

No. 742,674.

PATENTED OCT. 27, 1903.

W. R. KINNEAR.
TUBULAR SHEET METAL RADIATOR.

APPLICATION FILED APR. 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

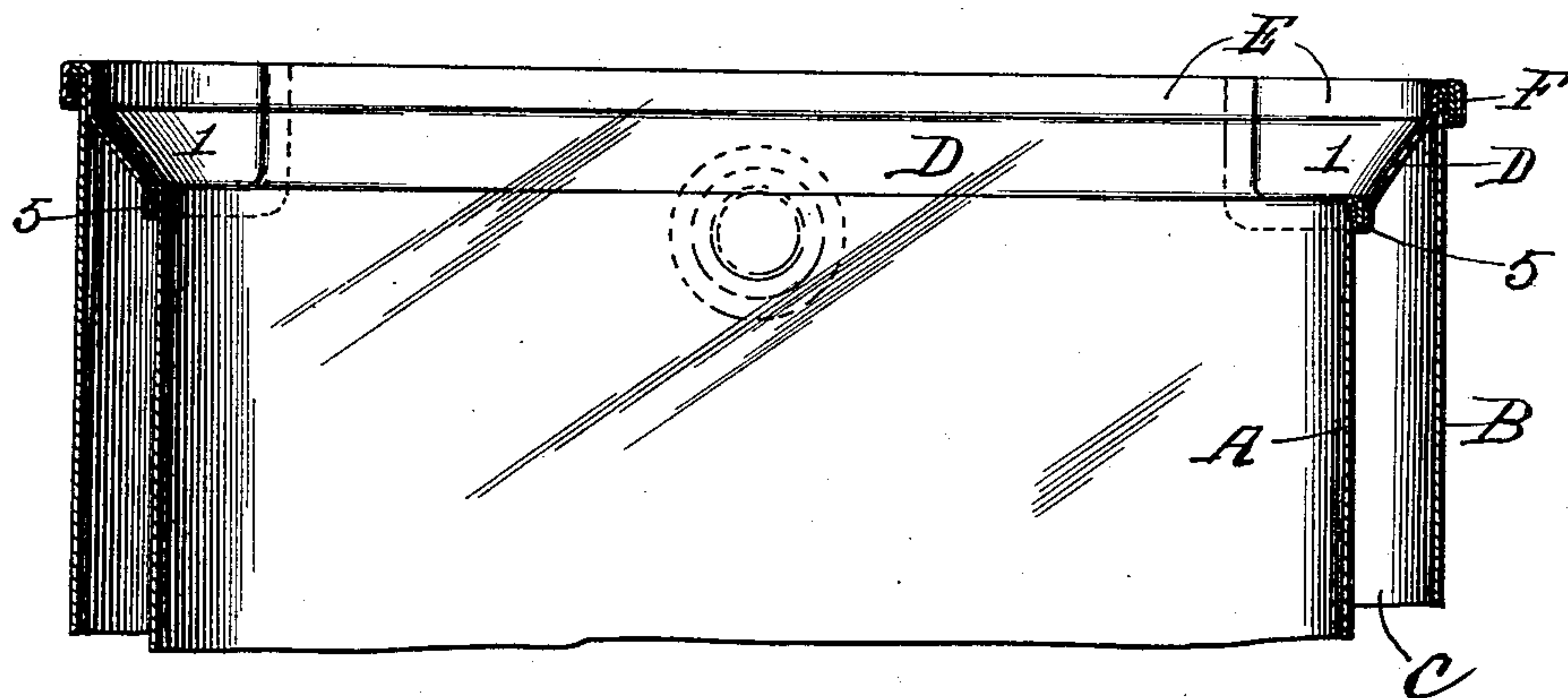


Fig. 2.

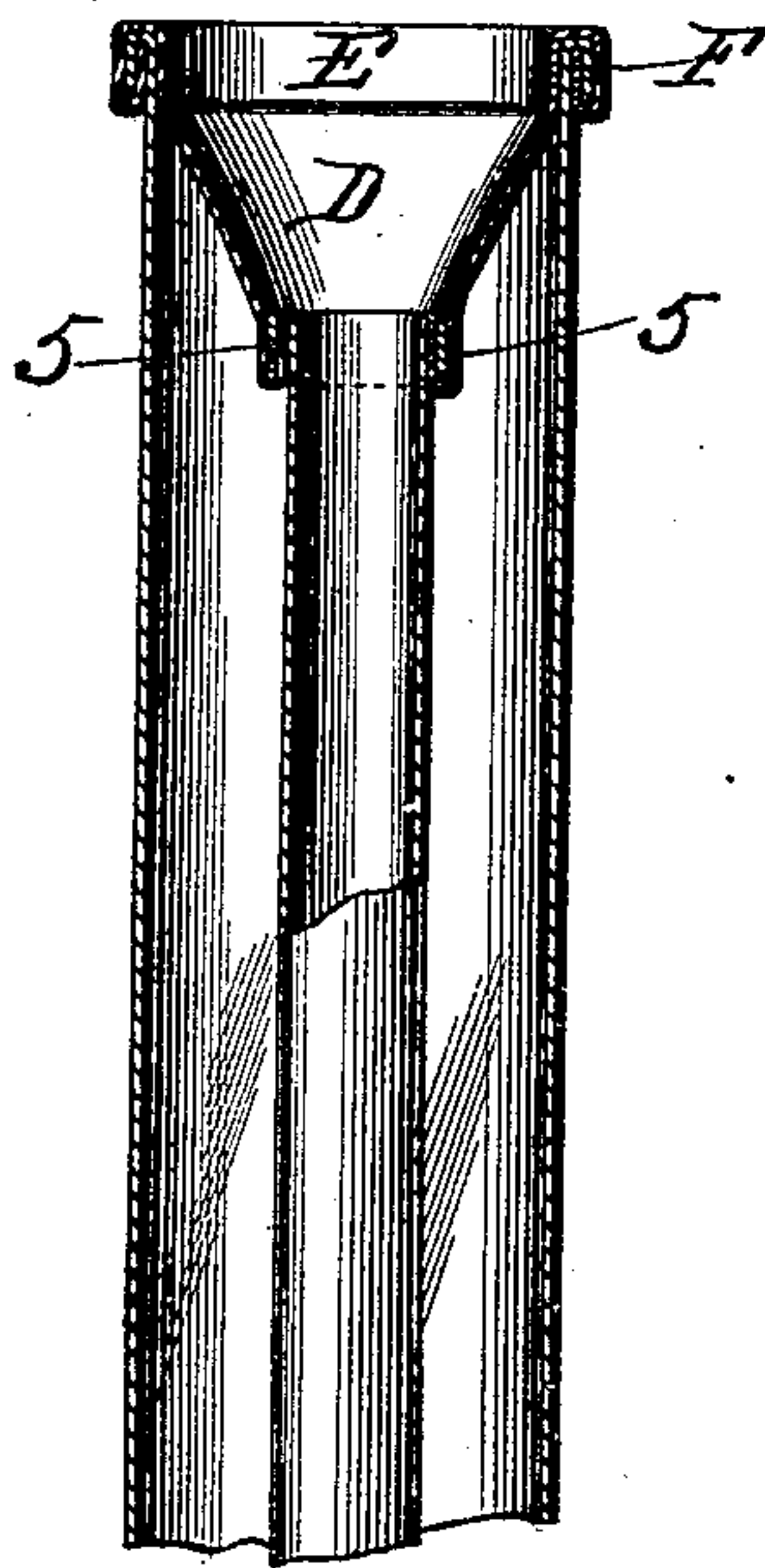
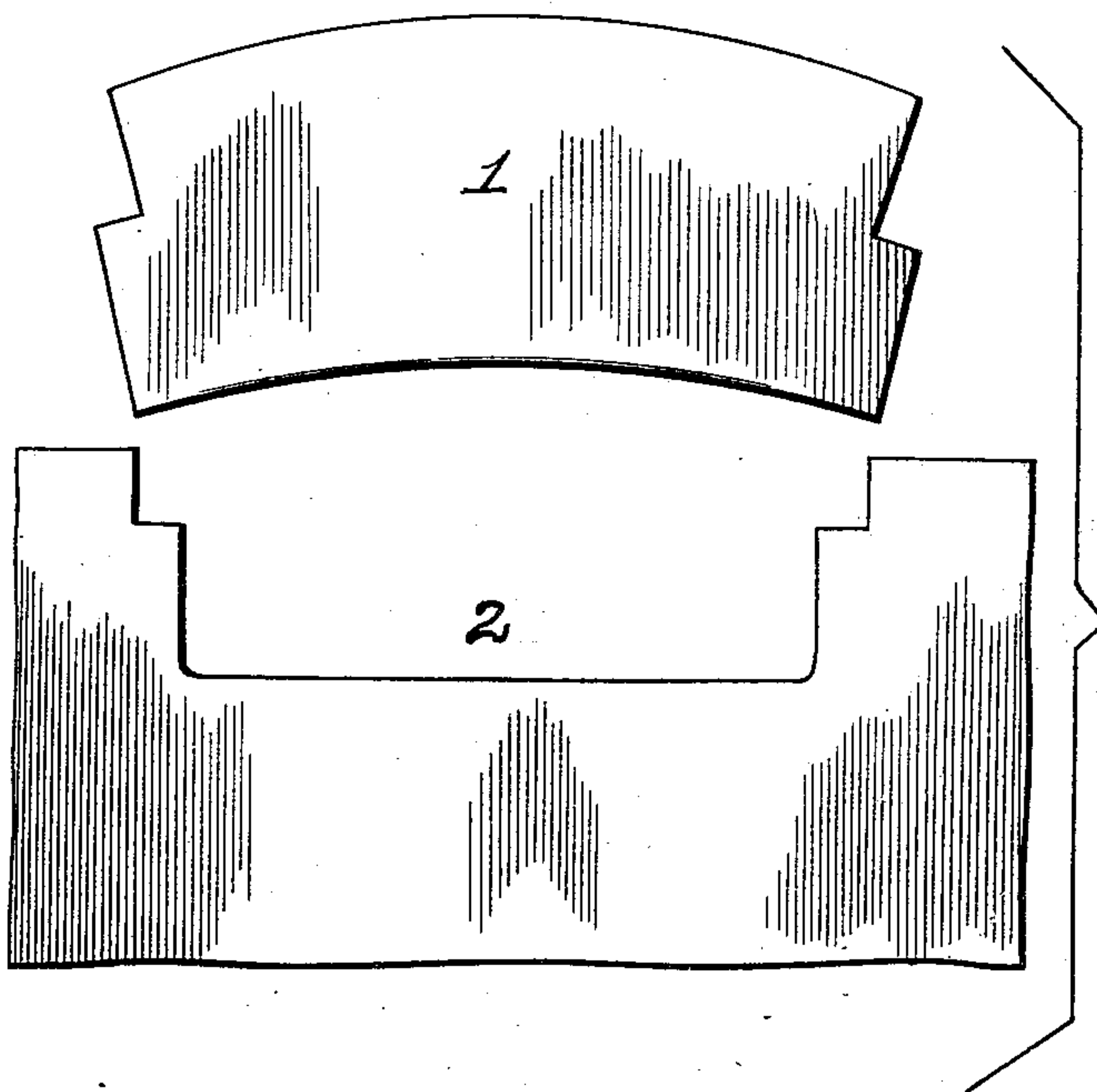


Fig. 3.



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Witnesses

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E. M. Corwick

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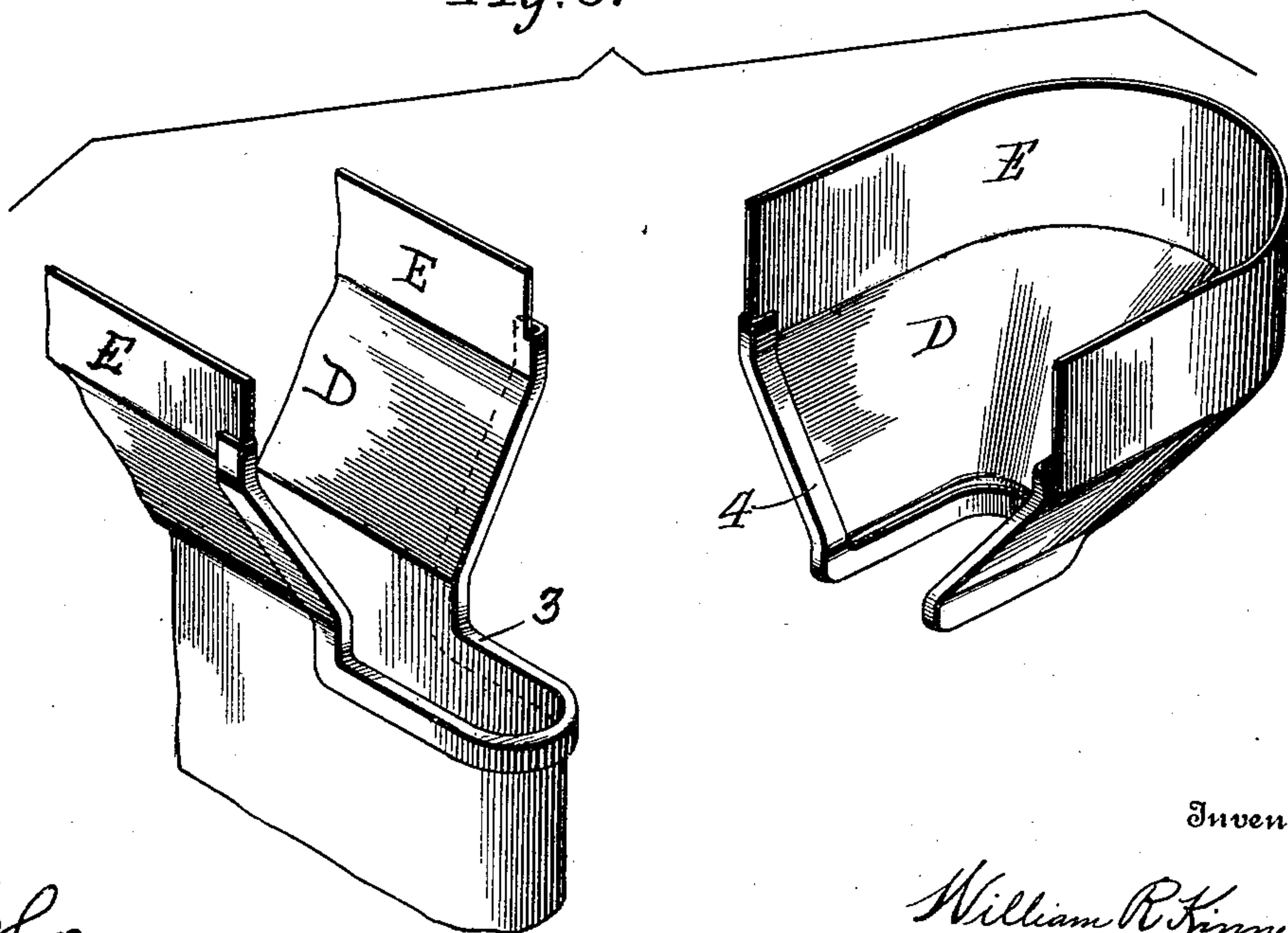
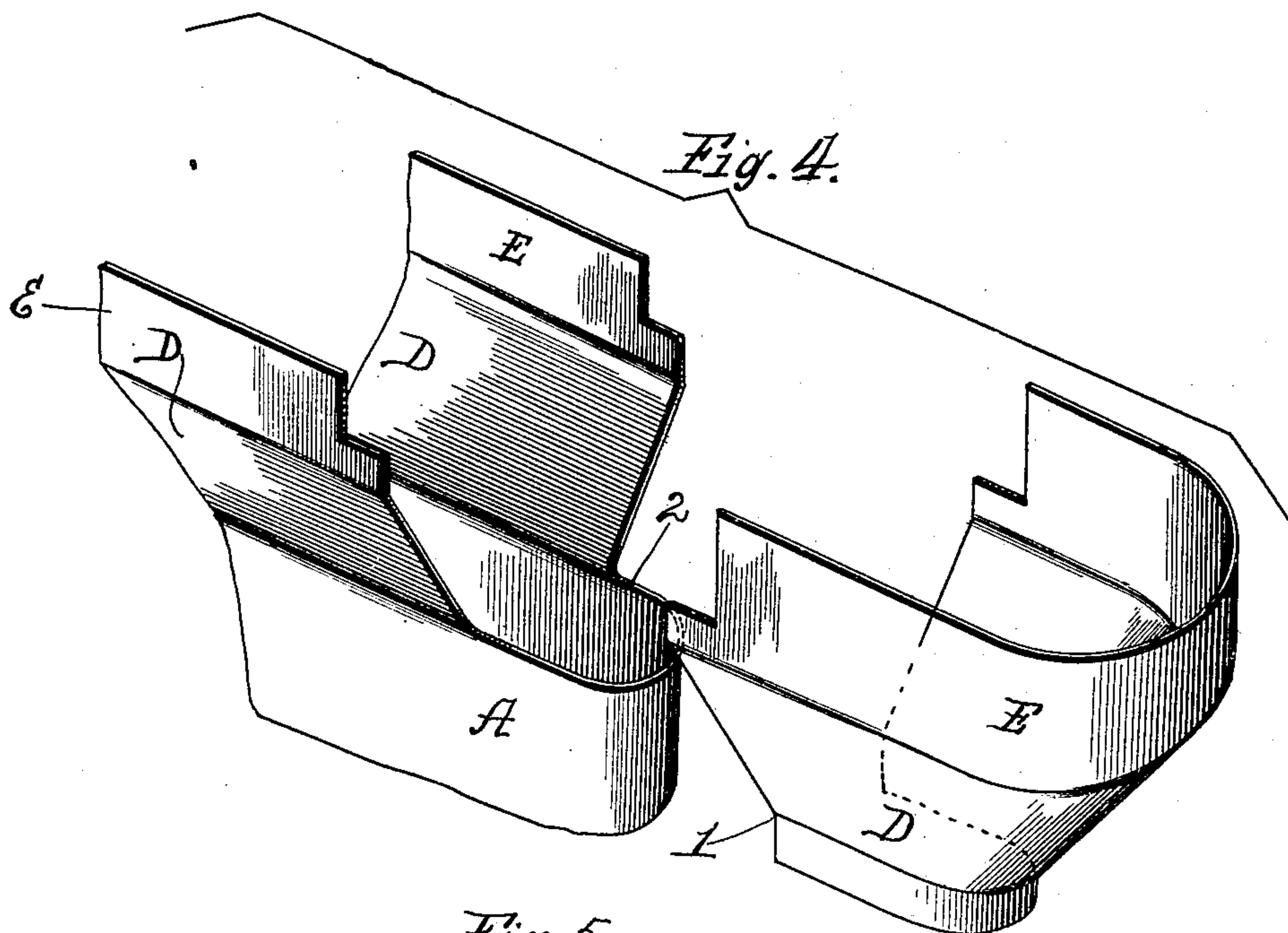
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM R. KINNEAR, OF COLUMBUS, OHIO.

TUBULAR SHEET-METAL RADIATOR.

SPECIFICATION forming part of Letters Patent No. 742,674, dated October 27, 1903.

Application filed April 16, 1903. Serial No. 152,924. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. KINNEAR, a citizen of the United States, residing at No. 1210 Bryden road, in the city of Columbus, county of Franklin, and State of Ohio, have invented certain new and useful Improvements in Tubular Sheet-Metal Radiators, of which the following is a specification.

My invention relates to sheet-metal radiators of the type having a central air-flue and constructed of two concentric walls suitably spaced apart to provide between them a chamber for the heating medium and having the ends of the inner and outer walls brought together to close the ends of said chamber. It is ordinarily impracticable to construct radiators of this type from two pieces of metal only when it is desired to deflect the inner wall outward to the outer wall, because the metal cannot ordinarily be stretched outward sufficiently to bridge the distance between the walls. In radiators of flattened or elliptical sections this difficulty is even greater, for while the straight sides may be deflected by simply bending the material the rounded ends constructed on comparatively small radii preclude flaring or stretching the metal.

According to my present invention the portions of the ends of the inner tube adjacent to the narrow portions of the radiator are cut away, and gore-shaped pieces of suitable dimensions to provide ample fullness are inserted in place of the cut-away portions, which permits giving to the inner member uniformly deflected or outturned ends with longitudinally-extended flanges suitable for forming a locking-seam with the outer member.

My invention will be fully understood by reference to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section, and Fig. 2 a transverse section, showing one of two similarly-constructed ends of a radiator embodying my present invention. Figs. 3, 4, and 5 are views representing three steps in the construction of the radiator.

Referring to Figs. 1 and 2, which represent the radiator that it is desired to construct, A represents the inner member, B the outer member, and C the chamber between these members, the ends of which are closed by deflecting the ends of the inner member A so

as to form the outwardly-inclined portion D and flange E and connecting the flange G with the ends of the member B by a folded seam F.

By comparing the sections of Figs. 1 and 2 it will be observed that the radiator is quite narrow in one direction and long in the other direction. Hence there is little difficulty in forming the long sides of the outwardly-inclined portions D; but it is impracticable to obtain any such inclined set to the narrow rounded ends when working with ordinary sheet metal. For these reasons I introduce the gore-shaped pieces 1 by proceeding in the following manner:

At any suitable stage in the production of the inner tubular member A the portions of its ends which are to form the rounded ends of the radiator or the inner walls thereof are cut out as shown at 2 in Fig. 3, and gore-shaped pieces 1 of slightly-arcuate form and larger than the opening 2 are provided, as shown at 1 in Fig. 3. These parts A and 1 may then be shaped up as shown in Fig. 4 and then provided with an external locking-lip 3 on the one and an internal locking-lip 4 on the other, as shown in Fig. 5, after which the end filling-pieces 1 are suitably attached by folded seams, as shown at 5 in Figs. 1 and 2, and the inner member A is then ready for introduction into the outer member B and for permanent connection therewith by means of the folded seam F, as already referred to. After the parts are thus assembled the radiator may be dipped in a suitable soldering or galvanizing bath to tighten all the joints.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A tubular sheet-metal radiator constructed from two tubular members located one within the other with a space between them and having the ends of the inner member deflected to and connected with the ends of the outer member to close said space; the inner member being provided at suitable points in its ends with filling-pieces providing fullness which permits the ends to be stretched out into shape.

2. A sheet-metal radiator constructed of inner and outer tubular members with the ends of the inner member deflected outward and connected with the ends of the outer member;

said radiator being in flattened or elliptical form and having gore-shaped pieces inserted at points in its ends corresponding to the rounded narrow ends of the radiator.

- 5 3. In a sheet-metal radiator constructed of inner and outer tubular members having the ends of the inner member deflected to and connected with the ends of the outer member said radiator being constructed in flattened
10 or elliptical form and having the ends of the inner member in line with the narrow rounded portions of the inner wall cut away and

filled with inserted gore-shaped pieces of larger dimensions than the cut-away portions so as to produce fullness, said inserted pieces being connected with the inner member by folded seams.

The foregoing specification signed this 14th day of April, 1903.

WILLIAM R. KINNEAR.

In presence of—

WILLARD MCWORKMAN,
J. GREEN.