

(No Model.)

2 Sheets—Sheet 1.

J. T. PAGET.
STRAIGHTWAY VALVE.

No. 529,302.

Patented Nov. 13, 1894.

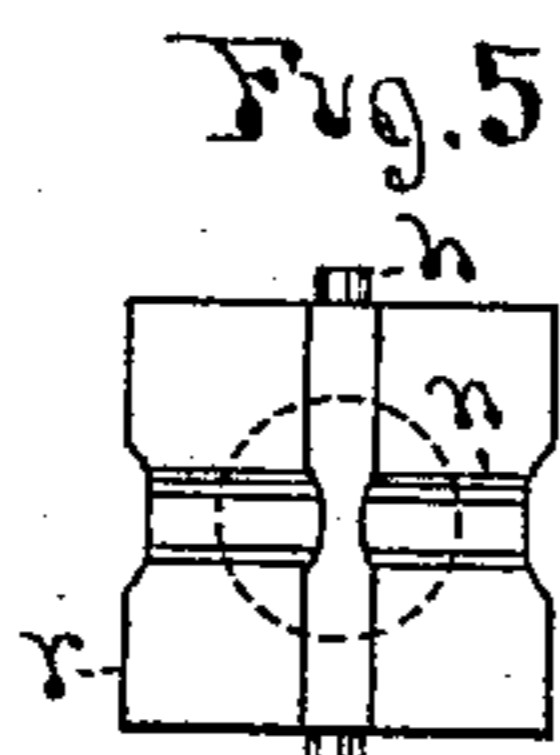
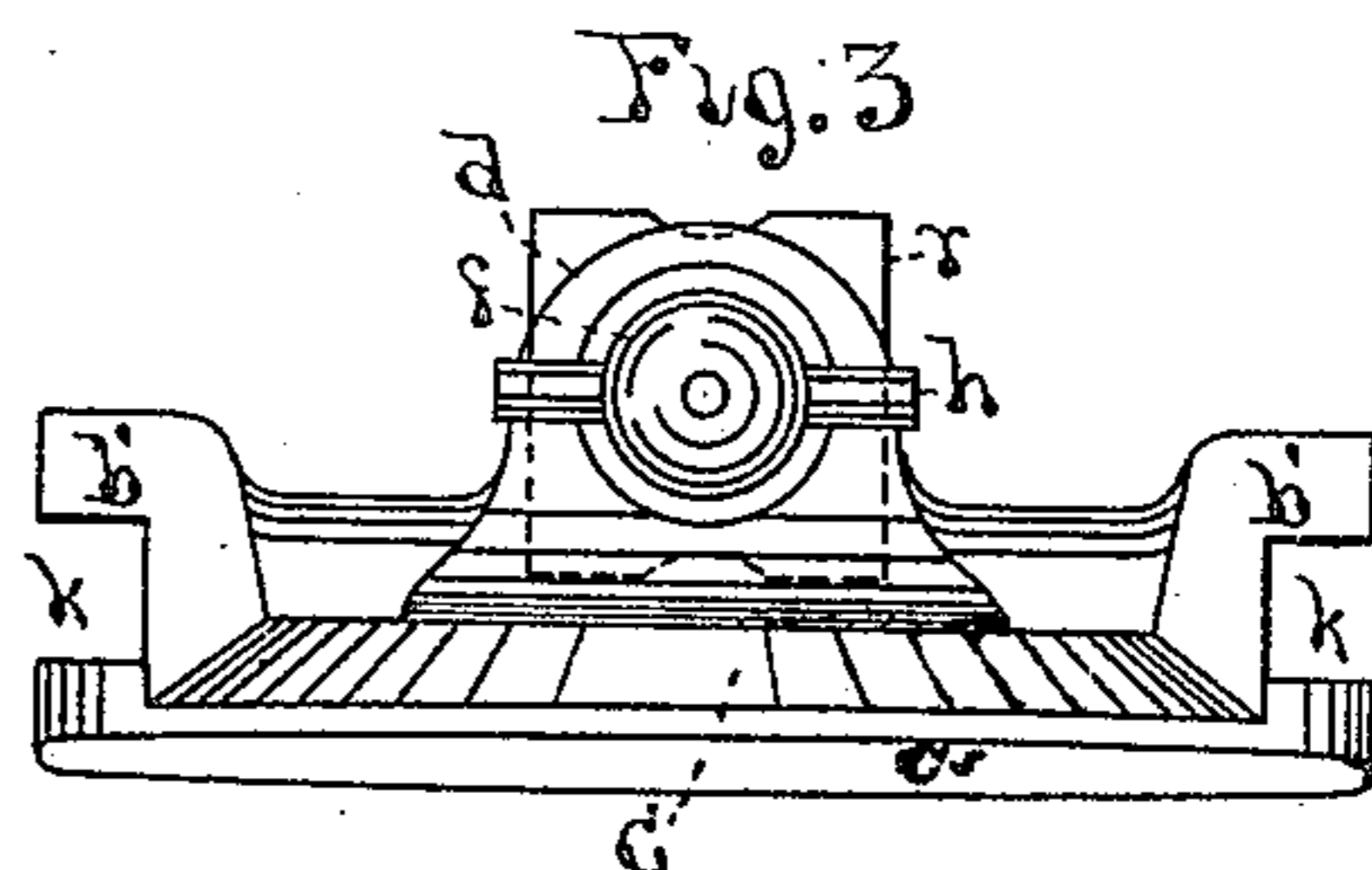
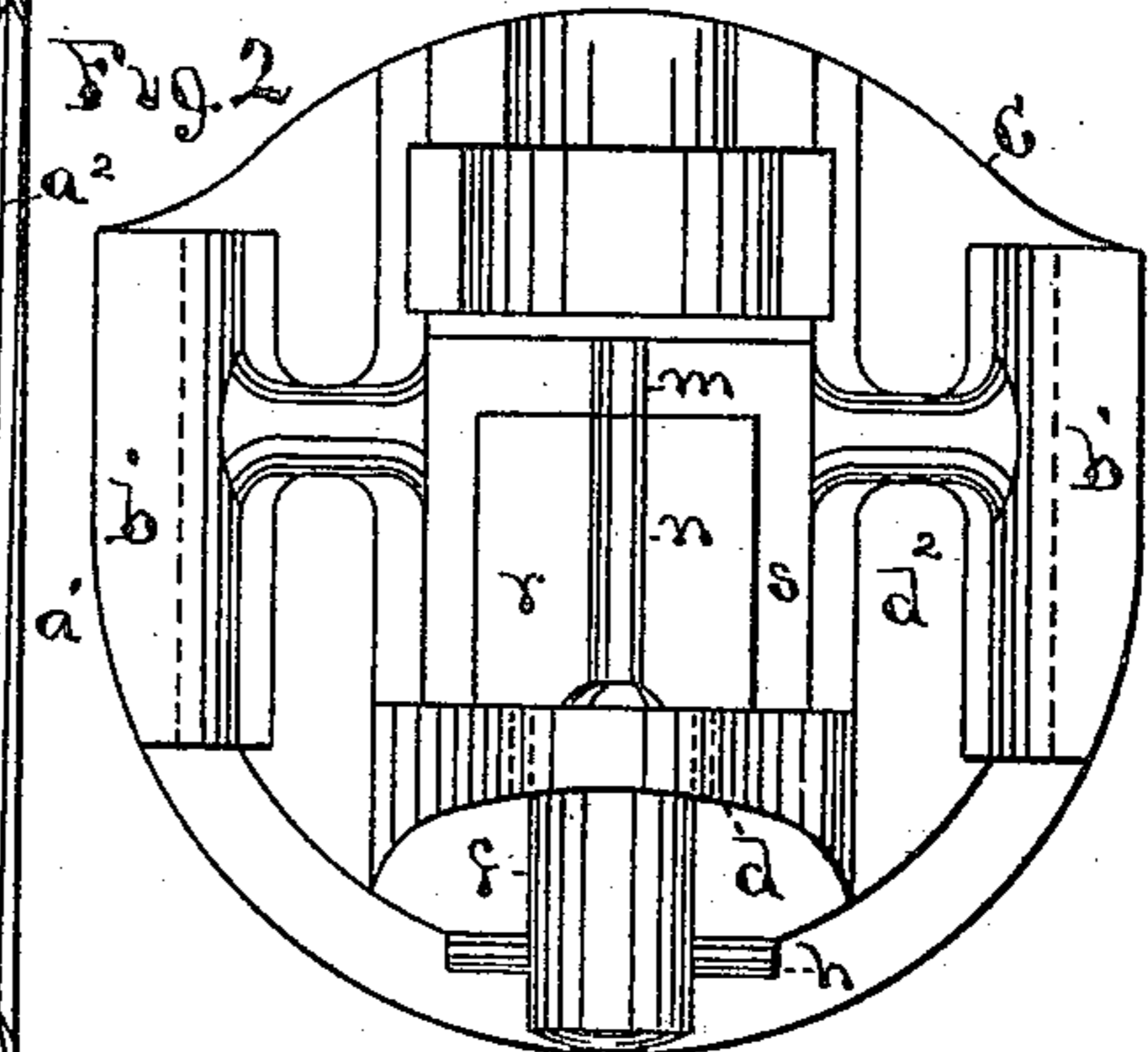
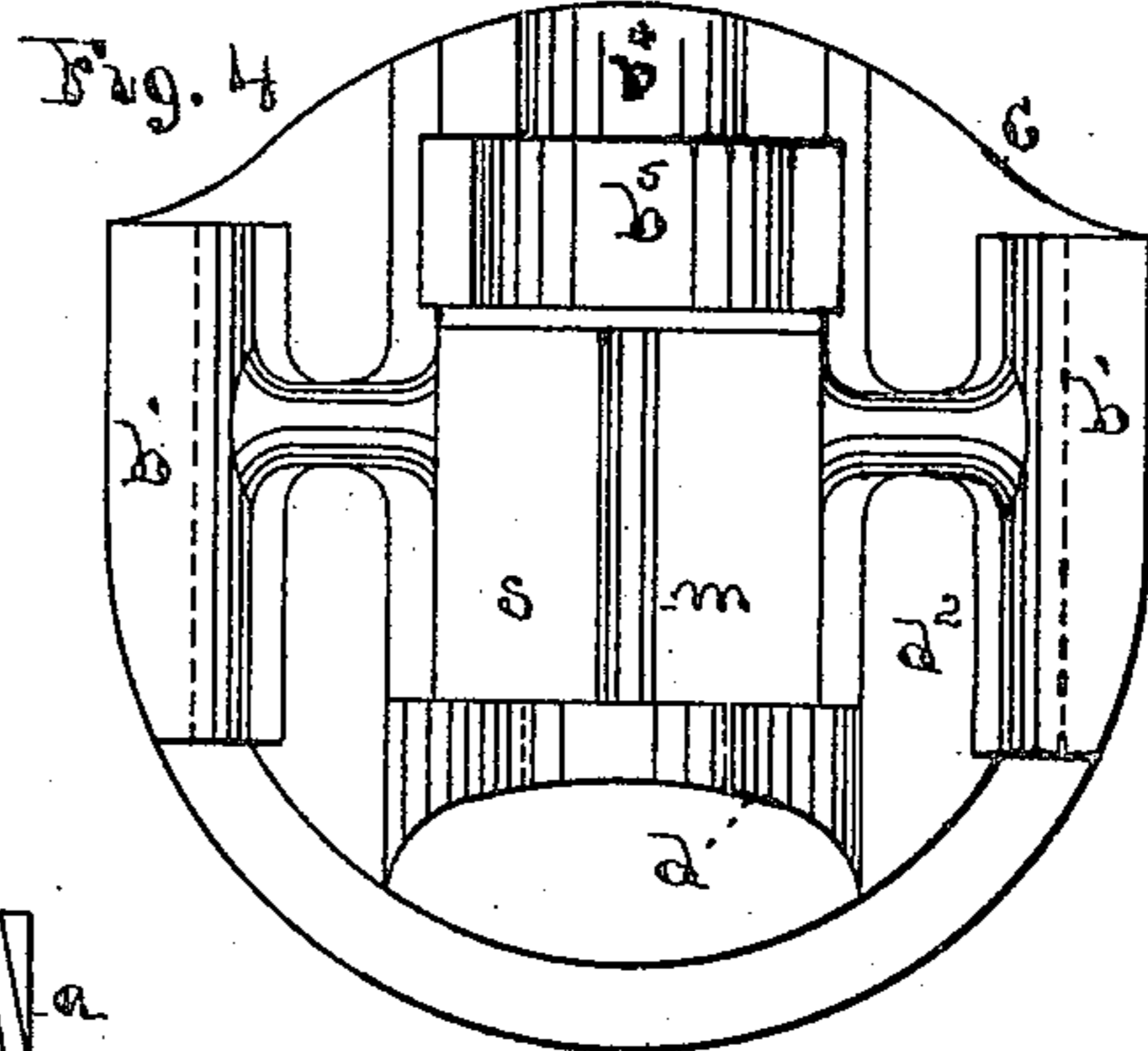
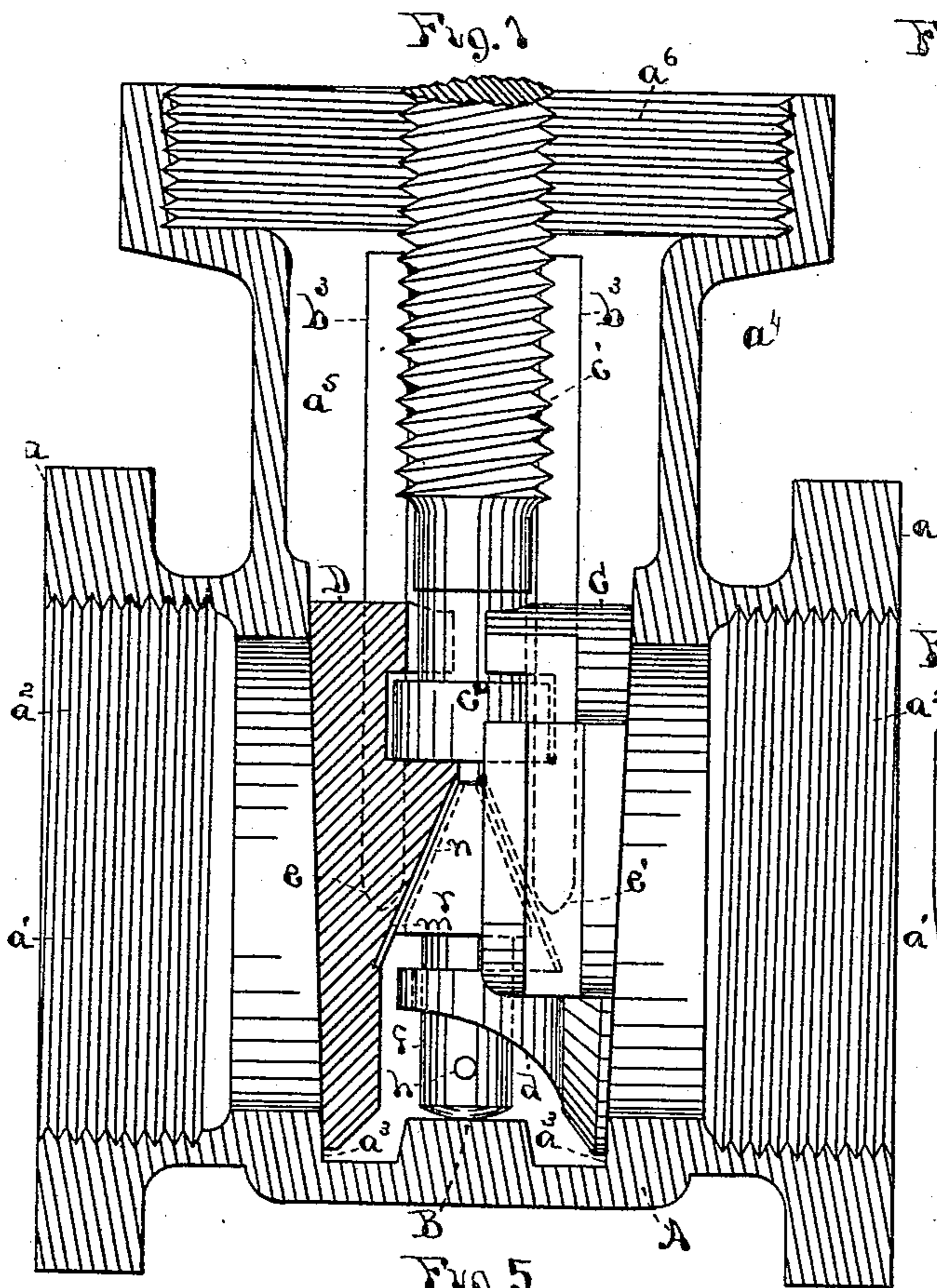


Fig. 6

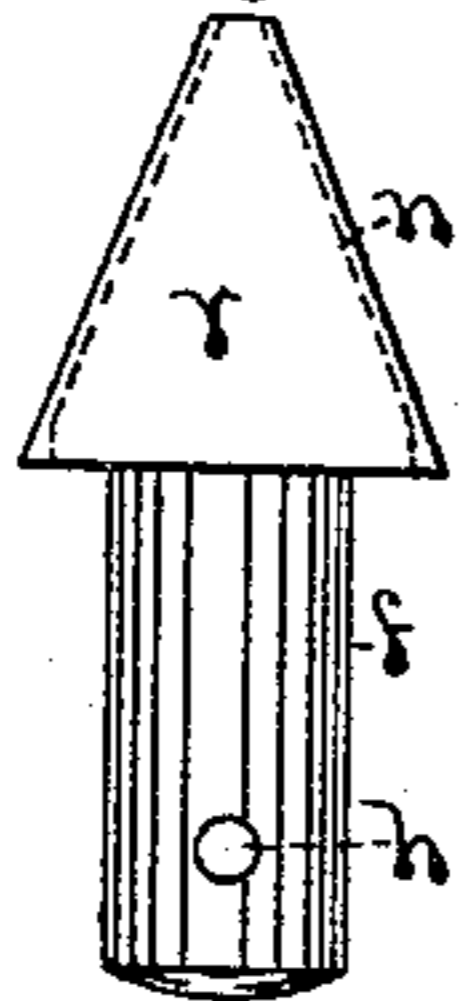
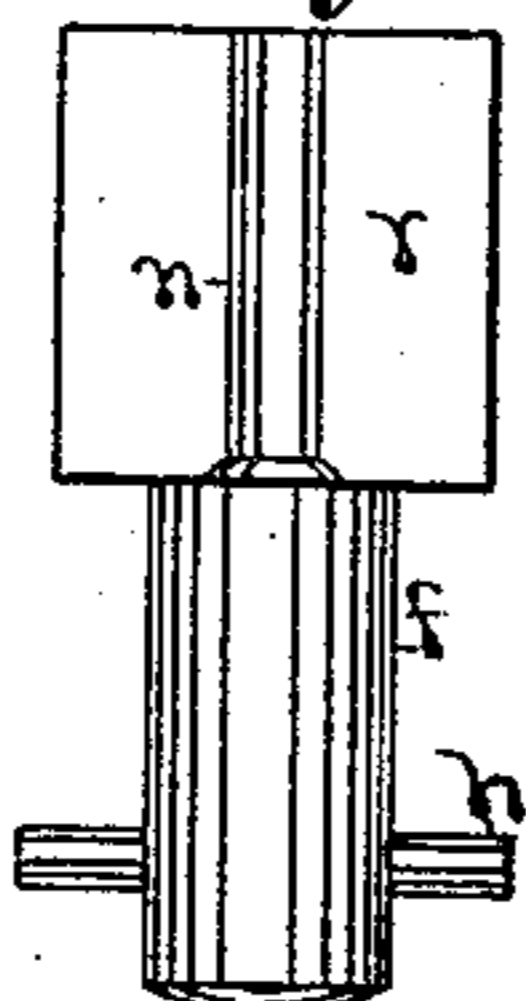


Fig. 7



Witnesses

George Becker.
Henry W. Shugg Jr.

Inventor

Joseph T. Paget

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2 Sheets—Sheet 2.

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Fig. 8

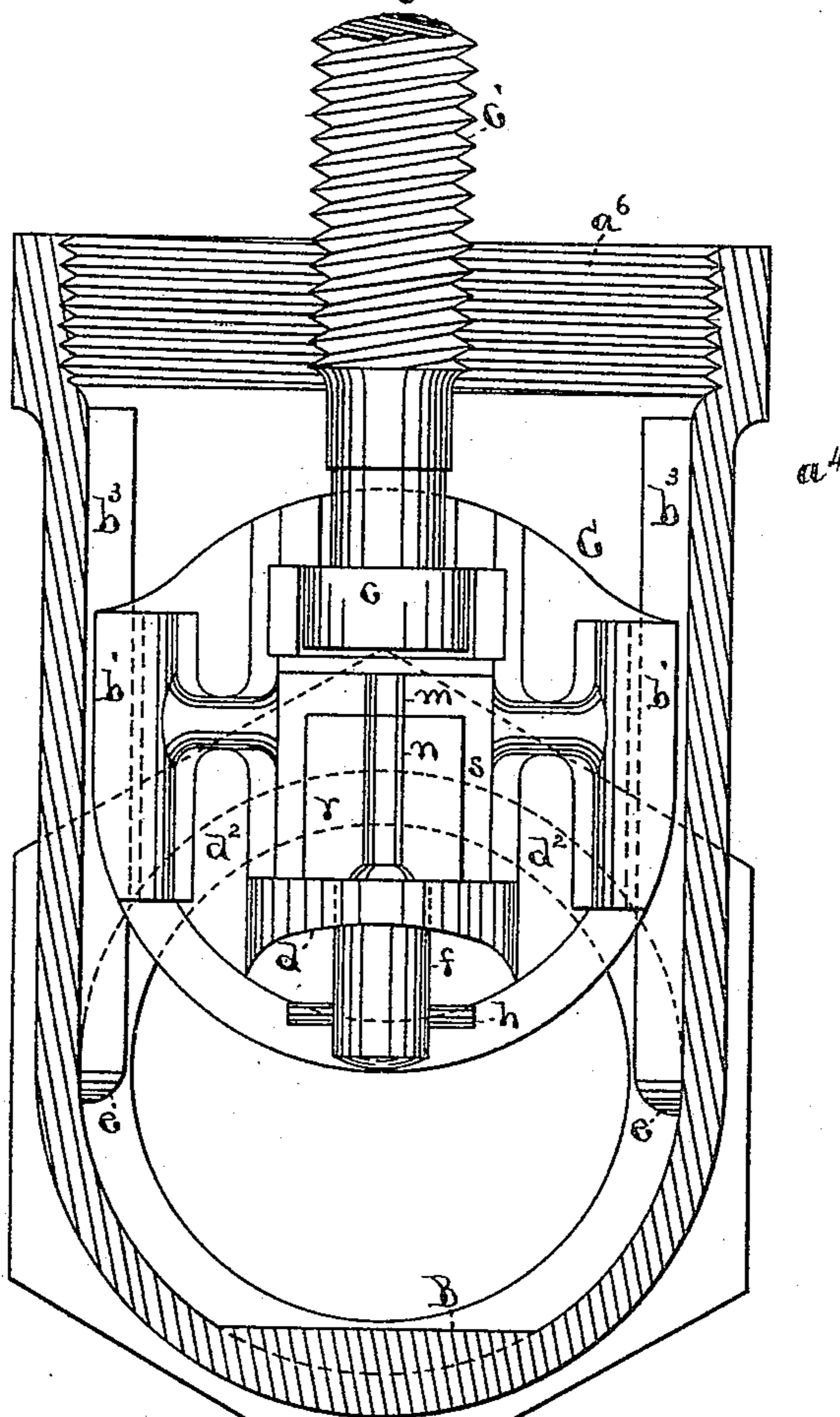
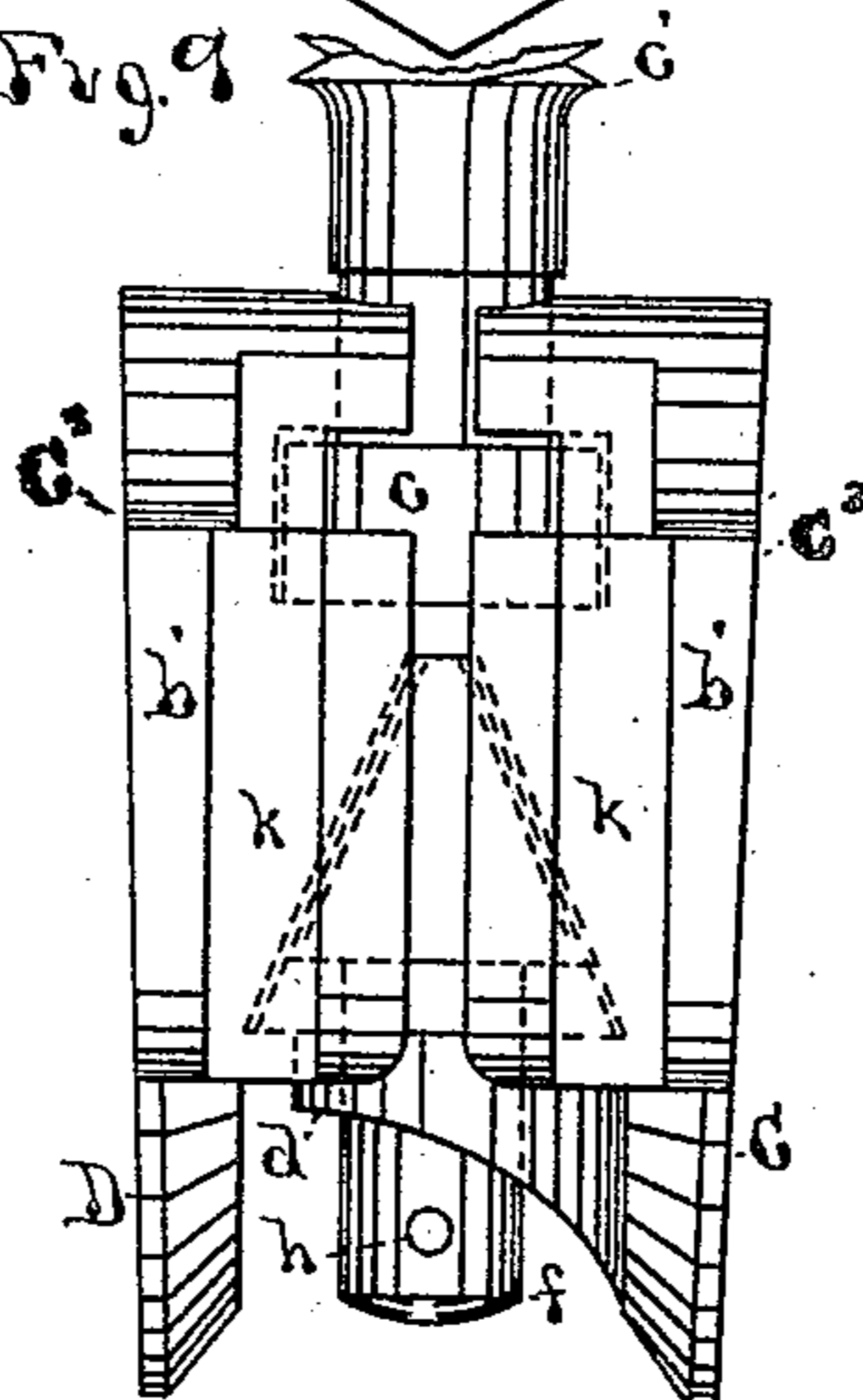


Fig. 9



Witnesses

George Becker.
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Joseph T. Paget

UNITED STATES PATENT OFFICE.

JOSEPH T. PAGET, OF BOSTON, MASSACHUSETTS.

STRAIGHTWAY-VALVE.

SPECIFICATION forming part of Letters Patent No. 529,302, dated November 13, 1894.

Application filed April 27, 1891. Renewed September 7, 1894. Serial No. 522,342. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH T. PAGET, a citizen of the United States, residing at Dorchester, (Boston,) in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Straightway-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is an improvement upon the straightway valve, described in the patent to Benjamin Radford and Daniel Sawyer, dated February 2, 1869, No. 86,447, and also upon my existing patent, dated January 12, 1886, No. 334,184.

My present invention consists of an improvement in the form of the spreading device and in the mode of attaching the same to one of the disks.

Referring to the drawings, Figure 1, illustrates in vertical section, the valve casing and in side elevation the two disks with the spreading device attached to one of them as hereinafter described. One of the disks is shown, in section, so that the action of the spreading device may be more clearly understood. Fig. 2, is a view in elevation of one of the disks removed from the valve with the spreading device or wedge attached thereto as hereinafter described. Fig. 3, is a plan of the same, and also shows the concaved form of the wedge. Fig. 4, is also a view in elevation of the disks, without the wedge and shows the grooves in the inclined surfaces against which the wedge acts. Fig. 5, is a plan view, and Figs. 6, and 7, are views in elevation of the wedge and show its form in detail. Fig. 8, is a crosssection through valve casing, and Fig. 9, is a side elevation of the valve disks detached.

"A" is the valve casing. It has the extensions—"a"—which contain the screw threads—"a'"—and form the steam or water ways—"a²", the valve seats—"a³"—and the upward extending section—"a⁴"—which contain the spaces—"a⁵"—into which the disks are lifted to open the valve, and the screw thread—"a⁶"—for receiving the valve cap. Thus far, the construction is similar to the ordinary "Peet valve."

The disks—C, D—are substantially coun-

terparts of each other, with one exception, which will be hereinafter noted. Each has the flat surface—C³—which is adapted to be brought in contact with a valve seat, and each has the outward extending guiding projections—"b'"—on each side—which are adapted to enter the side guiding recesses, formed between the two projecting arms—"b³",—"b³"—on each side of the valve casing. They each have the rounded cavity—"b⁵", of semi-cylindrical shape and the opening—"b⁴"—therefrom. Each of these cavities receives the end—"C²"—of the spindle—"C'"—by which the disks—C, D—are operated. One of the disks is adapted however to support the wedge—"r"—in preference to the other, in order that it may be permanently attached to some portion of the valve, so that it cannot be easily lost when the valve is taken apart for any purpose. This result is attained by forming a collar—"d"—upon the inner side of one of the disks, said collar being cored or drilled out a suitable size, to receive the spindle—"f"—extending downward from the wedge—"r". There extend outward from each side of spindle—"f"—ears—"h"—which are either cast on, or driven into said spindle. To secure the wedge to one of the disks it will first be necessary to pass the wedge spindle—"f"—through the collar—"d". If the ears are cast on to said spindle it will first be necessary to bend them sufficiently to allow them to pass through the collar; then straighten them sufficiently to prevent the wedge from slipping out again. As the wedges are generally of brass, this result can be easily accomplished. Should it be desirable to have the ears—"h"—driven on or through the spindle—"f"—either in the form of a pin or collar, it can be easily accomplished after the wedge is in its place.

In my former patent the valve disk had no complete collar and the wedge spindle was destitute of the ears *h*, so that the wedge was not permanently attached to either disk, and was very liable to drop out and be lost whenever the valve was opened. This difficulty is entirely removed by my present invention.

Each of the disks has the wedge or inclined surfaces—"s"—opposite to each other when they are together, against which the wedge—"r"—comes in contact in spreading the disks.

This is done by means of the operating spindle —C'— which forces the disks —C—D,— downward carrying wedge —r— with them until the spindle —f— comes in contact with stop —B— when the continued action of said spindle —C'— forces the disks over the wedge and expands them against the seats.

My invention further consists of the form of wedge used—viz: a flat wedge grooved on its bearing surface. In former valves of this nature a cone has been used as a spreading device. The disadvantages of that form of wedge are, too small a bearing surface too near the center to close the disks tightly against heavy pressure, liability to clog from the effects of dirt, and other substances that adhere to the core and disks while the valve is open. The core also turns and does not always bring the same surface to bear, and thus wears uneven.

Flat wedges have been used but they have had perfectly flat surfaces and the dirt or other substances that adhere to them while the valve is open, has no chance to escape when the valve is closed, and the wedge thus acts too soon and the disks jam against the seats and remain fast before the opening is fully closed. This latter defect also applies to the core. To overcome this latter difficulty I have constructed the flat wedge —r— with groove —n— through both its bearing surfaces. I have also constructed similar grooves —m— in the inclined surfaces —S— of the disks —C, D,— against which the wedge acts. By this mode of construction I compel the wedge to act on each side of the center of the disks, and thus throw the pressure exerted by the wedge, nearer the outer edge of the disks which is where the seats come in contact with them. There is also less chance of the disks springing. The grooves —n— which I have formed in the wedge —r— coming opposite similar recesses —m— in the disks, provide a chance for any dirt or other foreign substances to escape from under the wedge while the disks are closing and thus

leave the wedge free to act and insure a tightly closed valve. I will also state that the disks are so constructed that the one without the collar —d— has a suitable recess cast therein to receive said collar and allow the backs of the disks to come in contact with each other.

Having thus described my invention, I claim and desire to obtain Letters Patent of the United States for the following improvements:

1. In a straight-way valve the disks —C, D—, having groove —m— in their inclined surfaces —s— the wedge —r— grooved as shown at —n— and located between said disks as shown, and held in position by means of collar —d— spindle f, and ears —h— substantially as described, &c.

2. In a straight-way valve the combination of the disks "C—D," with a spreading device located between them, consisting of wedge shaped head "r" grooved as shown at "n," to which is attached spindle "f," all being operated by means of hoisting spindle "C'," substantially as described.

3. In a straight-way valve the combination of the disks —C—D— grooved on their inclined surfaces as shown at —m— the spreading device located between them, consisting of wedged shaped head —r— with spindle —f— attached thereto, all operated by means of hoisting spindle —C'— substantially as described.

4. In a straight way valve the combination of the casing —A— having the guides —b³— b³— with the disks —C—D— having the ears —b'—b'— the spreading device —r— having the groove —n— the spindle —f— having the ears —h— the said spreading device —r— being attached to one of said disks by means of collar —d— spindle —f— and ears —h— substantially as described.

JOSEPH T. PAGET.

Witnesses:

GEORGE BECKER,
WILLIAM C. BECKER.