Oct. 10, 1950 R. G. LE TOURNEAU 2,524,981

INNER FORM SECTION FOR A HOUSE FORM ASSEMBLY

Filed April 8, 1947 4 Sheets-Sheet 1

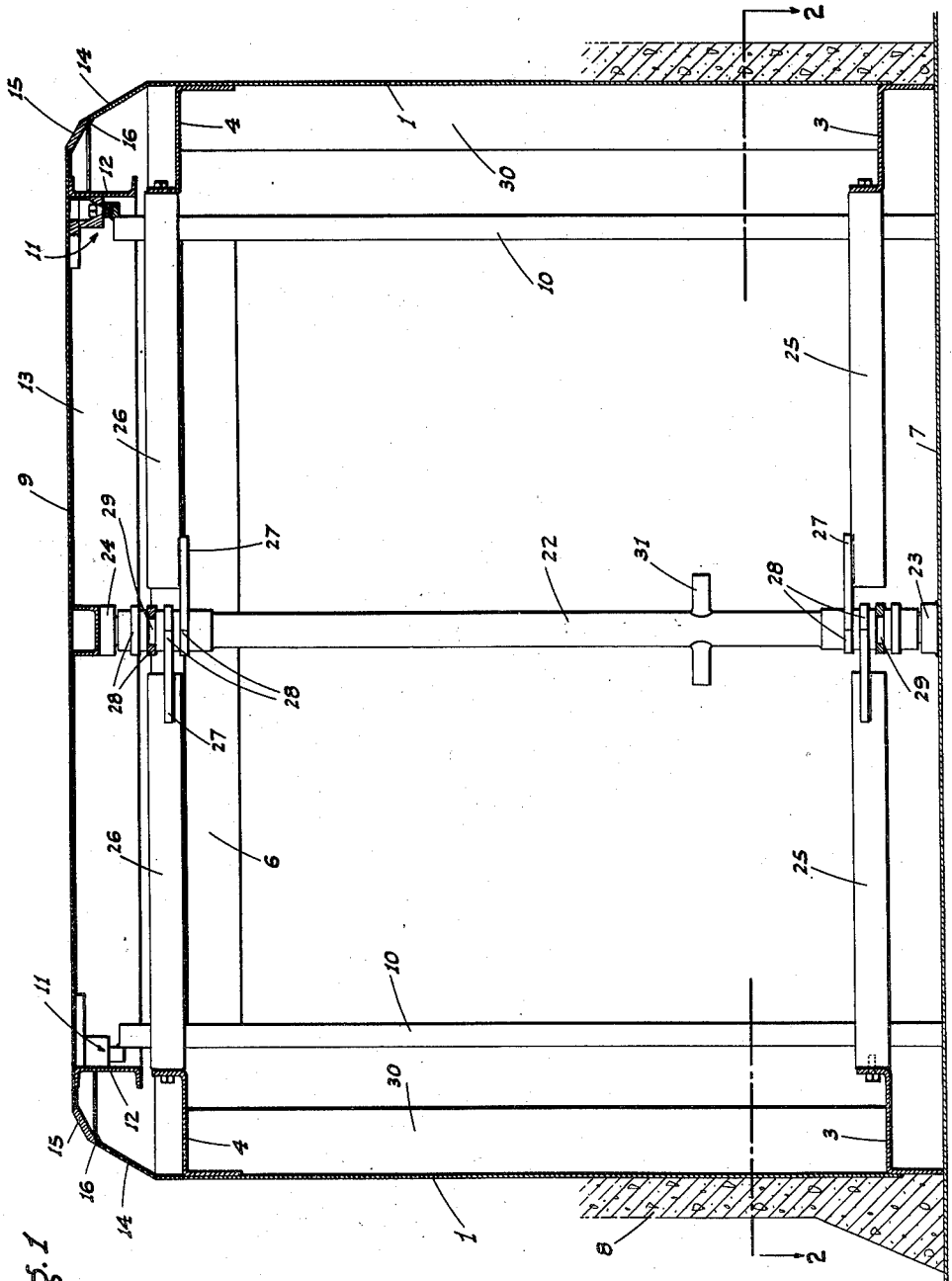


Fig. 1

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INNER FORM SECTION FOR A HOUSE FORM ASSEMBLY

Filed April 8, 1947 4 Sheets-Sheet 2

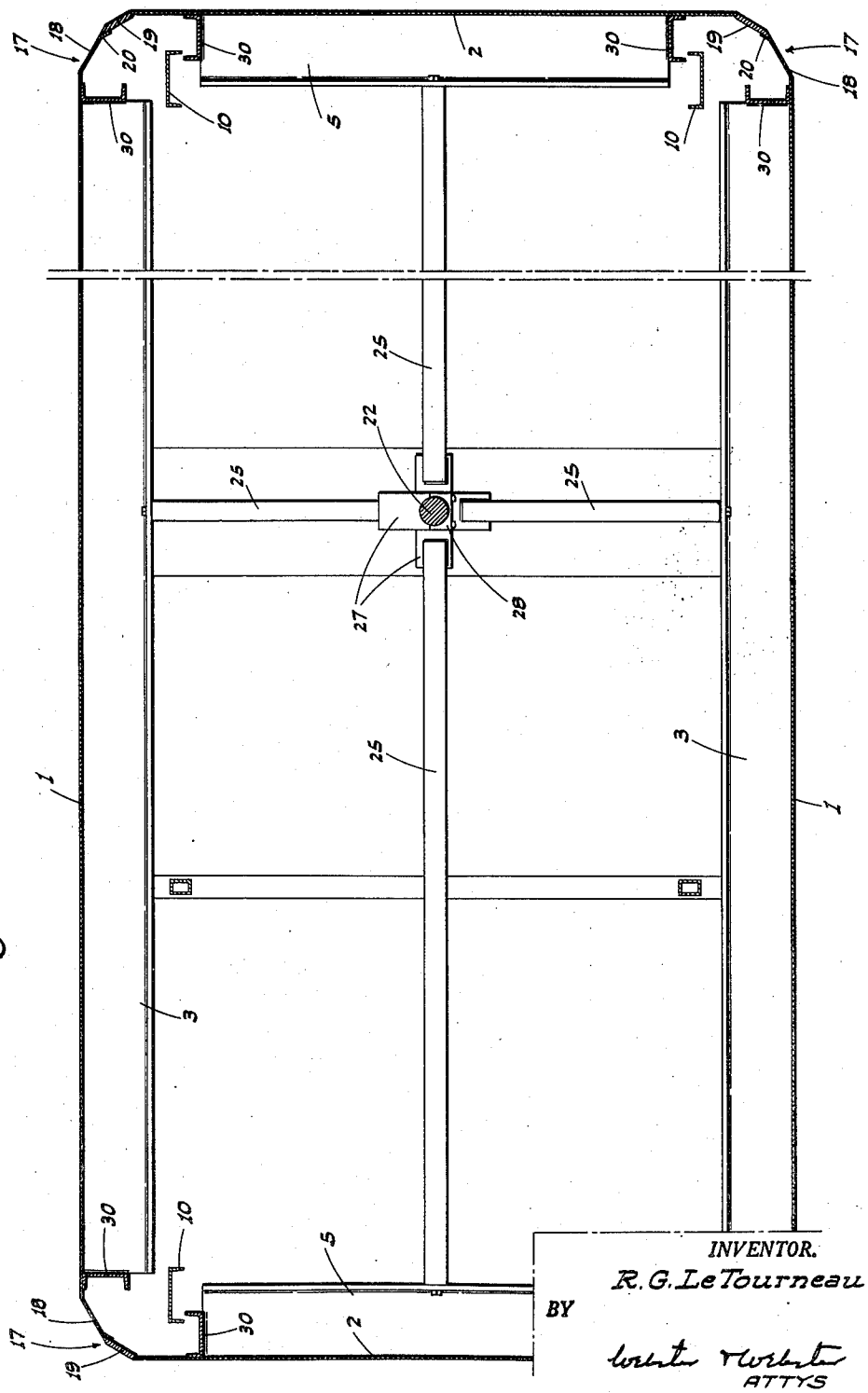


Fig. 2

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INNER FORM SECTION FOR A HOUSE FORM ASSEMBLY

Filed April 8, 1947 4 Sheets-Sheet 3

Fig. 3

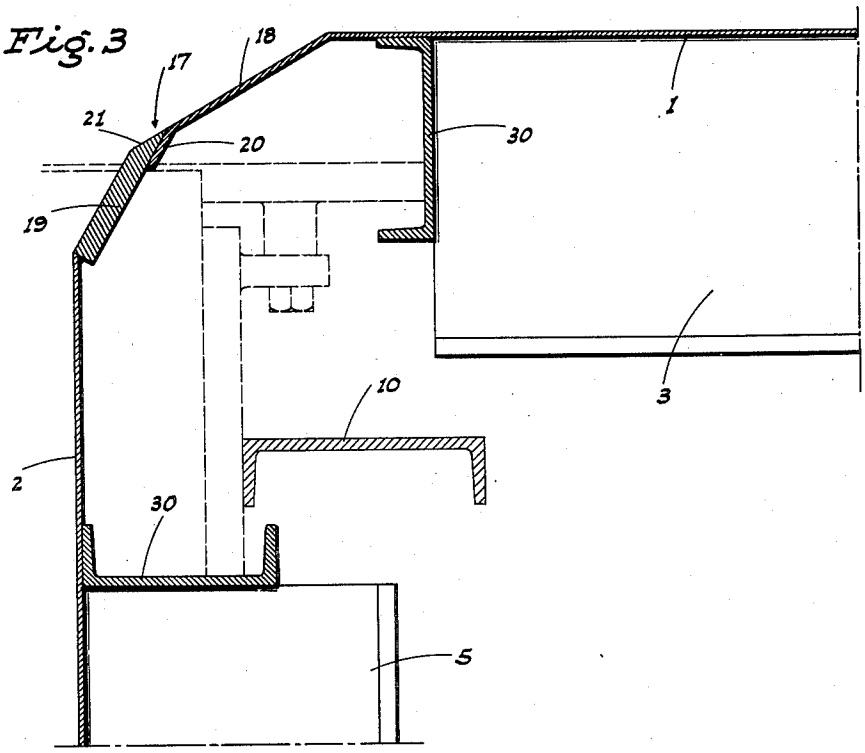
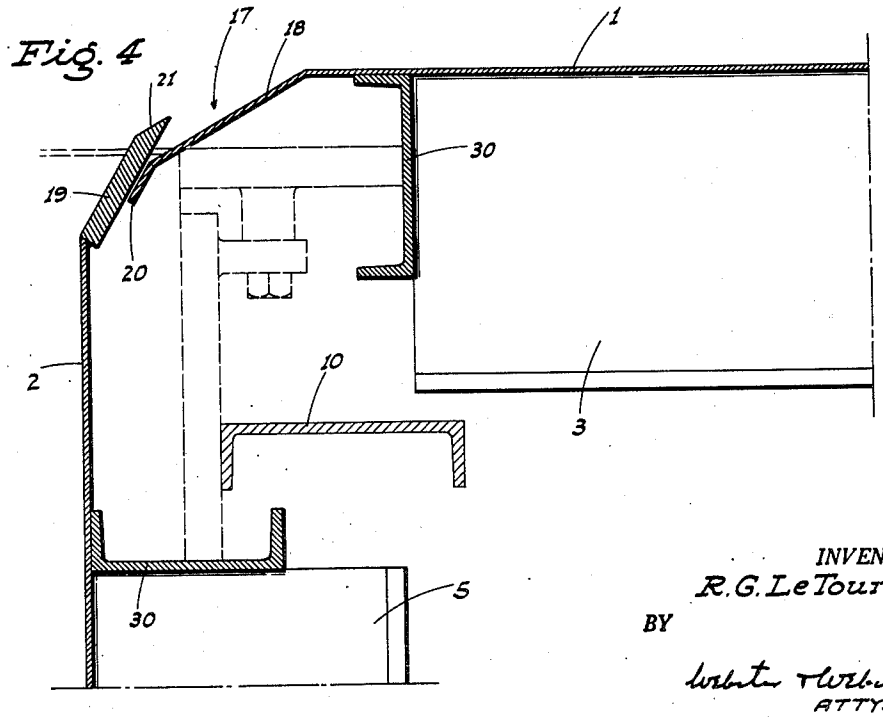


Fig. 4



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Oct. 10, 1950 R. G. LE TOURNEAU 2,524,981

INNER FORM SECTION FOR A HOUSE FORM ASSEMBLY

Filed April 8, 1947 4 Sheets-Sheet 4

Fig. 5

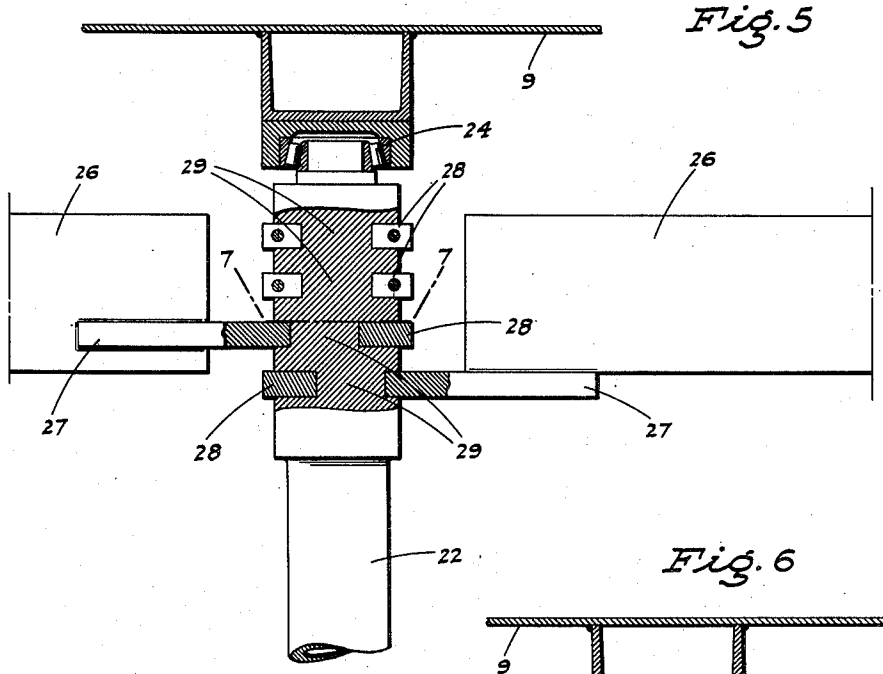


Fig. 6

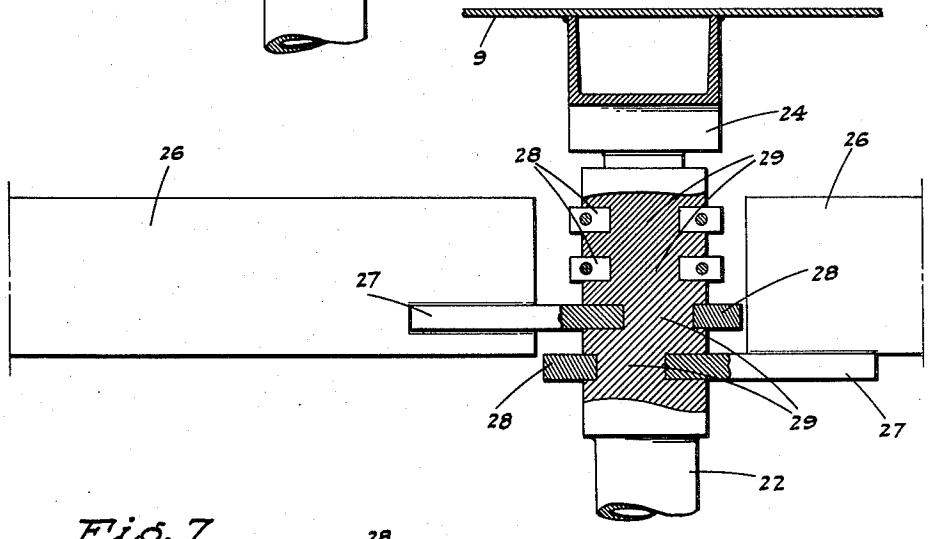
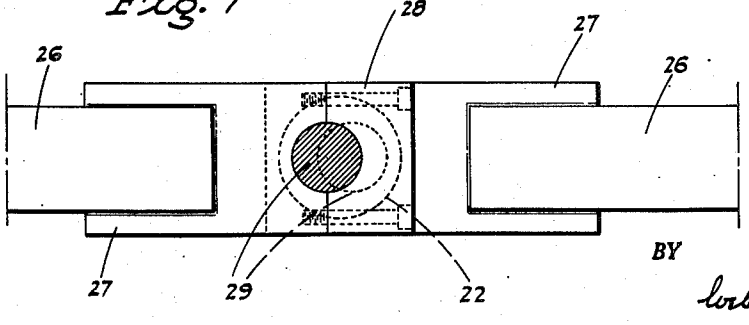


Fig. 7



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Patented Oct. 10, 1950 2,524,981

UNITED STATES PATENT OFFICE

2,524,981

INNER FORM SECTION FOR A HOUSE FORM ASSEMBLY

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Application April 8, 1947, Serial No. 740,046

5 Claims. (Cl. 25—131)

1

This invention relates in general to forms for use in connection with the construction of reinforced concrete, monolithic houses.

In particular, this invention is directed to, and it is an object to provide, an inner form section which comprises a modification of the type of inner form section as shown in copending application, Serial No. 670,503, filed May 17, 1946.

Another object of the invention is to provide an inner form section, for the purpose described, which is arranged—in novel manner—for contracting whereby to free or loosen said section from the corresponding interior portion of the house after pouring and setting of the latter.

A further object of the invention is to provide an inner form section, as above, wherein the four walls of said section are movable inwardly to a retracted position from a normal working position; there being novel mechanism within the form section, connected to said walls, and operative to simultaneously retract the same.

An additional object of the invention is to embody a unique corner assembly between adjacent ends of the walls.

A further object of the invention is to provide a practical inner form section for a house form assembly, and one which will be exceedingly practical for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a transverse section of the inner form section as in use.

Fig. 2 is a sectional plan view on line 2—2 of Fig. 1.

Fig. 3 is an enlarged, fragmentary sectional plan of one corner assembly in working position.

Fig. 4 is a similar view, but shows said corner assembly in contracted position.

Fig. 5 is an enlarged, fragmentary elevation, mainly in section, of one of the actuator units in normal position.

Fig. 6 is a similar view, but shows such actuator unit in wall retracting position.

Fig. 7 is a fragmentary sectional plan on line 7—7 of Fig. 5.

Referring now more particularly to the characters of reference on the drawings, the present invention comprises an inner form section adapted for use, as a modification, in the same manner as each inner form section for a house form assembly as disclosed in co-pending application, Serial No. 670,503, filed May 17, 1946; such inner form section comprising the following:

2

The structure is all metal and comprises a pair of opposed upstanding side walls 1, and a pair of opposed upstanding end walls 2. The side walls 1 are each fitted, on the inside, for the purpose of strengthening and mounting, with a horizontal bottom beam 3 and a horizontal top beam 4. Similarly, the end walls are fitted, on the inside, with a horizontal bottom beam 5, and a horizontal top beam 6.

The horizontal bottom beams 3 and 5 rest, in transversely slidable relation, on a base plate 7 suitably supported from the ground; said base plate 7 projecting laterally outwardly beyond the bottom beams 3 and 5 for the purpose of providing a bottom support for the house portion, indicated in part at 8, which is poured between the herein described inner form section, and an outer form section (not shown) surrounding the same in spaced relation.

A flat ceiling or roof plate 9 horizontally overlies the space defined by the side walls 1 and end walls 2; such roof plate 9 being supported, adjacent the corners thereof, by supporting posts 10 which extend vertically upward from the base plate 7. At their upper ends the supporting posts 10 are secured to the roof plate 9 by detachable connection units 11. The room plate 9 is strengthened, adjacent its edges, by horizontal side beams 12 and horizontal end beams 13 secured to the under side of said roof plate.

The upper horizontal edges of the form section are cove-like, being formed, along each side and end of the section, with an upwardly and inwardly inclined cove plate 14 and a downwardly and outwardly inclined cove plate 15. The upwardly and inwardly inclined plate 14 includes a longitudinal lip 16 which slidably engages in underlapping relation to the plate 15, which is relatively thicker and non-bendable.

At each corner the form section is provided with a novel diagonal corner assembly, indicated generally at 17; each such corner assembly comprising the following:

Adjacent vertical edges of the side walls 1 and end walls 2 terminate in spaced-apart relation diagonally of the corresponding corner of the form section, and a pair of vertical corner plates, indicated at 18 and 19, extend from said edges in outwardly converging relation; the corner plate 18 being secured on the side wall 1, while the corner plate 19 is secured on the end wall 2. The corner plate 19 is of relatively greater thickness than the adjacent plate 18, for the purpose of providing strength and rigidity; said plate 18 having a vertical lip 20 which normally matchingly,

and horizontally slidably, engages in underlapping relation to plate 19 and with its inner face. When in their normal or working positions the outer face of the corner plate 18 is flush and parallel relative to the adjacent part of the corner plate 19 which is beveled, as at 21. As shown, the corner plates 18 are of somewhat greater width horizontally than the corner plates 19.

The form section includes, within the same, a mechanism operative to simultaneously retract the side walls 1 and end walls 2, whereby to contract said form section in a horizontal plane to permit of lifting of the house portion 8 off the form section. This mechanism comprises an upstanding center post 22 carried at its lower end in a bearing 23 on the base plate 7 and carried at its upper end in a bearing 24 supported from the roof plate 9.

Pairs of vertically alined, bottom, horizontal actuator bars 25 and top, horizontal actuator bars 26, corresponding to the side walls 1 and end walls 2, are secured to the bottom and top beams 3 and 4, and 5 and 6, respectively, of said side and end walls centrally of the ends of the same, and at right angles thereto in a horizontal plane whereby, upon simultaneous longitudinal movement of said actuator bars in one direction or the other, said side walls and end walls are simultaneously shifted, in or out on the base plate 7.

At their inner ends the actuator bars 25 and 26, which are radial of the center post 22, are connected to the latter by connecting arms 27 carrying bearings or straps 28 engaged about eccentrics 29 formed on said center post. The eccentrics 29 are formed in such offset relation to each other that opposed ones of the actuator bars move in opposite directions upon rotation of the center post 22; the effective throw of the eccentrics 29 for the actuator bars 25 and 26 corresponding to the side walls 1 being greater than the throw which the corresponding eccentrics impart to the actuator bars 25 and 26 of the end walls 2. The reason for this is that it is necessary to shift the side walls 1 inwardly at a greater rate than the end walls 2, whereby the corner plates 18 and lips 19 shift inwardly a sufficient distance to prevent binding thereon of the corner plates as the latter simultaneously shift inwardly.

The working or starting position of the parts of each corner assembly 17 is shown in Fig. 3, while the retracted position of said parts is shown in Fig. 4.

After a house portion 8 has been poured, and permitted to set, between the described inner form section, and an outer form section (not shown), said latter section is first removed. Thereafter, the inner form section is contracted by rotating the center post 22 in a direction to cause the eccentrics 29 to pull inwardly on the actuator bars 25 and 26, shifting the side walls 1 and 2 simultaneously inwardly, each such wall moving with a straight line motion whereby to effectively free said walls from the house portion 8.

The side walls 1 and end walls 2 are prevented from undesirable deformation, during such shifting operations, by the horizontal top and bottom beams thereon, together with vertical beams or studs 30 secured to said walls at their ends, and at spaced points therebetween.

Turning of the central post 22 in a direction to actuate the bars 25 and 26 is accomplished by trunnions 31 thereon, and onto which trunnions a tubular operating handle is adapted to be engaged.

When the form section is contracted in the manner above described the base plate 7 and the roof plate 9 remain unmoved, for the reason that the horizontal bottom beams 3 and 5 slide over said plate 7, while the inclined plates 14, at the upper horizontal edges of the section, move inwardly relative to the cooperating plates 15.

The major parts of the described inner form section are secured together in detachable relation so that said form section, when not in use, may be dismantled for storage, or for convenience in shipping from place to place.

From the foregoing description it will be readily seen that there has been produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. An inner form section for a house form assembly, comprising a pair of opposed side walls, a pair of opposed end walls separate from the side walls, a horizontal base plate, means supporting the side and end walls on the base plate for inward horizontal sliding motion between a normal position and a retracted position, and mechanism within the section connected to said walls to maintain them in substantially vertical position and operative to effect simultaneous sliding motion of the walls between said normal and retracted positions; a roof plate above the walls, and separate means supporting the roof plate from the base plate.

2. An inner form section for a house form assembly, as in claim 1, including cove portions between each wall and the roof plate; each cove portion comprising an upwardly and inwardly inclined cove plate on the upper edge of the corresponding wall, and a downwardly and outwardly inclined cove plate on the adjacent edge of the roof plate overlapping said first named cove plate in normally contacting relation therewith.

3. An inner form section for a house form assembly, comprising a pair of opposed side walls, a pair of opposed end walls separate from the sidewalls, a horizontal base plate, means supporting the side and end walls on the base plate for inward horizontal sliding motion between a normal position and a retracted position, mechanism within the section connected to said walls to maintain them in substantially vertical position and operative to effect simultaneous sliding motion of the walls between said normal and retracted positions, a roof plate above the walls, and separate means supporting the roof plate from the base plate; said mechanism comprising a center post journaled at opposite ends in connection with the base plate and roof plate, a pair of vertically spaced actuator bars secured to each wall intermediate its ends and projecting toward the center post, a pair of vertically spaced eccentrics on the center post corresponding to each pair of actuator arms, and a bearing on the inner end of each bar secured about the corresponding eccentric.

4. An inner form section for a house form assembly, comprising a pair of opposed side walls, a pair of opposed end walls separate from the sidewalls, a horizontal base plate, means supporting the side and end walls on the base plate for inward horizontal sliding motion between a normal position and a retracted position, mechanism within the section connected to said walls to maintain them in substantially vertical position and operative to effect simultaneous sliding motion of the walls between said normal and retracted positions, a roof plate above the walls, and separate means supporting the roof plate from the base plate; said mechanism comprising a center post journaled at opposite ends in connection with the base plate and roof plate, a pair of vertically spaced actuator bars secured to each wall intermediate its ends and projecting toward the center post, a pair of vertically spaced eccentrics on the center post corresponding to each pair of actuator arms, and a bearing on the inner end of each bar secured about the corresponding eccentric; the pairs of eccentrics being disposed in such offset relative relation to each other that rotation of the center post in one direction or the other simultaneously advances or retracts the actuator arms.

5. An inner form section for a house form assembly comprising a pair of opposed substantially parallel upstanding side walls, a pair of opposed substantially parallel upstanding end walls

separate from the side walls, all of said walls being of relatively thin sheet plate material, a rigid inwardly projecting beam on each wall adjacent the top and bottom edges thereof but terminating short of the side edges thereof, an upstanding post disposed centrally between said walls, eccentric cam units mounted on said post adjacent the upper and lower ends thereof and operable upon rotation of the post, arms connected with the cam units and projecting outwardly therefrom and being connected with the beams on the walls, the operation of the cam units being effective to cause the arms to simultaneously pull on or push against all of the beams whereby to move all of the walls simultaneously relative to each other.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,346,844	Remington	July 20, 1920
2,219,106	Kruckenberg	Oct. 22, 1940
2,307,678	Hayes	Jan. 5, 1943
2,359,471	Ewing	Oct. 3, 1944

FOREIGN PATENTS

Number	Country	Date
48,064	Norway	Dec. 8, 1920