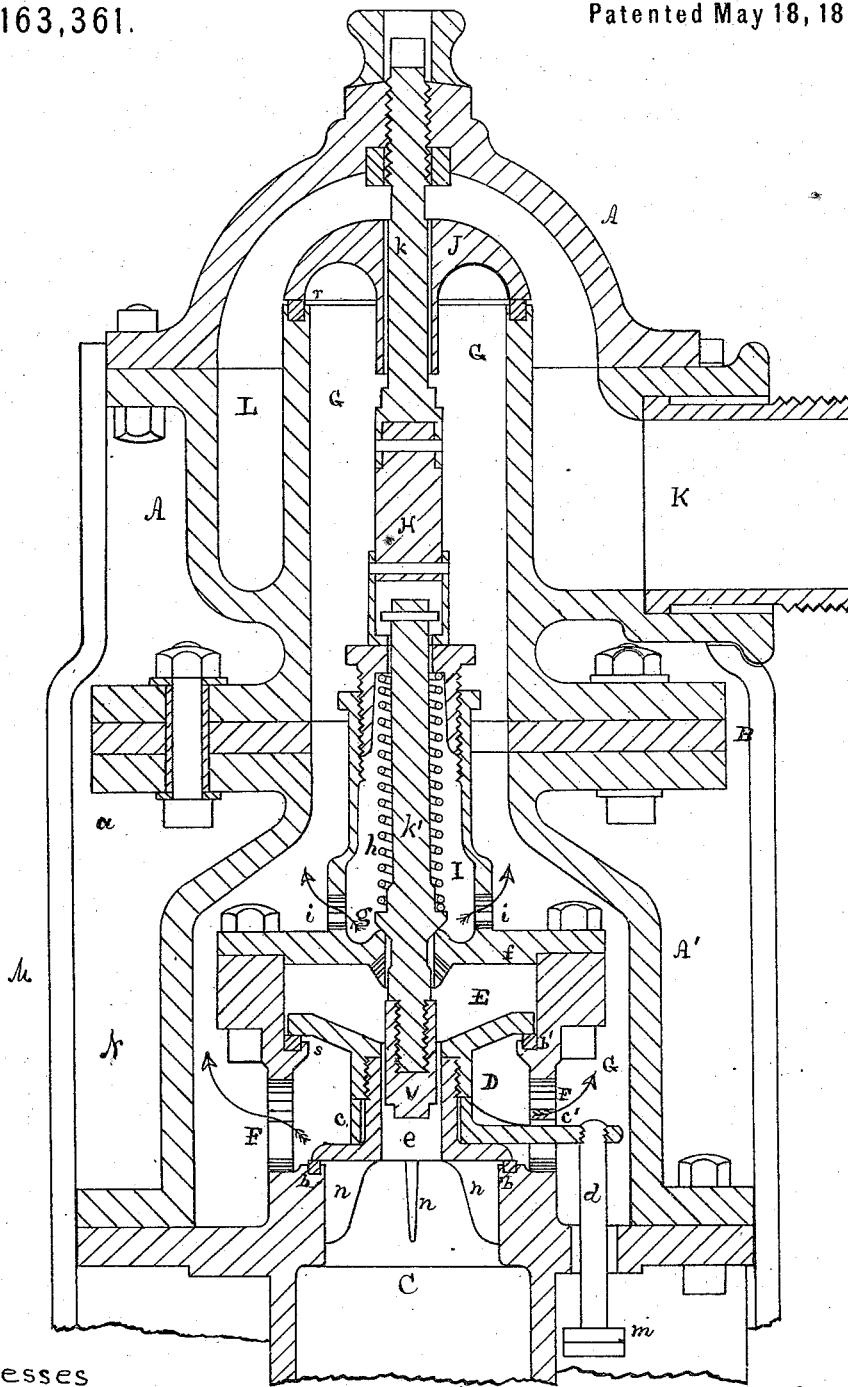


G. H. CLEMENS & G. C. MORGAN.

Street-Hydrant.

No. 163,361.

Patented May 18, 1875.



Witnesses

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# UNITED STATES PATENT OFFICE.

GILBERT H. CLEMENS AND GEORGE C. MORGAN, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN STREET-HYDRANTS.

Specification forming part of Letters Patent No. **163,361**, dated May 18, 1875; application filed March 19, 1875.

*To all whom it may concern:*

Be it known that we, GILBERT H. CLEMENS and GEORGE C. MORGAN, of the city of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Street-Hydrants, of which the following is a full description, reference being had to the accompanying drawings, in which the figure is a vertical section.

This invention consists in adapting to a street-hydrant a valve substantially the same as shown in the Letters Patent to said CLEMENS, dated February 28, 1871, in carrying and extending the water-way above the discharge-outlet, to prevent the insertion of obstructions; in the devices for making the hydrant frost-proof; in the peculiar construction of the drain-valve, and in the other devices and combinations hereinafter claimed.

In the drawings, A A' represent the shell or outer casing of the hydrant. The lower part of A and the upper part of A' are each provided with a flange, between which flange is placed a piece of wood or other non-conducting material, to prevent the passage of frost from the upper to the lower portion of the hydrant. These parts are secured together by suitable bolts, and as a further protection each bolt is incased with wood or some other non-conducting material *a*. C is the inlet, through which the water reaches the hydrant. D is the main valve. As shown, it is made of two parts screwed together. The lower portion rests on a packing, *b*, inserted in a recess to keep it in place, and the upper portion also rests on a similar packing, *b'*, in a similar recess, *s*. The lower part of the valve is provided with guide-wings *n*. Around the lower part of the valve is loosely placed a ring, *c*, its lower edge resting on the lower portion of the valve D. From one side of this ring *c* projects an arm, *c'*, to which is secured the stem *d* of the drain-valve *m*. *e* is an opening through the valve D. E is a chamber between the upper portion of the valve D and the cap *f*, the area of which is considerably larger than that of the bottom of the valve D. *g* is a secondary valve, having its seat on the cap *f*. The stem *v* of this valve extends down into the opening *e* in the valve D, fitting somewhat loosely therein, leaving a small

space around it for the passage of water into the chamber E. *h* is a spring located in a suitable chamber, I, which holds the valve *g* on its seat. The valve-rod we make partly of iron and partly of wood, to prevent the passage of frost down the same. *k k'* represent the iron portions, and H that part which is made of wood, to which the iron portions are suitably secured. The rod is to be operated by a wrench at the top, as usual. F represents openings, through which, when the main valve is raised, the water passes into the water-way G. *i* are openings from the chamber I into the way G. J is a loose valve or cap covering the top of the water-way G. It is arranged to move up and down on the rod *k*, and rests upon a packing, *r*, which is placed in a recess in the top of G. K is the discharge-outlet, to which the water comes from the chamber L. M is an outer casing, so connected with the shell of the hydrant as to form between this casing and the hydrant a close chamber, N, which we fill with salt in a liquid or dry state as a protection against frost.

The operation of the hydrant is as follows: When the valve *g* is in the position represented the pressure of the water in the chamber E upon the top of the valve D will be greater than upon the under side thereof, because the area of the upper surface of the valve is greater than that of its under surface, and because there is a communication between the chamber E and the inlet C around the valve-stem *v*; hence the valve D will be held down to place. If the valve *g* be raised slightly the water in the chamber E will flow out into the chamber I, and thence through the openings *i* into the water-way G, relieving the pressure in the chamber E, and the valve D will at once be raised by the pressure of the water beneath it, and allow the water to flow through the openings F F into the water-way G; and the pressure of the water on the under side of the cap or valve J will elevate it, and the water will flow over the top of G into the chamber L, and thence out through K. At the same time that the valve D rises it will carry along with it the drain-valve *m* and close the outlet. When the valve *g* is again returned to its seat the pressure of the water in the chamber E will again force

the valve D down upon its seats, carrying with it the drain-valve *m*, and the cap J will return to its place upon the top of G. The spring *h* can be adjusted to any desired pressure, so that if such pressure be increased the valve *g* will open automatically, relieving such pressure, and preventing injury to the hydrant or pipes. The valve-stem *v* is somewhat larger at its lower end than the seat or port of the valve *g*, for the purpose of rendering the automatic action of this valve more prompt and positive. The valve D can rotate freely within the loose ring *c* without interfering with the action of the drain-valve *m*. The extension of the chamber G above the outlet K is a preventative against the introduction of obstructions into the hydrant. The hydrant may be used without the cap J, but it is useful as a protection from frost, and as an additional protection to the introduction of obstructions into the hydrant.

What we claim as new is as follows:

1. A hydrant case or shell, made of two or more parts, A A', in combination with a non-

conducting material, B, between the same, substantially as and for the purpose specified.

2. A valve-rod, made partly of metal, *k k'*, and partly of wood, H, substantially as and for the purpose specified.

3. The main valve D, chamber E, and secondary valve *g*, in combination with the water-way G, substantially as and for the purposes specified.

4. In a hydrant, the water-way G, extended above and combined with the outlet K, substantially as and for the purposes specified.

5. The loose cap J, in combination with the water-way G, substantially as and for the purposes specified.

6. The combination of the valve D, loose ring *c*, and arm *c'*, with the drain-valve *m*, substantially as described.

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Witnesses:

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