C. W. McWANE.

PIPE CORE AND METHOD OF MAKING THE SAME.

APPLICATION FILED JUNE 19, 1908.

906,912. Patented Dec. 15, 1908.

Fig. 1.

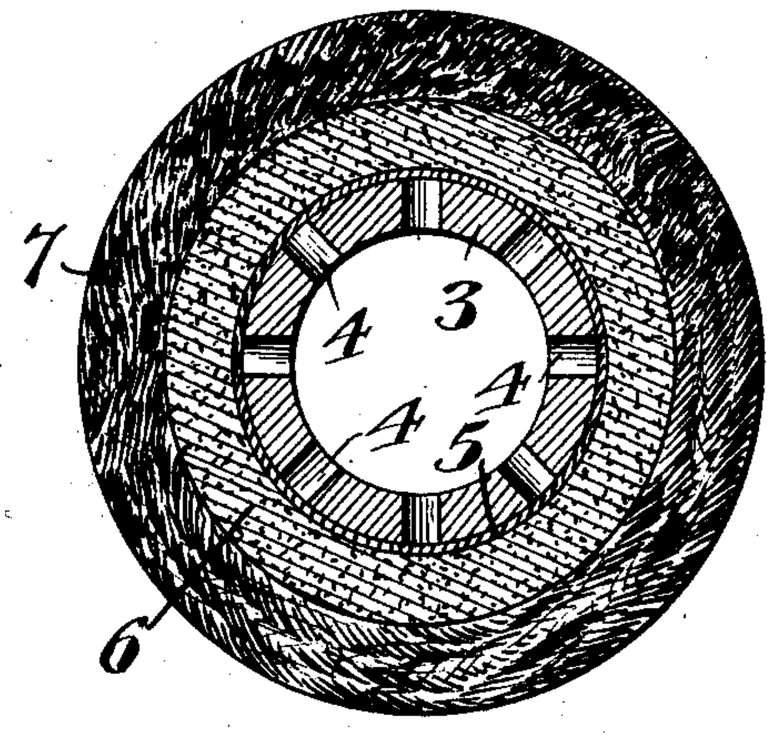
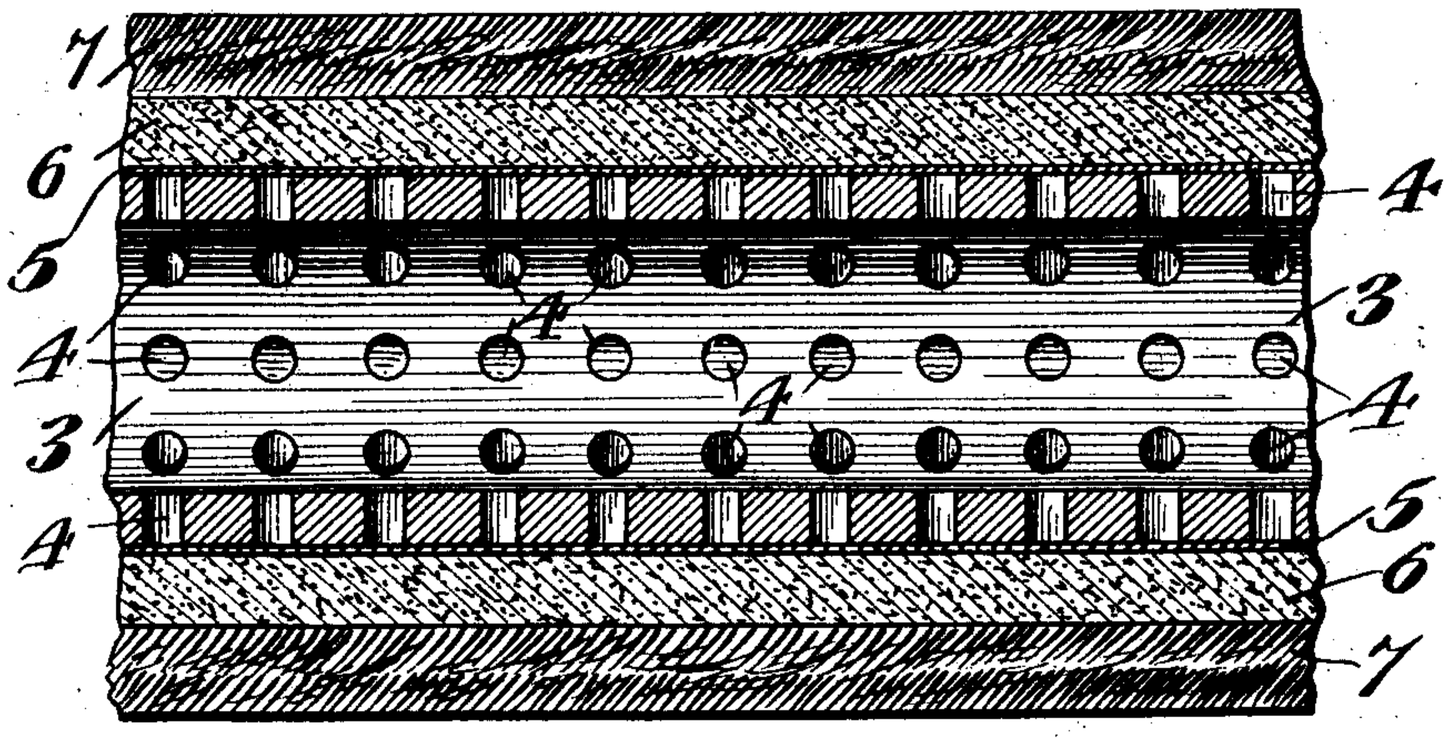


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PIPE-CORE AND METHOD OF MAKING THE SAME.

No. 906,912. Specification of Letters Patent. Patented Dec. 15, 1908.

Application filed June 19, 1908. Serial No. 439,366.

To all whom it may concern:

Be it known that I, CHARLES W. McWANE, a citizen of the United States, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented a new and useful Pipe-Core and Method of Making the Same, of which the following is a specification.

In casting iron pipes, particularly those of the larger sizes, the cores are expensive elements, requiring care and expertness in construction. In this connection, it must be remembered that during the casting operation, and after the same is complete, the metal surrounding the core is contracting as it cools, while the temperature of the core being raised, is causing said core to expand. It therefore becomes necessary to construct the core of material that will "give" or compress under this two-fold pressure. Yet this compression must be uniform at all points in order that there may be no displacement at any particular point or points, which would result in a defective casting. Of the various cores heretofore employed or proposed, the only commercially successful type up to the present time of which I am aware, is that in which a perforated core barrel is employed that is surrounded by a layer of hay rope, the rope in turn being incased in a plurality of layers or coatings of baked loam or analogous material. The expense of this core is, however, very considerable. In the first place, the hay rope, which is burned out in the casting operation, is costly and each coat has to be separately applied and separately baked, all of which requires considerable time before the core is ready for use. Moreover the rope has to be wrapped upon the core barrel with great care and skill in order to avoid displacement under pressure or the resultant pipe may have its interior face transversely ribbed. Attempts have been made to eliminate the rope by providing layers in which combustible material is incorporated, but in these structures, the various coatings are separately baked and produce a hard body not sufficiently compressible and very difficult to remove from the finished casting.

The primary object of the present invention is to provide a core that is very inexpensive to manufacture both in point of time and material, will produce as good if not better results than the cores now in general use, and is readily removable from the finished pipe.

In the accompanying drawings:—Figure 1 is a cross sectional view of a core constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view through a portion thereof.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In this core, the usual barrel 3 is employed, which is preferably tubular in form, and is perforated, as shown at 4. This barrel is preferably surrounded by a sheet 5 of holding material, such as cloth or perforated paper, but this sheet is not necessary, its particular object being to provide a better surface than the metal for holding the inner layer of material. This layer, which is designated 6, is formed of "green sand", which as is well known to those skilled in the art, is merely molder's sand dampened sufficiently to stick together. This coating is applied either directly to the sheet 5, or if the sheet is not used, directly to the outer surface of the core barrel 3. As soon as the coating 6 is applied, an outer coating 7 of loam or other suitable material is applied, the coating 6 preferably not having been baked or otherwise treated before the application of the coating 7, though it may be dried or baked without departing from the spirit of the invention. After the application of the outer coating 7, the mold is baked or dried in the usual manner, and is then ready for use. With this structure therefore, the inner coating or layer 6 is incased by the outer hardened coating 7, the latter therefore constituting protecting and holding means for the green sand layer and providing a sufficiently firm support for the molten iron. The inner layer 6 has sufficient compressibility to compensate for the oppositely acting pressure due to the expanding core and the contracting pipe. Furthermore it will be evident that the inner layer 6 being dried, it will be in the form of a loose and granular mass which will permit the ready removal of the barrel and the consequent withdrawal of the core material from the finished pipe. Not only is the necessity for hay rope obviated, but the core can be made in much less time as it requires but a single baking and there-

fore can be used the same day as made, which is impracticable with those of the type above set forth. However as above stated, it is possible to bake, dry or partially dry the green sand layer before applying the outer coat and this additional step is intended to be comprehended within the scope of the invention.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. The method of producing a core for casting purposes, which consists in placing a green sand coating on a core support, applying a protecting coating over the green sand coating, and drying the core thus produced.

2. The method of producing a core for casting purposes, which consists in applying to a perforated core barrel a coating of green sand, drying the green sand coating, covering the green sand coating with a coating of loam, and then baking or drying the core thus produced.

3. A core for casting purposes, comprising an internal support, a green sand coating covering the same, and an external coating of hardened material incasing the green sand coating.

4. A core for casting purposes, comprising a tubular core barrel having perforated walls, a green sand coating applied thereto, and a hardened outside coating of loam incasing the green sand core.

5. A core for casting purposes, comprising a tubular core barrel having perforated walls, a sheet of holding material wrapped upon its outer face, a green sand coating applied to the sheet, and a hardened outside coating incasing the green sand core.

6. The method of producing a core for casting purposes, which consists in applying to a perforated core barrel a coating of green sand, covering the green sand coating with a coating of loam, and then baking or drying the core thus produced.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES W. McWANE.

Witnesses:
JAMES E. MURPHY,
JAMES C. BONDURANT.