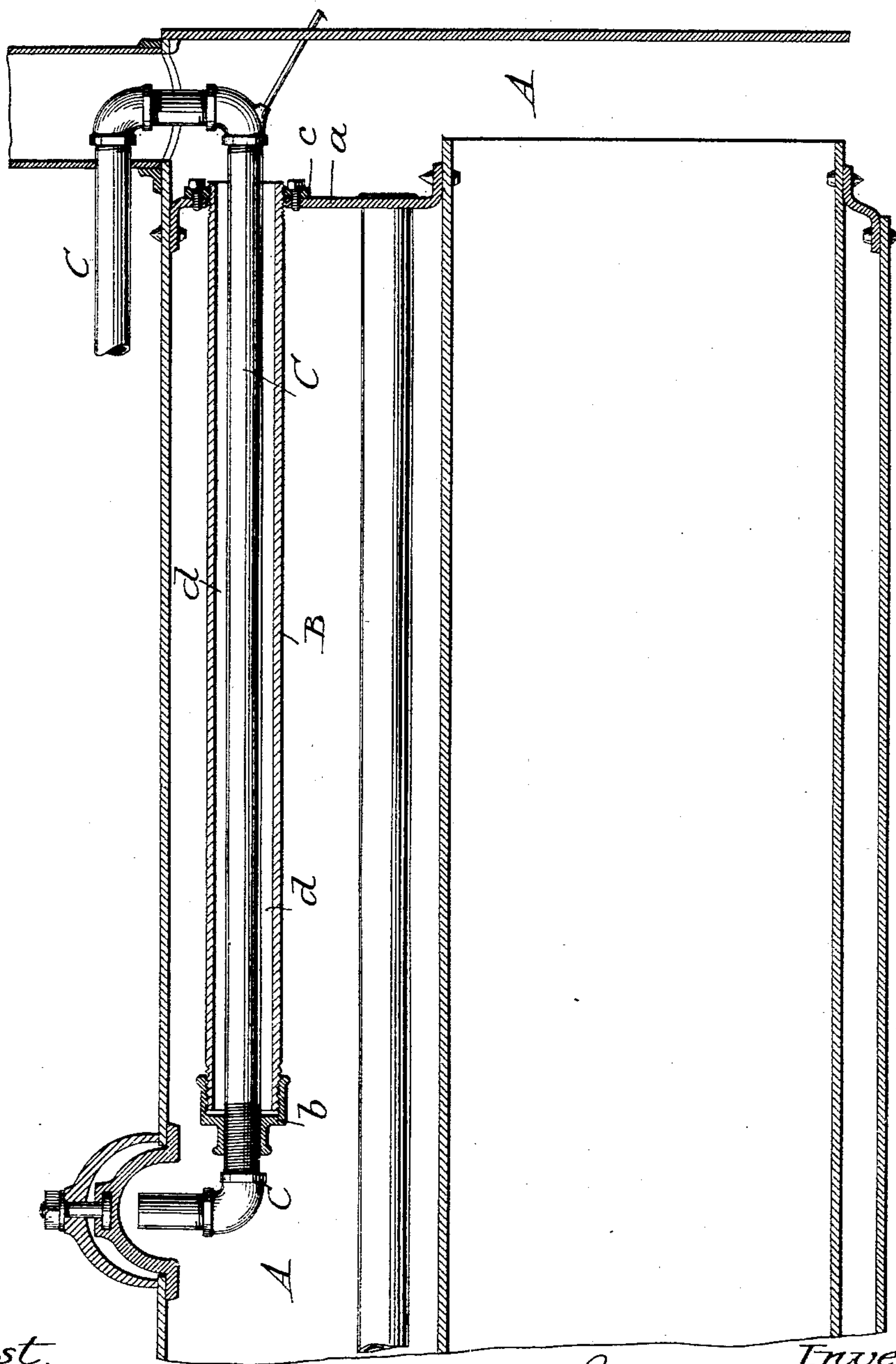


(No Model.)

G. ABRAMS.
SUPERHEATER.

No. 520,288.

Patented May 22, 1894.



Attest.

Sidney P. Hollingsworth
W. C. Brindine

Inventor.

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UNITED STATES PATENT OFFICE.

GUSTAV ABRAMS, OF HUTCHINSON, MINNESOTA.

SUPERHEATER.

SPECIFICATION forming part of Letters Patent No. 520,288, dated May 22, 1894.

Application filed July 24, 1893. Serial No. 481,360. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ABRAMS, a citizen of the United States, residing at Hutchinson, in the county of McLeod and State of Minnesota, have invented certain new and useful Improvements in Superheaters, of which the following is a specification.

My invention relates to steam boilers, and has reference more particularly to a novel construction and arrangement of devices for superheating the steam supplied from said boiler.

The drawing is a vertical longitudinal sectional view of a boiler provided with my improved superheater.

A indicates a boiler which may be of any ordinary construction. Secured to the boiler head *a*, is a pipe B which is open at the forward end so as to admit the heat and products of combustion which otherwise would be wasted. At its inner end the pipe B is provided with a reducing-cap *b* through which passes the steam pipe C. The pipe C is turned upward at its inner end so as to take only the driest steam, and, after passing lengthwise through the pipe B, and beyond the open end of the latter, the said pipe C extends upward through the smoke box and thence out through the side of the stack or other part of the boiler to the point where the steam is to be used. That portion of the pipe C passing through the reduced neck of the cap *b* will

advisably be threaded so as to effect a tight joint; but any other securing means may be employed. The outer end of the pipe or jacket B is also advisably threaded to receive a collar *c* which will be bolted or riveted to the boiler head, thereby effectually securing the said pipe or jacket in place. Any other or additional securing means may be employed.

The pipe or jacket B is considerably larger in diameter than the steam-pipe C, and there is consequently formed around the latter a dead-air space *d* containing a body of air heated not only by the steam in the boiler, but also by the waste products of combustion. The air in this space will of course be very dry and hot, and will superheat the steam contained within the pipe C.

Having thus described my invention, what I claim is—

In combination with a boiler having an opening in its head; pipe B closed at its inner end by a reducing cap *b*; a collar *c* secured to the outer end of pipe and bolted or riveted to the boiler head; and a steam pipe C passing lengthwise through the pipe B.

In witness whereof I hereunto set my hand in the presence of two witnesses.

GUSTAV ABRAMS.

Witnesses:

JOHN MESSEN,
JOHN DEAN.