

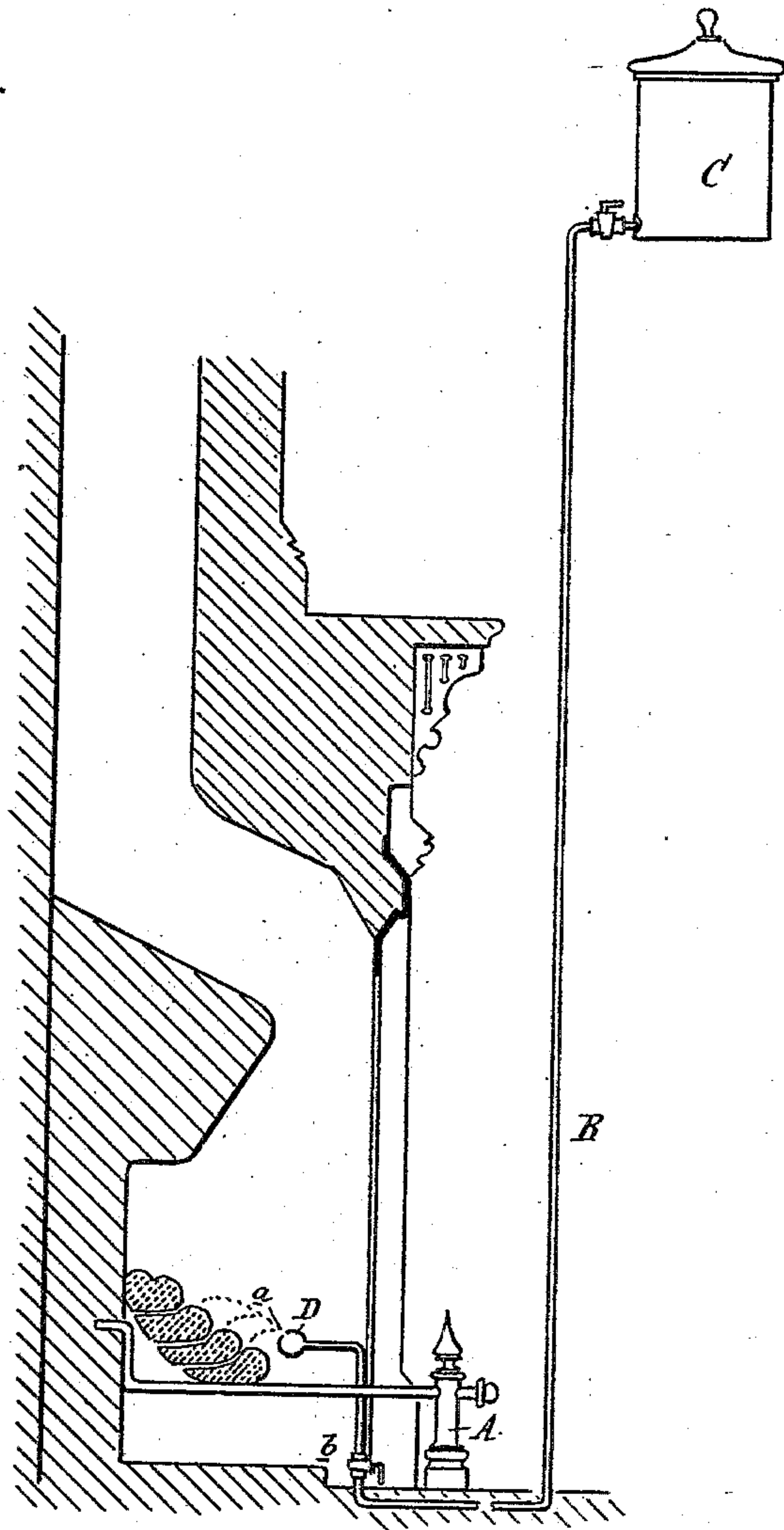
(No Model.)

R. A. BURY & R. M. BIDELMAN.

DEVICE FOR BURNING CRUDE PETROLEUM.

No. 283,465.

Patented Aug. 21, 1883.



*Attest:*

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# UNITED STATES PATENT OFFICE.

RICHARD A. BURY AND ROBERT M. BIDELMAN, OF ADRIAN, MICHIGAN.

## DEVICE FOR BURNING CRUDE PETROLEUM.

SPECIFICATION forming part of Letters Patent No. 283,465, dated August 21, 1883.

Application filed January 15, 1883. (No model.)

*To all-whom it may concern:*

Be it known that we, RICHARD A. BURY and ROBERT M. BIDELMAN, of Adrian, in the county of Lenawee and State of Michigan, have invented new and useful Improvements in Devices for Burning Crude Petroleum; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this specification.

This invention relates to certain new and useful improvements for burning crude petroleum, of the character from which naphtha and kerosene are produced, in grates or open fire-places.

The invention consists in the means, substantially as hereinafter described, for burning crude oil in such open fire-places, and is especially designed as an improvement upon the patent granted to us dated November 28, 1882, and numbered 268,077, wherein our invention is shown as especially adapted to inclosed fire-places or furnaces.

In the accompanying drawing, which forms a part of this specification, our device is shown as in operation in a fire-place, such as is ordinarily constructed for burning wood; yet we do not desire to confine ourselves to this particular form of fire-place, as we may use this invention equally well in the ordinary form of grates, Franklin stoves, or any other form of open fire-place; or we may use it with equal efficiency without being inclosed in a fire-place and in the open room, provided with means for carrying off through a proper flue the vitiated air caused by the combustion of the oil, provided in all cases the jet or jets are located in front of the log, where the condition of the flow of oil may be readily seen.

It is well known that when combustion is going on the air of the compartment is being deprived of its oxygen to feed such combustion, thereby (unless means are provided to remedy the evil) depriving the air in the room of its necessary properties to sustain life; hence the necessity of supplying means for carrying off the vitiated air, as it is carried off through flues connected with fire-places or stoves.

In the drawing, A represents a pair of and-

irons, upon which rests an imitation log made of asbestos.

B is a pipe leading from an elevated tank, C, which is designed to contain the crude oil. The discharge end of this pipe leads into an enlarged chamber, D, and in the opposite side thereof from the entrance therein of the pipe is one or more very small holes, *a*, through which the oil is discharged under pressure from the tank, and the pipe is provided with a valve, *b*, to regulate such discharge. The jet or jets should be arranged in proximity to the asbestos log, so that when the cock is open the oil is thrown against such log in a spray, when the application of a match will ignite the oil, which, being absorbed by the asbestos, exhibits a large amount of flame, embracing the whole or nearly the whole surface of the log.

It will be seen that the enlarged end D of the pipe B is arranged in front of the log, but not touching it, the position being such that the oil in it is heated and thinned down, thus facilitating its being forced through the perforations *a* by the weight of oil in the pipe B, and the condition of the spray readily seen and regulated by the valve *b*. This arrangement of the enlarged end D possesses further advantages in not being in the blaze, thus preventing its being so soon burned out, as is the case with hydrocarbon-burners now in use.

Although in the drawing we show the imitation of a log made of asbestos resting upon andirons, as is usual in burning wood, in the operation of making the logs we do not desire to confine ourselves to the particular shape of such log, as any form of log may be adopted, so long as it is made of asbestos and employed in connection with jets for the discharge of oil against the same to take up and absorb such oil, as cotton absorbs water. For instance, this log may be a flat surface of sufficient length to furnish the necessary burning-surface, so long as its thickness is sufficient to absorb oil enough to furnish the required amount of heat and flame. This device, in connection with the fire-place of a house, such as is usually filled with grates for the burning of coal, will be found fully as ornamental as what is known as the "gas-log" when in op-



eration, while at the same time it will throw off nearly or quite as much heat as is ordinarily obtained from a grate filled with incandescent coal; but, as has been before remarked, means  
 5 should be provided, when this device is used outside of an open grate or fire-place which has the necessary flue, to provide a flue and carry off the air which has been vitiated and rendered noxious by the combustion of the oil.  
 10 The object of the enlarged chamber at the end of the conducting-pipe is as follows: It is well known that the Pennsylvania petroleums vary in specific gravity, and sometimes will be found so heavy that while they will pass through the  
 15 pipe readily they will not pass (in proper quantity and shape) through the jets. In such case the enlarged chamber at the end of the pipe becomes warmed by its proximity to the blazing log, and such warmth thins the heav-  
 20 ier gravity oils, so that they will readily operate as well as those of lighter gravity.

We are aware that it is not broadly new to spray oil upon an imitation log to be burned, as such is shown by Patent No. 268,077, grant-  
 25 ed to us November 28, 1882; also aware of the

devices shown in Patents Nos. 170,198, 193,048, and 258,922, and make no claim to the construction shown thereby. Neither of these patents shows a jet or jets arranged in the fore part of the fire-place, exposed to view and adapted to  
 30 spray oil upon an imitation log, which spray may be seen and regulated by a person standing in front of the fire-place.

What we claim as our invention is--

The combination, with a grate of a fire-place  
 35 and an imitation log, of an elevated reservoir, C, pipe B, valve *b*, and enlarged chamber D, said chamber being located in the fore part of the fire-place in front of the log, and adapted to heat and spray the oil before it is vaporized  
 40 upon the log, whereby said spray can be seen and regulated by a valve in the pipe leading from the elevated tank to the enlarged chamber, substantially as described.

RICHARD A. BURY.  
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Witnesses:

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