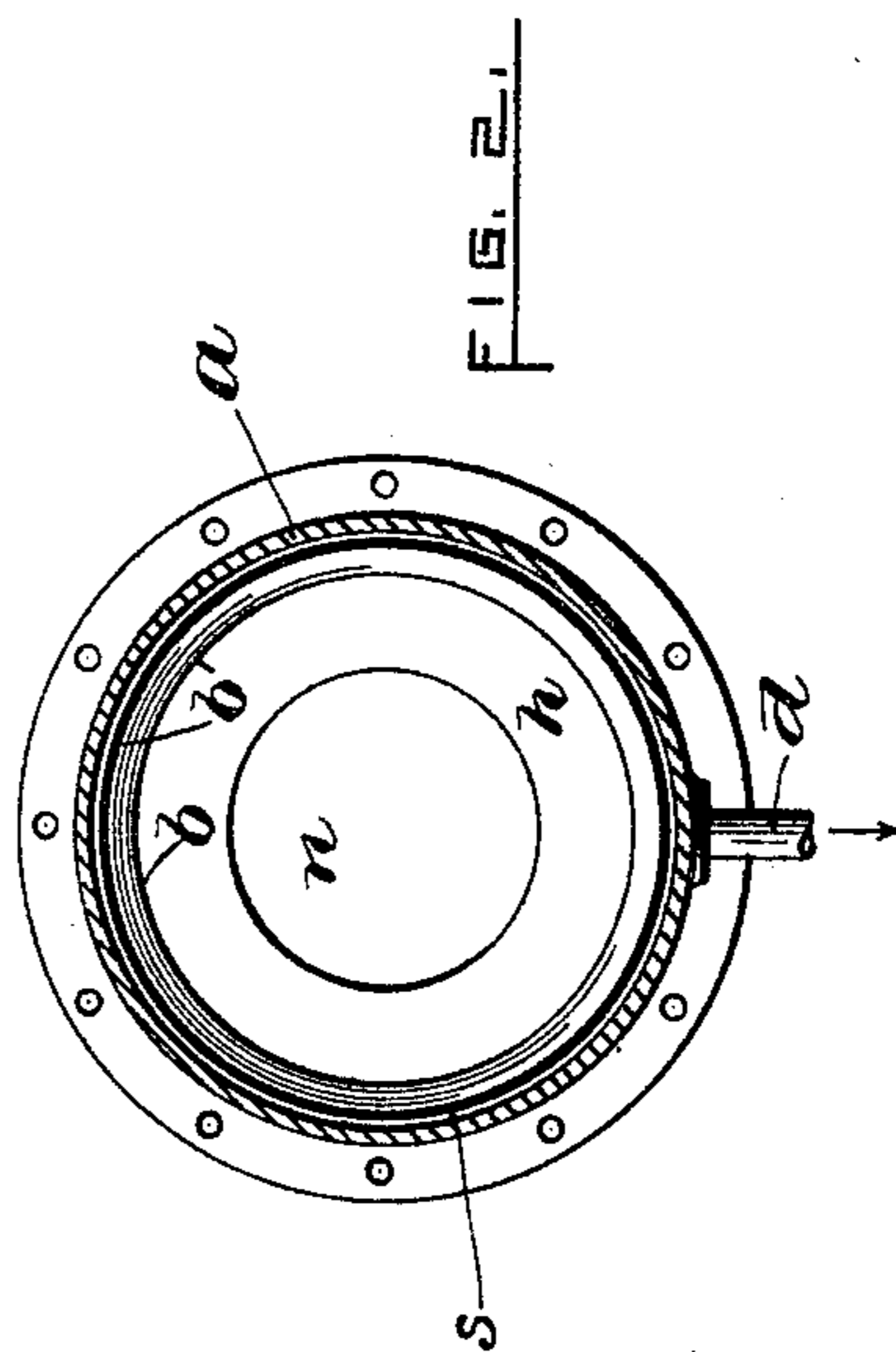
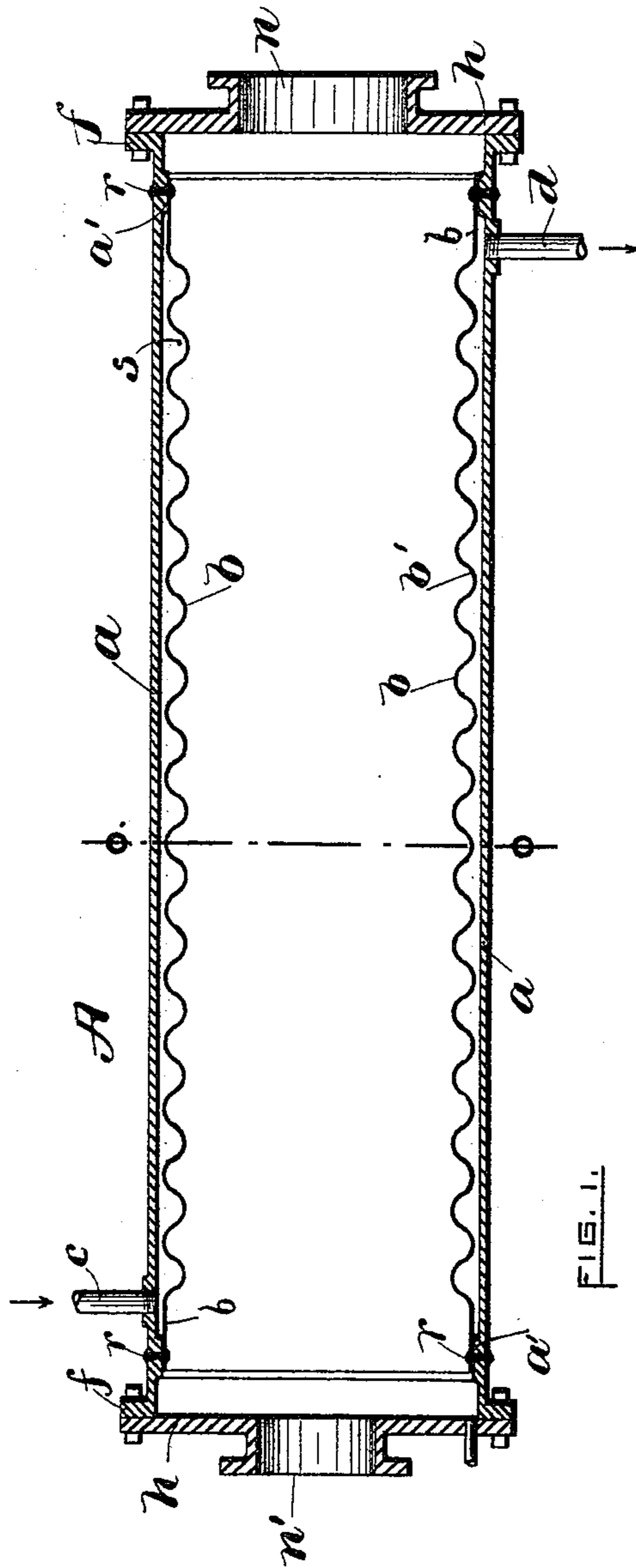


(No Model.)

W. F. BROWN.
STEAM JACKETED RECEIVER.

No. 403,644.

Patented May 21, 1889.



WITNESSES.

Charles Fanningan.
Joseph Sanford.

INVENTOR:

Walter F. Brown.
by Remington Henthorn
Atty.

UNITED STATES PATENT OFFICE.

WALTER F. BROWN, OF PROVIDENCE, RHODE ISLAND.

STEAM-JACKETED RECEIVER.

SPECIFICATION forming part of Letters Patent No. 403,644, dated May 21, 1889.

. Application filed January 8, 1889. Serial No. 295,796. (No model.)

To all whom it may concern:

Be it known that I, WALTER F. BROWN, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Steam-Jacketed Receivers; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Steam-jacketed receivers as usually constructed, so far as I am aware, have been unprovided with adequate means whereby the expansion and contraction of the inner shell are amply guarded against. Such former constructions, moreover, are objectionable, owing to the fact that in case of leakage ready accessibility to the jacket-space is prevented.

The object of my present invention is to produce a steam-jacketed receiver which shall possess all the advantages of such former constructions, yet one in which the inherent disadvantages or objections just named are entirely overcome. To that end I make the outer shell as usual, or substantially so. The inner cylinder is made of some thin metal, as copper. The peripheral surface of the cylinder is crimped or bent to produce in it a series of roundabout deep grooves or wave-like corrugations. The corrugated cylinder is riveted at the ends to the outer shell, the two being nearly of the same length.

I would state that the amount of heating-surface of the inner shell usually bears a certain relation or proportion to the volume of steam passing through the receiver on its way to the engine-cylinder. By means of my improvement I am enabled to increase the amount of such inner shell-surface by some fifty per cent. as compared with a receiver of similar general dimensions as usually constructed. Therefore for equal surfaces I can obtain the same efficiency by using a smaller receiver. Consequently it will weigh less, the cost being proportionately reduced.

In the drawings annexed, Figure 1 is a longitudinal sectional view taken through the

center of a steam-jacketed receiver provided with my improvement, and Fig. 2 is a transverse sectional view taken on line *o o*.

Again referring to the drawings, A designates my improved receiver as a whole.

a indicates the outer shell of the receiver, the same having a flange, *f*, at each end thereof, to which heads *h* are secured. The shell may be made of cast-iron or of any other suitable metal. The form of the shell is preferably cylindrical, although other forms may be adopted.

b designates the inner shell embodying my invention. The shell is substantially cylindrical in form and is provided with a series of circumscribing grooves or wave-like corrugations, *b'*, the same extending nearly throughout the length of the shell. The inner shell is somewhat shorter than the outer one, the ends being cylindrical and secured to the outer shell by rivets or bolts *r*, the latter shell being provided with an inner circular flange or projection, *a'*, of suitable depth, through which the rivets pass. It will be seen that the outer diameter of the shell *b* is substantially the same as the diameter of the shell *a* across the flange *a'*, thereby producing an annular space, *s*. By reason of the corrugations *b'*, I am enabled to use somewhat thinner stock for the shell *b*, as they serve to stiffen it to a marked degree. In making the corrugated shells I preferably use sheet-copper, although other suitable thin stock may be employed.

Now, it being first assumed that the use and functions of a steam-receiver are understood, and that it is suitably mounted and connected, the operation would be substantially as follows: Live steam, say, enters and circulates throughout the steam-space or annular chamber *s*, through the medium of the pipe *c*, and escapes by the pipe *d*, the temperature of such steam being usually in excess of that of the steam passing through the main chamber of the receiver. This steam enters the receiver through the nozzle *n'* at the front end and passes therefrom through the rear nozzle, *n*. It will be seen that by means of the corrugations formed in the shell *b* the latter may expand and contract freely without in the least affecting or being affected by the other shell. The heated corrugations at the same time

also present a better surface to the flow of steam in its passage through the receiver, thereby more thoroughly heating the steam particles.

5 What I claim as my invention, and desire to secure by Letters Patent, is—

The steam-jacketed receiver hereinbefore described, consisting of the outer shell, *a*, provided with the inlet and outlet passages *c d*,
10 heads secured to the ends of the shell, and the corrugated inner shell or lining, *b*, made

of thin metal and secured at the ends to the outer shell by rivets or bolts, thereby forming joints adapted to be calked, substantially as shown and set forth.

In testimony whereof I have affixed my signature in presence of two witnesses. 15

WALTER F. BROWN.

Witnesses:

CHARLES HANNIGAN,
GEO. H. REMINGTON.