

V. D. Green.

Steam Safety-Valve

N^o 72192

Patented Dec. 17, 1867.

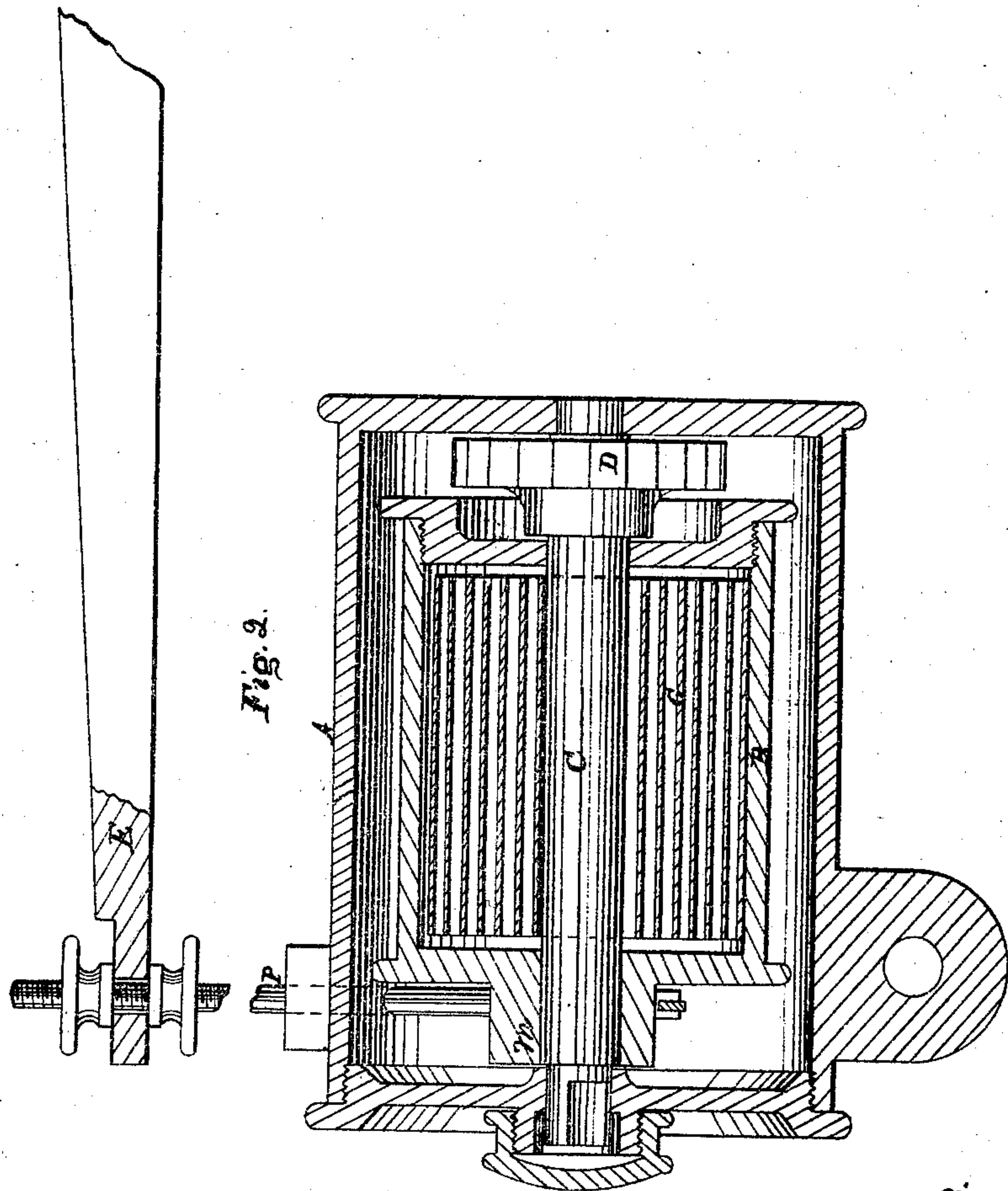


Fig. 2.

Fig. 3.

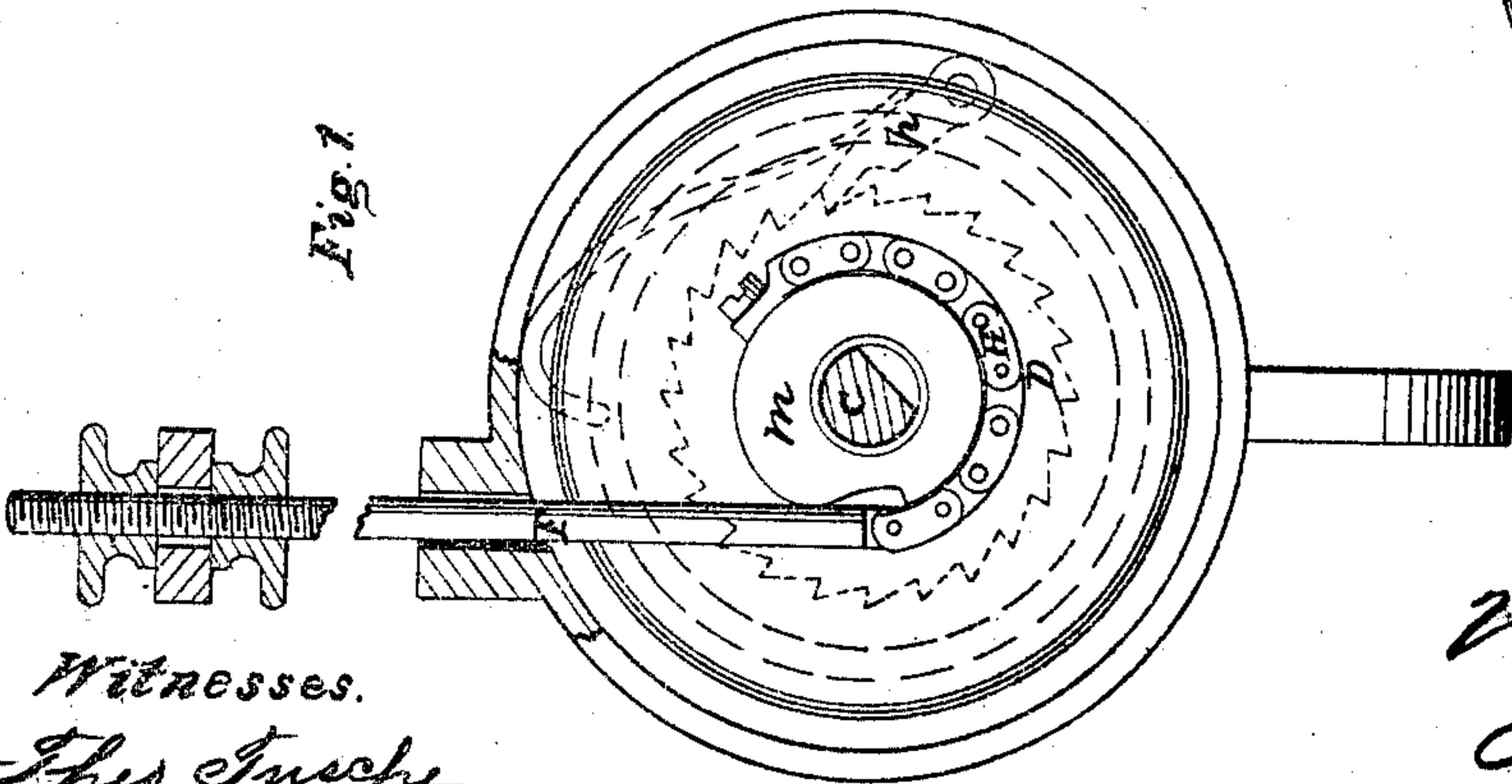
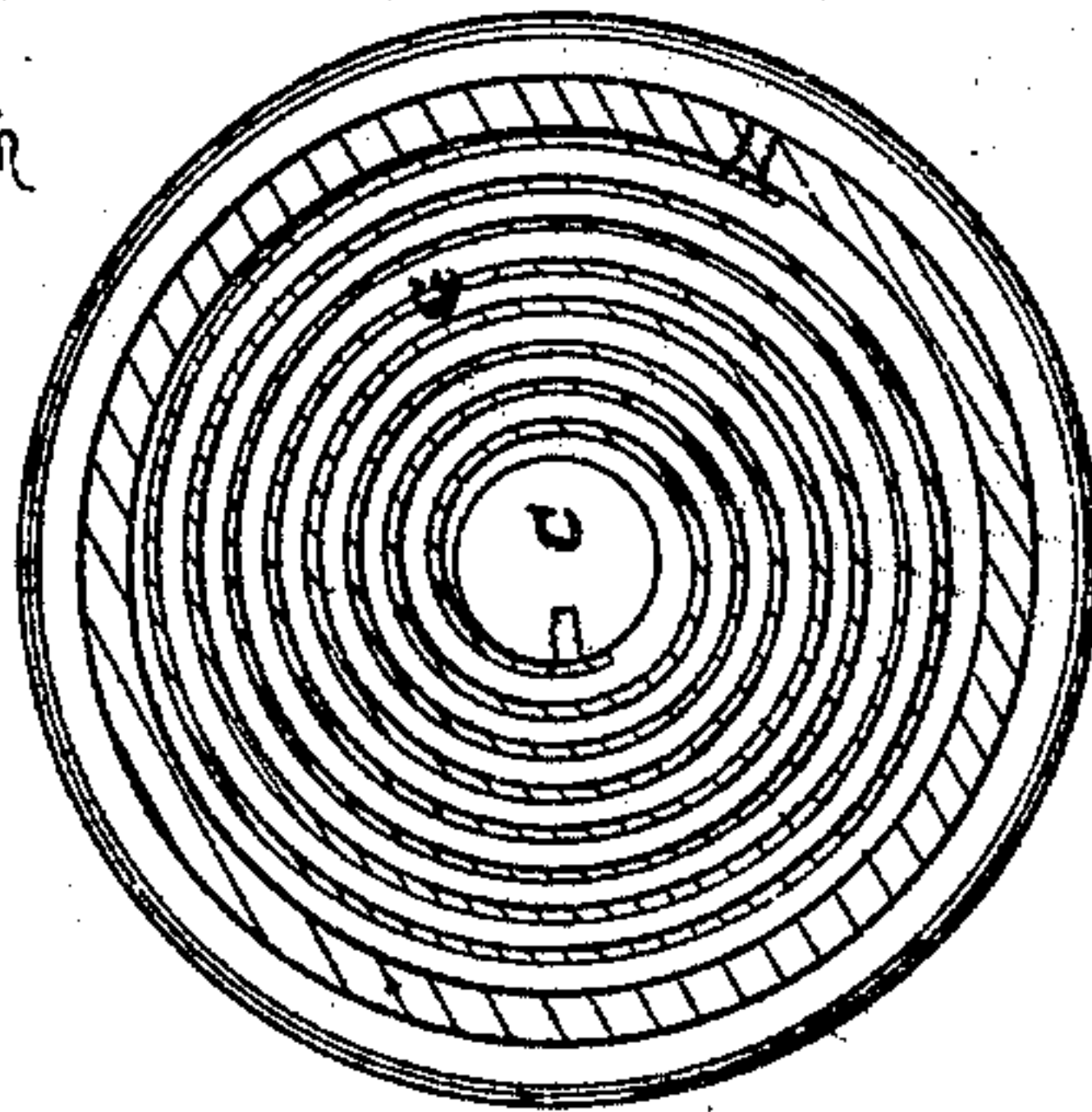


Fig. 1.

Witnesses.
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VIRGIL D. GREEN, OF WATERTOWN, WISCONSIN, ASSIGNOR TO HIMSELF
AND E. M. HALL, OF THE SAME PLACE.

Letters Patent No. 72,192, dated December 17, 1867.

IMPROVEMENT IN STEAM SAFETY-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, VIRGIL D. GREEN, of Watertown, in the county of Jefferson, and State of Wisconsin, have invented a new and useful Improvement in Equilibrium-Balance for Safety-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to overcome the rigidity of the spring in the spring-balances in common use. It is well understood that, as the lever of the safety-valve is raised, the tension, and consequently the rigidity, of the spring increases in proportion as the lever is raised; and, the invention consists in providing a cylinder which contains a barrel with a spiral spring within it, and with a cam and chain attached, whereby I am enabled to overcome the difficulties hitherto met with in properly regulating the safety-valve, as will hereinafter be described.

And to enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 represents a top view of my balance with the cap off.

Figure 2 is a central longitudinal section through the line $x x$ of fig. 1; and

Figure 3 is a section of the barrel through the line $y y$, showing the spiral spring and its fastenings.

Similar letters of reference indicate like parts.

A represents the cylinder; B, the barrel containing the spring. C is a central shaft. D is a ratchet-wheel on the shaft. E is the safety-valve lever. F is the rod which connects the balance with the safety-valve lever. H is a chain, which connects the rod F to the barrel B. G is the spiral spring, attached to the shaft and to the barrel, as seen in fig. 3. The ratchet is attached to the shaft, and is held by a spring-pawl, which is attached to the bottom of the cylinder A. It is seen in dotted lines in fig. 1, and represented by p . The spring is wound up in the barrel by a key, which fits the top of the shaft, as seen in fig. 1. Upon the upper end of the barrel B there is a cam, m , to the side of which the chain H is attached, the other end of the chain being connected to the end of the rod F, after passing round the cam, as seen in fig. 1.

It will be seen that the chain is attached to the cam at a point which is farther from the centre of the shaft than the point occupied by the other end where it is connected to the rod F.

The balance being set, as represented in fig. 1, any addition to the strain or rigidity of the spring serves to increase the leverage or distance from the centre to the point of resistance, and, consequently, counteracts the increasing rigidity, by operating with a longer lever. In other words, the power to coil the spring, and which increases its rigidity, is applied where the tangent leaves the cam, and the rod F is the tangent.

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

The cylinder A, the drum B, the spring G, the ratchet and pawl D p , in combination with the cam m and the chain H, substantially as described.

VIRGIL D. GREEN.

Witnesses:

WALDO LYON,

SAMUEL McMULLIN.