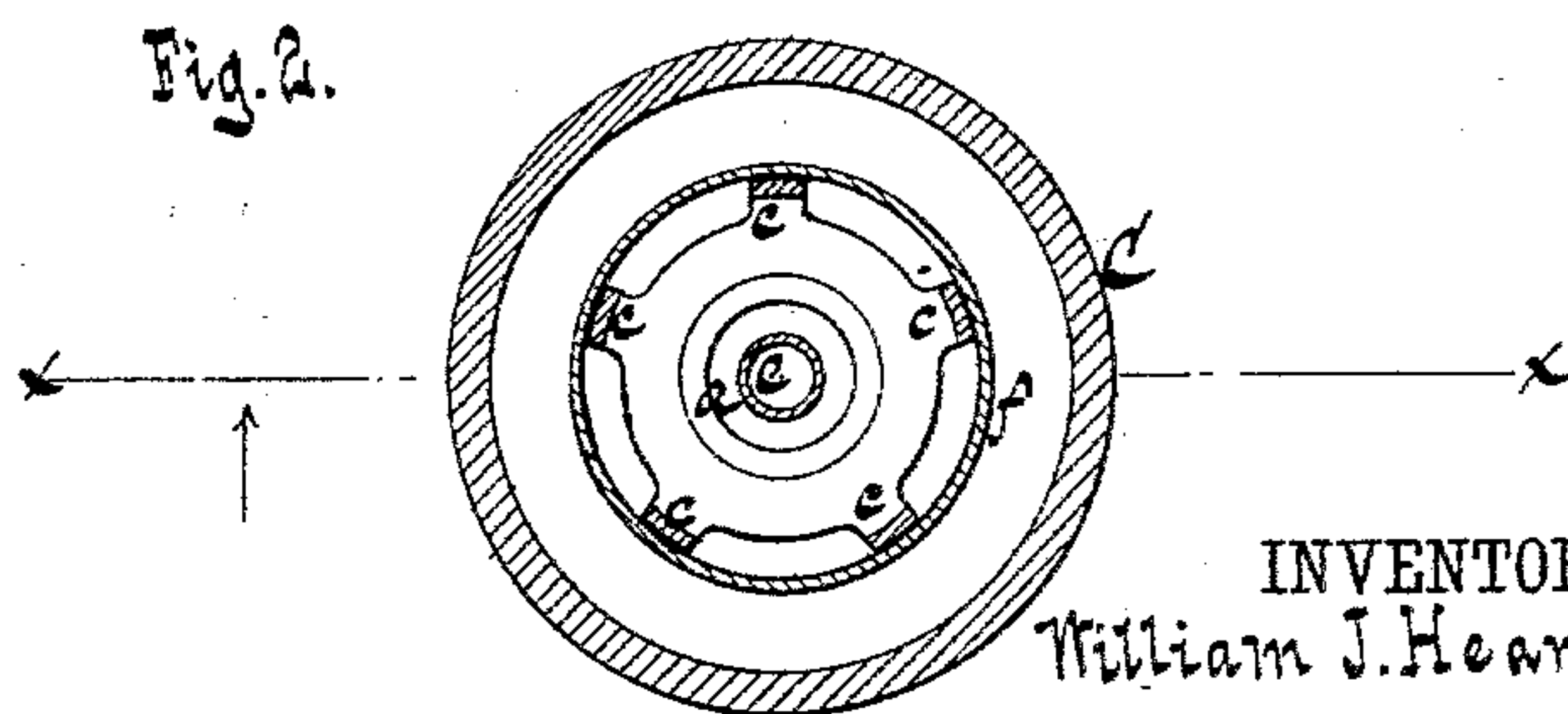
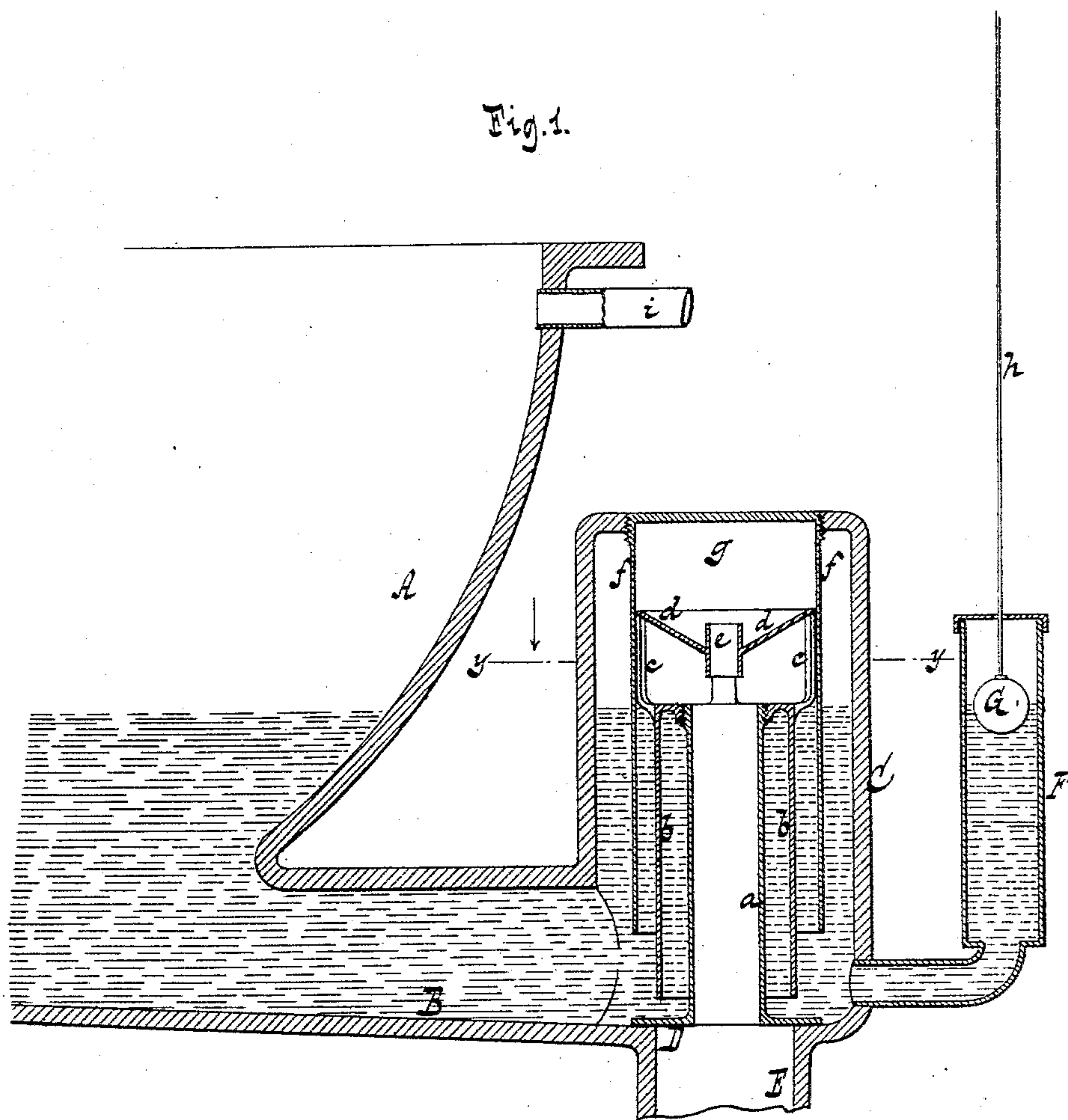


(No Model.)

W. J. HEARN.  
WATER CLOSET VALVE.

No. 303,846.

Patented Aug. 19, 1884.



WITNESSES:

*Otto Hufeland*  
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# UNITED STATES PATENT OFFICE.

WILLIAM J. HEARN, OF NEW YORK, N. Y.

## WATER-CLOSET VALVE.

SPECIFICATION forming part of Letters Patent No. 303,846, dated August 19, 1884.

Application filed January 7, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. HEARN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Water-Closet Valves, of which the following is a specification.

This invention relates to a valve and overflow, the valve being so constructed that it opens automatically whenever the water in the basin rises beyond the desired level. The peculiar and novel construction of my valve is pointed out in the following specification, and illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical central section in the plane  $x x$ , Fig. 2. Fig. 2 is a horizontal section in the plane  $y y$ , Fig. 1.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the basin of a water-closet, which communicates by a channel, B, with the valve-chamber C. D is the valve, which is seated on the mouth of the waste-pipe E. The stem  $a$  of the valve is hollow, and on its upper end is secured a cylindrical jacket,  $b$ , which is closed at the top and open at the bottom. From this jacket extend a series of arms,  $c$ , which support a cup,  $d$ , provided with a center discharge,  $e$ . The arms  $c$  extend upward in a vertical direction, and they fit a cylinder,  $f$ , which is secured in the top of the valve-chamber C, and which is open at the bottom and closed at the top. The upper part of the cylinder  $f$  forms an air-chamber,  $g$ , which communicates through the center discharge,  $e$ , and through the hollow valve-stem  $a$ , with the waste-pipe E. When the basin is empty, the valve rests upon its seat, and it remains in this position as long as the water in the basin does not rise above the level indicated in Fig. 1. But whenever the water in the basin rises above this level, it flows over the top of the jacket  $b$ , and through the hollow stem  $a$ , into the waste-pipe E. By this downward current of water a suction is produced through center discharge,  $e$ , of the cup  $d$ , the air in the air-chamber  $g$  becomes rarefied, and in a short time the valve rises from its seat, and the matter contained in the basin discharges.

Various means may be employed for introducing into the basin a sufficient quantity of water to cause the valve to rise, and in the example illustrated by the drawings I have shown a chamber, F, which connects with the lower part of the valve-chamber C, and which contains a float, G, that connects by a cord or chain,  $h$ , with a lever serving to open and to close the water-supply valve. This valve may be situated in a tank connecting with the basin A by the supply-pipe  $i$ , or the water-supply valve may be arranged in any other of the well known ways usually employed in water-closets. After having used the closet it is only necessary to pull the chain  $h$  for a short space of time, and by these means a sufficient supply of water is caused to flow into the basin, so that a violent overflow is created, and by the current of water rushing down through the hollow valve-stem  $a$  the air in the air-chamber is immediately rarefied to such a degree that the valve D rises, and the contents of the basin, together with the water contained in the valve-chamber C and in the float-chamber F, are free to discharge. By the weight of the float the water-supply valve is held open until the water in the basin has risen to the desired level, and since the float is buoyed up by the water the water-supply valve closes as soon as the water in the basin has reached the desired level.

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

1. The combination, substantially as hereinbefore described, of the basin, the valve-chamber, which communicates with said basin, the waste-pipe, the valve, which is seated on the mouth of the waste-pipe, the hollow valve-stem, and the air-chamber formed above the upper end of said valve-stem, and communicating through the same with the waste-pipe.

2. The combination, substantially as hereinbefore described, with the basin A, and with its waste-pipe E, of the valve D, the hollow valve-stem  $a$ , the cup  $d$ , supported by said valve-stem, the center discharge,  $e$ , the cylinder  $f$ , forming the guide for the cup  $d$ , and the air-chamber  $g$ , formed in the upper part of the cylinder.

3. The combination, substantially as here-  
inbefore described, of the valve, the valve-  
chamber, the hollow valve-stem, the cylinder  
secured in the top of the valve-chamber, the  
5 air-chamber formed in the upper part of the  
cylinder, the cup secured on the valve-stem,  
and the center discharge in the cup.

In testimony whereof I have hereunto set my  
hand and seal in the presence of two subscrib-  
ing witnesses:

WILLIAM J. HEARN. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.