

G. M. Conner,

Water Wheel,

N<sup>o</sup> 10,791.

Patented Apr. 18, 1854.

Fig. 1.

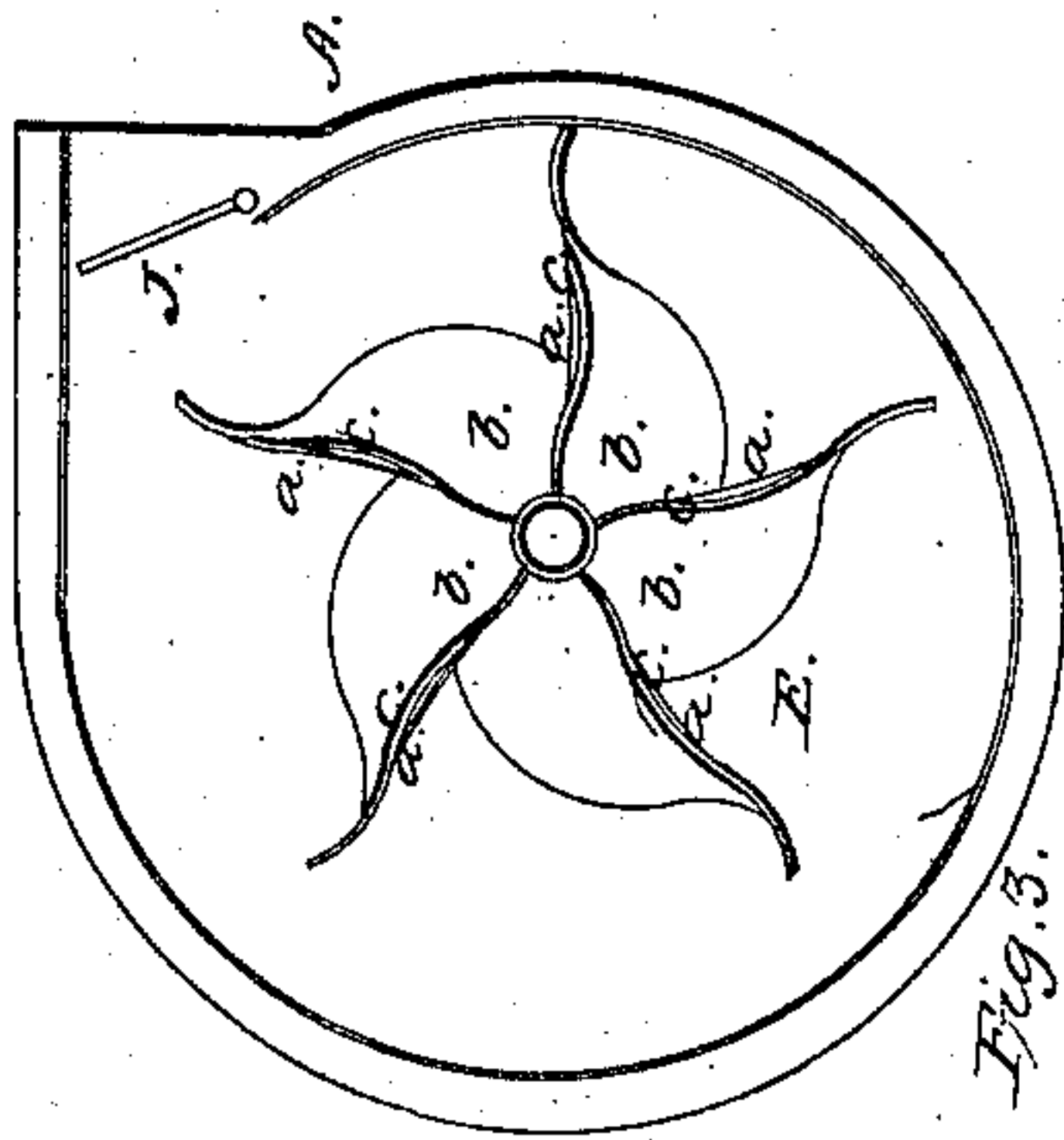


Fig. 4.

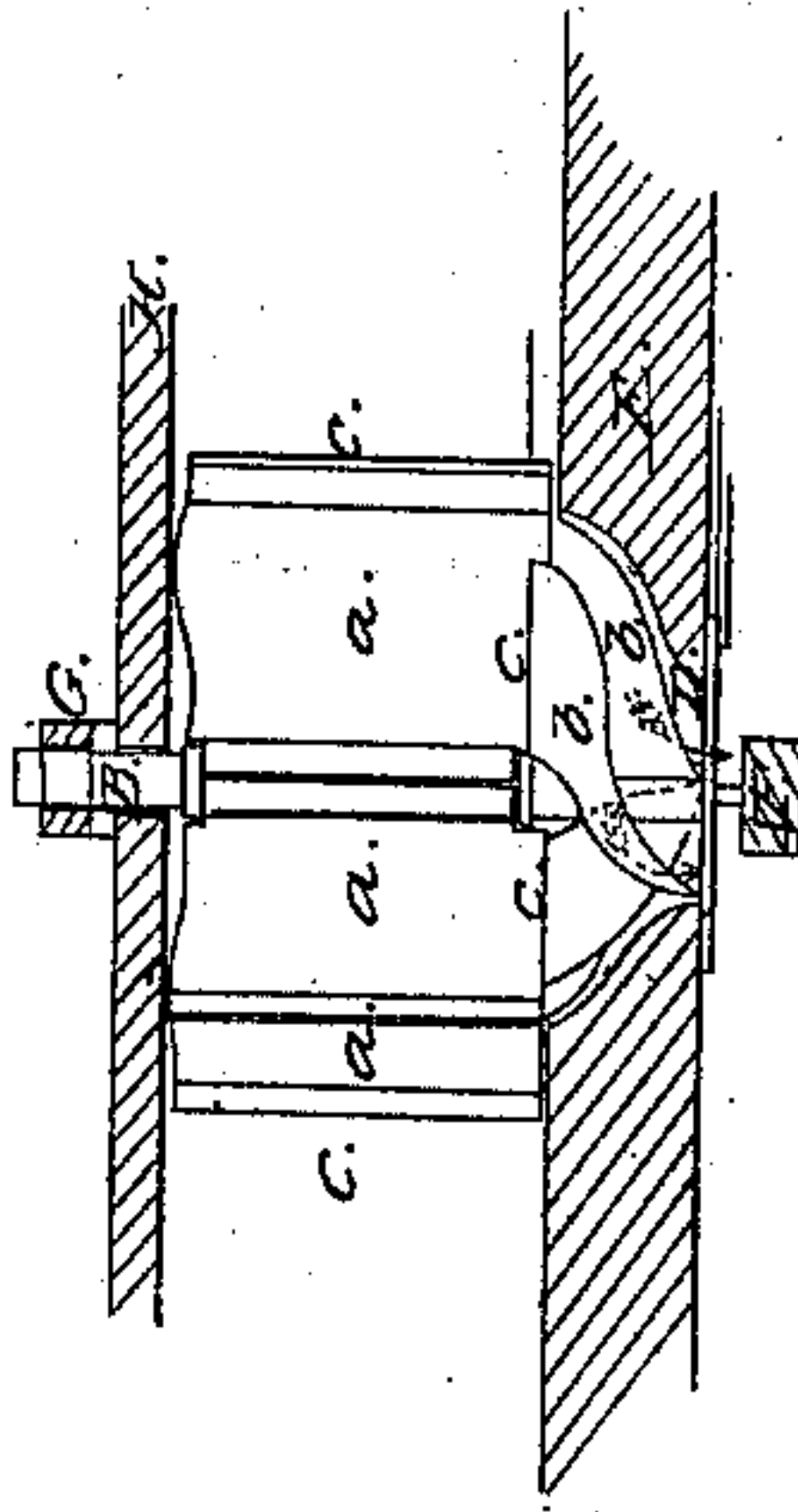


Fig. 5.

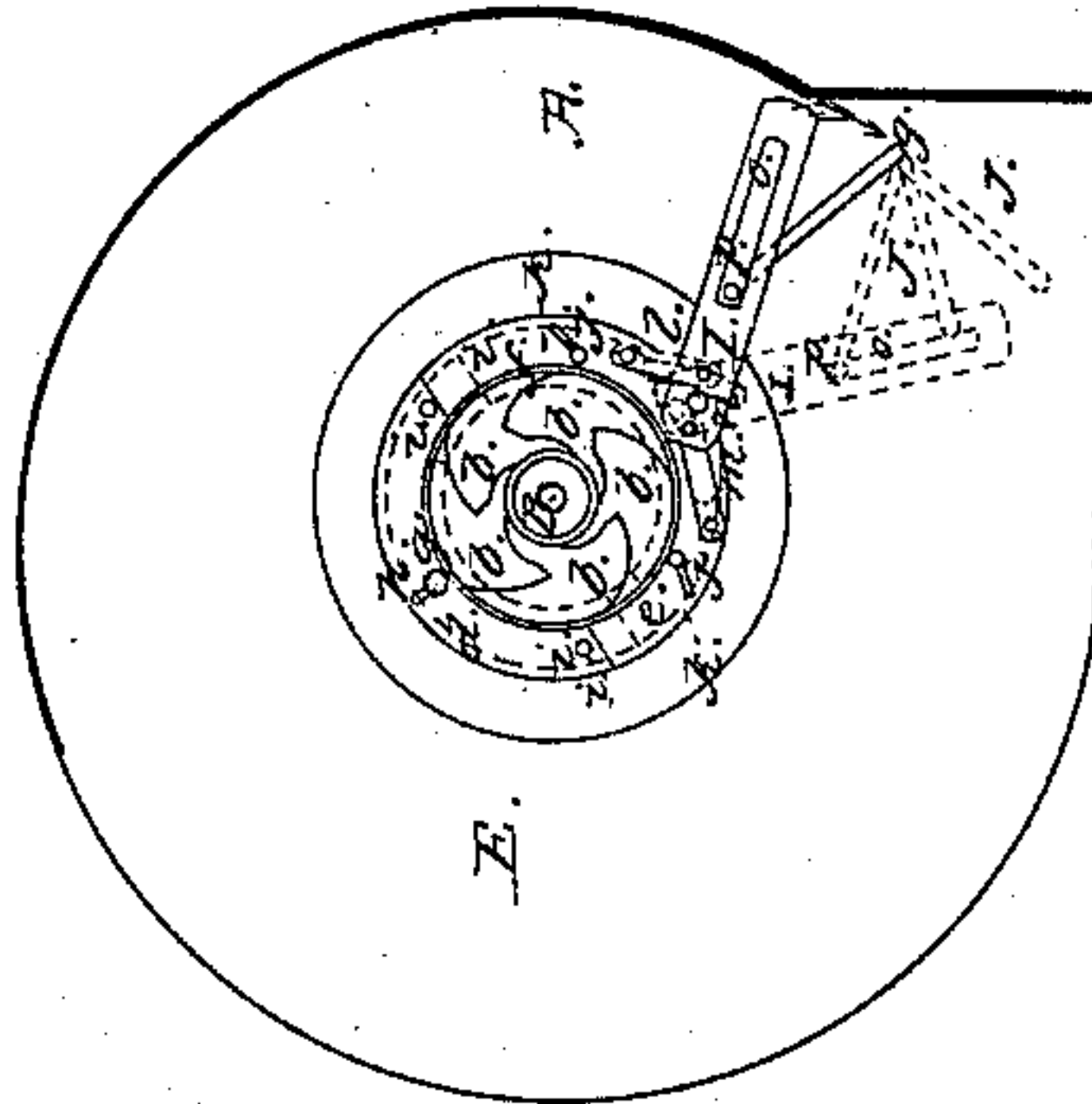
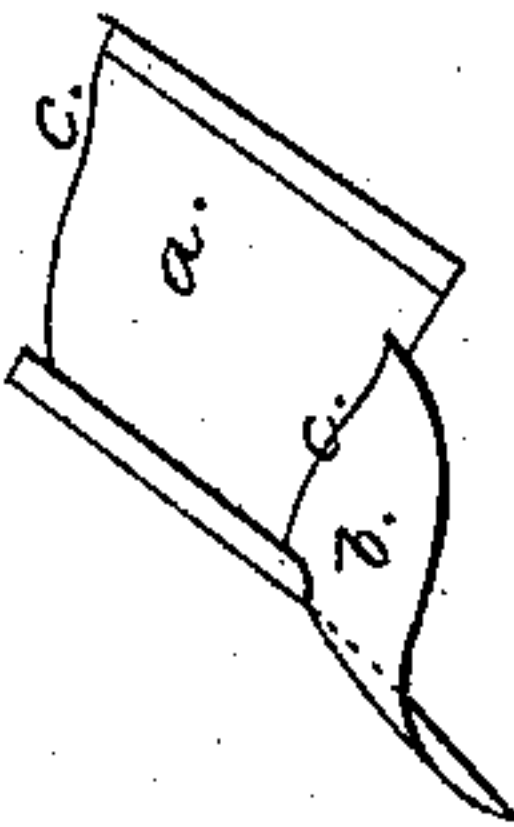


Fig. 3.





# UNITED STATES PATENT OFFICE.

G. M. CONNER, OF CHARLTON, NEW YORK.

## WATER-WHEEL.

Specification of Letters Patent No. 10,791, dated April 18, 1854.

*To all whom it may concern:*

Be it known that I, G. M. CONNER, of Charlton, in the county of Saratoga and State of New York, have invented certain  
5 new and useful Improvements in horizontal Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this  
10 specification, in which—

Figure 1, is a plan, or top view of my improved wheel, the top plate of the scroll being removed. Fig. 2, is an inverted plan, or an under view of do., the bottom plate of the  
15 scroll being removed. Fig. 3, is a perspective view of one of the buckets of the wheel. Fig. 4, is a side view of the wheel, the scroll not being represented. A section of the bottom plate of the scroll is shown bisected  
20 through its center. Fig. 5 is an inverted plan, or an under view of the wheel, showing the device by which the vent, or discharge orifice is enlarged and contracted.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain new and useful improvements in horizontal water wheels; the class known as "center discharge" wheels.

30 The invention consists in the means employed for enlarging and contracting the vent, or discharge orifice, whereby said vent, or discharge orifice, may, at all times, be of such a capacity as to correspond to the inlet  
35 orifice, or, to the distance the gate is opened; thus avoiding the loss of power occasioned by any back action of the water upon the buckets; and, at the same time, obtaining the full effect of all the water, which enters the  
40 scroll, upon the buckets.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

45 A represents the scroll of the wheel, constructed in the usual manner, and B, is the shaft of the wheel, to which the buckets, C, are attached. The body, or main portions of the buckets, (a), are concave, as shown in Figs. 1, 2, and 3. The lower ends of the  
50 buckets terminate in spiral flanches, (b), which are more particularly shown in Figs. 3, and 4. The spiral flanches are joined to the body, (a), of the buckets, so as to form a gradual curve at the connection, as shown  
55 at, (c), in Figs. 3, and 4. The ends of the flanches, (b), are about "flush" with the

outer edge of the vent, or discharge orifice, D, which is at the center of the bottom plate, E, of the scroll, A, see Figs. 4, and 5. The  
60 sides of the vent or orifice, are beveled or curved, as shown in Fig. 4, so as to form a recess, in which the flanches may fit and move. F, is the lower bearing of the shaft, B. The upper bearing, G, is on the top  
65 plate, H, of the scroll, as shown in Fig. 4.

The object of the spiral flanches is to conduct the water to the vent or discharge orifice, D; and to cause the water to act upon the buckets, until it has passed from the  
70 vent or orifice. This object is effected, for while the flanches conduct the water to the vent, or orifice, they are at the same time, acted upon by the water, and receive an impetus from it. See arrows in Fig. 4, the  
75 arrows showing the action of the water upon the flanches, when passing out at the vent or orifice.

The water passes around the scroll, A, and acts upon the buckets, C, and passes out of the vent or orifice, D, in an unbroken  
80 volume or sheet, because the flanches serve to conduct the water to the vent, or orifice, from their several buckets. There is nothing to interrupt the free passage of the water in passing around the scroll, and it is not  
85 forced from the vent, or orifice, at an expenditure of the power of the head of the water, as is the case with the "center discharge" wheels in common use, or, in other words, there is no re-action of the water  
90 upon the buckets, the wheel does not lose any of the effective power of the water, in consequence of the water being discharged at the center of the bottom of the scroll.

Around the vent or orifice, D, and on the  
95 outer side of the bottom plate, E, there is a flat ring formed of three parts, or sections, (d), (e), (f), see Fig. 5. The section, (d), is secured to the plate by a screw, (g), which passes through a slot, (h), in the section,  
100 (d), and into the bottom plate, E, of the scroll. The slot, (h), allows the section, (d), to be moved back and forth, the head of the screw projecting over the sides or edges of the slot. The sections, (e), (f), are se-  
105 cured to the ends of the section, (d), and by pivots, (i), (i), and said sections (e), (f), are secured to the plate, E, of the scroll, A, by screws, (j), (j), which pass through slots, (k), (k), into the plate, E. The sections,  
110 (e), (f), are attached by arms, (l), (m), to one end of a lever, I, which has its fulcrum



at, (*n*). This lever is provided with a slot, (*o*), near its opposite end, in which the slot or crank arm, (*p*), of the gate shaft, (*q*), works or fits.

5 When the lever, I, is moved in the direction of the arrow, see Fig. 5, the arms, (*l*), (*m*), are drawn toward each other, and the sections, (*d*), (*e*), (*f*), are, in consequence, drawn a short distance over the edges of the  
 10 vent, or discharge aperture, D, and the gate, represented by, J, is partially closed, see red lines. When the gate, J, is entirely open, the sections, (*d*), (*e*), (*f*), are free from the vent, or discharge orifice, as shown in black  
 15 lines. By this device, the vent, or discharge orifice, is enlarged or contracted, according to the distance the gate, J, is opened. If the gate, J, be opened half way, only one half the water will enter the scroll, that would  
 20 enter were the gate open its whole distance; consequently, if the vent, or discharge orifice be of the same size in all cases; that is, large enough to correspond to the inlet orifice when the gate, J, is entirely open, the water,  
 25 when a small volume only is allowed to enter the scroll, will escape from the vent, or discharge orifice, too quickly, and before exert-

ing the whole of its effective force upon the buckets of the wheel. On the contrary, if the vent, or discharge orifice, is too small to  
 30 correspond with the inlet orifice when the gate is entirely open, the water will be retarded or interrupted in the scroll, and the maximum power of the wheel will not be obtained in either case. 35

By moving the lever, I, the sections, (*d*), (*e*), (*f*), and the gate, J, are operated simultaneously, and the vent, or discharge orifice, made to correspond with the inlet passage,  
 40 no extra labor or attention is required. 40

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:

I claim enlarging and contracting the vent, or discharge orifice, D, so as to correspond  
 45 to the inlet passage, by means of the ring formed of three sections, (*d*), (*e*), (*f*), attached to each other as shown, and connected to the crank arm, (*p*), of the gate, J, by the lever, I, as herein set forth.

G. M. CONNER.

Witnesses:

JNO. G. TAYLOR,  
 ELISHA C. TAYLOR.