C. Schneider,

2. Sheets. Sheet. 1.

Hanging Mill Stones.

No. 105,496. Patented July 19. 1870.

Fig. 1.

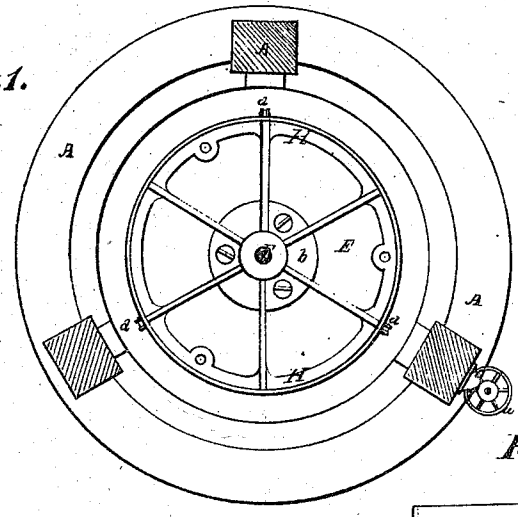


Fig. 3.

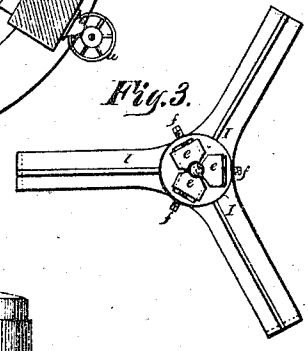
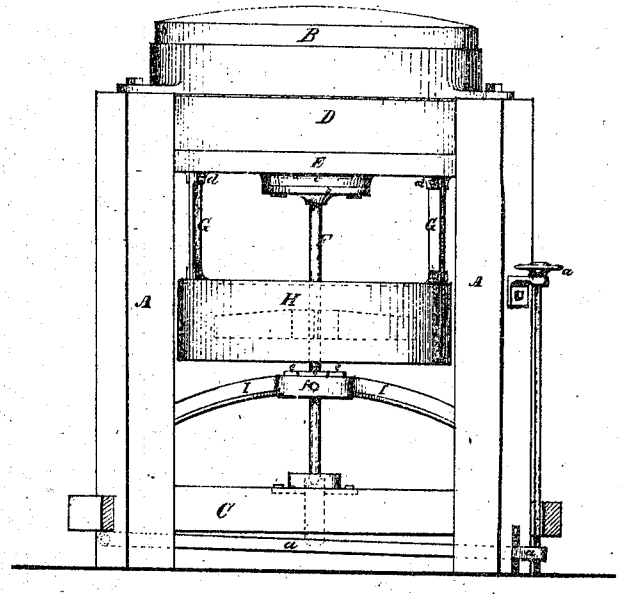


Fig. 2.



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2. Sheets, Sheet 2.

C. Schneider,

Hanging Millstones.

No. 105,496. Patented July 19. 1870.

Fig. 4.

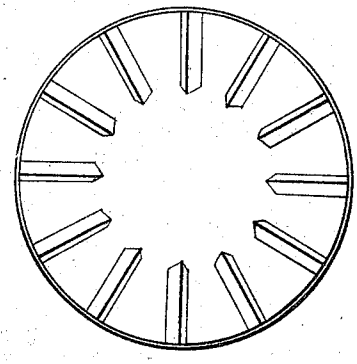


Fig. 5.

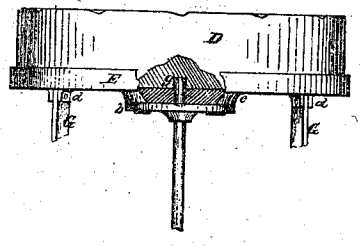
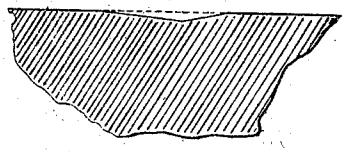


Fig. 6.



Witnesses:
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United States Patent Office.

CHARLES SCHNEIDER, OF GALION, OHIO.

Letters Patent No. 105,496, *dated July* 19, 1870.

IMPROVEMENT IN HANGING MILL-STONES.

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, CHARLES SCHNEIDER, of Galion, in the county of Crawford and State of Ohio, have invented an Improved Mode of Hanging and Dressing Millstones; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing making part of this specification.

My method of hanging stones applies to that class of mills in which the under stone is the runner, and one important feature of my invention consists in securing the upper end of the spindle to a cast-iron bed-plate, in which the runner is securely fixed, thus making a "stiff hanging" for the stone.

Another important feature of my improvement consists in the manner of connecting the driving pulley (which turns loosely on the spindle) to the bed-plate of the runner, by means of suitable springs, one end of the said springs being secured to the under side of the bed-plate, and the other to the rim of the driving pulley, thus removing all the torsion or twisting strain from the spindle and transferring it to the runner at a distance from the center of rotation corresponding to the radius of the pulley.

Another important feature of my invention consists in "truing the spindle" by means of tripple boxing provided with set-screws, so that it may be adjusted to run truly vertical. This boxing is so placed that it may be oiled when the mill is running.

Another important feature of my invention consists in the manner of balancing the stone when not running, and before the spindle is secured thereto, so that it may be in "standing balance" and also in "running balance," which is not generally the case with stones hung in the usual manner.

Another important feature of my invention consists in the peculiar mode of dressing the stones. In my mode of dressing, leading furrows are dispensed with, and but twelve short furrows, extending only through the "skirting," are used. No draft is given to the furrows, and the eye of the stone is left for grinding surface. A complete description of this mode of dressing will be given further on.

Figure 1 is a plan or bottom view of the mill, showing the driving-pulley and mode of securing the spindle to the runner.

Figure 2 is a side elevation of the same.

Figure 3 is a plan of the adjustable spindle-bearing.

Figure 4 is the plan of a stone, showing the manner of dressing.

Figure 5 is a side view of the runner, partly broken away to show the mode of balancing the stone on the spindle.

Figure 6 is an enlarged section of the stone, showing a section of the furrow.

Like letters of reference designate corresponding parts in all the figures.

Let A A represent the frame, B the upper stone, C the bridge-tree, and *a a* the mechanism for raising and lowering the runner, all of which are arranged in the ordinary way.

The runner D rests on a cast-iron bed-plate, E.

The spindle F (usually of steel) has a cap or coupling-flange, *b*, cast on it, by which it is rigidly secured to the bed-plate, the latter being provided with a boss, *c*, to receive the securing-screws or bolts, as shown.

Projecting lips or flanges, *d d*, are cast on the under side of the bed-plate, between which are secured the upper ends of the springs G G, the lower ends of the said springs being secured to the verge of the loose driving-pulley H in a similar manner. By this arrangement the inertia at starting, and checks while running, are overcome much more readily than in the ordinary way of using springs, as the leverage is greater, and all extra twisting strains on the spindle are entirely avoided.

The spindle is stepped at the bottom, as shown, and is provided with a bearing for lateral adjustment, which may be placed immediately under the driving-pulley. This bearing is shown in plan in fig. 3, and consists of a radial frame, I, provided with triple boxing, *e e e*, sliding in suitable openings in the said frame, as shown, and capable of being adjusted laterally by means of set-screws, *f f f*, or other equivalent device. By this arrangement the spindle may be vertically adjusted or "plumbed" with the greatest nicety.

Before the boss *c* of the bed-plate is bored to receive the screws by which it is attached to the spindle, a balancing-pin, *g*, is inserted in a hole in the center of the runner, the other end of the said pin resting in a hollow in the upper end of the spindle. As the hole in the runner and through the bed-plate, to which the runner is secured, is larger than the balancing-pin, the stone may be moved sufficient to balance it accurately. The boss *c* is then marked, and the holes bored to correspond with those in the cap of the spindle. The runner is then raised and the pin *g* removed. The spindle is then secured to the runner, and the stone is in balance, both standing and running.

In my mode of dressing millstones, I discard all leading furrows, cutting only twelve short furrows, which leaves all that portion of the stone technically called the "eye" for grinding surface. I give the furrows no "draft," but radiate them from the center of the stone.

In the mode of dressing in common use, the "back" of the furrows are cut perpendicular to the face of the

stone, or nearly so, and are quite deep. This causes the flour to "pack" and "glaze" in the furrow, which heats and injures it. I avoid this by cutting the furrows much wider and about half as deep as usual, and giving the "back" an angle very acute with the face of the stone.

By leaving the eye of the stone free from furrows, the grain is deprived of its hull before it is ground, thus giving a greater yield of flour than when the hull and grain are ground up together.

The result in stones dressed by my mode is almost wholly bran and flour, very little "shipstuff" being made.

I do not claim, exclusively, the use of springs; but

Having thus described my invention,

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

1. The bed-plate E, surrounding the bottom of the runner D, and having a projecting boss or hub, *c*, in combination with the spindle F, with its flange *b*, secured to the said boss *c*, in the manner and for the purpose herein specified.

2. The springs G G and driving-pulley H, loose upon the spindle F, in combination with the bed-plate E of the runner D, substantially as and for the purpose herein set forth.

3. The construction and arrangement of the frame I, sliding boxes *e e e*, and adjusting-screws *f f f*, in combination with the spindle F, secured rigidly to the runner D by its flange *b* and the bed-plate E, for the purpose herein specified.

4. In combination with the bed-plate E, boss *c*, and spindle flange *b*, arranged to form a stiff bearing for the runner, the balancing-pin *g*, when used substantially in the manner described, to put the stone in proper "standing balance," so that it may, at the same time, be in "running balance."

Witness my hand this 11th day of February, 1870.

CHARLES SCHNEIDER.

Witnesses:

HENRY CONNELLY,

JOHN R. TEMPERLY.