

No. 630,181.

Patented Aug. 1, 1899.

F. CHAMBERS.

COLLAPSIBLE CORE BAR FOR USE IN CASTING METAL PIPES. &c.

(Application filed Mar. 3, 1899.)

(No Model.)

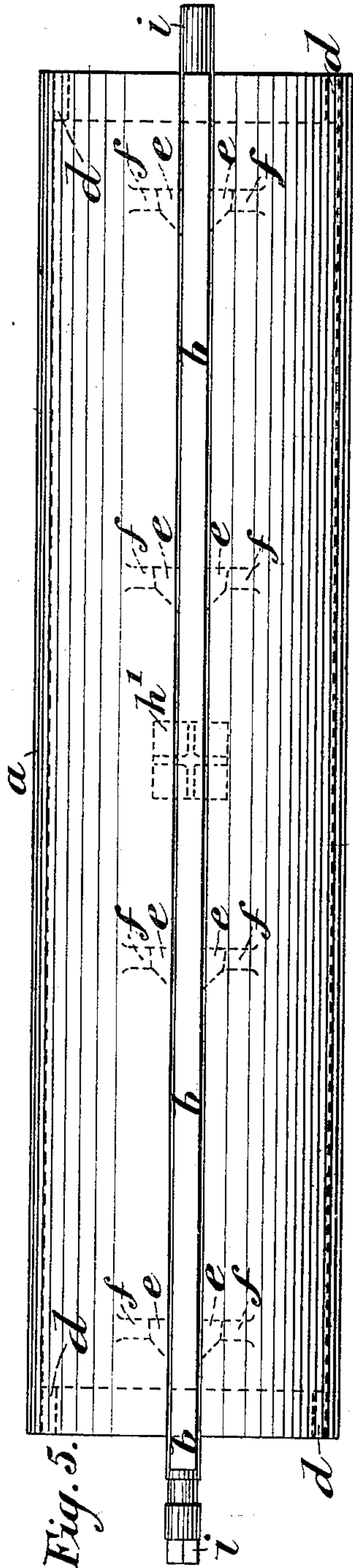


Fig. 5.

Fig. 4.

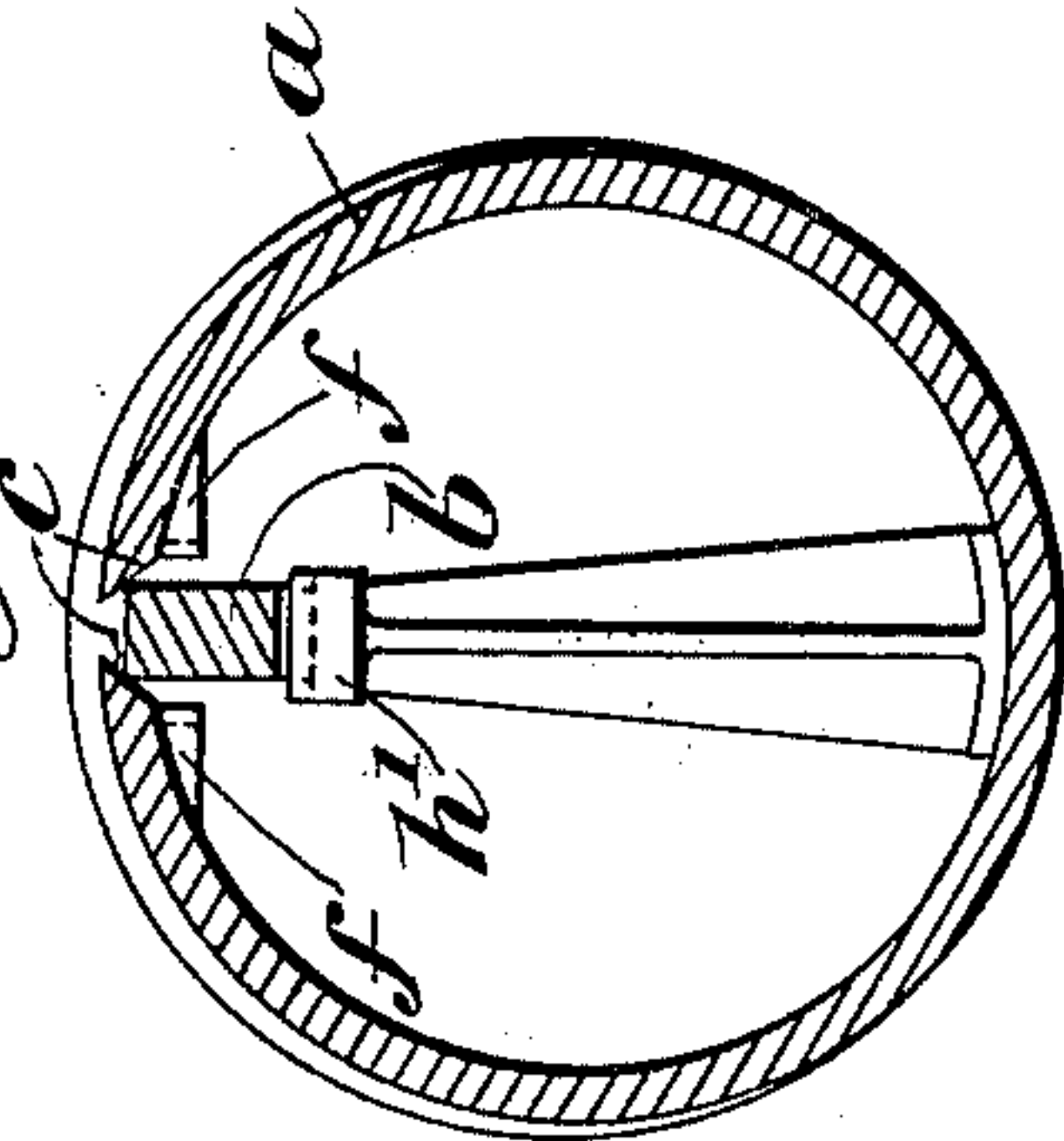


Fig. 3.

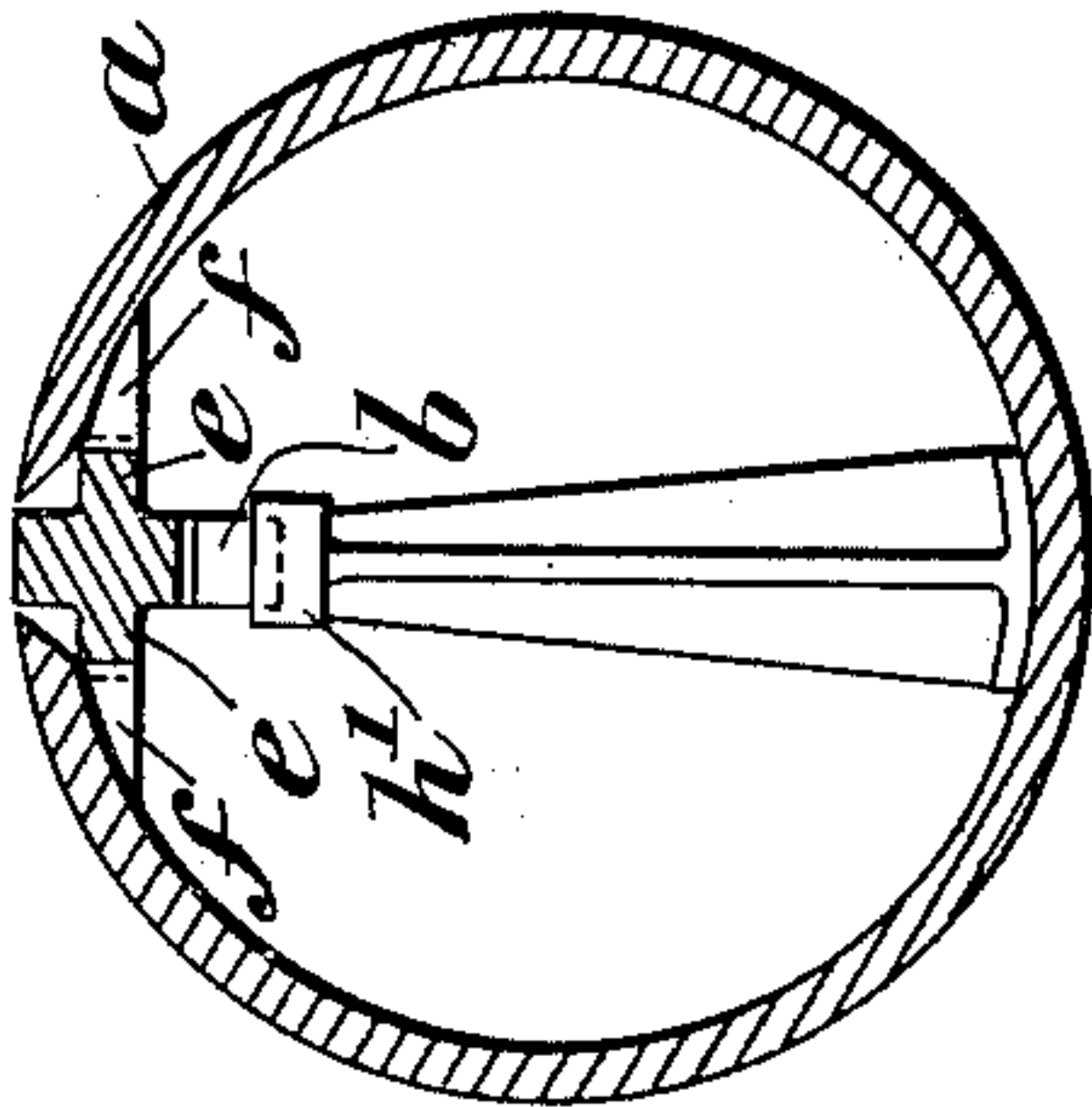


Fig. 2.

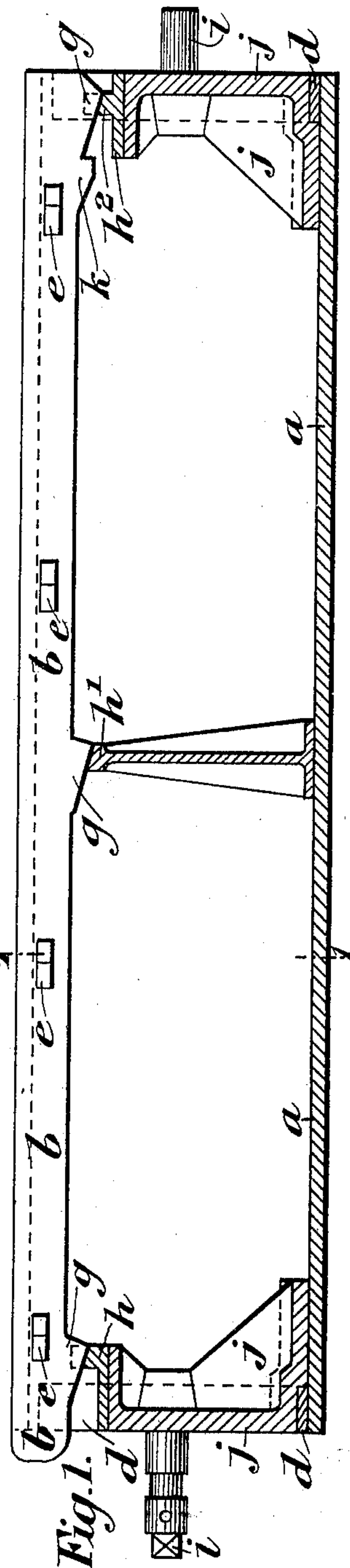
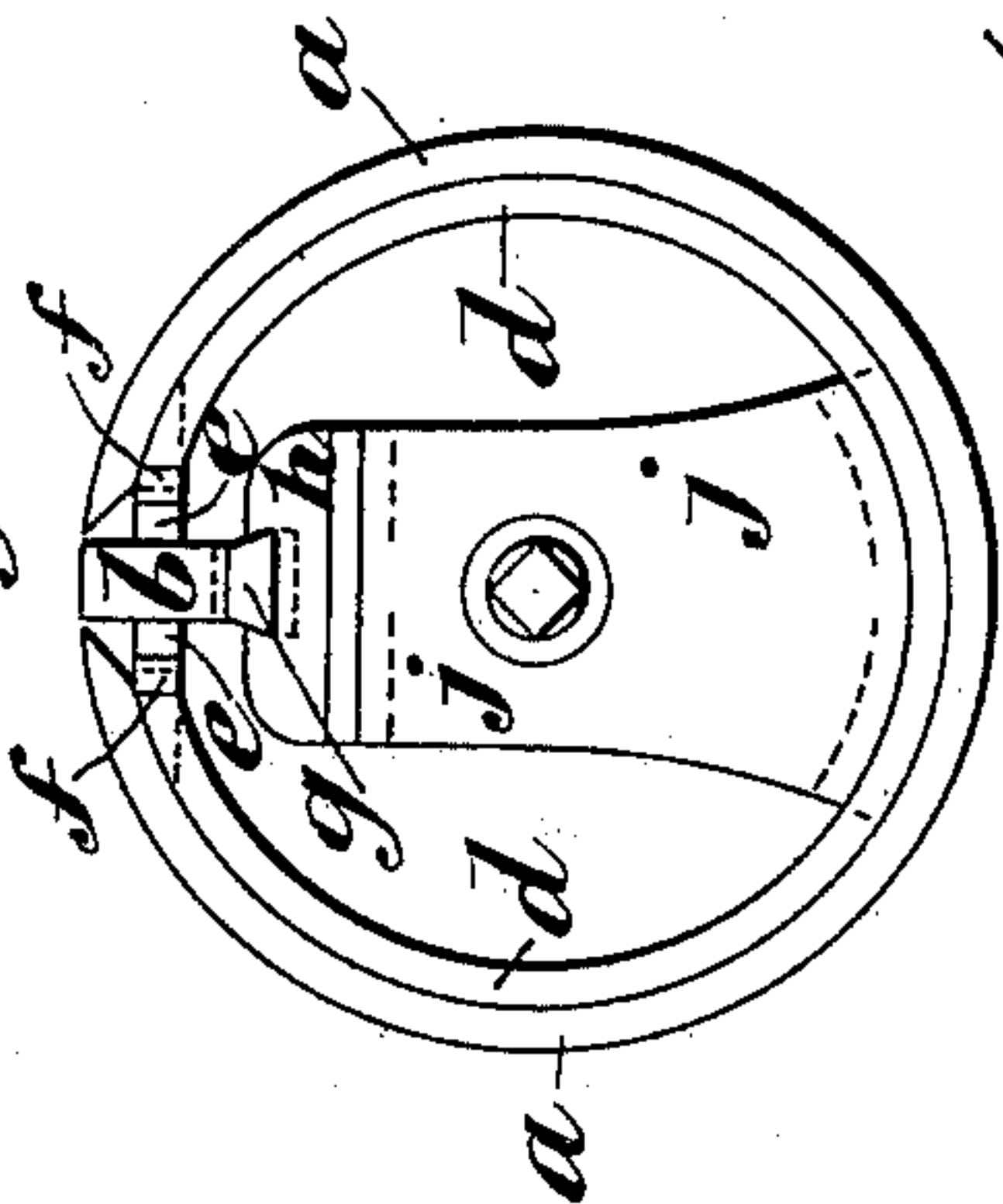


Fig. 1.

Witnesses

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COLLAPSIBLE CORE-BAR FOR USE IN CASTING METAL PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 630,181, dated August 1, 1899.

Application filed March 3, 1899. Serial No. 707,646. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK CHAMBERS, assistant foundry manager, a subject of the Queen of Great Britain, residing at Stanton Iron Works, Stanton by Dale, in the county of Derby, England, have invented certain new and useful Improvements in Collapsible Core-Bars for Use in Casting Metal Pipes, Columns, Cylinders, or the Like, (for which I have made application for patent in Great Britain, No. 26,962, bearing date December 21, 1898,) of which the following is a specification.

It is important that a core-bar should be so constructed as to allow of its being easily withdrawn from the pipe, column, cylinder, or like casting and that the core-bar should while passing through the various operations from the making of the core to the casting of the pipe, column, or cylinder remain thoroughly rigid against all the strains to which it may be subjected and also that the interior of the pipe, column, or cylinder should be truly cylindrical and smooth.

In carrying out my improvements the external portion or shell consists of only two pieces, one of these portions being a split cylinder having a slot or split formed through the whole of its length, the second portion being a wedge-bar of a sufficient width to nearly fill the slot when the core-bar is expanded to its full diameter. The shell has a number of inclined or wedge-shaped parts formed on its inner surface at suitable distances and positions along each side of the longitudinal slot, and these wedge or inclined parts lie within the line of internal circumference. Inside and at each end of the shell a steel hoop or split annulus is fixed by rivets or bolts to the shell. I prefer that the outside diameter of the hoops before attaching to the shell should be less than the inner diameter of the shell before the shell is expanded. This is necessary to give rigidity to the core-bar.

When the core-bar is expanded to its full diameter by fixing the wedge-bar in its proper position, the wedge-bar will force out the steel hoops and shell, and thus cause the core-bar to be perfectly rigid. When the wedge-bar is placed in its proper position to allow the core-bar to collapse, the tension of the steel hoops

and shell will cause the core-bar to collapse sufficiently to allow of its easy withdrawal from the pipe, column, or cylinder casting.

In order that my invention and the means of carrying the same into effect may be the better understood, I will by the aid of the accompanying drawings describe the same more in detail.

In the drawings, Figure 1 shows a longitudinal sectional view with the wedge-bar in its proper position for use, with the core-bar expanded. Fig. 2 shows an end view looking from the left-hand end of Fig. 1, showing core-bar in its expanded position. Fig. 3 shows a cross-sectional view taken on the line 1 1 of Fig. 1 with parts expanded. Fig. 4 shows a similar cross-sectional view, but with the wedge-bar in its lowered position and the parts of the core-bar collapsed. Fig. 5 is an external view of Fig. 1 and shows the wedge-bar and wedges in their proper position when the core-bar is expanded as in Fig. 1.

a is the shell.

b is the wedge-bar, provided with wedge-shaped projections *e* on its opposite sides.

c is the slot between the edges of the shell. (Shown collapsed in Fig. 4.)

d are the steel hoops.

The wedge-shaped projections formed on the interior of the shell *a* are shown at *f*.

g g are the inclines on wedge-bar.

h, *h'*, and *h²* are brackets having corresponding inclines on their outer edges which face the split in the shell.

j j are the end heads to support the end brackets *h h²* and trunnions *i*.

k is a stop to prevent the wedge-bar *b* from being moved beyond its correct position when the core-bar is collapsed. (See Fig. 4.)

To expand the core-bar, the wedge-bar *b* is moved endwise into the positions shown in the drawings, the wedge-shaped projections *e* and *f* forcing the shell out to the required diameter when expanded, the wedge-bar *b* then forming, in conjunction with the shell *a*, the exterior and complete diameter of the core-bar. The core-bar is then coated with loam, direct onto the shell, to the required size for the pipe, column, cylinder, or other article.

To collapse the core-bar, the wedge-bar *b* is moved down the inclines on brackets *h*, *h'*,

and h^2 until the stop k , already referred to, is in contact with the bracket h^2 . The shell a and steel hoops $d d$ will then have collapsed into their smaller position, (shown in Fig. 4,) 5 the position of wedge-bar b when the core-bar is collapsed being also there shown.

The core-bar is provided with vent-holes and also with the usual hooks or shackles that are used when lowering the core-bar into or 10 withdrawing it from the mold or casting. By thus forming the core-bar in the manner described the shell, with the steel hoops, gives greatly-increased facility for the removal of the core-bar from the interior of the pipe, col- 15 umn, cylinder, or other article that has been cast on it, and the expanding action of the wedge-bar and wedges causes a sufficient tension to be set up in the shell and steel hoops, so as when expanded to make a perfectly firm 20 and rigid core-bar.

Having thus described my invention, what I claim is—

A core-bar, consisting of the split shell having interior wedge-shaped projections near the edges of the split, the contractile split 25 rings secured inside the shell to contract the same, the end heads carrying the trunnions, the end brackets carried by the said end heads and having inclines on their outer edges which face the split in the shell, and the 30 wedge-bar having wedge-shaped projections on its sides and inclines on its under edge, one of the latter inclines terminating in a stop for striking one of the brackets on the end heads, substantially as and for the purposes 35 described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK CHAMBERS.

Witnesses:

DOUGLAS E. STORER,
THOS. H. COOK.