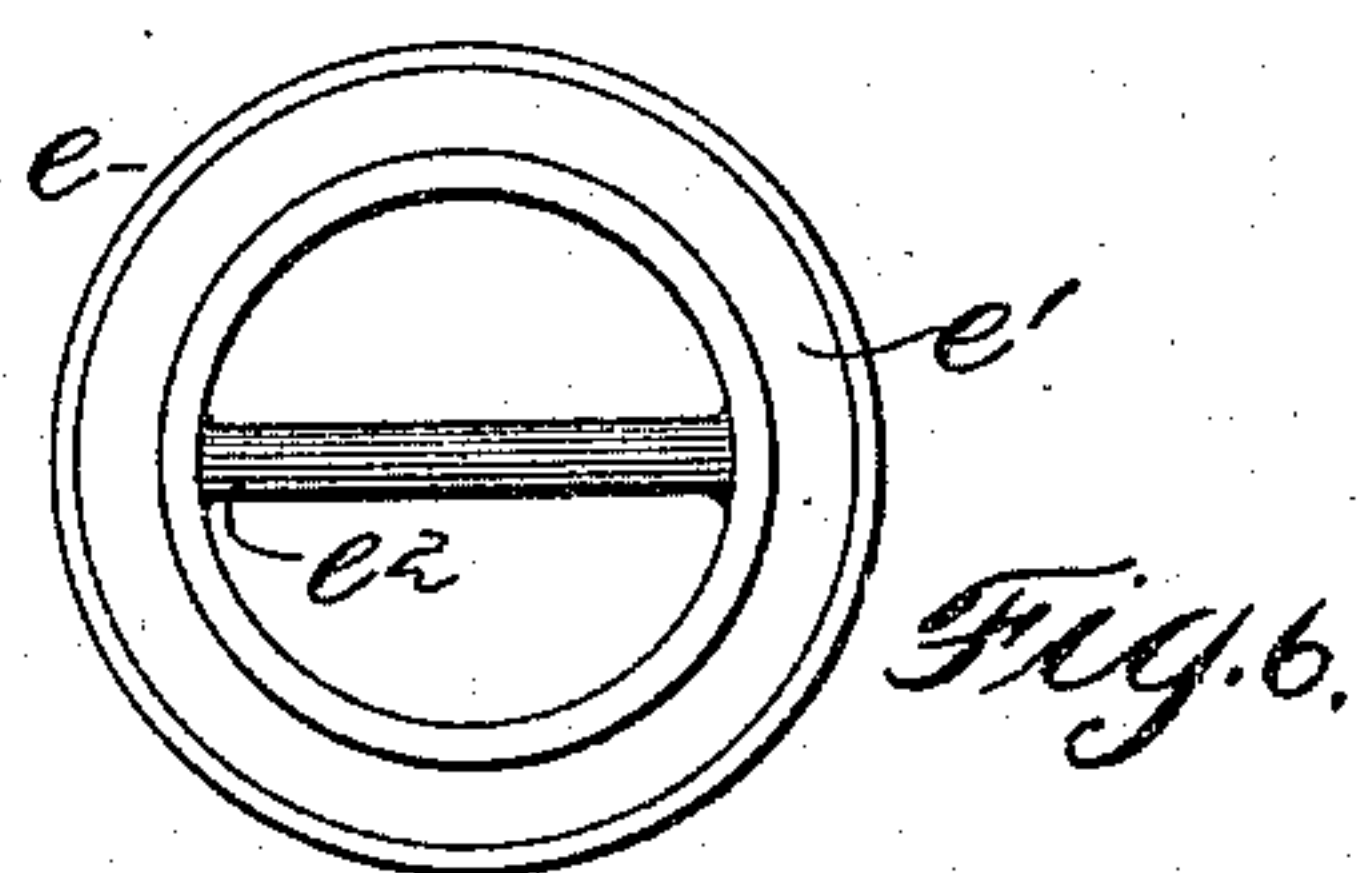
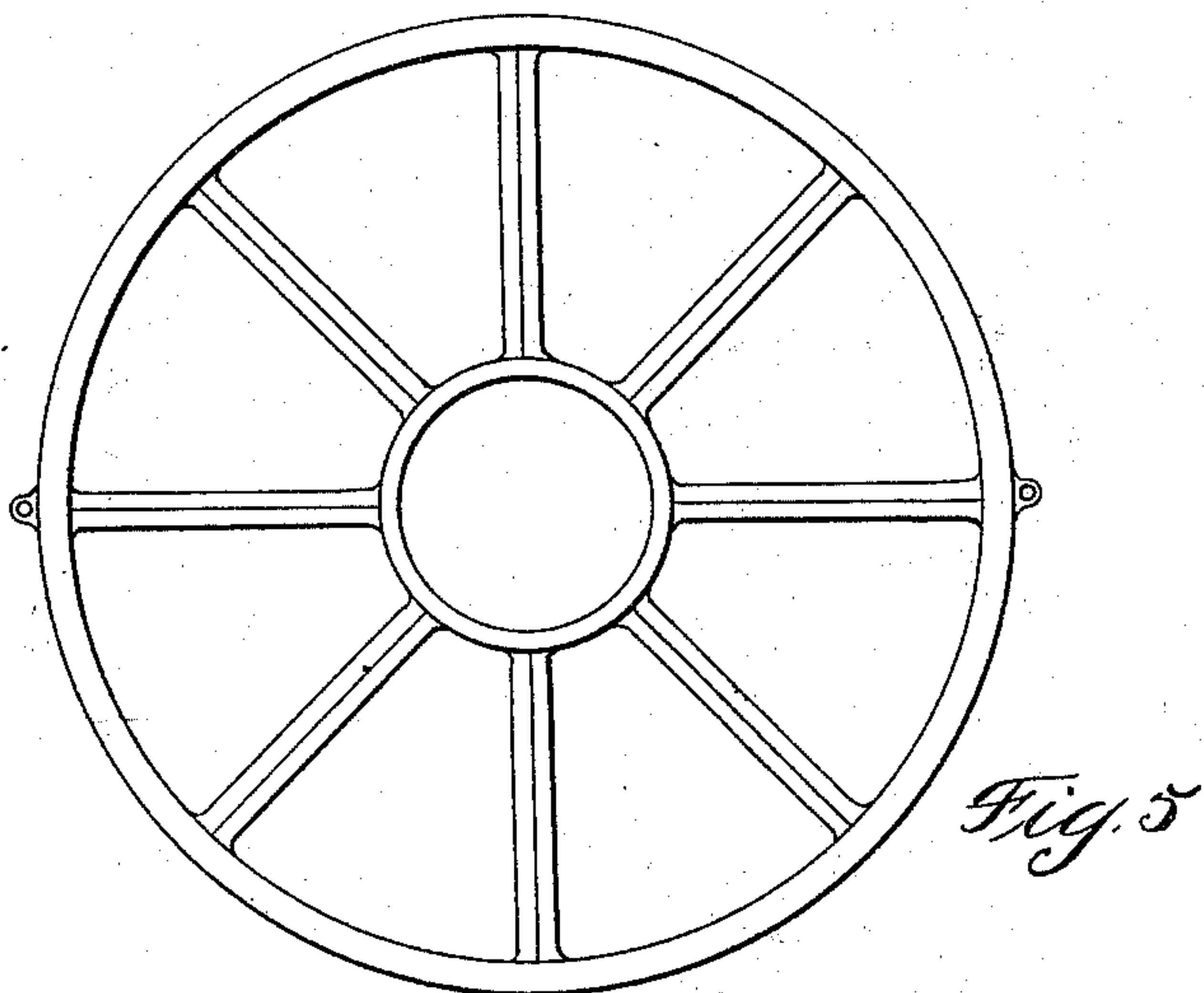
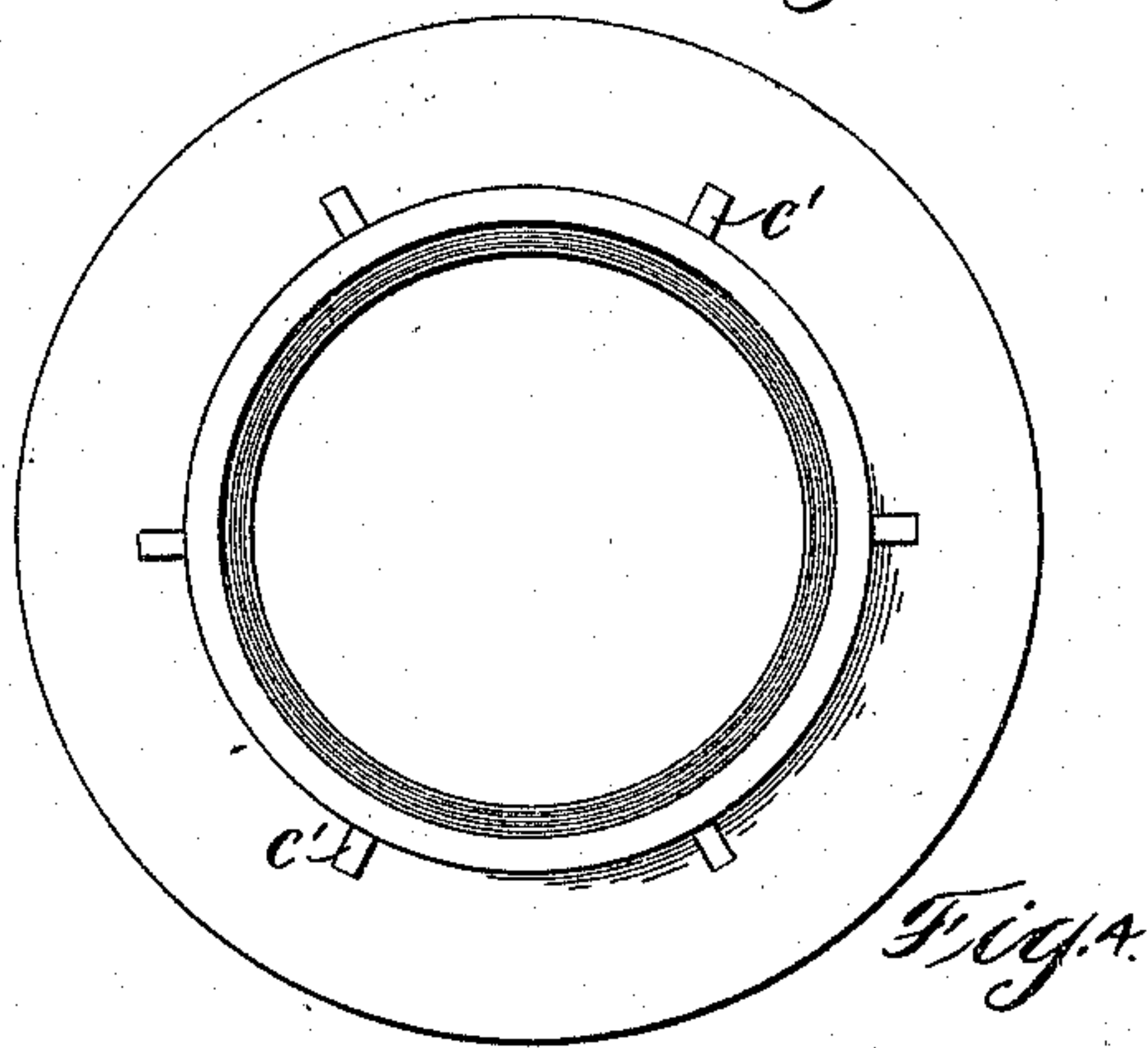
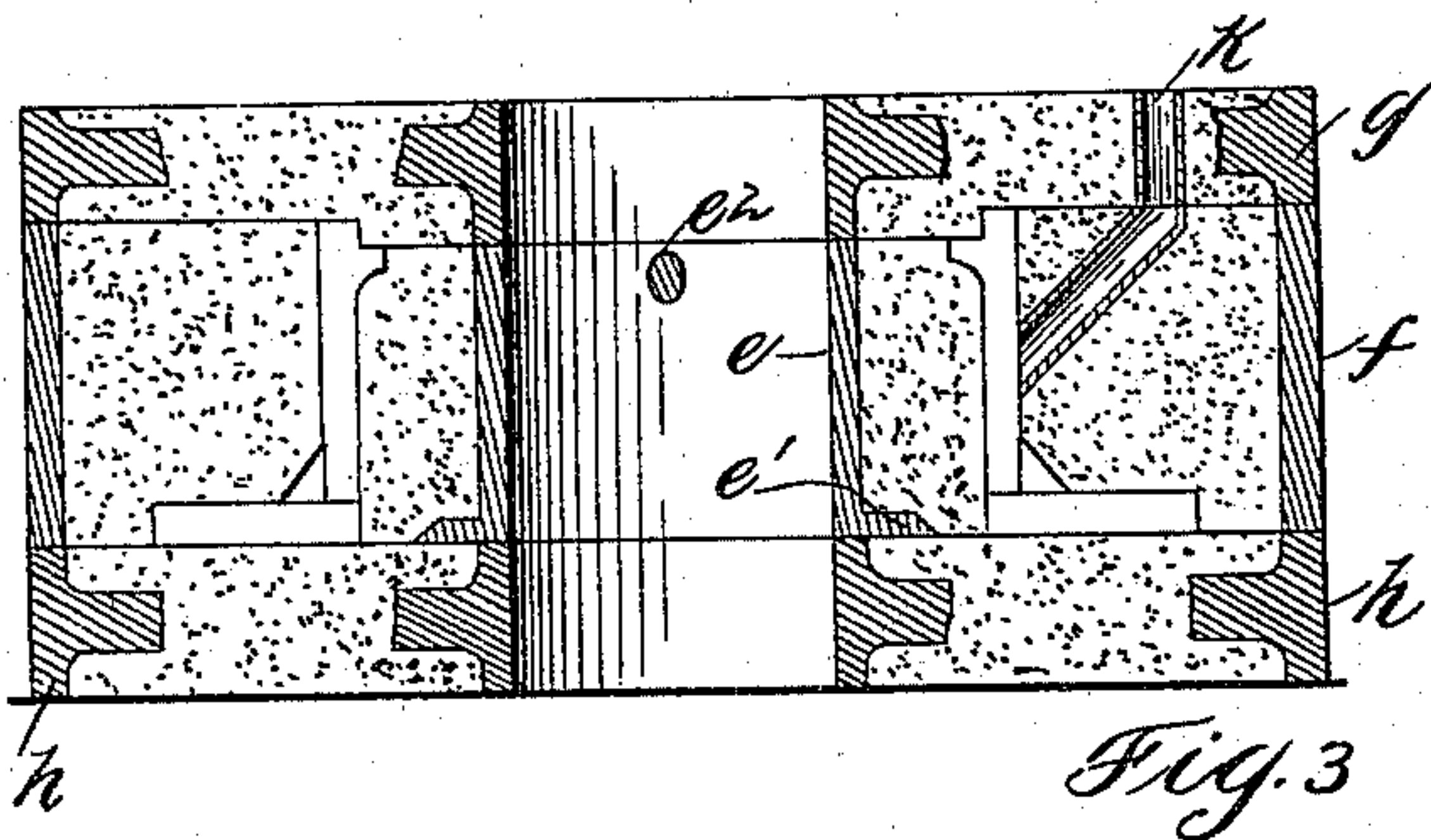
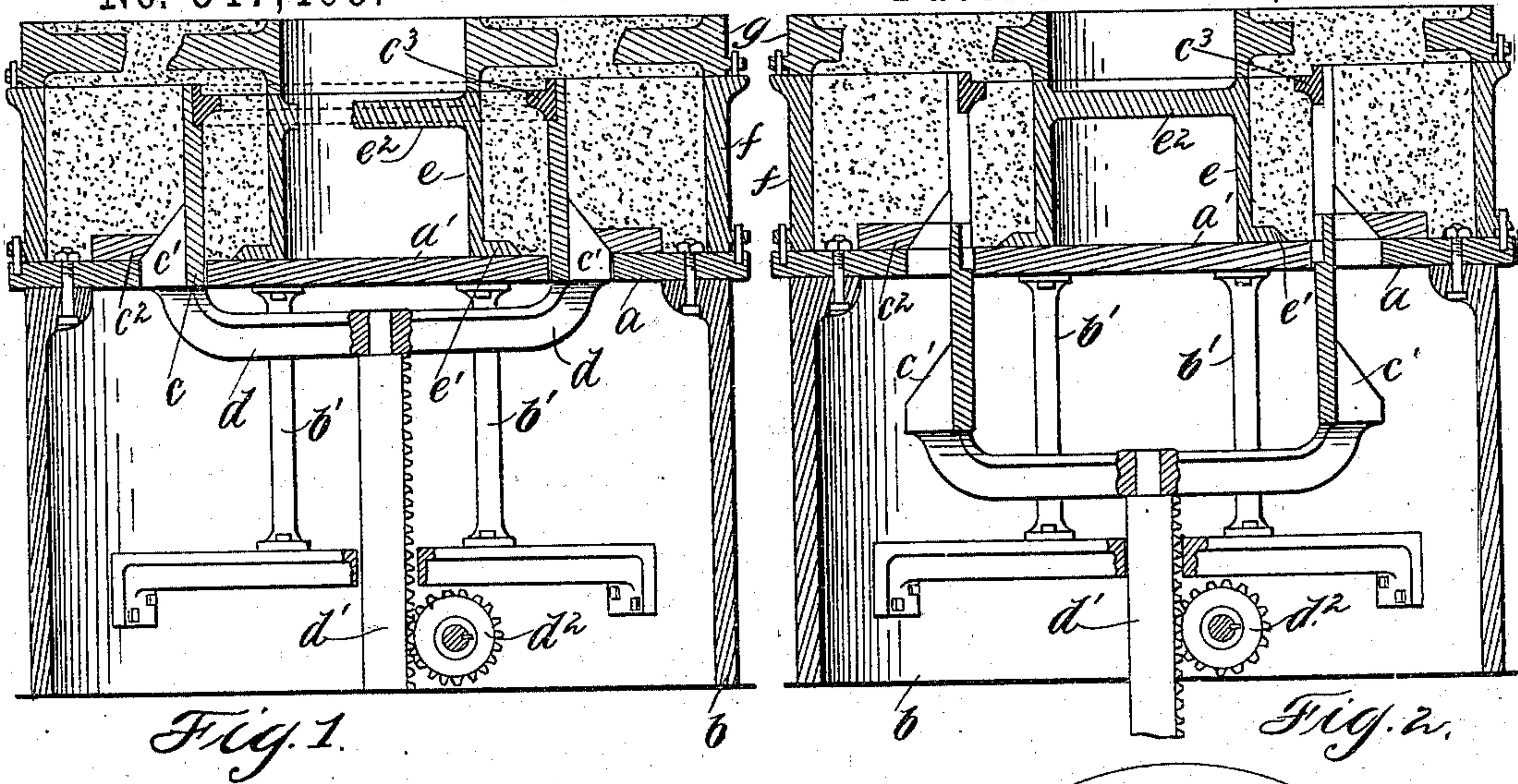


(No Model.)

G. H. TOOTHAKER.
MOLDING MACHINE.

No. 547,406.

Patented Oct. 1, 1895.



Witnesses:
George L. Cragg.
W. Clyde Jones.

Inventor:
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UNITED STATES PATENT OFFICE.

GEORGE H. TOOTHAKER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO FLORENCE HARRIS, OF SAME PLACE.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,406, dated October 1, 1895.

Application filed March 6, 1895. Serial No. 540,703. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. TOOTHAKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Molding-Machines, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a molding-machine, and its object is to provide a machine for molding the frames or casings of manholes. The manhole-frame is provided with a body in the form of a hollow cylinder carrying at the lower end a flange upon the outside and at the top an inwardly-extending flange, upon which the manhole-cover is adapted to rest.

In accordance with my invention a table with an annular opening is provided, through which opening a pattern in the form of a hollow cylinder is adapted to extend, the pattern being mounted upon a carriage or support adapted to be raised and lowered. Upon the table and surrounding the cylindrical pattern is placed an annular pattern corresponding to the flange which is to be molded upon the exterior of the frame. Upon the top of the cylindrical pattern rests a ring adapted to form the inwardly-extending flange upon which the cover of the manhole rests. A cylinder provided with an exterior flange is placed upon the table within the cylindrical pattern and a cheek is placed upon the table surrounding the cylindrical pattern. Sand is then packed between the cylindrical pattern and the cheek upon one side and between the cylindrical pattern and the interior cylinder on the other side. Upon the top of the mold thus formed is placed a cope filled with sand in the usual manner. The cylindrical pattern is then moved downward by means of the carriage or support, the cylindrical pattern being thus withdrawn from the mold. The cope is removed and the ring corresponding to the flange upon which the cover is to rest is removed from the top of the mold. The cylinder which was placed within the cylindrical pattern is then lifted, carrying with it the sand which was packed between the cylinder and the cylindrical pattern, and is placed upon a drag. The cheek is also lifted

from the table, carrying with it the sand which was packed between the said drag and the cylindrical pattern, and is also placed upon the drag. The cope is then placed in position and the mold is ready for the introduction of the molten metal.

I will describe my invention by reference to the accompanying drawings, in which—

Figure 1 is a sectional view illustrating my invention, the several parts of the pattern being shown in position in the sand. Fig. 2 is a similar view showing the cylindrical portion of the pattern withdrawn from the sand. Fig. 3 shows the several parts of the mold in position ready for the introduction of the molten metal. Fig. 4 is a plan view of the manhole-casing molded in accordance with my invention. Fig. 5 is a plan view of the cope or drag. Fig. 6 is a plan view of the central lifting-cylinder about which the mold is formed.

Like letters refer to like parts throughout the several figures.

The molding-table comprises an annular portion *a*, mounted upon standards *b*, and a central circular portion *a'*, mounted upon standards *b'*. An annular opening is thus formed between the portions *a a'* of the table. The cylindrical portion *c* of the pattern is mounted upon a support or movable carriage *d*, extending upward through the opening provided in the table, and a rack *d'* is provided beneath the carriage adapted to be engaged by a gear-wheel *d''*, whereby the carriage may be lowered to move the cylindrical pattern *c* downward. Upon the outer surface of the pattern *c* are provided triangular portions *c'*, corresponding to the brackets *c'*, which are to be formed upon the manhole-casing. Upon the portion *a* of the table rests the annular pattern *c''*. Upon the top of the cylindrical pattern *c* rests the ring *c'''*, provided with a flange extending inward from the inner surface of the cylindrical pattern *c*. The upper face of the ring *c'''* is provided with an inset to form the seat for the manhole-cover, and within the cylindrical pattern *c* is provided a lifting-cylinder *e*, provided with an exterior flange *e'* at the bottom and with a rod *e''* at the top to serve as a handle.

In preparing the mold the cylinder *e* is first placed upon the circular portion *a* of the table.

The cylindrical pattern *c* is lifted to the position shown in Fig. 1, and sand is placed between the cylinder *e* and the cylindrical pattern *c*. The annular ring *c*³ of the pattern is placed upon the top of the cylinder *c*, and the sand smoothed off level with the top of cylinder *e*. A layer of parting-sand is then placed over the surface thus formed. The annular ring *c*² of the pattern, adapted to form the flange of the frame, is placed upon the portion *a* of the table and sand is packed between the outer face of the cylindrical pattern *c* and the cheek *f*, the sand being leveled off even with the top of the cylindrical pattern *c*, a layer of parting-sand being placed upon the surface thus formed. A cope *g* is then placed upon the top of the cheek *f* and filled with sand. The gear-wheel *d*² is next rotated to engage the rack *d*¹ and move the carriage *d* downward, thus withdrawing the cylindrical pattern *c* from the sand, as illustrated in Fig. 2. This leaves the ring *c*³ resting upon the sand. The cope *g* and ring *c*³ are then removed, and by means of the bar *e*² the cylinder *e* may be lifted from the table *a*, the sand formed about the cylinder *e* resting upon the flange *e*¹ of said cylinder *e*. The cylinder *e* is then placed upon a drag *h*, Fig. 3, and the cheek *f* is lifted from the table *a*, carrying with it the sand formed between the cheek and the cylindrical pattern *c*, and is likewise placed upon the drag *h*, encircling the cylinder *e*. The cope *g* is then placed in position upon the top of the cheek *f*, the parts of the mold being thus assembled ready for the introduction of the molten metal. A sprue *k* may be formed through the sand in the cope and in the cheek for the introduction of the molten metal. Since the cylindrical pattern *c* is withdrawn from the mold by machine-actuated means, it is unnecessary to provide a taper in the pattern *c* for facilitating the withdrawal of the pattern, as is necessary when it is withdrawn by hand.

I am aware that it has been proposed heretofore to provide means for withdrawing a hollow cylindrical pattern from the mold from beneath, and I do not claim this feature in its

individual capacity, but as one of the elements of the machine for molding manhole frames, which as a whole is new.

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

1. In a molding machine, the combination with a hollow cylindrical pattern adapted to form the body of the man hole frame, of an annular pattern surrounding said cylindrical pattern at the lower end and adapted to form the flange or rim of the frame, a ring resting upon the upper end of said cylindrical pattern and adapted to form the inwardly extending flange upon which the man hole cover is adapted to rest, and a carriage or support upon which said cylindrical pattern is mounted, adapted to be lowered to withdraw said cylindrical pattern from the mold from beneath, leaving said ring resting upon the top of the mold, substantially as described.

2. In a molding machine, the combination with a table comprising an annular portion *a* and a central circular portion *a*¹, an annular opening being provided between the two portions of the table, a hollow cylindrical pattern *c*, adapted to form the body of the man hole frame, a pattern in the form of a ring *c*³ resting upon the upper end of said pattern *c* and adapted to form the inwardly extending flange upon which the cover is adapted to rest, an annular pattern *c*² resting upon the portion *a* of the table surrounding said pattern *c* at the lower end and adapted to form the flange or rim of the frame, the lifting cylinder *e* resting upon the portion *a*¹ of the table, and the carriage or support *d* upon which said cylindrical pattern *c* is mounted, adapted to be lowered to withdraw said pattern from the mold through the annular opening provided in the table, substantially as described.

In witness whereof I hereunto subscribe my name this 27th day of February, A. D. 1895.

GEORGE H. TOOTHAKER.

Witnesses:

W. CLYDE JONES,
GEORGE L. CRAGG.