

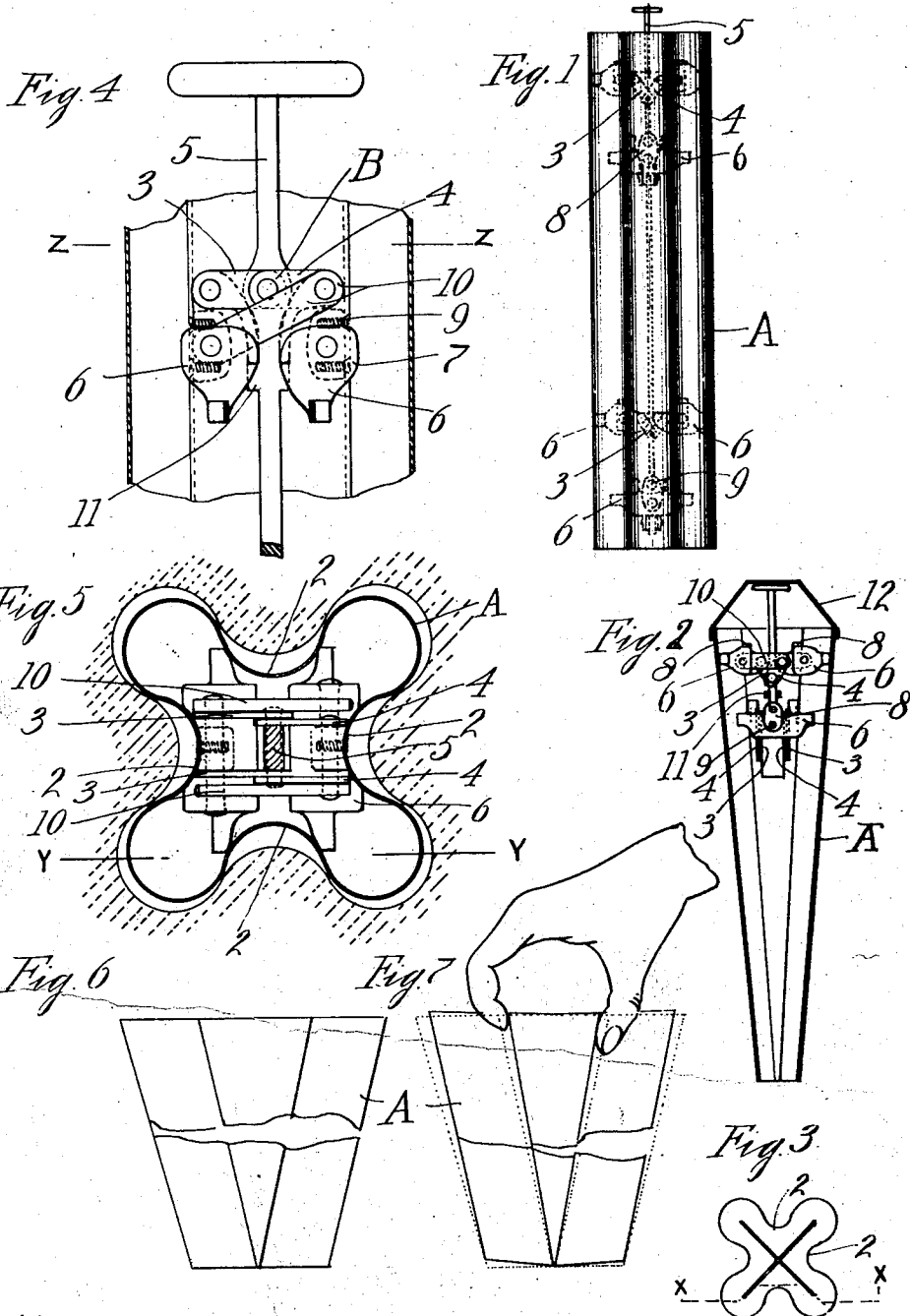
J. MEINKEN.
MOLD.

APPLICATION FILED APR. 26, 1909.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 1.

1,047,102.



Witnesses,
George Voelker
H. Smith

Inventor,
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by *John H. Johnson*
his Attorneys.

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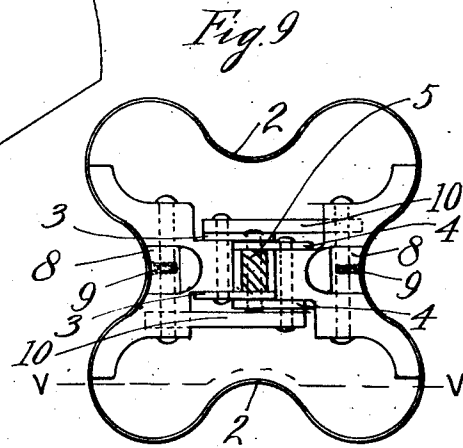
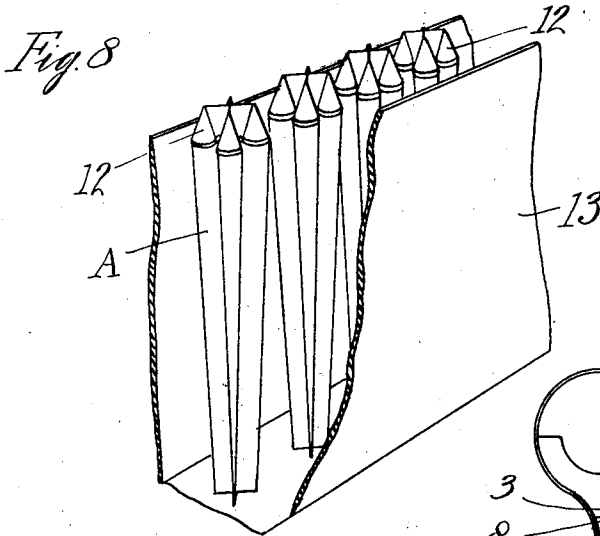
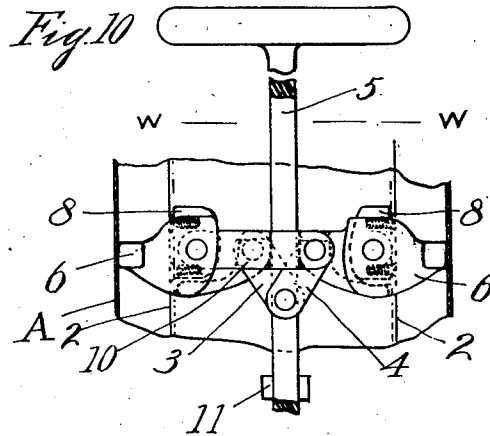
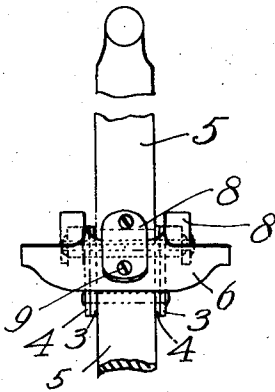


Fig. 11



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UNITED STATES PATENT OFFICE.

JOHN MEINKEN, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF TO A. C. F.
MEINKEN, OF ST. PAUL, MINNESOTA.

MOLD.

1,047,102.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed April 26, 1909. Serial No. 492,250.

To all whom it may concern:

Be it known that I, JOHN MEINKEN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Molds, of which the following is a specification.

My invention relates to improvements in molds for forming vertical openings in concrete walls, its object being particularly to provide improved means for collapsing a mold to allow of its easy removal.

To this end my invention consists in the features of construction, combination and arrangement of parts hereinafter particularly described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation of one of my improved molds; Fig. 2 is a longitudinal section as on line $x-x$ of Fig. 3 of one of my improved molds embodying a downwardly tapered casing; Fig. 3 is a top view of the mold; Fig. 4 is a partial sectional view of the mold taken on line $y-y$ of Fig. 5 with the interior expanding mechanism in contracted position; Fig. 5 is a view on line $z-z$ of Fig. 4; Figs. 6 and 7 are diagrammatic views of the mold illustrated in Fig. 2 illustrating the contracting of the upper end of the mold; Fig. 8 is a perspective view of a plurality of the molds shown in Fig. 2, arranged in connection with the outer mold frame of a concrete wall; Fig. 9 is a section taken as on line $w-w$ of Fig. 10; Fig. 10 is a section taken on line $v-v$ of Fig. 9, and Fig. 11 is an end view of one of the expanding unions.

As shown in the drawings my mold consists of a sheet metal rectangular casing A inwardly depressed on its four sides and with rounded corners. Between the opposed depressed sides 2-2 are arranged a plurality of expanding unions B. Each expanding union comprises pairs of links 3 and 4 pivotally connecting the opposite sides of the central rod 5 with the inner ends of the expander arms 6 and 7, the expander arms having swivel connection with the opposite inwardly depressed sides of the mold by means of blocks 8 pivoted in the outer faces of said arms and secured as by means of screws 9 to the walls 2 of the mold. The outer faces of the expander arms are shaped to conform to the curved sides of the mold and to extend into the corners when in ex-

panded position, as indicated in Fig. 9. Links 10 upon opposite sides of the rod pivotally connect the outer ends of the toggle links 4 each with the opposite expander arm 6.

In Figs. 4 and 5 the toggle joint is shown in normal position with the mold contracted. In this position the expander arms hang down inside the walls 2 and rest upon the lugs 11 of the rod, holding the links 3, 4 and 10 in the position shown in Fig. 4, the rod 5 being in raised position. To expand the mold the rod is forced down. The forcing down of the rod will carry the links 3 and 4 to the position shown in Fig. 10 pulling the pivoted ends of the links 10 upwardly and inwardly toward the rod thus forcing outwardly the opposite expander arms. As the expander arms are forced outwardly they will by reason of their swivel connection with the sides 2 of the casing be turned into the position indicated in Fig. 9 to contact with the curved inner side walls of the mold. An expanding union is thus secured which may be worked in a very small tube and with a large amount of expanding power. A desired number of these unions may be employed connecting alternately opposed pairs of side walls 2.

For forming the lower vertical openings in the concrete wall I preferably make the mold downwardly tapered as indicated in Fig. 2, employing the same interior construction of expanding union. This allows the upper ends of the mold to be sprung inward as indicated in Fig. 7 pulling the sides of the mold away from the surrounding concrete as indicated by the dotted lines and lifting the outer edges of the bottom of the mold. This permits particularly easy removal of the mold. For the molds I provide suitable covers 12. In building up a concrete wall a plurality of downwardly tapered molds may be arranged within the outer mold frames 13 as indicated in Fig. 8 and properly interspaced to form the desired vertical openings. When the concrete is filled around the molds they may be lifted out and for the next section of wall the non-tapering molds may be used to form a continuation of the vertical openings which have been formed by the tapered molds.

The expander arms 6 and 7, when the

parts are turned into the position shown in Fig. 9, press the sides of the mold outwardly, the ends of the expander arms acting as stiffening ribs against the sides of the mold.

5 I claim as my invention:

1. A core for use in cement construction comprising a shell integral throughout and of uninterrupted cross section and of somewhat flexible and resilient metal, a movable
10 operating part, toggle links connecting the operating part and the shell and operable consequent to a movement of the operating part to force the portions of the shell to
15 which they are connected outwardly, or to pull said portions inwardly, and bracket pieces carried by the toggle links and operable to engage and reinforce the portions of the shell to which said links are connected
20 in the outward positions of said portions.

2. A core for use in cement construction comprising a shell integral throughout, of

uninterrupted cross section and of a somewhat flexible and resilient metal, a movable
operating part, toggle links connecting the
operating part and the shell and operable
consequent to a movement of the operating
part to force a portion of the shell to which
they are connected outwardly or to pull
said portion inwardly, and bracket pieces
carried by the toggle links and operable to
engage and reinforce the portions of the
shell to which said links are connected in
the outward positions of said portions, the
bracket pieces being disposed transversely
of the portions against which they bear in
planes perpendicular to said portions.

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

JOHN MEINKEN.

Witnesses:

H. S. JOHNSON,
H. SMITH.