F. Shickle.

Core Bar for Molds.

No. 92,108. Patented Jun. 29, 1869.

Fig. 1.

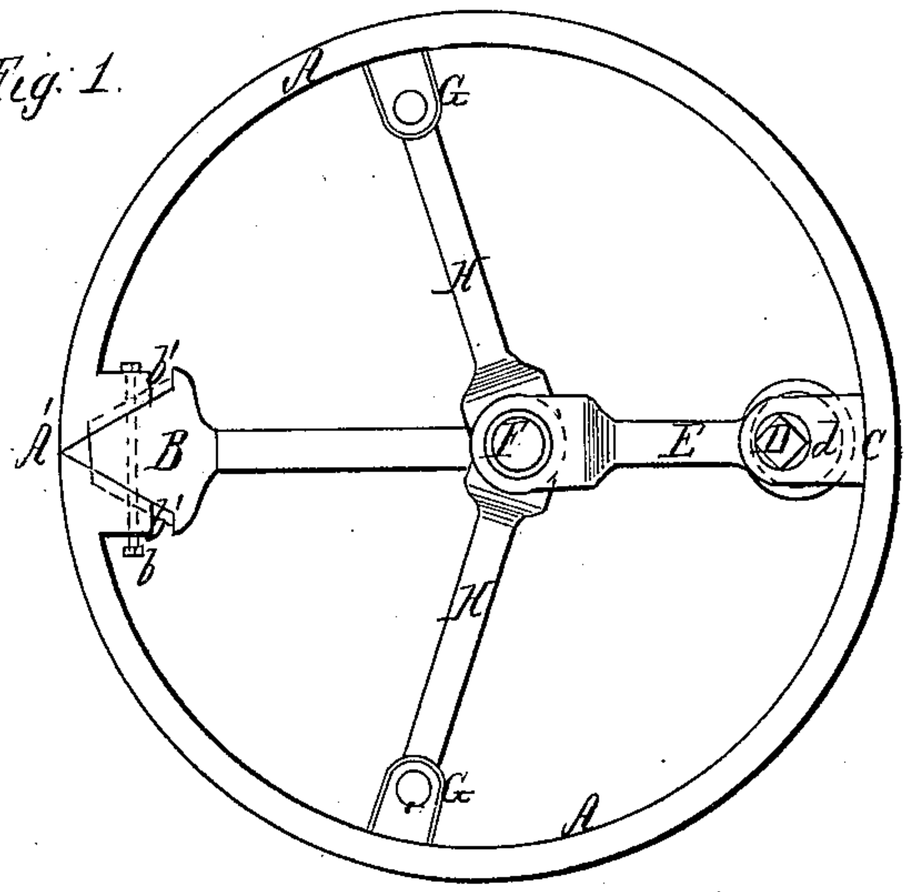


Fig. 2.

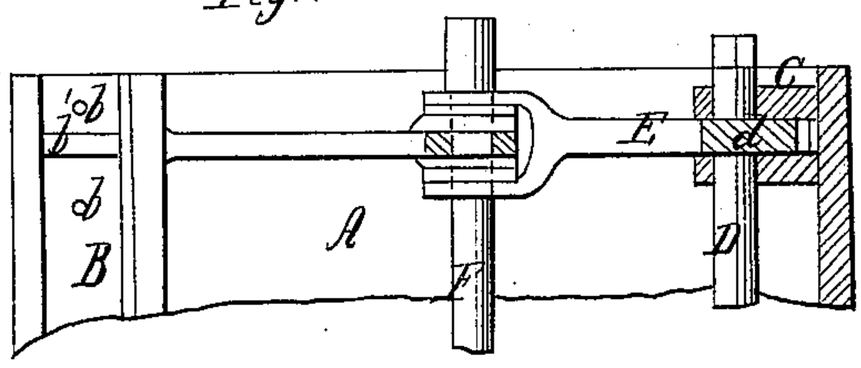
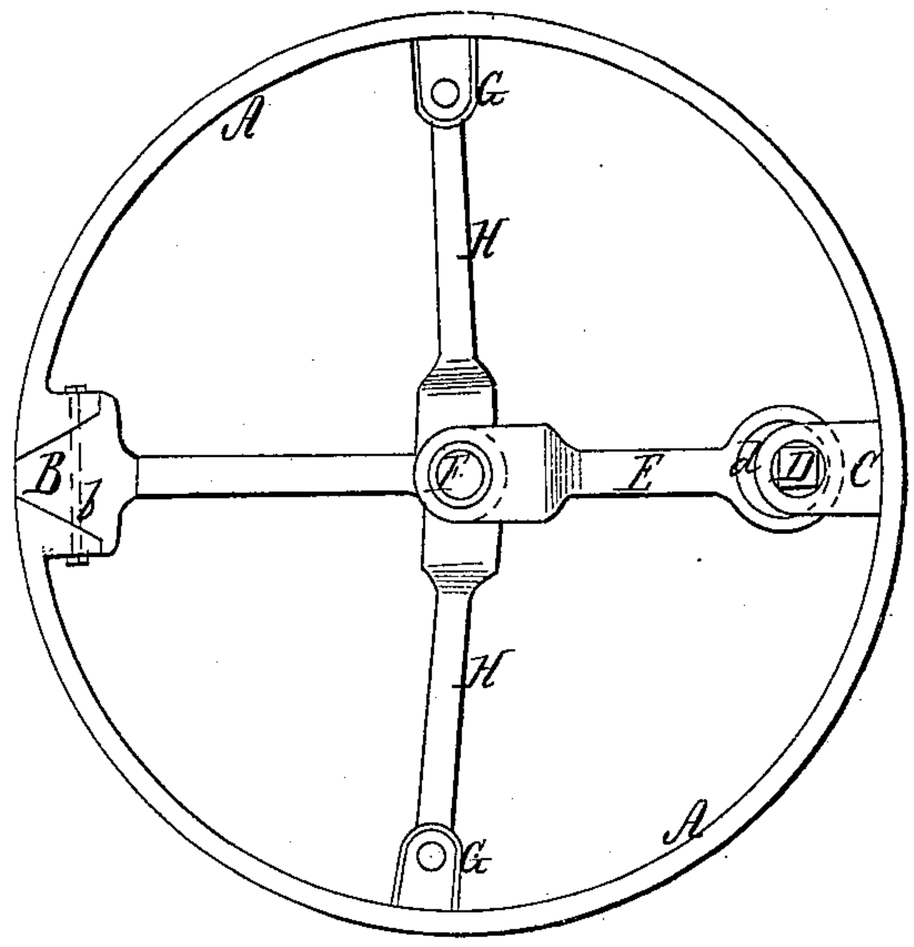


Fig. 3.



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FREDERICK SHICKLE, OF ST. LOUIS, MISSOURI.

Letters Patent No. 92,108, *dated June* 29, 1869.

IMPROVEMENT IN CORE-BAR FOR MOULDS USED IN CASTING METAL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FREDERICK SHICKLE, of St. Louis, in the county of St. Louis, in the State of Missouri, have made certain new and useful Improvements in Core-Barrels or Bars Used in Casting Pipes or Hollow Cylinders of Metal; and I do hereby declare that the following is a full and true account thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to the use of a metallic or other elastic coring-barrel or cylinder, which is divided at a single longitudinal line of its circumference, thus forming a cylinder, which may be pressed open at said division-line, but which, by its elasticity, (and under the aid of devices acting therewith,) will return to its original form, when the opening-pressure is removed.

Said invention relates, furthermore, to the use of certain devices for forcing open said core-barrel, and to the use of a wedge-piece for completing the circumference of the cylinder thus opened; the devices for opening the barrel being moreover formed and adjusted to furnish an axle for revolving thereon the core-barrel, in the operation of attaching clay and turning or scraping the surface of the clay, this being accomplished in the manner now usually employed.

It is plain that in the use of an expanded core-barrel, formed as thus generally indicated, when the metal has been poured into the mould, the operator may withdraw the wedge-piece, and relieve the pressure upon the expanded core-bar, and then the contracting metal (as it cools) will shrink without distortion, and the core-barrel may be lifted out without breakage or damage.

To enable those herein skilled to make and use my said improvement, I will now more fully describe the same, referring herein to the accompanying—

Figure 1 as a plan, and to

Figure 2 as a sectional elevation of the core-barrel and its operating-devices before expansion.

Figure 3 is a plan, representing the same after expansion.

I employ the cylinder A, usually of cast-iron, and perforated (to allow for escape of the gases formed in casting) in the usual manner.

Said cylinder forms the core-barrel, it being, in use, coated on its exterior circumference and surface with clay, and blacked.

Said core-barrel is cut open at the point A′, and the adjoining edges of the barrel are here tapered to fit the bevel of the wedge-piece B.

Said wedge-piece is used to expand the barrel A, its outer end-surface forming, when the barrel is expanded, a part of the outer surface of the barrel, as indicated in fig. 3.

To move said wedge-piece, and generally to expand the barrel, and support the same, I arrange the series of levers now to be described.

Diametrically opposite to the point of division of the barrel A I arrange the bearings C, for the shaft D, said bearings being secured to the barrel A.

The shaft D will be turned by a crank or similar device, by the operator, and the same then actuates the thrust lever E through the cam *d*.

The lever E carries, at its other end, the centre axle F.

In order that the core-barrel may be supported at points intermediate between A′ and C, and to also regulate the expanding-action of the wedge B′ when pressed forward, I arrange, at proper intermediate points G, bearings, by which levers H will connect with the axle F generally, as indicated.

Connecting with said axle F, I further arrange the lever B′, which attaches to the said wedge-piece B

The operator, in turning the shaft D, will then, by the cam *d*, force the lever E forward, and thereby also move the shaft or axle F, and the several levers B′ and H. Thus the wedge-piece B is pressed out, causing the core-barrel A to expand, and the expansion is made a gradual one by the movement of the levers H in conjunction with the said movement of the key-piece B.

By this arrangement of devices, and by this action thereof, the core-barrel is expanded, as shown in fig. 3; and the dimensions of the parts are taken in such wise that the position of the axle F now obtained will be central to the expanded figure of the core-barrel.

This axle may therefore be used to support the core-barrel in applying the clay coating, and in smoothing the same to a true cylinder.

In order to prevent the core-barrel from too great an expansion at the joint with the wedge B, owing to unequal pressures which may arise, check-bolts *b* will be passed through the wedge B and the adjoining flanges of the core-barrel A, and for a further security, tie-bolts may be connected with this part of the core-barrel A, and extend to the axle F or the bearings C.

In order to guide the wedge B in its movement, a feather, *b′*, is used, which prevents the adjoining edges of the core-barrel A from lateral play.

It may be advantageous to hinge the barrel A at the point C, or at some other intermediate point. This may be accomplished, and the expansion of the barrel may nevertheless be by a single wedge-piece. In all such modifications of form and construction of the core-barrel, the advantages arising from the sim

plicity of the devices used in this invention still accrue.

Having thus fully described my said invention,

What I claim, is—

1. A core-barrel, expanded at a single line, by wedge or other devices, against its own elasticity, and arranged to collapse with the aid of its elasticity, and with or without contracting-devices, substantially as set forth.

2. The intermediate supports G and levers H, when combined with the levers E and B', to support the axle F, substantially as set forth.

FREDERICK SHICKLE.

Witnesses:

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