

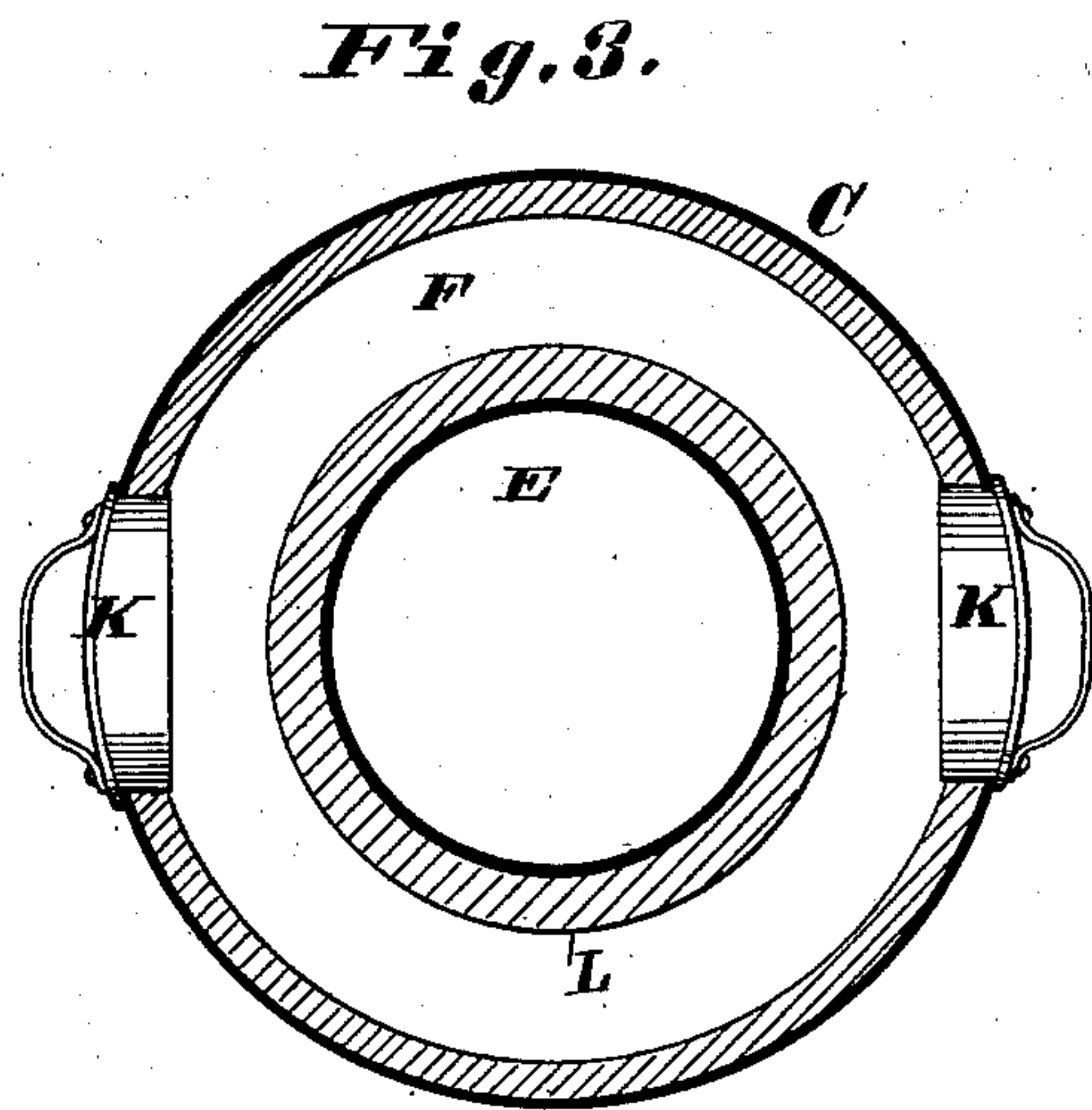
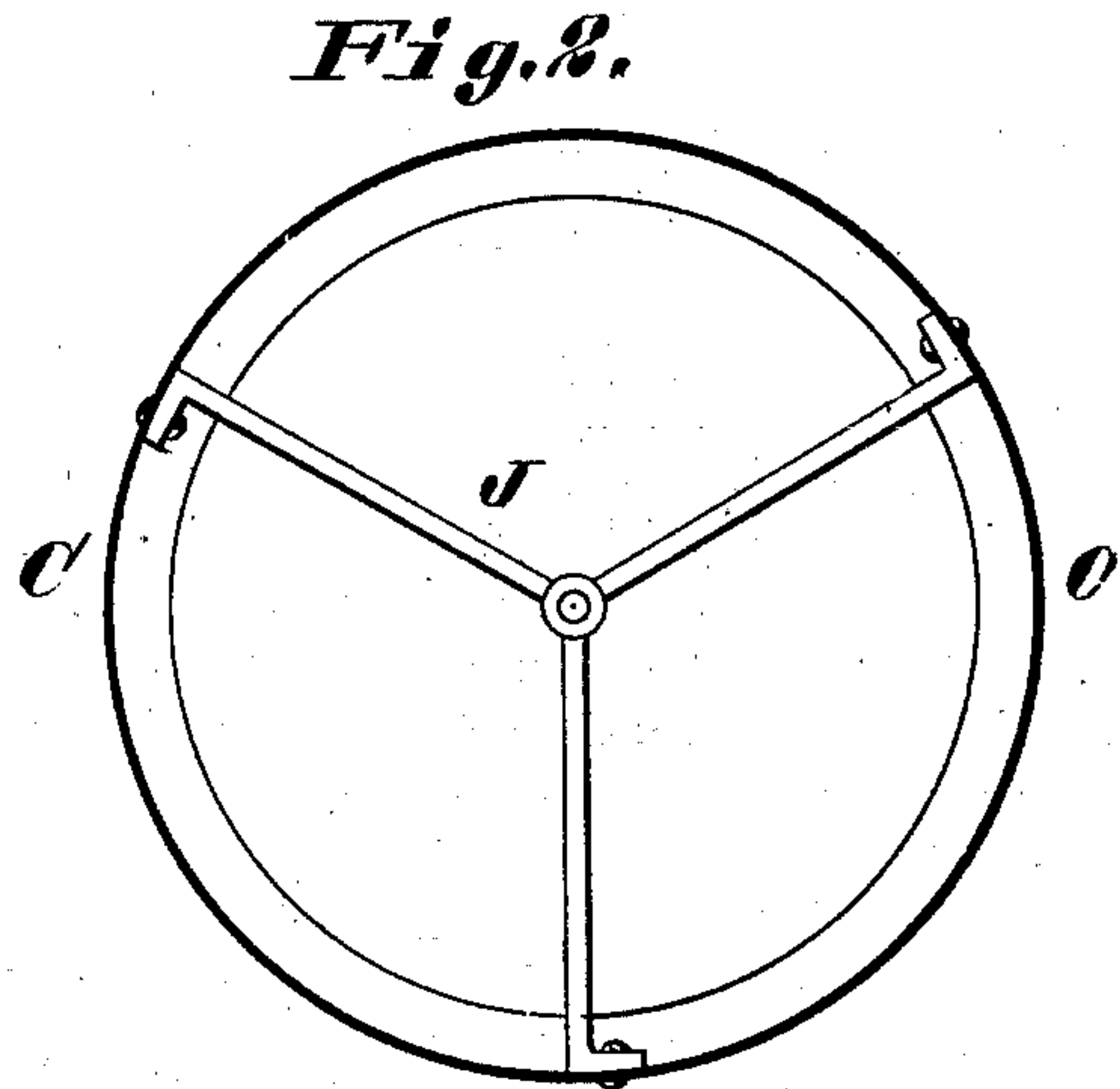
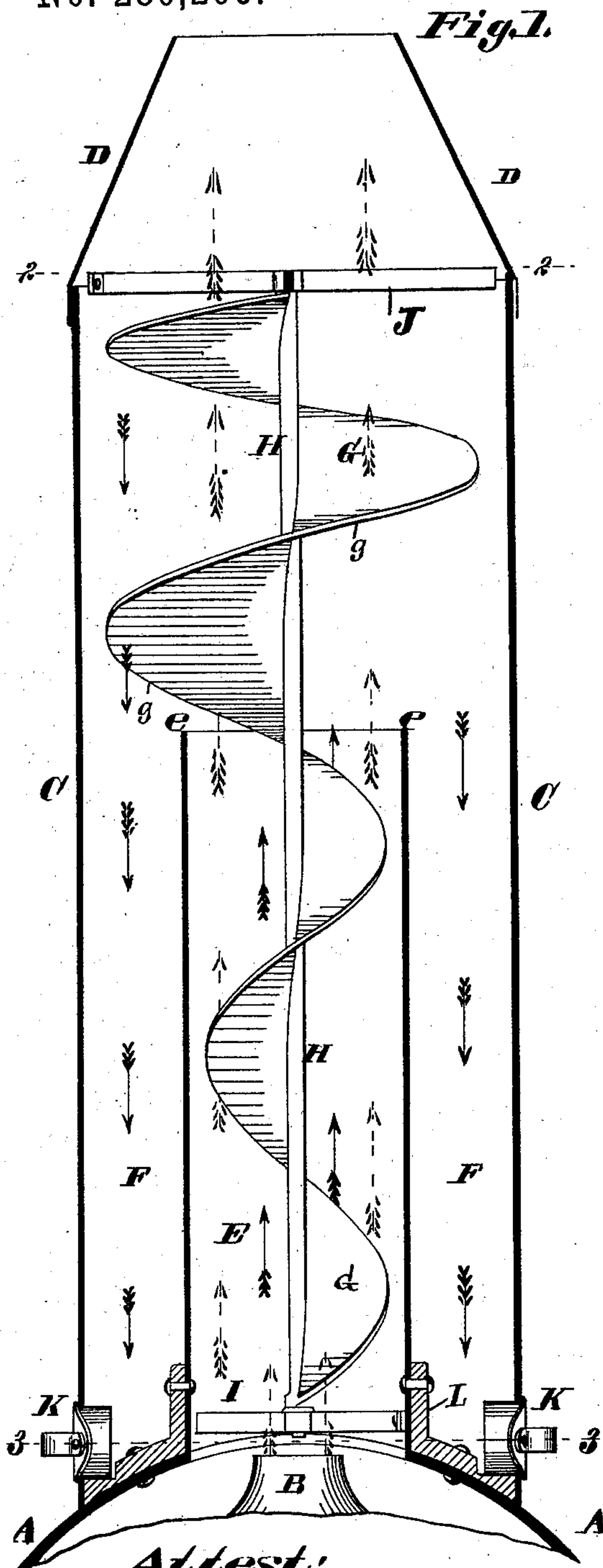
(No Model.)

T. J. McMINN.

SPARK ARRESTER FOR LOCOMOTIVES.

No. 280,206.

Patented June 26, 1883.



Attest:
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UNITED STATES PATENT OFFICE.

THEODORE J. McMINN, OF ST. LOUIS, MISSOURI.

SPARK-ARRESTER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 280,206, dated June 26, 1883.

Application filed November 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, THEODORE J. McMINN, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful
5 Improvement in Spark-Arresters for Locomotive Smoke-Stacks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 My invention relates to that form of spark-arrester in which a vertical shaft provided with a spiral flange is employed to convey the sparks up through a tube within the smoke-stack.

15 My improvement consists in important details of construction, which are intended to render such a device more useful.

Figure 1 is an axial section of a locomotive smoke-stack, with side view of the spiral. Fig.
20 2 is a horizontal section at 2-2. Fig. 3 is a horizontal section at 3-3.

A shows part of the top of a locomotive smoke-chamber, to which the smoke-stack is secured in any suitable manner. The vertical
25 steam-jet is shown at B, as usual. The smoke-stack has a cylindrical shell, C, with a contracted top, D. E is a cylindrical pipe or chimney-flue, bolted to a collar, L, within the shell C, and concentric therewith. Between
30 the shell C and flue or pipe E is an open-topped annular chamber, F, to receive the sparks and hot cinders. Within the pipe E and the part of shell C above the same is a spiral flange, G, or thin worm, of sheet metal, supported on
35 a vertical axial shaft, H, having bearing in cross-bars or spiders I J at bottom and top, secured to the collar L and top of the stack C, respectively. The spiral G is shown extending
40 from the bottom to the top of the cylindrical part C of the smoke-stack, the projection *g* extending over the annular chamber F.

The action of the revolving spiral G is twofold: First, it gives a centrifugal motion to the ascending smoke and cinders, and the cinders,
45 being heavier than the smoke, are carried to the side of the flue E and to the shell C above the flue, over the upper edge, *e*, of the flue. At this point an eddy is formed, and the specific gravity of the cinders overcom-

ing their upward momentum, they fall into the
50 annular chamber F. The second function of the spiral is to regulate the upward passage of the products of combustion through the stack, for, as each jet of steam will accelerate the revolution of the spiral, the spiral will
55 somewhat check the upward motion and prevent the violent ejection of sparks from the stack. On the other hand, between the jets the spiral will, by its rapid rotation, assist the upward movement of the products of combustion
60 in the stack. The edges of the spiral should not be in such near proximity to the walls of the stack as to prevent the upward passage of the smoke with sufficient freedom.

K are doors contiguous to the collar, at the
65 base of and in the shell C, to allow the removal of cinders from time to time from the chamber F. If preferred, pipes may be provided to conduct the cinders to any other place of discharge.
70

I claim as my invention—

1. In a spark-arrester, the combination of
stack C and shell E, secured rigidly to the top
of the body A, the spiders I J at the bottom
of the inner shell and top of the stack, beneath
75 the top, respectively, shaft H, mounted in said spiders, having thin spiral flange adapted to revolve independently of the shell, and the openings into the stack for removal of the cinders, as set forth.
80

2. The shaft H, provided with thin spiral
flange G, having extended portion *g*, and the fixed shell having supporting-spider I, in combination with the stack C, having spider J,
85 forming bearing for upper end of the shaft, and a chamber, F, between the stack and shell, over which the upper portion, *g*, of the flange extends, as set forth.

3. The steam-jet B in vertical position, in combination with the shaft H, having spiral
90 flange G, and shell E, independent of said shaft, the spiral flange entering the shell, substantially as shown.

THEODORE J. McMINN.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.