

No. 708,817.

Patented Sept. 9, 1902.

J. P. S. LAWRENCE.
FLASK FOR TREATING WHEELS.

(Application filed June 6, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

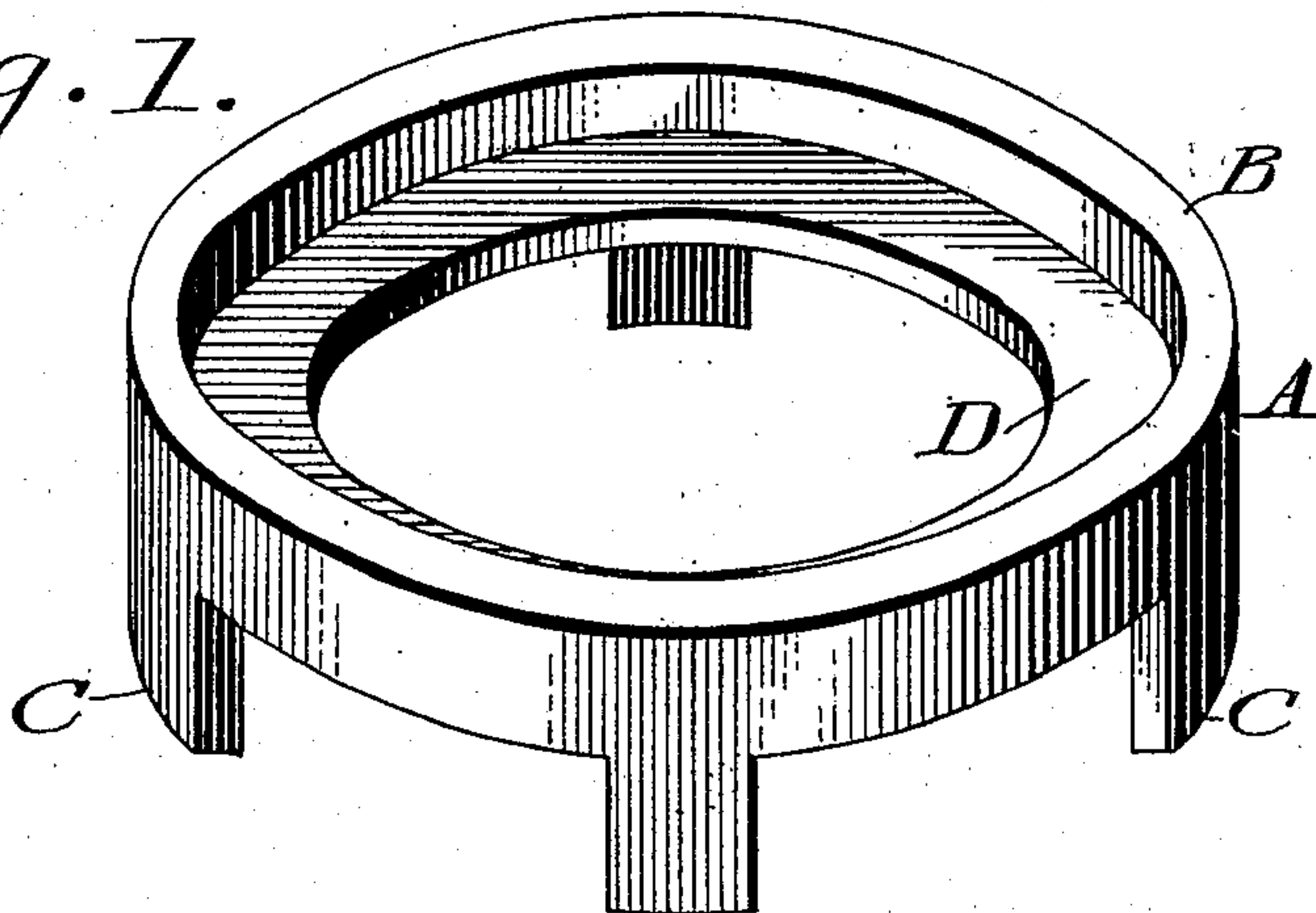


Fig. 2.

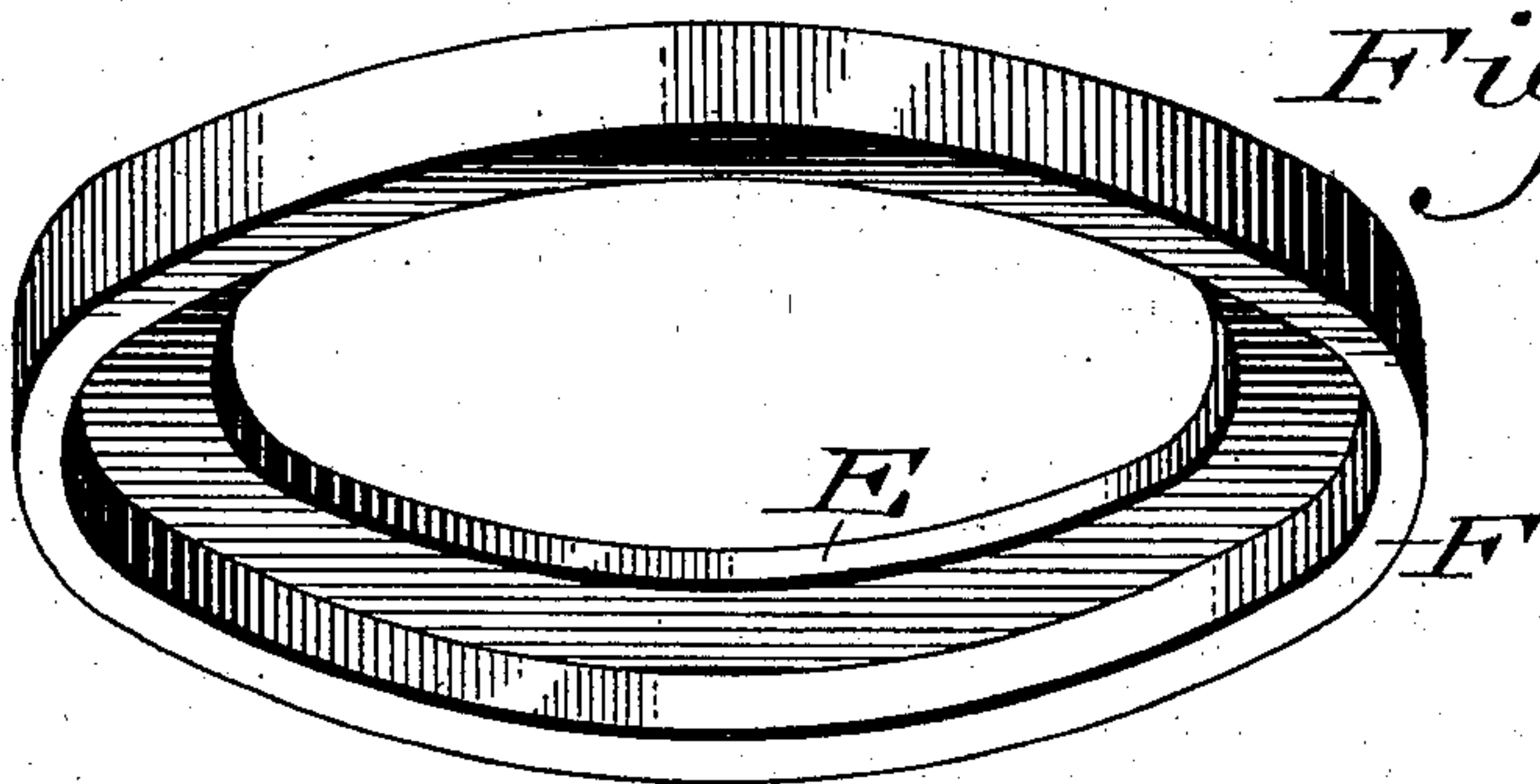
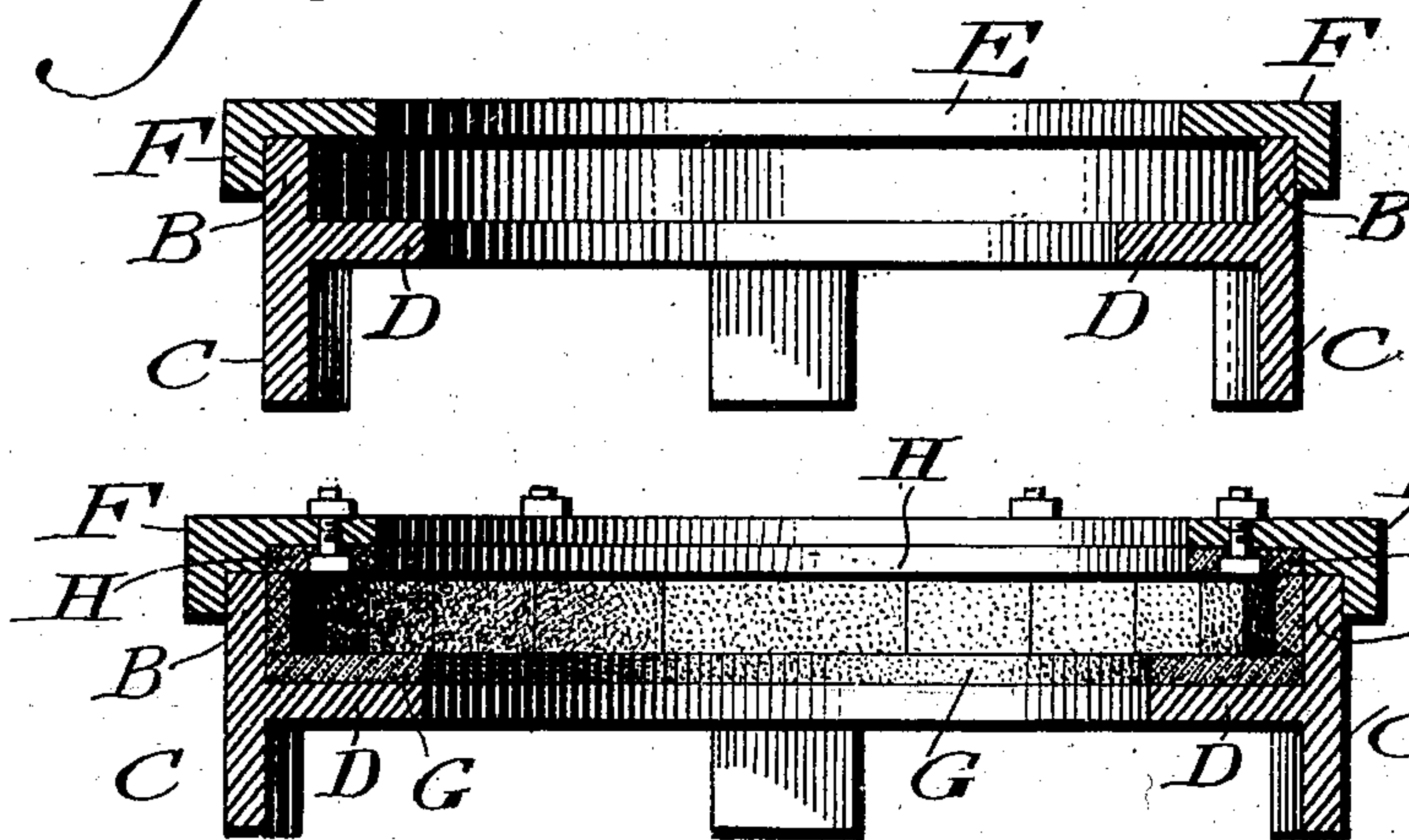


Fig. 3.



Witnesses

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Fig. 4.

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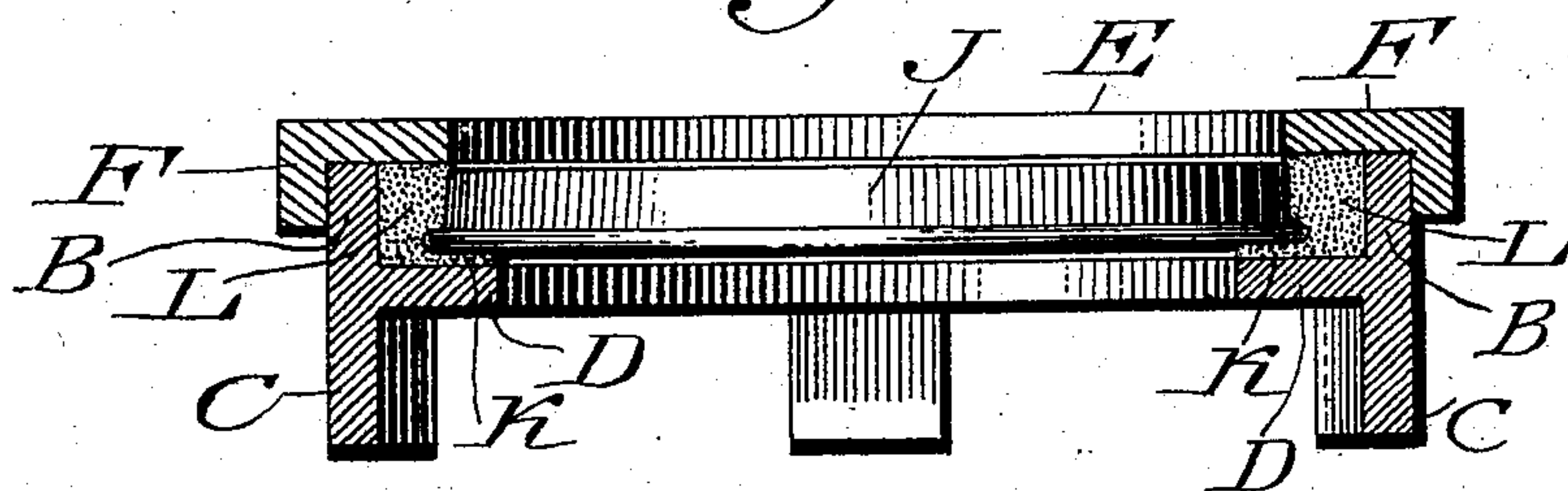
J. P. S. LAWRANCE.
FLASK FOR TREATING WHEELS.

(Application filed June 5, 1901.)

No Model.)

2 Sheets—Sheet 2.

Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES P. S. LAWRENCE, OF THE UNITED STATES NAVY, ASSIGNOR OF ONE-HALF TO THOMAS BURD ZELL, OF READING, PENNSYLVANIA.

FLASK FOR TREATING WHEELS.

SPECIFICATION forming part of Letters Patent No. 708,817, dated September 9, 1902.

Original application filed April 10, 1901, Serial No. 55,128. Divided and this application filed June 5, 1901. Serial No. 63,279. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. S. LAWRENCE, of the United States Navy, have invented a new and useful Improvement in Flasks for
5 Treating Wheels, of which the following is a specification.

My invention consists of a flask for treating wheels according to the process set forth in my application for patent, Serial No. 55,128,
10 filed April 10, 1901, of which this application is a division.

Figure 1 represents a perspective view of the lower portion of a flask constructed in accordance with my invention. Fig. 2 represents a perspective view of the cover or upper
15 portion, taken from the under side. Fig. 3 represents a vertical section showing the upper and lower portions assembled. Fig. 4 represents a vertical section of a flask having a refractory lining, such as fire-brick or the
20 like, and constructed in accordance with my invention. Fig. 5 represents a vertical section of the flask shown in Fig. 3 assembled and with a wheel in place as it is when being
25 treated.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, the said flask is adapted for use in carrying out a process of
30 treating cast-steel wheels to increase the percentage of carbon in the peripheral portion thereof—for instance, the tread and flange of a car-wheel—whereby the said tread and flange is hardened as compared with the wheel center, or, in other words, a cast-steel wheel is
35 produced, in which the wheel center is softer or possesses greater ductility than the tread and flange. The said flask can be made of any suitable material and is designated by A and is circular—that is to say, its surrounding wall B is cylindrical—and depending therefrom are feet C. At the bottom of the
40 wall B there is an interiorly-projecting annular flange or bottom D, providing an annular shelf. The cover E, which can also be made of any suitable material is annular, being provided with a depending flange F, that embraces the upper portion of the flask proper or cylindrical wall B.

In Fig. 5 I have shown a car-wheel J within
50 the flask and the parts in the position they assume when the car-wheel is being treated. Said wheel J is supported by the shelf; but between the lower side of the wheel and said shelf is interposed a layer of carbonaceous
55 material, as shown at K, and between the periphery of the car-wheel and the upright surrounding wall B is also placed carbonaceous material, as indicated by L. Thus the flange and tread of the car-wheel are in con-
60 tact with the carbonaceous material which supplies the carbon, that increases the percentage of the carbon in the flange and tread. Cover E serves to inclose this carbonaceous material between the periphery and said wall
65 B, so that in practice it is found desirable to make the cover of such width that it projects inwardly only about as far as the periphery of the tread of the wheel, while the bottom D projects to a greater extent, so as to support
70 said wheel.

The flask may be of fire-brick or other suitable material; but if it is made of iron or steel it may be advisable to line the same with some refractory material, and in Fig. 4 I have shown
75 a metallic flask and a cover of the same general construction as above described, but with a refractory lining G on the interior faces of the wall B and shelf D. The cover E is also metallic and is provided with a re-
80 fractory lining H on its lower face, that extends outwardly to the refractory lining G of the flask proper, the under side of said lining being suitably recessed for this purpose. The advantage of the refractory lining for a me-
85 tallic flask and cover is that by its use the percentage of carbon that is absorbed by the peripheral portion of a wheel treated in this kind of flask is increased, since the refractory lining prevents the metallic flask from ab-
90 sorbing the carbon.

The said flask can of course be employed in treating other than cast-steel car-wheels, this example being selected as it illustrates
95 the use of my invention, although it is understood that it can be employed in treating the rim of a built-up car-wheel and for treating gearing and other cast-steel articles where it is

desired to harden the peripheral portion only. To carry out this process, the wheel inclosed within the flask, as shown in Fig. 5, is placed within the furnace to subject the same to the requisite heating, the feet holding the flask upon the bottom of the furnace and permitting the heat to attack the wheel on all sides.

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

1. A device for case-hardening cast-steel wheels, consisting of a receptacle adapted to support the wheel, and having an open top and bottom.

2. A device for case-hardening cast-steel wheels, consisting of a receptacle adapted to support the wheel, and having an open bottom, and an annular cover for said receptacle.

3. A device for case-hardening cast-steel wheels, consisting of a receptacle adapted to support the wheel, and having an open bottom, and an annular cover for said receptacle having a depending peripheral flange surrounding the walls of the same.

4. A device for case-hardening cast-steel wheels, consisting of a casing having feet, and an interior annular flange extending inwardly from the side walls of the casing above said feet and adapted to support a wheel under treatment therein.

5. In combination with a device for case-hardening cast-steel wheels, having side walls, and an interior annular flange adapted to support a wheel under treatment therein, an

annular cover therefor adapted to rest upon the upper end of said device.

6. A device for case-hardening cast-steel wheels after the same have been cast, consisting of a casing provided with an interior annular flange, adapted to support a wheel under treatment therein and a refractory lining upon the inner walls of said casing and upon the upper side of said flange.

7. A device for case-hardening cast-steel wheels having side walls, an interior annular flange adapted to support a wheel under treatment therein, and an annular cover adapted to rest upon the upper end of the flask, said interior annular flange extending inwardly to a greater extent than the annular cover.

8. A device for case-hardening cast-steel wheels after same have been cast, consisting of a casing provided with an interior annular flange adapted to support a wheel under treatment therein, a refractory lining upon the inner walls of said casing and upon the upper side of said flange, and an annular cover for said casing provided with a refractory lining on its lower face.

9. A device for case-hardening cast-steel wheels, consisting of a receptacle adapted to support the wheel having an open top and bottom, said receptacle having a refractory lining.

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Witnesses:

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