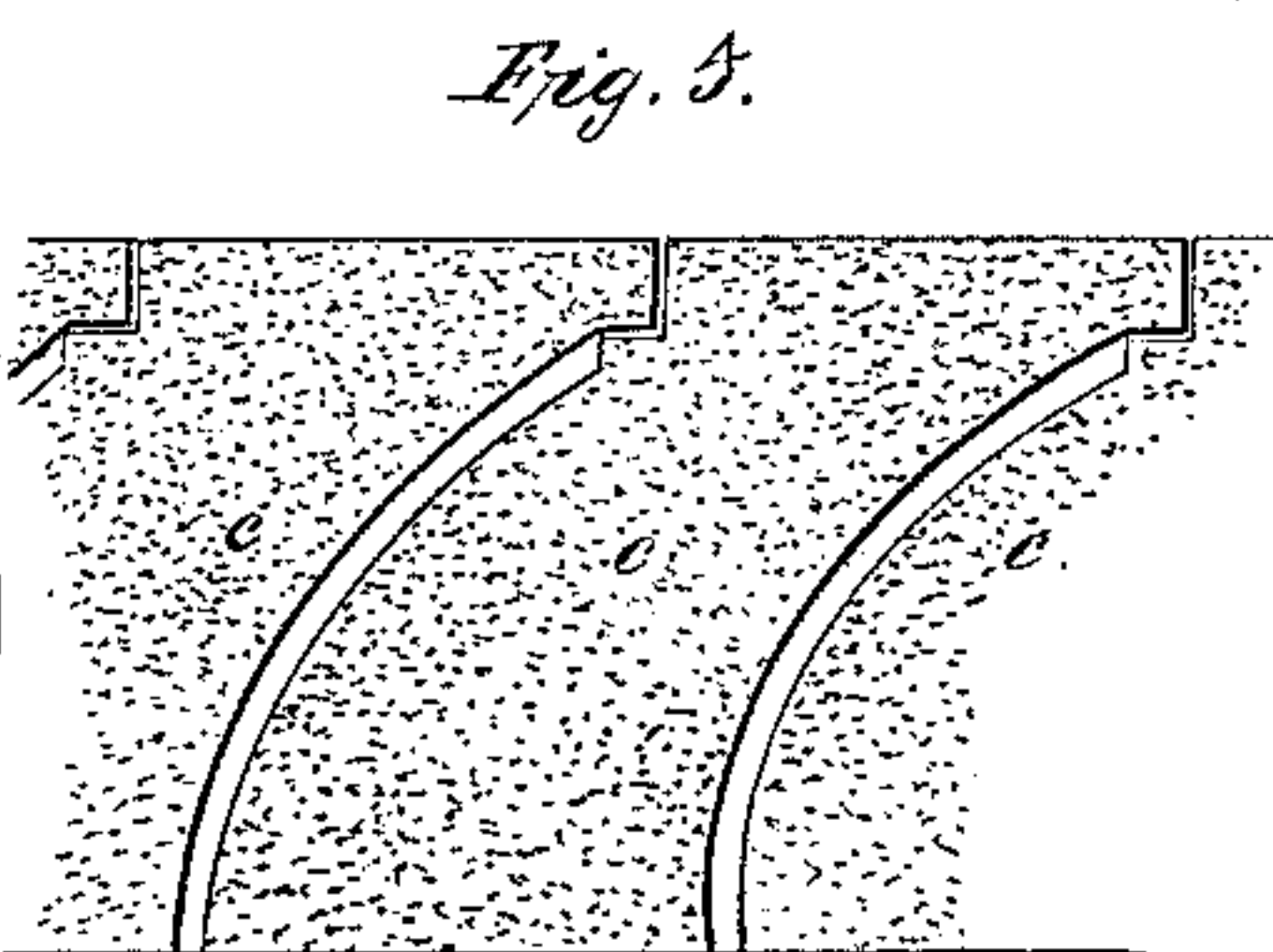
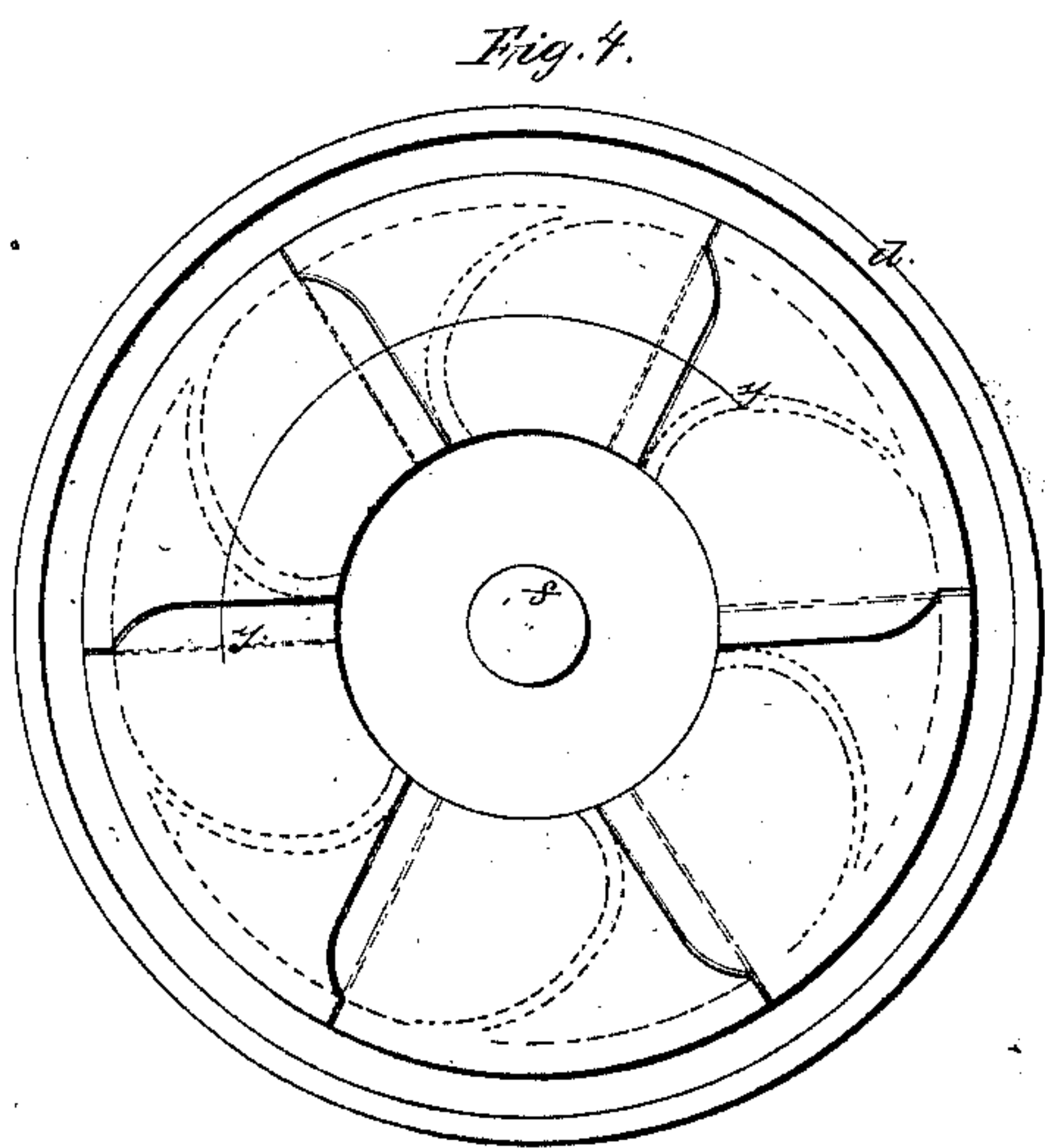
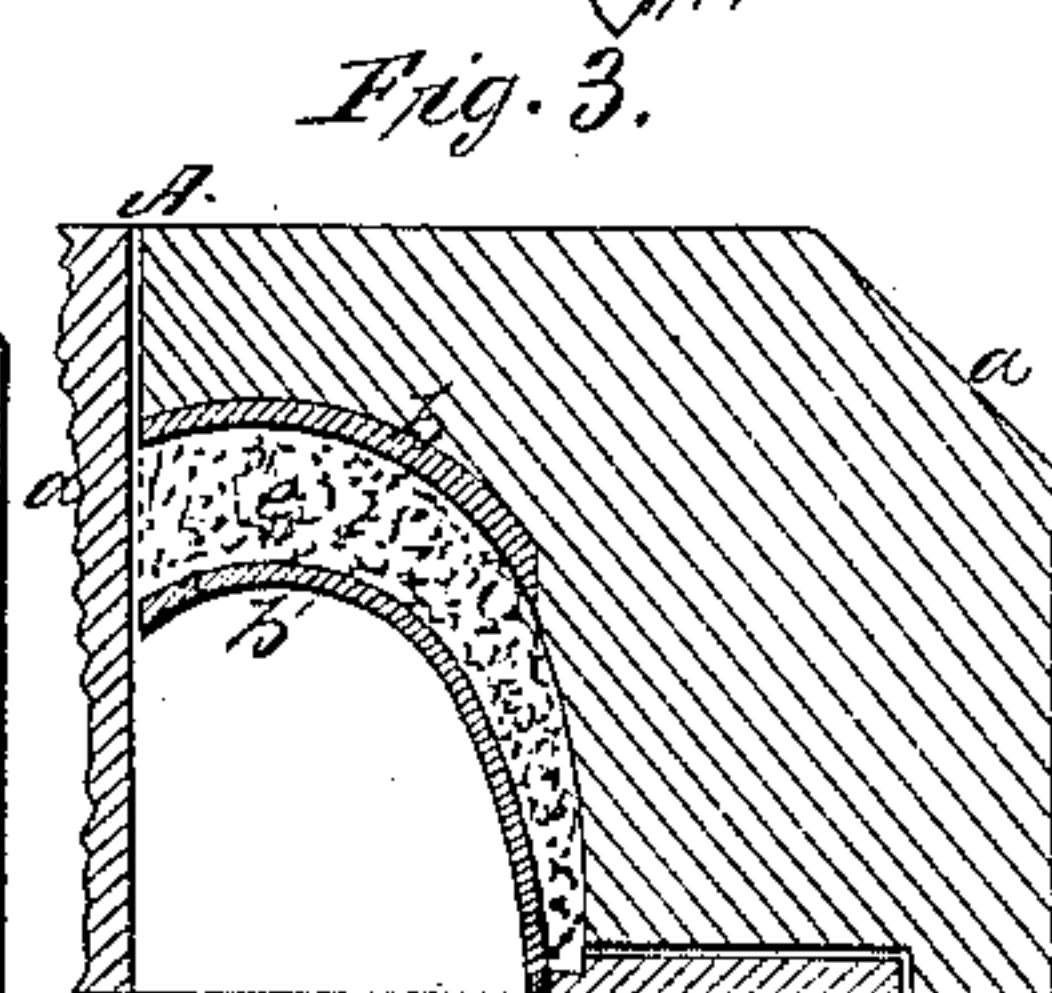
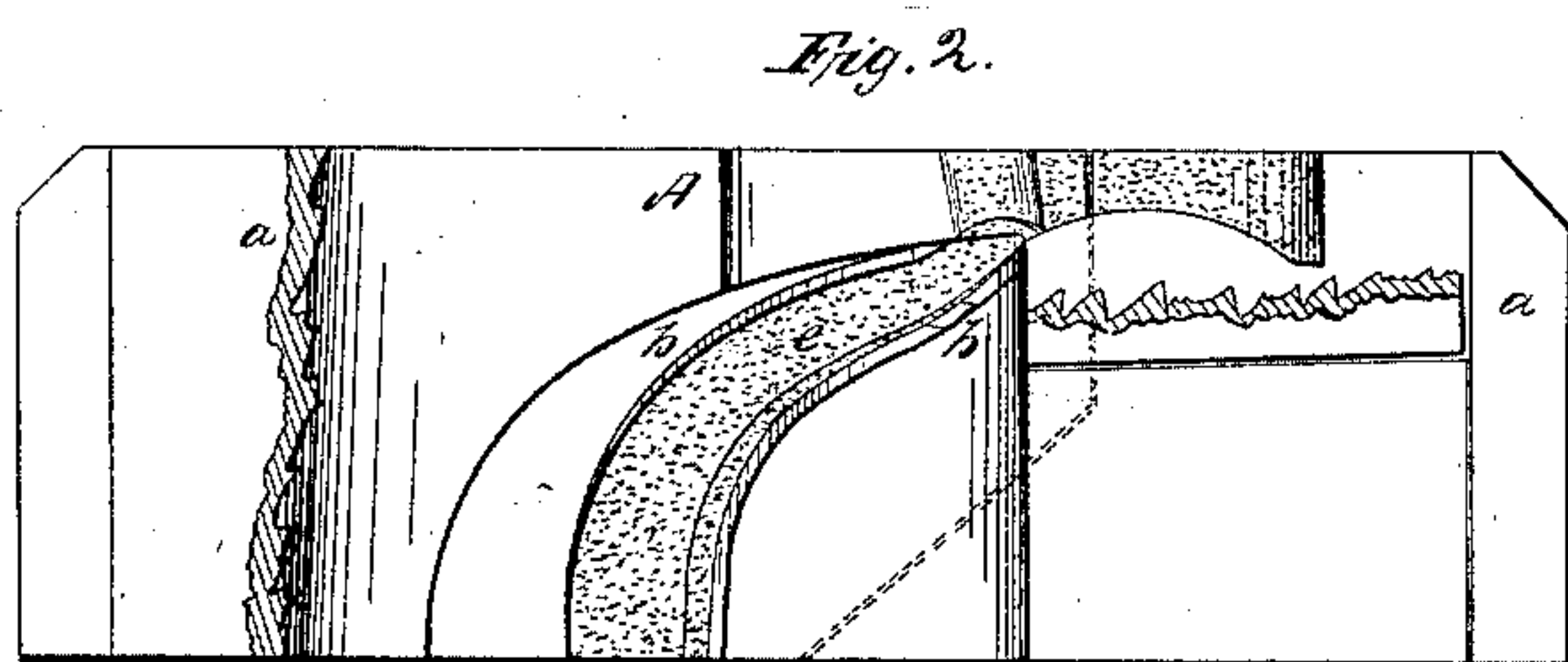
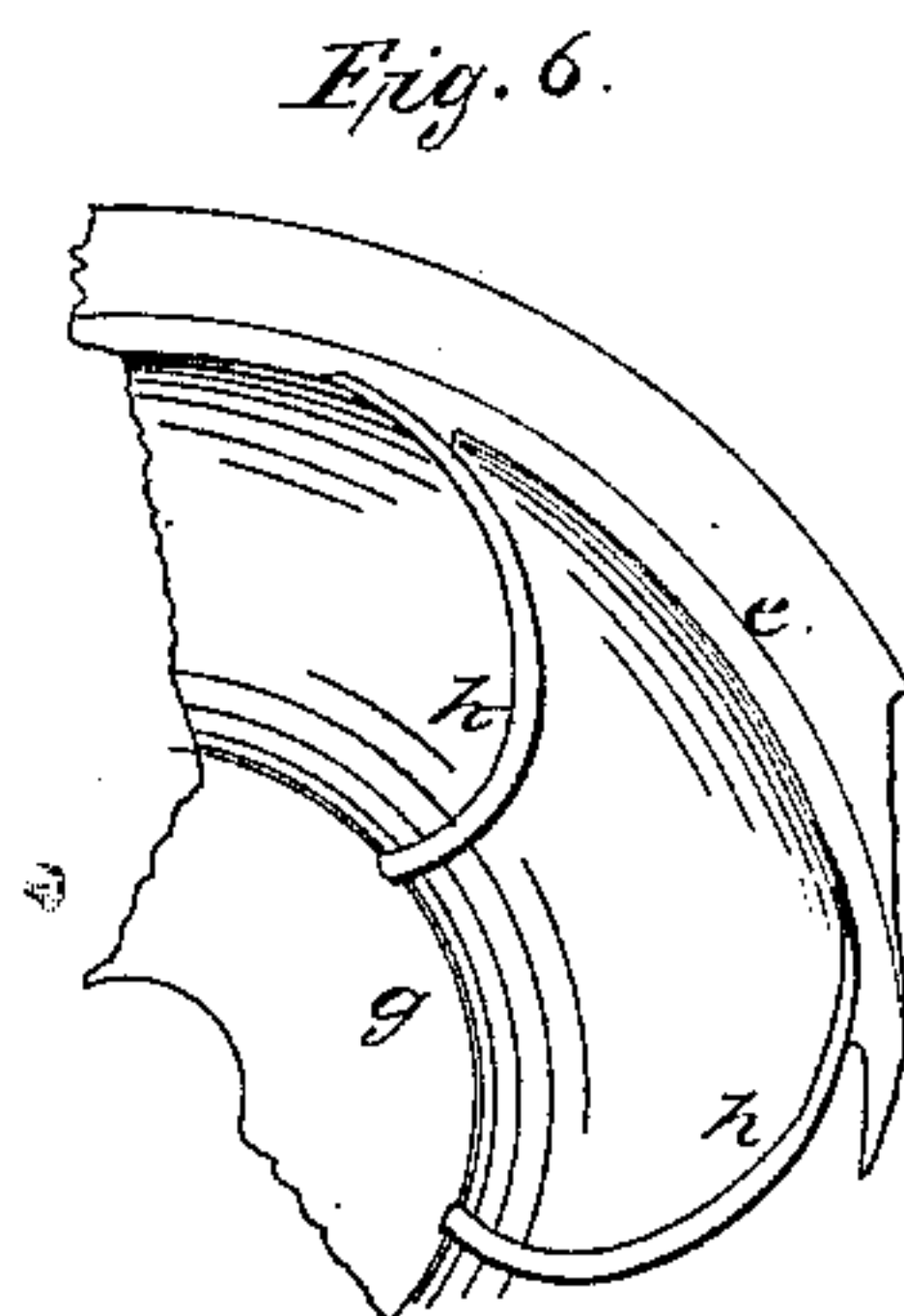
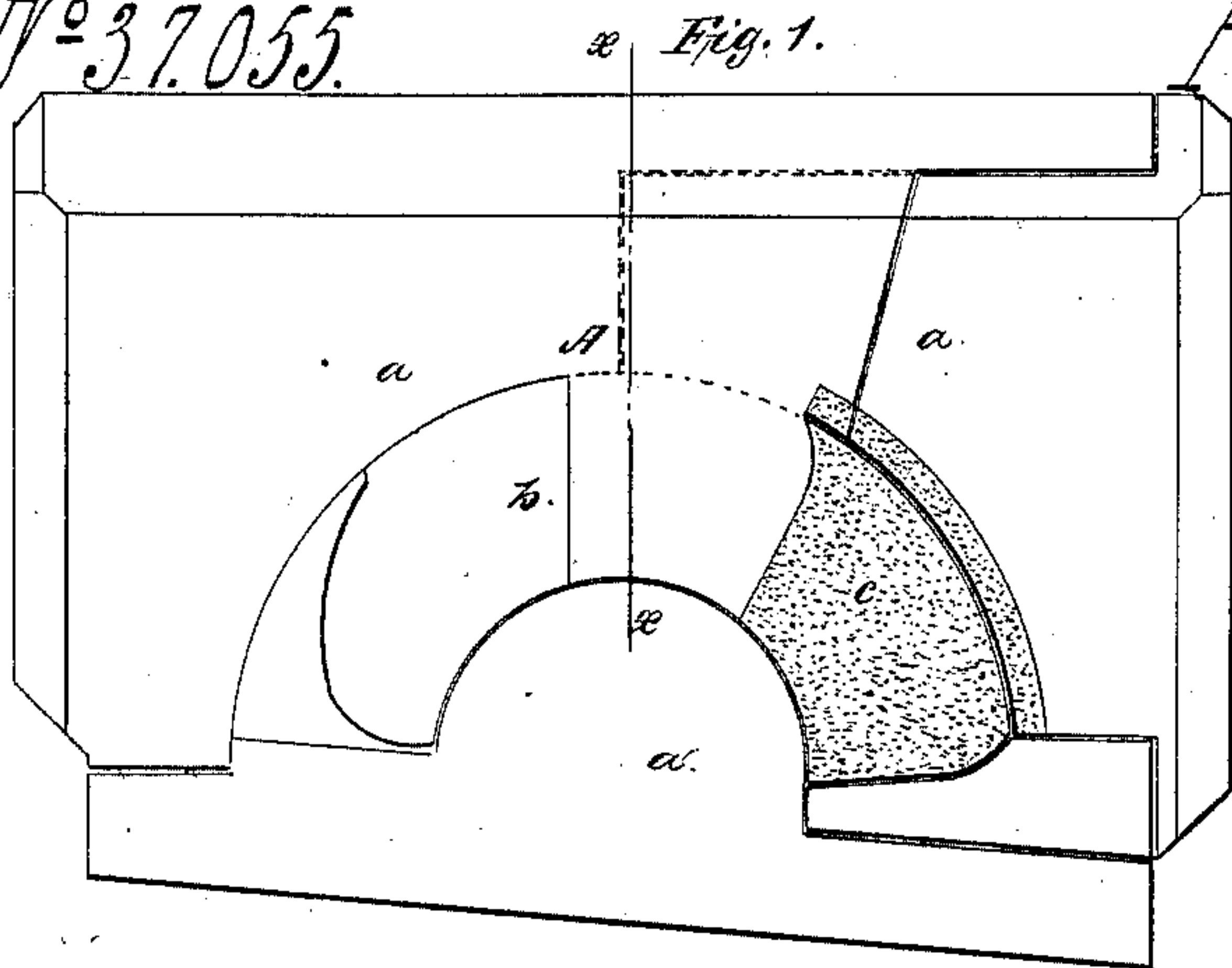


T.H. Ridson,

Casting Water Wheels.

N^o 37,055.

Patented Dec. 2, 1862.



*Witnesses:
J. W. Brown
Geo. Reed*

*Inventor:
T. H. Ridson
per Munn & Co
Attorneys*

UNITED STATES PATENT OFFICE.

T. H. RISDON, OF MOUNT HOLLY, NEW JERSEY.

IMPROVEMENT IN CASTING WATER-WHEELS.

Specification forming part of Letters Patent No. 37,055, dated December 2, 1862.

To all whom it may concern:

Be it known that I, T. H. RISDON, of Mount Holly, in the county of Burlington and State of New Jersey, have invented a new and useful Improvement in Casting Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan or top view of the mold used for forming the cores of the buckets; Fig. 2, a side view of the same, partly in section; Fig. 3, a section of the same, taken in the line *x x*, Fig. 1. Fig. 4 is a plan or top view of the mold in which the wheel is cast; Fig. 5, a section of Fig. 4, taken in the line *y y*; Fig. 6, an inverted plan of a part of a wheel cast according to the old method.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and useful improvement in casting the cast-metal wheel patented by Abraham Andrews and Harrison Kalbach, August 30, 1859. This wheel is provided with curved concave buckets, and they have hitherto been formed by casting the buckets separately, and then placing or setting them up in a mold and casting the rim and center or hub of the wheel around the buckets. This plan or mode of casting does not form a durable wheel. The buckets are liable to become detached or knocked out, and in this event the wheel is rendered useless.

My invention consists in casting all the parts comprising the wheel in one piece by forming, by means of a suitable mold, cores for the buckets, or, rather, for the spaces between the buckets, and setting them up in the mold, as hereinafter fully shown and described.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it with reference to the drawings.

A represents a mold, which may be of cast-iron, and formed of three parts, *a a a'*, two of said parts, *a a*, being provided each with a curved concave flange, *b*, which corresponds with the buckets of the wheel to be cast.

The three parts *a a a'*, when in contact and adjusted in proper position, form a section of the wheel comprising two buckets. This mold A is employed for forming cores for the spaces between the buckets, which is done by raising the space between the two flanges *b b* with sand *c*, as shown in Figs. 1, 2, and 3. The cores *c*, when a sufficient number are formed for a wheel, are set up in a mold prepared in sand, as shown in Figs. 4 and 5. The cores are placed in the mold at a proper distance apart to correspond with the spaces between the buckets of the wheel to be cast, and a wall, *d*, is formed around the buckets, with a space left between it and the outer edges of the cores to receive the metal which forms the rim or case *e* of the wheel. (See Fig. 6.) A central core, *f*, is also placed at the center of the mold, a space being allowed all around said core and the inner edges of the cores *b* to receive the metal which forms the hub *g* of the wheel. (Shown in Fig. 6.) When the mold is thus formed, the buckets *h* of the wheel, the rim or case *e*, and the hub *g* will all be cast in one piece. A strong and durable wheel is thereby obtained.

The old mode of casting the buckets separately and then placing them in a mold and casting the rim and hub around them does not form a strong and durable wheel. The buckets *h* are liable to be forced out from the rim or case *e* and hub *g* by the action of drift-wood or other substances which are liable to pass into the wheel and strike forcibly against the buckets.

I do not claim, broadly, casting the several parts of a water-wheel all in one piece, for there are some kinds of wheels which are thus cast, the form and arrangement of the parts admitting of it, without any difficulty whatever.

I claim, therefore, as new and desire to secure by Letters Patent—

Casting water-wheels in one piece, in the manner and by means of a mold or molds constructed and arranged as described.

T. H. RISDON.

Witnesses:

JAMES D. SHREVE,
JAMES C. CLARK.