

No. 629,081.

Patented July 18, 1899.

J. B. KINGAN.

OIL DISTRIBUTING DEVICE FOR SLIDE VALVES.

(Application filed Nov. 19, 1898.)

(No Model.)

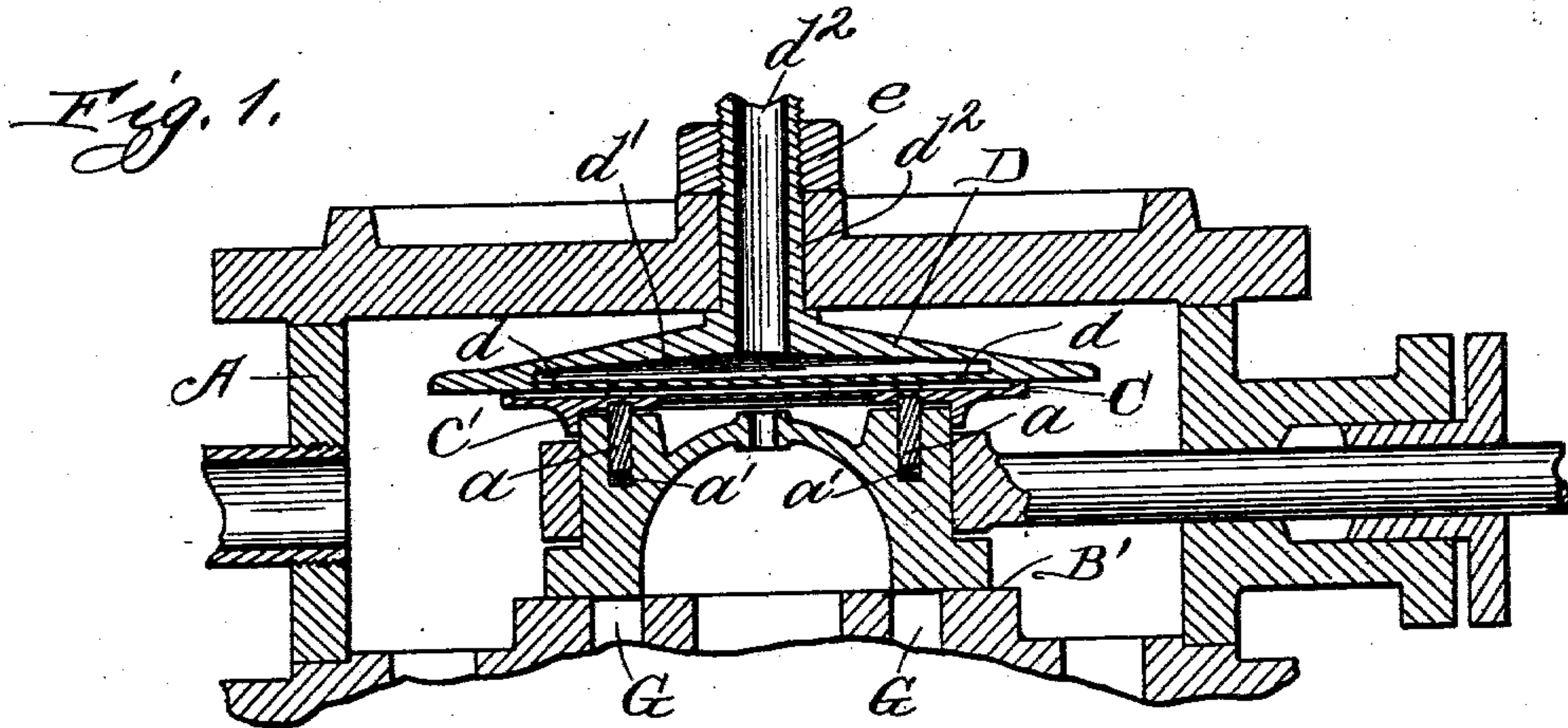


Fig. 2.

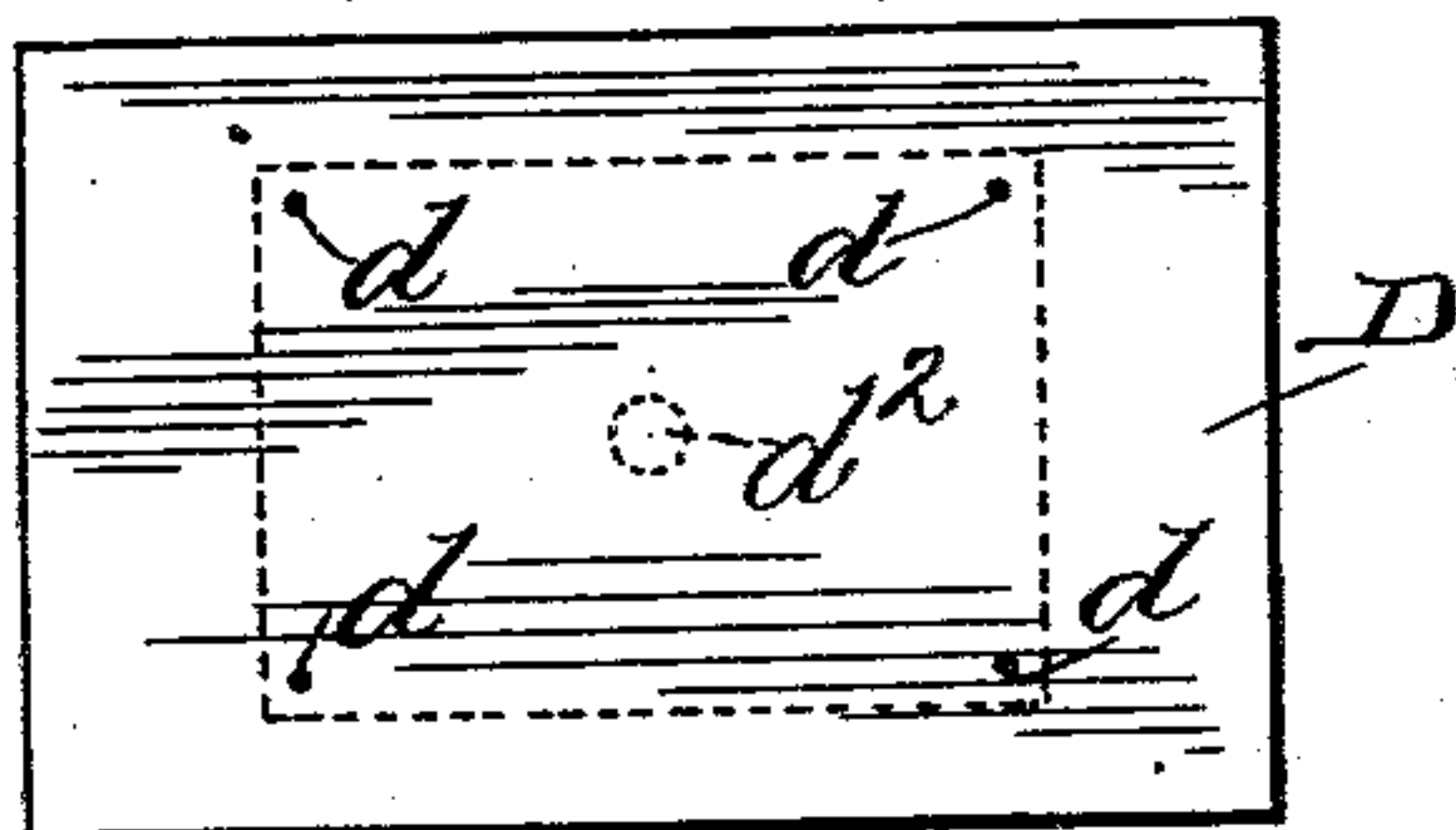


Fig. 3.

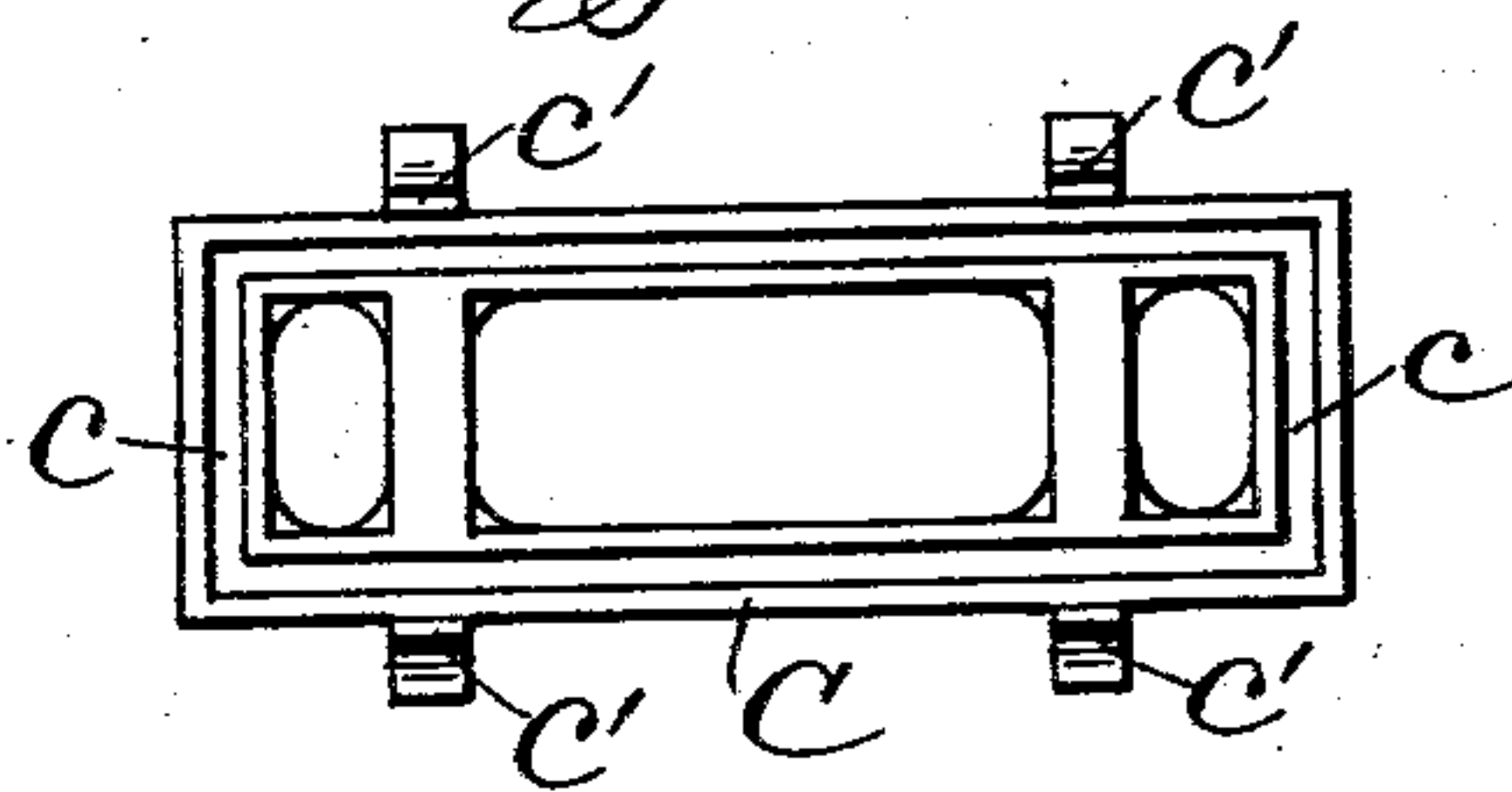


Fig. 4.

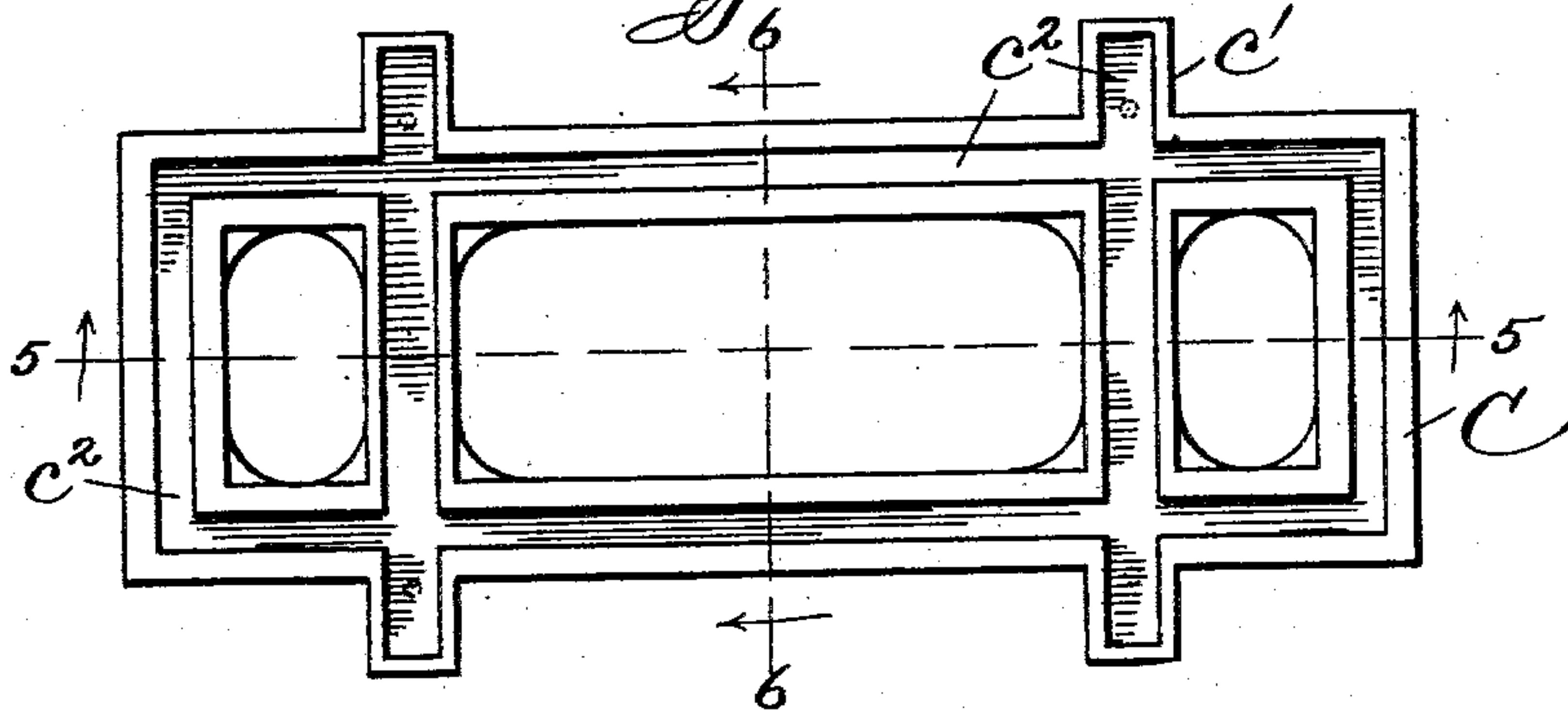


Fig. 5.

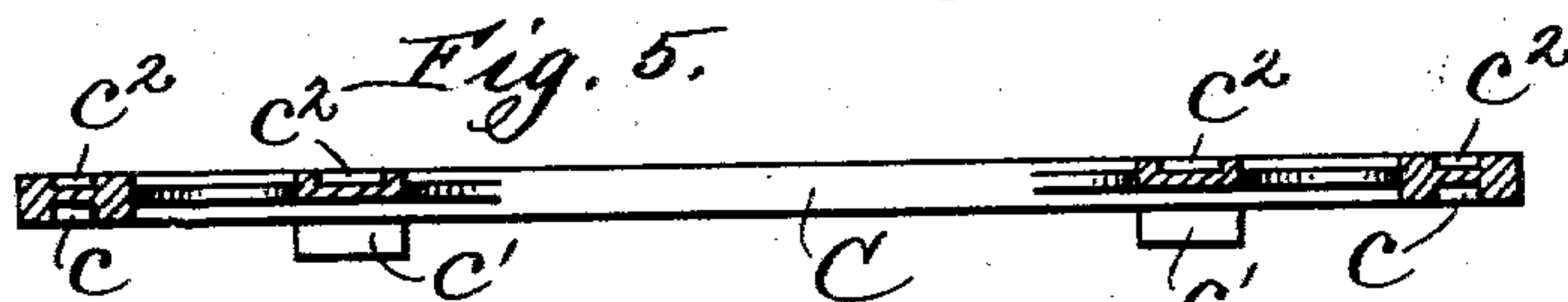
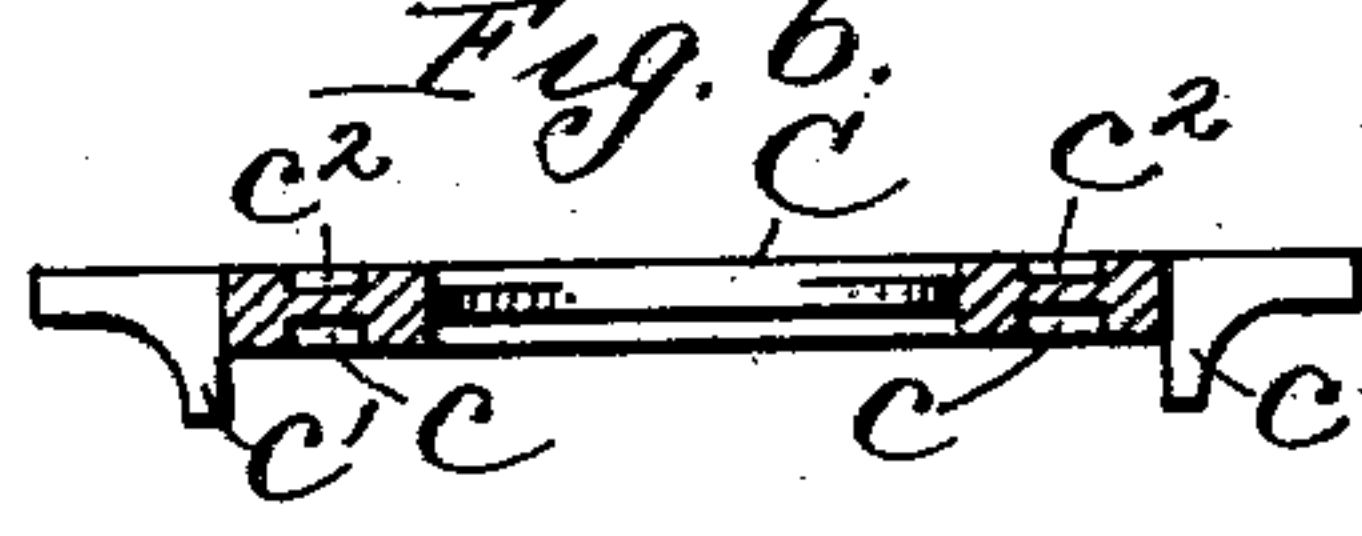


Fig. 6.



Witnesses:
R. J. Jaeger.
E. A. Duggan.

Inventor:
James B. Kingan.
By Chas. C. Tillman, Atty.

UNITED STATES PATENT OFFICE.

JAMES B. KINGAN, OF BLUE ISLAND, ILLINOIS.

OIL-DISTRIBUTING DEVICE FOR SLIDE-VALVES.

SPECIFICATION forming part of Letters Patent No. 629,081, dated July 18, 1899.

Application filed November 19, 1898. Serial No. 696,842. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. KINGAN, a citizen of the United States, residing at Blue Island, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in an Antipressure Oil-Distributing Device and Floating Friction-Plate for Slide-Valves, of which the following is a specification.

10 This invention relates to an improved anti-pressure oil-distributing device and floating friction-plate for slide-valves, and while it is more especially designed for and intended to be used on such valves for locomotives yet
15 it is applicable to slide-valves employed in steam-engines of various kinds; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the parts thereof, as will be hereinafter more fully
20 set forth and specifically claimed.

Heretofore it has been the custom to introduce oil for lubricating slide-valves and the piston within the cylinder through the top of the steam-chest in such a manner that the oil
25 would flow or drop onto the pressure-plate, from the edges of which it is supposed to drop and lubricate the valve-seat and reciprocating parts on the theory that the oil would mingle and spray with the steam; but as the
30 ordinary friction or pressure plate extends at its edges beyond the valve-seat the oil dropping therefrom would not fall on the valve-seat, and as I have discovered that oil will not mingle or spray with the steam, as is generally believed, but will be transmitted by
35 gravity only, it is evident that the valve, the valve-seat, and reciprocating parts are not supplied with oil as they should be.

It is therefore the objects of my invention
40 to provide an oil-distributing device by means of which the oil is delivered directly to the friction-plate and valve and from the valve by gravitation to the piston and cylinder below when the same are used in connection
45 with the valve and to deliver oil to the valve and cylinder at the same time when the engine is working at short cut-off, at which time the steam-chest pressure is cut off from the tallow-pipes leading from the lubricator
50 to the steam-chest—that is, when my appliance is used on a locomotive.

It is a further object of my invention when

used in connection with a locomotive to deliver oil directly to the valve, valve-seat, and cylinder when the engine is running with
55 steam shut off and valves traveling at full gear,—at which time oil is most needed.

Still another object of my invention is to supply oil to the reciprocating parts only and not to the walls of the steam-channels of the
60 cylinder-saddles, as is done by ordinary oil-distributers.

It is also an object of my invention to produce a more perfect balance for the valve by employing a floating friction-plate between
65 the pressure-plate and valve.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings,
70 in which—

Figure 1 is a cross-sectional view of a steam-chest and a slide-valve therein with my improvement in position. Fig. 2 is a bottom
75 view of the pressure-plate. Fig. 3 is a bottom plan view, reduced, of the floating friction-plate. Fig. 4 is an enlarged top plan view thereof. Fig. 5 is a longitudinal sectional view taken on line 5 5 of Fig. 4, and Fig. 6 is a
80 cross-sectional view taken on line 6 6 of Fig. 4.

Similar letters refer to like parts throughout the different views of the drawings.

A represents a steam-chest of the ordinary or any preferred construction, in which is located a slide-valve B, which is operated in the
85 ordinary or well-known manner and is provided in its upper surface with balance-strips α , which are pressed outwardly by means of springs α' , interposed between their inner edges and the bottom of the recesses in which
90 they are located. On the outer surface of the balance-strips α is located a floating friction-plate C, which has in its lower surface near its perimeter a groove c to receive the upper
95 edges of the balance-strips, as is clearly shown in Fig. 1 of the drawings. This plate is usually provided on each of its sides with extensions c' , which project laterally, as well as downwardly, and engage the upper portion
100 of the valve, as is clearly shown in Fig. 1 of the drawings. The upper surface of the plate C is formed with channels c'' for the reception and retention of oil, which passes thereto through openings d in the bottom of the oil-

distributing pressure-plate D, which is formed with a cavity d' of any suitable size and shape and has on its upper surface a tubular stem d^2 , which passes through the steam-chest or other casing or support above the valve and is held in position by means of a nut e engaging the screw-threaded portion of said stem, which may be connected in any suitable manner to a lubricator of the ordinary construction (not shown) or any other suitable source of oil-supply.

The operation of my device is simple and as follows: The oil is supplied to the chamber or cavity d' through the stem d^2 , which, as before stated, communicates with said cavity and with a source of oil-supply, and passes through the openings d into the channels c^2 in the upper surface of the friction-plate C, which is located on the top of the valve and slides therewith. In its movement back and forth the valve will pass the openings d and allow the oil to drop onto the valve-seat B', from which it will pass through the receiving-ports G into the cylinder (not shown) except when the engine is working at a short cut-off, at which time the oil is confined in the channels c^2 of the friction-plate, from which it will pass between said plate and the pressure-plate by reason of natural lubrication.

While I have shown the pressure-plate secured to the steam-chest by means of the stem d^2 , passing through it, and a nut on its outer end, yet I do not desire to be limited to such construction, as I may make the pressure-plate integral with the steam-chest or other support or may secure it thereto in any suitable manner.

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

1. The combination with a pressure-plate having a cavity for the retention of oil and

provided with openings in its lower surface and communicating with a source of oil-supply, of a slide-valve located below the pressure-plate, and a friction-plate having channels in its surface adjacent to the pressure-plate and connected to the upper portion of the valve, substantially as described.

2. The combination with a pressure-plate having a cavity and provided with openings in its lower surface, said cavity communicating with a source of oil-supply, of a slide-valve located below the pressure-plate, spring-actuated valve-strips located in the upper portion of the valve, and a friction-plate having channels on its upper surface and located on the top of the valve and valve-strips, substantially as described.

3. The combination with a pressure-plate having a cavity and openings in its lower surface, said cavity communicating with a source of oil-supply, a slide-valve located below the pressure-plate, spring-actuated valve-strips located in the upper portion of the valve, a friction-plate having grooves on its lower surface to receive the valve-strips, and channels on its upper surface to receive and retain oil from the cavity of the pressure-plate, substantially as described.

4. The combination with a steam-chest, of a pressure-plate having a cavity and openings in its lower surface, and provided with a tubular stem to supply oil to the cavity, of the slide-valve located below the pressure-plate, and a friction-plate located on the upper portion of the valve and having in its upper surface channels for the reception of oil, substantially as described.

JAMES B. KINGAN.

Witnesses:

W. E. DOUGHERTY,
CHAS. C. TILLMAN.