Sept. 13, 1955 R. G. LE TOURNEAU 2,717,436

OUTER FORM FOR HOUSE FORM ASSEMBLY

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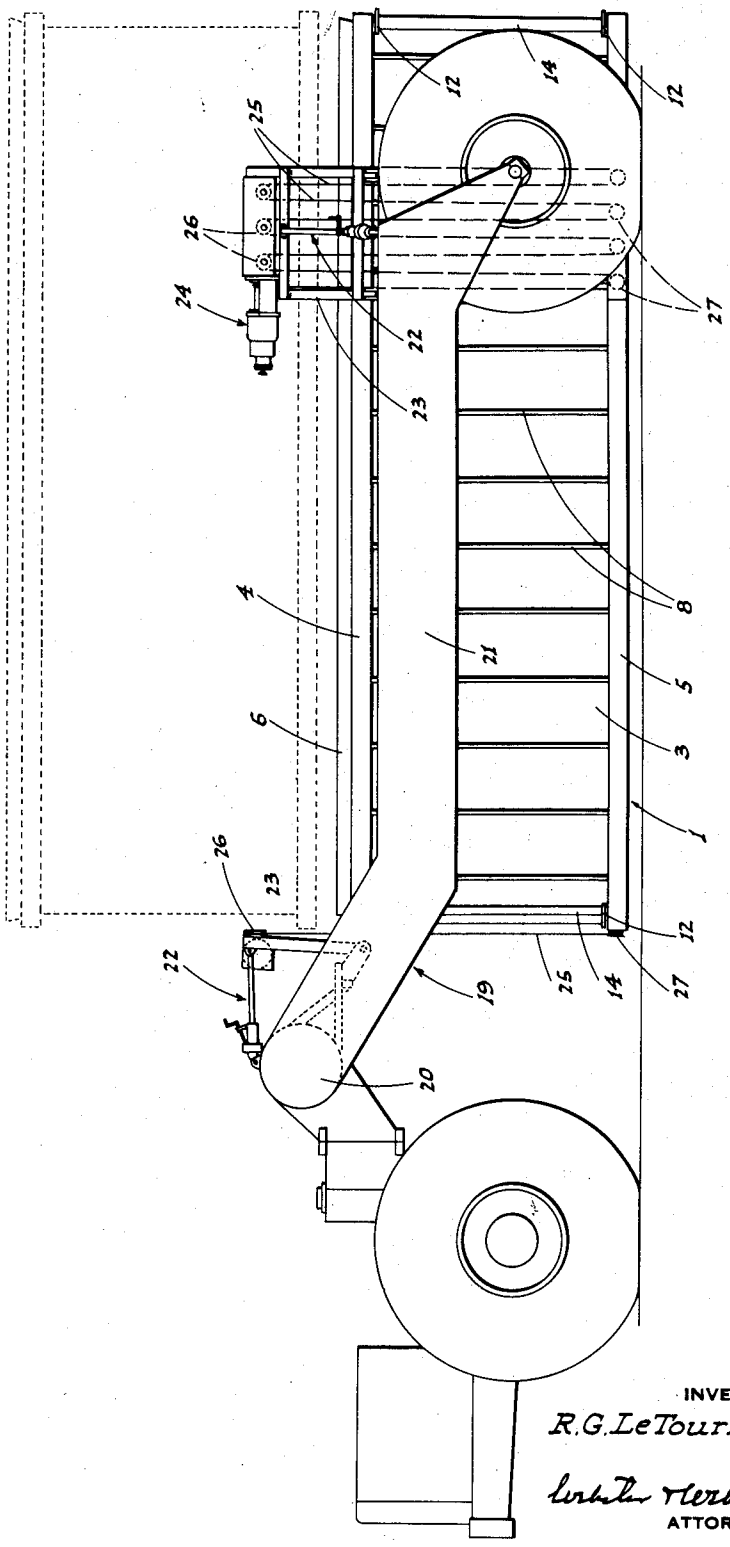


Fig. 1

INVENTOR
R. G. LeTourneau

ATTORNEYS

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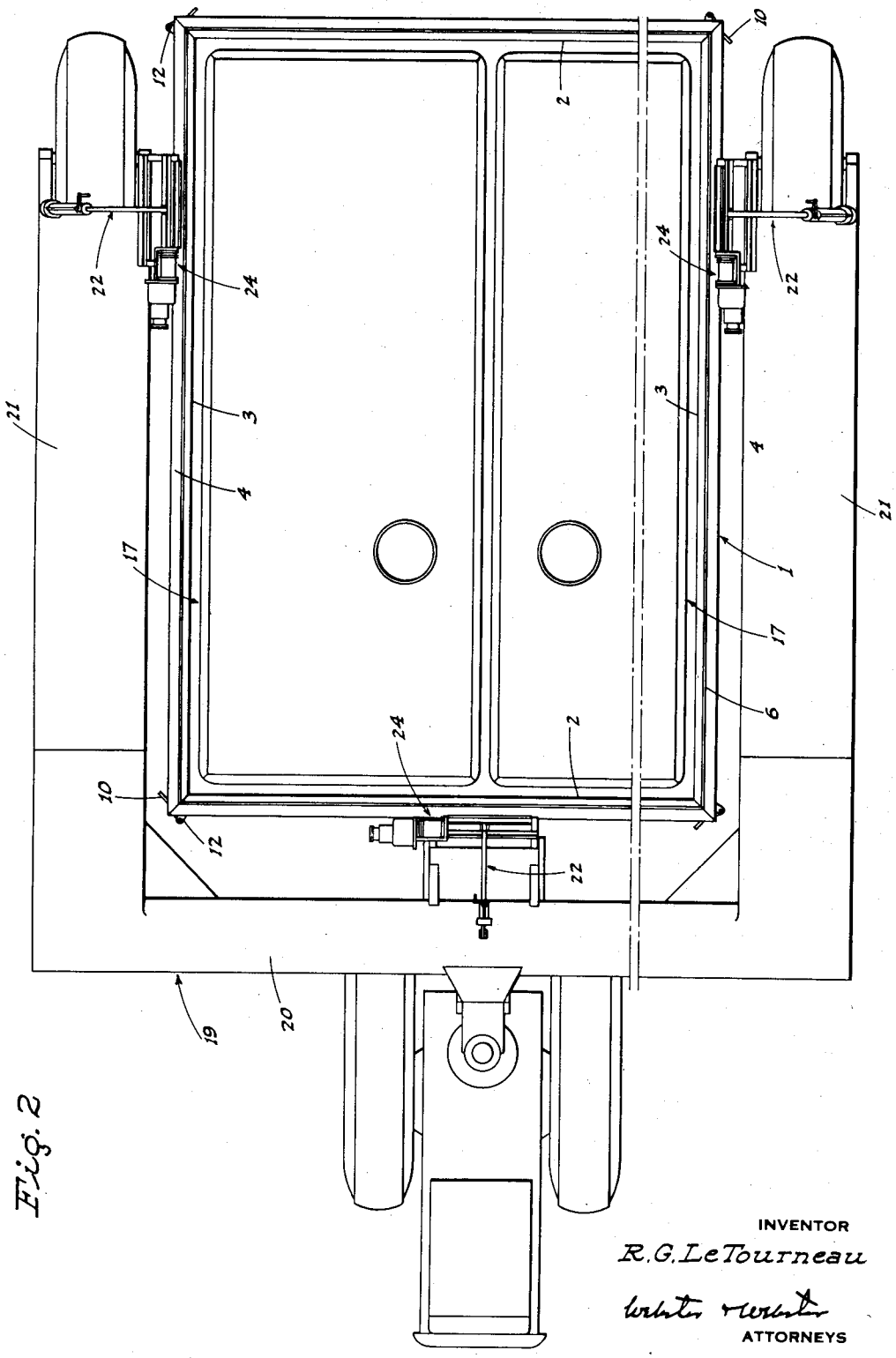


Fig. 2

INVENTOR
R. G. LeTourneau
Webster & Webster
ATTORNEYS

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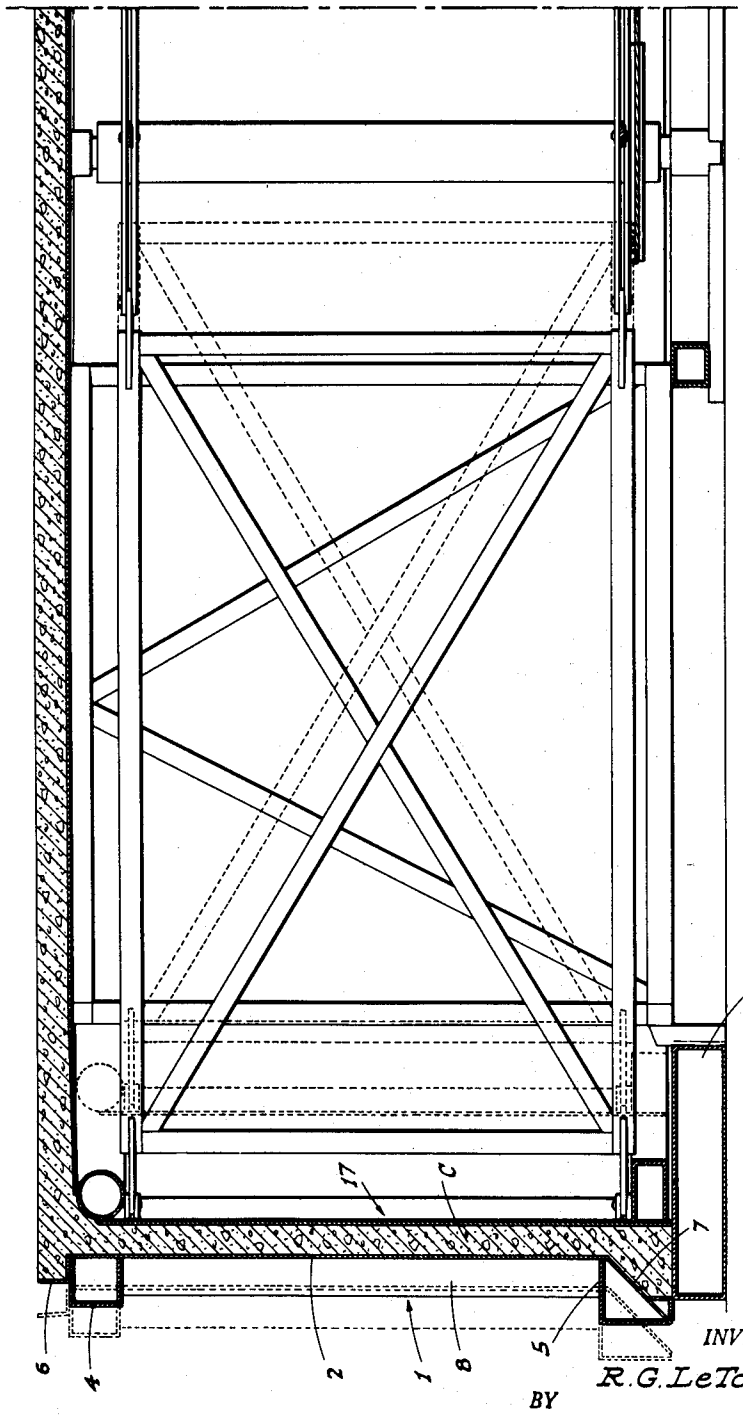


Fig. 3

INVENTOR.
R. G. LeTourneau
BY
ATTYS

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Fig. 4

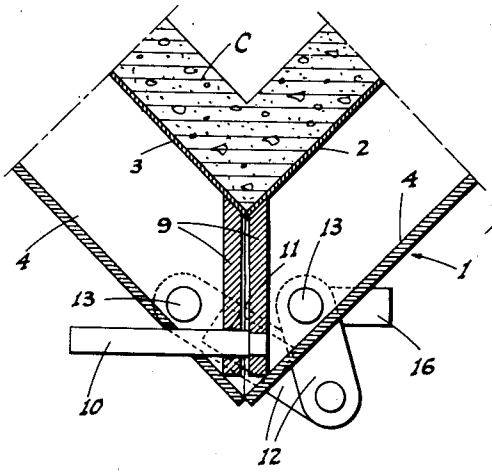


Fig. 5

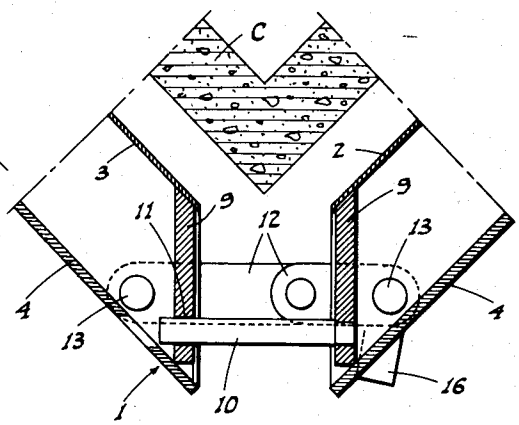


Fig. 6

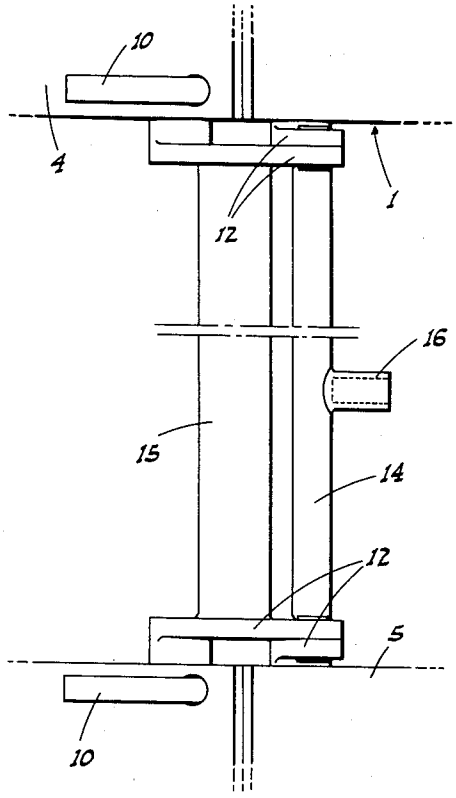
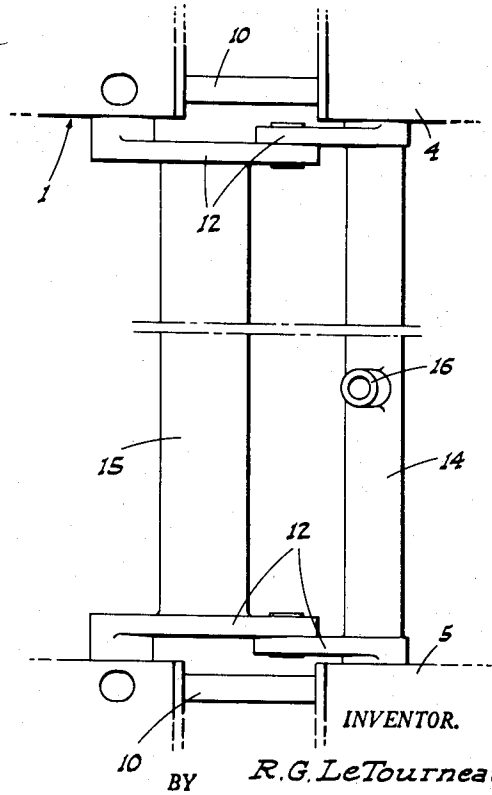


Fig. 7



INVENTOR.

BY R. G. LeTourneau

Webster & Webster

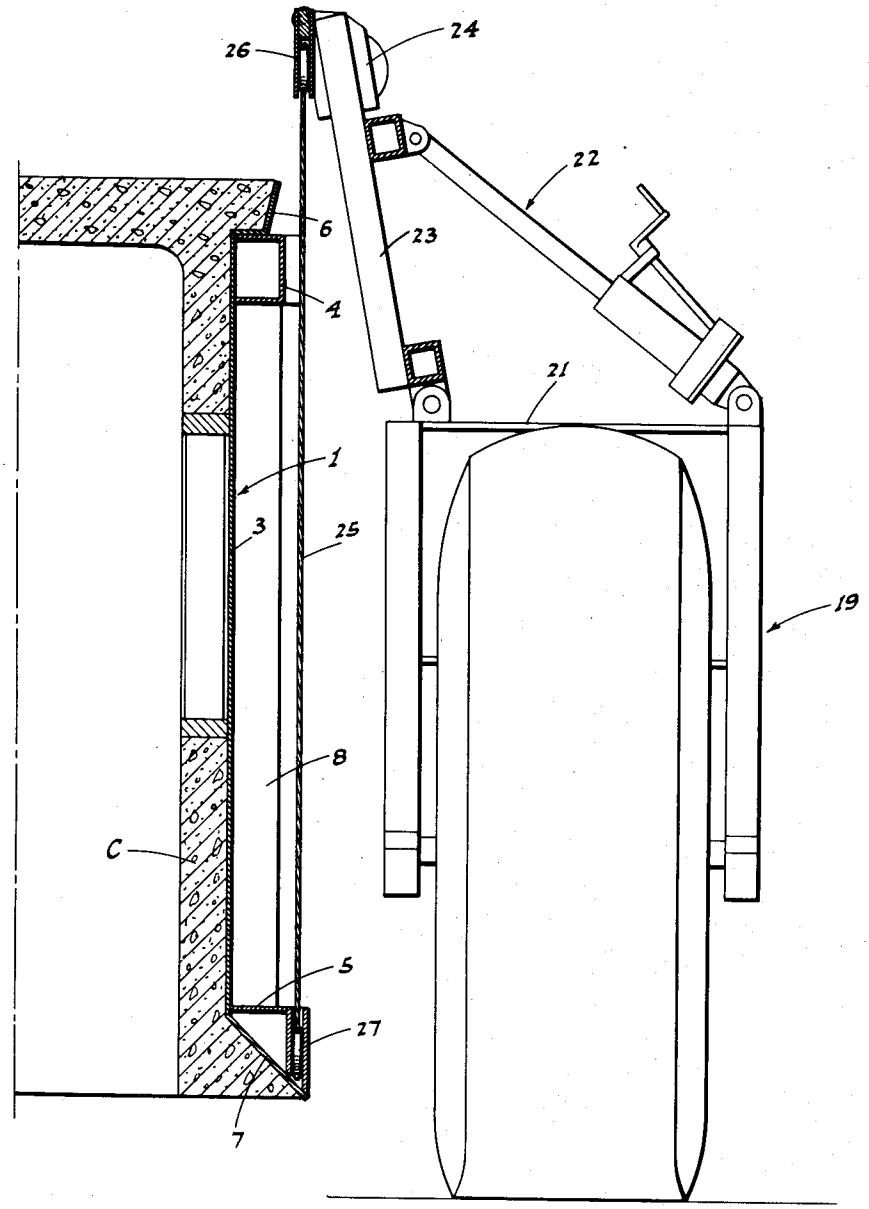
ATTYS

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Fig. 8



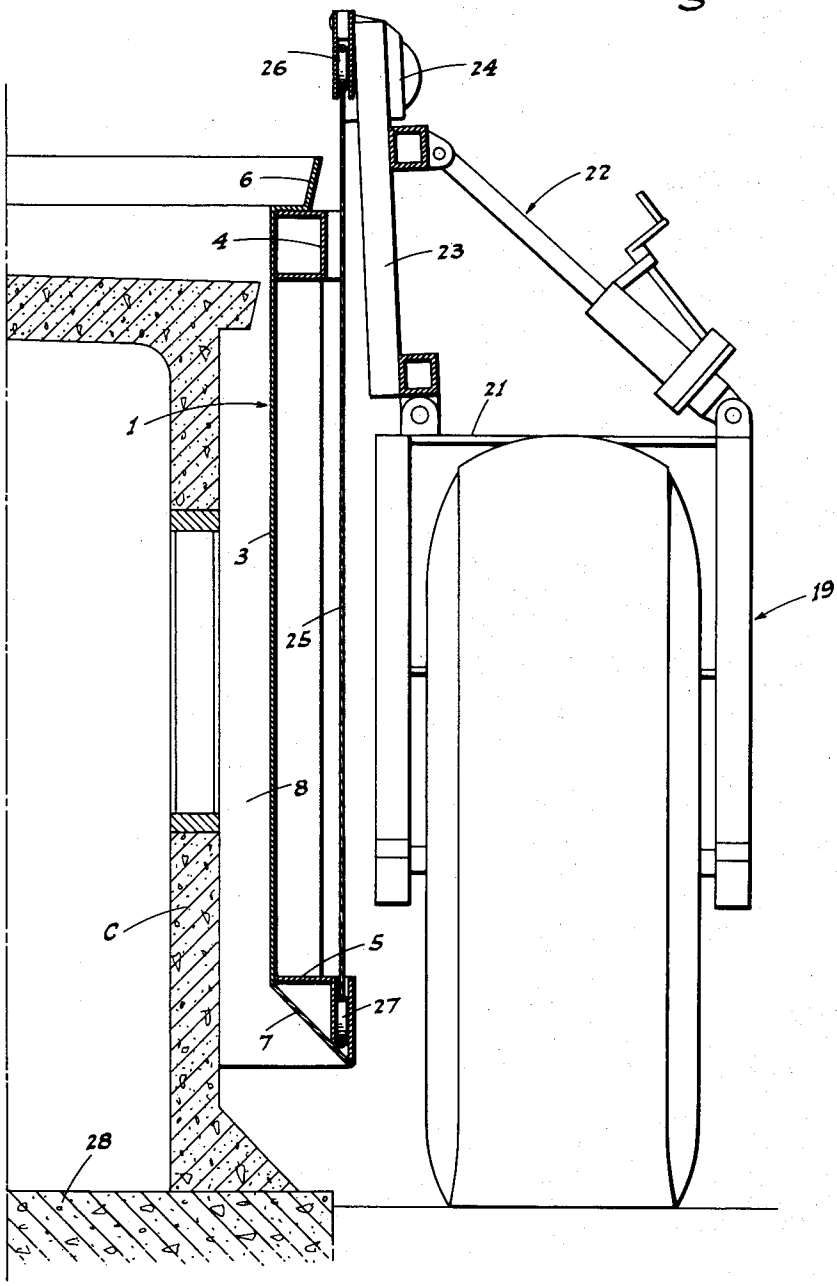
INVENTOR.
R. G. LeTourneau
BY
ATTYS

Sept. 13, 1955 R. G. LE TOURNEAU 2,717,436

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Fig. 9



INVENTOR
R.G.LeTourneau
ATTYS

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OUTER FORM FOR HOUSE FORM ASSEMBLY

Robert G. Le Tourneau, Longview, Tex., assignor to R. G. Le Tourneau, Inc., Stockton, Calif., a corporation of California

Application February 12, 1952, Serial No. 271,210

3 Claims. (Cl. 25—131)

This invention relates to the outer form of a form assembly designed for use in the construction of monolithic concrete houses; the present application being a division of copending application Serial No. 670,503, filed May 17, 1946, now Patent No. 2,593,465.

One of the objects of this invention is to provide an expansible outer form assembly, adapted to surround the monolithic house, which includes separate upstanding end and side walls, with means connecting the different walls in such a manner that said walls may be moved in and out while holding opposed walls parallel to each other.

Another object of the invention is to provide an outer form of this nature in which the wall connecting means is arranged so that the form may be lifted either in its expanded or contracted condition.

It is also an object of the invention to provide an outer form, for a house form assembly, which is designed for ready and convenient manufacture.

Still another object of the invention is to provide a practical, reliable and durable outer form of a house form assembly, and one which will be exceedingly effective 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 side outline of the house form assembly as mounted in connection with a hauling and lifting vehicle; the outer form being shown in full lines in a lowered position, and in a raised position in dotted lines.

Fig. 2 is a plan view of the vehicle and the house form assembly carried thereby, before pouring of a house in the assembly.

Fig. 3 is a fragmentary longitudinal section of the house form assembly with a house poured therein.

Fig. 4 is a fragmentary sectional plan showing one of the expanding corners of the outer form in closed position.

Fig. 5 is a similar view but shows said one expanding corner as open or expanded.

Fig. 6 is a fragmentary side elevation of said one expanding corner of the outer form, in the closed position as in Fig. 4.

Fig. 7 is a view similar to Fig. 6, but shows said one expanding corner open as in Fig. 5.

Fig. 8 is a fragmentary transverse section showing one lifting cable system as supporting an adjacent portion of the outer form, with a poured and set house supported in said outer form for transport.

Fig. 9 is a view similar to Fig. 8, but shows the house lowered onto its foundation and with the outer form expanded and raised.

Referring now more particularly to the characters of reference on the drawings the outer house form, which is particularly the subject of this application, is indicated generally at **1**, and is constructed in detail as follows:

Such outer form **1** comprises upstanding rectangular

end walls **2**, and upstanding rectangular but elongated side walls **3**. The end walls **2** and side walls **3** each comprise a separate unit which includes a horizontal box beam **4** adjacent the top, and a horizontal box beam **5** adjacent the bottom, of the wall. The box beam **4** is disposed short of the upper edge of the corresponding wall, and above said box beam the wall is laterally outwardly offset, as at **6**. The bottom of the lower box beam **5** on each wall is flared laterally outwardly and downwardly, as at **7**.

The walls **2** and **3** each include vertical strengthening ribs **8** fixed thereto on the outside and extending between the box beams **4** and **5**, as shown. At adjacent ends of the walls **2** and **3** the box beams **4** and **5** are mitered on a 45° angle and fitted on said miter with vertical end plates **9**, which end plates are normally in closely adjacent face to face relation when the outer form is contracted, and as shown in Fig. 4. One of each adjacent pair of end plates **9** is fitted with a rigid guide pin **10** which extends at right angles from said plate in slidable and guiding relation through an opening **11** in the adjacent end plate, whereby when the outer form **1** is expanded, as hereinafter described, the walls **2** and **3** remain in symmetrical right-angle relation to each other.

The above described outer form **1** is normally closed with the ends of the walls **2** and **3**, as well as the end plates **9**, in substantially abutting relation.

A pair of links **12**, pivotally connected at adjacent ends, are pivoted as at **13** in connection with, and extend between, adjacent mitered end portions of the upper box beams **4** and lower box beams **5**; said pairs of links normally being broken or folded outwardly, as shown in Fig. 4, and adjacent upper and lower pairs of said links are disposed in parallelism, corresponding links of said adjacent pairs being connected together by vertical posts **14** and **15**. The post **14**, which projects from the adjacent pivotal connection **13**, is fitted with a laterally projecting boss **16** onto which a pipe or other member is adapted to be removably secured as a lever. By means of such a lever on the boss **16**, the corresponding post **14** may be rotated in a direction to straighten out the links **12**, and when this occurs the walls **2** and **3** are forced apart at adjacent ends, causing said walls to move laterally outwardly to the position shown in Fig. 5, which results in expansion of the outer form. The links **12**, and pins **10**, are sufficiently substantial and rigid that the separate walls of the form are held from vertical movement relative to each other when suspended clear of the ground.

The inner form which cooperates with the outer form and is substantially symmetrical thereto, is indicated generally at **17**, and is also expansible and contractible, being specifically described in said Patent No. 2,593,465. This inner form includes an outwardly projecting base **18** on which the poured concrete C for the house initially rests; the bottom flare **7** of the outer form terminating at the level of the base **18** as shown in Fig. 3, when the concrete is being poured.

When it is desired to transport the poured house to its final location, the inner form is contracted and left behind, and the house, together with the outer form which then supports the house, is lifted clear of the inner form, and then transported, by the following means as shown particularly in Figs. 1 and 2.

Such means comprises a tractor-drawn heavy duty wheel-supported yoke indicated generally at **19**, and which straddles the outer form **1** and includes a cross-beam **20** at its forward end and rearwardly extending side beams **21**.

The outer form **1** is suspended from yoke **19** at the front and at the sides near the rear end of the form for vertical movement by suitable mechanisms. Each such mechanism is indicated at **22** and includes, as shown in

Figs. 1, 2, and 8, an upstanding laterally adjustable swing frame **23** mounted on top of the yoke. A motor-driven winch unit **24** is mounted on top of the frame **23** and a cable system **25** extends between the winch and a pair of longitudinally disposed series of pulleys **26** and **27** on the swing frame and the corresponding bottom beam **5** respectively.

While the structure is being transported, the outer form is kept in its retracted form.

When the house is disposed over its pre-poured foundation **28**, it is lowered into place by operation of the winch units **24**. The form **1** is then expanded, the swing frames **23** are adjusted outwardly somewhat, and the outer form is then lifted, as shown in Fig. 9, until said form is clear of the house.

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 is desired:

1. As a member of a mobile house form assembly, an expansible outer form comprising upstanding side and end walls normally disposed in end to end relation in a predetermined plan, means connecting said walls together adjacent corresponding ends for laterally outward movement in guided relation whereby as expanded the outer form remains symmetrical to said plan, and means operative to effect such movement of the walls; said last named means comprising, at corresponding ends of said walls, horizontally disposed pairs of vertically spaced links, the links of each pair being pivoted together at adjacent ends on a vertical axis, pivotal connections between the other end of the links and said corresponding walls on the outside, each pair of links being disposed off-center when the wall form is contracted and the pivots of the pairs of links being in vertical alinement, a rigid member rigidly connecting corresponding links of the pairs and disposed laterally out from the walls, and a boss projecting outwardly from said member between the pairs of links for engagement by a lever element.

2. As a member of a mobile house form assembly, an expansible outer form comprising upstanding side and end walls normally disposed in end to end relation in a

predetermined plan, means connecting said walls together adjacent corresponding ends for laterally outward movement in guided relation whereby as expanded the outer form remains symmetrical to said plan, and means operative to effect such movement of the walls; said first named means including plates rigid with the walls at their adjacent ends and disposed parallel to each other in bisecting relation to the angle included between said walls, and pins rigid with one plate at right angles thereto and slidably projecting through the other plate.

3. As a member of a mobile house form assembly, an expansible outer form comprising upstanding side and end walls normally disposed in end to end relation in a predetermined plan, and top and bottom beams rigid with and projecting outwardly from the walls; means connecting the walls together at corresponding adjacent ends thereof for relative horizontal lateral movement and comprising a horizontally disposed pair of links overlapping and pivoted together at adjacent ends on and under the top beams of corresponding walls adjacent the ends thereof, another similar pair of links pivoted together at adjacent ends and pivoted at their opposite ends on the top of the bottom beams of said corresponding walls and alined with the upper pair of links, the pairs of links being normally off dead center, a rigid post connecting corresponding links of the pairs intermediate their ends, another post rigid with and connecting the other links of the pairs and alined with the beam pivots thereof, and a radial lever-receiving socket member rigid with and projecting from the last named post intermediate its ends.

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