

# UNITED STATES PATENT OFFICE

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## CORE FOR CASTING.

SPECIFICATION forming part of Letters Patent No. 418,750, dated January 7, 1890.

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*To all whom it may concern:*

Be it known that I, WILLIAM NELSON REDDOUT, a citizen of the United States of America, residing at Rushville, in the county of Yates and State of New York, have invented certain new and useful Improvements in Cores for Casting, of which the following is a specification.

My invention relates to the manufacture of cores for producing castings with cavities, orifices, depressions, &c.

The object of my invention is to obtain a core, either solid or hollow, of a permanent or indestructible character—that is to say, a core which can be readily drawn without injury thereto, and can be repeatedly used, and one which will give to the casting a finished surface, that facilitates the drawing of the core and precludes the necessity for subsequent reaming or dressing, and which leaves the metal of the casting in a condition to be easily tapped or dressed if the same is desired.

To this end the invention, generally stated, consists in a core composed of asbestos without admixture of other matter, whereby a dense, polished, uniform, refractory, non-sealing or non-shelling, non-cracking, permanent core is produced.

Heretofore, so far as I am aware, asbestos, wherever employed in this character of devices, has been used largely as a binder to hold together frangible or friable material mixed therewith—such as graphite, kaolin, clay, mica, and like refractory material—and with a cement—such as shellac, pitch, silicate of soda, or its equivalent—the whole mass being molded or dried, either with or without pressure, and productive of what may be termed a “composition” or “combination” core. In the first place, such cores are not what I term “permanent” cores, as they are destroyed in their removal from the casting and cannot be repeatedly used; they are durable only in the sense that they will stand the pressure of the molten metal in the operation of casting; secondly, being of two or more different materials, they are unequally affected by the molten metal, and will warp, crack, and shell, leaving the metal of differ-

ent character at different points and the casting as rough and unfinished as the old and well-known sand cores, necessitating first the destruction of the core for its removal, and after that the reaming or dressing of the casting. Such cores cannot be drawn so as to remain in condition for further use—first, owing to their composition, and, second, owing to the character of the casting.

I do not claim composition or combination cores of the class or character specified of which asbestos is only an element.

Having thus indicated and acknowledged what has heretofore been done, I will now proceed to describe specifically the best manner known to me of applying my invention.

I take the asbestos first as it is mined, selecting by preference that which is most free from admixture with silica, lime, or other extraneous matter, as the less foreign matter present the better will be the result. The asbestos is shredded or reduced to a fine flocculent mass, and, if desired, may be washed and purified by any of the several well-known methods. It is then reduced to an adhesive condition or slightly plastic mass by adding thereto a vehicle which can be readily expelled therefrom—such as water or linseed-oil—and is subject to high pressure (preferably hydrostatic pressure) in a suitable mold, and, preferably while under pressure, it is subjected to heat sufficient to expel the water, linseed-oil, or other vehicle used to render the mass plastic, or to expel as much as possible thereof and reduce the rest to an innocuous matter, which will constitute a very insignificant and inappreciable portion of the core, leaving the core for all practical purposes with exterior surfaces of pure asbestos.

A core produced substantially or entirely of the material as herein specified will have a perfectly hard smooth surface, and its density or compactness will depend to a certain extent on the amount of pressure exerted in its formation. Its surface, being of the same smooth and uniform finish as metal, will impart a like surface to the casting, which enables the core to be readily drawn and leaves it (the core) in condition for repeated



use. Unlike composition cores, it will not scale, shrink, or crack, and therefore, if care has been taken in forming the core, the casting, when the core is drawn, is ready for immediate use, as the cavity therein is perfect and smooth and an exact reproduction of the core; hence there is great saving of time and labor, not only in the repeated use of the core, but also in the reduction of labor required in fitting or finishing up the casting. Furthermore, while capable of and possessing the smooth surface of a metal core, it is unlike metal, sand, or composition cores, in that it does not harden or otherwise affect the character of the metal cast, leaving the surface which was in contact with the core uniformly smooth, tough, and soft throughout and readily workable—a great advantage if tapping, reaming, boring, or subsequent treatment of the casting is desired.

The invention as above described is applicable to the manufacture of any shape or

character of cores desired, whether solid or partible, and can be readily applied by the skilled core-maker without other instruction than that given.

Having thus described the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. A core for casting, said core having a smooth hard exterior surface composed entirely of asbestos, substantially as specified.

2. A core for casting, said core having a smooth dense surface of a polished, uniform, non-scaling character, composed entirely of condensed and compacted asbestos, substantially as and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM NELSON REDDOUT.

Witnesses:

S. S. CATLIN,

W. M. TAYLOR.