No. 776,596. PATENTED DEC. 6, 1904.

F. A. JOHNSON.

DEVICE FOR FORMING CORES.

APPLICATION FILED FEB. 8, 1904.

NO MODEL.

Fig. 1.

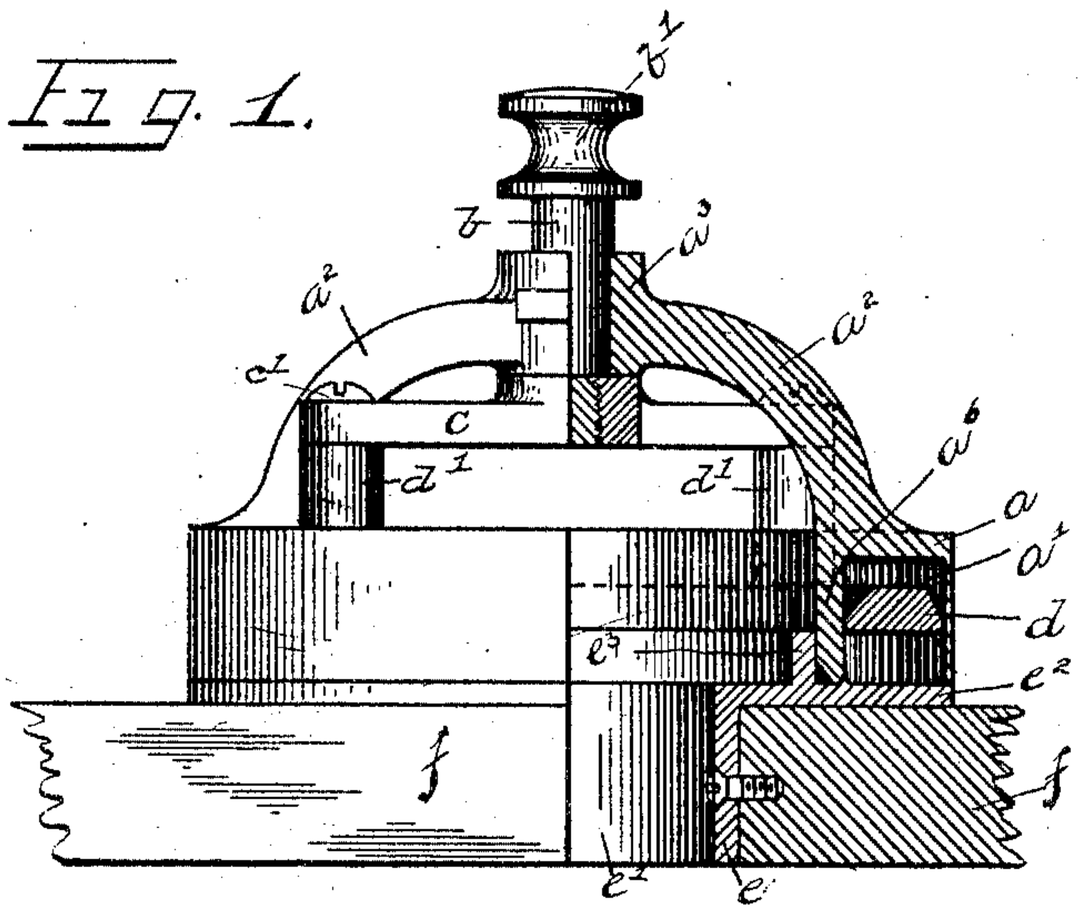


Fig. 2.

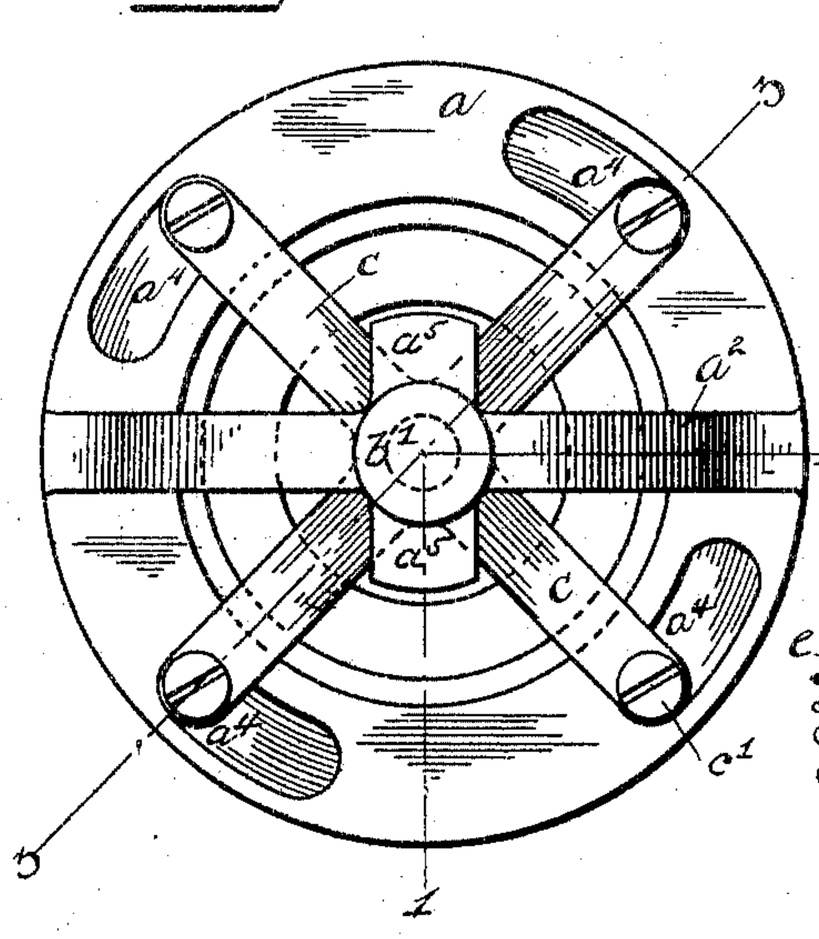


Fig. 4.

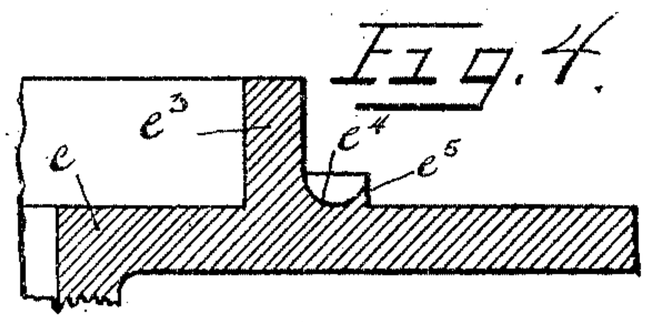
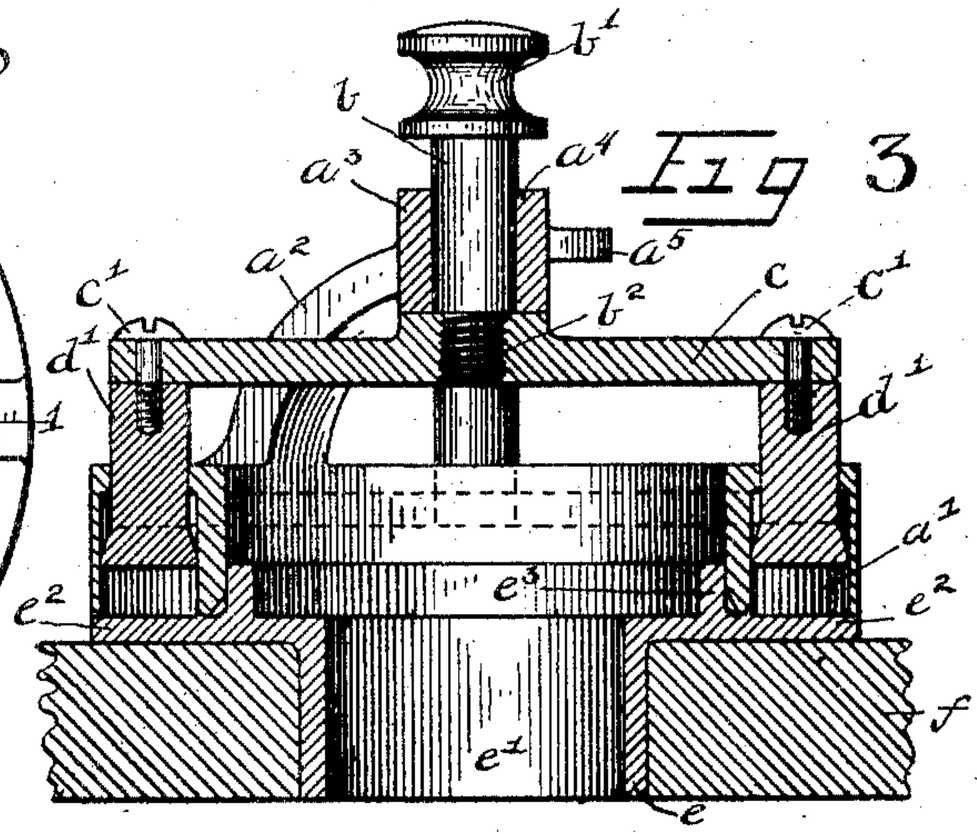


Fig 3



Witnesses:
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L. S. Moore.

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Frank A. Johnson,
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Atty

No. 776,596. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

FRANK A. JOHNSON, OF AURORA, ILLINOIS, ASSIGNOR OF ONE-THIRD TO JOHN F. WELSH, OF AURORA, ILLINOIS.

DEVICE FOR FORMING CORES.

SPECIFICATION forming part of Letters Patent No. 776,596, dated December 6, 1904.

Application filed February 8, 1904. Serial No. 192,492. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. JOHNSON, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Devices for Forming Cores, of which the following is a specification.

This invention relates to means for forming sand cores for use in making castings; and the especial object of the improvements is to form a core of green sand that is especially adapted for forming peripheral grooves in sheaves, pulleys, &c.

While I have shown and will describe my invention as adapted to making a core in the form of a flat ring, it will be apparent that with minor modifications of my invention it may be utilized in forming other shaped cores for various purposes, and I therefore do not wish to be limited to the device for forming merely annular cores.

Referring to the accompanying drawings, which form a part of this application, I have shown my invention in the following views.

Figure 1 is a view, partly in vertical section on line 1 1 of Fig. 2 and partly in elevation, of my invention complete. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical section on the line 3 3 of Fig. 2; and Fig. 4 is a fragmentary detail in cross-section, on an enlarged scale, of a portion of the base-plate, which forms a part of my invention.

Referring to the drawings in detail, *a* represents a metal plate in the shape of a ring with an annular groove or chamber *a'* in its under side and with an arch a^2 extending transversely of the upper side of said ring and connected with a centrally-arranged boss or hub a^3, in which there is a vertical opening or bore a^4 and from the opposite sides of which extend horizontal lugs a^5. Extending downwardly through the bore a^4 is a stem *b*, to the upper end of which is secured a knob *b'*, and the lower end of said stem is threaded, as at b^2. The threaded end of said stem is screwed into a threaded opening in the center of the cross-bar *c*, through the outer ends of which extend downwardly screws *c'*, which are screwed into suitable openings in the posts *d'* of a ring *d*, which is loosely arranged in and adapted to slide vertically and to be partially rotated in the channel or groove *a'* in the casting *a*. The posts *d'* extend upwardly through the slots a^4, which are formed in the casting *a* and communicate with the groove *a'* and are spaced apart, as shown, the length of said slots being sufficient to permit a partial rotation of the arms *c*.

To be used with the parts above described is a base-plate *e*, which is formed with a central bore *e'* and with an annular horizontal flange e^2 and with vertical annular flange e^3, which extends upwardly from the upper surface of the horizontal flange. Adjacent to the vertical flange e^3 an annular groove e^4 is formed in the upper face of the flange e^2, on the outer edge of which is an annular rib e^5, all as clearly shown in Fig. 4.

In using my improved device I firmly press the plate *a* into a bed of suitable molding-sand slightly dampened, and thereby fill the annular groove *a'* below the ring *d*. I then lift the plate with the sand compressed in it, as aforesaid, and the ring by grasping the knob *b* and place it over the base-plate *e* with the lower edge of the vertical flange a^6 of the plate *a* fitting into the groove e^4 of the base-plate. By turning the plate *a* on the base-plate *e* I slick the under side of the core held in the groove *a'*, and by turning the cross-bars *c* to the extent permitted by the slots a^4 I slick the upper side of said core, thus making it smooth on both surfaces. I then grasp the lugs a^5 and allow the ring *d* to drop by gravity, and thus force out the core from the groove *a'* in the position on the pattern required for the casting operation.

It will be seen from the foregoing that the core is compressed in the chamber or groove formed therefor in the plate *a*, and therefore when it leaves the device it is in smooth and perfect condition, and because of the pressure to which it has been subjected will retain its shape under the conditions to which it may be subjected in the casting operation. I have found in actual practice that a green-sand

core formed as stated produces a smooth and true annular groove in a pulley or sheave and avoids expensive and troublesome operations in the casting of such devices by the methods usually employed.

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

1. In a core-forming device, a plate having an annular groove in its under side and provided with a suitable handle on its upper side, a ring fitting loosely in said groove, and means for raising and for partially rotating said ring in said groove.

2. In a core-forming device, a plate having an annular groove in its under side, and having slots communicating with said groove, a ring loosely fitting said groove and having portions projecting through said slots, means for operating said ring, in combination with a base-plate having a flange adapted to receive and center thereon said grooved plate.

3. In a core-forming device, a plate having an annular groove in its under side and having slots communicating with said groove, a ring loosely fitting said groove and having portions projecting through said slots, means for operating said ring, in combination with a base-plate having a horizontal flange and a vertical flange, with a groove in the upper face of said horizontal flange whereby the first-named plate will be centered on said base-plate.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK A. JOHNSON.

Witnesses:
F. BENJAMIN,
J. F. WELSH.