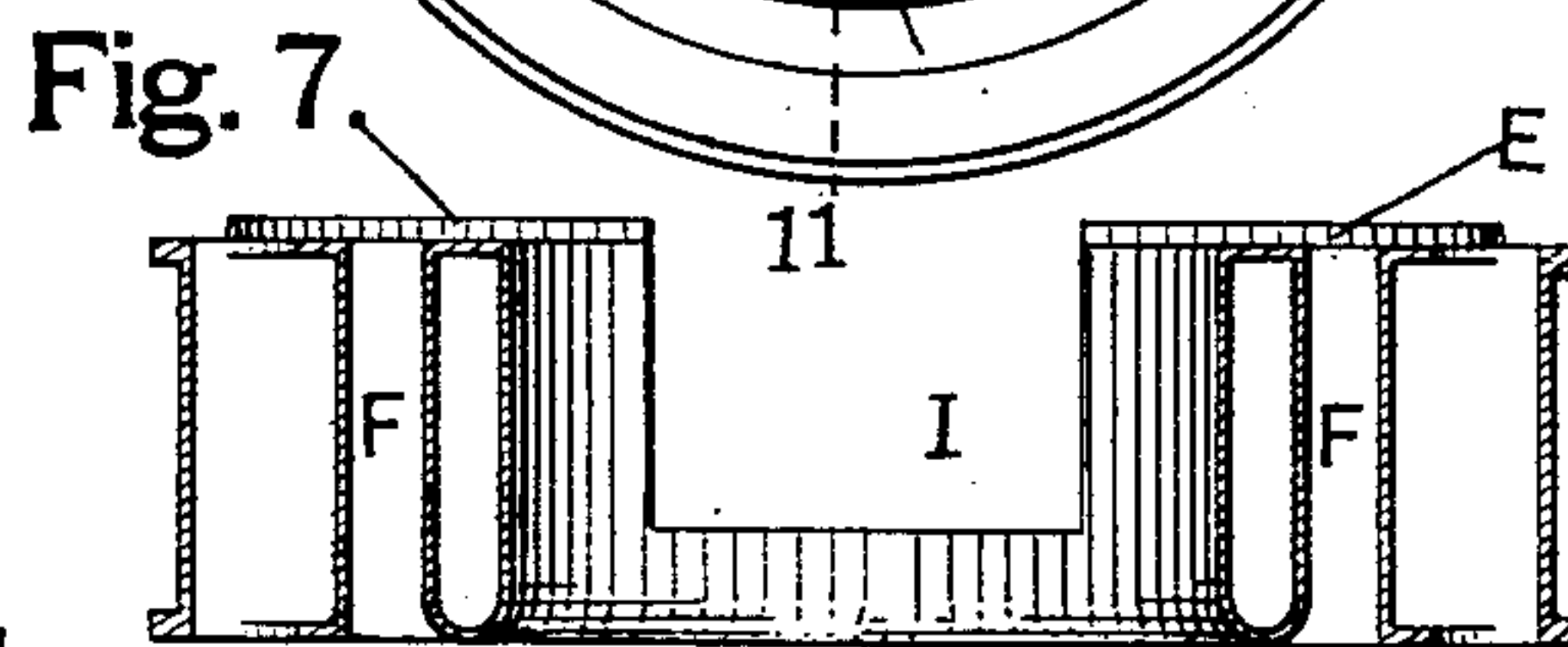
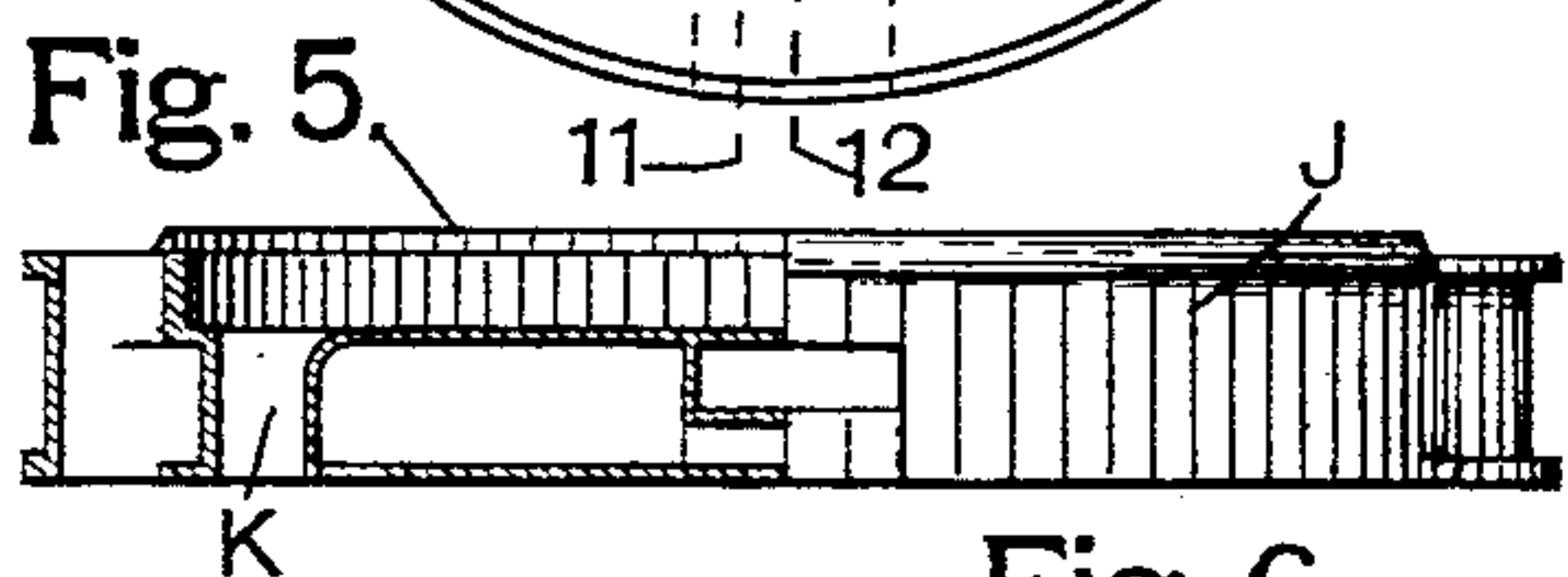
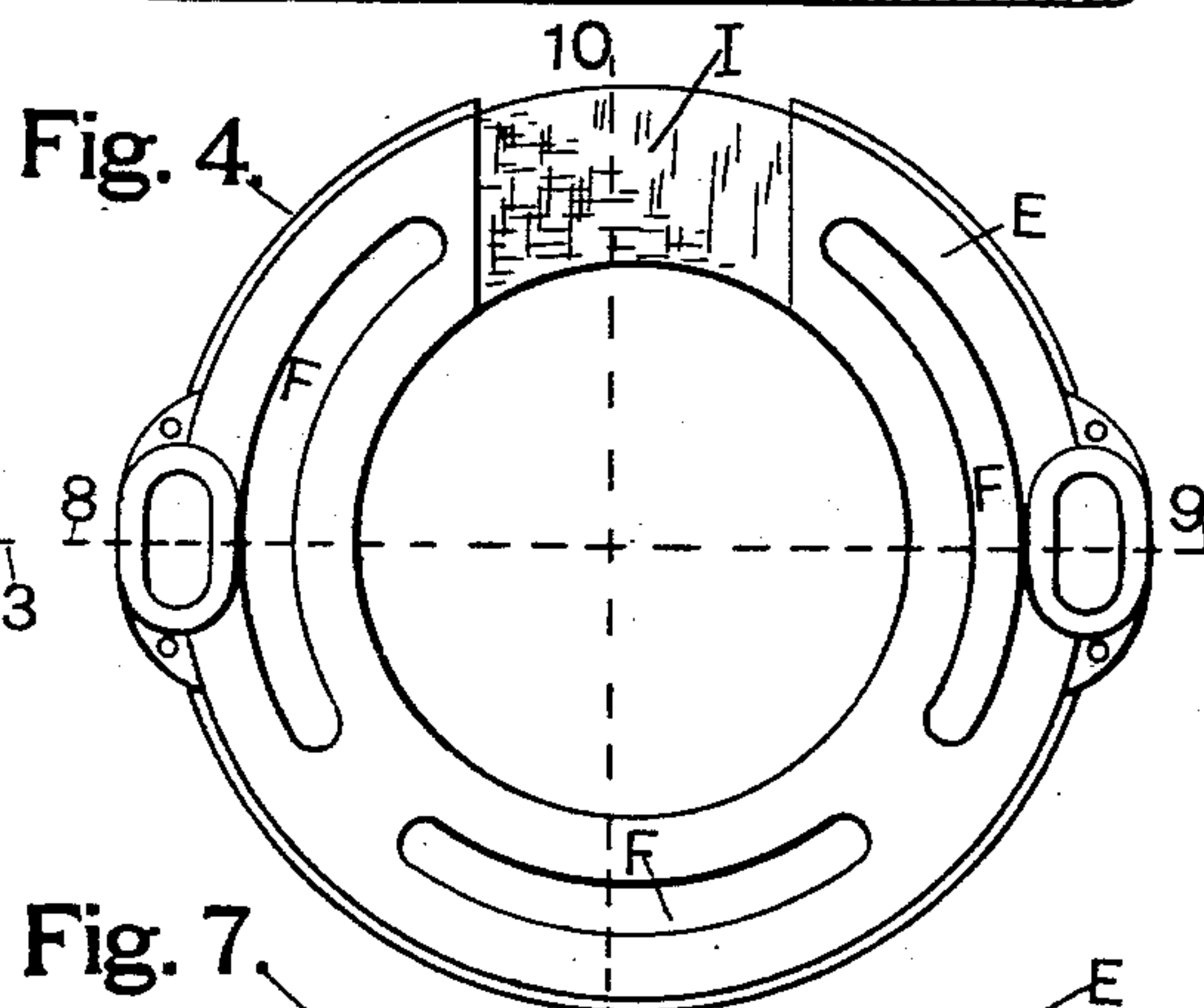
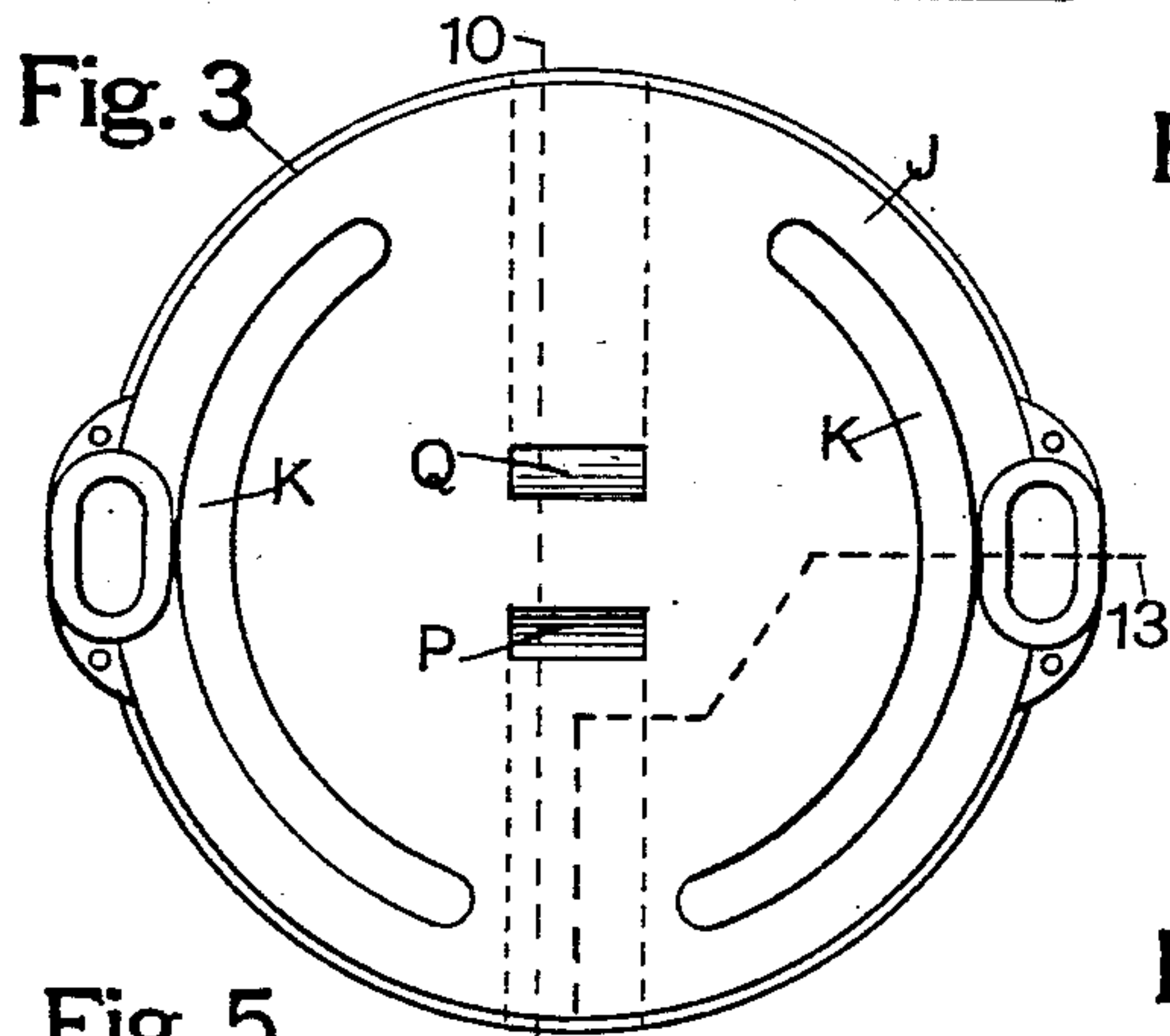
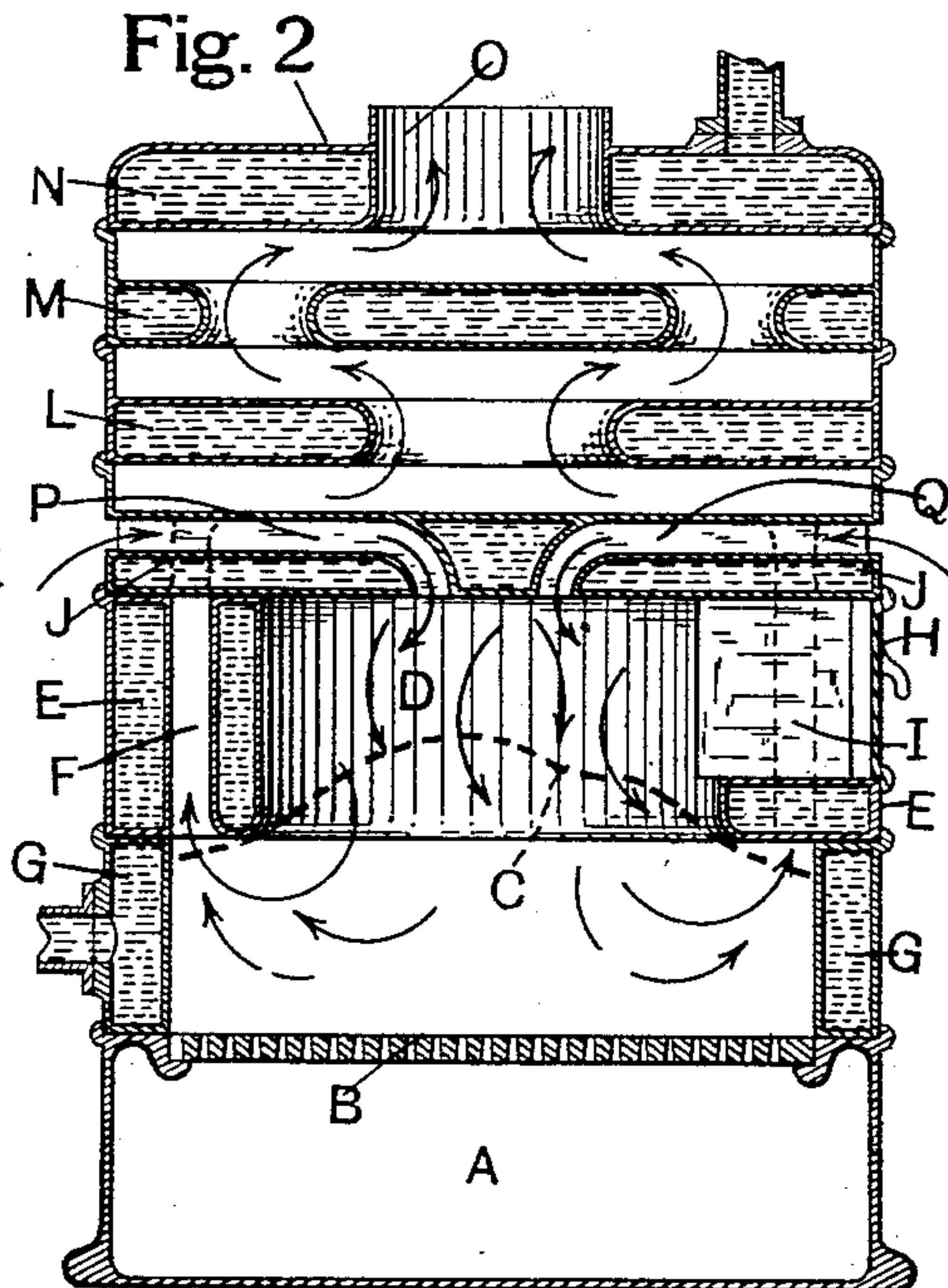
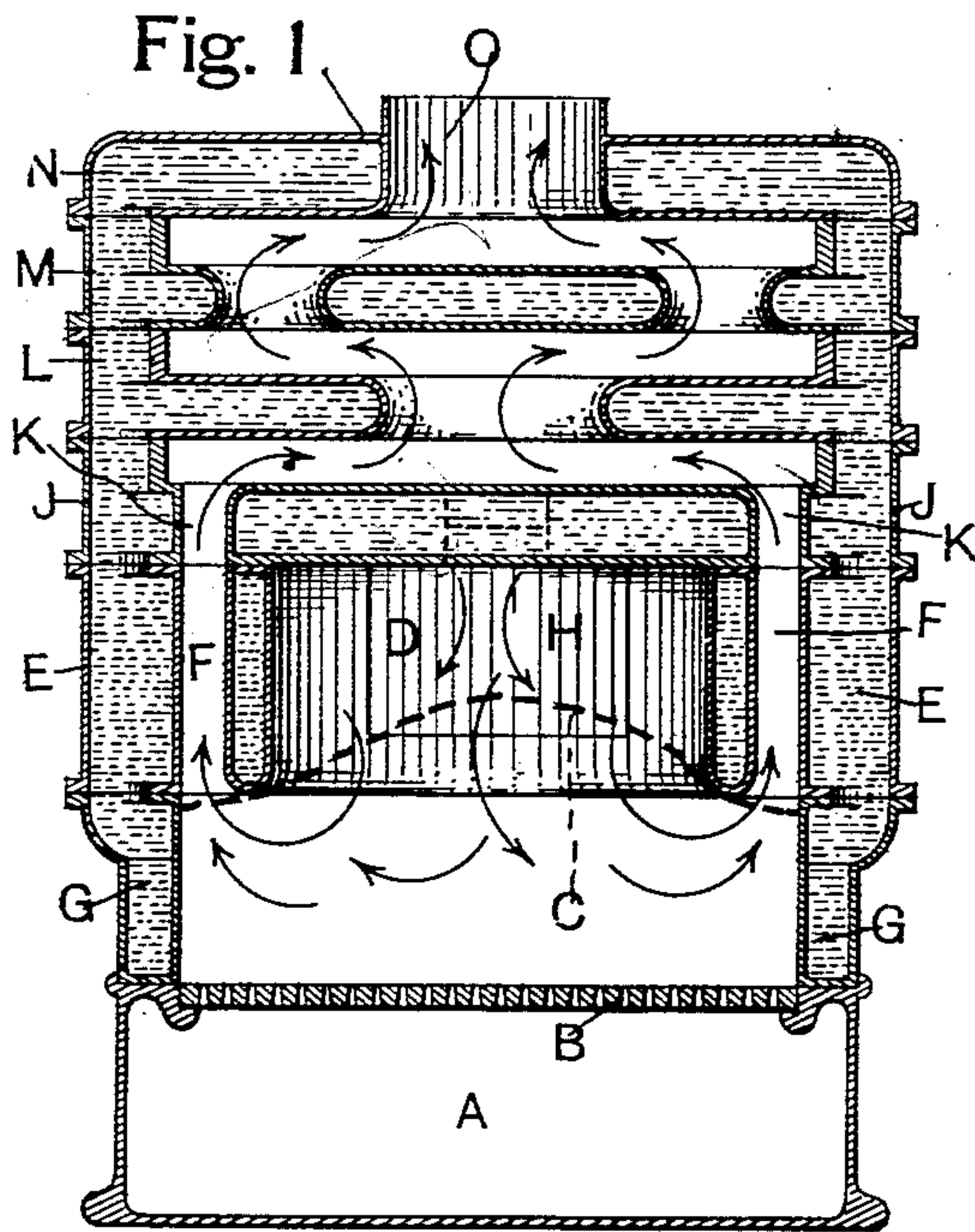


(No Model.)

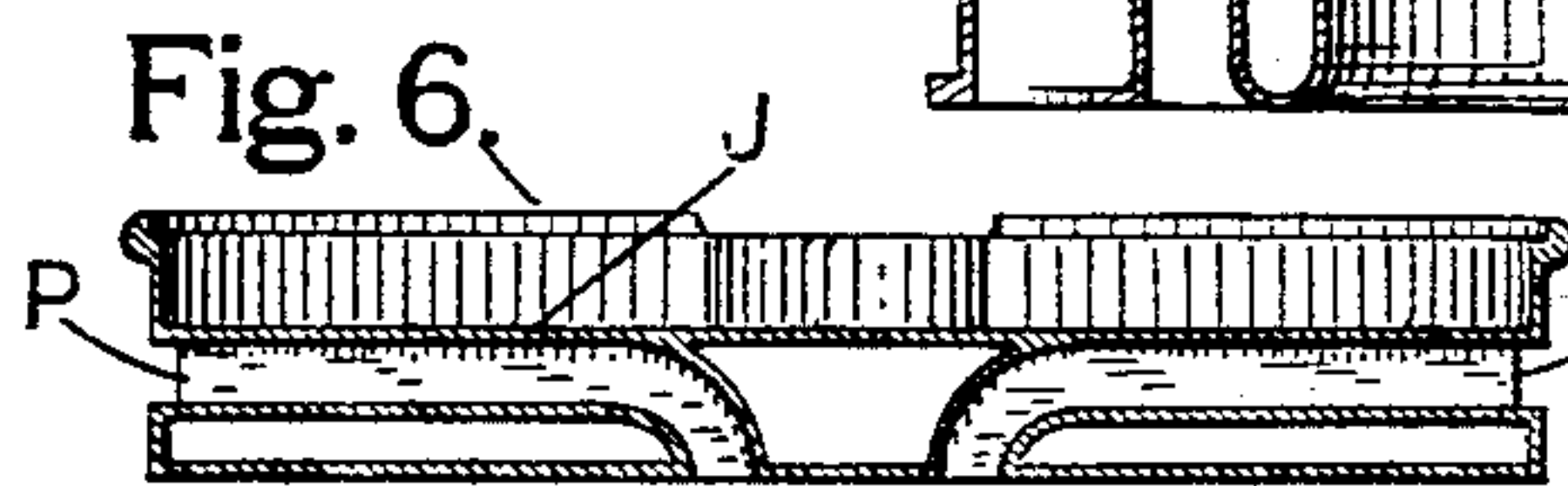
H. D. ROGERS.  
SECTIONAL BOILER.

No. 541,118.

Patented June 18, 1895.



WITNESSES:  
H. A. Hale.  
W. W. Ross.



INVENTOR  
Homer D. Rogers.  
By his atty. Oscar Snell.



# UNITED STATES PATENT OFFICE.

HOMER D. ROGERS, OF CHICAGO, ILLINOIS.

## SECTIONAL BOILER.

SPECIFICATION forming part of Letters Patent No. 541,118, dated June 18, 1895.

Application filed April 22, 1895. Serial No. 546,723. (No model.)

*To all whom it may concern:*

Be it known that I, HOMER D. ROGERS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Sectional Boiler, of which the following is a specification.

My invention relates to improvements in sectional boilers which are ordinarily employed for heating buildings, &c., and my object is to improve the construction of that class of such boilers which have down draft furnaces similar to what is shown and described in my application for Letters Patent of the United States, filed March 11, 1895, Serial No. 541,208, and allowed March 23, 1895.

My new improvement is described herein-after, and is fully illustrated in the accompanying drawings, in which—

Figure 1 is an axial vertical section through the several sections on broken line 8 9, Fig. 4. Fig. 2 is an axial vertical section through the several sections on broken line 10 11, Figs. 3 and 4. Fig. 3 is a bottom plan of the section which is superimposed upon the fire-pot sections and is more fully described herein-after. Fig. 4 is a plan of one of the fire-pot sections. Fig. 5 is a half elevation and a vertical section on line 12 13 of Fig. 3 of the section which is superimposed upon the fire-pot sections. Fig. 6 is an axial vertical section of the boiler-section, which is superimposed upon the fire-pot section, on broken line 10 11, Fig. 3, and is the same section as shown in Fig. 2 in position for duty. Fig. 7 is an axial vertical section of the upper fire-pot section, which is the same as is shown in proper position in Fig. 1, but without the fuel-door in place.

Similar letters indicate like parts throughout the several views.

A is an air tight ash pit, and B is the top thereof which is perforated and forms the bottom of the fuel or fire chamber.

The perforated top B of the ash pit is not usually in this boiler furnished with grates, properly so called, since no air passes upwardly through the perforations thereof from the ash pit as usual, but the entire supply of air to support combustion passes downwardly, then laterally outwardly, and then upwardly through the fuel, the whole of this air being received from the top portion of the fire cham-

ber D which is formed by the double ring fire pot section E, which has flues F passing upwardly therethrough from the lower part of the fire chamber which is larger than the upper part in diameter by virtue of the larger internal diameter of the lower hollow fire pot water section G upon which rests and is connected the double water section E, which is the upper fire pot section.

H is the fuel door in section E which closes an orifice I, air tight, through which fuel is admitted to the fire chamber D.

Above and connected to the upper fire pot section E is the hollow water section J through which pass two vertical flues K and K which register with the vertical flues F of upper fire pot section E, the water section J thus forming the top of the fire chamber D. There are three other water sections L, M and N successively imposed upon the water section J, each separated from the other, and each provided with vertically disposed flues therethrough, so that the gases of combustion may pass from the lower part of the fire chamber upwardly to the central flue O of the top water section and from thence to the chimney, as usual. In furnaces of this character, as constructed heretofore, the air to support combustion has been introduced laterally through the walls of the double fire pot section E and since such passages end at the surface of the inner diameter thereof the air is drawn directly downward close to the walls of the section and then through the fuel at the extreme sides of the fire chamber which prevents the whole body of fuel attaining a high degree of temperature when it is desired to crowd the furnace to its greatest capacity.

My additional improvement consists in providing passageways P and Q which begin at the outside of the furnace and end at the top of the fire chamber near the center thereof, the passageways being entirely in the water section J which is above the upper fire pot section as before stated. This manner of admitting air to the fire chamber in furnaces of this class has advantages over any yet introduced in that, the air is carried to the central upper portion of the fire chamber from which it descends directly into the central portion of the charge of fuel and thus not only utilizes all the fire chamber space but insures the



thorough admixture of the largest possible amount of air with the fuel gases, and a consequent high degree of both heat and economy, which many exhaustive trials have fully demonstrated.

I claim as my invention—

The combination in a furnace having an air tight ash pit, a fire pot water section, forming the side walls of a fire chamber, arranged above the ash pit and a perforated partition between the ash pit and the fire chamber, the fire pot water section having flues leading vertically therethrough at the sides thereof from the lower part of the fire chamber, and which

register with flues leading vertically through the water section which serves as the top of the fire chamber as described, of air passages leading into the top of the fire chamber from the outside of the boiler through the latter named water section, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand, this 6th day of April, 1895, in the presence of witnesses.

HOMER D. ROGERS.

Witnesses:

OSCAR SNELL,  
H. S. BROWN.