Sept. 11, 1923.

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F. J. HOMAN

COLLAPSIBLE CORE FOR CONCRETE CONSTRUCTION

Filed Jan. 29, 1923

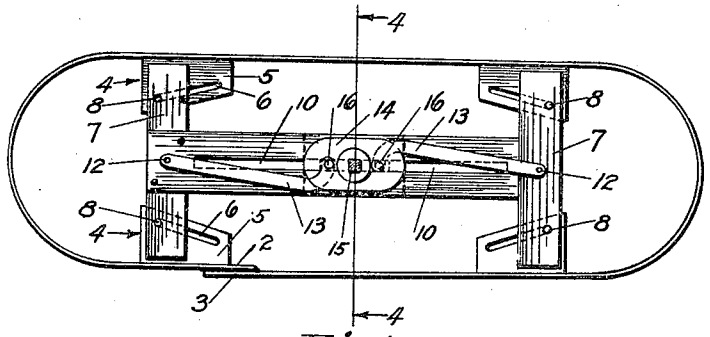


Fig. 1.

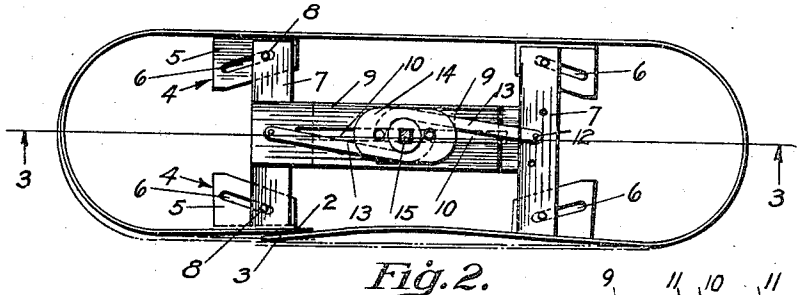


Fig. 2.

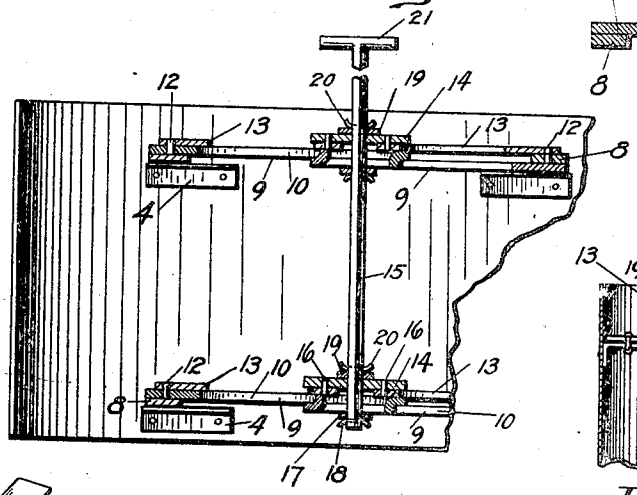


Fig. 3.

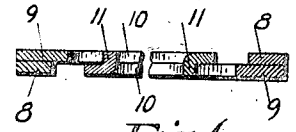


Fig. 6.

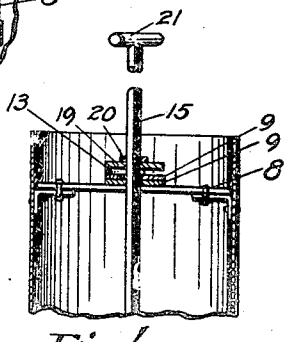


Fig. 4.

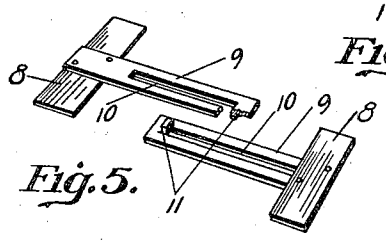


Fig. 5.

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UNITED STATES PATENT OFFICE.

FRED J. HOMAN, OF SANTA ANA, CALIFORNIA.

COLLAPSIBLE CORE FOR CONCRETE CONSTRUCTION.

Application filed January 29, 1923. Serial No. 615,490.

To all whom it may concern:

Be it known that I, FRED J. HOMAN, a citizen of the United States, residing at Santa Ana, county of Orange, and State of California, have invented certain new and useful Improvements in Collapsible Cores for Concrete Construction; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in collapsible cores for concrete construction.

In the building of concrete walls, especially in the construction of dwellings, it is essential that the walls shall be provided with air spaces, as otherwise the walls will sweat and the house will be cold and damp.

The walls are usually poured into forms, comprising parallel spaced sides of plank which are connected by wires so as to prevent spreading. If the walls are to be made hollow, cores are placed midway between the sides of the forms and the concrete packed about the cores. The cores must remain in place until the concrete has set sufficiently to enable it to stand and retain its shape. Unless the core is made in such a manner that it can be collapsed, it is very difficult, if not impossible, to remove the same from the set concrete.

It is the object of this invention to devise a core that is especially well adapted to be used in the construction of hollow concrete walls and which shall be provided with means which permit the core to be collapsed so as to make it readily removable.

It is a further object of my invention to produce a core that can be cheaply made and which shall be of simple yet substantial and durable construction.

In order to better and more clearly describe my invention, I shall have reference to the accompanying drawing, in which:

Fig. 1 is a top plan view of my core, showing the same in fully expanded position.

Fig. 2 is a view similar to that shown in Fig. 1, but showing the core in collapsed position.

Fig. 3 is a section taken on line 3—3, Fig. 2.

Fig. 4 is a section taken on line 4—4, Fig. 1; and

Fig. 5 is a perspective view showing the relationship of the transverse bars and the slotted guide bars; and

Fig. 6 is a longitudinal section of the guide bars.

The same reference numerals will be used to designate the same parts throughout the several views.

Numeral 1 represents the wall of my core which consists of a steel plate bent, as shown in Figs. 1 and 2, so as to form a chamber having straight side walls connected at their ends by arcuate sections. The ends of the plate 1, which I shall designate by numerals 2 and 3, overlap so as to be slidable one on the other. In order to expand the core and contract the sides thereof, as indicated in Figs. 1 and 2, the following mechanism is provided. Riveted to the sides of the core near the top and bottom thereof are brackets 4 whose upper horizontal parts 5 are provided with slots 6 which are inclined with respect to the core walls in the manner shown in Figs. 1 and 2. Flat bars 7 connect each pair of brackets and have bolts 8 which extend through the slots 6. Secured perpendicularly to the mid-position of bars 7 are guide bars 9 which are each provided with a slot 10. At the end of each slot there is an outwardly projecting lug 11 that fits into the slot of the other cooperating member in the manner shown in Fig. 6.

Pivotally connected to the bars 7 and 9 at 12 are links 13 whose inner ends are curved, as clearly shown in Figs. 1 and 2. Plates 14 are provided with a central square hole for the reception of the square rod 15 and two round holes 16 spaced equi-distantly from the central hole and receives rivets which pass through holes in the curved end of links 13. The rod 15 passes through the square hole of plates 14 and through slots 10 in the manner shown in Fig. 3. A washer 17 rests against the lower bar 9 and is held in place by a pin 18, and another washer 19 rests against the upper surface of plate 14 and is held in place by a pin 20. The upper end of rod 15 is provided with a T-shaped handle 21 by means of which it may be rotated. Of course the handle can be any suitable shape other than that specified. When the parts are in the position shown in Fig. 1 the core is in operative or expanded position. When

the rod 15 has been rotated 180 degrees in a counter-clockwise direction, the links 13 have forced bars 7 nearer together, thus causing bolts 8 to slide in the slots 6 and forcing the sides of the core together so as to bring the parts into the positions shown in Fig. 2, in which position the core will be sufficiently collapsed to enable it to be withdrawn or to be moved the desired amount.

I am aware that I am not the first one to construct a collapsible core for concrete construction, and I shall therefore not explain in detail just how the core is manipulated, as this is well known. I claim, however, to be the original and first inventor of the specific construction shown and described, which is very simple and forms a satisfactory mechanism by which the core can be collapsed, expanded and moved.

The core can be made of any desired length or width and the mechanism described can be duplicated to any extent required without departing from the spirit of my invention.

Having now described my invention, what I claim is:

1. A collapsible core for concrete moulds, comprising a metal plate bent intermediate its ends to form a hollow, oblong chamber having its longitudinal sides substantially straight and having curved ends, the ends of said plate overlapping; a plurality of pairs of brackets, one member of each pair being secured to opposite sides of the chamber, each bracket having a side projecting inwardly at right angles from the inner surface of the chamber, each inwardly projecting side having a slot therein, said slot being nearer to the side of the chamber at its inner end than at the outer; a transverse bar connecting members of each pair of brackets; bolts extending through the ends of said bars and projecting through said slots; slotted bars secured at right angles to said first named bars; a rod projecting through the slots in said bars; links pivotally connected at one end to said transverse bars; and means for moving said links backwards and forwards so as to spread and collapse said core.

2. A collapsible core for concrete construction comprising, in combination, a piece of sheet metal bent so as to form an oblong chamber having the long sides thereof substantially straight and connected by curved end portions, the ends of the plate overlapping and free to slide on each other; pairs of angular brackets secured to the inner walls of said chamber, one member of each pair on each side thereof, the side of each bracket which projects at right angles to the sides of the chamber, being provided with a slot which is inclined with respect to the sides of the chamber, the slots in the members of each pair being inclined in the same direction but in the opposite direction from the slots in the corresponding pairs near the other end of the core; transverse bars connecting the brackets of each pair; a pin in the ends of each bar, said pins extending through the slots; slotted guide bars secured centrally of and at right angles to each transverse bar, said guide bars extending in opposite directions and having the slots parallel; a lug on each guide bar projecting into the slot on the other; links pivotally connected to the transverse bars at one end and having their other ends curved; a rod projecting through the slots in the guide bar; a plate on said bar non-rotatably attached thereto, two holes in said plate, one on each side of the rod; and means for connecting the curved ends of the links to the holes in the plate whereby a rotation of the rod will reciprocate the transverse bars and cause the sides of the chamber to be collapsed or expanded at will.

In testimony whereof I affix my signature.

FRED J. HOMAN.