

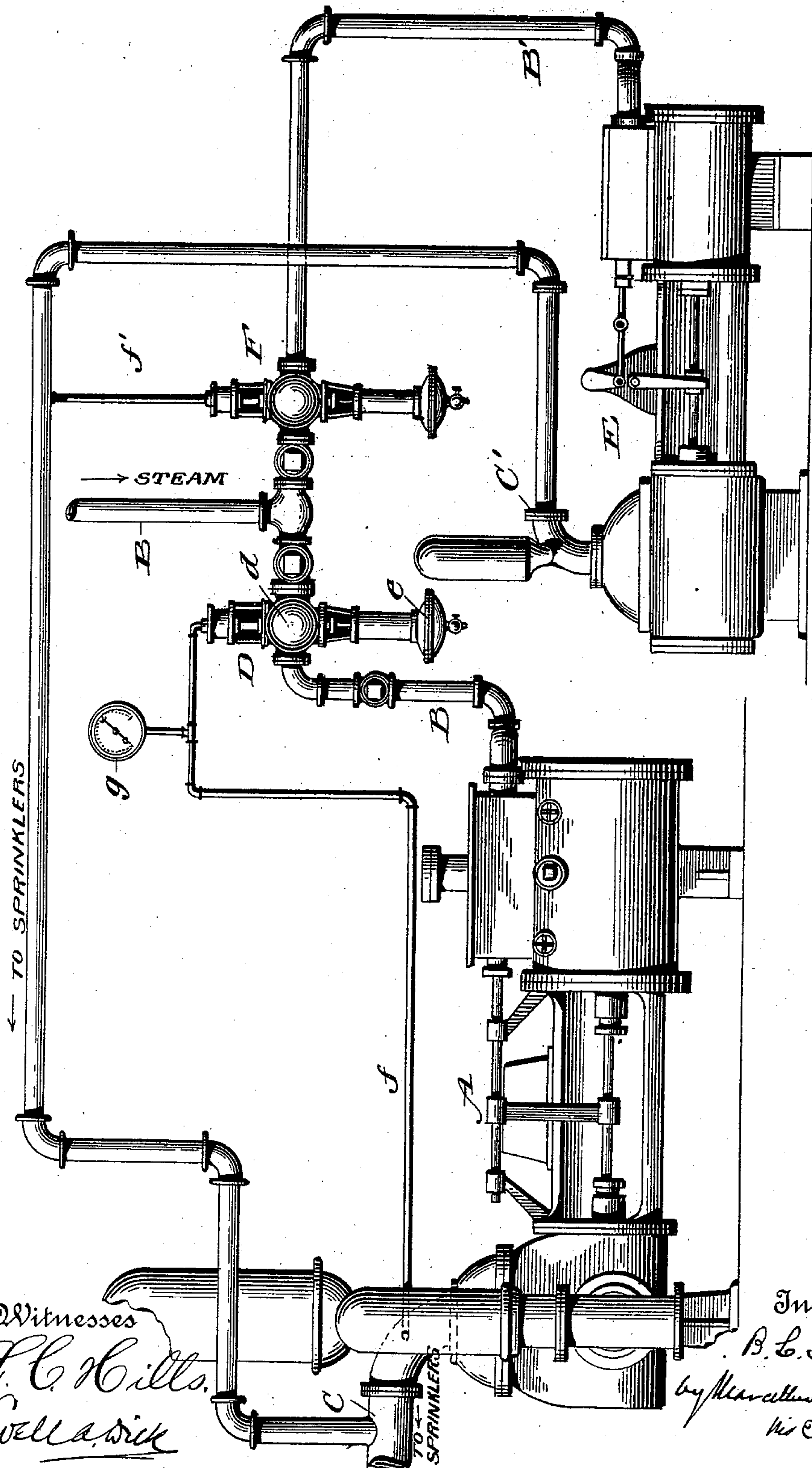
(No Model.)

B. L. STOWE.

PUMPING APPARATUS FOR SPRINKLING SYSTEMS.

No. 528,822.

Patented Nov. 6, 1894.



Witnesses
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PUMPING APPARATUS FOR SPRINKLING SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 528,822, dated November 6, 1894.

Application filed June 28, 1894. Serial No. 516,009. (No model.)

To all whom it may concern.

Be it known that I, BENJAMIN L. STOWE, of Jersey City, in the county of Hudson, State of New Jersey, have invented a certain new and useful Improvement in Pumping Apparatus for Sprinkling Systems and other Purposes, of which the following is a specification.

My invention has reference to pumping apparatus which is used in connection with automatic sprinkler systems, or other like systems designed as a protection against fire or to keep constantly available a water supply which can be automatically called into action. Under the underwriters' rules of many of the insurance companies it has been obligatory upon the insured, in the case of large factories and other establishments to maintain in the buildings insured an automatic sprinkler system. This system involves the employment of a series of sprinkler pipes and automatically opening sprinkler outlets or nozzles arranged throughout the establishment to be protected, and the use in conjunction therewith of a steam or other power pump, which is connected to the sprinkler pipes and keeps them constantly filled with water at a predetermined pressure. This pump naturally is of considerable capacity so that it can when the emergency calls for it, fully supply all parts of the sprinkler system, and it is combined with an automatic pump governor for holding the pressure in the system at the point desired—the governor closing whenever the pressure reaches that point, but opening, and thus starting the pump whenever the least leak occurs. As a matter of fact owing to slip and leakage which take place slowly but very constantly in even the best organized system, the pump is almost continually in action. This movement although slow and gentle nevertheless results in considerable wear upon the pump requiring constant watchfulness and frequent renewal or repair of its parts, besides creating the risk of the pump getting out of order or incapacitated for good work, at the very time its services may be most needed.

It is the object of my invention to obviate this objection, and to take from the main pump the work of maintaining the pressure in the system under ordinary conditions, so

that it in fact will remain at rest so long as the sprinkler system is intact or closed and not called upon for fire service. To this end I superadd to the system a small auxiliary pump, which like the main pump is connected to the sprinkler system, but whose governor is to be set to close at a pressure higher than that of the main pump governor, so that after the main pump governor has closed and the main pump has consequently stopped, the auxiliary pump governor will still remain open, and the auxiliary pump consequently may still remain in action, thus compensating for and supplying the loss by leakage or other causes and maintaining the pressure. In this way only the small pump is in action so long as the sprinkler system is inert and closed. The wear and tear on this small pump is less of an expense and more easily taken care of, and the large or main pump is always in the best of condition to respond when its services are called upon.

The accompanying drawing, to which I shall now refer for a better understanding of my invention, represents a view of so much of a sprinkler system, as needed for purposes of explanation.

A is the main steam pump, which may be of any approved kind. We will suppose, for sake of illustration, that it has a nominal capacity of five hundred gallons per minute—although of course it may be of any desired capacity greater or less than that named.

B is the steam pipe for supplying steam to the steam cylinder of the pump, and C is the pipe leading from the water cylinder or chamber of the pump to the sprinkler system. In the steam pipe there is interposed a pump governor D, the function of which is to regulate the supply of steam to the steam cylinder. Its steam regulating or controlling valve is shown at *d*, and this valve in its motions is governed by a diaphragm *e* and connections between the same and the valve—the diaphragm being subjected to back pressure from the sprinkler system (or water side of the pump) through a pipe *f* which leads from the pump discharge pipe C into the governor. It is usual to connect the pipe *f* also with a pressure gage *g* located at some convenient point to show the pressure. When the pressure in the pump discharge C (which of course

is part of the sprinkler system) reaches the point for which the governor is set, the diaphragm *e* closes the steam valve *d* and thus stops the pump until the pressure falls when the governor again admits steam to the pump.

The system thus far set forth is not new with me. It is the system above referred to as being now in use; and to it is applied my improvement about to be described. I may say here however that any automatic pump governor may be employed; but the one represented in the drawing is that which is known in the market as Locke's pump governor, and is illustrated in Letters Patent No. 497,985 of May 23, 1893.

Under my invention I add to the system just described a small auxiliary pump *E* and a suitable pump governor *F* therefor. This governor is of the same type as the Locke pump governor already referred to. The pump may be of any approved kind and its nominal capacity need not be greater than from eight to twenty gallons per minute. This pump takes its steam from the main steam pipe *B* by a branch connection *B'*, in which is interposed the auxiliary pump governor *F*. Its water discharge *C'* leads into the main pump discharge *C*; and the back or water pressure pipe *f'* for the auxiliary pump governor leads from the auxiliary discharge *C'*. This however is a convenience, not a necessity. The pipe *f'*, and for that matter the pipe *f* also, can lead from any point in the sprinkler system on the discharge side of the pumping apparatus.

The mode of operation is as follows: The auxiliary pump governor is always set so as to close at a higher pressure than the main pump governor. If for example the main pump governor is set to close at seventy-five pounds pressure, then the auxiliary pump governor will be set to close at say eighty pounds pressure. Steam supposed to be always on in the steam pipe is automatically supplied to or cut off from the pumps, as occasion demands, by means of the governor.

The result is that so long as the pressure on the discharge side of the pumping apparatus or in the sprinkler system connected thereto, is less than seventy-five pounds both pumps will be in action. As soon however as the pressure reaches seventy-five pounds the main governor will close and the main pump consequently will stop. The auxiliary pump however will continue in action until eighty pounds pressure is reached, when it will close also. Whenever the pressure falls below eighty the auxiliary pump will at once come into action and restore the pressure—the main pump still remaining at rest, there being enough margin between the pressures by which the starting of the two pumps respectively is controlled, to insure that the auxiliary pump shall always start before the pressure falls to a point where the main pump will start also. The smaller pump is entirely adequate to restore and maintain pressure under ordinary conditions and so long as the sprinkler system is closed and inert; but as soon as that system is called into fire service then the fall of pressure in the system starts the main pump which thus is at once brought into full operation.

Having described my invention and the best way now known to me of carrying the same into effect, what I claim herein as new, and desire to secure by Letters Patent, is—

In combination with the main pump, its governor, and the sprinkler system connected to said pump, the auxiliary pump also connected to the sprinkler system, and its governor arranged and adapted to close only at a pressure exceeding that at which the main pump governor closes, substantially as and for the purposes hereinbefore set forth.

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

BENJAMIN L. STOWE.

Witnesses:

EVELYN NORRIS,
F. GRADY.