

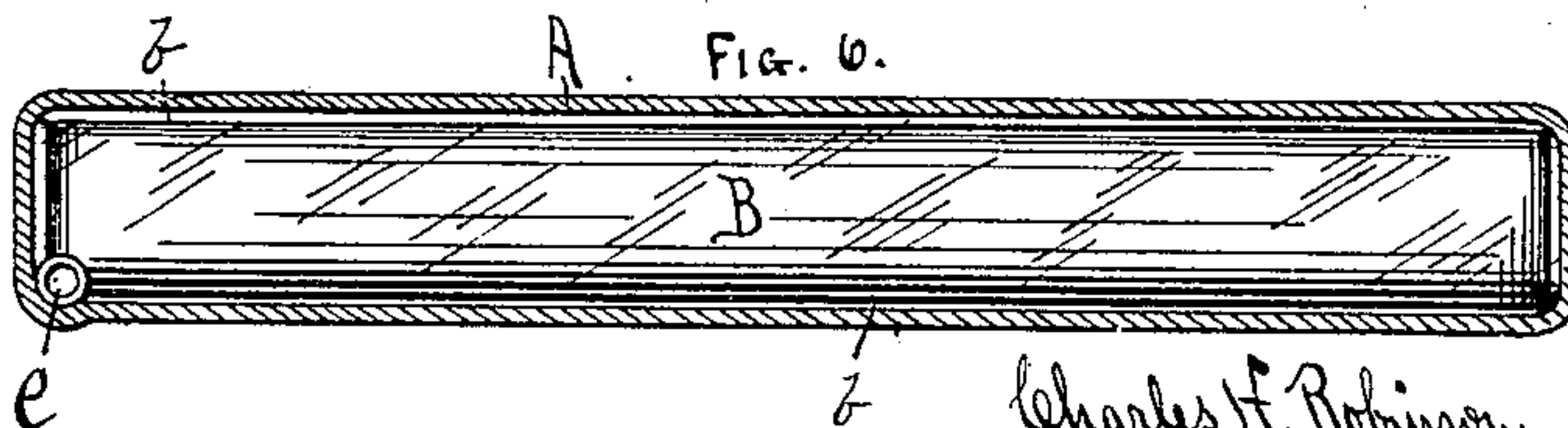
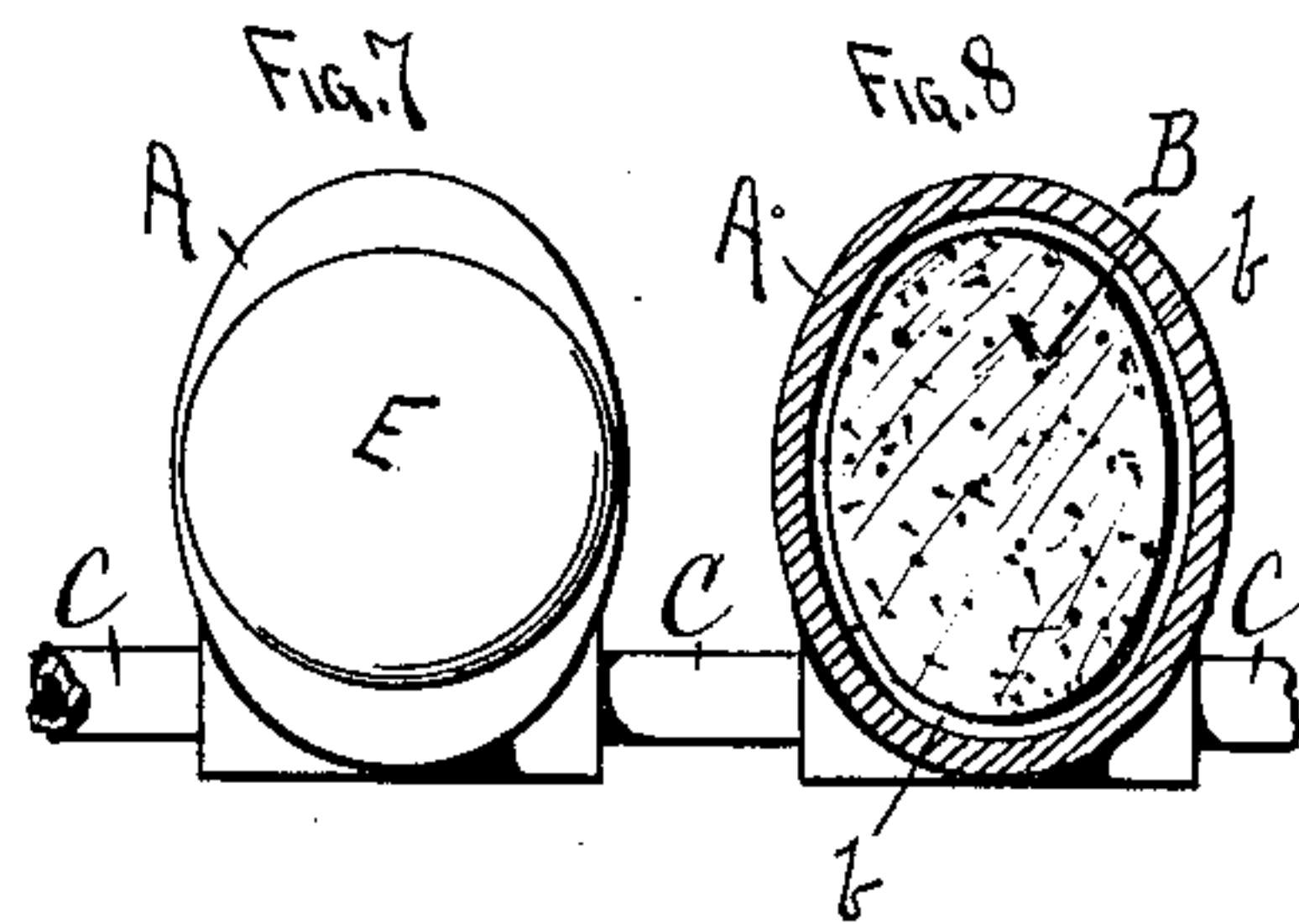
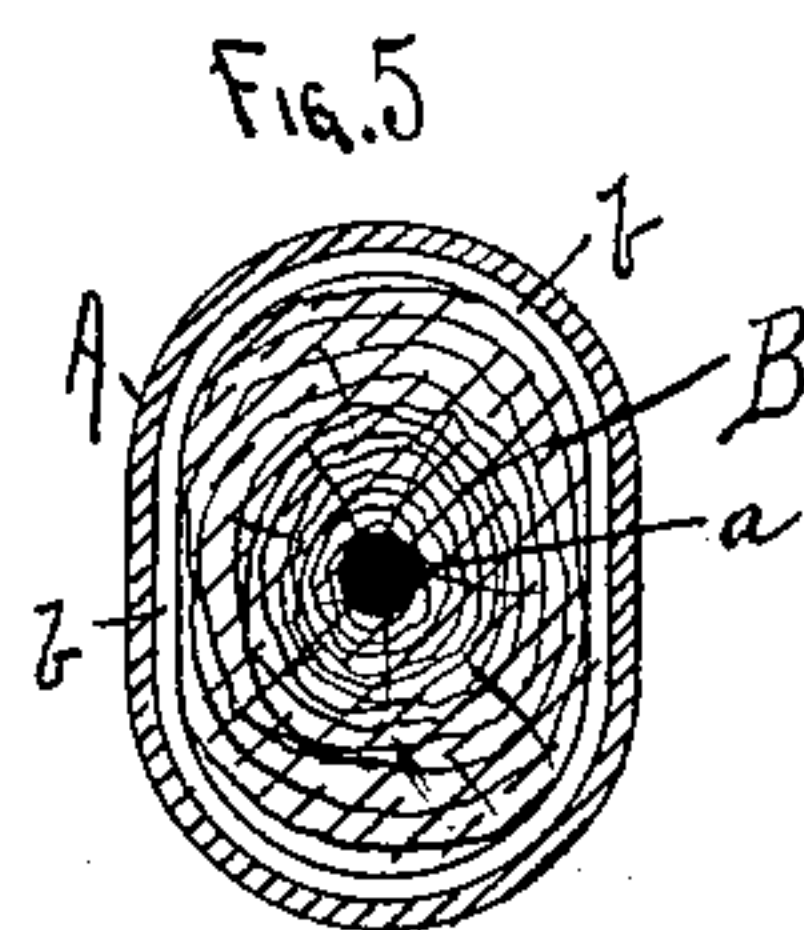
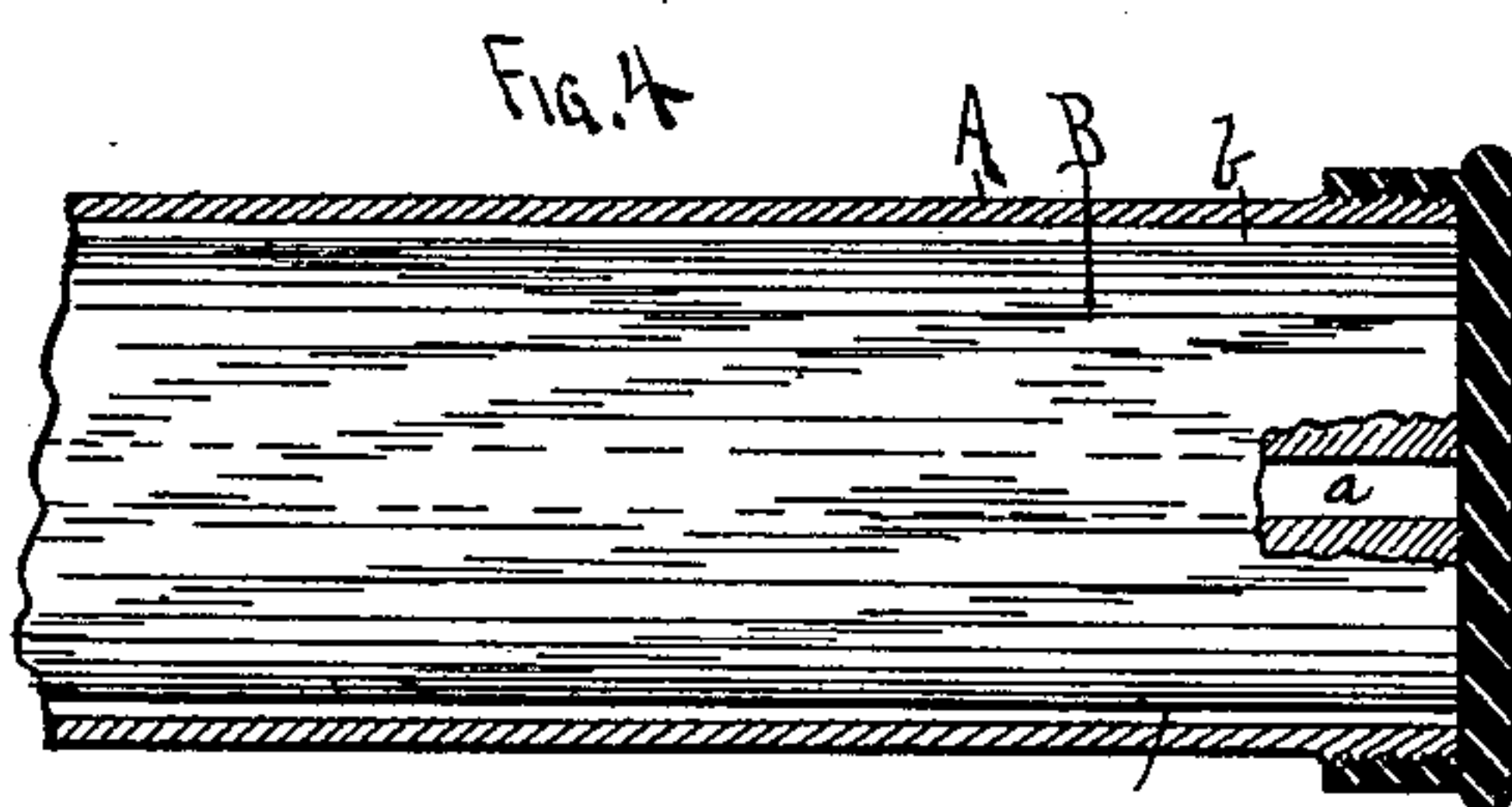
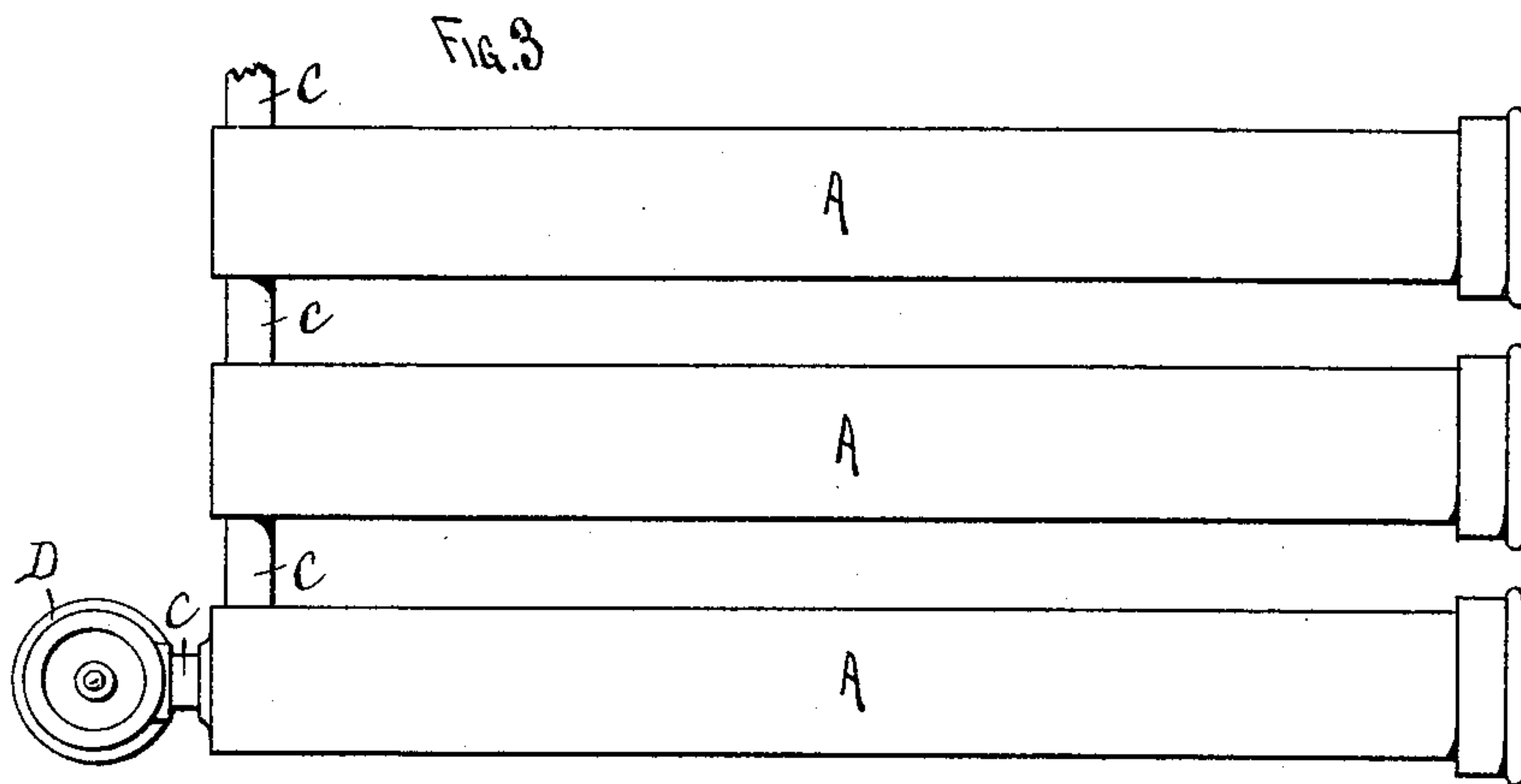
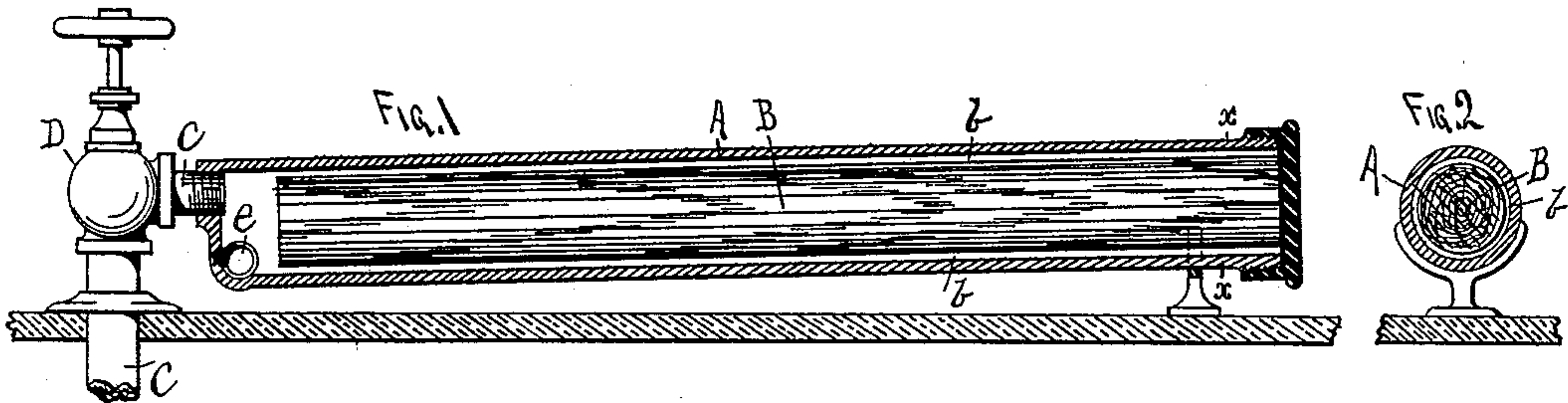
(No Model.)

C. H. ROBINSON.

RADIATOR.

No. 386,558.

Patented July 24, 1888.



WITNESSES.
C. H. Burnett
H. S. Webster

Charles H. Robinson,
INVENTOR, By
Charles H. Woodward, Atty.

UNITED STATES PATENT OFFICE.

CHARLES H. ROBINSON, OF ST. PAUL, MINNESOTA.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 386,558, dated July 24, 1888.

Application filed May 16, 1887. Serial No. 238,406. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. ROBINSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

This invention relates to the radiators employed in connection with steam-heating apparatus to transmit the heat to the surrounding atmosphere; and it consists in the employment of a core or filling for the radiator-casing, of wood, which is employed because capable of absorbing and retaining within itself a large proportional amount of the water of condensation when steam is used as a heating medium. This filling, together with the water absorbed within it, becomes heated by the steam used as a heating medium in the radiators, and will continue to give off heat through the radiators for a long time after the supply of the heating medium has been withdrawn, as hereinafter shown and described, and specifically pointed out in the claims.

The wood core or filling may be arranged or controlled in any required manner; but generally it will be confined within an iron or other metal casing through which the steam is caused to pass, the wood core or filling taking up as much of the water of condensation as its pores will contain, and retaining its caloric until its heat-radiating qualities are neutralized by absorption into the cooler surrounding materials or elements.

The capacity of water to retain heat for a longer period than almost any other element or material is well known, and by absorbing this heated water into a wood core or filling, which will retain it until its heat is all imparted to the surrounding atmosphere, the radiating qualities of the steam are utilized to the greatest possible extent, and no loss occurs by reason of the steam passing too rapidly through the radiating system.

In the drawings I have shown several different methods of applying my invention.

Figure 1 represents a sectional side view of a portion of a radiator with the wood core or filling within it. Fig. 2 is a cross-sectional view on the line *x x* of Fig. 1. Fig. 3 is a plan view of the same. Figs. 4, 5, 6, 7, and 8 are detail views showing modifications of the radiator.

A represents an iron or other metal casing, within which the wood core or filling B is suspended, so that the steam may have access to all parts and freely enter its pores.

Generally a number of these casings A will be connected together, as shown in Fig. 3, with the steam-pipe C passing from one to the other and controlled by a globe or other valve, D. By this simple arrangement the radiator may be formed of any size or shape, according to the place it is to occupy or the service required of it.

In Figs. 1 and 2 the casing A is shown of circular form in cross-section, while in the other figures it is shown in oval form; but of course it will be readily understood that it may be constructed in any desired manner.

The casings A will be set inclining toward their discharge ends, so as to drain properly, as shown in Fig. 1. The radiators are suitably trapped, as by an outflow-pipe, *e*, which preferably leads from the lowest point of the outer casing, as shown in Fig. 1. One end of the casing is left open, and is closed by a removable cap, E, in order that as large a piece of wood as possible may be inserted into the casing.

Another construction, which will be employed under certain circumstances, is shown in Fig. 6, wherein the casing A is cast around the core B, so that when the casing is cast the radiator is complete except the connecting of the piping C with it. When so constructed, the core will be protected by a wrapping of asbestos, clay, sand, or some other non-combustible substance, to prevent the hot iron from consuming it. This will greatly simplify the construction and the expense of the first cost of the manufacture.

The wood filling may have a hole or holes through it, as at *a* in Figs. 4 and 5, for the more ready passage of the steam, so that the filling and the water contained within it may be more quickly heated.

The "filling" or "core" does not entirely fill the radiator; but an annular space, *b*, is left all around it between it and the inside face of the radiator, so that the steam is giving off heat to the surrounding atmosphere at the same time that it is heating up the filling and the water contained within it.

By thus suspending the water within the

pores of the core no injury can result to the radiator-casing by the freezing of the liquid if the radiators are properly trapped or drained.

Having thus described my invention, what I
5 claim as new is—

1. A radiator for imparting and retaining heat, consisting of an outer casing, in combination with an interior core or filling of wood within said casing, substantially as and for
10 the purpose set forth.

2. A radiator for imparting and retaining heat, consisting of an outer casing and a trap-

ping device therefor, in combination with an interior core or filling of wood within said casing, substantially as and for the purpose set
15 forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES H. ROBINSON.

Witnesses:

R. B. WHITACRE,

C. N. WOODWARD.