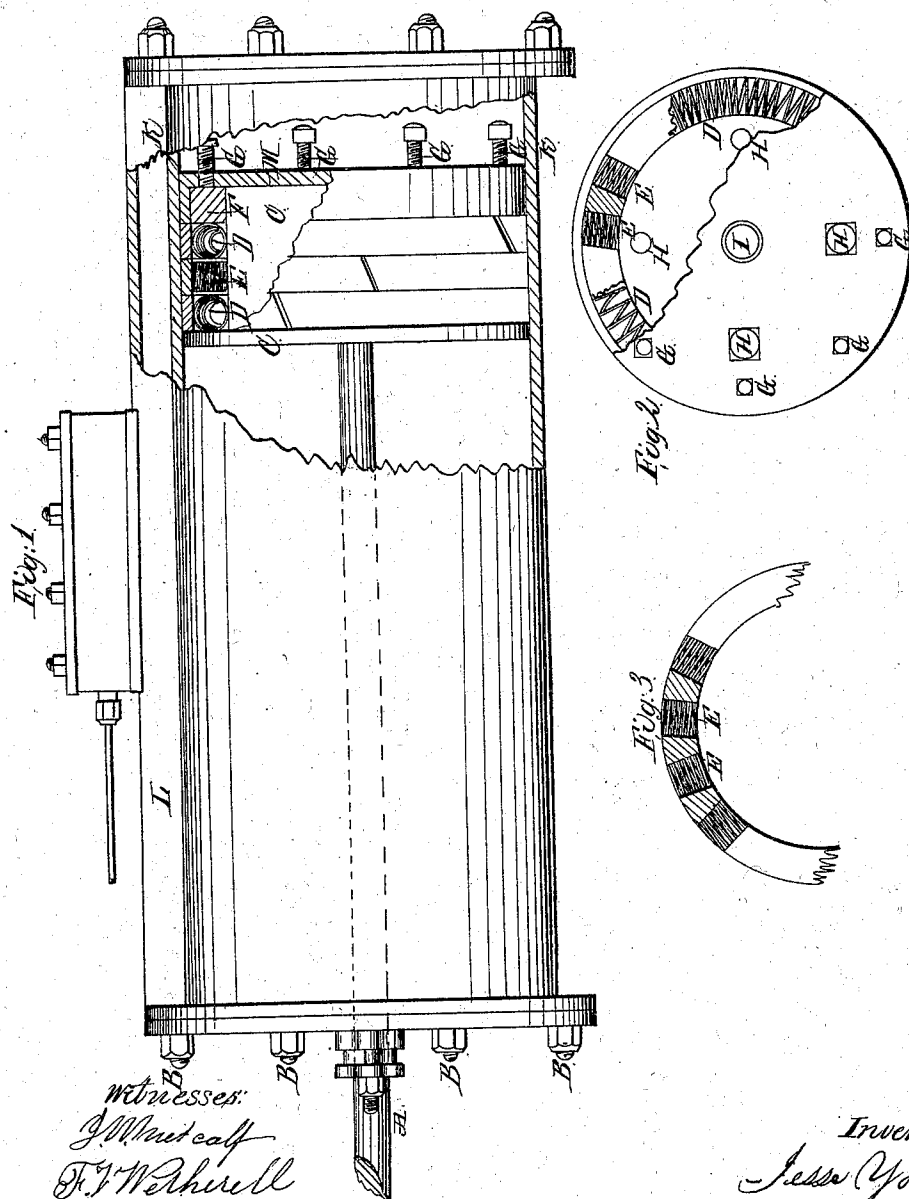


J. YOUNG.
ARRANGEMENT OF FOLLOWERS AND SPRING PACKING FOR STEAM
ENGINES.

No. 31,847.

Patented Mar. 26, 1861.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

JESSE YOUNG, OF FRANKLIN FURNACE, OHIO.

PACKING OF PISTONS FOR STEAM-ENGINES.

Specification of Letters Patent No. 31,847, dated March 26, 1861.

To all whom it may concern:

Be it known that I, JESSE YOUNG, of Franklin Furnace, in the county of Scioto and State of Ohio, have invented a new and useful improvement in the piston-head follower for steam-engines, together with a new improvement in the construction and arrangement of the springs that hold the metallic packing against the surface of the cylinder; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a section of a piston head with my improved follower and packing within the cylinder. Fig. 2 is an end view of the follower with a section showing the action of the vertical and parallel spiral springs upon the packing. Fig. 3 is a section of the ring occupying a place in the center of the packing space between the two parallel spiral springs containing a series of cavities upon its outer edge to receive short spiral springs which act vertically or endwise upon the middle ring of the packing.

Similar letters of reference indicate corresponding parts in each of the three figures. This invention relates to an improved arrangement of springs for giving to metallic packing an easy elastic and uniform pressure against the surface of the cylinder together with a follower so constructed as to enable the packing to be tightened against the surface of the cylinder without removing the follower or increasing the pressure upon the edge of the packing.

By the above arrangement as will be hereafter shown the packing is brought to bear upon the surface of the cylinder with a more elastic and uniform pressure than has been attained heretofore and at the same time furnishing an adequate support to sustain the weight of the piston head upon the packing instead of having almost the entire weight rest upon the flange of the piston head as in the case of the ordinary spring.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and also its practical advantages.

A represents the rod and piston head within the cylinder with my improved follower and springs in operation; B, cylinder head bolts; C, flange of piston head.

D, D, are long spiral springs their length when compressed together being the circumference of the cylinder and their diameter must correspond with the space to receive them between the metallic packing and the outside surface of the piston head. They should be made sufficiently open to give the requisite elasticity when compressed together endwise. In the accompanying drawing there are two of these springs D, D, illustrated (a greater number may be used if required) with a metallic ring between them the square of which corresponds with the diameter of the spiral springs. Upon the outer edge of this ring a row of holes are drilled each containing a short spiral spring E E which being pressed down within the cavity bears endwise upon the middle ring of the packing. Any number of these springs may be used according to the space to be filled.

F is a ring that sets inside of the rim upon the follower and just wide enough to fill the space between the piston head and metallic packing. The packing is tightened by a row of set screws G, G, G, G, G through the follower M, bearing upon the ring F.

H, H, H, H, are the bolts that hold the follower to the piston head; I, the hole for piston rod; K, K, lines representing the bore of the cylinder; L, cross pipe (unnecessary).

It will be seen by this arrangement the packing can be tightened without removing the follower while the pressure is behind and not upon the edge of the packing. Another advantage is that the pressure is everywhere uniform which with the ordinary springs is not the case the pressure being only at the ends of the springs. It is also claimed that the long spiral springs owing to their peculiar arched shape are much better adapted to support the weight of the piston head than the ordinary spring for as the packing wears the set screws are tightened giving the round spiral spring an elliptical form thereby supporting the weight of the piston head at the same time an easy elastic and uniform pressure is furnished by the compression of the spiral endwise. This

peculiarity will adapt it especially to heavy horizontal engines.

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

The application of spiral springs for holding metallic packing against the surface of

the cylinder in the manner substantially as herein described.

JESSE YOUNG.

Witnesses:

THOS. G. SMITH,
JOSEPH PULLAN.