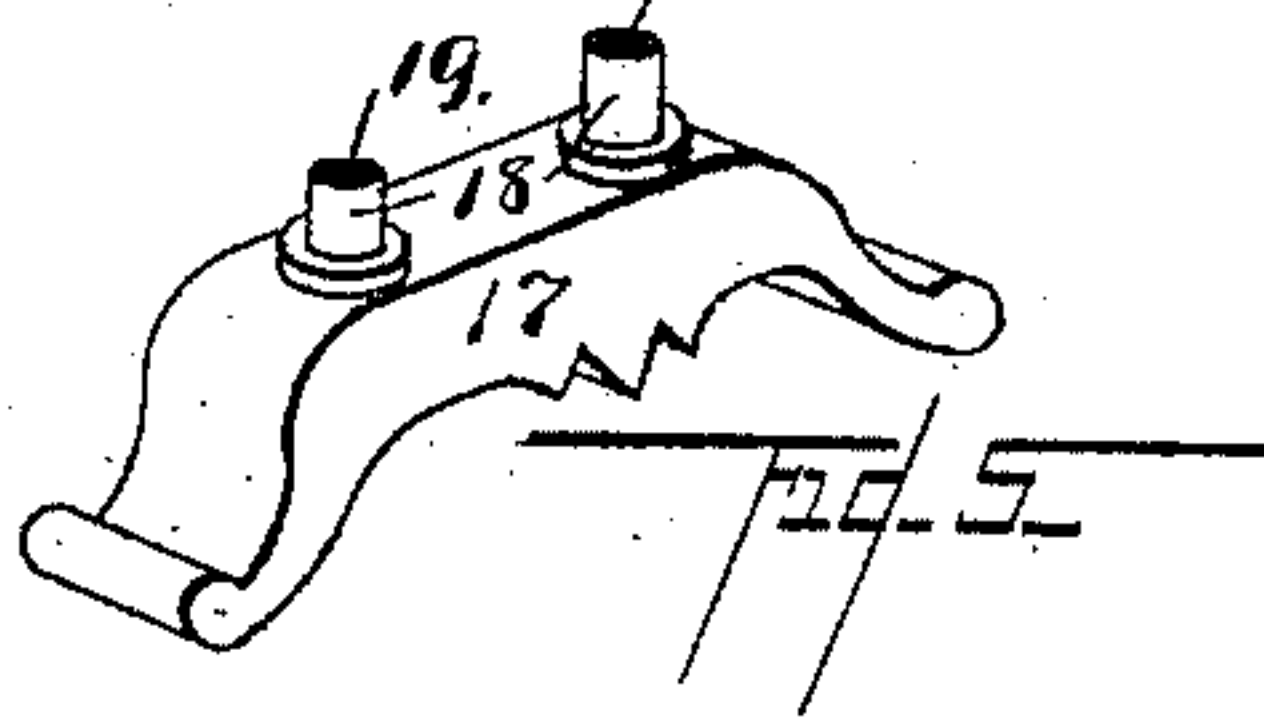
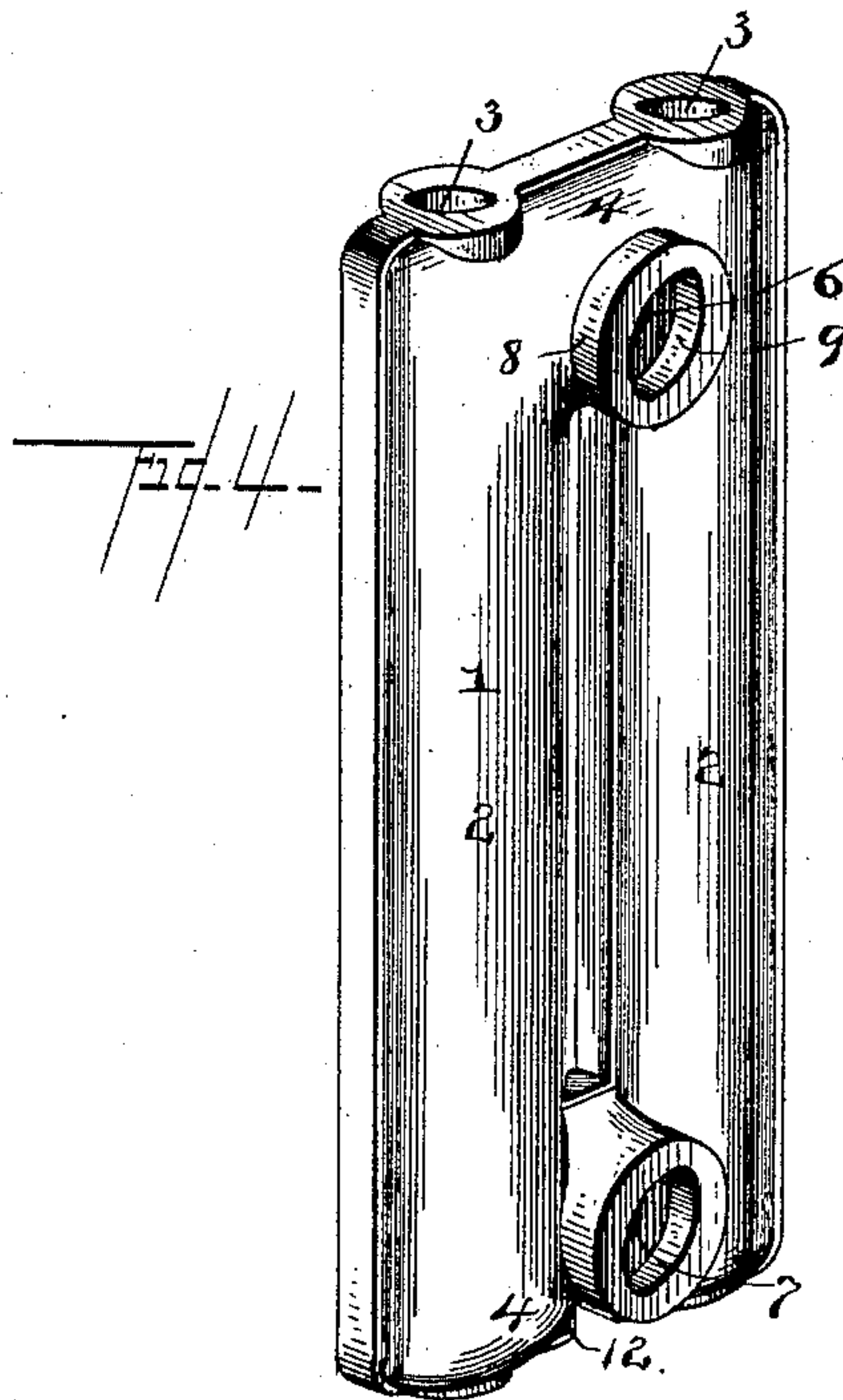
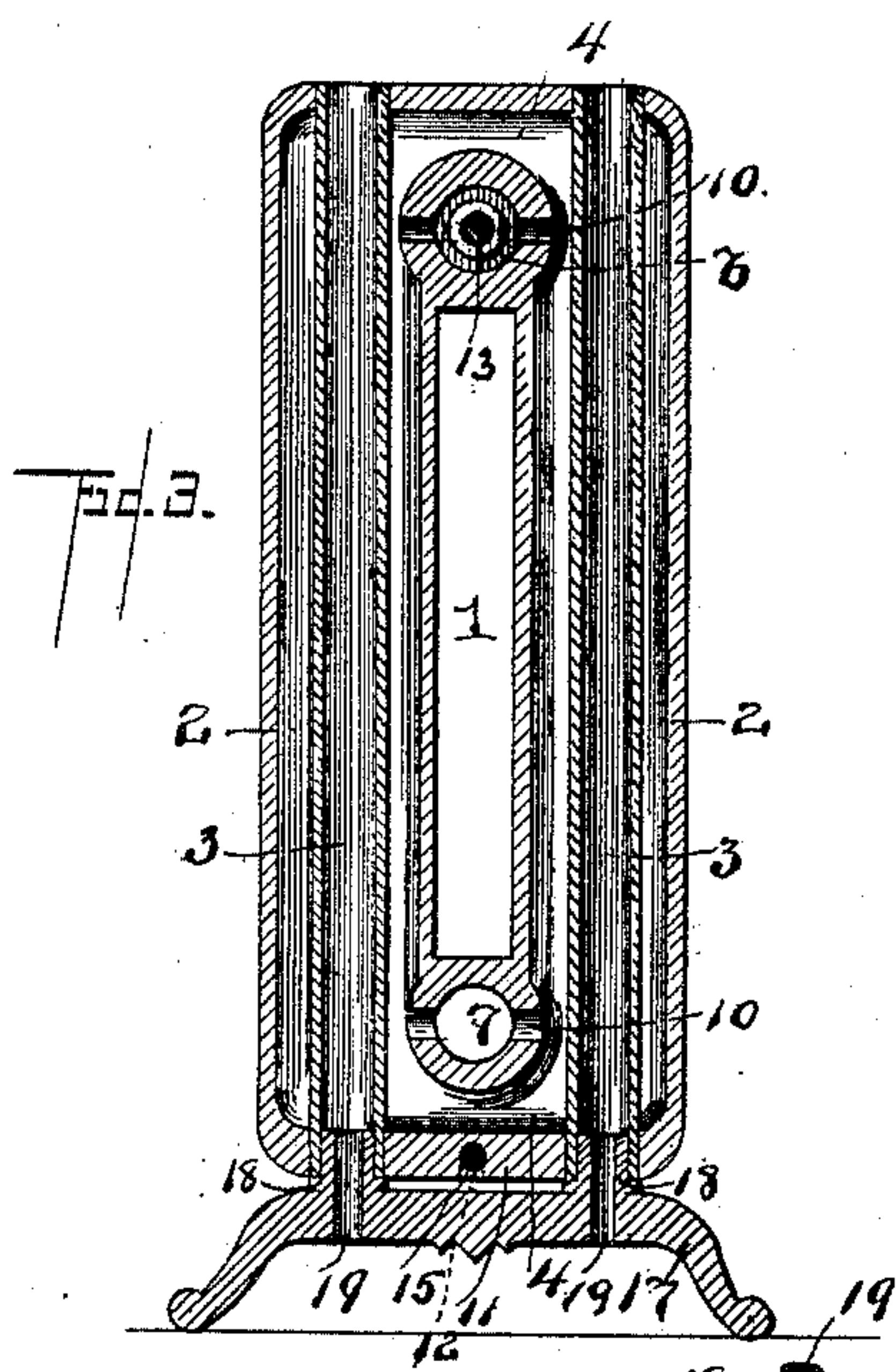
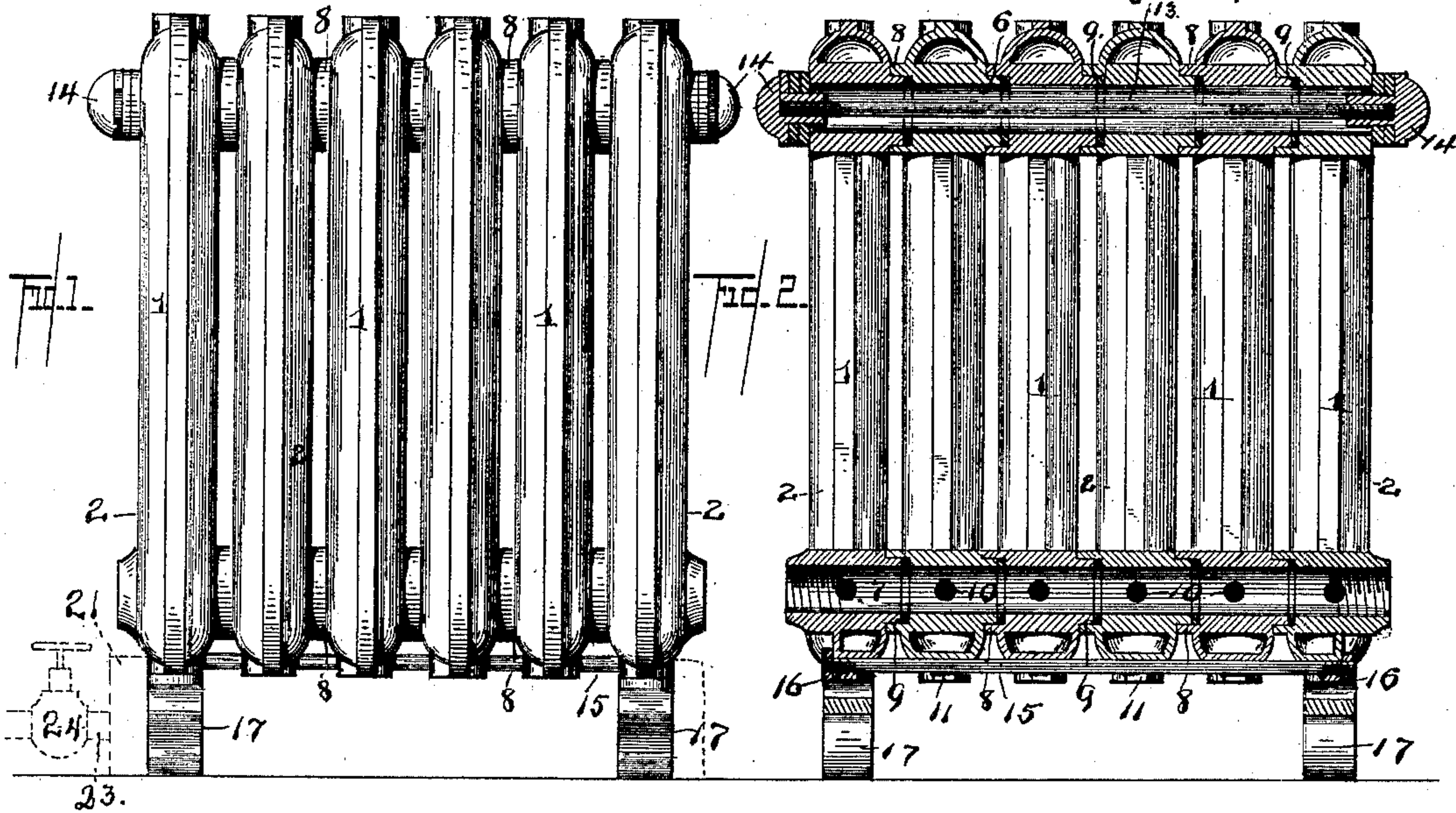


(No Model.)

A. M. DIMMICK & J. T. MORGAN.
RADIATOR.

No. 475,849.

Patented May 31, 1892.



Witnesses

H. G. Seitz
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UNITED STATES PATENT OFFICE.

ALBERT M. DIMMICK AND JESSE T. MORGAN, OF WILKES-BARRÉ,
PENNSYLVANIA.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 475,849, dated May 31, 1892.

Application filed June 3, 1891. Serial No. 394,932. (No model.)

To all whom it may concern:

Be it known that we, ALBERT M. DIMMICK and JESSE T. MORGAN, citizens of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Radiator, of which the following is a specification.

This invention relates to radiators; and it has for its object to provide a device of this class which shall be simple and inexpensive in construction, and which shall admit of the perfect circulation and heating of the air in the room or apartment where the radiator is placed, and which shall also admit of cold air being taken from the outside and heated before it is admitted into the room.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side elevation of a radiator constructed in accordance with our invention. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a vertical transverse sectional view taken through one of the loops having the feet or supports. Fig. 4 is a perspective detail view of one of the loops constituting the body of our improved radiator. Fig. 5 is a detail perspective view of one the feet of the device.

Like numerals of reference indicate like parts in all the figures.

Our improved radiator is composed of a series of loops 1 1, each of which is composed of two vertical pipes 2 2, connected at their upper and lower ends and provided with interior pipes or air-ducts 3 3, extending entirely through the said vertical pipes and open at their lower and upper ends for the admission and escape of air. The webs or connections 4 4 at the upper and lower ends of the loops 1 are provided with transverse perforations 6 and 7, provided at opposite ends with flanges or collars, as 8, and annular recesses, as 9, to receive the flanges or collars of the adjacent loops or sections. The transverse perforations or passages 6 and 7 have side openings 10, communicating with the upper and lower ends of the steam-pipes 2. Each of the so-called

"loops" may consist of a single casting or of cast-iron parts suitably fitted together, or it may, if preferred, be constructed of wrought-iron tubes or pipes suitably connected. Each of the loops is provided at its lower end with a lug 11, having a recess or perforation 12.

In practice any desired number of the loops 1 are placed side by side, the flanges 8 of each loop engaging the recesses 9 of the adjacent loop, gaskets or washers being interposed, if desired, to make steam-tight joints. A rod 13, screw-threaded at both ends, is passed through the transverse openings 6 at the upper ends of the several loops and is provided at its ends with headed nuts 14, whereby the parts are securely connected. A similar rod 15 is passed through the perforated lugs at the lower ends of the loops 1 and is provided at its ends with nuts 16 for the purpose of securely connecting the lower ends of said loops. The openings 7 at the lower ends of the loops at the two ends of the radiator are screw-threaded for the reception of pipes, through which the steam is conveyed to and from the radiator. Feet or supports 17 are provided, having upwardly-extending nipples 18, adapted to fit in the lower ends of the air-ducts of any one of the loops 1. The nipples 18 have perforations 19 for the admission of air to the lower ends of the ducts 3, in which they are fitted.

The operation and advantages of this invention will be readily understood from the foregoing description taken in connection with the drawings hereto annexed.

It is obvious that a radiator constructed in accordance with our invention may be readily made of any desired length, inasmuch as any desired number of the loops or sections 1 may be connected by using connecting-rods of the proper length. The construction is inexpensive, for the reason that the said loops or sections are all identical in construction, and a complete radiator may be constructed of said loops or sections combined only with the connecting-rods and nuts and the feet or supports whereby the radiator is elevated the desired distance above the floor. The individual loops 1 1 are sufficiently spaced to admit of the free circulation of air, which may thus be heated by direct contact with the exterior surfaces of said loops. Additional heating-surfaces are

formed by the air-ducts 3, which extend through the vertical pipes and which admit cold air at the bottom and discharge it in a heated condition at the top of the radiator.

5 In Fig. 1 of the drawings we have shown in dotted lines a box or casing 21, surrounding the lower end of the radiator. This box or casing is to be connected by a pipe, as 23, with the exterior atmosphere, and a valve or damp-
10 er, as 24, may be provided to regulate the admission of cold air. When this construction and arrangement is carried out, pure and unvitiated air may be admitted from without and caused to pass through the vertical heating-pipes 3 before being admitted into the
15 apartment where the radiator is situated.

It is obvious that our improved radiator may be used either with steam or with hot water, as may be desired.

20 Having thus described our invention, what we claim is—

1. In a radiator, the combination, with the loops having the vertical steam-pipes and the air-ducts extending through said steam-pipes,

of the feet or supports having upward-extending nipples vertically perforated to engage the lower ends of the air-ducts, substantially as and for the purpose set forth. 25

2. In a radiator, the combination of the loops having the steam-pipes provided with interior pipes or air-ducts open at their upper and lower ends, and the transverse perforations having side openings communicating with said steam-pipes, the vertical air-ducts extending through said steam-pipes and having
35 open upper and lower ends, and the connecting-rods and nuts, and the removable feet fitted in the lower ends of the air-ducts, substantially as set forth. 35

In testimony that we claim the foregoing as
our own we have hereto affixed our signatures
in presence of two witnesses. 40

ALBERT M. DIMMICK.
JESSE T. MORGAN

Witnesses:

GEO. A. WELLS,
D. A. FELL, Jr.