

No. 646,248.

Patented Mar. 27, 1900.

G. W. WILLIAMS.

VALVE GEAR FOR PNEUMATIC COTTON FEEDERS.

(Application filed Dec. 11, 1899.)

(No Model.)

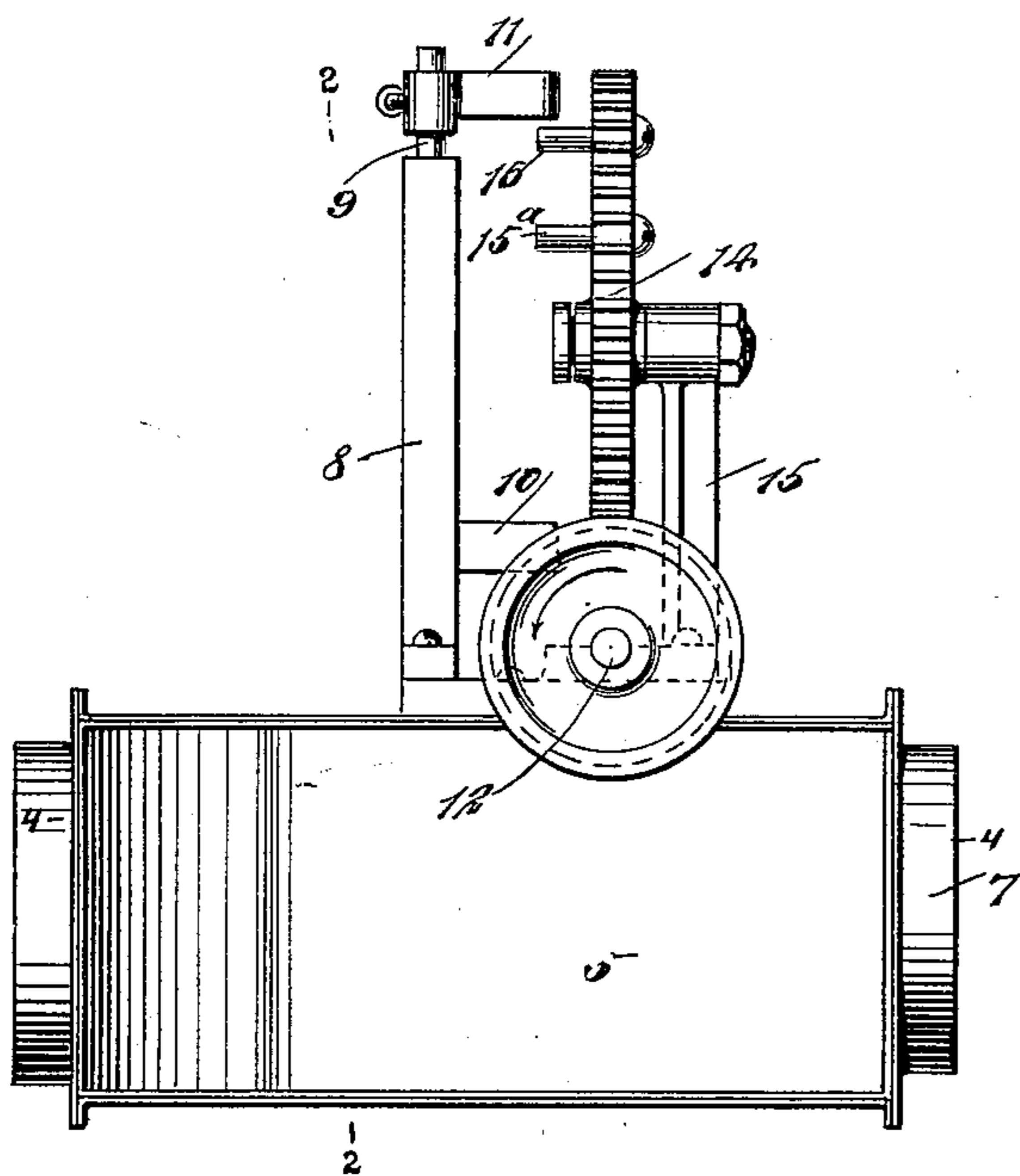


Fig. 1

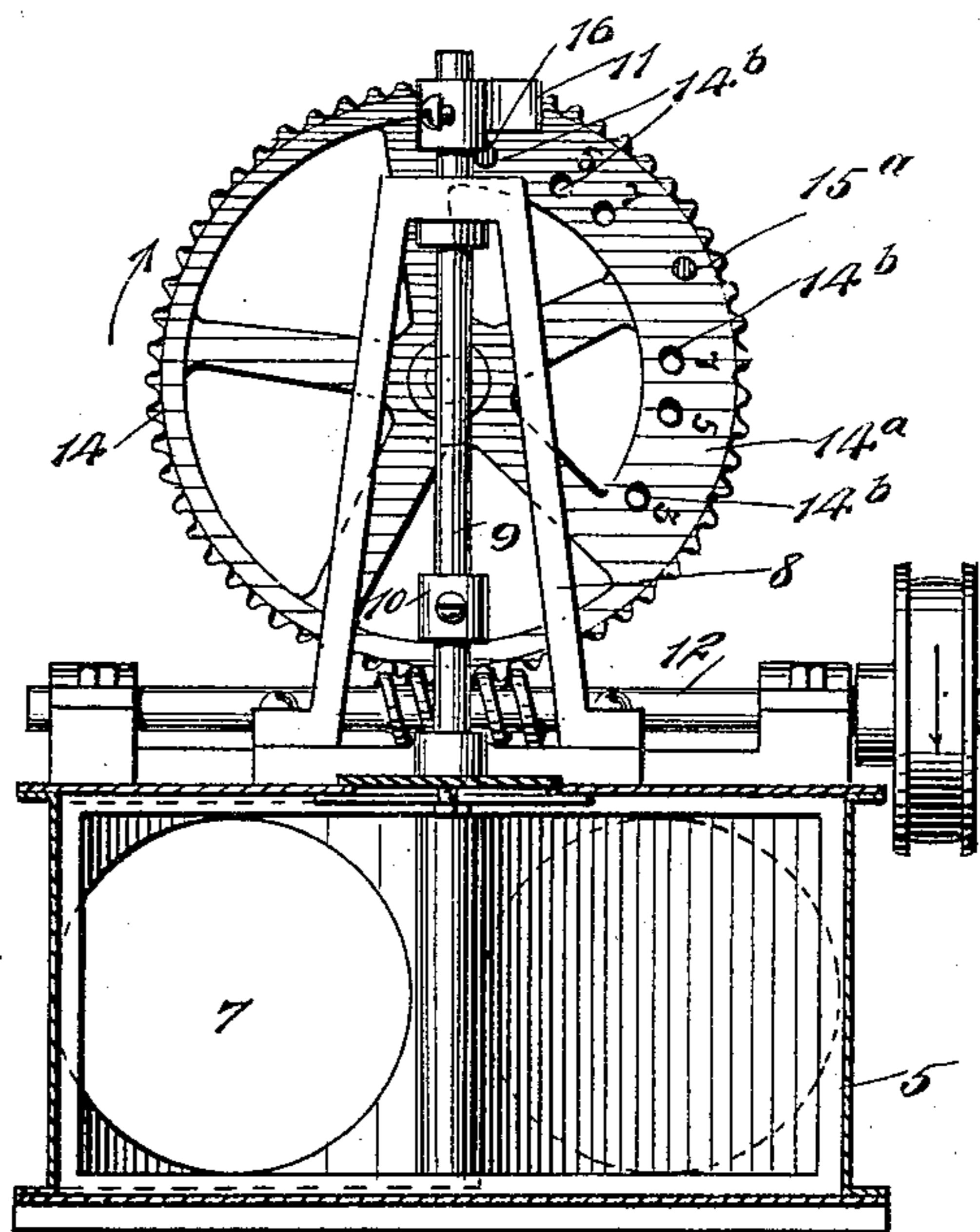


Fig. 2

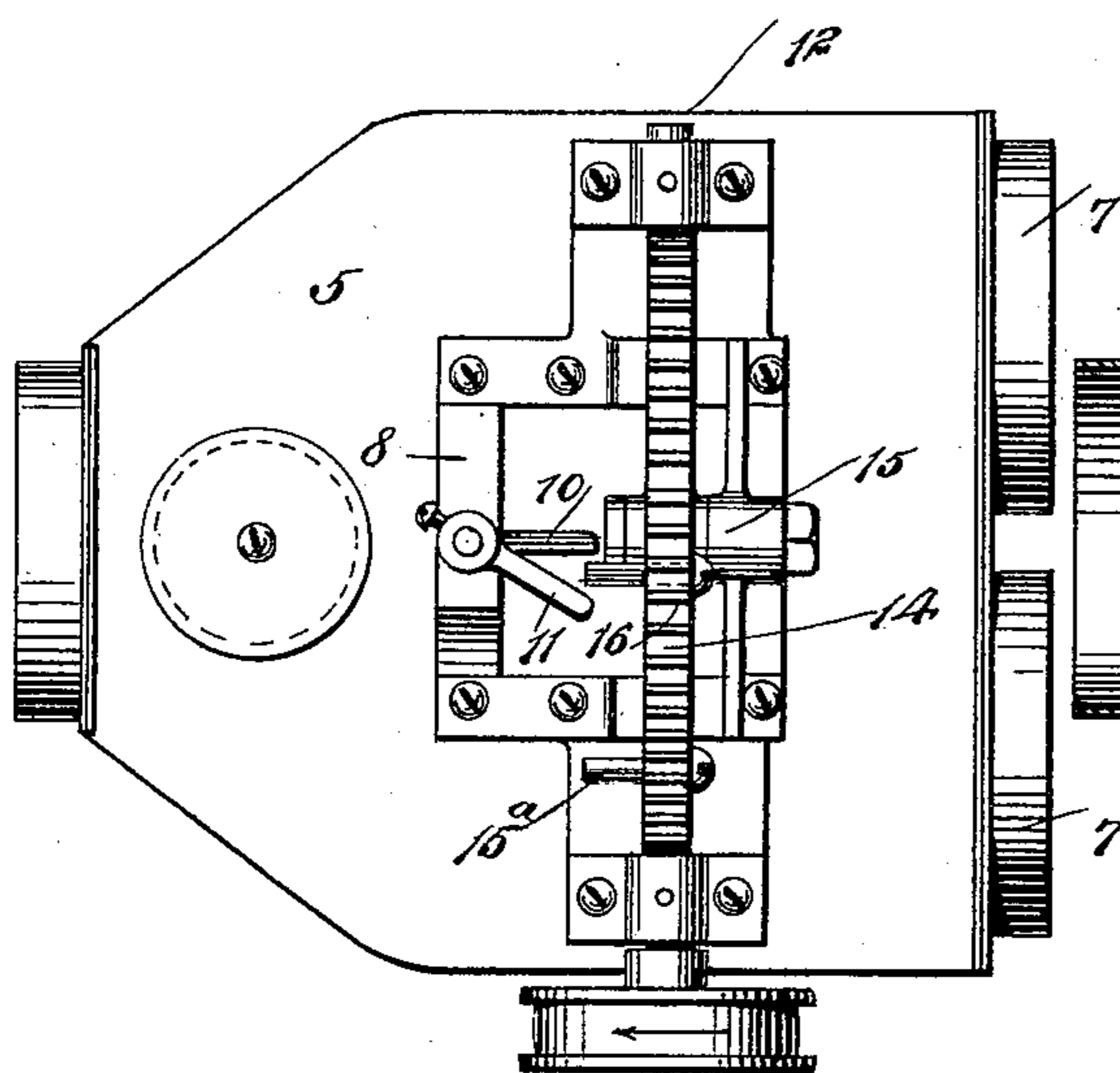


Fig. 3

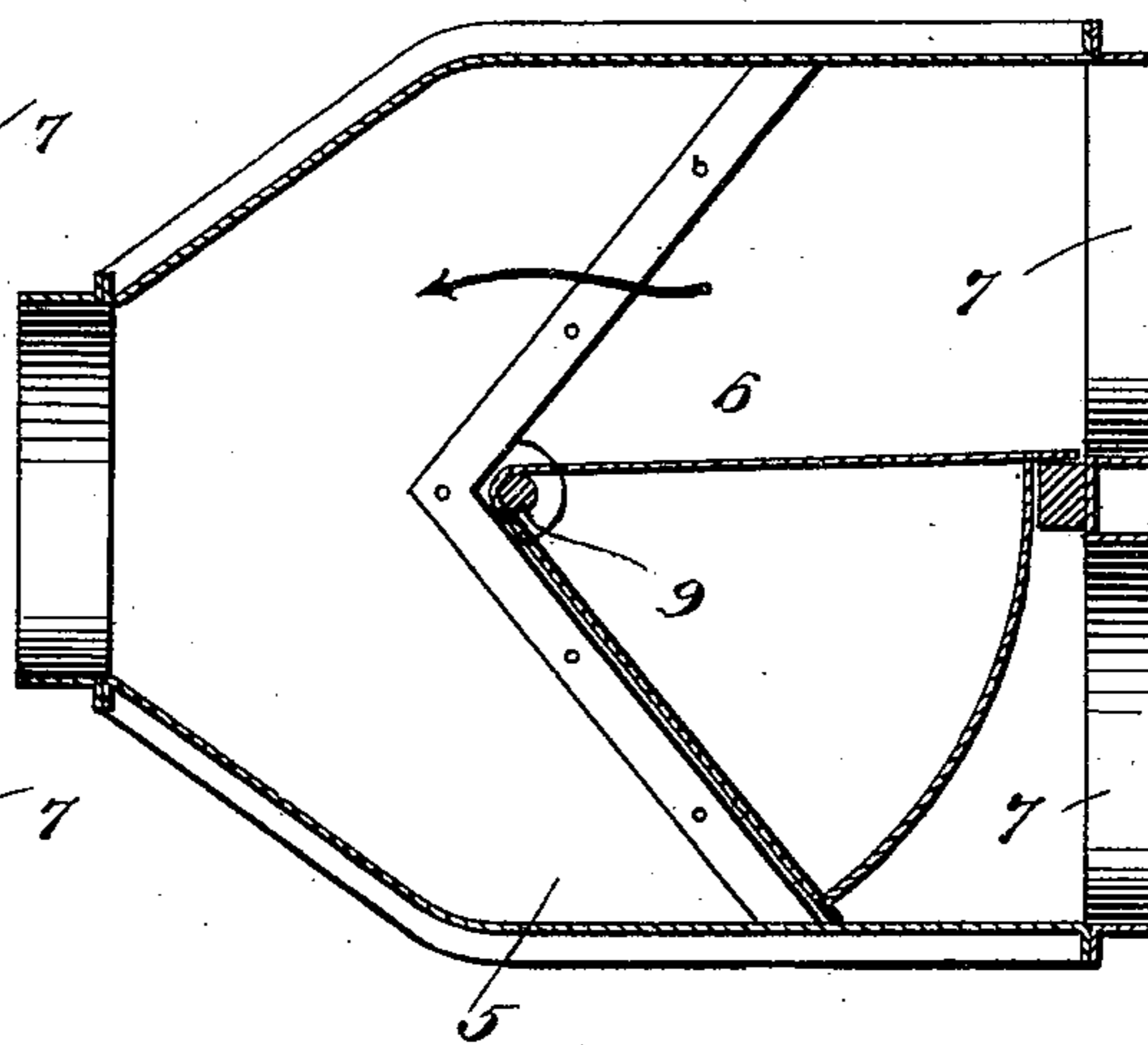


Fig. 4

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# UNITED STATES PATENT OFFICE.

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## VALVE-GEAR FOR PNEUMATIC COTTON-FEEDERS.

SPECIFICATION forming part of Letters Patent No. 646,248, dated March 27, 1900.

Application filed December 11, 1899. Serial No. 739,929. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. WILLIAMS, a citizen of the United States, and a resident of Waco, in the county of McLennan and State of Texas, have invented a new and Improved Valve-Gear for Pneumatic Cotton-Feeders, of which the following is a full, clear, and exact description.

This invention relates to a valve-gear adapted especially to cotton-elevators for controlling the blast of air therefor—for example, to the cotton-elevator disclosed in my application filed March 20, 1899, Serial No. 709,779, which has issued as Patent No. 641,176, dated January 9, 1900.

The special object of this invention is to provide means for operating the air-blast, by which means the valve may be held in one position longer than in the other, thus adapting it to a battery of elevators formed in divisions operating alternately, in which divisions there are unequal numbers of elevator-sections and which therefore requires that in one division the air-blast be applied longer than in the other, all of which will be understood in connection with the copending application referred to.

This specification is the disclosure of one form of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the gear. Fig. 2 is a front elevation, with parts in section, on the line 2 2 of Fig. 1. Fig. 3 is a plan view, and Fig. 4 is a section of the valve horizontally on the line 4 4 of Fig. 1.

The valve-casing 5 and the valve 6 may be of any desired form, except that the casing has two inlets 7 communicating, respectively, with the divisions of the battery of elevators referred to hereinbefore and that the valve is mounted to oscillate alternately to uncover the said inlet-openings 7.

On the casing 5 is mounted a frame or column 8, in which the upper end of the stem or shaft 9 of the valve is mounted to rock. This stem is also mounted in a bearing at the base of the frame 8 and is attached to the

valve, as shown. Fixed to the stem 9, directly above the base of the frame 8, is an arm 10, adjustably held on the stem by a set-screw, as shown. The upper end of the stem projects above the frame 8, and a second arm 11 is fastened to the stem 9 above the frame by means of a set-screw similarly to the arm 10. These arms 10 and 11 are set at an acute angle to each other. (See Fig. 3.)

Mounted on the top of the casing 5 is a horizontally-disposed continuously-revoluble worm-shaft 12, which meshes with a worm-wheel 14, mounted to turn on a pedestal 15, standing on the casing 5. This worm-wheel 14 has a portion 14<sup>a</sup> of its rim or periphery widened, as shown, and formed with a number of orifices 14<sup>b</sup>, set at different positions radially thereon and all disposed in the same circumferential line. The wheel 14 is provided at approximately the middle of the widened part 14<sup>a</sup> with a rigid pin 15<sup>a</sup>, projecting forward from the wheel, so that its path of movement will coincide with the arm 11 of the stem 9, thus throwing the arm and turning the stem as the pin 15<sup>a</sup> engages with the arm. The pin 15<sup>a</sup> is disposed outward from the line in which the orifices 14<sup>b</sup> are disposed. A second pin 16 is provided and is capable of being removably yet rigidly fitted in any one of the openings 14<sup>b</sup>. As here shown, the pin 16 has its path of movement in line with the arm 10, so that as the wheel 14 turns the pin 16 will strike the arm and rock the stem 9; but it will be seen that this rocking movement of the stem will be opposed to that occasioned by the engagement of the pin 15<sup>a</sup> with the arm 11.

According to the arrangement illustrated the six openings 14<sup>b</sup> are disposed three on each side of the stationary pin 15<sup>a</sup>, and in practice these openings 14<sup>b</sup> on each side of the pin will be designated by such numbers as those shown—namely, "3," "5," "7"—produced on the widened portion 14<sup>a</sup> of the wheel 14. These numbers refer to the number of elevator-sections in the battery with which the valve mechanism is used, and the openings 15<sup>b</sup> are formed on each side of the pin 15<sup>a</sup> to facilitate placing the smaller number of sections in the right-hand division and the greater number of sections in the left-

hand division, or vice versa, the smaller number of sections in the left-hand division and the greater number of sections in the right-hand division. Now when the valve-gear is  
 5 used in connection with a battery of elevator-sections of unequal number—for example, three sections—the parts are adjusted, as shown in the drawings—that is, the arm 11 is placed in the path of the pin 15<sup>a</sup> and the  
 10 pin 16 is placed in one of the openings 14<sup>b</sup>, which opening is adapted to the battery of three elevator-sections, as mentioned above. The arm 10 is then placed in the path of the pin 16. As the wheel 14 turns, therefore, in  
 15 the direction of the arrow in Fig. 2 the pin 15<sup>a</sup> in moving past the arm 11 will engage the arm and throw the valve to the position shown in Fig. 2. Then as the revolution of the wheel continues the pin 16 will move be-  
 20 low the arm 11 without actuating the same; but when it approaches the arm 10 it will contact therewith and throw the valve 6 to the position opposed to that shown in Fig. 2. The next movement of the valve is brought  
 25 about by the return of the pin 15<sup>a</sup> to the upper end of the stem 9, where it engages the arm 11 and throws it back to the position shown in Fig. 2. It will thus be seen that the valve is kept in one position longer than  
 30 in another, and it is in this manner that the object of my invention is attained. Should the valve-gear be used in connection with a battery of elevator-sections of an even number, both of the arms 10 and 11 should be set  
 35 in the path of the pin 15<sup>a</sup>. It will thus be seen that the valve will be operated at equal intervals.

Having thus described my invention, I claim as new and desire to secure by Letters  
 40 Patent—

1. The combination of a rocking valve stem or shaft, two arms attached thereto, a wheel mounted to turn continuously in proximity

to the shaft, a pin fastened permanently to the wheel and adapted to engage one of the  
 45 arms on the stem, and a second pin adjustably mounted on the wheel and adapted to engage the other arm on the stem.

2. The combination of a rocking or oscillating valve, a wheel mounted to turn adjacent  
 50 thereto, a pin mounted permanently on the wheel and adapted to actuate the valve in one direction, and a pin mounted adjustably on the wheel and adapted to actuate the valve in the other direction.

3. The combination of a rocking valve, a wheel having a number of openings formed therein, a pin permanently attached to the  
 55 wheel, and a second pin capable of being adjustably secured in any one of the openings 60 of the wheel, the said pins serving to drive the valve in the manner specified.

4. The combination of a rocking valve having two projecting parts, and a continuously-revolving member, the axis of which is situated intermediate the said projecting parts  
 65 of the valve, the revolving member having means thereon arranged alternately to actuate the said projecting parts of the valve to rock the valve.

5. The combination of a rocking valve having two parts projecting therefrom, a wheel mounted adjacent to the valve with its axis intermediate the said projecting parts, and  
 70 two pins attached to the wheel at different 75 points thereon, the pins being adapted respectively to strike the said projecting parts of the valve, to operate the same.

In testimony whereof I have signed my name to this specification in the presence of  
 80 two subscribing witnesses.

GEORGE W. WILLIAMS.

Witnesses:

A. L. ELLIOTT,  
 J. M. MAYER.