(No Model.)

H. BREITENSTEIN.

LOCOMOTIVE BELL RINGER.

No. 539,339. Patented May 14, 1895.

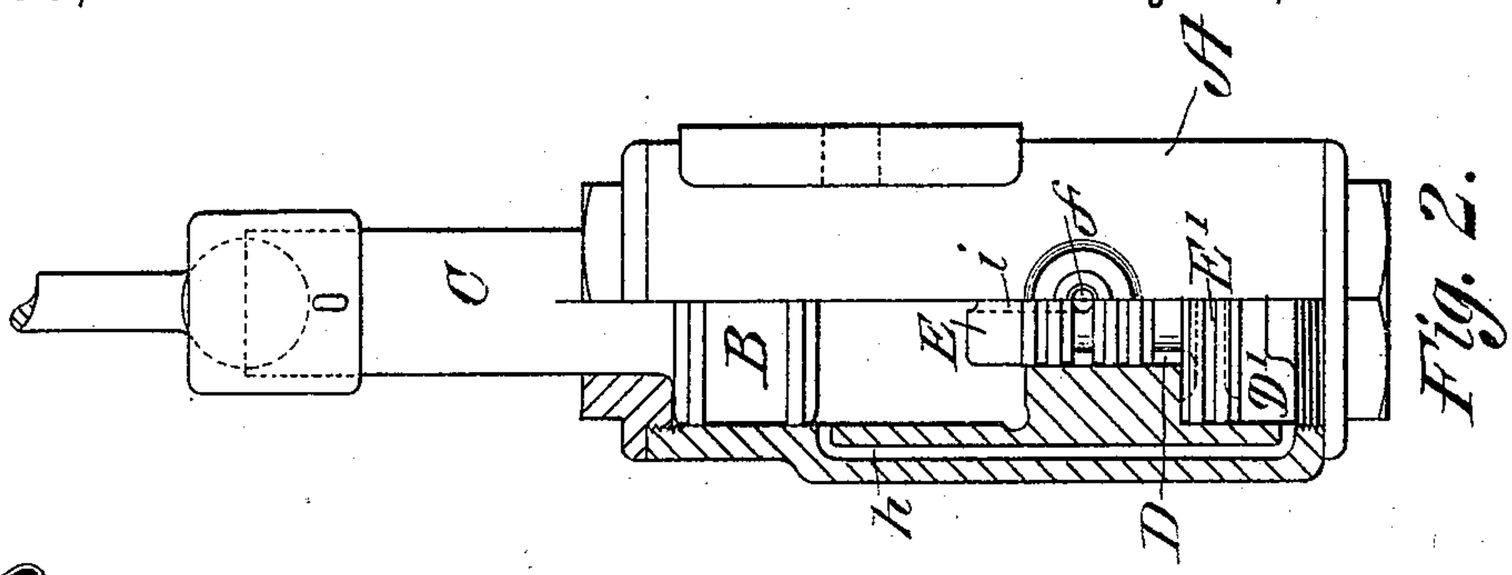

Fig. 2.

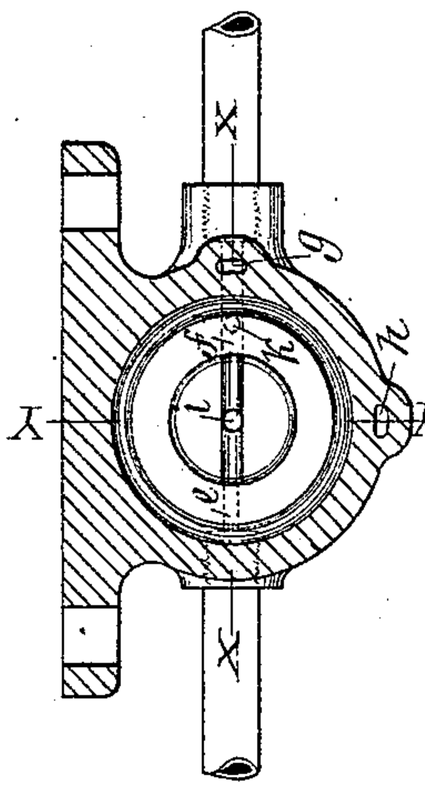

Fig. 3.

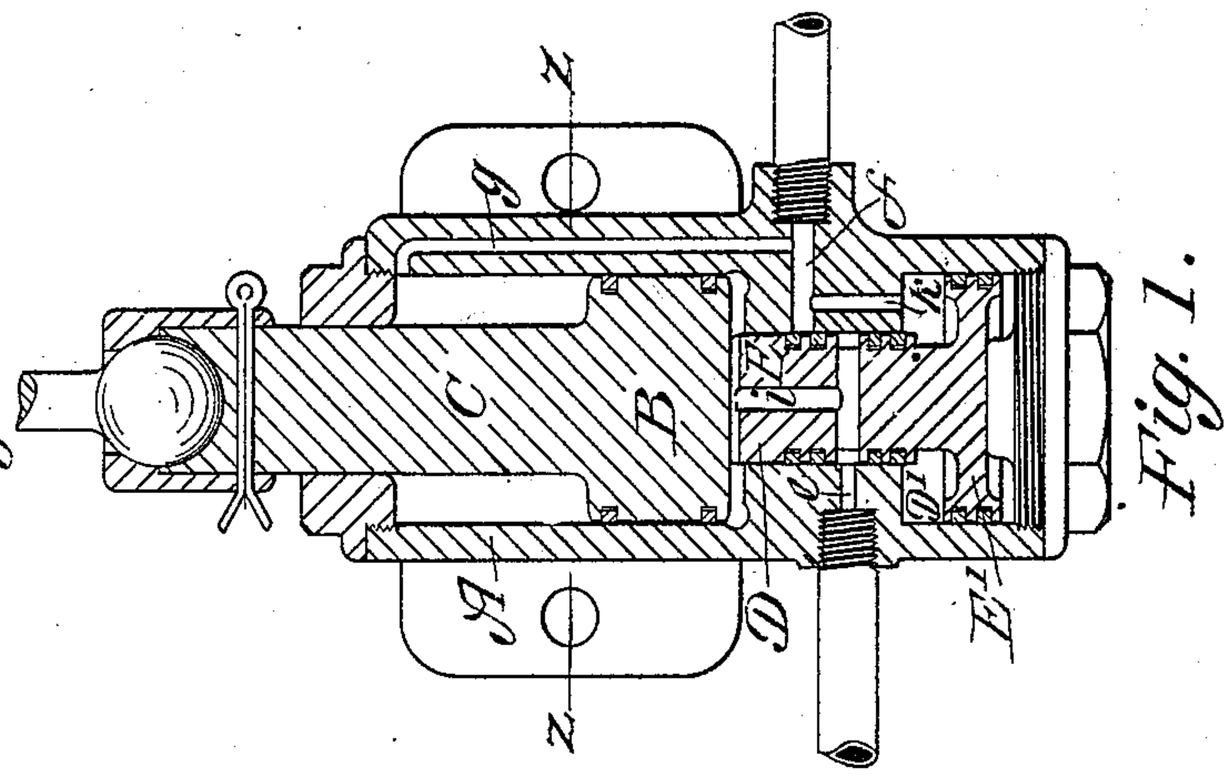

Fig. 1.

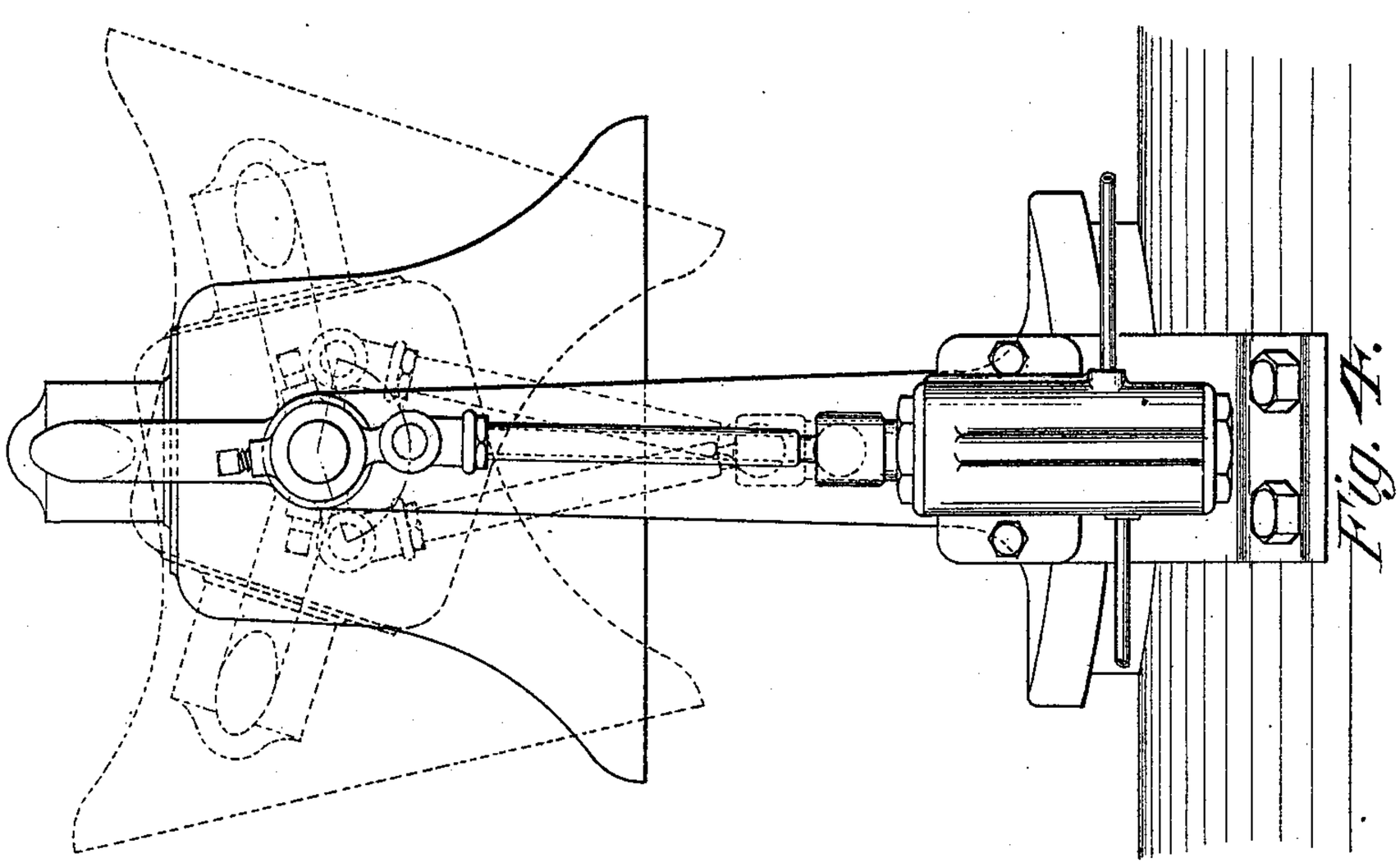

Fig. 4.

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UNITED STATES PATENT OFFICE.

HENRY BREITENSTEIN, OF LARAMIE, WYOMING.

LOCOMOTIVE BELL-RINGER.

SPECIFICATION forming part of Letters Patent No. 539,339, dated May 14, 1895.

Application filed June 4, 1894. Serial No. 513,488. (No model.)

To all whom it may concern:

Be it known that I, HENRY BREITENSTEIN, residing at Laramie, in the county of Albany and State of Wyoming, have invented a new and Improved Locomotive Bell-Ringer, of which the following is a specification.

My invention relates to steam operated bell ringing devices, and it primarily has for its object to provide a simple, and inexpensive mechanism easily operated and very effective for the desired purpose.

It has also for its object to provide a bell ringing mechanism so arranged that the steam will serve to operate the plunger or piston in one direction, only, it being operated in the reverse direction by the weight of the bell.

With other objects in view which hereinafter will appear the invention consists in such novel features of construction and detail combination of parts, such as will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of the bell-ringer on the line X X, Fig. 3. Fig. 2 is a half-elevation and half-section on the line Y Y, Fig. 3. Fig. 3 is a transverse section on the line Z Z, Fig. 1, with the piston removed. Fig. 4 is a side elevation of the bell and ringer.

The cylinder A, contains the piston B, secured or cast together with the piston rod C, connected with the main driving shaft of the bell yoke, in the usual manner.

The valve chamber D′ contains the valve piston E′ cast together with the valve E in valve chamber D.

The valve E, operates over the inlet port *e*, in valve chamber D, and over the exhaust port *f*, leading to the outside.

From the upper end of cylinder A, there leads a port *g*, to the exhaust port *f*, to avoid the forming of pressure above piston B, on its upward stroke. Just below the piston B, after it has reached its extreme uppermost position, there leads a port *h*, from cylinder A, to valve chamber D′.

Through the center of the valve E, a port *i*, connects the cylinder A, with the inlet port *e*, when the valve is forced to its lowermost travel by the piston B, as shown in Fig. 1, when connected in the usual manner with the main driving shaft of the bell yoke as shown in Fig. 4, thereby admitting the motive agent into the cylinder A, through the port *i*, in valve E, which forces the piston B, upward until it passes the port *h*, in cylinder A, as shown in Fig. 2, when the live motive agent is permitted to enter the valve chamber D′ through the port *h*. A port *k*, from valve chamber D′, into exhaust port *f*, prevents the accumulation of pressure above the valve piston E′. The valve piston E′ being of a larger diameter than valve E, it is forced upward to its extreme travel, closing the inlet port *e*, and opening the exhaust port *f*, as shown in Fig. 2, when the piston B, is free to be moved downward by the weight of the bell. When the bottom part of the piston B, has reached the valve E, and before it has quite completed its downward stroke, the upper edge of piston B, opens port *h*, allowing the motive agent beneath the valve piston D′ to escape out of the top of cylinder A, through the port *g*, and into the exhaust port *f*, leading to the outside, permitting the operation to be repeated.

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

1. A locomotive bell ringing mechanism comprising a cylinder having inlet and exhaust ports, a piston operating therein having its stem connected with the bell ringing member, a shifting valve having a port discharging against the operating piston said port being adapted to be alternately brought in register with the inlet and exhaust ports of the cylinder, the said cylinder having a supplemental port opening into the cylinder and discharging at a point under the shifting valve and so arranged that when the bell operating piston reaches its uppermost point of stroke, the air or steam under it will pass down under the shifting valve, and shift it to an exhaust position, substantially as shown and described.

2. An improved bell ringing mechanism comprising a cylinder having an upper and lower chamber and inlet and exhaust ports below the upper chamber, a bell operating piston held to travel in the upper chamber, a shifting valve having its stem projecting into the upper chamber and having a piston portion working in the lower chamber, said stem having a port opening into the upper chamber, provided with laterals adapted to be al-

ternately shifted into register with the inlet and exhaust ports, a supplemental port or channel opening into the upper chamber at a point under the bell operating piston when at the uppermost stroke arranged to discharge under the piston of the shifting valve, and a bleeding off port in the top of the upper chamber all arranged substantially as and for the purposes described.

3. As an improvement in bell ringing devices, a cylinder having an upper and lower chamber connected by a contracted or throat portion said lower chamber having the inlet and exhaust ports communicating therewith, a shifting valve operating in the lower chamber, having a stem fitting in the said throat portion, said stem having a feed port opening into the upper chamber and adapted to be alternately moved into register with the inlet and exhaust ports, and the port *h* connecting the upper and lower chambers substantially in the manner shown and for the purposes described.

4. The combination with the cylinder A, having an upper and a lower chamber, connected by a contracted valve space D, said lower chamber having the inlet and exhaust ports connected therewith, and a port *k* connected with the exhaust port, of the piston B operating in the upper chamber, the valve E operating in the space D, having a head member E operating in the lower chamber said valve having a port *e* opening into the upper chamber, and arranged to be alternately moved into engagement with the inlet and exhaust ports and the port *h* opening into the upper chamber at a point below the piston B when at its uppermost thrust, and into the lower chamber at the lower end thereof all arranged substantially as shown and for the purposes described.

HENRY BREITENSTEIN.

Witnesses:
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