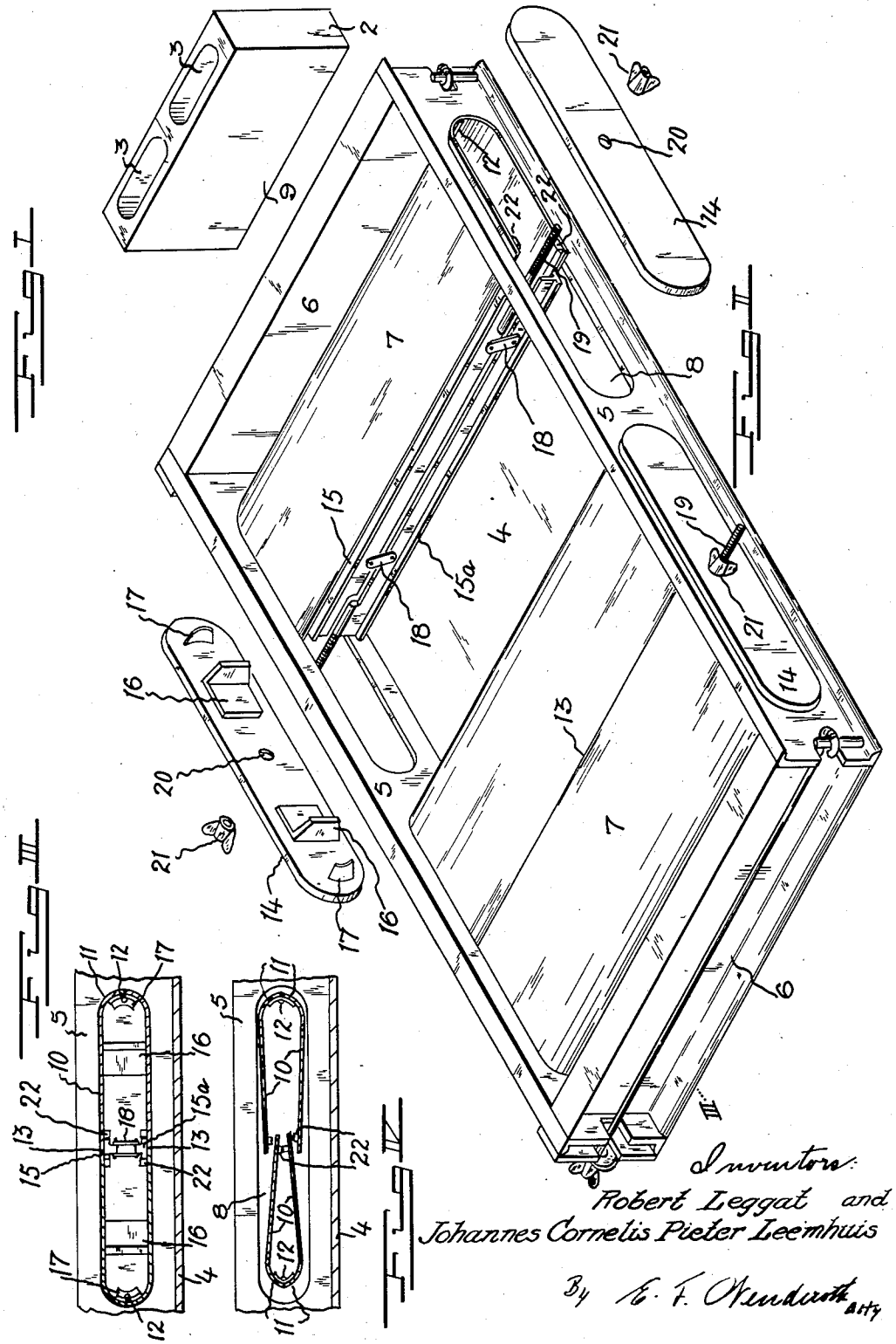
April 2, 1935. R. LEGGAT ET AL 1,996,678

CORE FOR HOLLOW BODIES OF CONCRETE AND THE LIKE

Filed July 13, 1933



Inventors:
Robert Leggat and
Johannes Cornelis Pieter Leemhuis
By E. F. Wendroth Atty

Patented Apr. 2, 1935 1,996,678

UNITED STATES PATENT OFFICE

1,996,678

CORE FOR HOLLOW BODIES OF CONCRETE AND THE LIKE

Robert Leggat and Johannes Cornelis Pieter Leemhuis, Pretoria, Transvaal, South Africa

Application July 13, 1933, Serial No. 680,308
In Union of South Africa July 28, 1932

2 Claims. (Cl. 25—128)

The present invention relates to coring hollow bodies made of hardened plastic material such as hollow concrete building blocks and panels.

An object of the invention is to provide a collapsible core which, whilst being rigid in use, is adapted so to collapse as substantially to diminish both its dimensions transverse to the direction in which it is to be withdrawn, so that it can be withdrawn without drag on the surfaces of the cavity it forms.

A specific object of the invention is to provide a core of this character, which can be made of considerable dimensions in the direction in which it is to be withdrawn and in one dimension transverse thereto, whilst being of small dimensions in the other transverse direction. A core of this kind permits the production of hollow concrete building panels of considerable height and width and of small thickness.

Another object is to provide a core which produces an untapered cavity and which permits the use of a wet concrete mix.

According to the invention, a core comprises a unit consisting of a pair of hinged leaves adapted to be spread apart in one direction transverse to the direction of withdrawal of the core and thereby define a cavity and to be collapsed about the hinge with a movement wholly within the cavity so defined, and comprising also a second unit which completes the core surface between the spread-apart edges of said leaves and which permits the first unit, when collapsed, to be moved in a second direction transverse to the withdrawing movement. Said second unit would usually be a hinged pair of leaves like the first unit, the units being arranged opposite one another with the edges of their respective leaves in contact.

In the accompanying drawing the invention is illustrated in a form suitable for coring the thin concrete panels above referred to.

Figure I shows the panel;

Figure II is a perspective view of the panel mould with some parts removed and other parts displaced, the scale being larger than that of Figure I.

Figure III is a horizontal section on a plane indicated by III in Figure I.

Figure IV is similar to Figure III, showing the core in process of removal.

The panel **2** is of the kind referred to in the specification of our application for Patent No. 657,298, filed February 17, 1933. It is of considerable breadth and height; but its width is small relatively to its breadth and height, and it has a vertical cavity or preferably two vertical cavities **3** which are correspondingly of considerable breadth and height but narrow. The formation of such cavities by known methods presents considerable difficulties.

The mould shown comprises the base **4** and the four walls **5,5**, **6,6**, which are separably held together by means of the bolts **7**. The walls **5,5** mould the horizontal edges of the panel and the walls **6,6**, the vertical edges thereof. The cores indicated generally by **7,7** consequently extend between the walls **5,5**, and parallel with the walls **6,6**. They are conveniently supported in position by seating at their ends in the apertures **8** in the walls **5**, which apertures also determine the expanded size of the core. The base **4** moulds one of the flat faces **9** of the panel. The concrete is poured into the open top of the mould and the second flat face **9** of the panel is formed by screeding the surface of the concrete level with the tops of the walls.

Each core **7** comprises the two similar units **10,10**. Each unit comprises the two similar leaves **10**, each having a flat portion and a bent end portion **11**. Said end portions are connected by the hinge **12**.

When the core is assembled in its moulding form (Figure III), the two units are arranged opposite one another and opened out so that the edges **13** of the leaves are in contact with one another and the flat portions of the leaves are alined with one another. The core thus presents a continuous outer surface which defines the cavity to be produced within the panel.

The core is sustained in its expanded form by the end covers **14** and the central bar **15, 15*a***. The end covers **14** carry inwardly projecting ribs **16** which hold the leaves apart and also curved ribs **17** which fit into the curved ends of the units and so maintain the core at its proper breadth. Said ribs **16** and **17**, being short, are easily inserted into and withdrawn from the leaves; and they are tapered to facilitate such movements.

The central bar **15, 15*a***, however, extends the full length of the core and is therefore made collapsible to facilitate its insertion and withdrawal. It comprises the two bar members **15** and **15*a*** connected and maintained parallel with one another by the parallel links **18**, thus permitting the members **15, 15*a*** to come together to reduce the effective height of the bar, and to be separated to increase the effective height of the bar. Each bar member has screw-threaded stem **19** which extends through hole **20** to the adjacent end cover **14**

and is there provided with a nut 21 which bears on the outer face of the cover.

The leaves of the core are provided on their inner faces with ribs 22 for positioning the bar 15, 15a. The leaves having been seated in the apertures 8, the bar 15, 15a in its collapsed condition is slid between the ribs 22. The end covers 14 are slipped over the stems 19 and the nuts 21 are screwed up onto the covers. Thereby the ribs 16, 17 of the covers are firmly forced between the leaves and also the bar members 15, 15a are traversed relatively to one another to expand the bar, both operations thus expanding the core and holding it rigid against the pressure of the concrete.

When the concrete has been cast and become set, the nuts 21 are removed, the end covers 14 withdrawn and the bar 15, 15a is also withdrawn after being collapsed. The leaves of one core unit are then pressed towards one another as indicated in Figure IV so as to detach them from the concrete. As the hinge 12 is almost at the closed end of the unit, the collapsing movement of all points of the leaves is distinctly inward away from the concrete face and is therefore readily accomplished without danger of damaging said face. Such movement is least in the area near to the hinge 12, but a separating movement of this part substantially perpendicular to the concrete face is obtained by sliding the unit in question—for instance that at the left hand of Figure IV—sideways so that it passes between the open leaves of the other unit. The unit being thus separated at all points from the concrete is readily withdrawn from the panel endwise. The second unit is then similarly manipulated and withdrawn.

We claim:

1. The combination of a mould having opposite walls apertured to form seatings for a core and to determine the expanded size thereof, an open ended core seated in said apertures, end covers for the core having projecting means on their inner faces adapted to enter the core ends and expand them, a bar comprising connected units adapted to be longitudinally moved relatively to one another and thereby vary the effective width of the bar, said units having ends projecting through the covers, means on said unit ends for pressing on the outside of the covers to force their projections into the core ends and simultaneously to exert tension on the bar unit ends and thereby expand the bar within the core.

2. The combination of a mould having opposite walls apertured to form seatings for a core and to determine the expanded size thereof, a core seated in said apertures and comprising two similar units, each unit consisting of a pair of hinged leaves adapted to be spread apart about the hinges in a direction transverse to the mould walls, said units being arranged opposite to one another with the edges of their leaves together, means adapted to enter the ends of the core and expand the same, and an expansible bar extending between the edges of the leaves to support the latter in their expanded position.

ROBERT LEGGAT.
JOHANNES CORNELIS PIETER LEEMHUIS.