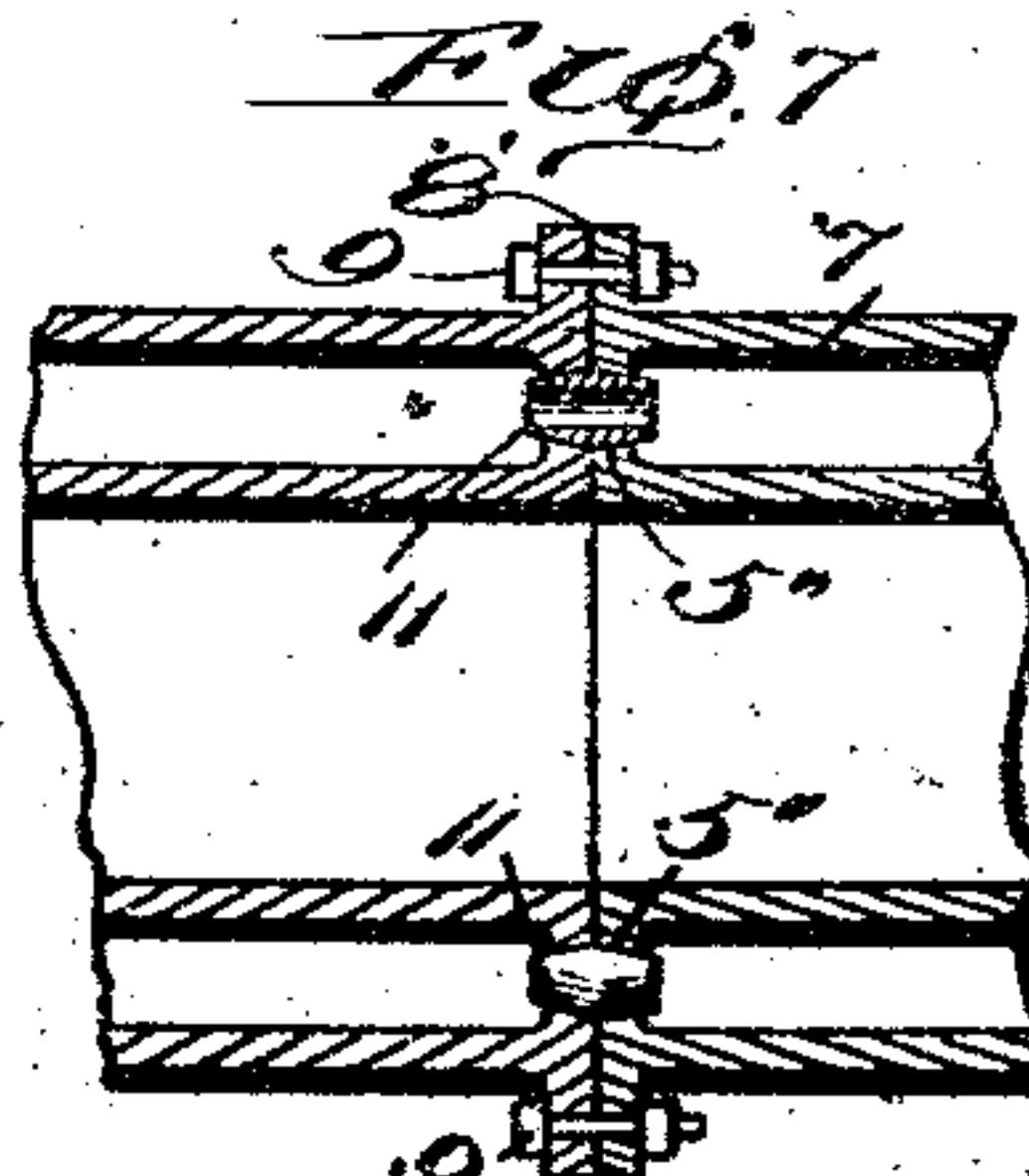
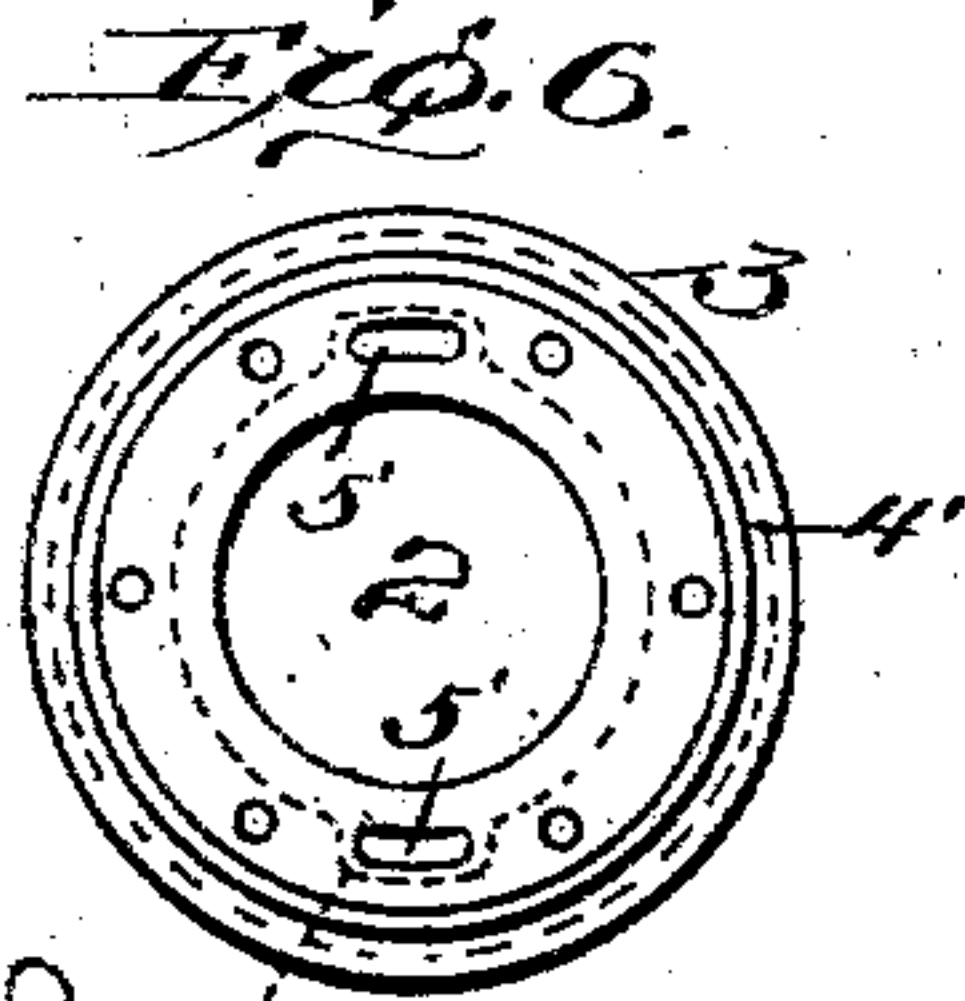
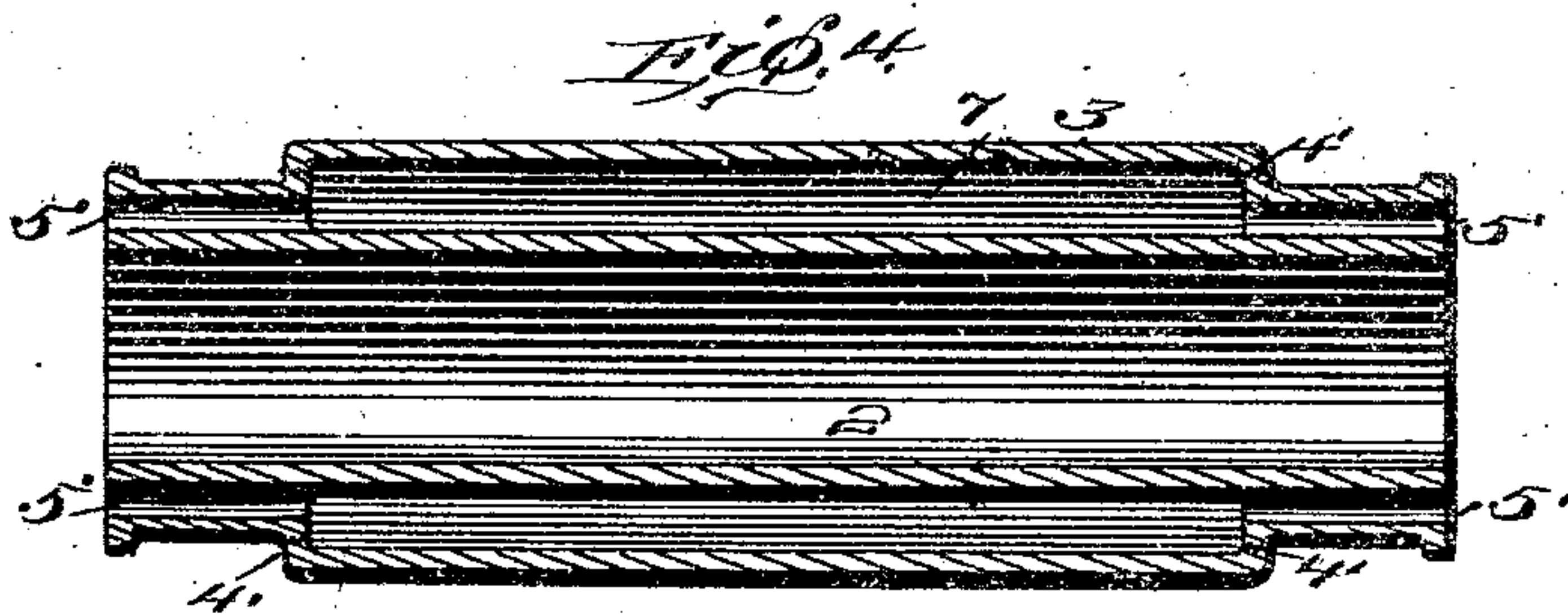
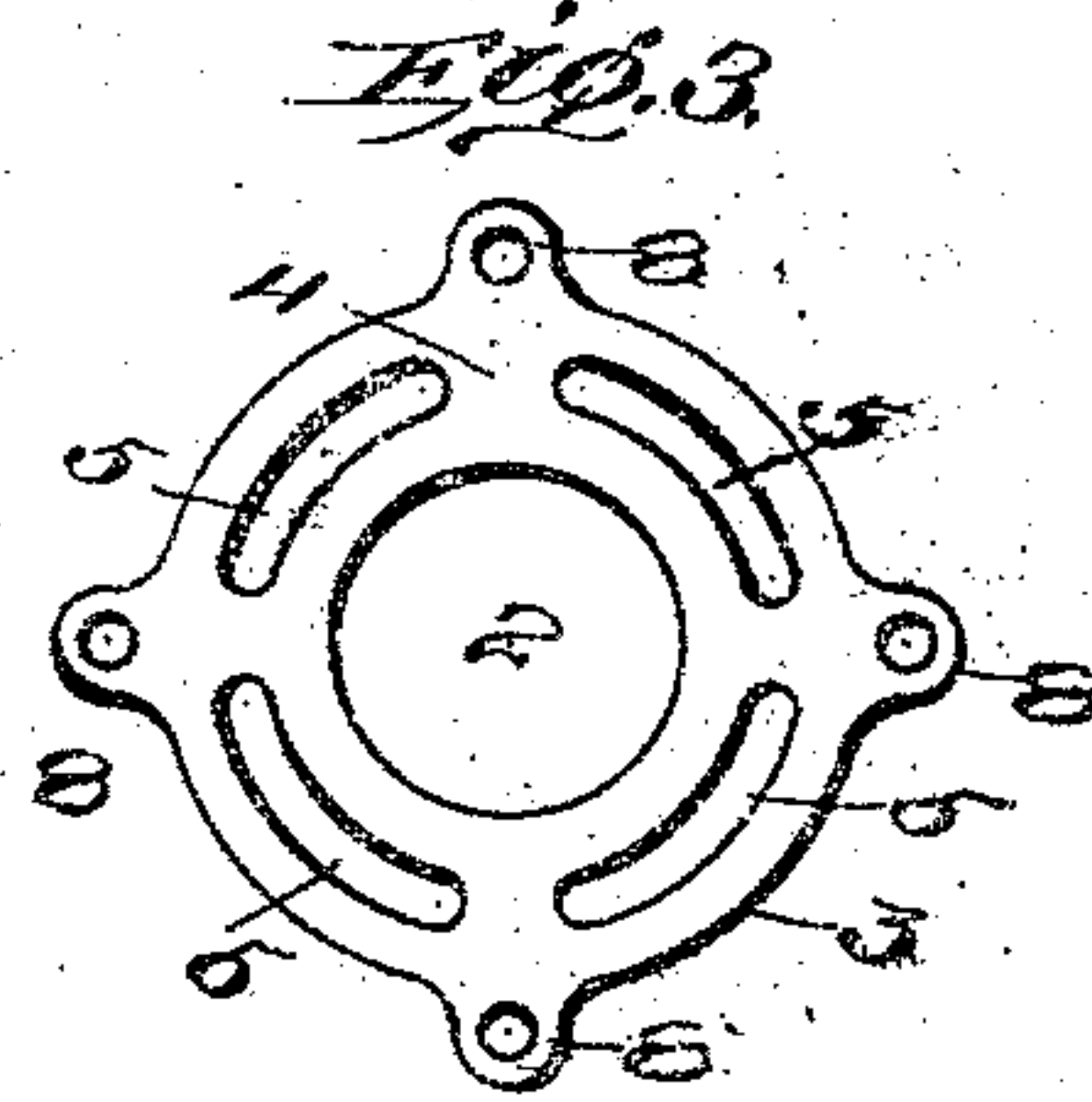
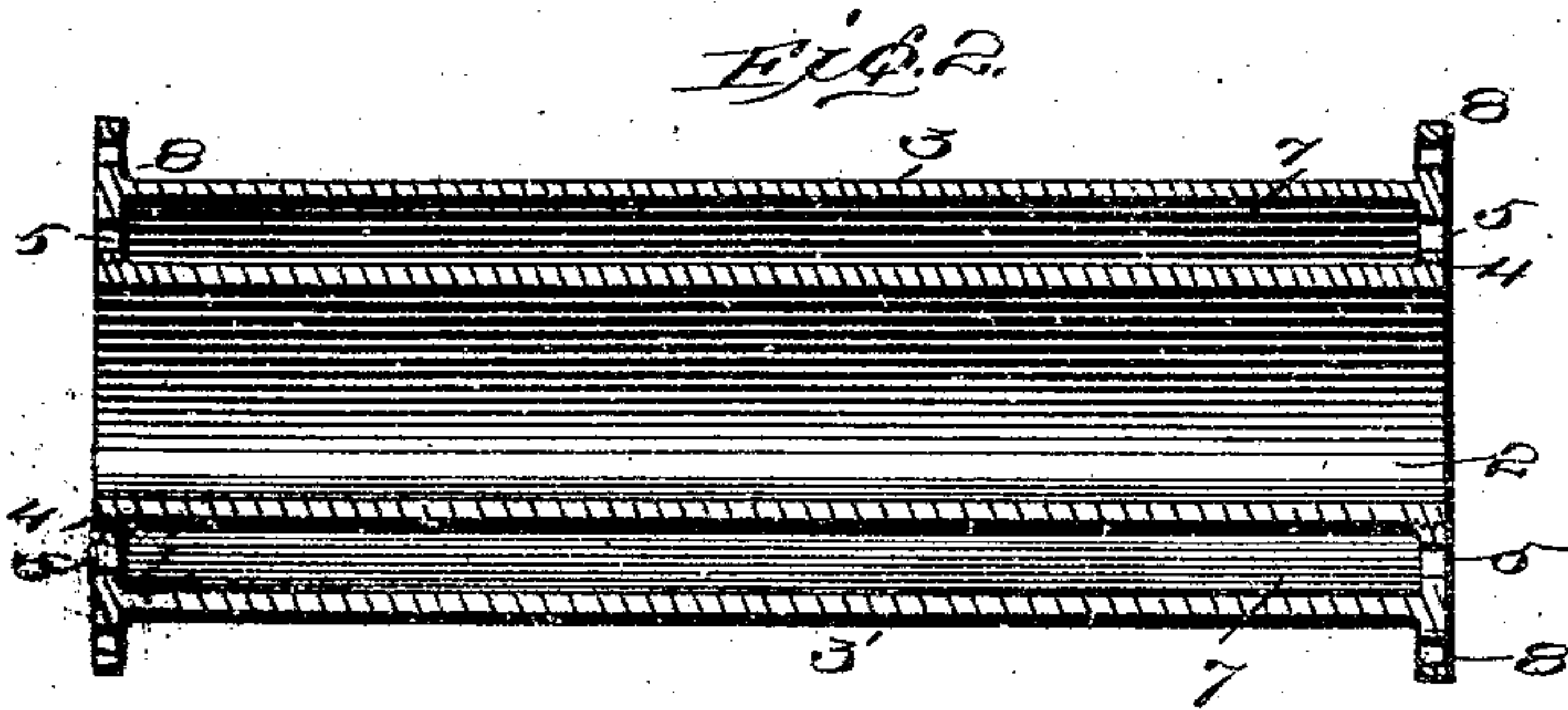
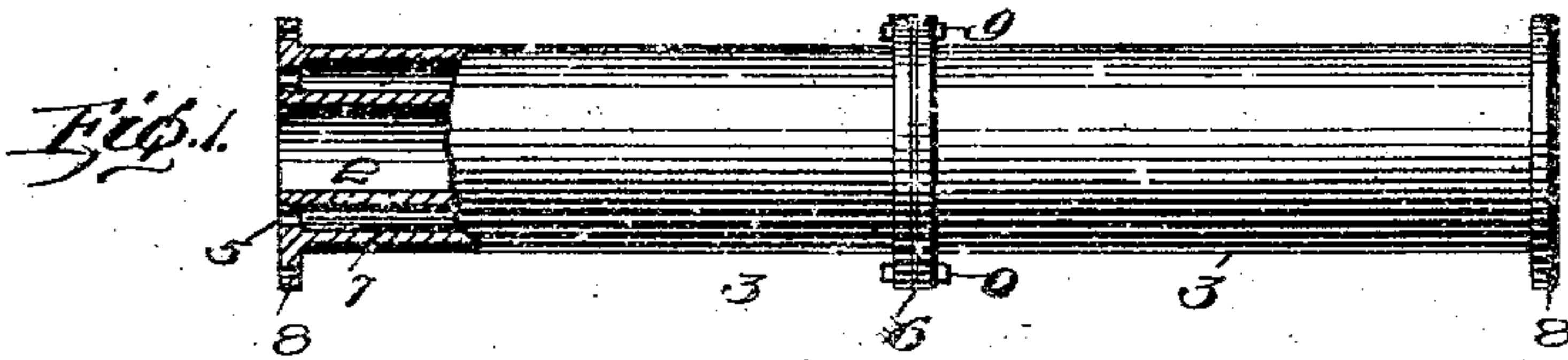


No. 724,675.

PATENTED APR. 7, 1903.

R. J. DECKER.
FLUID CONDUCTING PIPE.
APPLICATION FILED AUG. 29, 1902.

NO MODEL.



WITNESSES:

J. M. Fowler
Geo. B. Pitts

INVENTORS

BY

Rudolph J. Decker
J. V. Barker and
J. H. Houghton, Attorney

UNITED STATES PATENT OFFICE.

RUDOLPH J. DECKER, OF SALT LAKE CITY, UTAH, ASSIGNOR TO WILLIAM M. FERRY, OF SALT LAKE CITY, UTAH.

FLUID-CONDUCTING PIPE.

SPECIFICATION forming part of Letters Patent No. 724,675, dated April 7, 1903.

Application filed August 29, 1902. Serial No. 121,514. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH J. DECKER, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and useful Fluid-Conducting Pipe, of which the following is a specification.

In the transmission of fluids, whether gaseous or liquid, through conduits it is often desirable or necessary to maintain them at a temperature different—sometimes higher and sometimes lower—from that of the medium surrounding the conduit.

My invention has for its object to produce a pipe or conduit for the transmission of fluids that may be easily and cheaply manufactured and is so constructed that such fluids may be maintained at a temperature different from that of the medium in which the conduit is laid; and it consists of a pipe formed of sections that are duplicates of each other and each of which comprises a central or main fluid-conduit and a casing inclosing a chamber adapted to contain a circulating medium, the main conduit and the surrounding jacket or casing possessing novel and advantageous features of construction to be hereinafter pointed out.

In order that my invention may be the better understood, I have illustrated three forms thereof in the accompanying drawings; but I do not intend thereby to limit my invention in its practical operation to the details of construction shown in such drawings, as it is evident the principle of the invention may be adopted in constructions differing in details from those shown.

In such drawings, Figure 1 represents a short line of pipe or conduit embodying one form of my invention. Fig. 2 is a central longitudinal section, on a somewhat larger scale than Fig. 1, of one of the sections of which the conduit is formed. Fig. 3 is an end view of the section represented in Fig. 2. Fig. 4 is a longitudinal view of another form of pipe-section embodying my invention. Fig. 5 is a side view of the same, and Fig. 6 an end view thereof. Fig. 7 is a section illustrating still another form of the invention.

By reference to the drawings, and particularly to Fig. 1, it will be seen that the con-

duit therein illustrated is double—that is, there are in reality two conduits—an inner one 2 and a surrounding one formed of a series of connected chambers 7. Through the main conduit usually passes the fluid the temperature of which it is desired to control, while through the outer conduit formed of the connected chambers will circulate the fluid employed to maintain that in the conduit 2 at the desired temperature. Of course there might be reversal in this respect—that is, the main fluid passing through the outside casing and the temperature-controlling fluid through the inner pipe or conduit—though this ordinarily would not be a desirable manner of operating. The conduit is formed of sections that are duplicates of each other and are so constructed as to reduce the number of separate parts to a minimum, thus largely reducing the labor incident to the manufacture and the assembling of a conduit embodying my improvements and at the same time reducing the liability of leakage at joints. The end walls 4 of the casing are integral either with the casing 3 or with the tube 2, the former construction being illustrated in Fig. 2 and the latter in Fig. 5, and they are united by screw-threaded joints with that member of the conduit-section from which they are separated in the first instance. This arrangement I prefer, as it facilitates the casting of the sections and is a more simple and less expensive manner of construction than to attempt to make the whole section integral, though the latter method of construction might be adopted. Among the advantages incident to making the end walls of the casing integral with one of the members of the section the following may be noted: It reduces the number of parts to a minimum, and by reducing the number of joints necessary it guards against the liability of leakage, it effects a saving of expense for labor in the manufacture and assembling of the conduit-sections, and it enables me to produce a jacketed conduit in which there is absolutely no longitudinal movement of the jacket and the inner tube relative to each other. In the end walls 4 are formed the openings 5, through which the fluid in the connected chambers 7 circulates.

The features thus far described are common to the different forms of my invention; but in other respects they differ one from the other. Thus in the form of invention illustrated in Figs. 1, 2, and 3 the casing is extended quite to the ends of the pipe-section 2, so that such pipe is entirely surrounded from end to end by the chamber 7. The openings 5 into the annular chamber 7 are flush with the end faces of the section and are adapted to register with corresponding openings when two sections are brought together. The sections are provided at their ends with perforated lugs or flanges 8, through which pass the bolts 9, by which the sections are connected together, such flanges or lugs being in this instance carried by the casing member 3. Suitable packing 6 is arranged between the ends of the sections, the packing being so disposed as to leave free openings between adjacent ends of the pipes 2 and the openings 5 into the annular chambers 7.

In the form of my invention illustrated in Figs. 4, 5, and 6 the end walls 4' of the casing 3 are set back somewhat from the ends of the section, and the openings 5' into and from the annular chamber 7 are formed in bosses 10, disposed upon the outside of the tube 2 and between the end walls 4' of the casing and the perforated flanges 8' of the section. In this embodiment of my invention the end walls are carried by the tube members 2 of the section, as are also the perforated flanges 8'. It will also be observed that the bosses 10 are integral with the inner tube 2 and the openings into the annular chamber 7, extending out flush with the end faces of the section.

The form of my invention illustrated in Fig. 7 is quite similar to that shown in Figs. 1, 2, and 3. It differs, however, in that the openings 5'' into and from the annular chamber 7 are circular in form and are adapted to receive the double tapered connecting-nipples 11. Under some circumstances it is desirable to thus unite the chambers.

It will be observed that in each form of my invention the apertures for the connecting-bolts 9, by which the sections are united, are situated outside of the casing 7, thus leaving the connecting-bolts entirely exposed and easily accessible, so that a section of the conduit may be easily removed and another put in its place should circumstances require it.

The uses to which my invention may be put are many. For example, the pipe or conduit 2 may be used as a ventilating-pipe to convey foul air from an apartment, and cooling-water may be caused to circulate through the connected chambers 7 in order to reduce the temperature of the air passing through the pipe and induce a strong flow therein, or the pipe 2 may be used to convey steam from a generating plant to a heating system or engine located a long distance away from the generating plant, and the connected chambers in such cases may be arranged to receive steam or a

heating medium that operates to maintain the temperature of the steam being conveyed through the pipe 2. Other instances of the use of my invention might here be cited, but it is not thought necessary.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A conduit for fluids formed of sections that are duplicates of each other, each section having an interior tube member, a surrounding casing member forming a chamber outside of the said tube member and end walls for the chamber, integral with one of the said section members, there being openings into the chamber for the passage of a circulating medium, and each section being provided with means whereby it may be connected with corresponding sections, substantially as set forth.

2. A conduit for fluids formed of independent sections, each section having a main interior pipe, a surrounding casing inclosing an annular chamber about the pipe, and end walls for the annular chamber through which are formed openings arranged to register with corresponding openings in adjacent sections whereby the chambers of the adjacent sections are connected, and the sections being also provided with perforated flanges whereby they may be united by bolts, substantially as set forth.

3. A conduit for fluids formed of independent sections that are duplicates of each other, each section having a main conduit or pipe, a casing inclosing a chamber about the pipe and end walls for the chamber, the chambers of the conduit being connected in series, and each section being provided with perforated flanges by which they may be bolted together, such flanges being situated outside the casing, substantially as set forth.

4. A conduit for fluids formed of sections each having an interior pipe or tube member, and a surrounding jacket inclosing a chamber about the tube, the chambers of the sections being connected in series, and each casing being united with the tube member rigidly, whereby relative longitudinal movements of the casing and tube members are prevented, substantially as set forth.

5. A conduit for fluids formed of sections that are duplicates of each other, each section comprising an inner tube member 2, a jacket 3 surrounding the tube and inclosing a chamber about the same, end walls for the chamber formed integral with one of the said section members and connected with the other by a screw-threaded joint, such end wall being provided with apertures 5, and perforated flanges or lugs 8 arranged outside of the casing to receive the connecting-bolts 9, substantially as set forth.

RUDOLPH J. DECKER.

Witnesses:

J. S. BARKER,
GEO. B. PITTS.