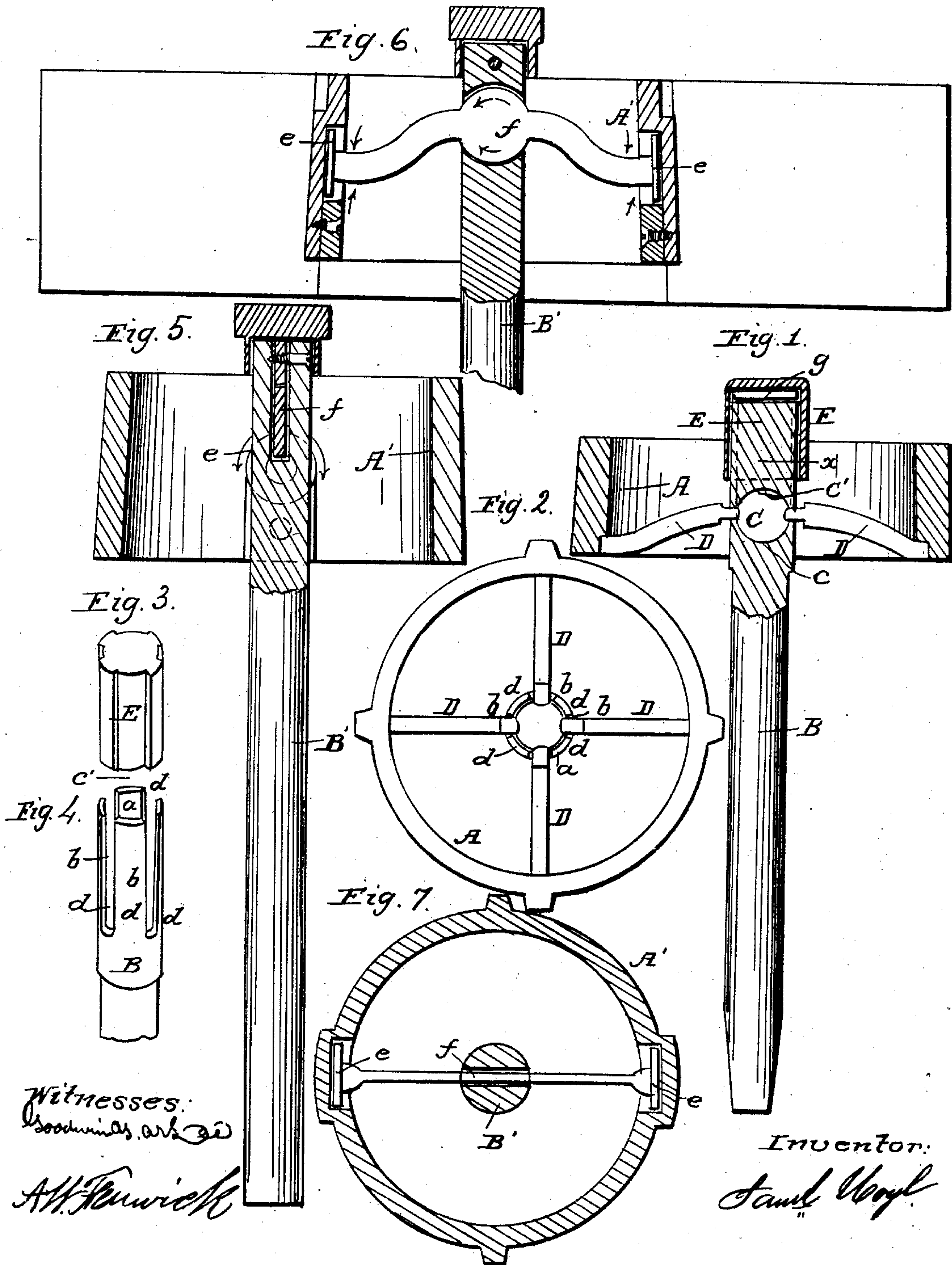


S. HOYT.  
Hanging Millstones.

No. 26,993.

Patented Jan'y 31, 1860.





# UNITED STATES PATENT OFFICE.

SAMUEL HOYT, OF WILMINGTON, DELAWARE.

## MILL-SPINDLE.

Specification of Letters Patent No. 26,993, dated January 31, 1860.

*To all whom it may concern:*

Be it known that I, SAMUEL HOYT, of Wilmington, in the county of Newcastle and State of Delaware, have invented a new and  
5 useful Improvement in Hanging Millstones; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this speci-  
10 fication, in which—

Figure 1, is a vertical central section of my improvement as applied to the upper running stone. Fig. 2, is a top view of the  
15 metallic eye and spindles; the cap and plug of the spindle being removed. Figs. 3 and 4 are perspective views of the removable plug and slotted tubular end of the spindle. Figs. 5, 6 and 7 represent a different ar-  
20 rangement of parts for accomplishing the same object as that attained by the arrangement represented by Figs. 1, 2, 3 and 4.

Similar letters of reference, in each of the several figures, indicate corresponding parts.

The nature of my invention consists in  
25 combining the metallic eye of the running stone with the driving spindle by means substantially as hereinafter described, so that the running stone is allowed, although sus-  
30 pended by means of bearings within the metallic eye, a universal movement up and down while it is performing its revolutions.

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

35 A, represents a metallic eye which is cast with ribs on its outer circumference so that when the stone is fitted over it a revolution of the stone and eye together shall be insured when the mill is in operation.

40 B, is the mill or driving spindle, it is to be passed down through a stationary lower stone and rest in a step, as usual. Its upper end extends some distance up into the eye of the upper stone and is made tubular, as  
45 shown at *a*, and with open vertical slots, as shown at *b, b, b, b*. The bottom of the tubular portion is of a semi-spherical shape, as shown at *c*. The upper part of the spindle is constructed thus in order to receive a cen-  
50 tral ball journal C, of the metallic eye A; and serve as a journal box for the same; said ball being supported by inclined arms or braces D, D, D, D, extending out radially

from the inner circumference of the metallic eye, and passing down through the slots *b, b, b, b*, as the ball passes to its semi-spherical  
55 seat *c*.

In order to confine the ball in its seat, I insert a ribbed plug E, into the tubular por-  
60 tion of the spindle; the ribs of said plug fitting and filling up the grooves *b*, and the concave lower end *c*<sup>1</sup> of the plug serving to form one half of the bearing for the ball journal. And to confine the whole together,  
65 I place a cap F, over the tubular part of the spindle, said cap being confined by a pin, screw or other well known fastening. If a screw is used, the thread which matches  
70 the thread of the cap is only cut on the parts *d, d, d, d*, of the spindle. The reason for thus cutting the screw on the spindle is this: it is advantageous to have a rubber  
75 gasket or spring *g*, placed between the top of the cap and the plug, and to have the plug play up and down slightly against the same, and thus allow the upper stone to  
80 yield slightly when any extraordinary obstruction impedes its revolution. Now if the screw was cut on the plug as well as on the spindle, this object could not be secured,  
85 hence the adoption of the mode of construction above described.

It is obvious that the ball and hollow sphere socket will allow the runner stone to  
85 play either up or down, slightly, at any point of its circumference, and thus it is enabled to ride freely over any obstruction or undue accumulation of flour at any one  
90 point of the surface of the stones, and therefore all liability of clogging or injurious heating of the flour avoided. It is also ob-  
95 vious that the combination of the rubber gasket and sliding plug with the sphere socket and ball journal will allow of the runner stone, while it performs a universal  
100 movement, yielding upward slightly in case any extraordinary obstruction is met with and thus danger of breakage or derange-  
105 ment of the mill avoided.

In Figs. 5, 6, and 7, I have shown another  
100 arrangement of my own invention for accomplishing the same result. This arrange-  
ment answers a good purpose, but it is not  
105 so good or simple as the one represented by Figs. 1, 2, 3, 4, because it requires two bear-  
ings *e, e*, in the eye, A<sup>1</sup>, and one bearing *f*,



on the spindle B<sup>1</sup>. In this arrangement, the upper stone moves up or down at different points of its circumference on one or the other of its bearings *e*, *e*, and *f*, as indicated by the arrows 1 and 2.

I am aware that the runner stone has been suspended so as to have a universal movement, by means of gimbal joints which are not brought within the eye of the stone, therefore I do not claim a universal movement in the running stone irrespective of the particular construction and arrangement of the means whereby said movement is obtained, but

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

The combination of the sliding plug E, ball and socket bearings C, *c*, *c*<sup>1</sup>, and slotted spindle B, *b*, substantially as and for the purposes set forth.

The above specification of my impt. in mill spindles signed by me this 14th. day of December 1859.

SAML. HOYT.

Witnesses:

GOODWIN Y. AT LEE,  
R. W. FENWICK.