

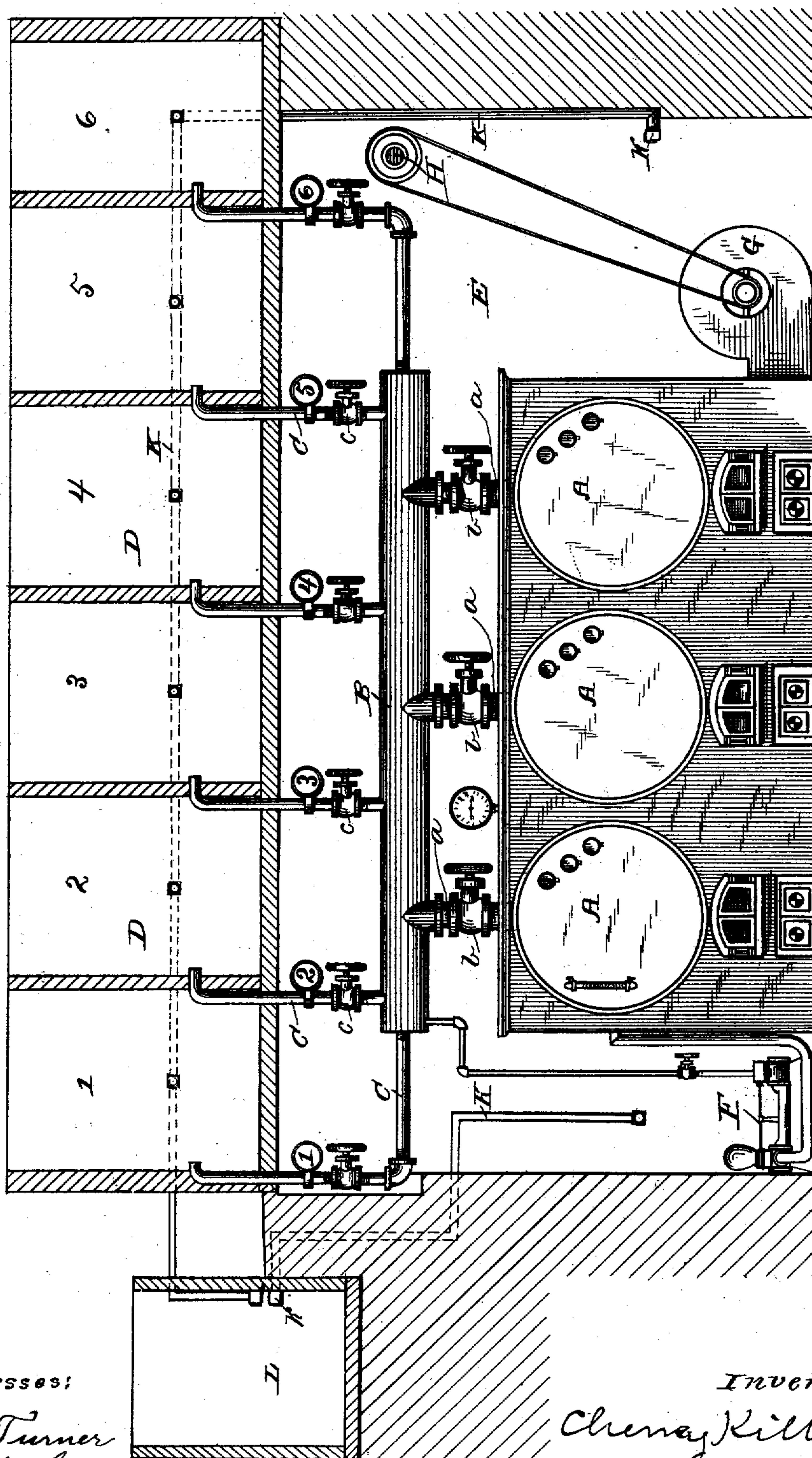
(No Model.)

C. KILBURN.

APPARATUS FOR EXTINGUISHING FIRES.

No. 403,759.

Patented May 21 1889.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHENEY KILBURN, OF PHILADELPHIA, PENNSYLVANIA.

APPARATUS FOR EXTINGUISHING FIRES.

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To all whom it may concern:

Be it known that I, CHENEY KILBURN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Extinguishing Fire, of which the following is a specification, reference being had therein to the accompanying drawing.

10 The object of this invention is to so construct and combine instrumentalities for the putting out of fire by the use of steam that the control of the entire apparatus may be under the supervision and operation of one
15 person while stationed in the boiler-room or the engine-room, as will be hereinafter fully explained.

The figure shows a front view of my apparatus, the apartments being in section.

20 Similar letters of reference indicate like parts in the figure.

A A represent the boilers, of which there may be any desired number, and B is the main steam-pipe, arranged, by preference,
25 above the boilers and connected therewith by a series of comparatively short steam-pipes, *a a*, each of these connecting-pipes having a stop-cock *b*.

30 C C are a series of discharge-pipes leading from the main steam-pipe B to the different compartments into which it is desired to discharge steam.

In the drawing I have shown six compartments, D D, there being an equal number of
35 discharge-pipes C. Each discharge-pipe is provided with a stop-cock, *c*, arranged within convenient reach of the fireman, engineer, or other person who may be in charge of the apparatus, and while such person remains inside of the boiler-room or engine-room E.
40 Each of these discharge-pipes C is marked or numbered to correspond with the letter or number designating the room in which such pipe terminates; and by preference I use
45 numbers to designate the rooms and the corresponding discharge-pipes.

In the drawing the rooms and their respective discharge-pipes are numbered from 1 to 6, inclusive. The diameters of these
50 discharge-pipes should be proportioned to, first, the sizes of the rooms, and, secondly, the length of pipe required in each instance,

the diameter of the pipe increasing with the size of the room and its distance from the boiler or main steam-pipe B; but for a room, 55 say, twenty feet by sixty feet, with a discharge-pipe of one hundred feet in length and a working pressure of steam at from sixty to eighty pounds to the square inch, a discharge-pipe of three inches in diameter 60 will be found sufficient under ordinary circumstances. In fact, I have found that, in practice a pipe of this diameter will operate satisfactorily for even much larger rooms, although the diameters of the steam-pipes 65 may be somewhat varied, according to whether or not the room is to be occupied by very combustible material or otherwise. The discharging ends of the pipes should be left entirely open, with as few elbows or other
70 bends as possible between the stop-cocks and their open ends, so as to offer the least possible resistance to the passage of the steam.

F is a donkey-engine or other feeder, adapted to supply the boilers with water. 75

G is a fan or other kind of blower, belted to a shaft, H, driven by an engine which is supplied with steam from the boilers.

It will be understood that when the boilers are in ordinary use—that is, generating steam 80 for motive or heating purposes—it will not be necessary to operate the fan G, and that it is only when great quantities of steam are being discharged—as when one or more of the pipes C are opened—that the fan need be 85 started and thereby the fires in the furnaces increased in order to maintain the required steam-pressure in the boilers. The steam from one of the boilers may be employed for fire-extinguishing purposes, or from several of 90 the boilers simultaneously, or from one boiler after another in succession, as the pressure in the boiler supplying the steam becomes reduced, such being permitted by a proper manipulation of stop-cocks *b* and *c*. 95

Owing to the great quantities of steam employed by reason of the pipes C being comparatively large and perfectly open-ended, it is necessary that the stop-cocks which control the delivery of steam should be within easy 100 control of the engineer or fireman while in the boiler-room, in order that he may shut the steam off from other connections and direct it in sufficient quantities through the pipes C,

that he may start the blower G, and that he may also keep the necessary supply of water in the boiler, all of which operations could not be so well performed or would be attended with delay were stop-cocks and other regulating devices situated outside the boiler-room. It would be impracticable to have the stop-cock which regulates the passage of steam through one of the pipes C situated within the room into which said pipe opened, owing to the danger from scalding or suffocation by the steam which would attend the person operating said cock.

By employing the main steam-pipe B, connecting or communicating with the different boilers, I am better enabled to regulate the supply of steam used in extinguishing a fire in the manner set forth than if the separate pipes C communicated directly with the boiler, as thereby the steam from two or more boilers may be directed (either simultaneously or in succession) through a single pipe, C, into a single apartment.

In each room there is a signaling apparatus communicating with the engine-room or fire-room, in order that in case the room or the material within it should be discovered on fire information of the fact can be promptly conveyed to the fireman, engineer, or whoever may be in charge of the room in which the stop-cocks *c c* are located. In this instance I have shown a series of speaking-tubes, K K, provided with the ordinary whistles, *k k*, extending from each of the six rooms to the boiler-room; but it is evident that electric bells, a system of wires, bells, and pulls, might be used in place of the speaking-tubes. So, also, I have shown a speaking-tube connecting the office L with the boiler-room, so that the fireman or engineer may be notified from the office of the existence of a fire in any room of the building, if from any circumstances such information can be more conveniently sent from the office.

I have found by experience that with a comparatively free use of steam a fire in an inclosed room can be speedily checked, and, in fact, promptly extinguished, and also that by the use of a blower and donkey feeding-engine a satisfactory pressure of steam can be maintained in the boiler even when steam is being discharged through one or more of the three-inch pipes C.

I do not wish to be limited to the use of my invention in connection with a series of rooms all located within the same building, because I have connected a number of buildings to one and the same set of boilers.

Of course a steam-drum or its equivalent might be used in place of the main steam-pipe B, although the steam-pipe has some advantages because of the facility with which the discharge-pipes C C can be attached to it.

Whenever the word "attendant" is used herein it is employed to designate the engineer, fireman, or other person who, when the parts are arranged as herein described and

shown, is always in attendance in immediate proximity to the boilers and their attachments. So, also, when the words "boiler-room" are used I mean the room or building in which the boiler or boilers, and by preference the stop-cocks in the discharge-pipes, are located.

While I have shown a main steam-pipe arranged between the boilers and the discharge-pipes, it is evident that this might be omitted and the discharge-pipes connected directly to the boiler or boilers; although in practice I prefer to interpose either a main pipe or a drum between the boiler or boilers and the discharge-pipes, particularly when two or more boilers are used or when the invention is being applied to steam-boilers already set in position, and especially when a number of discharge-pipes are to be employed, on account of the greater convenience in making the necessary steam-connections.

While in practice I prefer to locate all the steam-cocks in the same room with the boilers, yet it is obvious that where such an arrangement is inconvenient or impracticable they may be located in an adjoining room, or even outside the building in which the boilers are located, without departing from the spirit of my invention, so long as they are so placed as to facilitate their being opened and closed by some one person in contradistinction from having them scattered about the premises at such points as would render it inconvenient for the fireman to operate them upon very short notice and without going far from the place which he would naturally occupy while attending to his duty of keeping up steam, one object of this invention being to so construct and arrange the appliances that a large volume of steam can be quickly discharged into any room where it may be needed by the action of one man, and that man a person who can be readily familiarized with the entire system and the location of all the stop-cocks, and who can therefore be held responsible for the prompt and efficient performance of his duty, instead of dividing up the responsibility among a large number of employes, in which latter case it would be very difficult, and in fact impossible, to secure any such certainty of action as is necessary for the prompt putting out of a fire.

While I have shown and described this invention as applied to inclosed rooms within buildings, it is evident that it can be advantageously used in ships.

I am aware that it is old to combine a fire-extinguishing apparatus of a nature somewhat similar to mine with buildings, ships, &c., and hence I do not claim, broadly, the combination of a series of apartments, separate discharge-pipes leading into such apartments, a common generator which supplies a fire-extinguishing vapor to the several discharge-pipes, and valves which regulate the passage of such vapor through the discharge-pipes; but I believe I am the first to have arranged the several parts of my apparatus in the

manner shown—that is, so grouped together under the control and in immediate proximity to the engineer or fireman having charge of the steam-generating boiler that he can
 5 without delay or change of position shut off the steam from the engine, and direct it in any desired quantity to any point where it may be necessary, and at the same time properly regulate the fires and the amount of water
 10 in the boiler so as to maintain the maximum steam-pressure.

What I claim is—

1. The combination of the following elements, substantially as set forth, namely: a
 15 series of several boilers adapted to supply steam for operating an engine, the steam-pipe B, the separate pipes *a a*, the separate valves *b b*, whereby the steam may be taken through the said pipes *a* separately or through them
 20 all together, the series of pipes C, all communicating with the said pipe B, and each communicating separately with a compartment, D, and the separate valves *c* for the said pipes C, respectively, the said valves *b* and *c* being
 25 arranged in proximity to the boilers, substantially as set forth.

2. As a means for extinguishing fires, the combination, with a series of apartments, of
 30 two or more boilers, a main steam-pipe communicating with each of said boilers, stop-cocks between each boiler and the main steam-pipe, a series of discharge-pipes connecting with the main steam-pipe and opening into said apartments, and a series of stop-cocks,
 35 one for each discharge-pipe, arranged within

convenient access of the attendant, substantially as and for the purposes set forth.

3. As a means for extinguishing fires, the combination, with a series of apartments, of
 40 a boiler, a series of discharge-pipes communicating with the boiler and opening into said apartments, a series of stop-cocks adapted to close said pipes, they being situated within convenient reach of the attendant, and a
 45 blowing mechanism, also within convenient reach of the attendant, and arranged and operating substantially as and for the purposes set forth.

4. As a means for extinguishing fires, the combination, with a series of apartments, of
 50 a boiler, a series of discharge-pipes communicating with the boiler and opening into said apartments, a series of stop-cocks, *c*, which permit the steam to be rapidly exhausted from the boiler through one or more discharge-
 55 pipes, means for increasing the supply of water in the boiler while said valves are open, and means for forcing air to the furnace at the same time, whereby a high pressure of
 60 steam can be maintained while stop-cocks *c* are open, all of said operating devices being within convenient reach of the attendant, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHENEY KILBURN.

Witnesses:

JAS. S. BREEN,
 THESBERT MILLER.