

G. T. SMITH & W. F. COCHRANE.
Millstone-Driver.

No. 216,704.

Patented June 17, 1879.

Fig. 1.

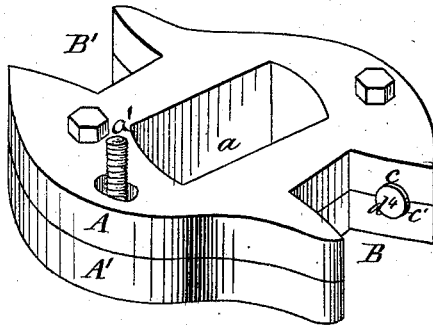


Fig. 2.

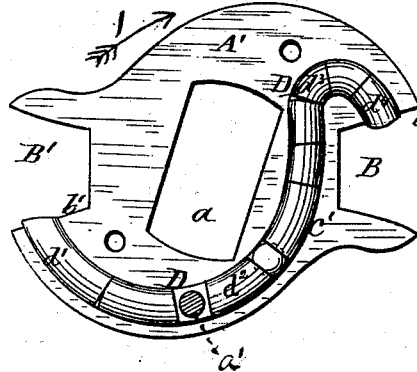


Fig. 3.

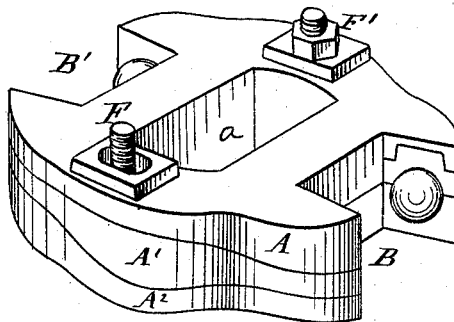


Fig. 4.

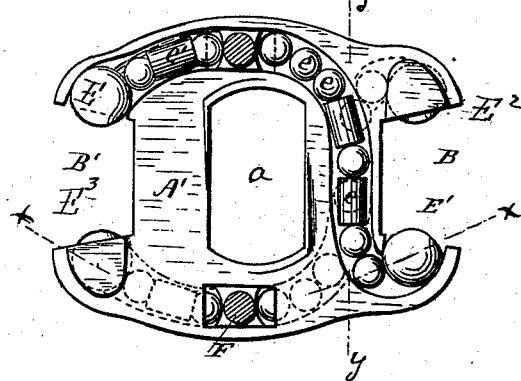


Fig. 7.



Fig. 5.

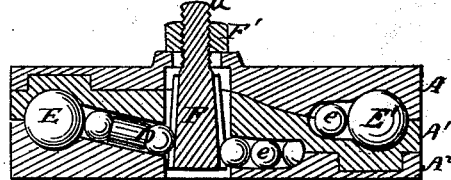
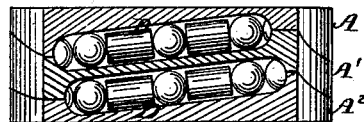


Fig. 6.



Witnesses:

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and
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UNITED STATES PATENT OFFICE.

GEORGE T. SMITH AND WILLIAM F. COCHRANE, OF JACKSON, MICHIGAN.

IMPROVEMENT IN MILLSTONE-DRIVERS.

Specification forming part of Letters Patent No. 216,704, dated June 17, 1879; application filed December 31, 1878.

To all whom it may concern:

Be it known that we, GEORGE T. SMITH and WILLIAM F. COCHRANE, of Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Millstone-Drivers; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in the devices for transmitting rotary motion to a millstone from its spindle.

It is well known that with a millstone-driver constructed of one piece of metal much inconvenience is experienced from the pressure of the driver upon one horn only of the bail, which frequently disturbs the balance of the stone.

The object of this invention is to produce a millstone-driver which shall apply the power uniformly to both heels of the bail.

Figure 1 is a perspective view of one form of our driver. Fig. 2 is a top or plan view with the upper part of the casing removed. Fig. 3 is a view of a driver embracing additional features of invention. Fig. 4 is a plan view of Fig. 3 with the upper part of the shell or body removed. Fig. 5 is a vertical section taken on the curved line *xx*, Fig. 4. Fig. 6 is a vertical section taken on line *yy*, Fig. 4. Fig. 7 is a view of an adjusting device detached.

Referring to Figs. 1 and 2, the shell of the driver is composed of two sections, *A A'*, each part of which is provided with a groove, *c'*, preferably rounded in cross-section, extending from one bearing-point, *b*, to the opposite bearing-point, *b'*, in the recesses *B B'*, which are formed to receive the heels of the bail. *d' d''* are cylindrical blocks fitted to slide freely in the groove, the intervening portion of the groove being filled with connecting-blocks *d'' d'''*, these blocks, by preference, being cylindrical in cross-section and of such lengths as will best adapt them to slide freely longitudinally in the groove; but the column which connects the end pieces, *d' d''*, may be made of balls, or it may consist of a column of liquid—

such, *e. g.*, as mercury, glycerine, oil, or other suitable substance adapted to transmit motion from one of the end blocks to the other one.

It will, of course, be understood that the grooves *c'* in the two parts of the shell match each other, so as to form a single continuous groove adapted to receive the pieces *d' d''*.

From an examination of Figs. 1 and 2, it will readily be seen that if, when the driver is rotated in the direction indicated by the arrow 1, the block *d'* engage with one heel of the bail before the block *d''* engages with the opposite heel of the bail, the block *d'* will be thrust inward, and, by means of the connecting-column, will thrust the block *d''* outward relative to the face *b* of the recess *B* until it (*d''*) engages with the heel of the bail, thus insuring that the power shall be applied equally to both heels of the bail, whereby the millstone will be driven without disturbing its balance.

In order to adjust the length of the connecting-column to insure that the pieces *d' d''* shall project properly from the faces *b b'*, we employ an adjusting device, by means of which the column may be lengthened, as required.

In the drawings we have shown this adjusting device as consisting of a wedge-shaped block, *F*, provided with a screw-threaded shank, which is interposed between the adjacent ends of two pieces in the column, the edges of the wedge being, by preference, grooved. The vertical slots in which the wedge is located are made of such length as to permit the desired freedom of movement, the position of the wedge being determined by a nut upon its upper screw-threaded shank, *a'*, and it will be seen that by drawing up the wedge the connected column may be lengthened.

When a column of liquid is employed its length may be adjusted by means of a set-screw, the point of which is forced into the groove *c'* and into the column of liquid, thereby increasing the length of said column.

In Figs. 3, 4, 5, and 6 we have shown the body or shell of the driver as being composed of three plates, *A A' A''*, having curved or warped engaging faces, whereby provision is made for two equalizing-columns, both of which

have their ends arranged in a common horizontal plane, but which cross each other's paths in different horizontal planes, whereby they are adapted to actuate metallic blocks E E^1 E^2 E^3 ; but as this feature of construction is embodied in another application filed by us it is not necessary to describe it in detail in this specification.

We do not wish to be limited to making the body in two parts, A A^1 , the inner face of each part being grooved, as under some circumstances we may prefer to cast the body in one piece and form the groove by means of a core.

We do not in this specification claim constructing the body of the driver of three plates or sections, nor the arrangement of the two columns which cross each other, having claimed these features in another application which we have filed as a division of this; but

What we do claim is—

1. A millstone-driver provided with a continuous groove or recess from one bearing-point, at b , to the opposite point, at b' , in combination with bearing-surfaces which project from the ends of the groove, and a connecting-column arranged within the groove, substantially as set forth.

2. A millstone-driver provided with a continuous groove or recess from one bearing-point, at b , to the opposite bearing-point, at b' , in combination with short metal pieces placed in the groove to form a continuous column having its ends projecting from the ends of the groove, substantially as set forth.

3. In a millstone-driver, the combination, with the end pieces, d^1 d^4 , and an equalizing-column arranged to transfer motion from d^1 to d^4 , of mechanism, substantially as set forth, for adjusting the position of said pieces relative to the body of the driver by lengthening the equalizing-column, substantially as set forth.

4. In a millstone-driver, the combination, with an equalizing-column, of the wedge-shaped adjuster F and nut, substantially as set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

GEORGE T. SMITH.
WM. F. COCHRANE.

Witnesses:

M. HANNON,
J. C. BONNELL.