

R. F. HANNEMAN.

CEMENT MOLD.

APPLICATION FILED MAR. 14, 1908.

975,615.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 1.

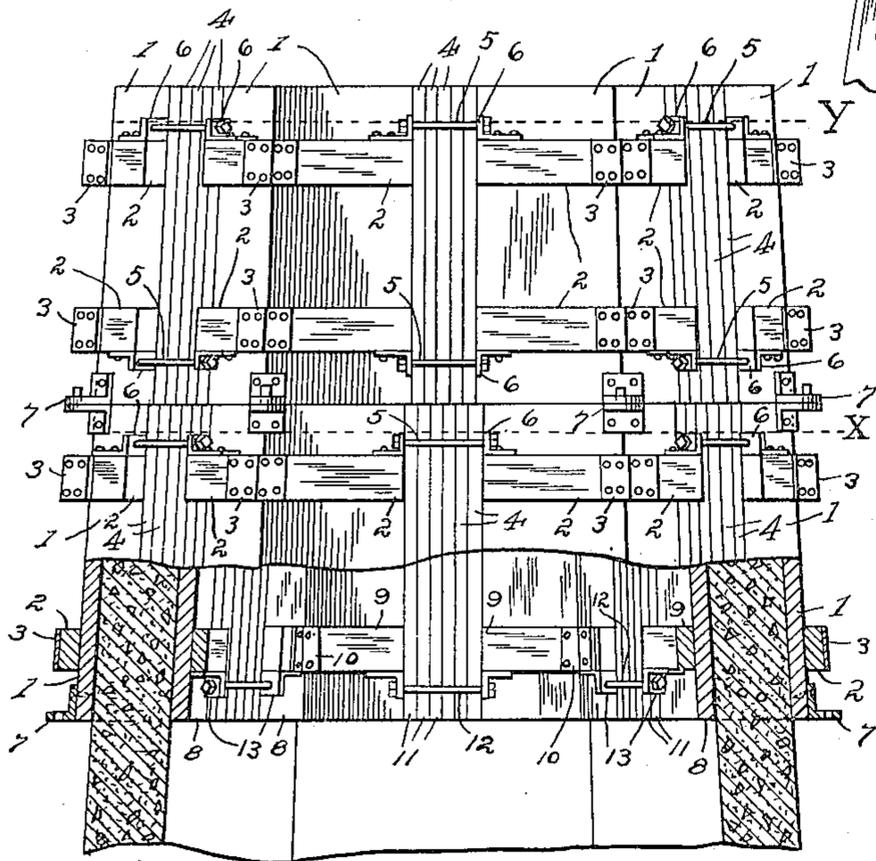
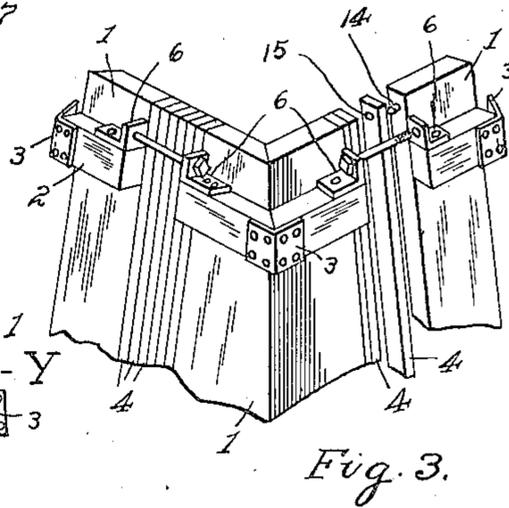
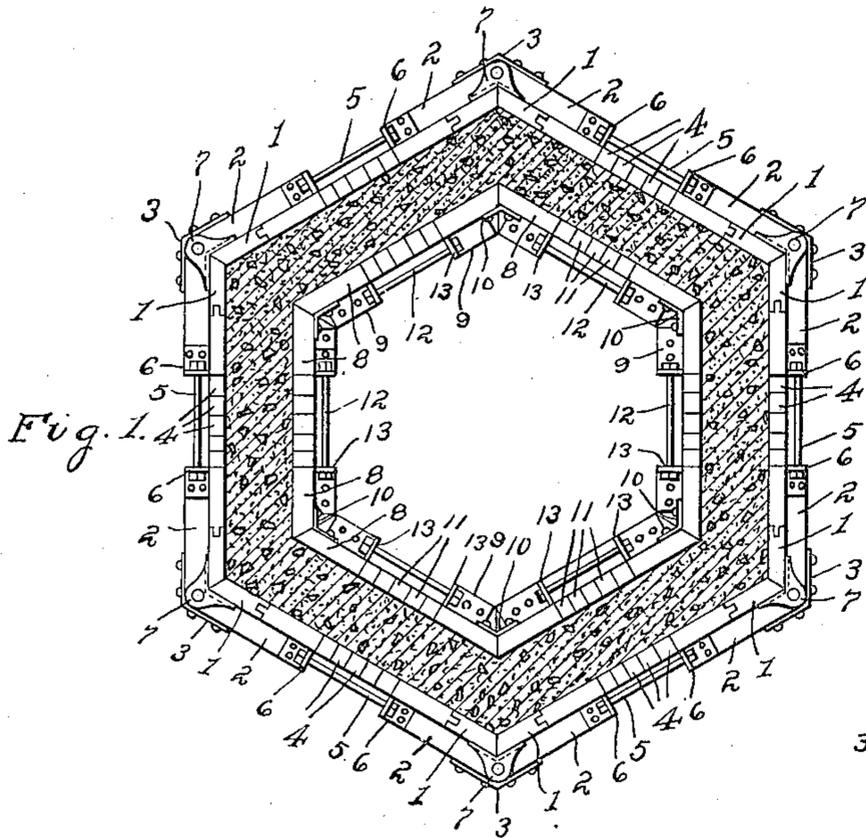


Fig. 2.

WITNESSES:

Walter A. Greenburg
A. M. Dow.

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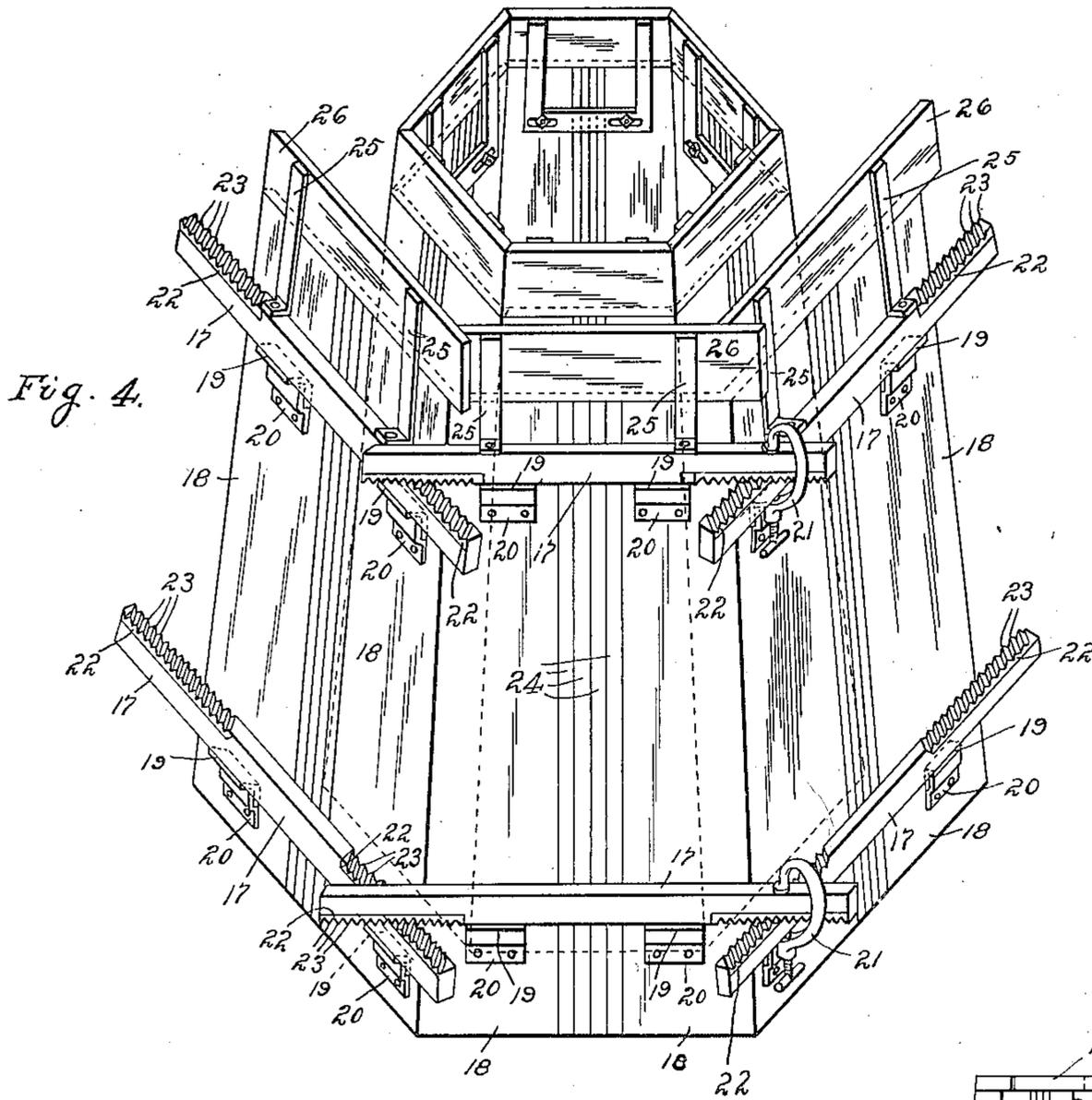


Fig. 4.

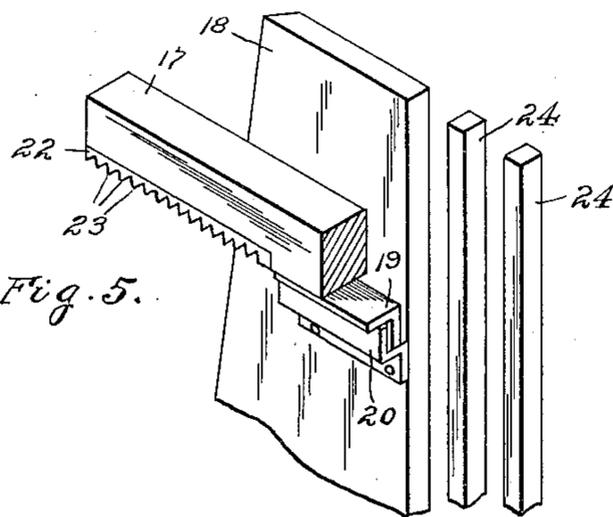


Fig. 5.

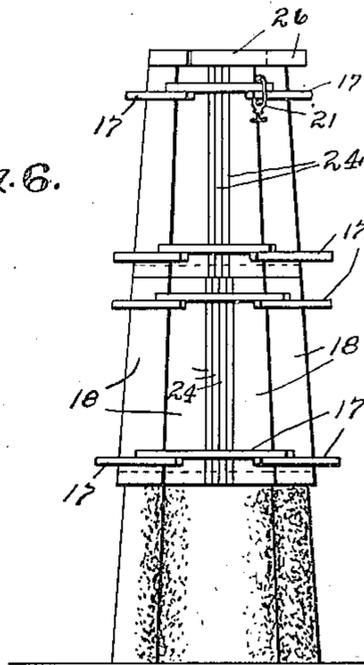


Fig. 6.

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UNITED STATES PATENT OFFICE.

ROBERT F. HANNEMAN, OF DETROIT, MICHIGAN.

CEMENT-MOLD.

975,615.

Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed March 14, 1908. Serial No. 421,077.

To all whom it may concern:

Be it known that I, ROBERT F. HANNEMAN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Cement-Molds, of which the following is a specification, reference being had therein to the accompanying drawings.

10 In building stacks, chimneys or the like of cementitious material wherein a section is molded in place and then added to as it sets sufficiently to carry the weight, so that a homogeneous or integral structure is ob-
15 tained, it is necessary under the ordinary process of construction to have a special mold for each stack and to carry this mold up as the work progresses, with new forms and sides to obtain the taper or batter and
20 give the requisite varying cross-section, all with waste of time and material, and consequent expense.

This invention relates to a mold for a concrete or cement stack which may be removed,
25 contracted and reset as the structure advances, which is adapted to preserve the required batter and the gradual change in cross-section without special forms, false-work or girders, and which may be used re-
30 peatedly for different stacks or chimneys.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

35 In the drawings, Figure 1 is a plan view of a stack with a mold therefor which embodies features of the invention. Fig. 2 is a view in elevation of a pair of mold sections, the lower portion being broken away to give view of the interior forms. Fig. 3
40 is a view in detail of a mold for a square chimney. Fig. 4 is a view in perspective of a modified form of the mold more especially adapted for a smaller stack. Fig. 5 is a view in detail of a clamping bar, corner boards
45 and guide brackets. Fig. 6 is a view showing a pair of mold sections in operative position on a stack.

50 In general terms, the mold consists of an inner and an outer form, each divided transversely into two sections which may be placed on end one above the other. As herein shown, each section of the outer form consists of corner members 1 whose wings are united at the proper angle for the square
55 or polygon desired, and are reinforced near each end by suitably disposed battens 2 and

corner irons 3. The interval or space between the several pairs of wings is filled by a plurality of narrow spacing strips 4 of equal width, the whole being clamped to-
60 gether by bolts 5 passing through brackets 6 on the inner ends of the battens. Each board constituting one of the wings of the corner member is tapered from bottom to
65 top so that each section is contracted to give the desired batter to the stack, and each of the spacing strips 4 is preferably equal in width to the difference in width between the top and bottom ends of each panel or side of
70 a section. Mating dowel plates 7 at the corners of each section hold them in alinement. The inner form sections are similarly constructed of corner members 8 reinforced by
75 battens 9, and corner irons 10, with spacing strips 11 and clamping bolts 12 in brackets 13. Longitudinal displacement of the parts is prevented by suitable pins 14 or stops registering with apertures 15. In operation the
80 corresponding sections of the inner and outer forms are set in place and the mold filled preferably to about the point indicated by the dotted line X. The upper sections are then placed in position and filled to near the
85 top, as indicated by the upper dotted line Y. After the cement is sufficiently set, the lower sections are readily removed, and are placed on the upper ends of the standing section, a
90 spacing strip being removed from each panel and the form contracted so that its base mates with the top of the supporting section. This process of filling and shifting the mold
95 is repeated until the structure is completed, the removal of the same number of spacing strips each time forming the proper batter, and the mold itself not being injured or destroyed. Thus a square, hexagon, octagon or
100 other polygonal mold may be used for any of a number of similarly proportioned stacks. By not filling the sections completely, a smooth exterior is obtained without forming a seam or ridge at the juncture of the sections. While this construction is preferable
105 for large stacks, a modification thereof, such as shown in Figs. 4 and 5, may be used more advantageously for small chimneys. In such construction, battens 17 are each removably
110 secured to longitudinally tapered corner boards 18, which are not united at the meeting edges, by an angle iron ledge 19 or guide strip slidable in brackets 20 on the corner board, the ends of the battens of adjacent sides overlapping and being adjustably se-

cured by clamps 21, the proper angles being obtained by mating plates 22 on the battens which have corrugations 23 or serrations or like means adapted to hold the battens in the desired angular relations. The corner boards are separated by parallel, equal width strips 24, whereby the panels may be contracted or expanded. The battens of the outer form have guide brackets 25 on their upper sides by which narrow extension strips 26 may be secured on the upper end of the upper section, the ends being disposed as shown whereby they may be adapted to fit the form as it is made smaller or larger. The inner form is substantially the same as in the other construction with a temporary extension for its upper end. The mold is filled to the top of the extension and the latter removed, the next section being seated directly on the lower section, and the extension placed above. Thus the projecting body of the cement acts as a guide in placing the forms, and any seams formed by the junction of the sections are avoided.

A square or polygonal mold once constructed with standard taper or batter is thus available for any number of correspondingly projected stacks. The spacing strips hold the corner boards in such relation that the batten of the wall is obtained without the use of external guides or false arch, the removal of the strips one by one as the molds are alternately advanced up the stack insuring the proper diminution in the wall thickness as the top is approached. No material is wasted in making temporary molds as the latter are readily adjusted for any desired size of stack.

Obviously changes in the details of construction may be made without departing from the spirit of the invention, and I do not care to limit myself to any particular form or arrangement of parts.

What I claim as my invention is:—

1. A mold for cement poles or the like comprising, in combination, a plurality of mold-sections to be placed one upon the other pyramidically and decreasing in size from bottom to top, each of said sections being composed of right-angular and interchangeable corner members and a plurality of interchangeable leaves connecting each two of the corners, dowels for detachably retaining the members of each section together, clamps for positively locking the members of the sections together and dowels for retaining the sections in alinement with each other.

2. A mold for concrete poles or the like comprising a plurality of upwardly decreasing superimposed mold-sections each composed of four right angular corner members formed identical with each other, a plurality of leaves connecting two of the corner members, dowels for retaining the corner mem-

bers and the leaves of each section in alinement with their complementary members, a plurality of separable clamps surrounding each section to retain the members positively against pressure from within the mold, and dowels for connecting the sections together in alinement with each other.

3. A mold for forming cement poles or the like, comprising a plurality of upwardly extending sections resting one upon the other, each section comprising angular corner members formed identical with each other and separated by intervening leaves formed identical with each other and connecting each two of the corner members, means for detachably connecting the leaves together between each two corner members and with their adjoining members, means for connecting the sections together, and means for securing each of the sections against pressure within the mold.

4. A mold for forming cement poles, comprising a plurality of upwardly extending sections resting one upon the other and so formed as to provide a mold decreasing in diameter from bottom to top, means for retaining the sections in alinement with each other, and means for securing the mold against pressure from within.

5. In a mold for the purpose specified, a polygonal form divided transversely into two equal sections, each consisting of corner members whose angle edges are inclined to the section axis, a plurality of longitudinally disposed spacing strips removably secured between the adjacent parallel margins of each pair of corner pieces, forming therewith the facets of the section, and clamping members secured to the corner members adapted to clamp the corners and strips together, adjustable in length to accommodate different numbers of strips.

6. In a mold for the purpose specified, a polygonal form uniformly tapered from end to end, and divided transversely into two equal sections, each section consisting of corner members whose angle edges are inclined to the section axis, a plurality of longitudinally disposed spacing strips between each pair of corner members forming therewith the facets of the section, transversely disposed battens near each end of each facet secured to the corner member thereof and adapted to hold the corner members and strips in place, and securing means engaging the battens adapted to permit longitudinal adjustment of the battens to accommodate different numbers of strips.

7. In a mold for the purpose specified, a polygonal form uniformly tapered from end to end and divided transversely into two equal sections, each section consisting of corner members whose angle edges are inclined to the section axis, a plurality of longitudinally disposed spacing strips between

each pair of corner members forming therewith the facets of the section, transversely disposed battens near each end of each facet secured to the corner member thereof and adapted to hold the corner members and strips in place, securing means engaging the battens, adapted to permit longitudinal adjustment of the battens to accommodate different numbers of strips, and interlocking guides at the corners of each section adapted to secure the two sections in axial alinement.

8. In a mold for the purpose specified, a polygonal form uniformly tapered from end to end, and divided transversely into two equal sections, each section consisting of corner members whose angle edges are inclined to the section axis, a plurality of longitudinally disposed spacing strips between each pair of corner members forming therewith the facets of the section, transversely disposed two-part battens near each end of each facet secured to the corner member thereof and adapted to hold the corner members and strips in place, clamping bolts connecting the parts of each batten adapted to permit longitudinal adjustment of the battens to accommodate different numbers of strips.

9. In a mold for the purposes specified, a form divided transversely into two equal sections, each section comprising corner members each formed of two longitudinally tapered wings secured together along their oblique edges, battens horizontally secured near each end of the corner members, a plurality of longitudinally disposed rectangular spacing strips between the adjacent edges of each pair of wings forming therewith the

facets of the section, brackets on the adjacent ends of each pair of battens, and a clamping bolt engaging each pair of brackets.

10. In a mold for the purposes described a form consisting of corner members each consisting of a pair of longitudinally tapered boards with their oblique margins in contact, a plurality of spacing strips extending longitudinally of the form and filling the space between the inner parallel margin of the corner boards of the facets, and transversely disposed members on each facet secured to the corner boards thereof provided with clamping means extensible longitudinally of the members.

11. In a mold for the purposes described a form consisting of corner members each consisting of a pair of longitudinally tapered boards with their oblique margins in contact, a plurality of spacing strips extending longitudinally of the form and filling the space between the inner parallel margin of the corner boards of the facets, and transversely disposed members on each facet secured to the corner boards thereof provided with clamping means extensible longitudinally of the members, said form being divided transversely into two equal sections provided with interlocking guides at the corners, said sections being adapted to be interchanged in position.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT F. HANNEMAN.

Witnesses:

C. R. STICKNEY,
OTTO F. BARTHEL.