2 Sheets--Sheet 1.

J. B. ASTON.

Core-Barrels for Castings.

No. 142,662. Patented September 9, 1873.

Fig 4

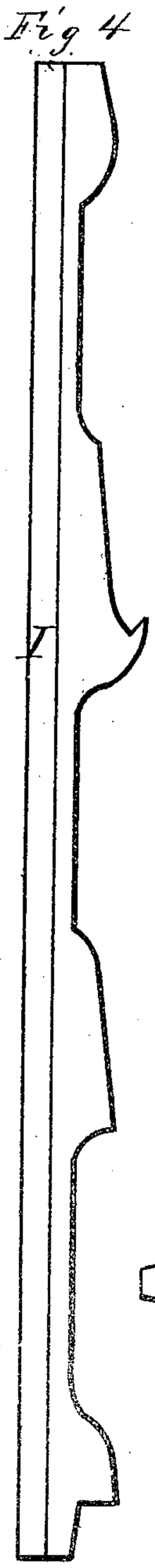
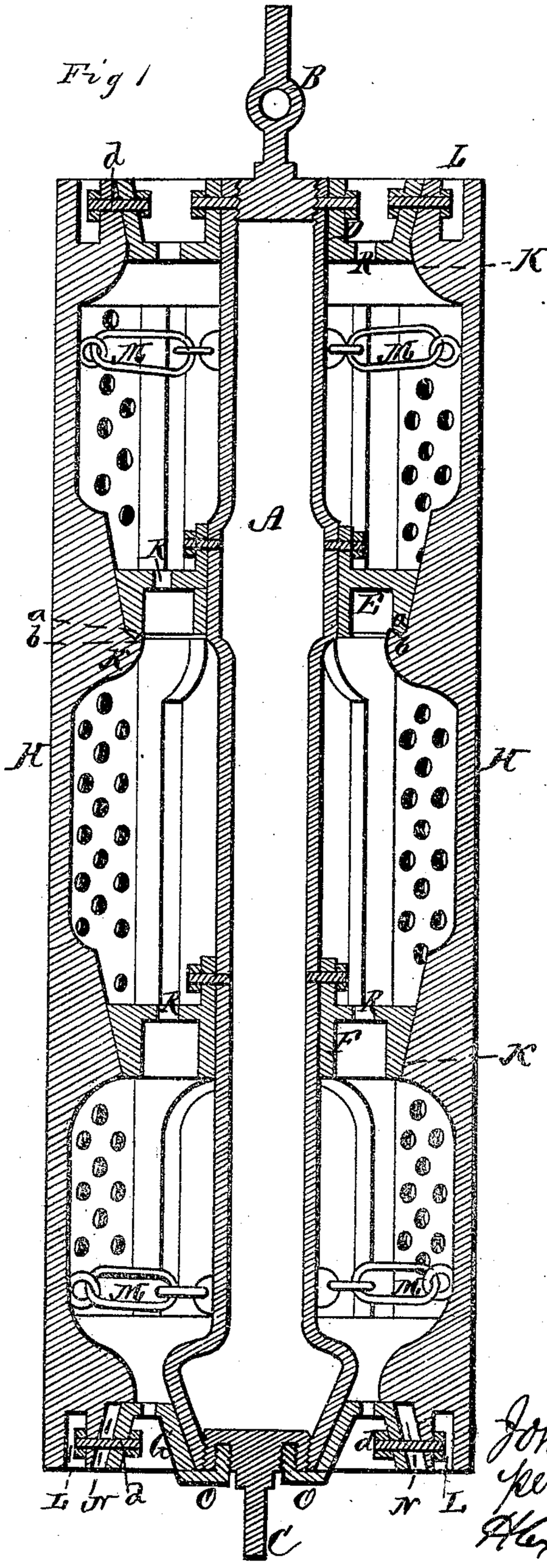


Fig 1



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2 Sheets--Sheet 2.

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Fig 2

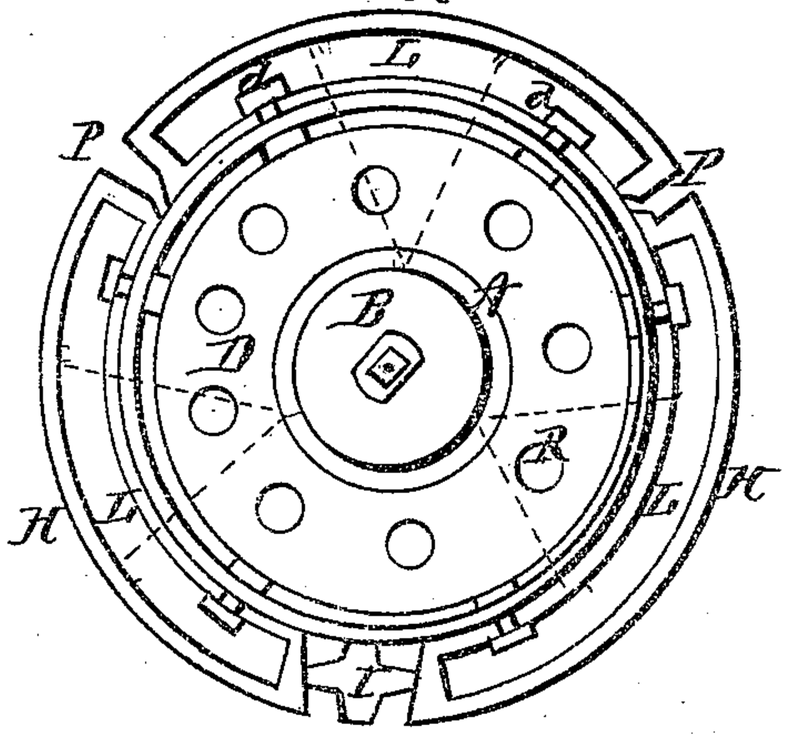
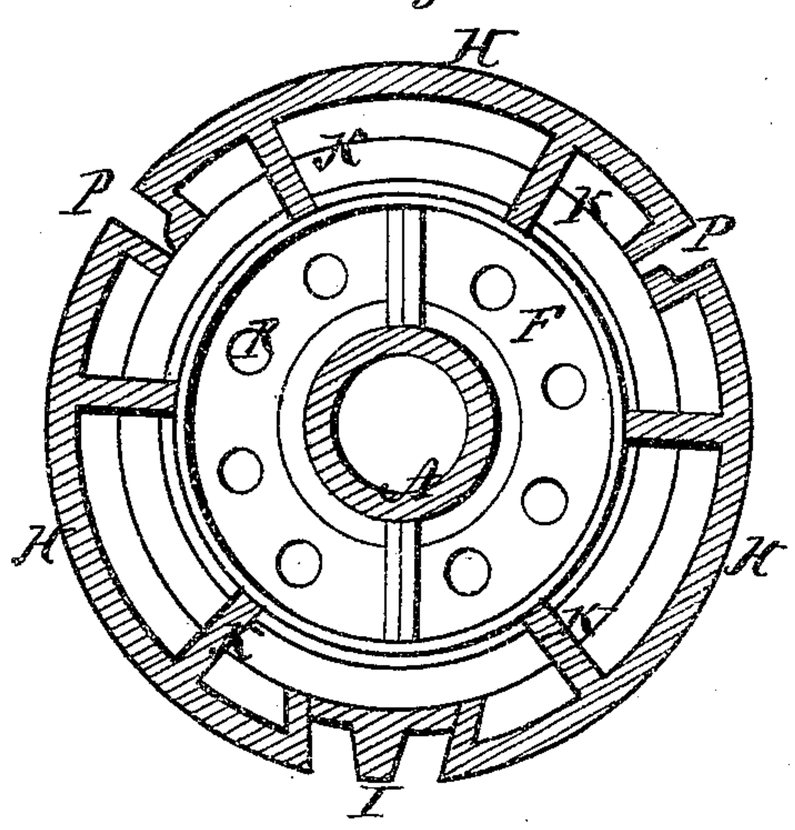


Fig 3



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UNITED STATES PATENT OFFICE

JOHN B. ASTON, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN CORE-BARRELS FOR CASTINGS.

Specification forming part of Letters Patent No. **142,662**, dated September 9, 1873; application filed June 28, 1873.

To all whom it may concern:

Be it known that I, JOHN B. ASTON, of Pittsburg, in the county of Allegheny and in the State of Pennsylvania, have invented certain new and useful Improvements in Contracting Core-Barrels for Cast-Iron Pipes; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a "collapsing core-barrel," to be collapsed after the molten iron has been poured into the mold of which it forms a part, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a longitudinal section of my core-barrel. Fig. 2 is an end view, and Fig. 3 a transverse section, of the same. Fig. 4 is a side view of a loose bar used in the core-barrel.

A represents a hollow shaft, having its lower end enlarged, as shown in Fig. 1, and provided with pivots B and C screwed into its ends. D, E, and F represent plates, having beveled edges fastened to the hollow shaft A, as shown; and at the bottom is another plate, G, fitting upon the enlarged end of the shaft loosely. H H are the outside plates of the barrel, forming segments of a circle, which plates are provided with wedge-shaped projections K K on their inner surfaces, into which the plates D, E, and F fit when the barrel is expanded to its full size. The plate E has, at its lower side, a V-shaped edge, *a*, which fits in a corresponding recess, *b*, on the projections K opposite this plate, forming a stop for the movement of the plates. L L are recesses in the ends of the plates H H for the reception of the heads of the bolts *d d*, by which the plates H, and the circular top and bottom plates D and G, are bolted together when the barrel is expanded. The side plates H H, and the shaft A, are connected by means of links or chains M M (or slotted arms may be used) to prevent the plates H from falling entirely off the shaft A when the barrel is collapsed. The number and position of these links or chains are indicated by the dotted lines in Fig. 2. N is an open space between the plates H and the circular bottom plate G, which space is intended to be filled by pieces of wood when the core is being made. When the metal is run around the core this wood is burned out, and thus relieves the outer surface of the plate G. O O are two clamp-bolts in the head C, which bolts, when turned as shown in Fig. 1, hold the bottom plate G to its position; but if, after the metal is poured in, they are reversed, then, when the wood in the plate N is burned out, the plate G drops, thus relieving the lower end of the barrel. P P are open spaces between the plates H H to allow of their collapsing. I is a separate piece of the barrel, not connected with the central shaft A. It is placed between two of the plates H. When the metal has been poured, and the barrel relieved below and loosened above, this piece I is knocked out of place by hammering it inward upon its upper end. When it drops out of place the entire barrel is relieved. R R are openings in the plates D, E, and F, to allow the gas, &c., to escape. These plates may be made in halves and bolted to the shaft, as shown in Fig. 3.

The mode of working this core-barrel is as follows: The plate G is pushed up on the head or enlargement of the shaft A, and secured to its place by turning the clamp-bolts O O round, so as to hold it. This brings the plates D, E, and F to bear on their points of the outside plates H H. The space N is then filled with plugs of wood, and the bolts *d d* are slipped to their places and tightened, both at the plate G and the plate D, the core-bar I being, at the same time, regulated and brought to its proper position.

The core-maker, first filling the spaces about the bar I, and those at P P, proceeds to make the core without using straw, as he is at present compelled to do. After the core has dried it is ready to be placed in the mold. When placed in the mold, and the melted metal being poured around it, the wooden plugs take fire and are consumed. At the proper time, the clamp-bolts O O are reversed, the bolts

holding the plate G to the sides are loosened, and the plate falls downward. The core-bar I is then tapped, by a hammer at the top, inward and downward, and drops out of place, thus relieving the plates H H. The bolts securing the top plate D to the outside plates are removed, and a lifting-power being applied at B, the shaft A rises, and, by means of the links M M, or their equivalents, the plates H H collapse and permit the casting to cool and contract without injury or danger.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The hollow center shaft A, provided with screw threads or pivots B C and an enlargement at the lower end, for the purposes herein set forth.

2. The combination of the top and bottom plates D G, bolts *d*, and recesses L in the outside plates H, for the purposes herein set forth.

3. The space N formed around the bottom plate G, to be filled with plugs of wood, as and for the purposes herein set forth.

4. The combination of the plates H H, connected with the central shaft A, and the separate and independent core-bar I, when said parts are constructed and arranged as and for the purposes herein set forth.

5. The lock-bolts O O inserted in the head C of the shaft A, for the purposes herein set forth.

6. The combination of the shaft A, plates D, E, F, and G, plates H H, projections K K, links M M, lock-bolts O O, and core-bar I, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of June, 1873.

JOHN B. ASTON.

Witnesses:

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