

(No Model.)

W. B. WRIGHT.
FLUID FUEL LIMEKILN.

No. 459,693.

Patented Sept. 15, 1891.

Fig. 1

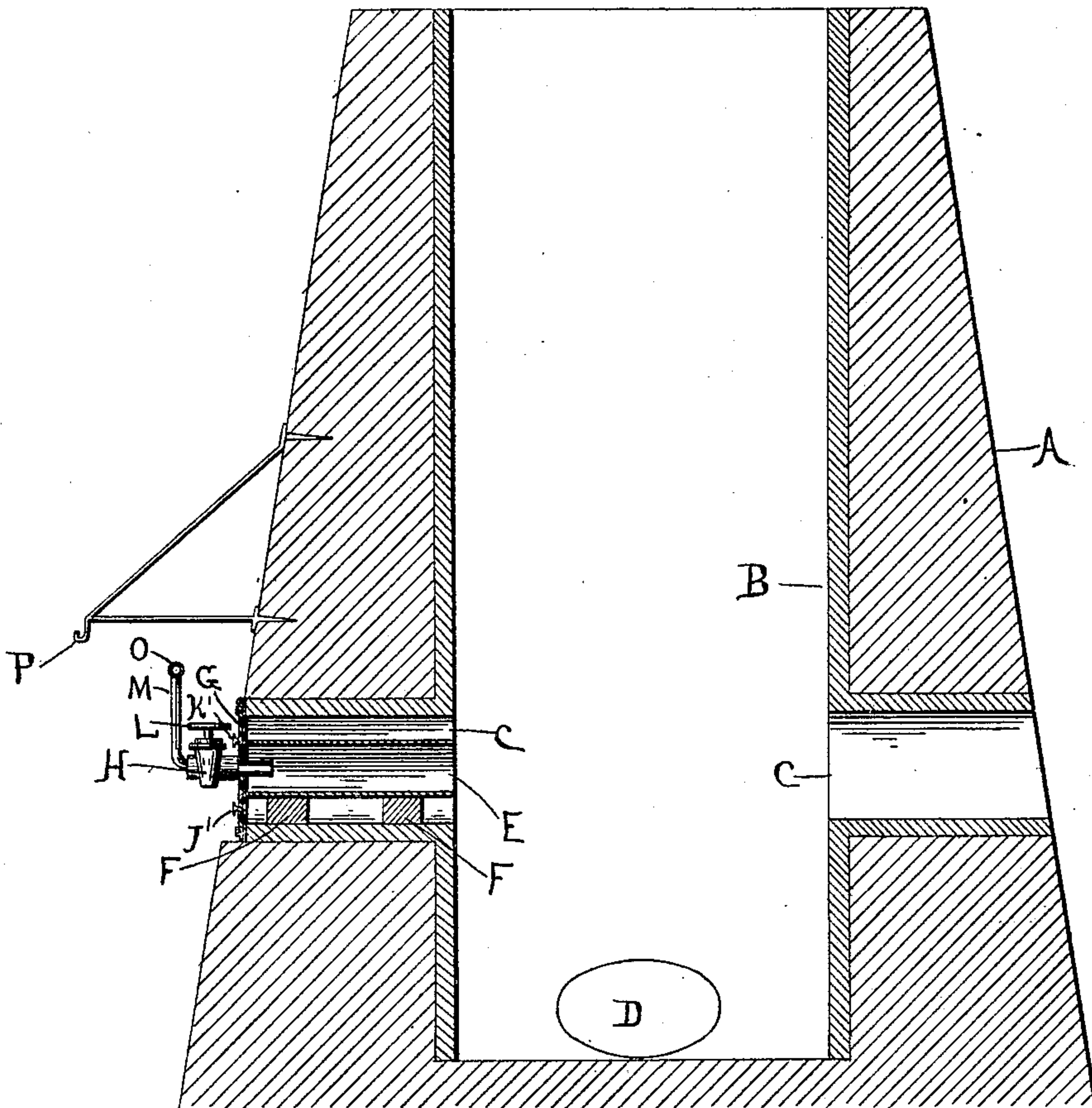


Fig. 3

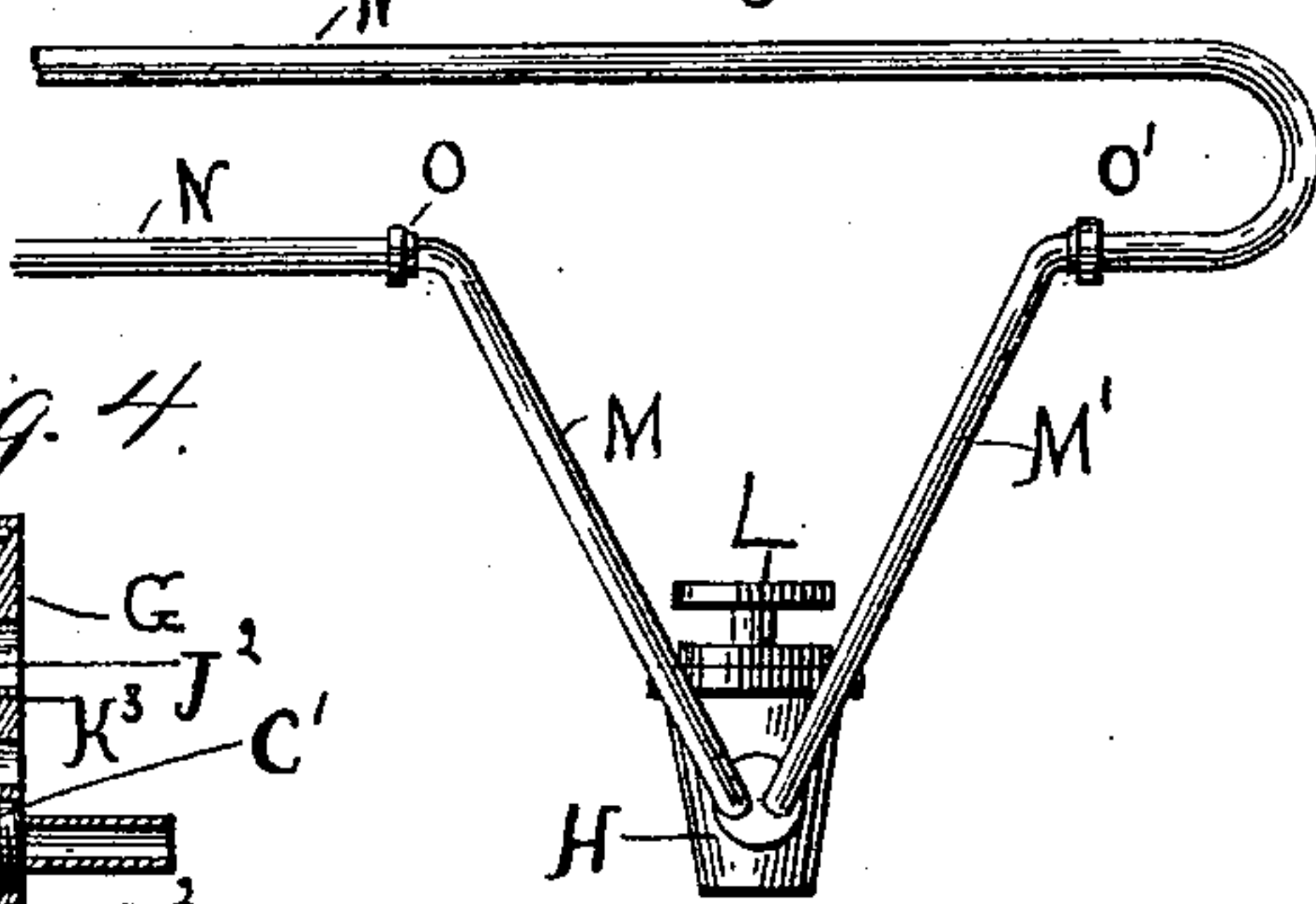


Fig. 4.

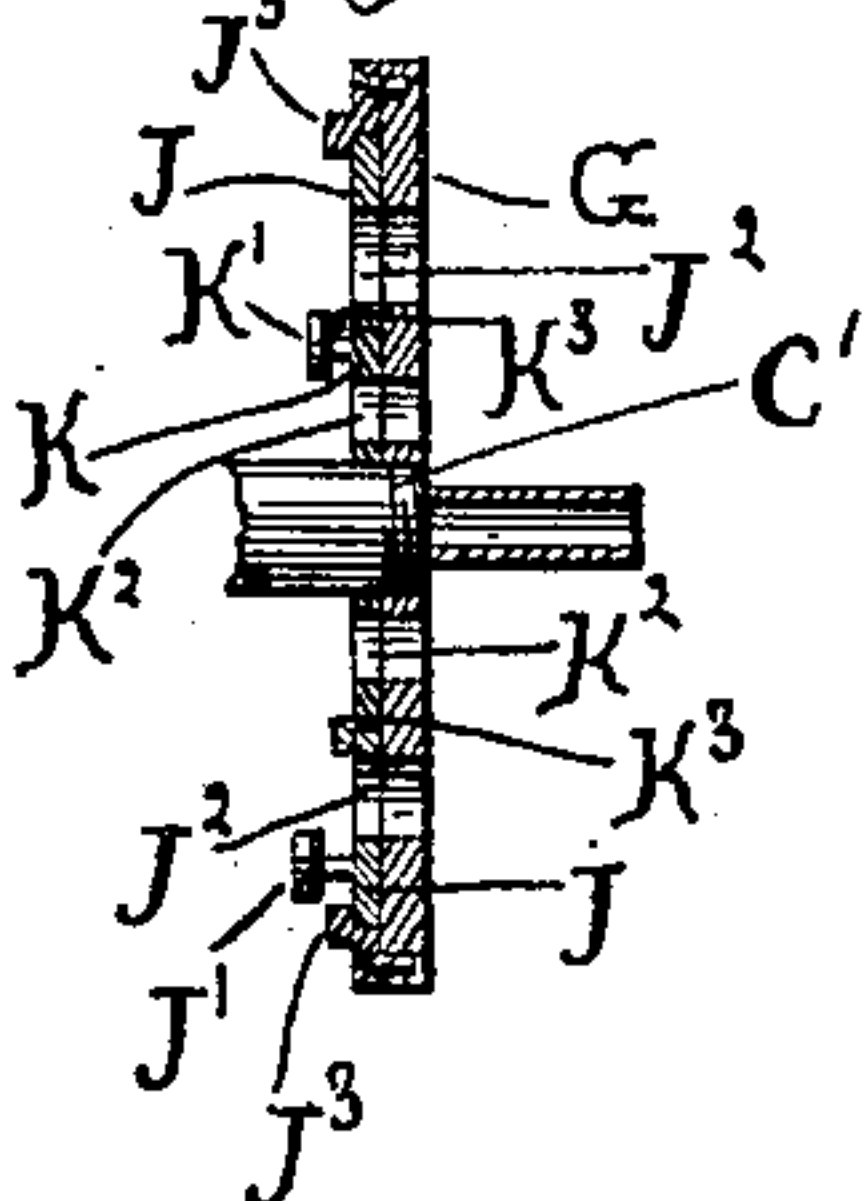
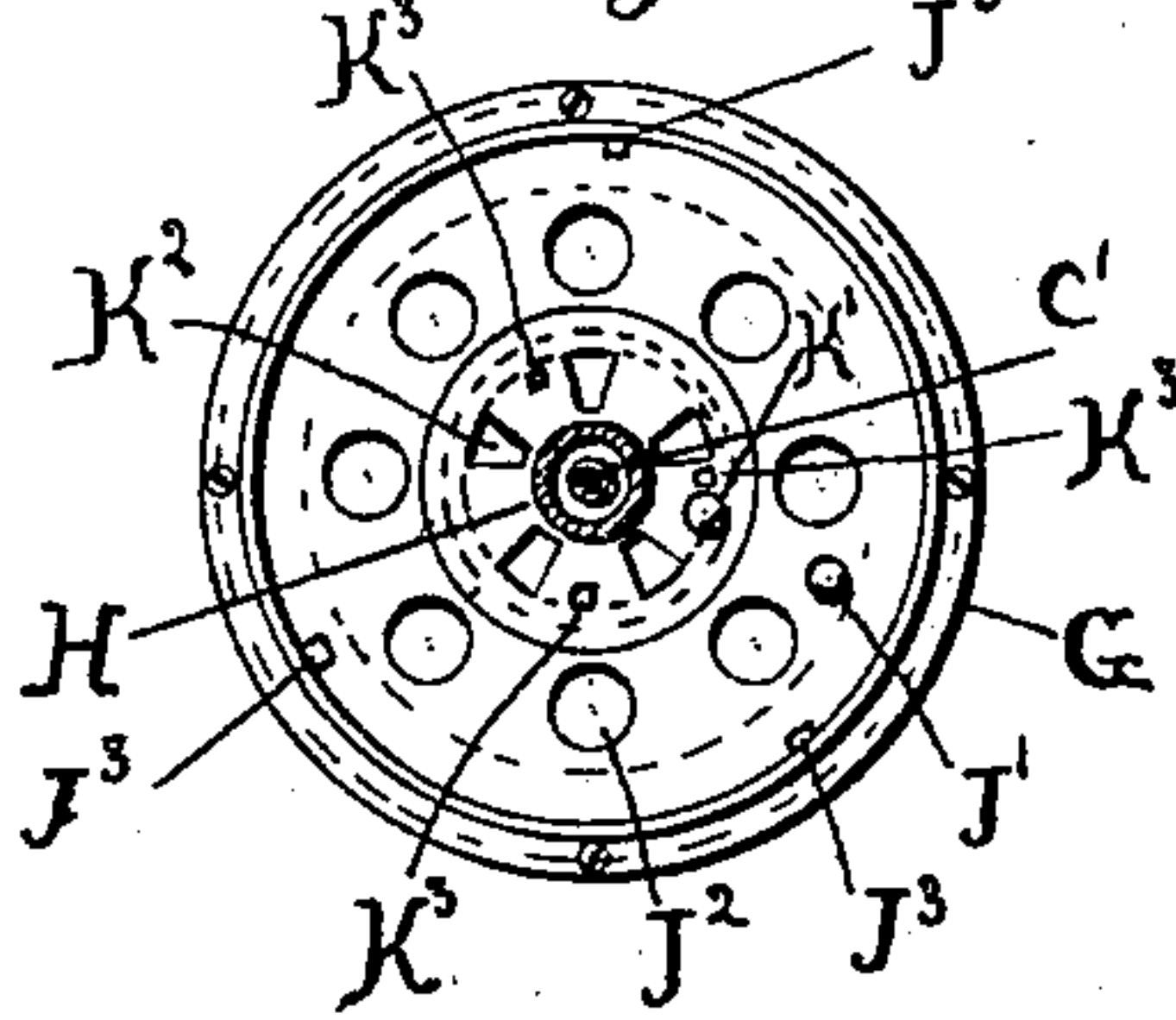


Fig. 2



WITNESSES:

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WALTER B. WRIGHT, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE INTERNATIONAL GAS AND FUEL COMPANY, OF SAME PLACE.

FLUID-FUEL LIMEKILN.

SPECIFICATION forming part of Letters Patent No. 459,693, dated September 15, 1891.

Application filed March 19, 1889. Serial No. 303,876. (No model.) Patented in England April 24, 1889, No. 8,898.

To all whom it may concern:

Be it known that I, WALTER B. WRIGHT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Fluid-Fuel Limekilns, (for which I have obtained Letters Patent in England dated April 24, 1889, No. 8,898,) of which the following is a specification.

My invention relates to improvements in the construction and operation of fluid-fuel limekilns, and has for its object to provide cheap, simple, and effective means for the application of fluid fuel to limekilns, and particularly to its application in such manner as to avoid the burning out of the interior lining of the kiln. These objects I accomplish by means of the devices illustrated in the accompanying drawings, wherein—

Figure 1 is a cross-section through a kiln with my appliance shown in position at one side. Fig. 2 is an enlarged detail view of the burner and dampers. Fig. 3 is a front view of the burner and pipes. Fig. 4 is a cross-section of the dampers.

Like parts are indicated by the same letter all through.

A is the exterior or principal wall of the limekiln, and is usually constructed of stone or other suitable material, and B is the interior fire-clay lining, designed to resist the excessive heat required for converting the contents of the kiln into lime and to protect the exterior or solid wall of the kiln from itself being attacked by such heat and converted into lime.

C C are the apertures through which the heating-burners are introduced and from which the temperature in the kiln is raised to convert its contents into lime.

D is the door of the kiln, from which the lime may be removed. Any number of these apertures C may be employed, though two on each side of the kiln are commonly regarded as sufficient. These apertures, like the interior of the kiln, are lined with fire brick or clay or suitable fireproofing material.

It is found that in kilns constructed so far as described the heat from the aperture and the burner therein passing into the kiln is so intense at the mouth of the aperture as to

burn away the fireproofing material usually employed for lining such kilns at the mouth of the aperture, and hence it soon becomes necessary to remove the contents of the kiln and reline the same, in part at least, thus entailing great loss of time and material. The retort or pipe E, of less diameter than the aperture and composed, for example, of fire-clay, I insert in the aperture C, supporting it centrally therein by means of the blocks F F. At the exterior mouth or entrance of the aperture C, I place a plate or lid G, which contains, first, a central aperture C', which is central also to the retort or pipe, a series of apertures arranged in a circle and opening within the retort, and a series of apertures in a larger circle opening into the aperture, but outside of the retort.

H is an injector-burner screw-threaded into the central aperture in plate G and projecting into the retort, as shown.

J is a damper having the handle J', the apertures J² and J³, and held in place by the lugs J³ J³ and adapted to move over the outer row or circle of apertures in the plate G to regulate the supply of air admitted within the retort to aid in combustion at the mouth of the injector-burner. K is a similar damper, having the handle K', the apertures K² K², and held in place by the lugs K³ K³, and adapted to regulate the supply of air to the space within the aperture C and within the retort.

L is the handle whereby the injector-burner is controlled. M M' are the pipes leading to such injector-burner from the steam and oil supply pipes N and N' through the universal couplings O and O'.

P is a hook projecting from the side of the kiln and adapted to receive and support the injector-burner with or without the plate G, as may be desired.

The use and operation of my invention is as follows: The device applied and constructed as shown in Fig. 1 is operated in the usual manner, the injector-burner being supplied with suitable quantities of oil and steam, and the heat or heated gases issuing from the retort or pipe into the kiln to transform the contents thereof into lime. The damper K is regulated so as to supply a suitable quantity

of air for the purposes of combustion. The damper J is regulated to supply a suitable quantity of air when needed to the space within the aperture C about the retort, the
5 object being to keep the temperature of the lining of the aperture C, and particularly its lining about its mouth, from being destroyed, and this result flows from the admission of such air and also from the manner in which
10 the heat from the injector-burner is introduced through the retort. When the retort itself has been injured by the great heat, the supply of fluid fuel may be cut off and the injector-burner and plate G, attached thereto,
15 be freed from the kiln and swung upward on the hook above. The retort may then be removed and another inserted. The parts may then be swung back in position, the supply of fuel turned on, and the process go on as before.
20 It will easily be seen that the parts could be quite materially altered without departing

from the spirit of my invention—as, for instance, the arrangement and structure and relation of the valves, injector-burner, dampers, universal joints, pipes, &c.

25

I claim—

In a kiln, the combination of the kiln proper having apertures through the sides thereof with fireproofing lining for the inner surfaces of the kiln and apertures, retorts or pipes of
30 fire-proof material in such apertures leaving a free space thereabout, injector-burners pivotally supported and adapted to discharge within such retorts, and plates attached to and movable with such injector-burners and
35 adapted when in position to close the mouth of the apertures.

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Witnesses:

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