

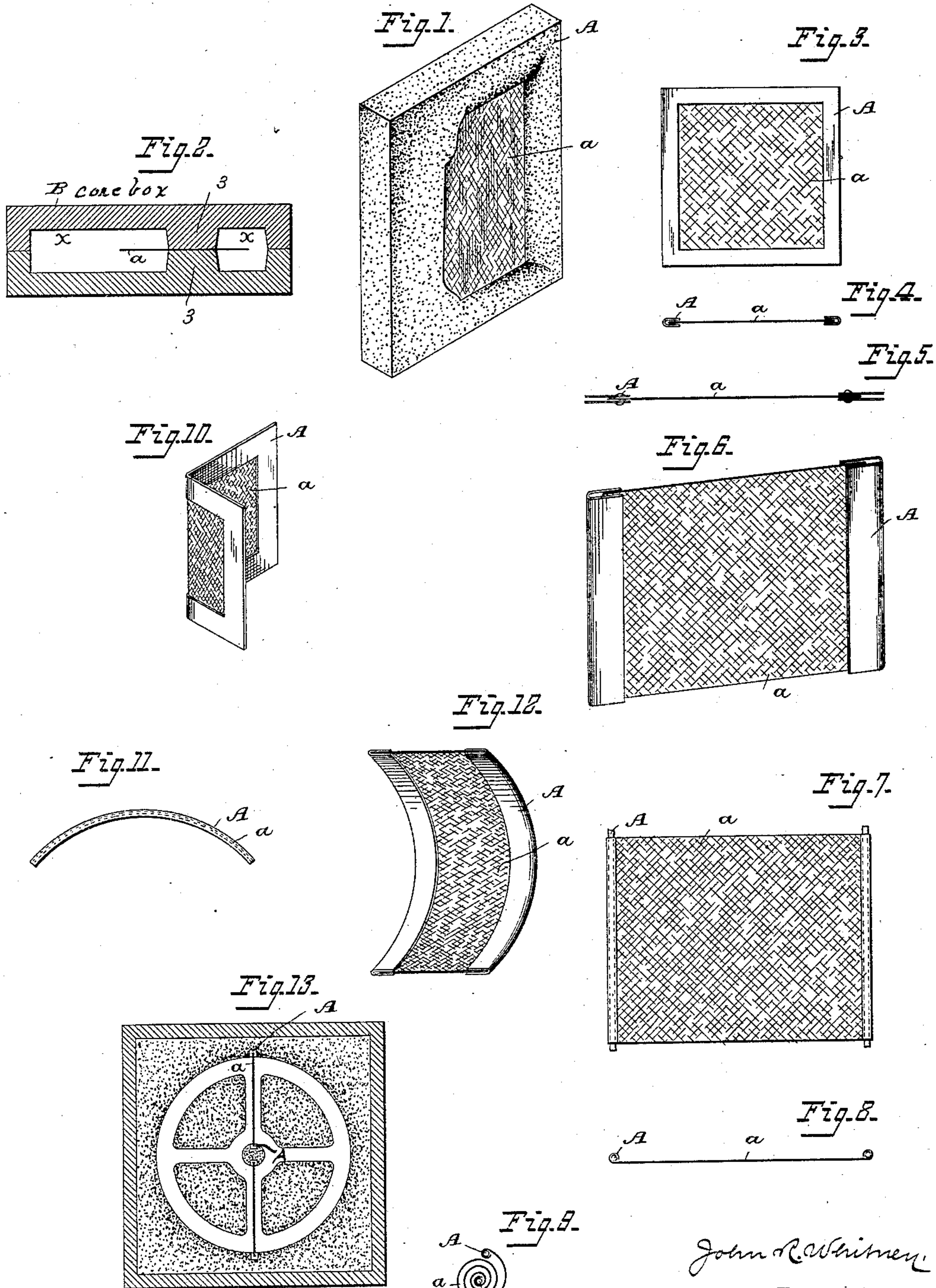
(No Model.)

J. R. WHITNEY.

CORE FOR CASTING.

No. 354,287.

Patented Dec. 14, 1886.



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UNITED STATES PATENT OFFICE.

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CORE FOR CASTING.

[SPECIFICATION forming part of Letters Patent No. 354,287, dated December 14, 1886.

Application filed July 26, 1886. Serial No. 209,136. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. WHITNEY, a citizen of the United States, residing in Radnor township, Delaware county, Pennsylvania, have invented certain new and useful Improvements in Casting, of which the following is a specification.

My invention relates to the manufacture of articles of cast metal which it is desired to cast in wholly or partially separated divisions in the molds; and my invention consists of core-pieces composed of thin flexible blades or sheets of refractory material, and a support for two or more edges thereof, so as to maintain the cores in proper position in the molds.

In the drawings, Figure 1 is a perspective view of a core-piece consisting of a sand frame and thin core. Fig. 2 is a sectional view illustrating the construction of the core-piece, Fig. 1. Figs. 3, 4, and 5 are views showing core-pieces in which the cores are supported by metal frames. Figs. 6, 7, 8, and 9 represent the cores in connection with side supports only. Figs. 10, 11, and 12 illustrate bent cores in connection with bent supports. Fig. 13 is a view illustrating the use of the core-pieces in casting a two-part pulley.

In the manufacture of many articles it has frequently been desirable to cast at one time and in one mold various separate parts, which can be put together to make the articles—as, for instance, separate pulleys. It has also been desirable to cast articles with extremely narrow slots or recesses; but owing to the inability to properly support and use such thin cores or core-pieces as are requisite to effect such results they have not heretofore been accomplished. I have overcome this difficulty by the use of exceedingly thin films or sheets of refractory material as cores, and by supporting such sheets by means of frames or standards, so as to maintain them in proper position in the molds while casting.

The cores may be made from asbestos paper or felt, preferably water-proof, from mica, from paper, or other fabric carbonized, from paper or other fabric chemically prepared to resist the action of molten metal, or from extremely thin sheets of clay or other like refractory material.

The support for the core depends upon the

character of the latter and of the casting. In some instances I use a frame of baked sand or of metal, which, being embedded in the sand of the mold, does not come in contact with the molten metal; or I use rods or standards holding the side edges only of the cores, and these supports may be straight or curved, or of other shape, as circumstances require.

In Fig. 1 is represented a core, *a*, of thin refractory material, all the edges embedded in a frame or support, *A*, of sand. In making this core-piece I use the usual core-mold, *B*, Fig. 2, consisting of the two parts 3 3, inclosing the space *x*, in which the sand is to be packed, and I clamp between these parts the thin sheet *a*, constituting the core, the edges extending into the space *x* and being embedded in the sand which is packed in the space, so that the sand, when it is hardened, constitutes a frame supporting the core at all the edges.

In Figs. 3 and 4 the support *A* is shown as a metallic frame, each edge of the same consisting of a strip folded on itself to form a recess, receiving the edge of the core *a*.

In Fig. 5 the sides of the frame are shown as consisting of two flat pieces riveted together upon the edges of the core.

In Fig. 6 the support is constructed to support the side edges only of the core, consisting of two upright posts or standards of metal, sand, or other material.

In Figs. 7, 8, and 9 the supports are rods, on which the thin core *a* is wrapped or coiled at the edges, and for storage or transportation the core may be rolled upon one of the rods, as shown in Fig. 9. The supporting frame or standards may be of any desired shape.

In Figs. 1, 3, 4, and 5 the frame is flat, and in Figs. 6, 7, 8, and 9 the side supports are straight; but the frame may be bent, as shown in Fig. 10, or curved, as shown in Fig. 11, or the side supports may be curved, as shown in Fig. 12.

It will be seen that whether supported at all of the edges or at only two of the edges the core supported by the frame or standards is held in position, so that it will maintain its proper place in the mold and properly divide the cast metal which flows against it. I have thus supported fine films of one-hundredth of an inch in thickness, and have cast heavy castings with perfectly clean slits of like width.

The manner in which the core and its support is arranged in a mold is shown in Fig. 13, showing a mold for casting a two-part pulley, divided by the cores *a*, supported by frames A. In manufacturing other articles the cores will be similarly arranged.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

10 1. A core-piece for molds, consisting of a core of thin refractory material, and supports for the edges of the core, substantially as described.

15 2. The combination, with a core of thin refractory material, of a supporting-frame in which the edges of the core are secured, substantially as described.

3. The combination of a core of thin refractory material, and a support or frame of

sand, in which the edges of the core are embedded, substantially as described. 20

4. A core-piece consisting of a bent sheet of thin refractory material, and a support for the edges of the material, holding the core in its bent position, substantially as described. 25

5. The combination, with a mold for casting, of core-pieces consisting of thin flexible blades or sheets of refractory material, and rigid supports for the edges of the core, substantially as described. 30

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

JOHN R. WHITNEY.

Witnesses:

LINDLEY M. GARRISON,
HENRY RAINEY.