

No. 668,672.

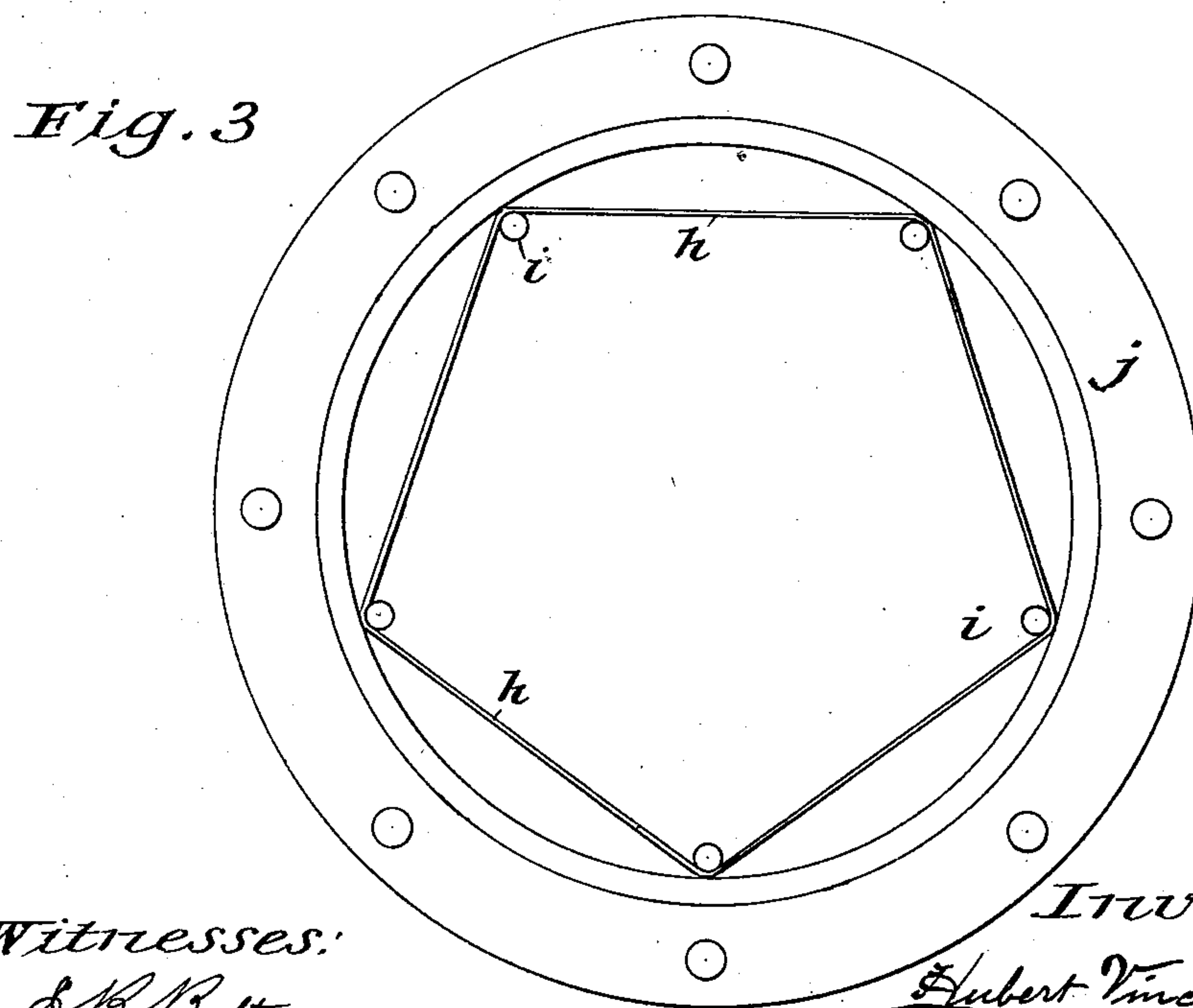
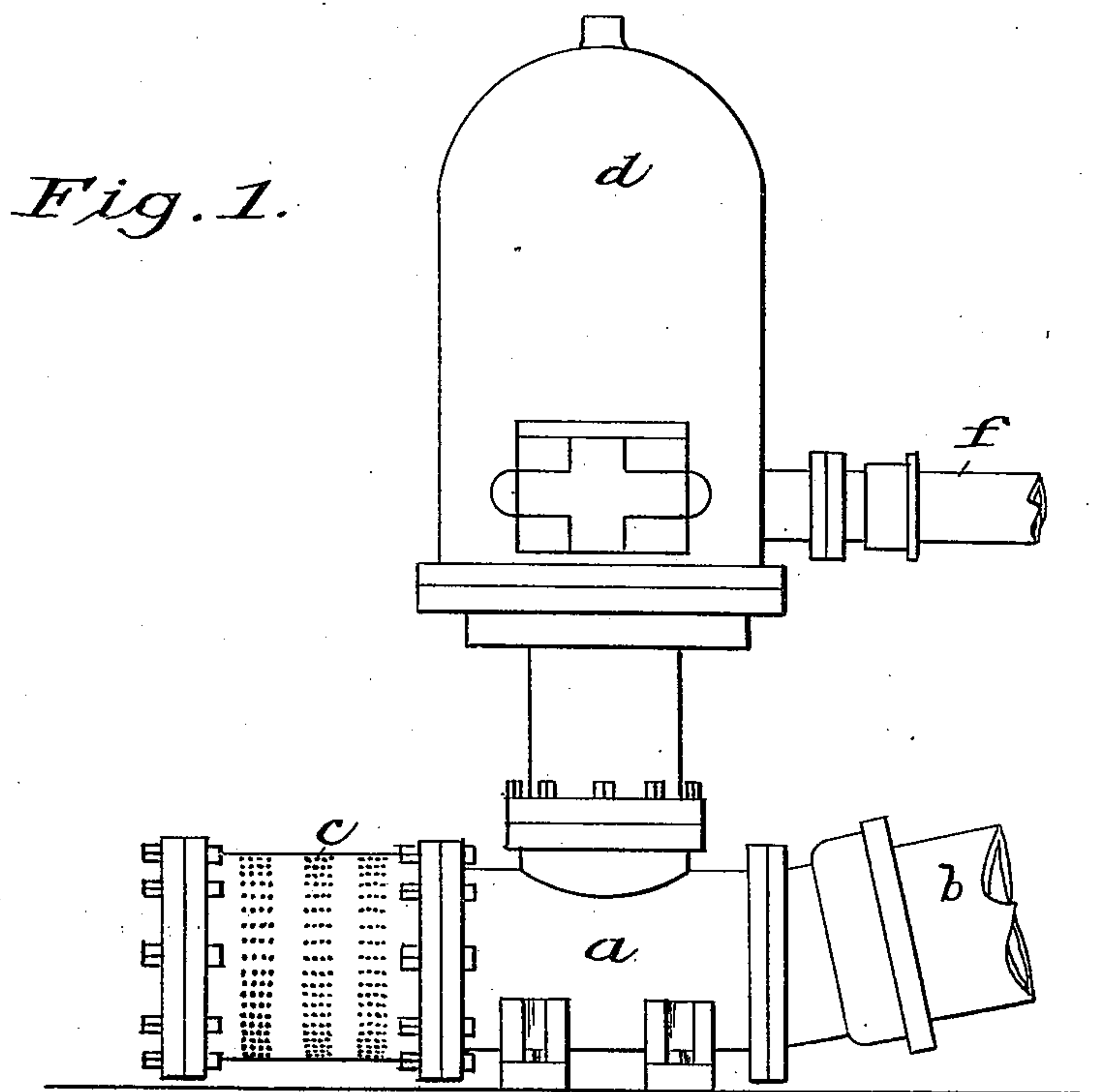
Patented Feb. 26, 1901.

H. V. BLAKE.
HYDRAULIC RAM.

(No Model.)

(Application filed Jan. 2, 1901.)

2 Sheets—Sheet 1.



Witnesses:

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Hubert Vincent Blake

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2 Sheets—Sheet 2.

Fig. 2.

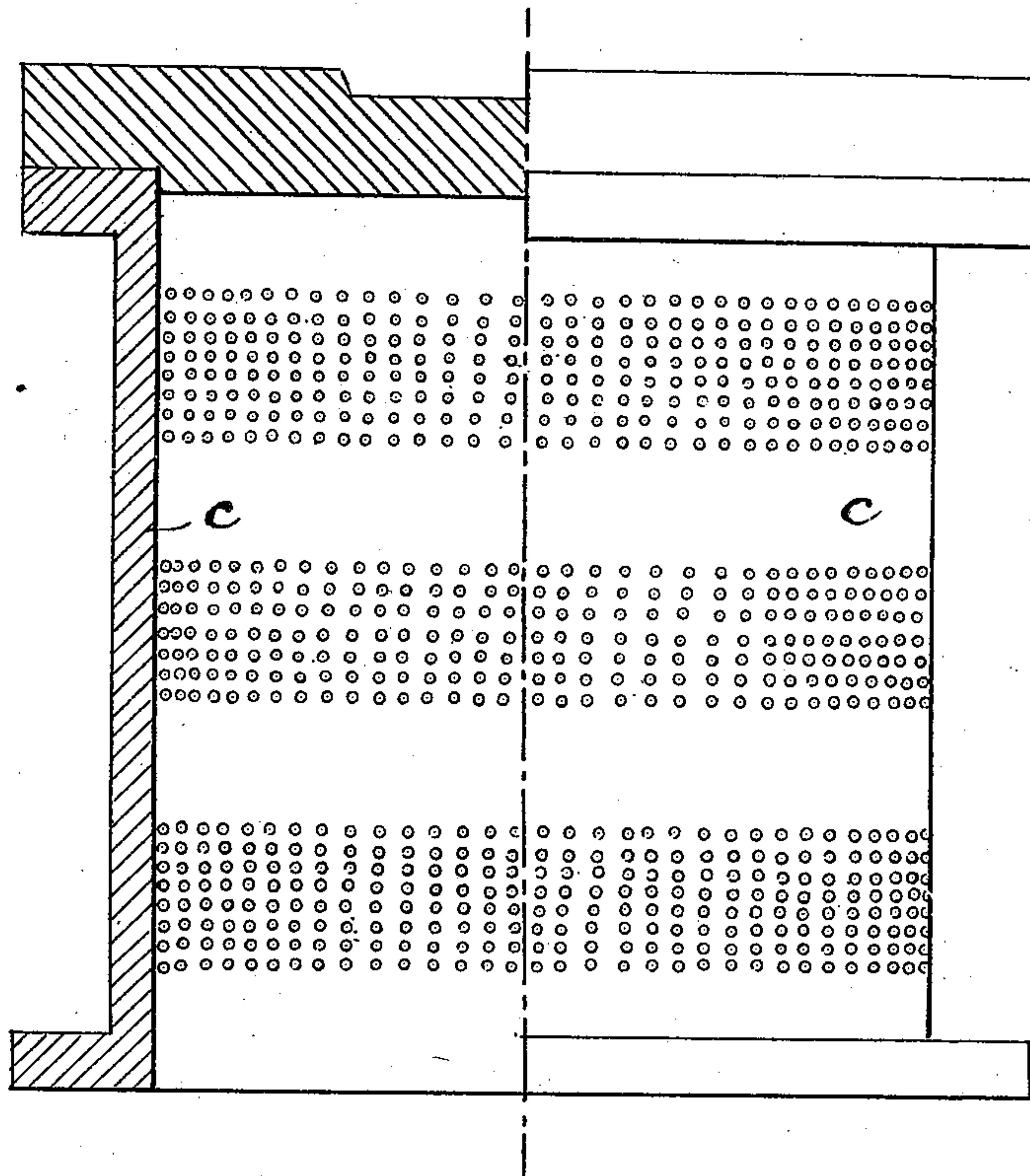
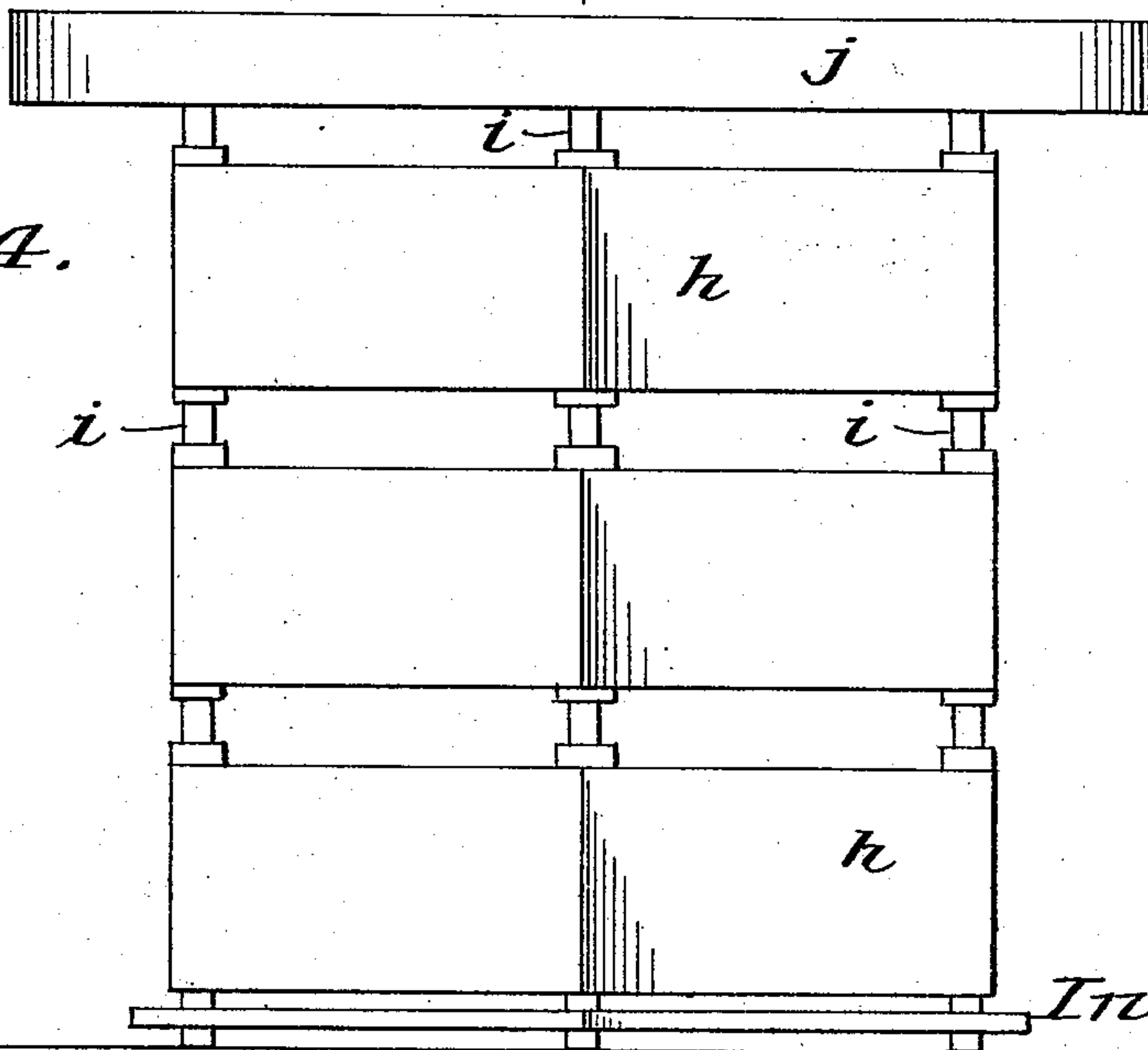


Fig. 4.



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UNITED STATES PATENT OFFICE.

HUBERT VINCENT BLAKE, OF ACCRINGTON, ENGLAND.

HYDRAULIC RAM.

SPECIFICATION forming part of Letters Patent No. 668,672, dated February 26, 1901.

Application filed January 2, 1901. Serial No. 41,764. (No model.)

To all whom it may concern:

Be it known that I, HUBERT VINCENT BLAKE, a subject of the Queen of Great Britain, residing at Oxford street, Accrington, in the county of Lancaster, England, have invented certain new and useful Improvements in Hydraulic Rams, of which the following is a specification.

My invention relates to improvements in hydraulic rams; and the object of my invention is to obtain greater efficiency by an improved construction of waste or pulse valve.

In order that my invention may be fully understood and readily carried into effect, I will describe the accompanying two sheets of drawings, reference being had to the letters marked thereon.

Figure 1 is a side view of a hydraulic ram fitted with my improved waste or pulse valve. Fig. 2 is a side elevation, on a large scale, of the body of the improved waste-valve and its cover, one-half being shown in section. Fig. 3 is a plan view of Fig. 2, showing also a rubber band in position; and Fig. 4 is an elevation of the rubber bands mounted upon rods secured upon the cover of the waste-valve.

In the drawings, *a* designates the body of the ram; *b*, the pipe through which the water enters the ram; *c*, the casing of the waste or pulse valve; *d*, the air-vessel, and *f* the discharge-pipe for the water raised by the ram. As my present improvement only relates to the waste or pulse valve the other parts of the ram may be of any other desired construction and are not shown in detail.

The improved waste or pulse valve consists of a hollow vessel *c*, preferably circular in cross-section and bolted to the body of the ram in the position shown in Fig. 1 or in any other desired position. This vessel is perforated with one, two, or more belts or groups of holes opposite to which on the inside of the vessel are a corresponding number of india-rubber or other suitable elastic bands

h, mounted upon a frame *i*, secured to and carried by a flange *j*, which when the frame *i* is inserted in the vessel *c* forms a cover for the latter, to which it is securely bolted to withstand the pressure of water.

In operation water flows from the pipe *b* into the body of the ram *a* and valve-casing *c*, and a portion escapes under the elastic bands *h* through the perforations in the casing until the pressure of water expands the bands and closes the perforations, thus forcing water upward into the air vessel *d* and away through the delivery-pipe *f* at each stroke of the ram.

I have shown in the drawings the interior of the vessel *c* circular in section; but I wish it to be understood that it might be of any other form, if desired, and also in place of stretching the india-rubber bands *h* over a frame with five rods the frame might have three, four, or more rods, and, further, the frame may be separate from the cover.

One advantage of placing the india-rubber bands inside the hollow vessel *c* to form the waste or pulse valve is that the bands *h* can be more conveniently examined and renewed and, further, that the size and weight of the body of the ram may be greatly reduced.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

In a hydraulic ram, the improved waste or pulse valve consisting of a hollow vessel provided with one, two or more belts or groups of holes in combination with an india-rubber or other suitable elastic band or bands mounted upon a frame and placed in the interior of the hollow vessel, substantially as and for the purposes described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HUBERT VINCENT BLAKE.

Witnesses:

GEO. W. PICKUP,
H. TAYLOR.