

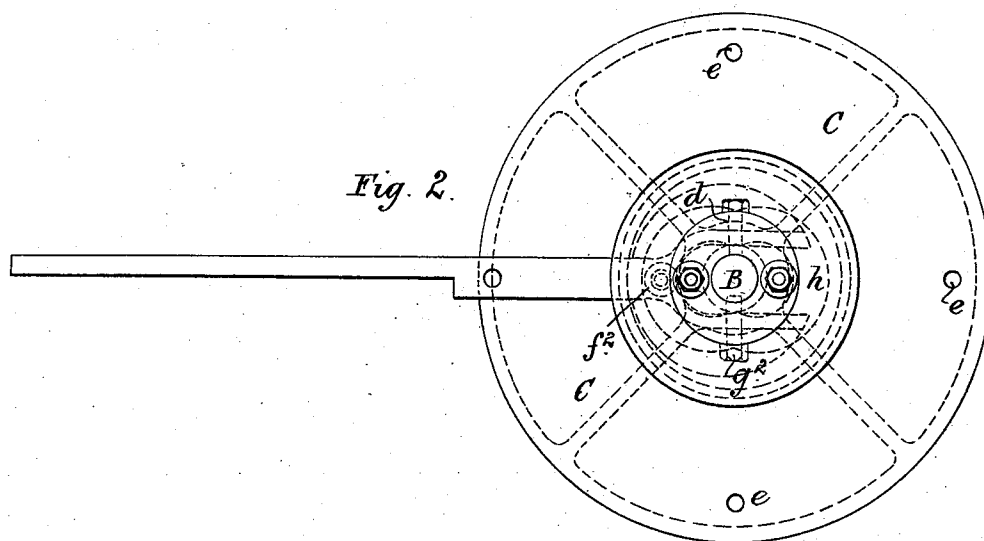
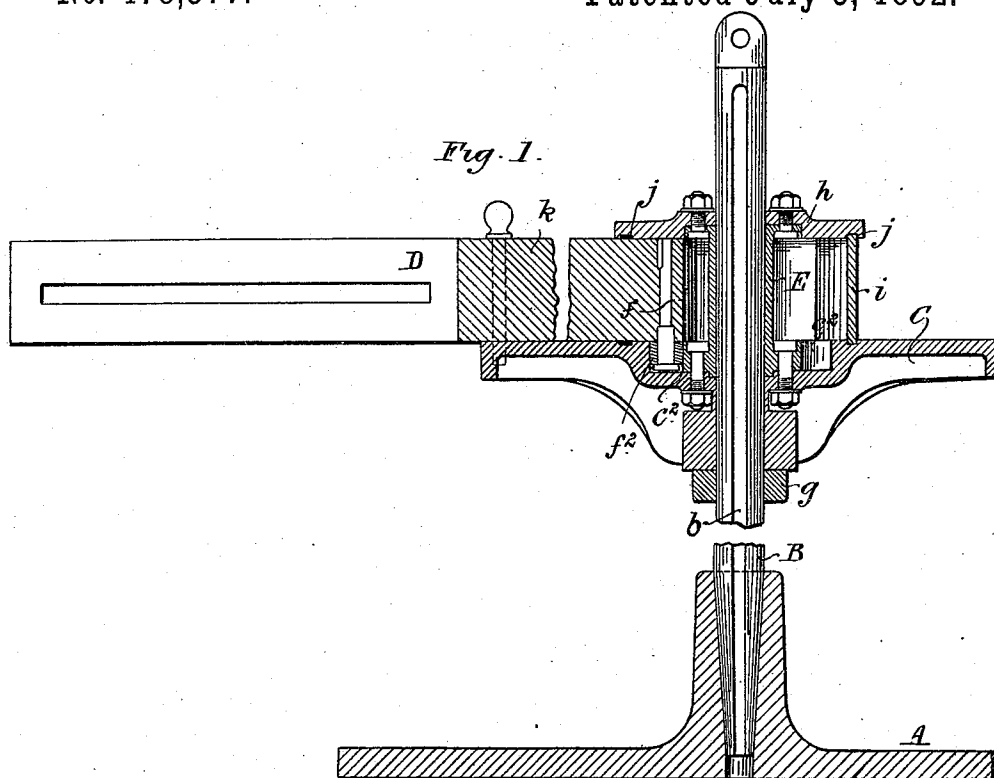
(No Model.)

3 Sheets—Sheet 1.

S. SMITH.
MOLDING MACHINE.

No. 478,377.

Patented July 5, 1892.



Witnesses

George Baumann
John Revell

Inventor

Samuel Smith

By his Atty.

Howson and Howson

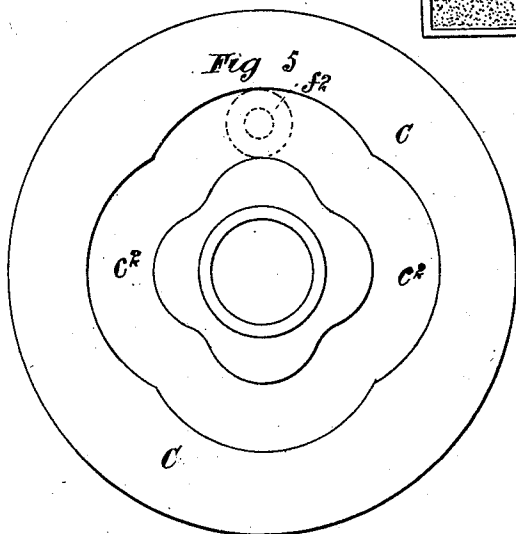
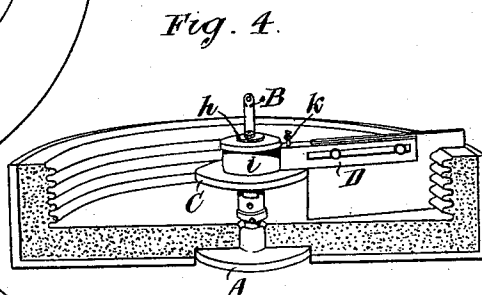
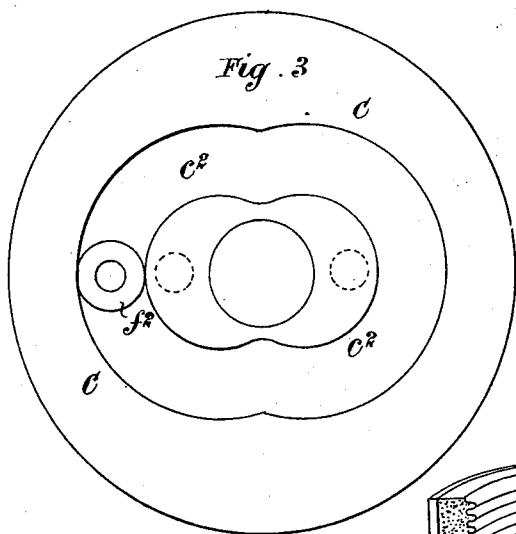
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3 Sheets—Sheet 3.

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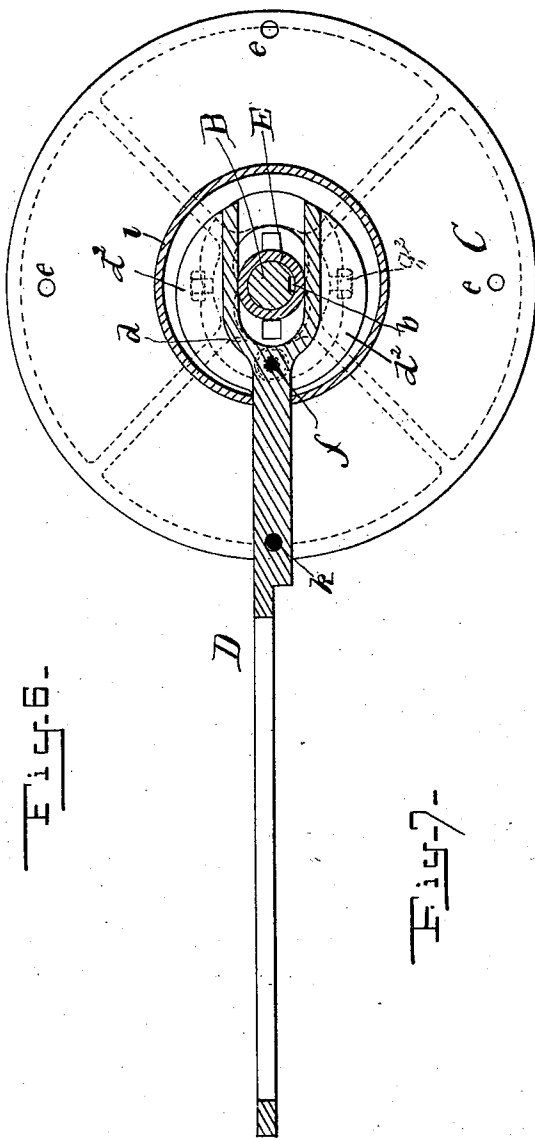


Fig. 6-

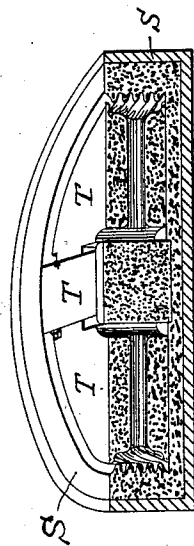


Fig. 7-

Witnesses:

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James Eraser

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Samuel Smith
By his Attorneys,
Howar and Howar

UNITED STATES PATENT OFFICE.

SAMUEL SMITH, OF BURY, ENGLAND, ASSIGNOR TO JOHN BROAD JACKSON
AND GEORGE BENTLEY, OF SAME PLACE.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 478,377, dated July 5, 1892.

Application filed September 22, 1891. Serial No. 406,457. (No model.) Patented in England September 4, 1890, No. 13,909.

To all whom it may concern:

Be it known that I, SAMUEL SMITH, foreman pattern-maker, a subject of the Queen of Great Britain and Ireland, residing at No. 25 Parker Street, Bury, in the county of Lancaster, England, have invented certain Improvements in Machines or Apparatus for Describing Figures, applicable more especially for use in making molds for foundry purposes, (for which I have obtained a patent in Great Britain in conjunction with John Broad Jackson and George Bentley, No. 13,909, dated September 4, 1890,) of which the following is a specification.

This invention has for its object to provide a machine or device by means of which various figures can be described, and it is more especially intended for use for making molds for foundry purposes, although its use is not limited to that particular purpose.

I will describe the apparatus with reference to the accompanying drawings as adapted for use in describing at one operation the figure of a mold for the two parts of a pulley, from which description its general construction for other purposes will likewise be understood.

Figure 1 shows in vertical section, and Fig. 2 in plan, an apparatus constructed according to my invention. Fig. 3 shows the guiding or cam groove or matrix; and Fig. 4 is a perspective sectional view of a form of the apparatus in operation upon a mold, showing how the standard may be protruded through the mold. Fig. 5 is a view similar to Fig. 3, showing another form of groove. Fig. 6 is a horizontal sectional view of the apparatus. Fig. 7 is a perspective view of the finished mold with the core in position.

Pulleys or analogous castings require to be made in halves or separate parts, and the apparatus constructed according to this invention is adapted to describe two semicircles making up the complete circle of the pulley, the said two semicircles being separated by a space for being filled in by a core to separate the two parts of the mold, so that the metal can be poured into both parts at the same time, and then on the core being removed the

two parts so cast are joined together to make the complete pulley. These two parts and the space for the core are described by one revolution of the apparatus without moving it from its position.

In an apparatus constructed according to this invention upon a suitable base or support A is secured a spindle B, and upon this spindle is mounted a disk C, having therein a cam-groove c^2 of the shape of the two semicircles, joined by a part which corresponds to the space for the core between them, as shown in the separate view, Fig. 3. The arm D, which carries the tool by which the mold is formed, (or the tool by which any desired figure is to be described,) has its inner end forked, as at d , or provided with a slot or hollow boss, which embraces the spindle B or a collar on it, as at E, and the said arm is provided with a projection preferably consisting of a pin f , with a roller f^2 upon it, which enters the cam-groove c^2 , and when the arm D is rotated it follows the cam-groove c^2 , and the tool consequently describes the figure of the cam-groove and forms the required mold or makes the required figure. The disk C is preferably secured to the spindle B by means of a collar g and fixing-screw g^2 , engaging in a longitudinal groove b in the spindle, so that the disk C and its adjuncts can be raised or lowered and secured on the spindle in the same positions relatively to the circumference of the spindle, although varying in height. The inner end of the arm may be flanged, as at d^2 , and the cam-groove and parts adjacent thereto can be boxed in to protect them, and this can be done by means of a fixed cover-piece h and an encircling piece i , the latter being capable of revolving in the grooves j with the arm D and having an opening through which the said arm projects. A pin may pass through the arm, as shown at k , and serve to indicate the terminations of the half-circles, and consequently the position for the core, by engaging in diametrically-opposite holes e in the disk C.

It will be understood that by substituting disks with different-shaped cam-grooves in them figures other than that mentioned can

be described. Fig. 5, for instance, is a plan of a disk with a cam-groove adapted for forming molds in four parts.

Fig. 7 shows a finished mold, S S being the outside mold and T T the core.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is—

1. In an apparatus for making molds, &c., the combination of a base carrying a spindle and provided with a disk having a cam-groove, a tool-carrying arm adapted to rotate about the spindle, and a projection from the arm, adapted to work in the cam-groove, substantially as set forth.

2. In an apparatus for making molds, &c.,

the combination of a base carrying a spindle, a disk vertically adjustable upon the spindle and provided with a cam-groove, and a tool-carrying arm having one end forked to embrace the spindle, and a projection from the arm, adapted to work in the cam-groove, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL SMITH.

Witnesses:

GEORGE H. CHARLESWORTH,
Notary Public, Manchester.

FRED H. VETTER,
56 Brown St., Manchester, Notary's Clerk.