

W. H. GUILD.
ROTARY PUMP.

No. 35,604.

Patented June 17, 1862.

Fig. 7.

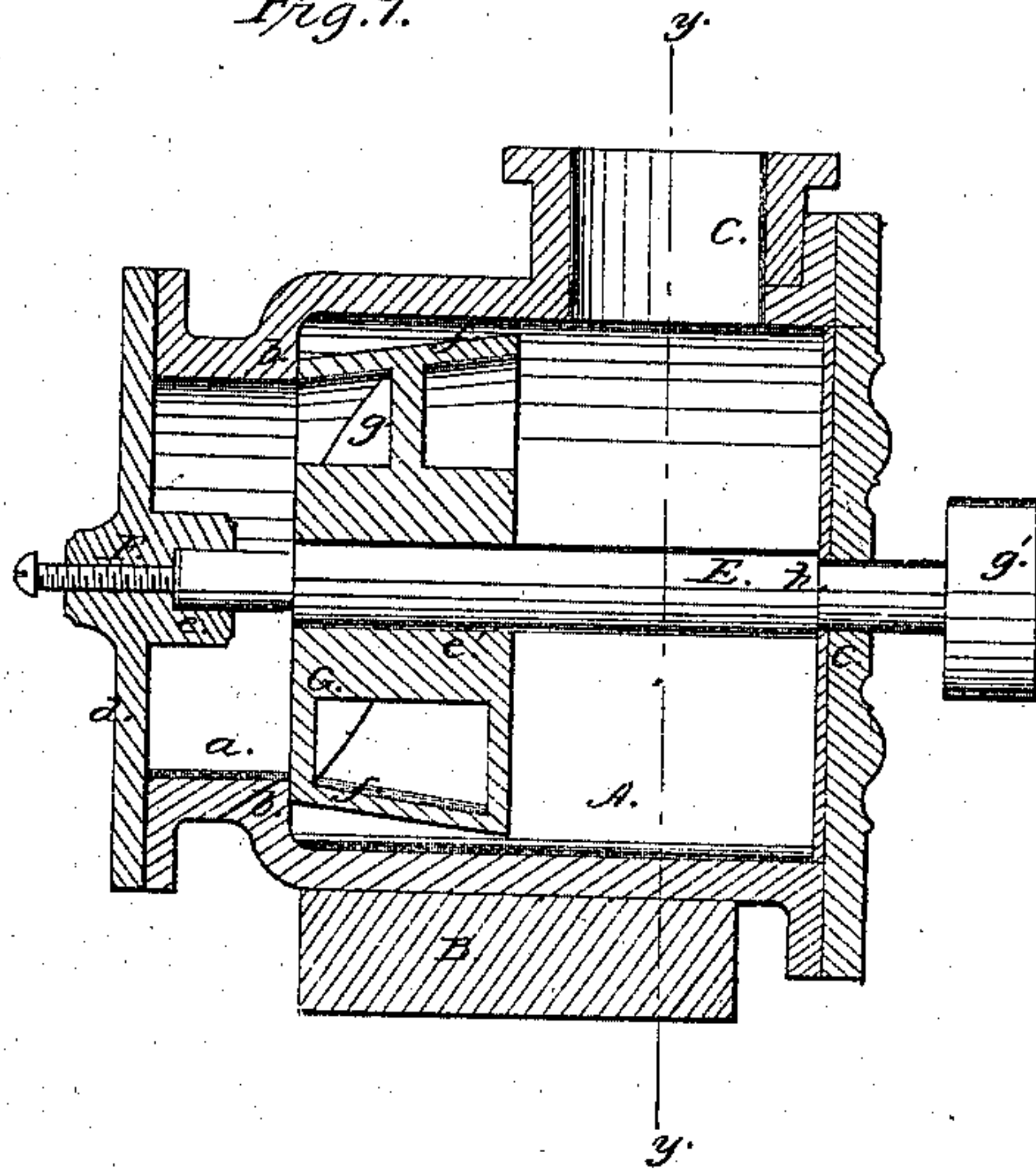


Fig. 2.

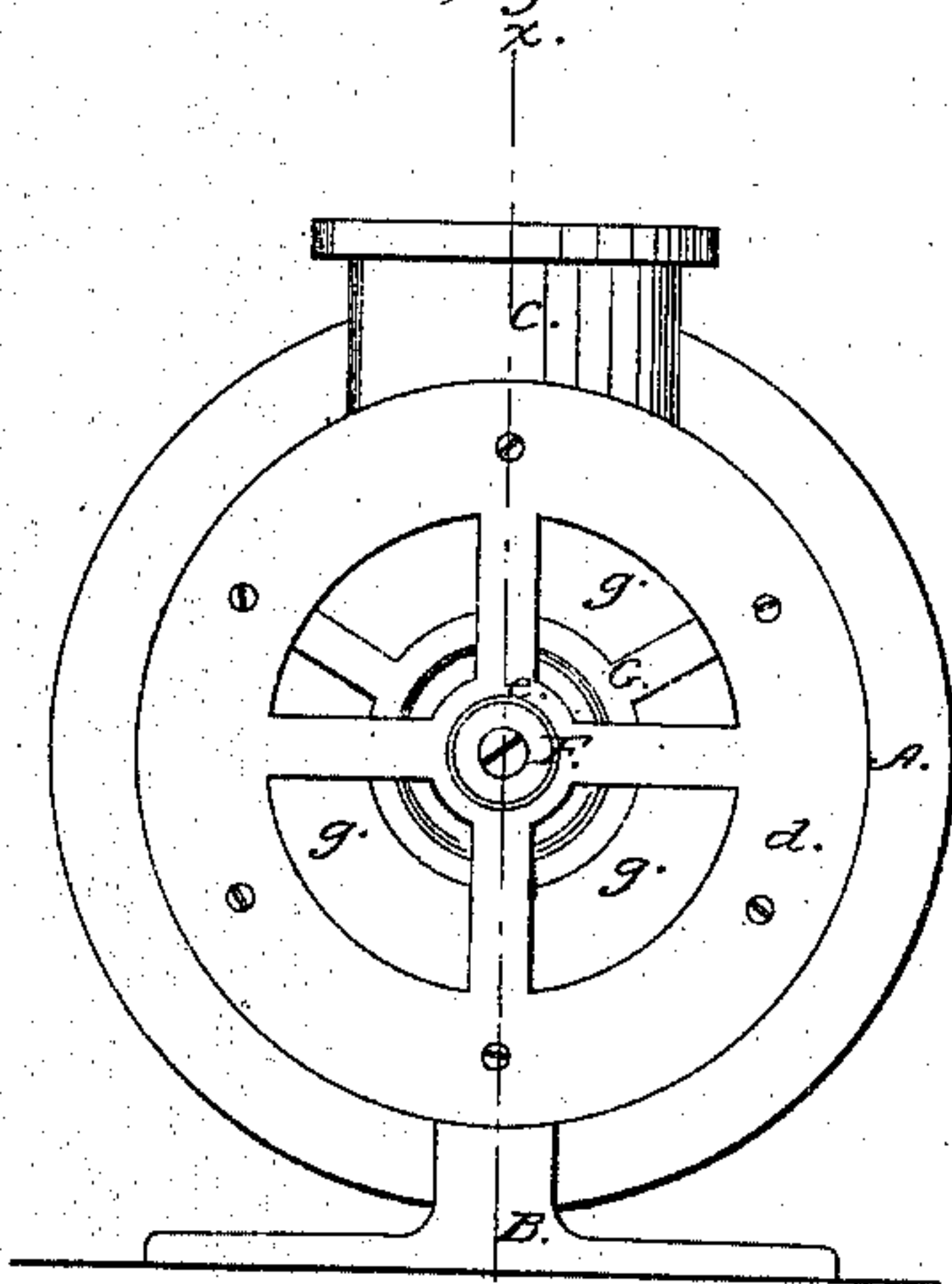
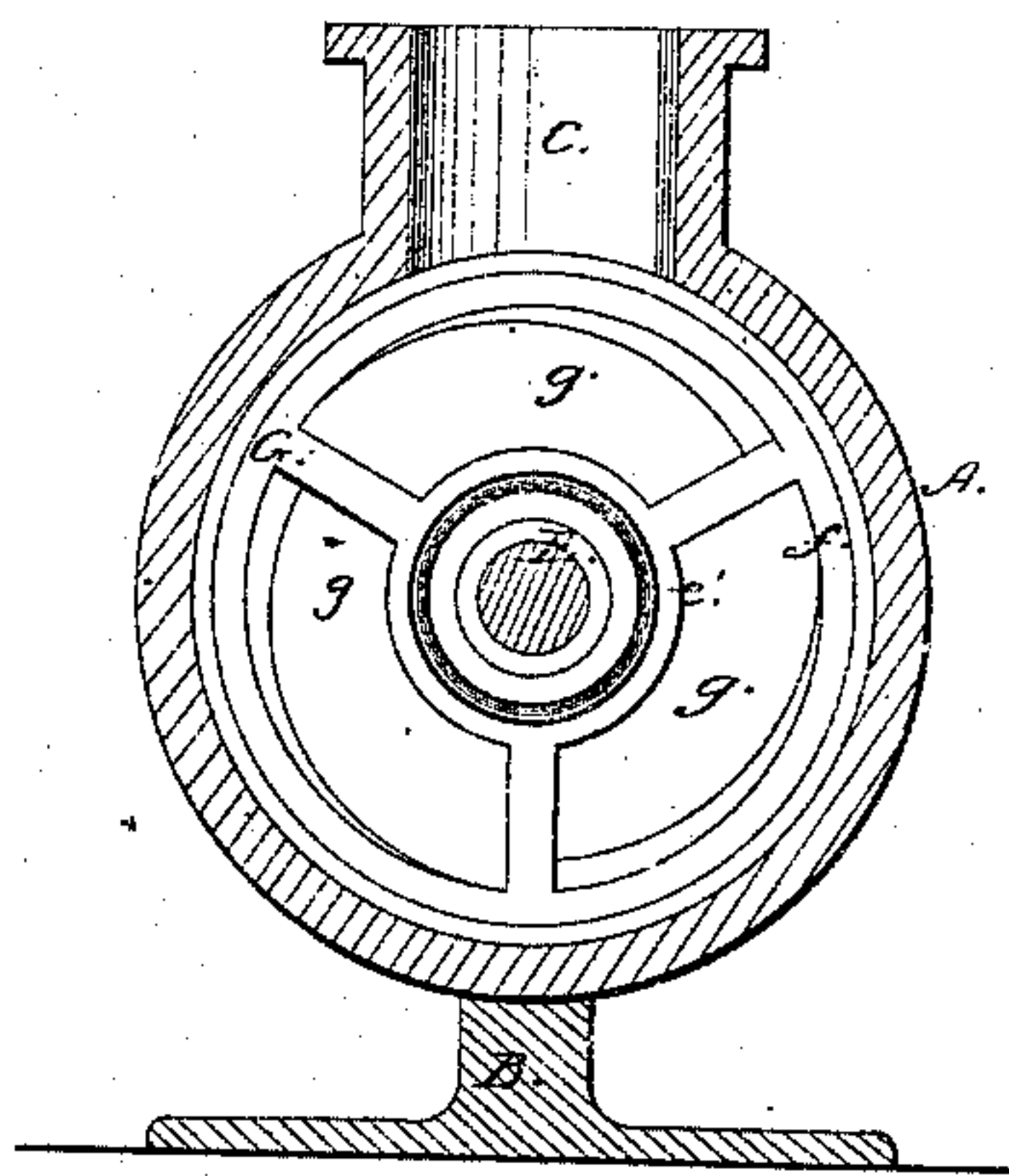


Fig. 3.



Witnesses:

J. H. Coombs.
Wm. W. Winton.

Inventor:

Wm. H. Guild.

UNITED STATES PATENT OFFICE.

WILLIAM H. GUILD, OF BROOKLYN, E. D., NEW YORK.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. 35,604, dated June 17, 1862.

To all whom it may concern:

Be it known that I, WILLIAM H. GUILD, of Brooklyn, E. D., in the county of Kings and State of New York, have invented a new and Improved Rotary Pump; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is an end view of the same; Fig. 3, a transverse vertical section of the same, taken in the line *y y*, Fig. 1.

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

This invention consists in the employment or use of a wheel provided with spiral flanges or arms and fitted on a horizontal shaft, which is placed within a cylindrical case, and with the wheel arranged in such a manner that both will have a proper bearing and suitable provision allowed for wear, so that the wheel will rotate without any loss from back action or leakage, and a very efficient, simple, and economical pump obtained—one capable of lifting and forcing the water and operating without the liability of becoming choked or clogged by substances which may be held in suspension in the water or drawn up with it.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a horizontal cylindrical case which is provided with a proper base, B, and has a cylindrical flange, C, at its upper part to receive an eduction-pipe. The case A is of cast metal, and it is not of equal diameter throughout, its induction end *a* being smaller than the other part and admitting of a shoulder, *b*, being within the cylinder, said shoulder extending circumferentially all around the case.

E is a shaft which is fitted longitudinally and centrally within the case A, one end of the shaft passing through the head *c*, which is secured to the large end of the case. The opposite end of the shaft is fitted in a head, *d*, which is secured to the smaller and induction end of the case and works on a screw center, F, which passes into a hub, *e*, at the

center of the head *d*. The head *c*, at the larger end of the case, is solid, so as to close it perfectly tight; but the smaller head, *d*, at the opposite end, is open to allow the water to pass freely into the case.

On the shaft E there is placed a wheel, G, which is formed of a hub, *e'*, connected to a rim, *f*, by spiral flanges or arms *g*. Three of these flanges are shown in the drawings, Figs. 2 and 3; but more or less may be used. The rim *f* is slightly inclined, and its smaller end bears against the shoulder *b*, as shown clearly in Fig. 1. The end of the shaft E projects through the head *c* sufficiently far to admit of a driving-pulley, *g'*, being placed on it, and a shoulder, *h*, is formed on the shaft, which bears against the inner side of the head *c*, as shown in Fig. 1.

The operation is as follows: The shaft E is rotated by any convenient power, and the case A may be either submerged in the water to be elevated or an induction-pipe may be attached to its smaller end. The eduction-pipe, which is attached to the flange C, should first be filled with water, and when the wheel G is rotated the sucking and forcing action commences. The wheel in forcing the water through the eduction-pipe of course induces a suction in the induction-pipe or induction end of the case A. In consequence of the end of the rim *f* of the wheel bearing against the shoulder *b* within the case A, a complete cut-off or partition is obtained between the induction and eduction parts of the case, and all loss of power or effect in the operation by reaction or leakage is avoided, and in case of wear the end of the rim may be snugly adjusted to the shoulder *b*, the screw point or center F being screwed a little outward, and washers, if desirable, placed on the shaft E adjoining the shoulder *h*. The action of the wheel itself, however, will have a tendency to keep its rim *f* in close contact with *b*.

I am aware that spiral or screw flanges have been used for raising water; but I am not aware that the same have ever been applied to or used in a wheel arranged within a case having two different diameters, so as to form a shoulder or bearing for the wheel, as herein described.

I do not claim, therefore, the employment

or use of screw or spiral flanges for the purpose specified; but

I do claim as new and desire to secure by Letters Patent—

The wheel G, composed of a series of spiral arms or flanges, *g*, connected with a rim, *f*, in combination with the cylindrical case A, having two different diameters to form a shoul-

der or bearing, *b*, for the wheel, which, with its shaft E, is fitted within said case, substantially as and for the purpose herein set forth.

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Witnesses:

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