

(No Model.)

H. KENNEDY.

GAS CONNECTION FOR HOT BLAST STOVES OR FIRE BOXES.

No. 369,341.

Patented Sept. 6, 1887.

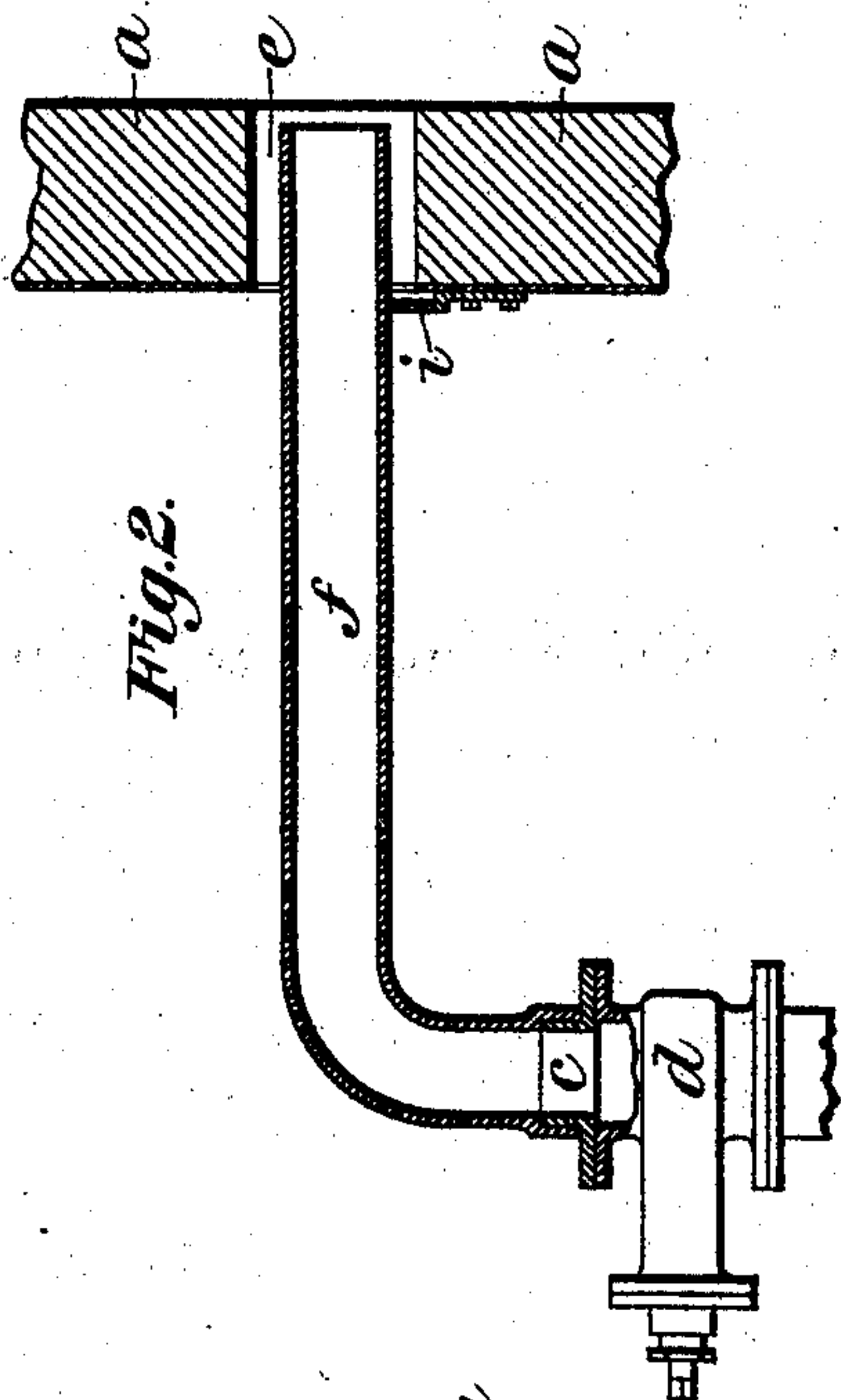


Fig. 2.

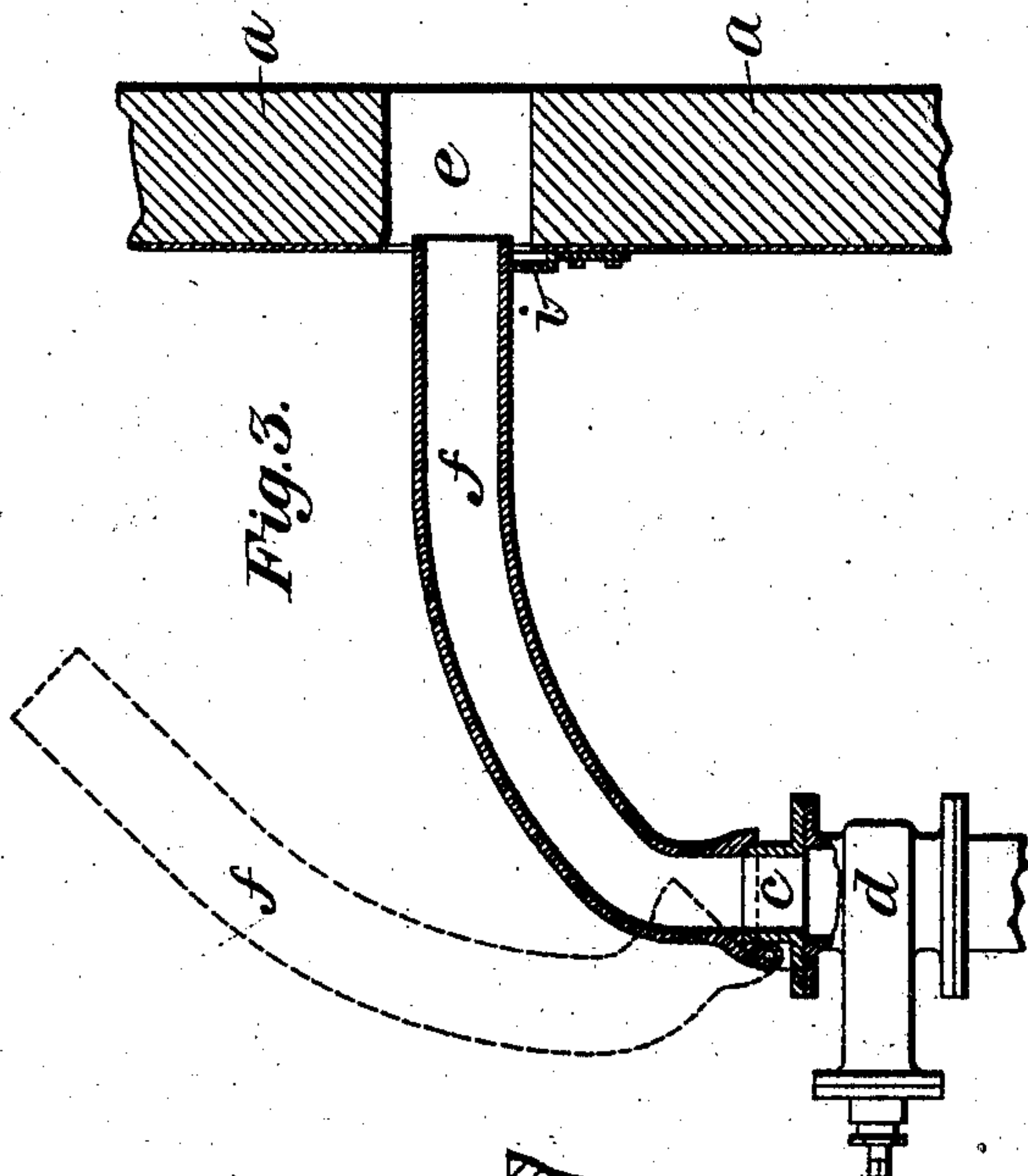


Fig. 3.

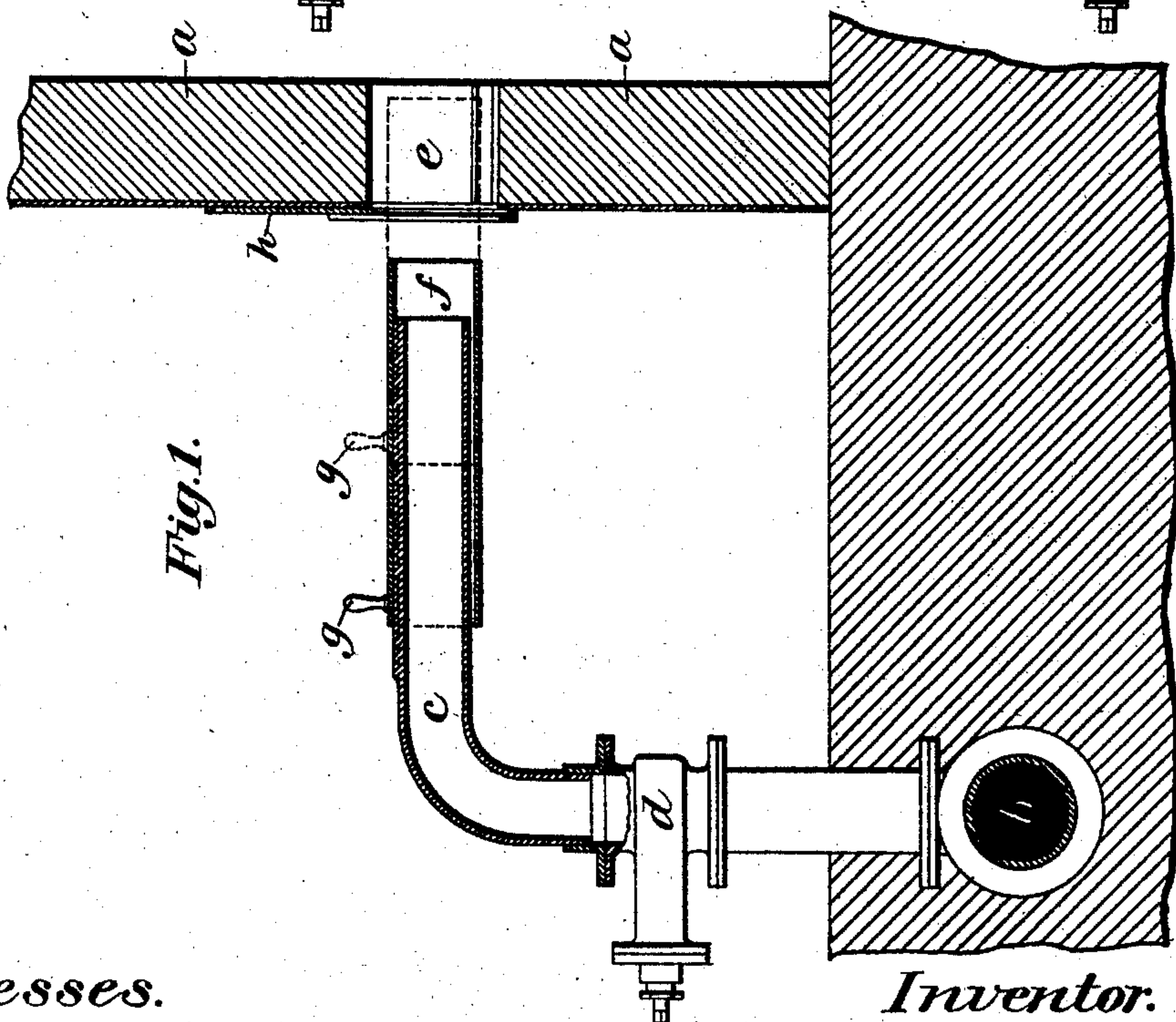


Fig. 1.

Witnesses.

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UNITED STATES PATENT OFFICE.

HUGH KENNEDY, OF SHARPSBURG, PENNSYLVANIA.

GAS-CONNECTION FOR HOT-BLAST STOVES OR FIRE-BOXES.

SPECIFICATION forming part of Letters Patent No. 369,341, dated September 6, 1887.

Application filed November 17, 1886. Serial No. 219,148. (No model.)

To all whom it may concern:

Be it known that I, HUGH KENNEDY, of Sharpsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gas-Connections for Hot-Blast Stoves and Fire-Boxes; and I do hereby declare the following to be a full, clear, and exact description thereof.

Great difficulty and serious loss have been experienced in the use of the valves which control the gas-flues of hot-blast stoves. The gas-flue leads from the top of the furnace to the combustion-chamber of the stove and the valve is arranged in it near the stove. Owing to the intense heat to which this valve and its seat are exposed, they are liable to burn out, and to prevent this it has been customary to water-cool them. These stoves are generally of a reversing character—that is, there are several of them, and the gas is caused to pass out through each of them for a time to heat it up, and then the gas is shut off and the blast is permitted to pass through the heated stove until the heat therein is reduced. When the air is thus passing through the stove, the gas-valve is closed; but if the valve should be warped, or for any other reason should not be tightly closed, the air, being under pressure, will find its way through the valve and burn in the flue, creating such a heat as to seriously injure and often destroy the valve and sometimes burn out the flue. Difficulty and danger are also experienced even when the stove is not “on air” by the gas leaking into it through a leaky valve and collecting in quantity, so that when the workmen enter the stove to clean it they are sometimes suffocated, and at other times, having a light with them, are the victims of an explosion of the gas therefrom. Sometimes stoves are blown up and destroyed by such explosions. This latter contingency is liable to occur in boiler-furnaces where gas is used as fuel in case the gas should leak into the fire-box and fill it. Then if a man should enter the fire-box or ash-pit to make repairs, or for other purposes, he is liable to be suffocated or to ignite the gas and cause an explosion. Such explosions sometimes occur when the fireman goes to light up his furnace in the ordinary way.

The object of my invention is to obviate the possibility of such accidents and damage

by reason of the leakage of the gas at the valve, and this I accomplish by a construction that enables me to break the connection between the gas-main and the stove or furnace.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a sectional view indicating a simple form of my improvement. Figs. 2 and 3 are like views of modifications.

In the drawings, *a* indicates the side of the blast-stove; *b*, the gas-flue; *c*, the pipe leading from the gas-flue to the stove, and *d* the valve which controls the gas-flue. The pipe *c* stops short of the stove, and opposite its end there is an opening, *e*. Mounted on the pipe *c* is a sliding section or connecting-pipe, *f*, which may be moved back and forth on the pipe *c* and into the opening *e* by handles *g*.

The operation of this device is as follows: When it is desired to admit gas to the stove *a*, the movable section *f* is pushed forward on the pipe *c* until it enters the opening *e*. Then the valve *d* is opened and the gas is permitted to pass into the stove. When it is desired to stop the flow of gas for any reason, such as when the stove is reversed, the valve *d* is closed, and then the connecting-pipe *f* is drawn back out of the opening *e*, and the opening *e* is closed by a sliding or other suitable door, *h*. It is apparent that when this is done there is no possible access of gas to the stove from the pipe *c*, and that it is impossible for the air then passing through the stove to gain access to the gas-flue *b*. Thus the chief cause of danger to the valve *d* and flue *b* is taken away, and the durability of these parts is increased enormously. Perfect safety is insured against the explosions by gas leaking from the flue *b* into the stove. The point where the gas passes from the pipe *f* into the combustion-chamber of the stove or boiler-furnace is extremely hot and is liable to burn off the end of the pipe *c* in a short time. Therefore, for the purpose of protecting the pipe, I make the hole *e* of larger diameter than the pipe *f*, so that a current of air enters the stove on all sides of the pipe *f*, and thereby protects it from burning out, as well as affording a supply of air for the combustion of the gas in the combustion-chamber of the stove.

In Fig. 2 the connecting-pipe *f* is entirely free from the gas-pipe *c*, one end resting upon a suitable support, *i*, on the side of the stove, and the other upon the valve-case or other suitable supporting part of the gas-supply apparatus.

In Fig. 3 the connecting-pipe *f* is shown as hinged to the valve-case *d* or to the pipe *c* above the same in such a manner that it will swing into and out of the opening *e* in the stove. These same devices are applicable without material change to the fire-boxes of boiler and other furnaces using gas as a fuel, as will be understood by the skilled mechanic, the wall *a* answering to indicate also the side or front of such a fire-box.

I am aware of the patent granted to J. J. Spearman on June 10, 1884, No. 300,329; but the improvement which I claim differs from the apparatus therein shown, in that the connection-pipe *f* is independent of the gas-valve mechanism *d*, so that the operation of the valve is not interfered with or embarrassed by the presence of the connection-pipe. It also enables the connection-pipe to be changed, removed, or repaired without disturbing the valve. It also enables the gas to be stopped temporarily without necessitating the removal

of the connection-pipe and closing up the opening *e*, which is often desirable, but which cannot be done without the use of a second valve in the Spearman construction. It also enables the gas-valve to be used to regulate the flow of gas, which cannot be done with Spearman's construction.

I do not limit myself to any particular form or construction of gas-valve *d*, my invention relating specially to the use of a connection-pipe which is separate from and not operated by or with the valve.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of a hot-blast stove or other combustion-chamber with a gas-flue having a valve, and a pipe-section connecting the gas-flue with the stove, said pipe-section being detachable from the stove and independent of the gas-valve, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 2d day of November, A. D. 1886.

HUGH KENNEDY.

Witnesses:

W. B. CORWIN,
THOMAS B. KERR.