermediate columns. This form is especially designed to be made entirely from metal and, being thus constructed, will last for a very long time and there will be no waste of material used in the form. As is a well known fact, wooden forms are, in the long run, very expensive because of the waste in lumber incident to building up and tearing down.

What I claim is:

1. A form for making concrete walls comprising inside and outside wall plates, one of said classes of plates being spaced at corners and at intermediate columns, corner column forming plates connected to said spaced plates at the corners of the wall structure, and bulged intermediate column plates connected to the spaced intermediate ends of said plates and positioned to form intermediate columns.

2. A form for making concrete walls comprising inside and outside wall plates, said outside plates being spaced at corners and at intermediate columns, angular corner column plates connecting said outside plates at the corners of the wall structure, and outwardly bulged intermediate column plates connecting the spaced intermediate ends of said outside plates.

3. A form for making concrete walls comprising inside and outside wall plates, said inside plates being connected in continuous arrangement, said outside plates being spaced at corners and at intermediate columns, angular corner column plates connecting said outside plates in the corners of the wall structure, and outwardly bulged intermediate column plates connecting the spaced intermediate ends of said outside wall plates.

4. A form for making concrete walls comprising inside and outside wall plates, said inside plates being connected in continuous arrangement, said outside plates being spaced at corners and at intermediate columns, angular corner column plates connecting said outside plates in the corners of the wall structure, outwardly bulged intermediate column plates connecting the spaced intermediate ends of said outside wall plates, and removable bolts connecting said inside and outside plates and column forming plates.

5. A form for making concrete walls comprising inside and outside wall plates, said inside plates being connected in continuous arrangement, a vertical angle bar to which the adjacent ends of said inside plates are secured at the corner of the structure, flanged bars secured to said inside plates adjacent to but on opposite sides of their intermediate abutting ends, said outside wall plates being spaced at corners and at intermediate columns, separable angular corner column plates detachably secured to said outside plates, and outwardly bulged intermediate column plates detachably connecting the ends of said outside wall plates at intermediate columns.

6. A form for making concrete walls comprising inside and outside wall plates, said inside plates being connected in continuous arrangement, a vertical angle bar to which the adjacent ends of said inside plates are secured at the corner of the structure, flanged bars secured to said inside plates adjacent to but on opposite sides of their intermediate abutting ends, said outside wall plates being spaced at corners and at intermediate columns, separable angular corner column plates detachably secured to said outside plates, outwardly bulged intermediate column plates detachably connecting the ends of said outside wall plates at intermediate columns, removable bolts extended through flanges of said intermediate column plates, through said outside wall plates and through said inside wall plates and the flanged bars at adjacent intermediate joints, and other removable bolts passed through flanges of said corner column plates, through said outside wall plates, inside wall plates and corner angles.

7. A form for making concrete walls comprising inside and outside wall plates, said inside plates being connected in continuous arrangement, a vertical angle bar to which the adjacent ends of said inside plates are secured at the corner of the structure, flanged bars secured to said inside plates adjacent to but on opposite sides of their intermediate abutting ends, said outside wall plates being spaced at corners and at intermediate columns, separable angular corner column plates detachably secured to said outside plates, and outwardly bulged intermediate column plates detachably connecting the ends of said outside wall plates at intermediate columns, said wall plates having reinforcing angles, certain of which lap at horizontal joints between adjacent plates.

In testimony whereof I affix my signature.

ALBERT H. DENNISTON.