3 Sheets—Sheet 1.

B. C. WILSON.

Fire Extinguisher.

No. 235,837. Patented Dec. 21, 1880.

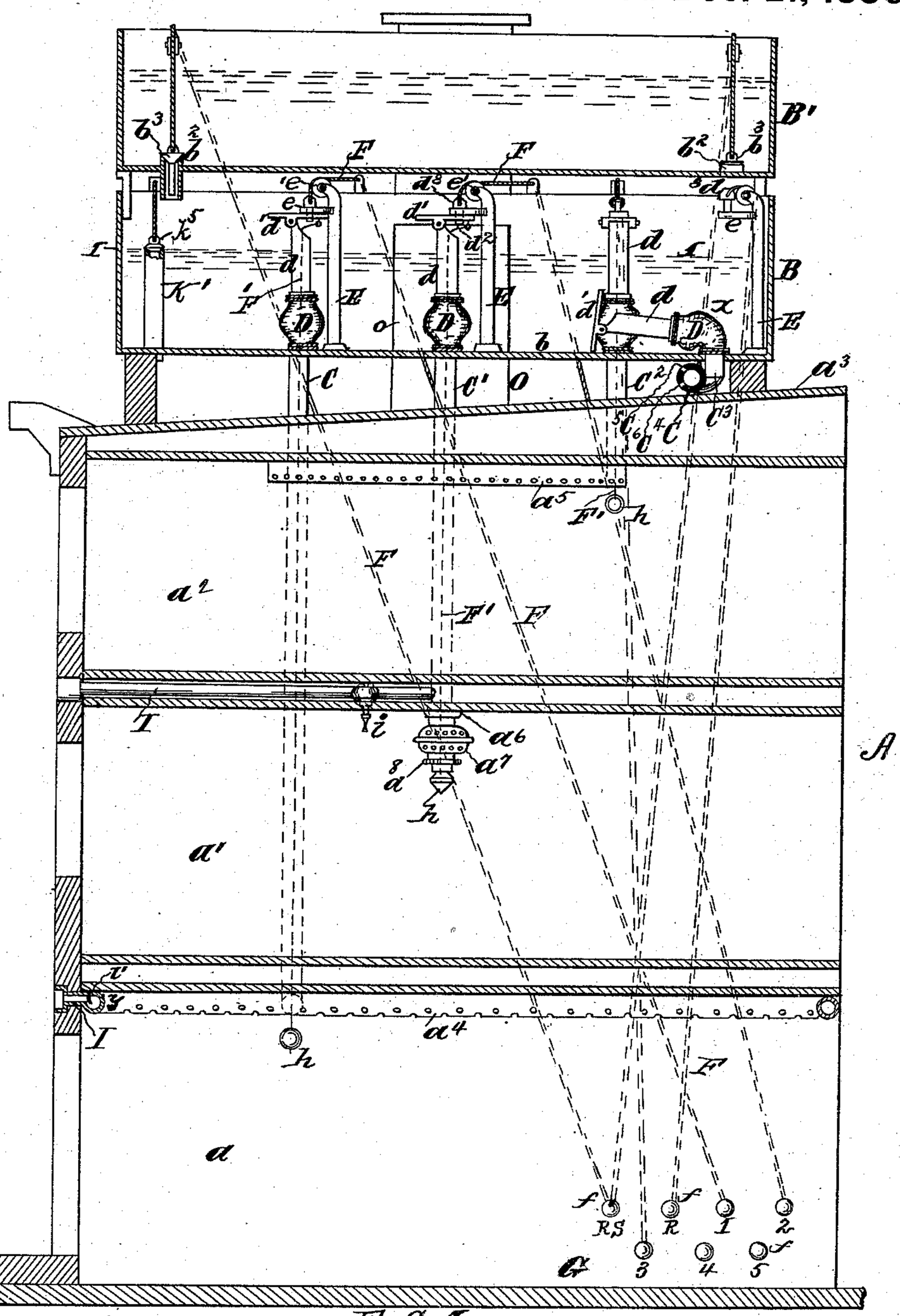

FIG. 1

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W. Collins

INVENTOR,

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3 Sheets—Sheet 2.

B. C. WILSON.

Fire Extinguisher.

No. 235,837. Patented Dec. 21, 1880.

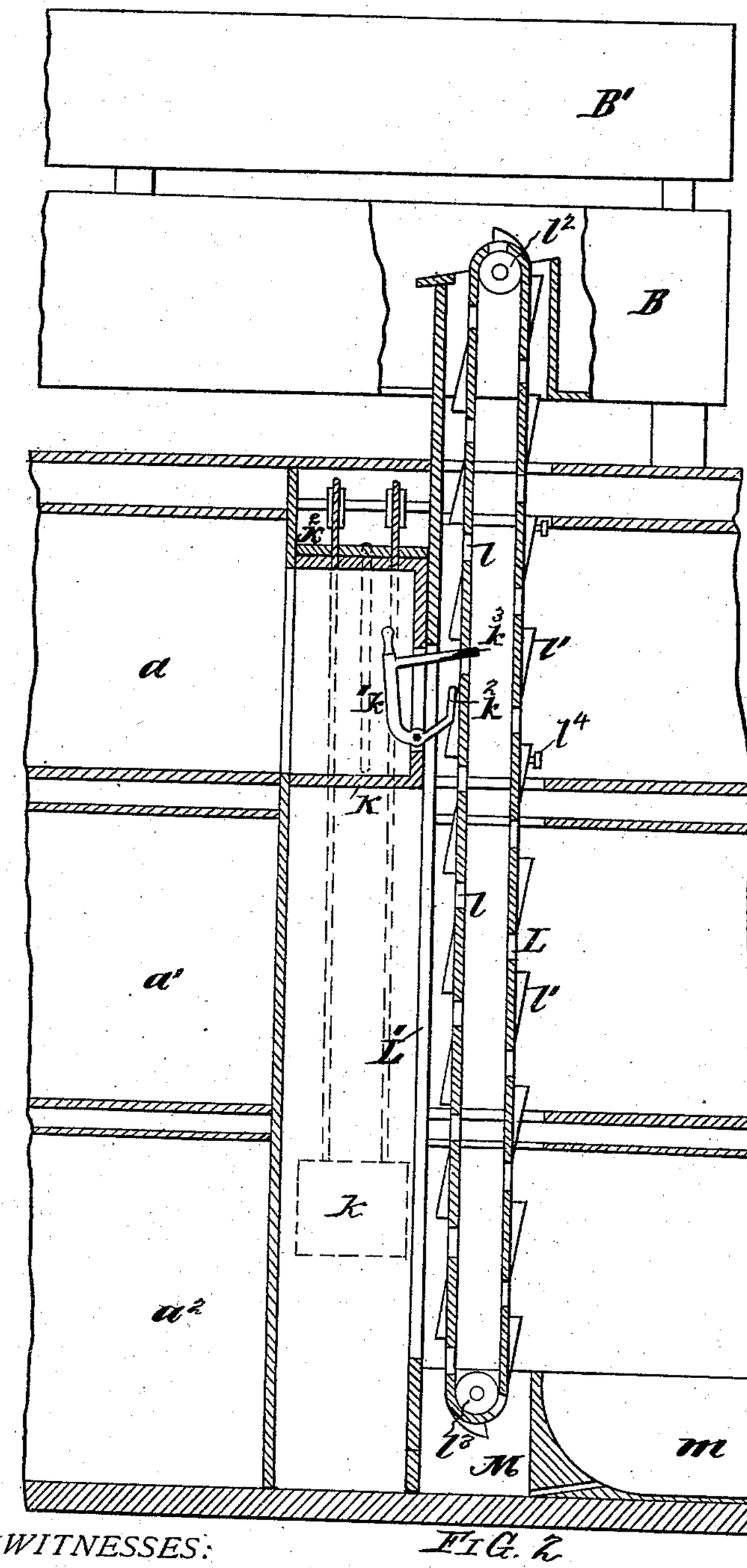

FIG. 2

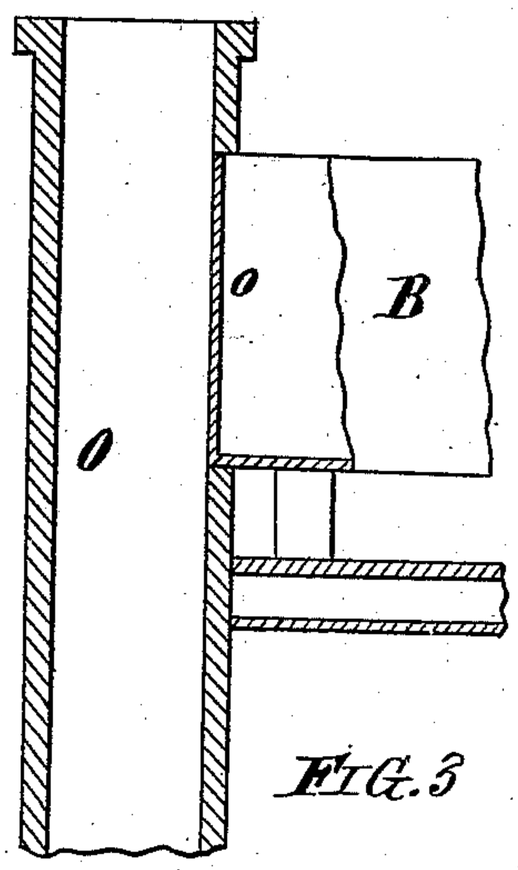

FIG. 3

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Fire Extinguisher.

No. 235,837. Patented Dec. 21, 1880.

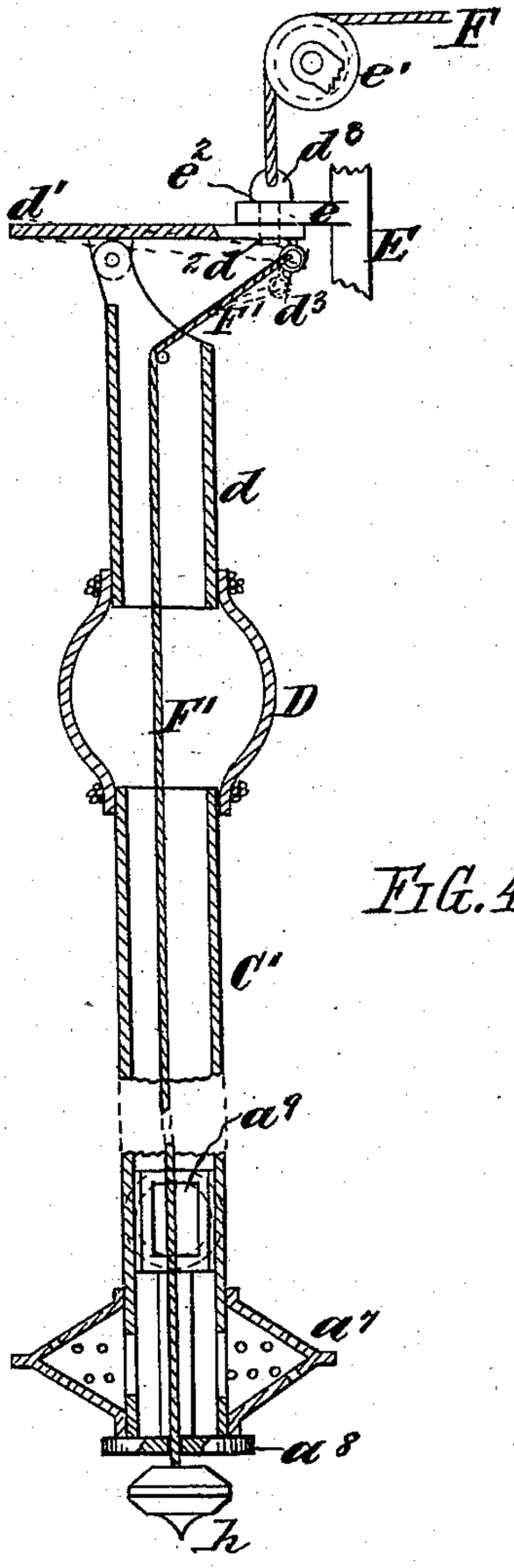

FIG. 4

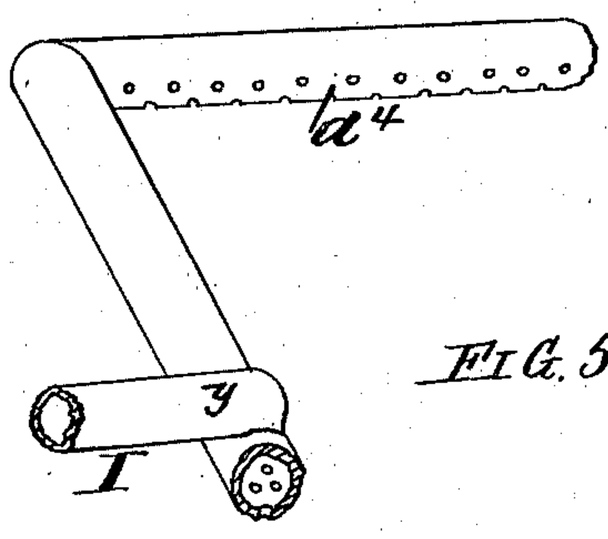

FIG. 5

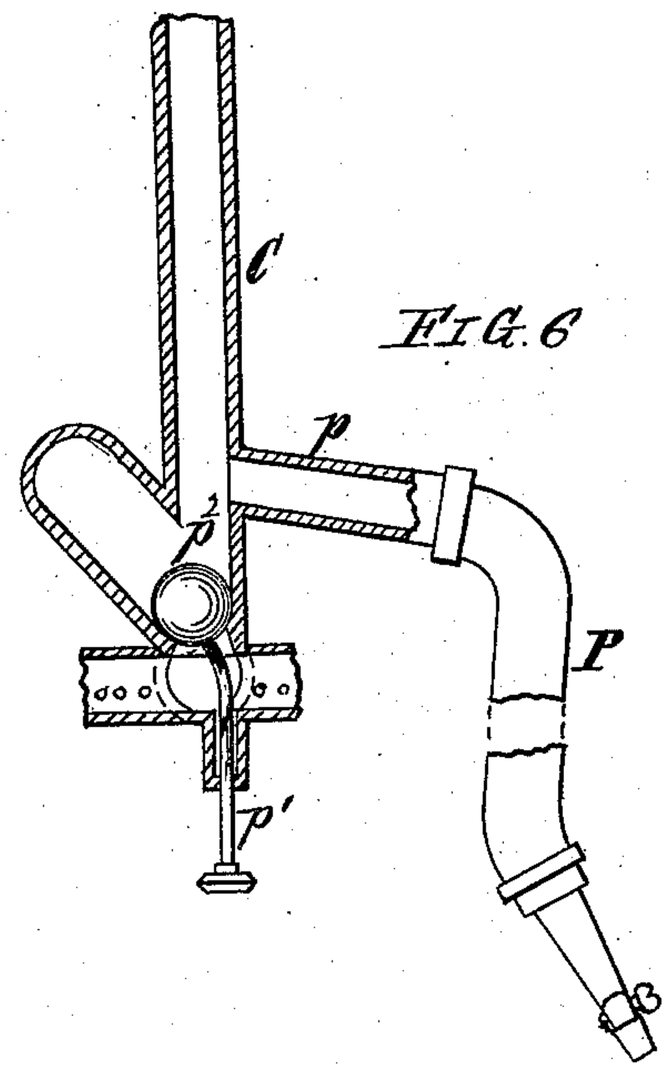

FIG. 6

WITNESSES:
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T. Corlew

INVENTOR
Bennet C. Wilson

UNITED STATES PATENT OFFICE.

BENNET C. WILSON, OF PHILADELPHIA, PENNSYLVANIA.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 235,837, dated December 21, 1880.

Application filed February 24, 1880.

To all whom it may concern:

Be it known that I, BENNET C. WILSON, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ventilating and Fire-Extinguishing Appliances for Buildings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a vertical section of a building having my improvements applied thereto. Fig. 2 is a like view, showing the elevator and the water-lifting devices partly in section. Fig. 3 is a sectional detail view of chimney and tank. Fig. 4 is a vertical section of one of the ventilating and water-conducting pipes; and Figs. 5 and 6 are perspective details, the latter being partly in section.

My invention has for its object to provide buildings with a system of ventilating-pipes, which may be employed to conduct water from a reservoir for fire-extinguishing purposes.

My invention accordingly consists in the novel arrangement, construction, and combination of parts hereinafter more particularly described, and having reference especially to the following points: first, to the provision of a reservoir placed upon the roof of a building, said reservoir being provided with a series of pipes, one of which proceeds to each separate room of said building; second, to the provision of said pipes passing up through the water in the reservoir, so that their ends will be some distance above the water, and are provided with a flexible joint, so that when in a perpendicular position they act as ventilating-pipes, and when caused to assume a horizontal position they become water-conducting pipes; third, to the provision of means for causing said pipes to assume positions whereby they are converted from air into water-conducting pipes; fourth, to the provision of means for filling and replenishing the reservoir with water; fifth, to the provision of means whereby the flexible ends of the pipes are manipulated either from the main room or office, or from each separate room of the building; sixth, to the provision of means whereby all the rooms of the building may be flooded with water simultaneously.

Referring to the accompanying drawings, A indicates a house or other building. a a' a^2 are the first, second, and third story rooms thereof, and a^3 is the roof. B is a reservoir firmly supported by planks or other suitable means on the roof a^3. C C′ C² C³ are pipes which enter said reservoir at the bottom b, and are each provided with a gum or other elastic joint, D D, &c., to the upper end of which are metal mouth-pieces d, which are long enough to project a short distance above the surface or level of the water, as shown. d' are plates pivoted to the mouth-pieces, and having openings d^2 and hooks or eyes d^3, for purposes hereinafter described. Said pipes C C′ C² each proceed from said reservoir to the separate rooms of the building A, while the pipe C³ does not enter said building, but connects with a horizontal pipe, C⁴, located a short distance above the roof, as shown, and which extends along the entire length of the roof, and is provided with two slits or longitudinal openings, C⁵ C⁶, so that as the water flows therethrough it will emerge through said openings in two broad sheets or streams, one of which strikes or flows against the tank B, and the other spreads itself over the roof. There are as many or more of the pipes C C′, &c., as there are rooms in the building, and they are conducted through said building by passing them through the chimney or other appropriate flue. As they enter each room they are then perforated, and may be employed as cornices, as shown at a^4, or they may be run across the ceiling in parallel rows, as shown at a^5, or in any other appropriate manner. Where the rooms are small I prefer to cause the pipe to emerge from the ceiling in the center of the room, as shown at a^6, and provide them with a perforated box, a^7, which is formed with collars loosely surrounding said pipe, and is held in position thereon by the handle or knob a^8 of the cut-off a^9; but where the rooms are large—as, for instance, those in factories—the center-pieces, cornices, and parallel rows may all be used in the one room.

E E are upright supports carrying a projecting finger, e, and a sheave or pulley, e', said

fingers having holes e^2 formed therein in such position that they will register with the openings d^2 in the plates d'. d^8 are pins or studs, which pass into said openings and serve to lock said parts in position to retain the flexible joints and mouth-pieces in an upright position. F F are strings, wires, or rods, secured to said pins d^8, and pass over the pulleys e', and are thence conducted to the main room or office of the building, their ends being attached to buttons f f, placed upon the key-board, as shown at G. F′ F′ are other strings or appropriate means, fastened at one end to the hooks or eyes d^3, secured to the under side of the plates d', from which they pass down through their respective pipes, as shown, and as they emerge therefrom in the separate rooms of the building they are provided with a knob or button, h h.

I I are horizontal pipes, having their exit-openings in the front wall of the building, and connect with the pipes C C′ C², as shown. There is a pipe, I, for each separate story. Their exit-openings may be in a line with each flight of rooms, or those intended for the upper stories may be conducted down to the first story, so that all of said openings will be in the same line, in which case they will be appropriately numbered for their respective destinations. The house or building being provided with a reservoir, B, and pipes C C′, &c., as shown in Fig. 1, the reservoir is filled with water by means of the devices shown in Fig. 2, wherein K is a dumb-waiter or elevator counterpoised by the weight k, and is provided with a brake-lever, k', having the brake-shoe k^2 and projecting finger k^3. The latter is designed to project into the openings l in the flexible chain L, provided with buckets l', and passing over the pulleys l^2 l^3, the former being placed in the walls of the reservoir B and the latter in the walls of the tank M, which receives the waste or other water from the bath-tub m. The elevator is so designed as to be always returned by the counterpoise to the third or highest floor, so that, if desired, it may be used as a fire-escape from the building. If desired, a trap-door, K², may be used to cover the opening in the floor of said story after the elevator descends, and which is raised by the same on its ascent, as shown. If desired, the elevator may be placed outside of the building, the result in either case being the same.

To fill the reservoir B, the chain of buckets is rotated, the buckets dipping up the water from the tank M and emptying their contents into the reservoir. When the latter is filled such operation ceases, and the chain of buckets are not then used save for replenishing the water that may evaporate from said reservoir, and this latter result is obtained by using the elevator a number of times during the day.

If desired, the buckets l' may be provided with screws l^4, to close up or open the mouths of said buckets to decrease or increase the amount of water passing therein, so that the quantity raised during a given time or day may be adjusted to replace the evaporations and no more.

In using the elevator, if it is desired to raise water to the reservoir, the lever k' is moved to the right, causing the projecting finger k^3 to engage with one of the openings, l, in chain L, moving the same as the car descends, the brake-shoe k^2 being out of contact with the wall L′, and therefore not in use, as the water in the buckets forms a sufficient brake or counterpoise for the additional weight of the person descending with the car or elevator. If no water is to be raised the lever k' is pushed to the left. The brake-shoe, being then brought in braking contact with the wall L′, prevents the elevator from falling with undue celerity. The reservoir being filled, as described, until the water reaches a level indicated by the line 1 1, which is just on a line with the edge of the waste or outlet pipe K′, provided with valve k^5, which is always lifted or opened, so as to allow the escape of and prevent the water from rising above said level, thus leaving the upper ends of the pipes C C′ C², &c., projecting out of said water and having free and independent communication with the atmosphere. The result of such arrangement is that the impure air in the rooms finds its way into the perforated pipes, and is from thence conducted by the pipes C C′, &c., to the external air, and in a reverse manner fresh air is supplied to said rooms.

If, now, at any time a fire should originate, say in room a' or a^2, as indicated by the key-board, and the alarm being communicated to the office, the attendant pulls button marked 2, which causes the string F, secured thereto, to raise the pin d^8 out of opening d^2 in the plate d', whereupon the weight of said plate and mouth-piece causes them to drop or fall, being further induced to such action by the flexible joint D, until they assume the position shown at x, Fig. 1, when they are then completely under the water, and the latter then passes through the open end of the mouth-piece down through the pipe C′ into the box or chamber a^7, which, being loosely journaled on said pipe, as described, is caused to revolve by the action of the water passing through its perforations, thereby throwing and whirling the water around the room to extinguish fire.

If desired, instead of sending the alarm to the office any attendant or other individual in or near the room may pull the button h, which would cause the string F′ to lower the plate d', as shown by dotted lines, Fig. 4, thereby releasing it from the locking-pin d^8, and allowing it and the mouth-piece to fall, as described. When the fire has been put out the cut-off a^9 is turned, which closes the supply of water to the perforated pipe or chamber. The mouth-piece and pivoted plate are then restored to their upright or normal position, and the reservoir filled up again, as before. If, however, the fire in the room has gained too

great headway or the water in the reservoir proves insufficient, then the fire-hose is to be attached to the pipes I, and water from a hydrant or fire-engine is conducted or forced into the room through the perforated pipes; or, if desired, a reserve reservoir, B′, may be used, situated above reservoir B, and provided with communicating pipes b^2 b^2, furnished with valves b^3 b^3, having operating cords or chains proceeding to the key-board and button lettered R S.

If the fire has extended to the entire building, and it is desired to simultaneously flood all parts or rooms of the same, such result is accomplished in the following manner: The button R S is pulled, thereby raising the valves b^3 b^3 from the pipes b^2 b^2 in reservoir B′, at the same time lowering the valve k^5 upon the waste-pipe K′ in the reservoir B. The water now flows from reservoir B′ to B, rising in the latter until it reaches the opened ends of all the mouth-pieces of the pipes located therein, and, flowing into the same, is simultaneously conducted through pipes C C′, &c., to every room in the building, thereby flooding the same throughout and instantly quenching all fire. Each button on said key-board G is either appropriately numbered or lettered, as shown, so that when fire occurs the attendant knows what button to operate to supply water to the room where it may be needed.

The pipes I I do not allow the water from the pipes C C′, &c., to pass therethrough, as said pipes I I are provided with a cut-off, *i*, as shown in Fig. 1, or they may be joined to pipes C C′, &c., as shown at *y*, Figs. 1 and 5, being slightly above the line of perforations of the branch tubes and provided with a valve, *i′*, that opens inwardly from the street, thereby preventing any water flowing out of the pipes I I.

If a fire should break out in one corner of a room and it was not desired to flood the entire room with water, a hose, P, attached to a branch, *p*, formed on the perforated pipes, may be used, as shown in Fig. 6, and the cut-off *p′* being lowered, allows the ball-valve p^2 to descend and close the entrance to perforated pipes, thereby deflecting the water to branch *p*, thence to the hose P. In this way a small fire may almost instantly be extinguished in the corner of a room without flooding all parts of the same.

To keep the water in the reservoirs from freezing one of their sides may be built into the chimney O, as shown at *o o*, Figs. 1 and 3, or vice versa, so that the heat from the waste products of combustion passing up the chimney will be conducted by the metal walls of the reservoirs to their contained fluid and keep it from congealing; or, if desired, the waste or exhaust steam from the boiler may be employed for that purpose when attainable. So, too, instead of using the elevator and its appurtenances for filling the reservoir, a rotary or other pump may be used.

It will thus be seen that with my improvements applied to a building each room thereof is independently ventilated, having separate flues for that purpose, and in case of fire such flues are converted into water-conducting pipes provided with means whereby each room may separately be flooded with water, either from within the room or from a main room or office in the building, or the latter may be simultaneously flooded throughout all its parts.

It is obvious that the details of the foregoing may be varied considerably without departing from the spirit of my invention.

I am aware that reservoirs applied to buildings for the purpose of holding water in reserve for fire-extinguishing purposes is not new. I am also aware that perforated pipes for ventilating purposes are not new. Therefore I do not broadly claim such devices; but

What I claim as my invention is—

1. A water-reservoir adapted to be located at the top of the building and provided with a series of pipes passing through its bottom, and having their upper ends projecting above the surface of the water contained within said reservoir and provided with flexible or hinged connections, in combination with locking devices and cords or rods for releasing said locking devices, whereby said pipe ends are unlocked to fall from an adjusted position to cause the respective pipes to which said ends are attached to be converted from ventilating to water-conducting pipes, substantially as shown and set forth.

2. A reservoir adapted to be located at the top of the building, and provided with a series of pipes, in combination with a reserve reservoir and attached pipes provided with valves and operating cords or rods, whereby said valves are opened and communication established between said reservoirs, as and for the purpose set forth.

3. A water-reservoir adapted to be located at the top of the building, and provided with a series of pipes having their ends within said reservoir, said ends being formed with hinged or flexible connections and provided with operating cords or rods, in combination with mechanism for filling said reservoir, substantially as set forth.

4. A reservoir adapted to be located at the top of the building, and provided with a series of pipes having flexible or hinged ends within said reservoir and suitable locking devices for said ends, in combination with two or more operating cords or rods for each one of said locked pipe ends, whereby said locking devices may be unlocked at different locations and allow said pipe ends to fall from an adjusted position, substantially as set forth.

5. In combination with a reservoir, B, the pipes C C′, having flexible or jointed ends *d d*, provided with locking devices and operating cords or rods, substantially as set forth.

6. The combination of reservoirs B B′, pipes b^2 b^2, valves b^3 b^3, waste-pipe K′, and

chains or rods F F, substantially as and for the purpose set forth.

7. The combination of reservoir B, pipes C C′, standards E, and intermediate locking mechanism between said pipes and standards operated by the cords or rods F, substantially as and for the purpose set forth.

8. The combination of reservoir B, pipes C, having jointed or flexible ends *d*, locking devices for said ends, and operating cords or rods passing through said pipes, substantially as shown and described.

9. The combination of reservoir B, pipes C C′, &c., having jointed or flexible ends *d*, locking devices for said ends, operating cords or chains F′, branch pipe *p*, and hose P, substantially as shown and described.

10. A water-reservoir adapted to be located at the top of the building, and provided with a series of pipes, each one of which is provided with a flexible or jointed end, their opposite extremities being formed with perforated branches or enlargements, in combination with locking devices and operating cords or rods for said flexible ends, substantially as shown and described.

11. A water-reservoir adapted to be located at the top of the building, and provided with a series of pipes, each one of which is provided with a flexible or jointed end, the opposite extremities of said pipes being formed with perforated branches or enlargements, in combination with locking devices for said flexible ends, having two or more operating cords or rods, one of which passes through said pipes and the other being exterior thereto, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of February, 1880.

BENNET C. WILSON.

Witnesses:

J. R. MASSEY,

FRANK BLAYNEY.