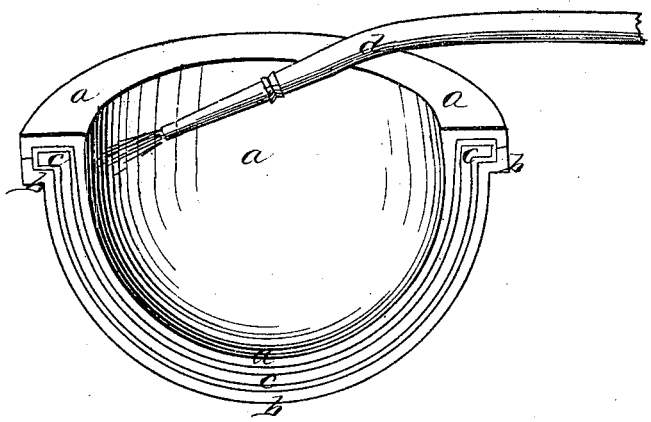
J. C. Parry,

Casting Hollow-ware.

No. 7,859. Patented Dec. 24, 1850.



Witnesses.
G. Dana, Jr.
Wm. Belmede

Inventor.
John C. Parry

UNITED STATES PATENT OFFICE.

JOHN C. PARRY, OF PITTSBURG, PENNSYLVANIA.

IMPROVED METHOD OF LOOSENING METALLIC CORES FROM HOLLOW CASTINGS.

Specification forming part of Letters Patent No. **7,859**, dated December 24, 1850.

To all whom it may concern:

Be it known that I, JOHN C. PARRY, of the city of Pittsburg, county of Allegheny, and the Commonwealth of Pennsylvania, have invented a new and useful Improvement in the Mode of Casting Metallic Kettles, Cylinders, Pipes, &c.; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawing, forming part of this specification.

The nature of my invention will be better understood by first explaining one of the modes now in use for casting large iron kettles, which is as follows: Iron flasks are employed somewhat similar in shape to the iron kettles to be cast in them, and are so made that when put together there is a space left between them, as between the brick "core" and "cope" in which the kettles are most usually made. The outer flask is called the "cope" and the inner one the "core." The surfaces of the iron core and cope which form the inside of the mold are covered with projecting points or prickers, to hold the mud which is plastered on them, the surfaces of the core and cope being struck true and smooth with a trammel, as in the case of the brick mold. The core being placed inside the cope, and the two being fastened together with keys in the usual manner, the melted iron is run by gates into the space left for the casting.

It is a well-known fact that iron shrinks as it cools, and a kettle of the kind I am describing will shrink one-eighth of an inch to every foot in diameter.

My draft (which I design to form a part of this specification) represents a perspective sectional view of the iron flasks placed together with the iron kettle between them, *a* representing the core, *b* the cope, and *c* the kettle, and *d* the hose to conduct the water.

By reference to the drawing it will be seen that after the kettle is cast and by the time it is cool enough to allow of raising the core *a* from the casting the kettle will have shrunk so much as to become very tight round the core, and as a vertical section of the kettle is rather more than a semicircle, the core becomes so tightly fastened in the kettle that it cannot be drawn out, and the casting continues to shrink until, before it becomes quite cool, it will burst, and be thus destroyed. In order to obviate this difficulty and enable the core to be lifted out of the casting, I adopt the following plan, in which my invention and improvement consists: As soon as the casting begins to get black, it is cool enough to raise the core. The melted metal between the flasks has of course heated them and swelled them to some extent; but the expansion of the flasks is nothing like as great as that of the casting itself. Taking advantage of the expansion of the iron flask or core from the heat of the metal, as soon as the casting is cool enough to permit of the core being raised with safety I cause a jet of cold water to play on the core round the top of the kettle. This suddenly chills the core at the place where the casting was begun to tighten round it, and causes it to contract much faster than the casting itself, which loosens the core for the time. It is then immediately raised out of the kettle, and thus the object is accomplished, and the only difficulty and obstacle to casting large kettles with iron flasks is thus successfully obviated and without any risk of failure, as I have found by experience.

My invention is very simple in itself; but its simplicity is one of its chief recommendations, and I do not believe that cold water has ever before been applied to enable hollow castings to be made with metallic cores. My improvement is equally applicable to making metallic pipes, cylinders, and other hollow castings.

What I claim as my invention in the above-described mode of casting is—

The application of cold water to the core or inner metallic flask of a hollow casting when the metal begins to cool, so as to loosen the core (by the contraction caused by the action of the water) sufficiently to remove it without injury to the casting.

JOHN C. PARRY.

Witnesses:

CORNELIUS MCGINNISS,
JAMES B. AIKMAN.