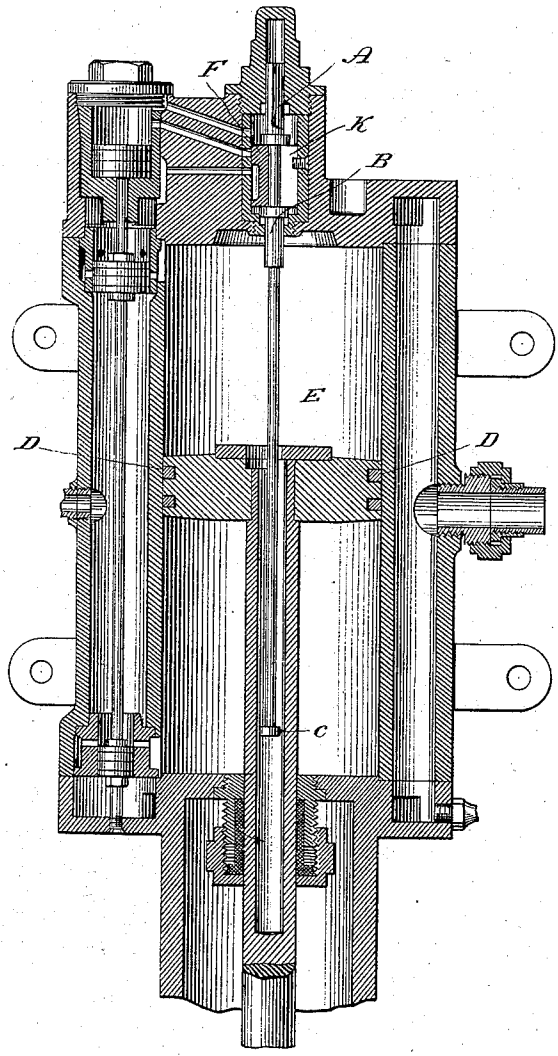
(Model.)

S. L HAWKS.

Reversing Valve Stem.

No. 241,654. **Patented May 17, 1881.**

Fig. 1.



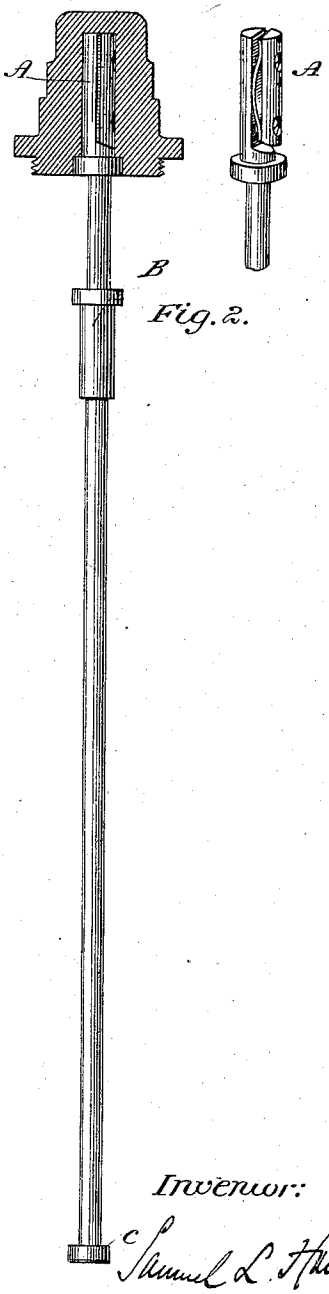


Fig. 2.

Attest:

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UNITED STATES PATENT OFFICE.

SAMUEL L. HAWKS, OF BLOOMINGTON, ILLINOIS.

REVERSING-VALVE STEM.

SPECIFICATION forming part of Letters Patent No. 241,654, dated May 17, 1881.

Application filed March 29, 1881. (Model.)

To all whom it may concern:

Be it known that I, SAMUEL L. HAWKS, of the city of Bloomington, in the county of McLean and State of Illinois, have invented certain Improvements in Valve-Stems, of which the following is a specification.

My improvement relates specially to the reversing-valve stems, (sometimes called the "friction-stems,") which are inserted in and operated by the hollow steam-pistons of the engines and pumps of power-brakes; and it consists in providing a spring friction-bearing for the upper end or head of such stems in the reversing-valve cap in lieu of packing the upper end of said stem in the cap, as now in practice.

It is well known that the packing heretofore used in this reversing-valve cap, whether of metallic rings, leather, rubber, &c., is very apt either to obstruct the action of valve-stems or friction-stems, and thus to make the action of the reversing valves irregular or uncertain; or, on the other hand, to cause a leakage of steam at a point to obstruct the engineer's view of the track, both of which difficulties, among others, my improvement avoids.

In the drawings, Figure 1 shows an engine and pump used in the operation of train-brakes with my improved stem A in place, the stem being operated by the striking of the piston D upon the lugs or flanges B C alternately as it travels to the upper or lower end of the steam-cylinder E, thus by the movement of the stem up and down opening and closing the reversing valve K.

Fig. 2 is an enlarged view of said stem, its upper end being split lengthwise to the depth of its play in the cap and a spring inserted, which, when the stem is placed in the cap, will be compressed and give the desired friction between the sides of the upper end of the stem and the inside of the cap, all of which will be readily understood by those skilled in the art.

The sections of the split end of the valve-stem are held together and to the spring by screws or studs, the heads of which are countersunk within the smaller section.

What I claim is—

1. A reversing-valve stem an end of which is provided with an expansible and compressible independent section, substantially as specified.

2. A reversing-valve stem an end portion of which is split or constructed in two sections, combined with a spring interposed between said sections, substantially as and for the purpose specified.

3. As an improvement in power-brake mechanism, a reversing-valve stem an end of which is provided with an expansible and compressible section, combined with its guide or cap, whereby the necessary frictional contact is produced between the stem and its guide or cap without the intervention of packing, substantially as specified.

In testimony whereof I have hereunto subscribed my name this 22d day of March, A. D. 1881.

SAMUEL L. HAWKS.

Witnesses:

W. J. BROWNELL,

J. P. MCLEAN.