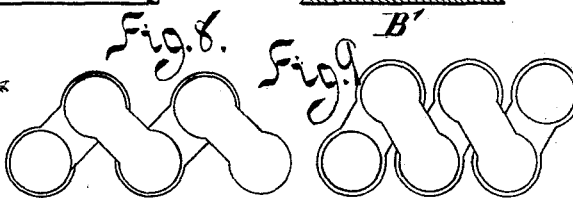
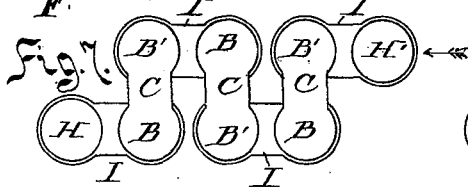
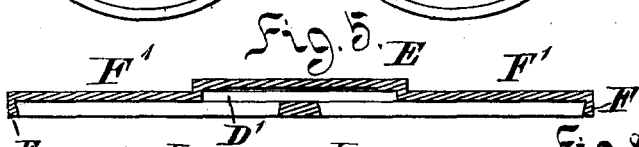
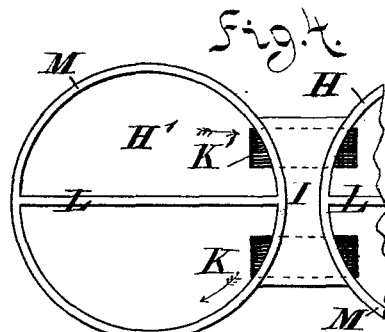
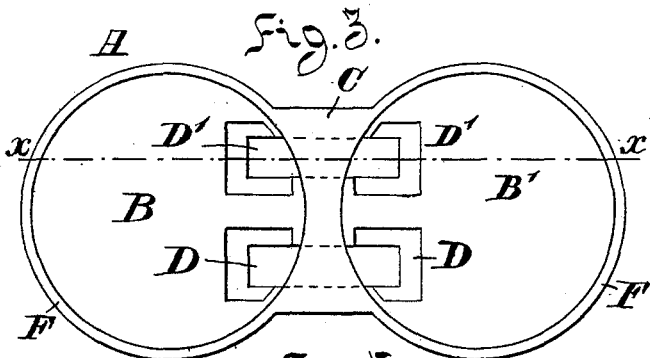
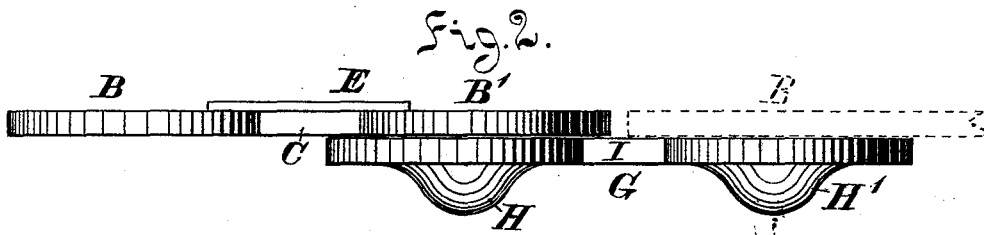
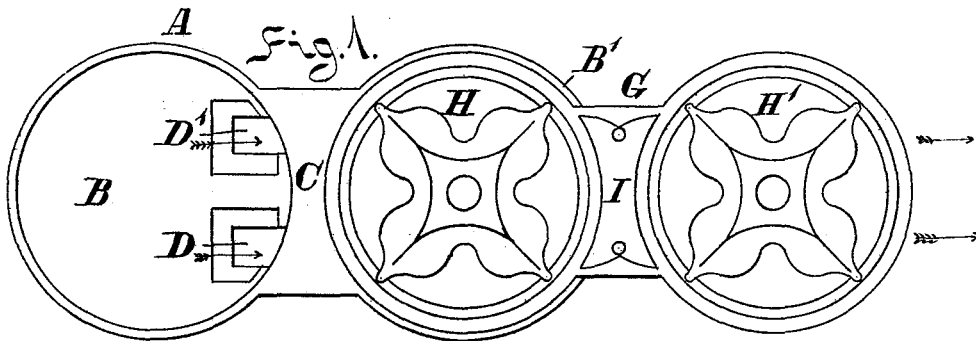


G. R. PROWSE.  
Heat Transmitting Apparatus.

No. 221,472.

Patented Nov. 11, 1879.



Witnesses.  
*Charles L. Simpson*  
*Alfred A. Simpson*

Inventor.  
*Geo R Prowse*

# UNITED STATES PATENT OFFICE.

GEORGE R. PROWSE, OF MONTREAL, QUEBEC, CANADA.

## IMPROVEMENT IN HEAT-TRANSMITTING APPARATUS.

Specification forming part of Letters Patent No. 221,472, dated November 11, 1879; application filed October 2, 1879.

*To all whom it may concern:*

Be it known that I, GEORGE ROGER PROWSE, of the city and district of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in the Construction of Heat-Transmitting Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to an improvement in the apparatus commonly known as "steam" and "hot-water" heaters. It may also be used for the absorption of heat in water-heaters, for transmitting the heat of the furnace to the water circulated through the building, &c., in which my invention will be placed.

In the drawings hereunto annexed, similar letters of reference indicate like parts, and Figure 1 is a front elevation embodying my invention. Fig. 2 is a side elevation of Fig. 1. Fig. 3 shows front view of seat. Fig. 4 is a plan of cap, reversed. Fig. 5 is a sectional elevation of upper part of Fig. 3 on line *x x*. Fig. 6 is a detail view. Figs. 7, 8, and 9 are general arrangement diagrams.

Letter A is the seat, which consists of two disk-shaped dishes, B B', united together by a bridge-piece, C, and having passages D D', connecting the two together. These passages D D' are formed in the thickness of the metal, as shown in Figs. 2 and 5, where a supplementary piece, E, is delineated, to give room for said passages; but the flanges E might be made of sufficient depth, or the thickness of the backs E' might be made sufficiently large, to accommodate the passages D and D', without requiring the supplementary piece E.

The flanges F of the disks D and D' are turned out true with a taper or bevel, as clearly shown in Fig. 5.

G is the cap, consisting of two disks, H H', which are similarly joined together as the disks B B' by a bridge-piece, I. They are provided with passages K K', communicating from the disk H to the disk H'. They are furthermore provided with diaphragms L, extending horizontally, as shown in Fig. 4, across each of the disks H H'. They are also provided with flanges M, beveled to agree with the flange F, as shown in Fig. 6. These flanges are turned accurately to fit the flanges F when the seat A is cold.

As shown in Figs. 1 and 2, the cap G is made of a raised and ornamented configuration. This is only done to please the eye.

Having explained how the individual parts, seat A and cap G, are constructed, I will now proceed to describe how they are arranged together to form a heater, &c.

Instead of placing the cap so that the disk H will fit to the disk B and the disk H' to the disk B', I fit the disk H to the disk B', (see Figs. 1 and 2,) and unite them together by heating the seat A, and while so heated uniting the cap G with it in the manner just above mentioned, so that when the parts A and G become of equal temperature they are what is called "shrunk together," and from their position it will be seen that one-half, H', of the cap G extends on one side, and one-half, B, of the seat A extends on the other side, so that the operator can go on shrinking together any number of seats and caps, either in a straight line or at various angles, as partly and generally shown, as also at various angles, not shown in Figs. 7, 8, and 9.

In heating the seat A it is best to equally heat both disks throughout, and the two halves of the caps G that are to be united with it should be so united at the same time—that is to say, during the same heat; otherwise extra difficulty or labor will be experienced.

When the required number of parts A and G have been united together to form the heater or radiator required there will be an end, B, open at the one extremity, and an end, H', open at the other extremity. These will be closed by single disks, of the same general configuration, to which will be united the ordinary inlet and outlet steam or hot-water pipes. If the coil is made of a single line of parts A and G, and the inlet and outlet are required to be situated close together, the parts H and H' will be provided with the diaphragms L, so that the passages D and D', K and K' are divided, whereby the flow may be through one side, and the return through the other, throughout the line of parts. In other cases the diaphragms L may be omitted, and the flow be the same as through ordinary pipes.

If, after shrinking the parts together, as hereinbefore described, it is found that they are not sufficiently steam or water tight, they

may be rendered so by filling them with a solution of sal-ammouiac, &c., and completing the operation by rusting.

The apparatus constructed of parts A and G, as above described, may, if desired, instead of being used for radiating heat, be placed in a furnace, in the same way that pipes and other contrivances are, and arranged to impart the heat to the water passing through them.

It will be understood that any suitable lugs or projections may be formed on the parts A or G for supporting them by, and that the usual allowances or provision must be made for contraction and expansion when a long radiator is formed.

I wish to explain that I have foreseen that the two parts A and G may be provided with flanges projecting like the flange M, and the two parts H and B' held together by means of a tire or band.

The flange F may be turned straight, as also the flange M, and the two parts H and B' held together by means of a bolt or bolts passing through the two.

These two last-mentioned modifications I consider to be equivalents, and have not there-

fore delineated them in the drawings; nor shall I further describe them, as they will be fully understood from the above mention.

What I claim, and wish to secure by Letters Patent, is as follows:

1. The combination of the part A, consisting of two disks, B B', united together, substantially in the manner described, with the part G, consisting of two disks, H H', united together substantially in the manner described, substantially as set forth.

2. The combination of a number of parts A with a number of parts G, substantially as and for the purposes set forth.

3. The combination of the seat A, consisting of two disks, B B', bridge-piece C, and passages D D', and flange F, with the cap G, consisting of disks H H', flanges M, and passages K K', substantially as and for the purposes set forth.

Montreal, 29th day of September, A. D. 1879.

GEO. R. PROWSE.

Witnesses:

CHARLES G. C. SIMPSON,  
ALFRED A. SIMPSON.