R. M. WEBB.

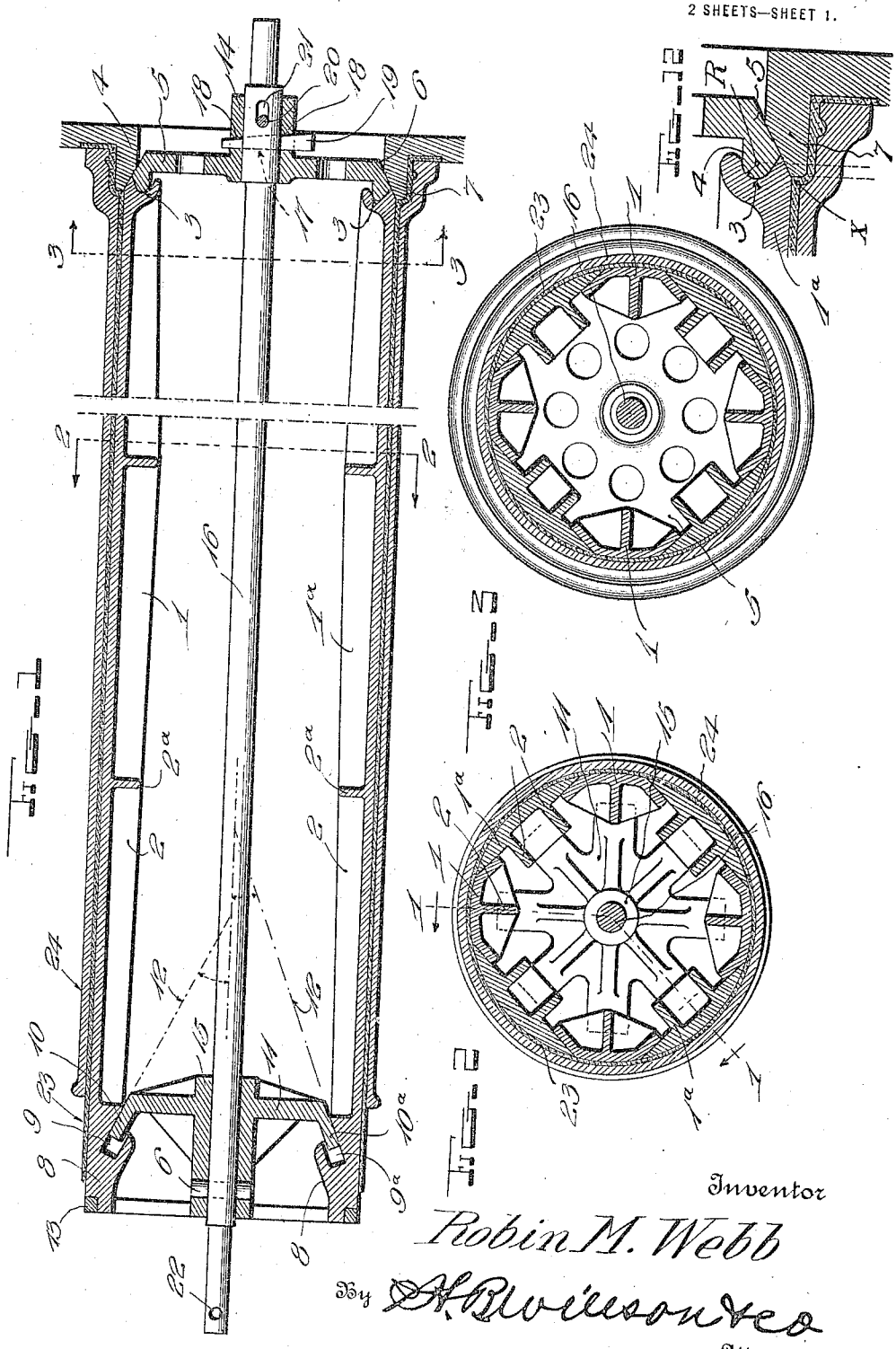
COLLAPSIBLE CORE.

APPLICATION FILED OCT. 14, 1918.

1,307,283.

Patented June 17, 1919.

2 SHEETS—SHEET 1.



Inventor

Robin M. Webb

By Williamson & Co

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

R. M. WEBB.

COLLAPSIBLE CORE.

APPLICATION FILED OCT. 14, 1918.

1,307,283.

Patented June 17, 1919.

2 SHEETS—SHEET 2.

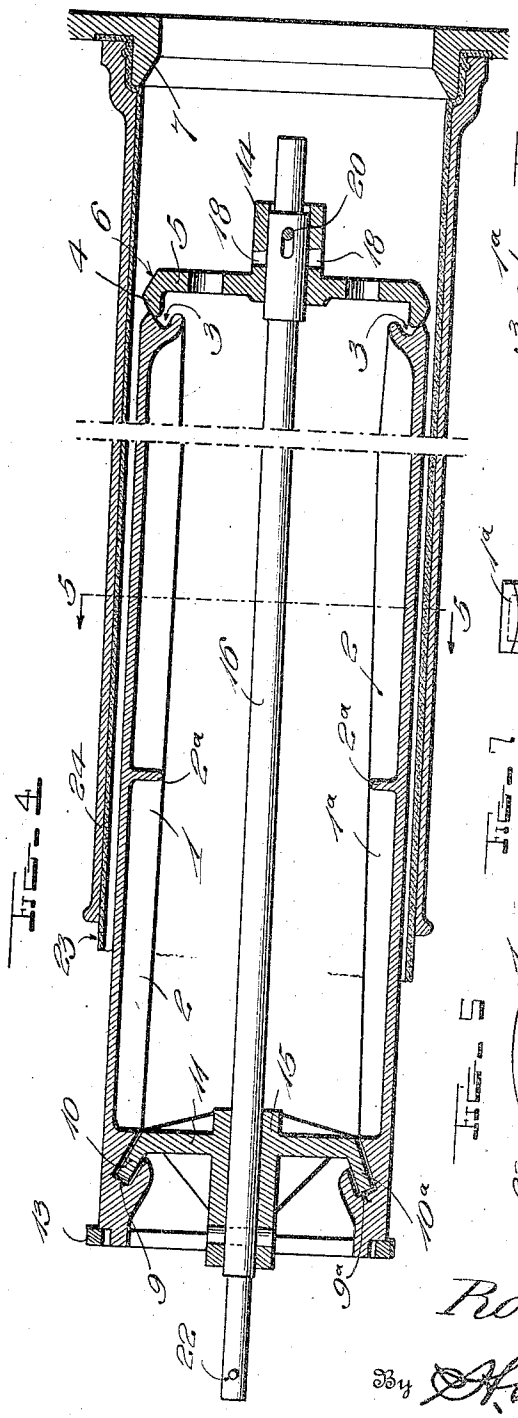


Fig. 4

Fig. 6

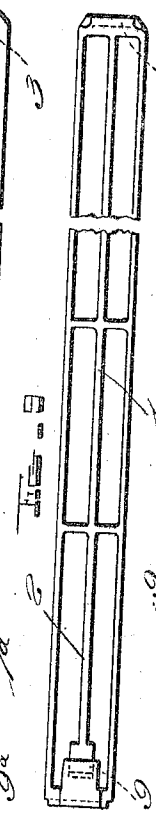


Fig. 8

Fig. 7

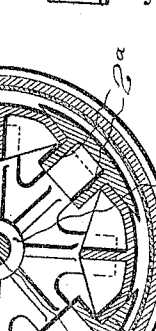


Fig. 9

Fig. 5

Inventor

Robin M. Webb

By H. B. Williamson & Co

Attorneys.

MORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBIN MONROE WEBB, OF BESSEMER, ALABAMA.

COLLAPSIBLE CORE.

1,307,283. Specification of Letters Patent. Patented June 17, 1919.

Application filed October 14, 1918. Serial No. 258,006.

To all whom it may concern:

Be it known that I, ROBIN M. WEBB, a citizen of the United States, residing at Bessemer, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Collapsible Cores; 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.

My invention relates to improvements in collapsible cores such as those used in forming cast piping, and the object of the device is to provide a comparatively simple and inexpensive, yet a highly efficient and durable core which may be collapsed or contracted after the pipe is cast, so that it may be removed for further use.

With the foregoing object in view, the invention resides in the novel features of construction and unique arrangement of parts hereinafter fully described and claimed, reference being made to the accompanying drawings which form a part of this application.

Figure 1 of the drawings is a longitudinal section showing the core in operative position.

Fig. 2 is a transverse section on the plane of the line 2—2 of Fig. 1 and indicating the line upon which Fig. 1 is cut.

Fig. 3 is a transverse section on the plane of the line 3—3 of Fig. 1.

Fig. 4 is a longitudinal section showing the core collapsed and in the act of being withdrawn from the pipe.

Fig. 5 is a transverse section as indicated by the line 5—5 of Fig. 4.

Fig. 6 is an inner side elevation of one of the longitudinal bars forming the core wall.

Figs. 7 and 8 are end elevations of the bar shown in Fig. 6.

Fig. 9 is an inner side elevation of another of the bars employed.

Figs. 10 and 11 are end elevations of the bar shown in Fig. 9.

Fig. 12 is an enlarged detail section.

In the drawings above briefly described, the numerals 1 and 1^a designate a plurality of longitudinal bars of which the core wall is constructed, the alternate bars 1^a overlapping the intervening bars 1 as shown clearly in Figs. 2 and 5. The outer sides of all of the bars are shaped according to the contour to be imparted to the completed pipe and in most cases, the core formed by the several bars will be cylindrical. All of the bars 1 and 1^a are reinforced by longitudinal ribs 2 and by transverse ribs 2^a.

At one end, the bars 1 and 1^a are provided with circumferential grooves 3 preferably of the V-shape shown in Figs. 1 and 4, said grooves receiving therein a cam flange 4 projecting laterally from a circular head 5, the peripheral edge of said head being beveled at 6 for engagement with a beveled seat ring 7.

The ends of the bars 1 and 1^a opposite the grooves 3, are increased in thickness at 8 and provided with oblique sockets 9 and 9^a which slidably receive oblique cams 10 and 10^a on a second head 11, it being intended that when the two heads 5 and 11 are drawn toward each other to the position seen in Fig. 1, they shall expand the core to the maximum, by engagement of the cams with the walls of the sockets, and by the coaction of the cam flange 4 with the walls of the grooves 3. Similarly, when the heads are moved outwardly away from each other, the core is contracted, and during this contracting movement, it is necessary that the bars 1 shall move inwardly more rapidly than the bars 1^a. To obtain this result, the cams 10 operating within the sockets 9 of the bars 1, are disposed at a greater angle to the core axis than the cams 10^a which operate within the sockets 9^a of the bars 1^a, as indicated by the lines 12 of Fig. 1. The expanding of one end of the core is limited by the seating of flange 4 in the bottom of the grooves 3, and in order to prevent excessive expansion of the other end of said core, a ring 13 preferably surrounds the same as shown.

The heads 5 and 11 are provided with hubs 14 and 15 respectively and a central rod 16 passes through said hubs, said rod being pinned or otherwise secured at 6 to the hub 15, while it passes slidably through the hub 14. Rod 16 is provided with a slot 17 for registration with other slots 18 in the hub 14 to receive a wedge 19, whereby to draw the two heads 5 and 11 inwardly to operative position. When this wedge is removed however the core is permitted to contract in a manner to be hereinafter fully

explained. To limit the outward movement of the heads 5 and 11, a pin 20 preferably passes through the hub 14 and through a slot 21 in the rod 16. The rod is provided, at a point spaced outwardly from the hub 15, with an opening 22 adapted to receive a suitable pulling device, whereby said rod may be so shifted as to collapse the core when required.

In operation, the mold is positioned as seen in Fig. 2 and a coating 23 of loam is placed around said core, after which the pipe 24 is cast. When the pipe has hardened sufficiently, the wedge 19 is withdrawn and by engaging any suitable means with the opening 22, the rod 16 is pulled forwardly so that the cams 10 and 10^a move into the sockets 9 and 9^a respectively, thus swinging the outer ends of the bars 1 and 1^a inwardly away from the loam and the complete pipe. A further pull on the rod will now slide the bars 1 and 1^a away from the head 5 until the end of slot 21 strikes the pin 20 as shown in Fig. 4, and when this takes place, the entire core is bodily removed. It is to be observed that the relation of the pin 20 and slot 21 is such as to prevent entire removal of the flange 4 from the grooves 3, thus obviating the necessity of reassembling the core after withdrawal thereof.

By reference to Fig. 12, it will be seen that the points X of the bars 1 are spaced toward the opposite end of the bars from the centers R. It is around these centers that the bottoms of the grooves 3 and the edge of the flange 4 are curved. By this relative location of the points X and R, the former move inwardly from the pipe 24 when the opposite ends of the bars 1 are swung inwardly, thus interfering in no manner with the completed pipe and allowing easy removal of the core.

From the foregoing, taken in connection with the accompanying drawings, it will be seen that although my invention is of comparatively simple and inexpensive nature, it will be highly efficient, durable and in every way desirable. Since probably the best results are obtained from the details shown and described, they are by preference followed, but within the scope of the invention as claimed, considerable latitude is allowed for making such changes as occasion may dictate.

I claim:

1. A hollow collapsible core comprising a plurality of longitudinal bars, heads at the ends of said bars for shifting them radially to expand and contract the core, and means for drawing said heads inwardly toward each other to expand the core and for limiting the movement of said heads away from each other.

2. A hollow collapsible core comprising a plurality of longitudinal bars, heads at the ends of said bars for shifting them radially to expand and contract the core, a rod secured to one head and passing slidably through the other head, means engaging said rod and said last named head for drawing the two heads toward each other to expand the core, and means associated with said rod for limiting the movement of said heads away from each other.

3. A hollow collapsible core comprising a plurality of longitudinal bars, heads at the ends of said bars for shifting them radially to expand and contract the core, a rod secured to one head and passing slidably through the other head, said rod having a slot, a wedge for reception in said slot and engagement with said last named head to draw the two heads toward each other and expand the core, and means associated with said rod for limiting the movement of said heads away from each other.

4. A hollow collapsible core comprising a plurality of longitudinal bars having circumferential grooves in one end, a head having a cam flange receivable in said grooves to shift said bars and expand one end of the core when said head is moved inwardly, a second head at the other end of the core, coacting cam means on said second head and said bars for shifting the latter to expand said last named end of the core when said second head is moved inwardly, a rod secured to one head and passing slidably through the other head, means engaging said rod and said last named head for moving the two heads inwardly, and means associated with said rod for limiting the movement of said heads away from each other to prevent disengagement of said cams means, and to prevent total removal of said flange from said grooves.

5. A hollow collapsible core comprising a plurality of longitudinal bars having circumferential grooves in one end, a head having a cam flange receivable in said grooves to shift said bars and expand one end of the core when said head is moved inwardly, a second head at the other end of the core, coacting cam means on said second head and said bars for shifting the latter to expand said last named end of the core when said second head is moved inwardly, a rod secured to one head and passing slidably through the other head, said rod having a slot, a wedge for reception in said slot and engagement with said last named head for moving the two heads inwardly toward each other, and means associated with said rod for limiting the movement of said heads away from each other to prevent disengagement of said cam means, and to prevent total removal of said flange from said grooves.

6. A hollow collapsible core comprising a

plurality of longitudinal bars, alternate bars slidably overlapping the intervening bars, cams on said bars, and a head movable longitudinally of said bars and having cams coacting with said first named cams to expand the core, all of said cams being disposed obliquely of the core axis and the cams associated with said intervening bars being disposed at a greater angle to said axis than the other cams.

In testimony whereof I have hereunto set my hand.

ROBIN MONROE WEBB.

Witnesses:
J. HOWARD MCENIRY,
WM. HUGH MCENIRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."