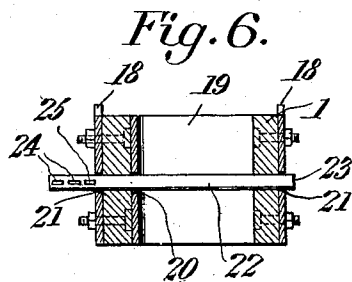
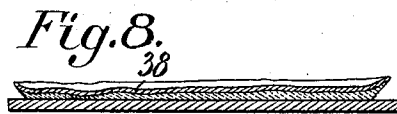
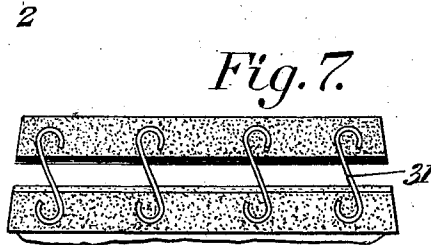
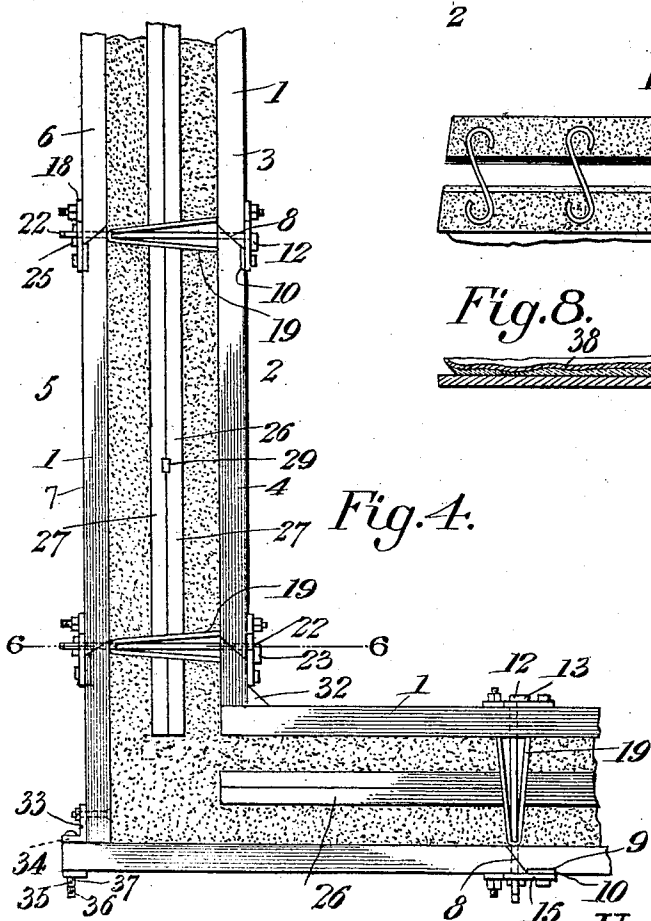
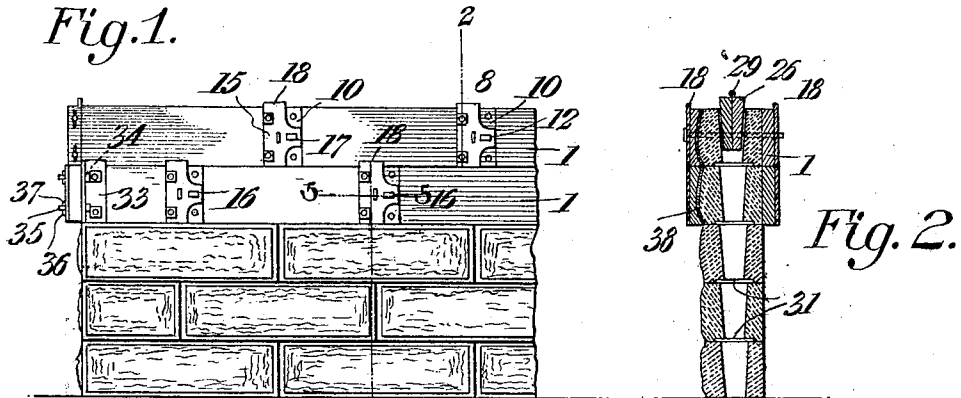


H. F. LIGHTNER,
CONSTRUCTION OF BUILDINGS.
APPLICATION FILED DEC. 15, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. J. Stewart
D. S. Elmore

Henry F. Lightner Inventor
 by *C. A. Snow & Co.*
 Attorneys

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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 5.

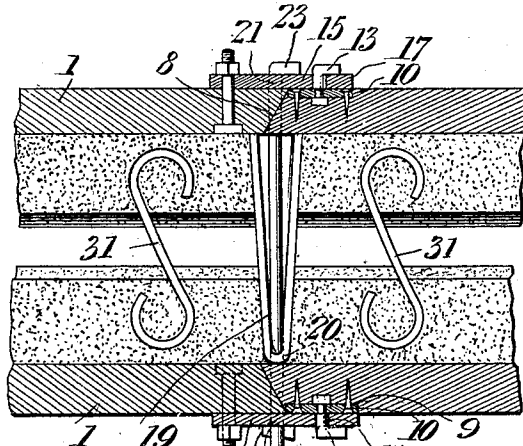


Fig. 11.

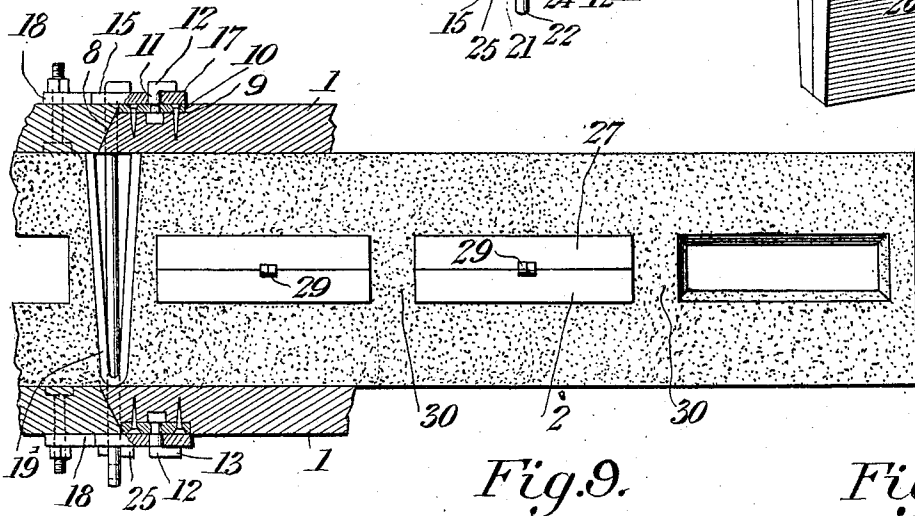
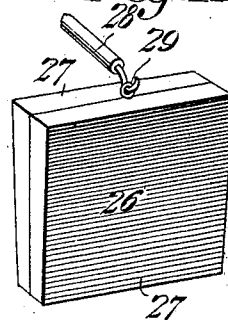


Fig. 3.

Fig. 9.

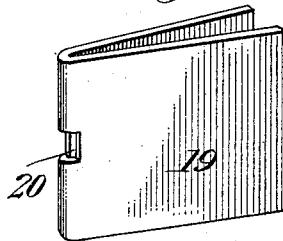
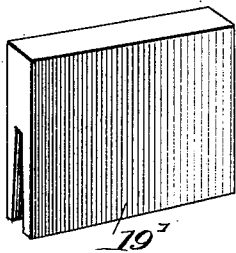


Fig. 12.

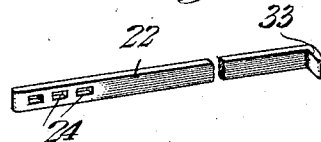


Fig. 10.

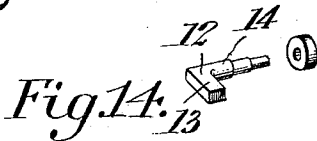
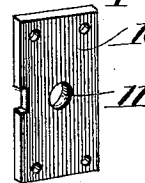


Fig. 13.



Witnesses
E. Stewart
J. J. Moore

Henry F. Lightner Inventor
 by *Chas. W. ...* Attorneys

UNITED STATES PATENT OFFICE.

HENRY F. LIGHTNER, OF NEWCASTLE, PENNSYLVANIA.

CONSTRUCTION OF BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 764,061, dated July 5, 1904.

Application filed December 15, 1903. Serial No. 185,261. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. LIGHTNER, of Newcastle, in the county of Lawrence and State of Pennsylvania, have invented certain
5 new and useful Improvements in the Construction of Buildings, of which the following is a specification.

My invention relates to building construction, and particularly to the molds employed
10 in the formation of the walls of buildings or the like from cement or other artificial stone, and has for its objects to produce a comparatively simple inexpensive device of this character wherein the component parts of the
15 mold may be readily assembled and firmly maintained in position during the molding operation and one in which a continuous operation in the construction of the wall is obtained.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a wall, showing a pair of my improved molds applied thereto. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a horizontal sectional plan on an enlarged scale. Fig. 4 is a view
30 similar to Fig. 3. Fig. 5 is a horizontal section, on an enlarged scale, on the line 5 5 of Fig. 1. Fig. 6 is a vertical section on the line 6 6 of Fig. 4. Fig. 7 is a plan view of one of the wall-sections complete. Fig. 8 is a detail
35 view of one of the sections of the outer wall of the mold. Figs. 9 and 10 are detail perspective views of the spacing members. Fig. 11 is a perspective view of one of the cores. Figs. 12, 13, and 14 are perspective
40 views of different parts.

Referring to the drawings, 1 1 designate the molds, which are alike in construction and operation, and each comprise an inner wall 2, composed of sections 3 4, and an outer wall 5,
45 composed of sections 6 7, the sections of the respective walls having their meeting ends coincidentally beveled transversely, whereby when assembled they will slightly overlap to produce tight connections at the joints, as at 8.

The sections of the respective walls each
50 has its outer face adjacent to one end recessed, as at 9, for the reception of a retaining member or plate 10, secured in place by screws or otherwise and provided with a central circular opening 11, which receives the stem of a
55 rotary engaging member or key 12, said key being provided at its outer end with a right-angulantly-disposed engaging portion or finger 13 and at its inner end with a circular head 14, adapted to seat in a suitable socket formed
60 in the section in rear of the plate 10, while upon the outer face of each wall-section adjacent to its opposite ends there is bolted or otherwise secured a coupling member or plate
65 15, having a reduced horizontally-extending portion or tongue provided with an elongated slot or keyhole 16, designed for the reception of the engaging portion 14 of the key, the outer face of the reduced tongue being out-
70 wardly beveled or inclined, as at 17, and the upper end of the plate 15 projected above the normally upper edge of the mold-section to produce an engaging portion 18, both for the purposes which will hereinafter appear.

For spacing the walls 2 5 of the mold apart
75 a suitable distance to accord with the desired thickness of the wall I provide spacing members or blocks 19, arranged at suitable intervals throughout the length of the mold, but preferably at points coincident with joints 8
80 between the wall-sections. These spacing members, which extend wholly across the mold transversely, whereby their opposite ends form bearings for the inner faces of the mold-walls, are preferably formed from metal
85 plates folded into substantially V shape in cross-section, each of said members having at its center a suitable opening 20, which when the parts are assembled aligns with openings
90 21, formed through the coupling-plates 15 and mold-walls for the reception of tie members or bars 22, which extend transversely across the mold and through the members 19 for binding the sides of the mold securely to the
95 said spacing members and preventing transverse spreading of the mold-walls. The tie members 22 are preferably in the form of suitable lengths of strap metal angularly bent

adjacent to one end to form an engaging portion or head 23 and provided toward its other end with a longitudinally-arranged series of spaced slots or seats 24, any one of which may receive a wedge-like fastening member or key 25 for securing the tie members in position. Attention is here directed to the fact that owing to the tie members having a plurality of seats the mold-walls may be spaced a greater or less distance apart, according to the thickness of the wall desired, and that when the keys or wedges 25 are inserted in the seats 24 they will, owing to their wedge-like shape, effect a final tightening of the parts.

For producing hollow walls I employ a core or cores 26, adapted in practice to be positioned within the mold equally between its walls 25. These cores, which are of wedge-like form in cross-section, having downwardly-converging side faces, are preferably formed each in two cooperating parts or sections 27 to facilitate insertion and removal of the cores, which operation is performed by means of a suitable instrument 28, provided at its end with an engaging hook designed for engagement with eyes or the equivalent 29, provided on the upper faces of the cores. In Fig. 3 I have illustrated these cores as being of such length that a plurality thereof may be arranged in longitudinal spaced relation between each pair of the spacing members 19, whereby the cement or other material from which the wall is formed will when the mold is charged fill the spaces between said cores, thereby producing connecting or binding webs 30 for securing the side portions of the wall together, while in Fig. 4 I have shown the cores of such length as to extend entirely between each pair of members 19, thereby completely dividing the wall longitudinally, the side portions of the wall under such conditions being united by wall-ties 31, suitably arranged transversely of the mold and having their ends embedded in the material of the wall. I have preferably shown these wall-ties as being of substantially S shape, this form of tie being commonly employed in building construction; but it is to be understood, of course, that any other suitable form of tie may be used.

In practice the sections of the mold-walls are connected by bringing the end of a section provided with a coupling-plate 15 into end-wise relation with the end of the section carrying a coupling member or key 12, which latter is turned to proper position and entered through the slot 16, after which it is turned out of register with the slot, whereby the sections will be securely coupled, attention being directed to the fact that as the keys turn to coupling position the portion 13 rides upon the incline 17 and is thereby securely locked against accidental movement. The walls having been assembled in this manner, the spac-

ing members are properly positioned between them, after which the walls are united by means of the tie members 22 in the manner heretofore explained. At this point it is to be noted that the spacing members 19 serve to divide the finished wall into blocks or sections, the spaces between which, formed by the spacing members, being finally filled with cement or mortar suitably pointed to give the completed wall an attractive appearance. One of the molds, which in practice may extend throughout the entire course of the wall, having been assembled the cores 26 are properly positioned therein and the mold is filled with cement. A second mold is assembled in superposed relation upon the first-mentioned mold being brought into proper register therewith by means of the engaging portions 18 of the plates 15, which serve to overlap and form bearings for the faces of the uppermost mold. The cement in the first mold having sufficiently set, the cores are withdrawn therefrom and positioned in the second mold, which is then charged with cement, as in the first instance, after which the first mold may, while the cement in the second mold is setting, be removed and reassembled in position on the second mold, thereby permitting a continuous operation in the construction of the wall. After the cores have been removed from the first mold and prior to positioning them in the second mold the upper faces of the cavities from which the cores are withdrawn are covered by some suitable material of sufficient strength to support the cores when placed in the second mold, the wall-ties 31 being sufficient to subserve this function in instances where the full-length cores are employed.

Where the sections of the mold-walls meet to form an angle, the meeting ends of the inner walls 2 are overlapped one with another and temporarily connected by means of angle blocks or plates 32, secured in place by screws or otherwise, while the meeting ends of the outer walls 5 are coupled as follows: Upon the terminal-section of one wall there is secured a coupling member or plate 33 of L form in cross-section, bolted or otherwise secured in place and provided with openings or perforations 34 for the reception of coupling members or bolts 35, which extend through suitable perforations formed in the adjacent terminal section, these bolts being preferably slotted, as at 36, for the reception of wedge-like keys 37.

In instances where it is desired to impart to the outer face of the wall the appearance of artificial stone I propose to apply to the inner face of the mold-wall 5 a die or pattern-plate 38, having the desired design stamped or impressed therein, said plate, which is preferably composed from sheet metal, being laid upon a bed of plaster-of-paris spread upon the mold-wall to which the plate 38 is tacked.

In Fig. 10 I have illustrated another form of spacing member 19', which in practice performs identically the same office as member 19, the difference residing in the fact that member 19' is composed of wood and is of rectangular form in cross-section instead of being V-shaped, as in the case of member 19.

From the foregoing it is apparent that I produce a device of comparatively simple construction which in practice will efficiently perform its functions to the attainment of the ends in view; but it is to be understood that I do not limit myself to the precise details herein set forth, as minor changes may be made without departing from the spirit of the invention.

Having thus described the invention, what is claimed is—

1. A mold comprising inner and outer walls, a substantially V-shaped folded sheet-metal spacing member arranged transversely between the walls, a tie member extended between the walls through the spacing member,

and a fastening device detachably engaging the tie member at one side of the mold. 25

2. A mold comprising inner and outer walls, one of said walls being composed of a plurality of sections, and means for coupling the sections together, said means comprising a coupling-plate carried by one of the sections and having an outwardly-beveled face and a rotary key carried by the other section and adapted to override the beveled face for engagement with the plate. 30

3. A mold comprising inner and outer walls composed respectively of a plurality of sections, a coupling-plate carried by one of the sections and having a keyhole and an outwardly-beveled face, a rotary key carried by an adjacent section and having an angularly-disposed portion adapted to engage through the keyhole and override the beveled face. 35 40

HENRY F. LIGHTNER.

Witnesses:

G. PERRY,
W. J. BARKER.