

(No Model.)

J. F. McELROY.
RAILWAY CAR HEATER.

No. 426,845.

Patented Apr. 29, 1890.

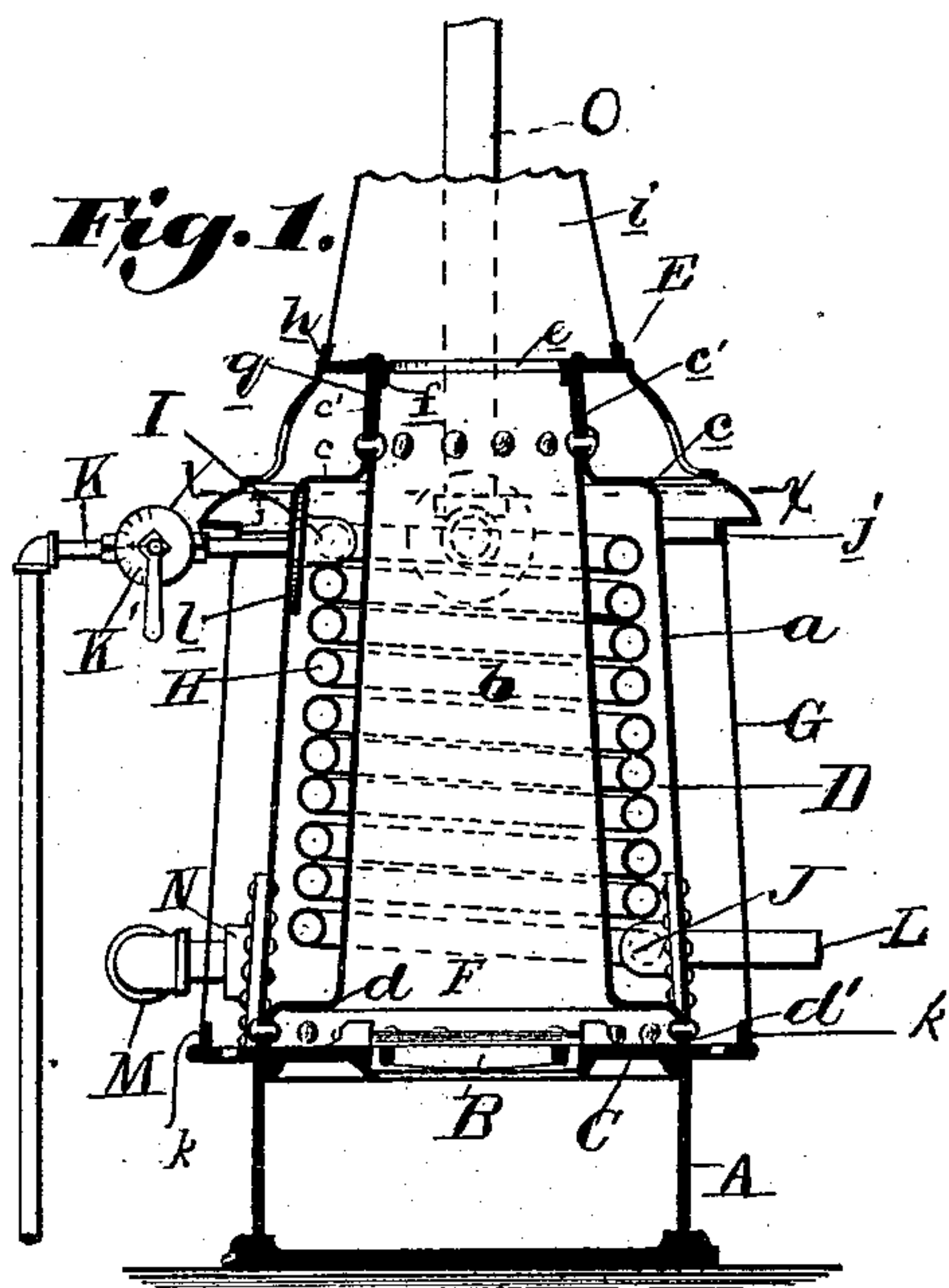


Fig. 2.

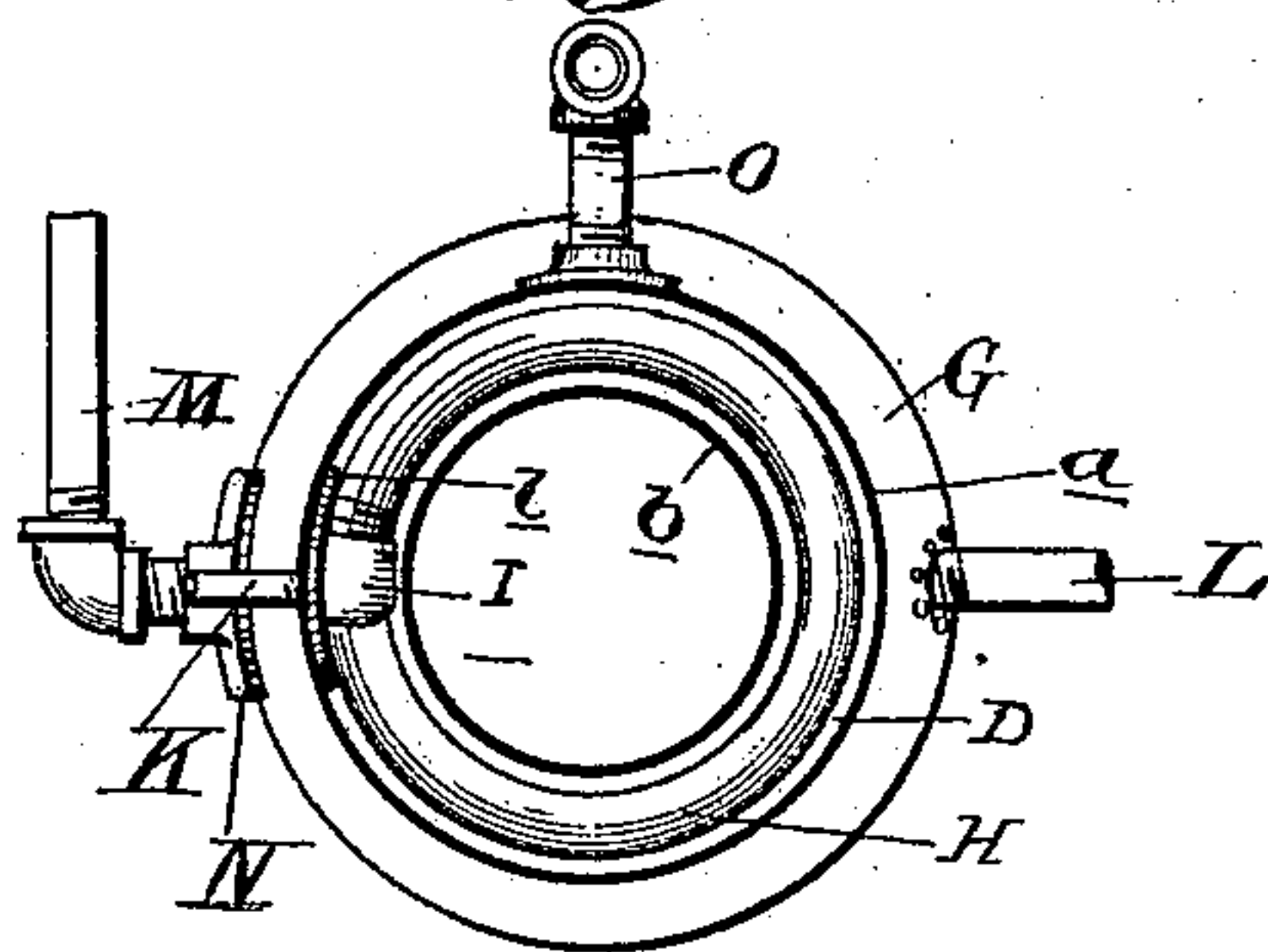


Fig. 3

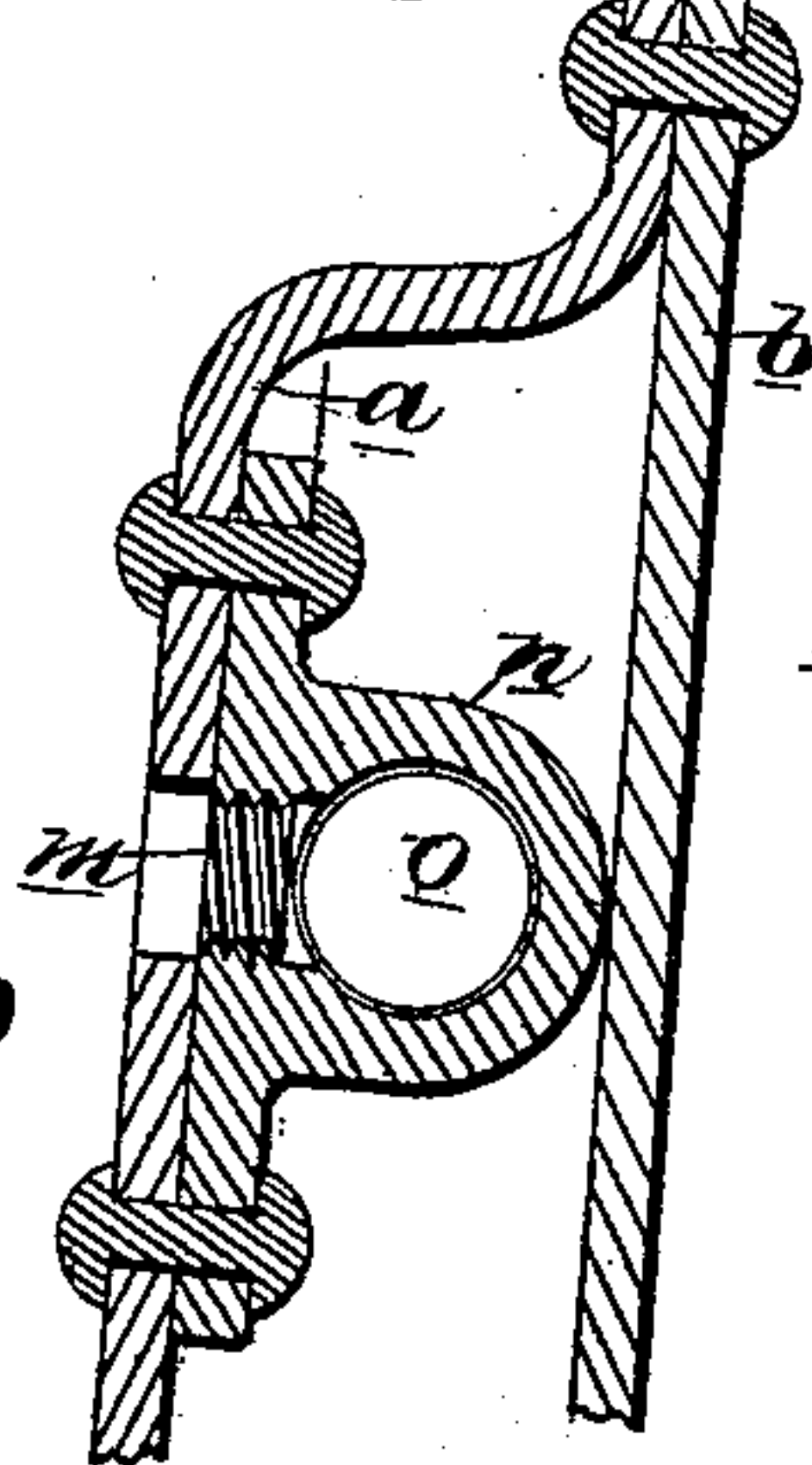
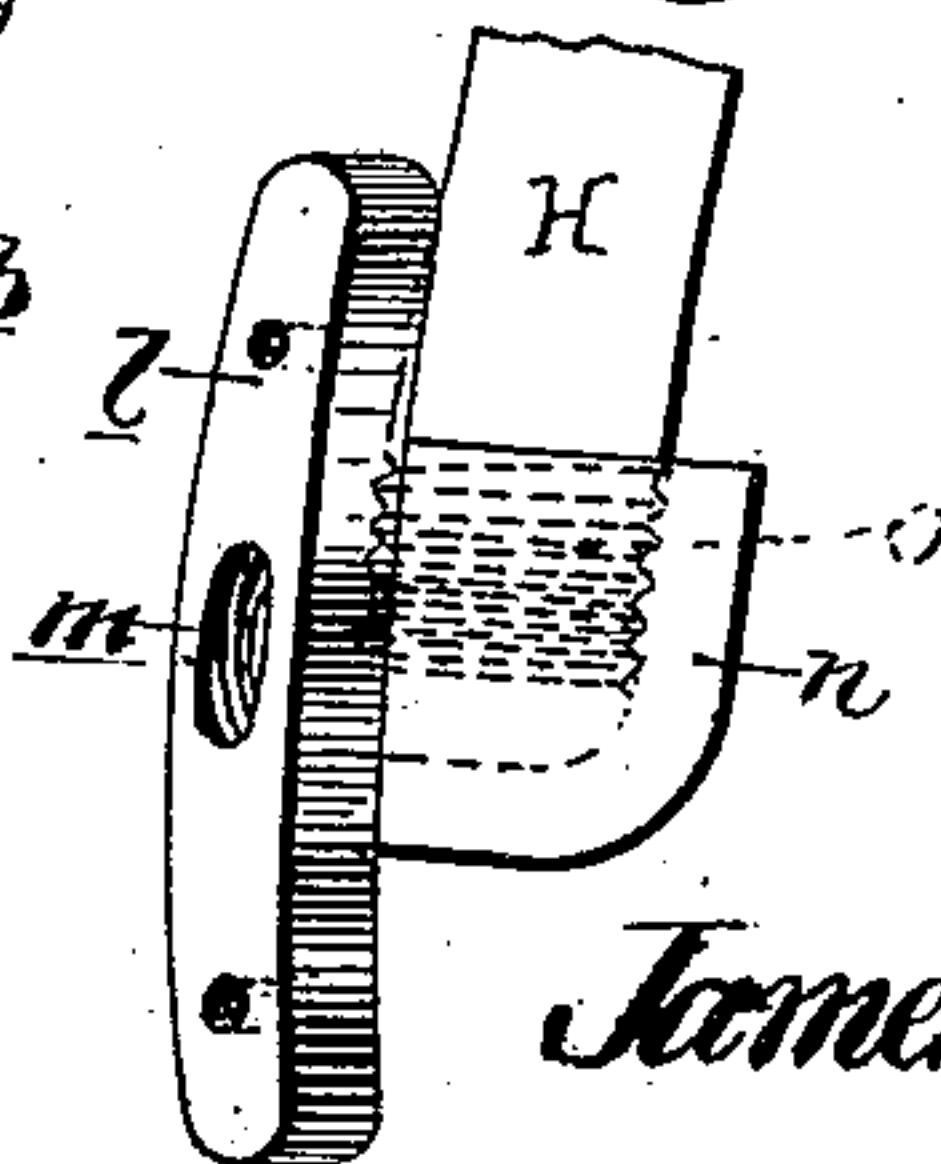


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF ALBANY, NEW YORK, ASSIGNOR TO THE CONSOLIDATED CAR HEATING COMPANY, OF WHEELING, WEST VIRGINIA.

RAILWAY-CAR HEATER.

SPECIFICATION forming part of Letters Patent No. 426,845, dated April 29, 1890.

Application filed September 24, 1889. Serial No. 324,913. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Railway-Car Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in railway-car heating; and the invention consists in the peculiar construction and arrangement of parts more fully hereinafter described and claimed.

In the drawings which accompany this specification, Figure 1 is a vertical central section through my improved heater. Fig. 2 is a section thereof on line X X. Fig. 3 is a vertical central section through the top of the water-chamber and the cast flange. Fig. 4 is a perspective view of the cast flange.

A is the base of the stove.

B is the grate, secured in the ring C.

D is an annular water-jacket, consisting of the outer shell *a* and the inner shell *b*. The outer shell is provided with a shoulder *c* and a flange *c'*, and the inner shell is provided at the bottom with a shoulder *d* and a flange *d'*. The shoulders *c* and *d* are of suitable length, so as to form a bearing at the bottom between the flange *d'* and the outer shell and at the top between the flange *c'* and the inner shell.

E is a top of any desired construction, preferably that shown in the drawings, and it is provided with a central aperture *e* for a smoke-passage arranged in line with the walls of the combustion-chamber F. This top is provided with a suitable flange *f*, which rests upon the extension *g* of the inner shell *b*, and with suitable flanges *h* to receive the dome *i*, which surrounds the smoke-stack, as is usual in these constructions. The lower side of the top is provided with a suitable flange *j*, and the ring C is provided at the top with suitable flanges *k*, to which is bolted the casing G.

H is a steam-coil arranged in the water-chamber and connecting at its top into a cast elbow I and at its bottom into a cast elbow J of similar construction. These elbows are of the following construction: *l* is a segmental

circular flange of suitable depth to fit on the interior of the shell *a* and provided with suitable rivet-holes, whereby it may be riveted thereto, and with an aperture *m* at or near the center thereof. On the inside this flange is provided with a hollow abutment *n*, having a screw-threaded aperture *o* at one side. The aperture *m* is also screw-threaded. This casting thus constructed forms an elbow having a flange whereby it may be secured upon the shell. The aperture *m* coincides with a similar aperture through the shell *a* at the top, in which is secured the steam-inlet pipe K, controlled by a suitable valve K' and connecting with any source of steam-supply. The aperture connects with the upper end of the steam-coil. The lower end of the steam-coil connects into the aperture *o* on the elbow J, and the aperture *m* connects with the pipe L, which is carried to any convenient point wherein the water of condensation from the steam is desired to be discharged.

M is the ingoing pipe from the hot-water-circulating apparatus, which is connected into the bottom of the water-chamber through an apertured screw-threaded flange N.

O is the outgoing pipe, which is connected at the top of the water-chamber through a similar flange bolted to the outer shell *a*.

The parts being thus constructed and arranged, they are intended to operate as follows: The stove being set up in connection with the system of hot-water-circulating pipes and the expansion-drum, (not shown,) and a suitable quantity being filled therein, in case a fire is built in the stove the heat impinging against the inner shell of the water-chamber will cause a circulation of the water from the bottom to the top thereof, the water entering through the pipe M thereof and finding exit through the pipe O. When the fire is out and steam is admitted through the valve K' into the steam-coil, which is surrounded by the water of circulation in the water-chamber, the steam will enter at the top of the steam-coil and circulate through the same to the bottom of the water-chamber, where it will find exit through the pipe L. By this construction it is evident that the water, in order to find exit through the pipe

O, will need to pass the entire length of the water-chamber, thereby coming into contact with all the steam-coils before it can escape upward, and also that the hottest water is brought into contact with the hottest steam-pipe at the top and the coldest water into contact with the coldest steam, or the steam of the lowest pressure, whereby the steam is more rapidly condensed. By this construction the greatest amount of benefit is obtained from the steam, the pipe L carrying off merely the water of condensation instead, as in other devices of this character, of discharging a large amount of steam with the water of condensation.

My water-jacket forms at once the lining for the combustion-chamber, the water-jacket, and the support for the top, and also allows of connecting directly into the water-chamber all the necessary connecting-pipes without danger of damage thereto.

What I claim as my invention is—

1. In a water-heater, a water-jacket com-

plete in itself and forming the casing for the combustion-chamber, a steam-coil in said water-chamber and connected at top and bottom therewith by means of flanged elbows J, and flanged nipples at the top and bottom of the said water-chamber for the ingoing and outgoing water connection, the parts being arranged to operate substantially as and for the purpose described.

2. In a water-heater, a water-jacket surrounding the combustion-chamber, a steam-coil in said water-jacket, connecting at top and bottom with the flanged elbows J, the elbows J having segmental circular flanges l, and screw-threaded apertures o and o, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 31st day of August, 1889.

JAMES F. McELROY.

Witnesses:

EDWIN A. SMITH,
THOS. C. MURRAY.