

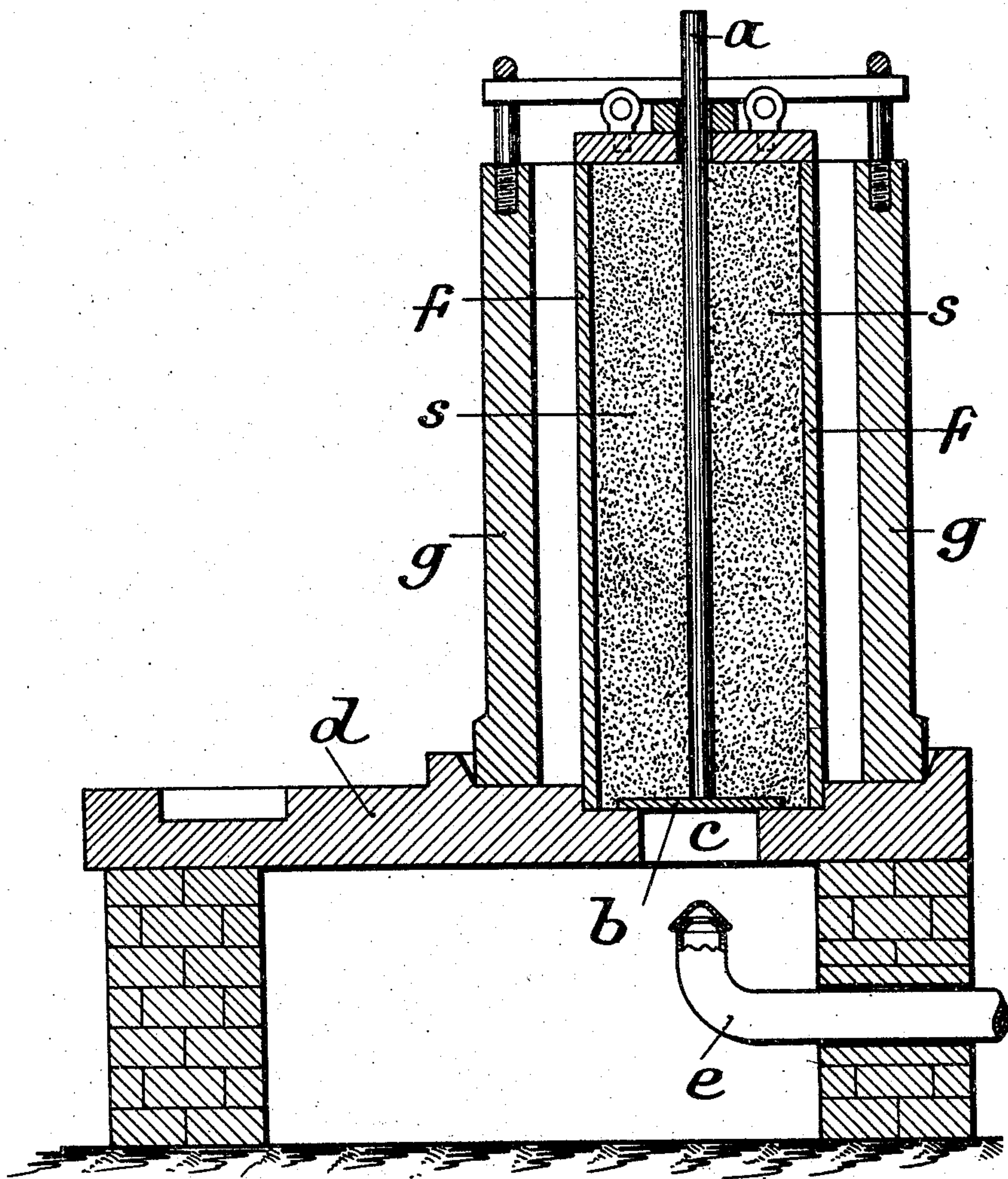
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H. BRAUNS.

CORE FOR USE IN CASTING HOLLOW CYLINDERS IN BLOCK MOLDS.

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WITNESSES

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HUGO BRAUNS, OF DÜSSELDORF, GERMANY.

CORE FOR USE IN CASTING HOLLOW CYLINDERS IN BLOCK-MOLDS.

SPECIFICATION forming part of Letters Patent No. 785,148, dated March 21, 1905.

Application filed September 5, 1903. Serial No. 172,074.

To all whom it may concern:

Be it known that I, HUGO BRAUNS, manager, a subject of the German Emperor, and a resident of 51 Uhlandstrasse, Düsseldorf, Germany, have invented a certain new and useful Improvement in Cores for Use in Casting Hollow Cast Iron or Steel Cylinders in Block-Molds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a core by the aid of which hollow cylinders of steel or cast-iron may be cast in block-molds of cast-iron without rupture of the cylinder in cooling, even when the latter is of comparatively great length.

The core consists of a hollow cylinder, of which the wall is weak enough to yield when the casting contracts.

The accompanying drawing is a vertical section through a casting-mold having a core made according to this invention.

The core-cylinder *f*, which may be made by stamping from a mixture of refractory materials, is strengthened to withstand the strain of casting by a filling *s*, of a material such as dry sand, which can be rapidly removed after the cast metal has solidified. This may be effected by a blow on the rod *a*, which passes through the said material, so as to break the bottom plate *b*, and thus allow the material *s* to flow through the hole *c* in the plate *d*. When the cylinder *f* has been emptied in this manner, it can yield as the casting contracts. Air may be blown through a pipe *e* to pass through the cylinder *f* when this is empty, so as to cool the interior thereof. In this manner the disadvantage of casting hollow cylinders in block-molds is eliminated—namely, that the exterior of the cast cylinder in contact with the block-mold *g* cools more rapidly than the interior in contact with the core-cylinder *f*. Rupture of the cast cylinder is thus avoided. A blast of air is only necessary when the wall of the cylinder is of considerable thickness, as in the case of the most common size of cylinder the natural air-draft suffices.

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

1. A core for use in casting hollow cast iron or steel cylinders in block-molds, consisting of a cylinder, whose wall is weak enough to yield as the casting contracts, a filling material for strengthening the cylinder during the casting operation, and means for removing the filling material without varying the position of the cylinder when the casting has solidified, substantially as described and for the purpose set forth.

2. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, and a mold having means adapted to support said core-body and means, separable from those aforesaid, for supporting the removable core-filling, whereby said filling may be removed without disturbing the body of the core.

3. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, a mold adapted to support said core-body, and means for supporting the core-filling and permitting removal of said filling without moving the support for the body of the core.

4. In a core for the purpose described, the combination of a tubular body, a frangible plate covering an aperture at the lower end of said body, and means for breaking said plate.

5. In a core for the purpose described, the combination of a tubular casing, a body of granular material within said casing, and means independent of the support for the core for opening a passage through which said filling material can pass from the casing.

6. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, a mold having means adapted to support said core-body and means, separable from those aforesaid, for supporting the removable core-filling, whereby said filling may be removed without disturbing the body of the core, and means for cooling the inner surface of said core-body when the filling is withdrawn therefrom.

7. In an apparatus for casting hollow cylinders, the combination of a core consisting of a tubular body and a removable filling, a mold having means adapted to support said core-
5 filling and means, separable from those afore-said, for supporting the removable core-filling, whereby said filling may be removed without disturbing the body of the core, and means for forcing air into said core-body after
10 the filling is withdrawn therefrom.

8. The combination of a mold having an aperture in its bottom wall, a tubular casing arranged within the mold about said aperture in the bottom thereof, a frangible plate cov-

ering said aperture, a body of granular ma- 15
terial within said core-casing, means for breaking said frangible plate, and a blast-pipe arranged below the material and adapted to deliver air to the interior of the core, through
said aperture in the bottom of the material. 20

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

HUGO BRAUNS.

Witnesses:

PETER LIEBER,

WILLIAM ESSENWEIN.