J. STAUB.

Mill Spindle.

No. 2,075. Patented May 4, 1841.

Fig. 2.

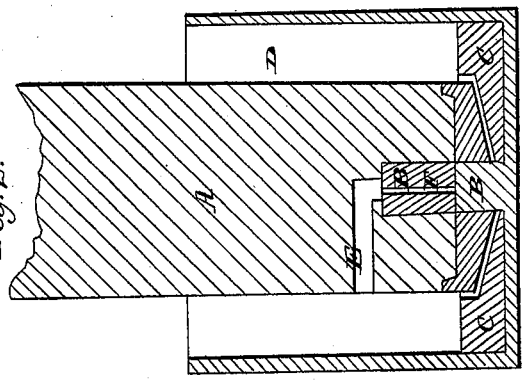


Fig. 3.

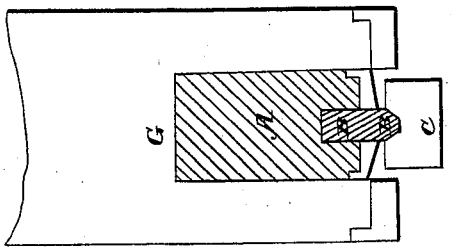
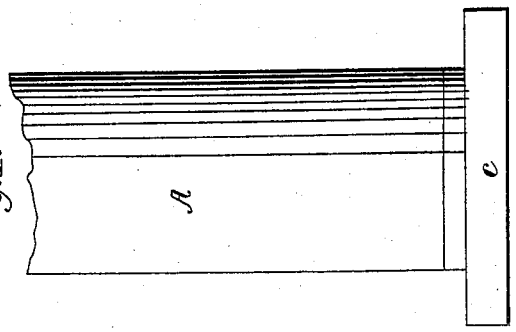


Fig. 1.



UNITED STATES PATENT OFFICE.

JACOB STAUB, OF GEORGETOWN, DISTRICT OF COLUMBIA.

GUDGEON OR PIVOT AND STEP OF MILL-SPINDLES AND OTHER VERTICAL SHAFTS.

Specification of Letters Patent No. 2,075, dated May 4, 1841.

To all whom it may concern:

Be it known that I, JACOB STAUB, of Georgetown, District of Columbia, have invented a new and useful Improvement in Mill-Spindles and Vertical Shafts, which is described as follows, reference being had to the annexed drawings, making a part of the same.

Figure 1, is a side elevation; Fig. 2, a section of the spindle in one case and a gudgeon in shafts; Fig. 3, a section showing the way to use the improvement in shafts.

Similar letters in the drawing refer to similar letters in the specification.

The object which I design to obtain by my improvement, is to have less friction, and to give better opportunities to repair the end of the spindle, it being done with a saving of time, labor and expense; and this I do by making two separate plugs of steel (marked B′, B,); one revolving upon the other which are susceptible of receiving the highest degree of temperature.

The spindle A is made round, of wood or other suitable material, the end being shod and slightly convex of good steel. A circular hole, say from 1 to 2 inches diameter and 3 to 4 inches deep, is made at the center of the lower end of the spindle from the bottom upward. Into this aperture or core I drive up the upper or longer plug of steel B′, tight, and leave an inch or more to spare from the bottom of the said plug to the bottom of the spindle. My manner of using this improvement for vertical shafts for reaction water wheels, is to prepare the end of the shaft with a suitable socket or collar, projecting below the shaft, and then I cut out of the center of the shaft G at the lower end a cylindrical hole to suit the gudgeon A (in this case) with its plug therein, and drive the said gudgeon A up the said hole as far as I think expedient. The shaft G thus combined is set to revolve on the plug B in the step. The step which is denoted by C is of iron or steel, about 6 in. square more or less, and is set in the bottom of the square box D. A space similar in area to the end of the spindle is cut out of the step with a bottom made concave to fit the convex end of the spindle. In the center of this concave bottom I cut out a core of the diameter of the plug. This plug of steel is similar in size, excepting the length, to the upper plug B fixed in the spindle A. It is about 1 in. long more or less, and driven in the hole or core aforesaid, and made firm and steady. The spindle and shaft as aforesaid is now placed on the top of the lower plug B and revolves thereon. So that it can be seen the rubbing surface is very small, it being only the under surface of the end of the upper stationary plug B′ on the top of the lower plug B placed in the step. By this arrangement, considerable friction is saved, and when any repairs are required, the plugs can be removed, and retempered and reset without much trouble.

The box D is an oil box and surrounds the step and spindle and is intended to hold oil to keep the rubbing parts from being too much heated. To assist the oil to reach the points of contact of the two plugs, a horizontal hole E is pierced through the spindle, to the top of the upper plug, the upper plug has a small vertical hole F drilled through its axis from the top to the bottom, thus affording a channel for the oil to reach the point required. I adopt this expedient, to obviate any difficulty that may arise from the oil not being able to reach the points aforesaid, by any obstruction around the end of the spindle.

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

The arrangement of the lower removable plug B, in the step or bed C, in combination with the upper removable plug B′ in the admit oil from the box D, for the purpose spindle or shaft A provided with a hole to and in the manner specified.

JACOB STAUB.

Witnesses:

T. H. DENITT,

EDMUND MAHER.