March 17, 1925. 1,530,283

E. NELSON

COLLAPSIBLE CORE

Filed Sept. 6, 1924

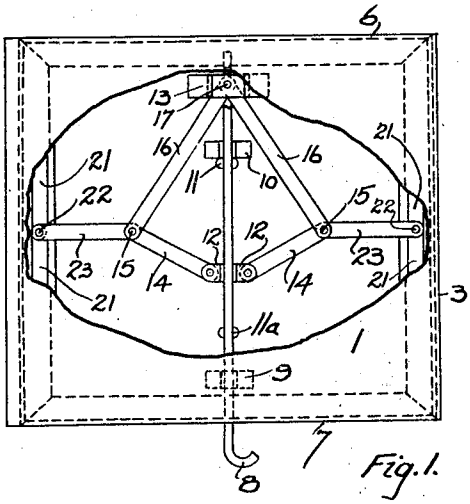


Fig. 1.

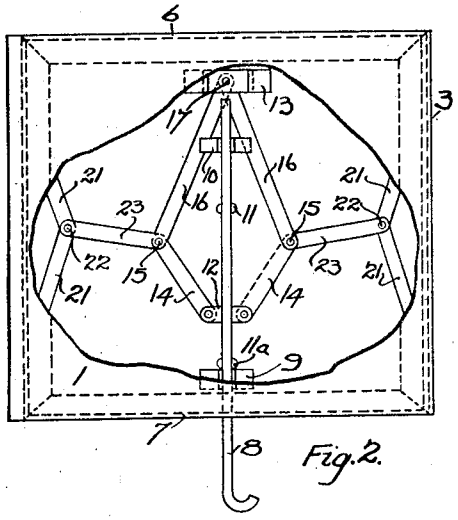


Fig. 2.

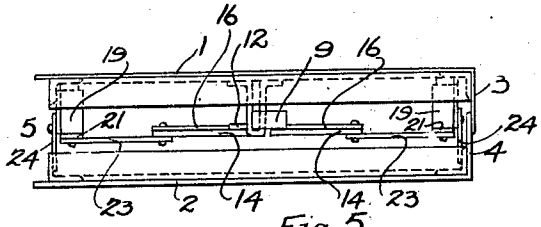


Fig. 5.

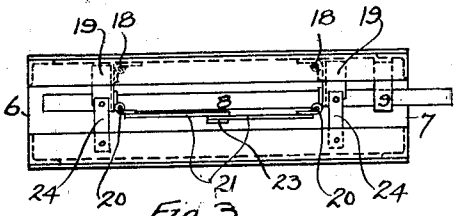


Fig. 3.

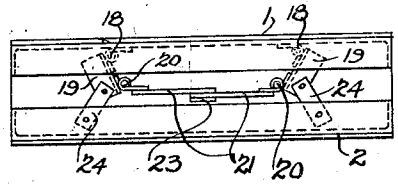


Fig. 4.

INVENTOR.

Elmer Nelson

BY

Gerald S. Baldwin.

ATTORNEY.

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UNITED STATES PATENT OFFICE.

ELMER NELSON, OF NORTH BAY, ONTARIO, CANADA.

COLLAPSIBLE CORE.

Application filed September 6, 1924. Serial No. 736,326.

To all whom it may concern:

Be it known that I, ELMER NELSON, a subject of the King of Sweden, residing at North Bay, in the District of Nipissing, Province of Ontario, Dominion of Canada, have invented a new and useful Improvement in Collapsible Cores, of which the following is a specification.

My invention relates to improvements in collapsible cores, primarily intended for use in connection with the manufacture of hollow cement walls and the like, and may be employed either singly or in sets.

One of the objects of the invention is to supply a collapsible core which may be inserted between the inner and outer forms before pouring, and which can be quickly and easily removed after the concrete or other plastic material has set.

Another object of the invention is to so place the expanding and contracting mechanism within a collapsible core, that it cannot be reached by the concrete as the latter is being poured.

A further object of the invention is to provide an expanding and contracting mechanism, which cannot release and collapse of its own accord when in position in a form.

With these and other objects in view, my invention consists in certain novel construction and combination of parts hereinafter more fully described with the aid of the accompanying drawings, and claimed.

Figure 1 illustrates a front view of the invention with the core surfaces expanded, and partly broken away.

Figure 2 shows a front view with the core surfaces in collapsed position, and partly broken away.

Figure 3 is a side view of Figure 1, and

Figure 4 is a similar view of Figure 2.

Figure 5 shows a top view.

Referring more particularly to the drawings, 1 and 2 designate two substantially parallel core surfaces, one side of each of which terminates in an inwardly inclined angle portion as shown at 3 and 4, which are adapted to overlap each other. The opposite sides of the core surfaces 1 and 2 terminate in an open side 5. When the cores are being used in pairs they may be so arranged that the open sides 5 on one core engages the corresponding open side of the core next to it. In the event of my cores being used singly the surfaces 1 and 2 should terminate at both sides in inwardly inclined overlapping angle portions as shown at 3 and 4. Or again, when more than two cores are used in a series both sides of the intermediate cores may, if desired, be open as shown at 5.

The end 6 is adapted to form the bottom of the core, and 7 indicates the top. Through the latter, and between the surfaces 1 and 2, the operating lever 8 projects. This lever is supported in brackets 9 and 10 secured to the inner face of the surface 1. The inward and outward movement of the lever I prefer to limit as by the stops 11 and 11^a, which are arranged to engage the sides of the brackets 10 and 9 respectively, when the limits of travel of the lever have been reached.

Secured to the operating lever 8 intermediately of its length, and projecting on both sides thereof, are lugs 12; and secured to the inner face of the core surface 1 is a bracket 13. To each of the lugs 12 an arm 14 is pivotally attached, through the opposite ends of these arms pins 15 are mounted which also pass through one end of the arms 16, the opposite ends of which latter are fulcrumed about the pin 17 mounted in the stationary bracket 13. As the said bracket is stationary, and the lugs 12 move up and down with the operating lever, the distance between the lugs 12 and the bracket varies, and consequently the horizontal distance between the pins 15 and the operating lever 8 varies proportionately.

On the inner face of the core surface 1 and towards the top and bottom at both sides I secure hinges 18, which are also attached to the angle plates 19. The opposite ends of said angle plates have hinges 20 attached thereto and also one end of the links 24, the opposite ends of which latter are pivotally mounted on the inner side of the core surface 2. The hinges 20 are also secured to the arms 21, which are connected together in pairs at each side by the pins 22, and are operated by the links 23 which extend from the said pins 22 to the pins 15.

As the horizontal distance between the pins 15 and the operating lever 8 is decreased the links 23 are pulled towards the operating lever, and the arms 21, hinges 18 and 20, angle plate 19, and links 24 move from the position shown in Figure 3 to that shown in Figure 4, with the result that the core surfaces 1 and 2 are drawn towards each

other, so that the whole device may easily be removed from within the concrete which has been poured round it when the surfaces were in their expanded position as shown in Figures 1 and 3. The hinges 18 and 20 assume a rectangular position when the core is expanded and that obviates the possibility of accidental collapse of the device when in use.

In order to strengthen the surfaces 1 and 2 and insure their remaining in parallel alignment, I prefer to strengthen them as by the angle irons 25.

While in the foregoing I have shown and described the preferred embodiment of my invention, it is understood that I may make alterations and modifications thereto, provided the said alterations and modifications fall within the scope of what I claim.

Having thus described my invention what I claim is:

1. A collapsible core open at the top and bottom and having two substantially parallel core surfaces, and a substantially centrally located operating lever adapted to move longitudinally, in combination with arms pivotally attached one on each side of said lever, each arm adapted to coact with a separate system of levers, by the movement of which the distance between the core surfaces is varied from both sides simultaneously.

2. A collapsible core having two substantially parallel core surfaces and an operating lever arranged between said core surfaces and adapted to move longitudinally, in combination with arms pivotally attached to said operating lever and disposed one on each side thereof, each arm being connected to a separate system of levers by means of which the transverse distance between said operating lever and each of said core surfaces may be varied.

3. A collapsible core as described in claim five wherein the core surfaces remain substantially parallel to each other throughout the movement.

4. A collapsible core open at the top and bottom and having two core surfaces substantially parallel to each other, each of said core surfaces terminating at one and the same side in inwardly inclined overlapping edges, and an operating lever arranged between said core surfaces, in combination with arms pivotally mounted on said operating lever and disposed one on each side thereof, each of said arms being adapted to cooperate with a separate system of levers by the movement of which the distance between said core surfaces is varied.

5. A collapsible core as described in claim seven wherein the core surfaces remain parallel to each other throughout the movement.

6. A collapsible core as described in claim seven wherein the transverse distance between the operating lever and each of the core surfaces varies throughout the movement.

7. A collapsible core having two substantially parallel core surfaces, an operating lever slidably mounted in brackets secured inwardly on one of said core surfaces, lugs on said operating lever and disposed one on each side thereof, one swinging member revolvably mounted on each of said lugs, each of said swinging members being also adapted to coact with an arm, and each of said arms having its opposite end revolvably mounted about a fixed point, in combination with two separate systems of levers each actuated from the junction of said arms and said swinging members, said systems of levers being adapted to vary the distance between said core surfaces.

8. A collapsible core having two substantially parallel core surfaces, hinges attached internally at two points on each side of one of said core surfaces, a member attached to each of said hinges, a second hinge at the other end of each of said members connected also to an arm, the other core surface having links attached thereto, one link being in alignment with and pivotally mounted on each of said members, said arms coacting with levers adapted to be actuated by an operating lever, by means of which the distance between said core surfaces may be varied.

9. A collapsible core open at the top and bottom and having two core surfaces and an operating lever arranged between said core surfaces, said operating lever being adapted to move longitudinally and provided with stops to limit its movement in both directions, in combination with arms adapted to be actuated by said operating lever and disposed one on each side thereof, each of said arms being connected to a separate set of levers by the movement of which the distance between said core surfaces is varied from both sides of the core simultaneously.

ELMER NELSON.