2 Sheets—Sheet 1.

# W. E. SERGEANT.

## Millstone-Driver.

No. 201,053. Patented March 5, 1878.

Fig. 1.

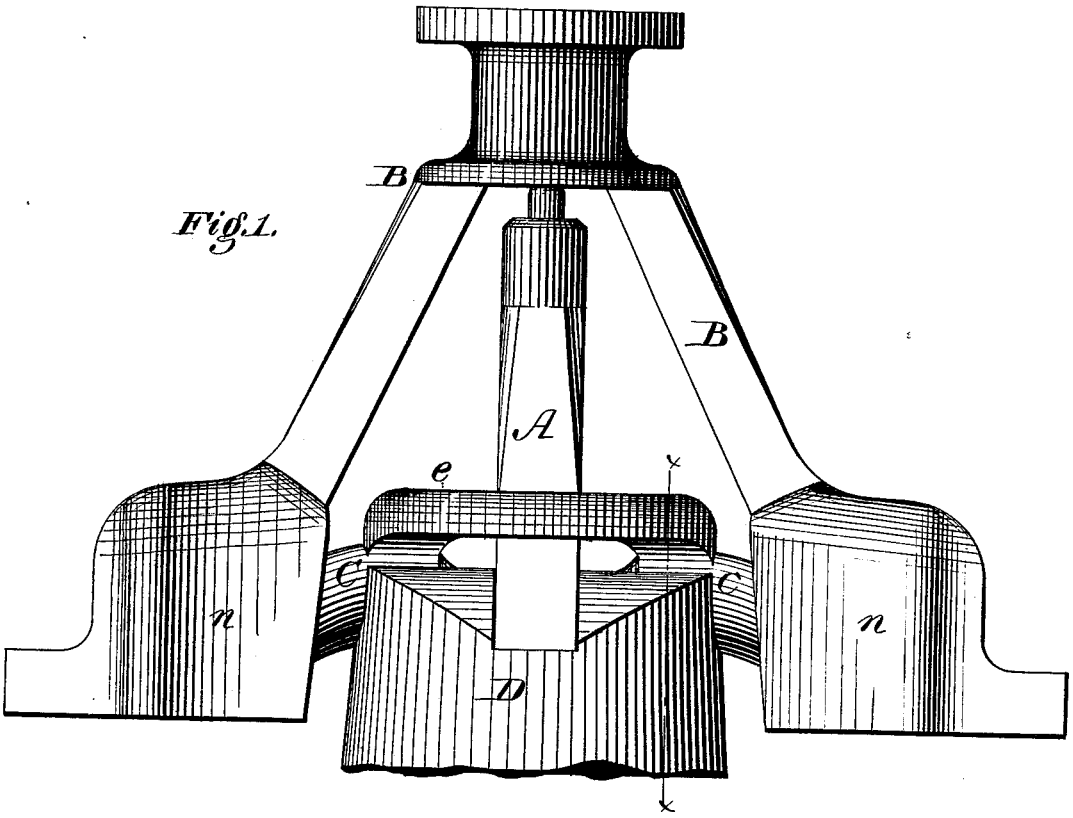
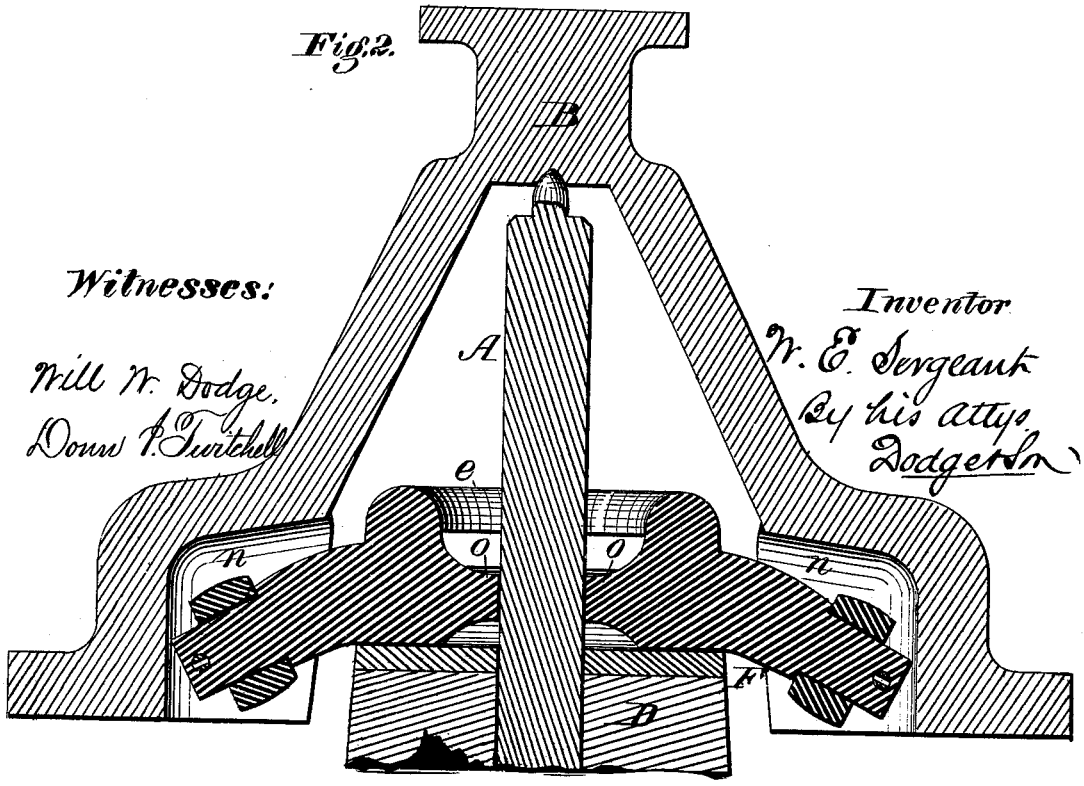



Fig. 2.

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2 Sheets—Sheet 2.

# W. E. SERGEANT.

## Millstone-Driver.

No. 201,053. Patented March 5, 1878.

*Fig. 3.*

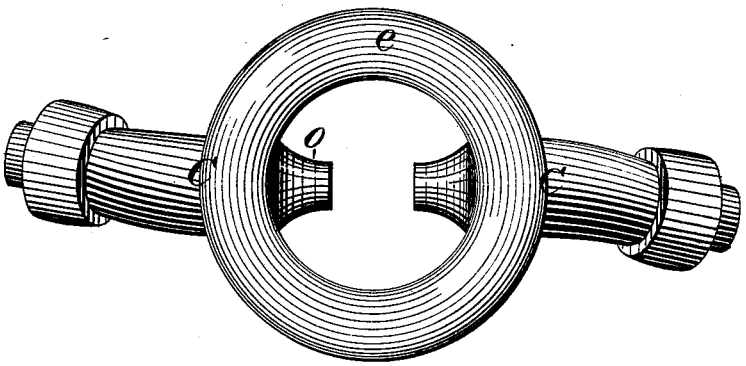
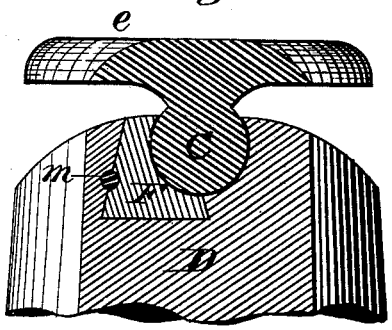



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

WELLS E. SERGEANT, OF MINNEAPOLIS, MINNESOTA.

## IMPROVEMENT IN MILLSTONE-DRIVERS.

Specification forming part of Letters Patent No. **201,053**, dated March 5, 1878; application filed October 8, 1877.

*To all whom it may concern:*

Be it known that I, WELLS ELY SERGEANT, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Millstone-Drivers, of which the following is a specification:

My present invention relates to improvements in the driver for which Letters Patent were granted to me November 30, 1875, numbered 170,454; and consists, mainly, in constructing the transverse rock-shaft having the angular ends with a central ring or bow to pass around the spindle, instead of making it straight and passing it through the spindle, as in the original patent, the improvement being designed mainly for use in connection with spindles which are too small, or which, for other reasons, prevent the shaft from being passed through them.

In the accompanying drawings, Figure 1 represents a side elevation of my improved device; Fig. 2, a vertical central section of the same; Fig. 3, a top-plan view of the transverse rock-shaft; and Fig. 4, a sectional view, illustrating a method of forming the bearings for the same.

In its general construction and mode of operation this device is very similar to the one previously patented by me, as above mentioned; but it has been found in practice that in many cases, owing to the small size or peculiar form of the spindle, or to other causes, it is impossible or inexpedient to pass the transverse rock-shaft through the same; and to overcome these difficulties, and produce a rock-shaft capable of the same movements and operation as that described in my former patent, and which may be applied to spindles of varying form and size, constitutes the object of this invention.

In the accompanying drawings, A represents the spindle, having at its upper end a point upon which the bail B is sustained; C, the transverse angular or bent shaft, and D the driver.

It will be observed by reference to the drawings that the shaft C is formed with a central horizontal ring or bow, *e*, which is raised or elevated above the shaft proper, as represented in Figs. 1, 2, and 4, and is mounted in bearings in the driver D, in which it is free to rock or turn. The ring or bow *e* is of sufficient diameter to permit the rocking of the shaft C without causing the ring to come in contact with the spindle A; but in order to hold the shaft against moving lengthwise in its bearings, the ring or bow is furnished on its interior with two inwardly-extending arms, *o*, arranged lengthwise of or in line with the shaft C, and coming close to or abutting against the sides of the spindle A, as represented in Figs. 2 and 3. In addition to elevating the ring or bow *e* above the rock-shaft C, the upper face of the driver D is rounded off, as shown in Fig. 4, to permit the rocking of the shaft and free descent of the grain.

In Fig. 4 is represented a manner of forming the boxes or bearings for the rock-shaft C in the driver D, which consists in forming one half of each box in the driver and the remaining half in a steel block, F, dovetailed into the driver D, and held in place by a screw or key, *m*. These blocks F, of which two are used, are placed one each side of the spindle A and upon opposite sides of the rock-shaft C, they being placed upon that side of the latter against which the driver bears when in operation.

It will thus be seen that, in order to secure the rock-shaft C in place, it is only necessary to seat it in the driver, insert the steel blocks *m*, and secure the blocks each by a single screw or key, the shaft being held against end movement by the arms *o* bearing against the spindle A, as before mentioned, though it is obvious that the shaft and the blocks F may be shouldered to accomplish this result, and the arms *o* omitted. The blocks F, being upon that side of the shaft against which the driver bears when in operation, receive the wear, and, being small, may be tempered to last a long time, or may be readily replaced at slight expense. Other forms of boxes or bearings may, however, be used, though this form is preferred, as it enables the device to be made of a more compact and simple form.

It will be noticed on reference to Figs. 1 and 2 that instead of arranging the bail B so that its depending arms shall stand between the arms of the shaft C and shoulders formed upon the driver D, as in my former device, the shoulders are omitted and the arms of the

bail provided with recesses or cavities *n*, to receive the ends of the rock-shaft, whereby the latter is caused to impart motion to the bail B in either direction, sufficient room being left in the recesses or cavities to permit the proper play or movement of the rock-shaft. The ends of the bent arms of the rock-shaft C are preferably furnished with rollers, as before. While this method of driving the bail is considered in some respects preferable to that used or described in my former patent, it will be seen that either may be used with this form of rock-shaft.

While it is preferred to hang the rock-shaft on the spindle or driver with its cranked ends acting against the bail, it is manifest that the same action of the parts and the same results will be secured in case the arrangement is inverted and the rock-shaft hung in bearings on the bail with its cranked ends arranged to act against the driver on the spindle. The last-mentioned arrangement embraces the same combination of elements as the first, and the action of the elements is the same in both cases, the one arrangement being, as before stated, the mere inversion or reversal of the other.

It will be seen that by carrying the rock-shaft around instead of through the spindle the driver may be lifted off the latter without removing the rock-shaft, which is considered desirable where a small run is used.

The essential feature of the invention is so constructing the shaft C that it passes around instead of through the spindle, and the peculiar form and arrangement, the manner of sustaining it, and other details may be modified as circumstances may require or fancy suggest. The shaft may be simply bent or bowed at the middle to pass one side of the spindle, instead of being made with the eye to encircle the same.

The construction of the bail with the recesses in its ends to receive a driver I do not claim, being aware that similar bails have been hitherto constructed.

Having thus described my invention, what I claim is—

1. In combination with a mill-spindle and bail, a transverse rock-shaft having cranked or bent ends and a central eye or bend passing around the spindle.

2. The millstone-driver consisting of the mill-spindle, the bail B, provided with recesses in its lower ends and mounted on the spindle, and a transverse rock-shaft with cranked ends carried by the spindle, and arranged with its ends in the recesses of the bail, as shown.

3. The rock-shaft C, having the elevated central eye or bend, with the journals thereunder seated in a support, D.

4. The rock-shaft C, having journals seated in the block D, and secured by the inserted steel blocks F, substantially as shown.

5. The combination of the spindle A, driver-block D, and rock-shaft C, having a central eye or bend, and the points O, to prevent end motion.

6. In a millstone-driver, a transverse rock-shaft with cranked ends, constructed to pass around instead of through the spindle.

WELLS ELY SERGEANT.

Witnesses:
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