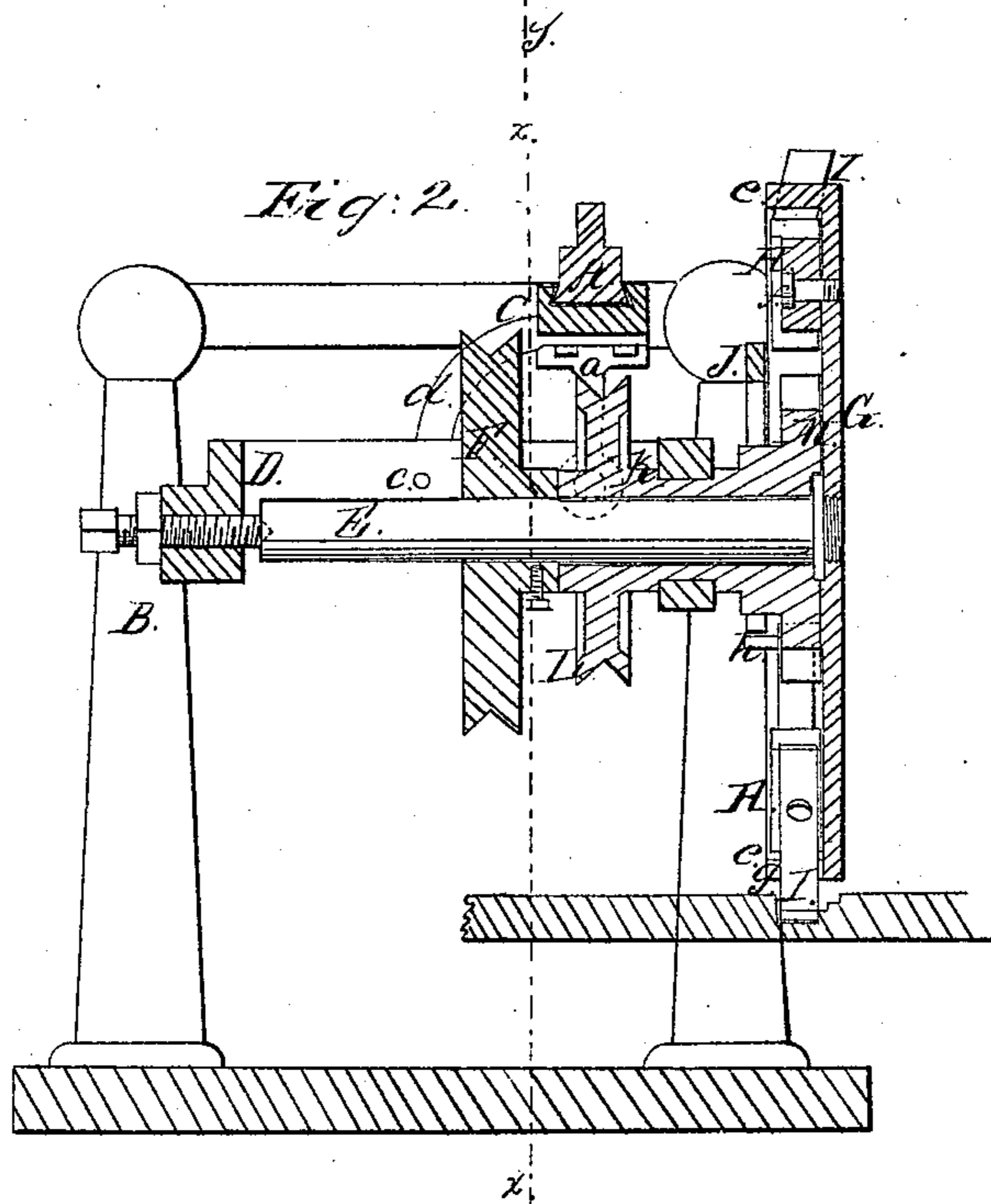
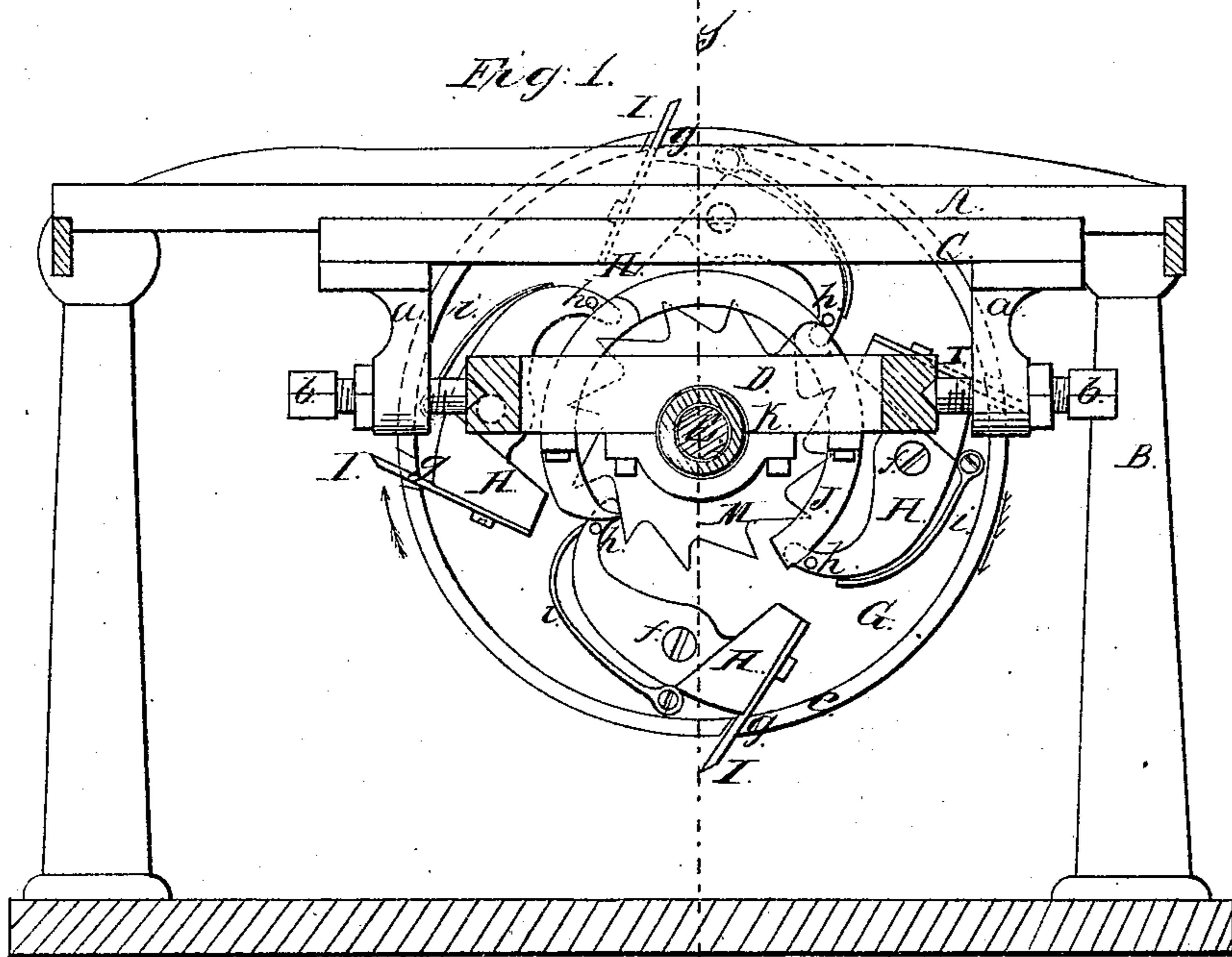


Frost & Webster,

Stone-Channeling Machine.

N^o 15,289.

Patented July 8, 1856.



UNITED STATES PATENT OFFICE.

CHS. FROST AND A. W. WEBSTER, OF WATERBURY, CONNECTICUT.

MACHINE FOR QUARRYING AND CUTTING STONE.

Specification of Letters Patent No. 15,289, dated July 8, 1856.

To all whom it may concern:

Be it known that we, CHARLES FROST and A. W. WEBSTER, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new and Improved Machine for Quarrying Slate; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section of our improvement *x, x*; Fig. 2, showing the plane of section. Fig. 2 is a transverse vertical section of ditto *y, y*, Fig. 1, showing the plane of section.

Similar letters of reference indicate corresponding parts in both figures.

Our invention consists in having cutters attached to stocks or blocks which are pivoted to the side of a rotary wheel and acted upon by a rotary cam, stationary curved arm and springs, as will be hereinafter fully shown and described, so that the cutters will, as the wheel rotates, cut or chisel a groove in the slate and thereby allow the slate to be shelled or split off from the solid mass, of a thickness corresponding to the depth of the grooves made by the cutters. The wheel is fitted within a frame which slides upon a bar, the frame being fed along on the bar, as the work progresses, in any proper manner.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents a bar, the ends of which rest upon a proper framing B, and C represents a bar which has its upper surface grooved in dove-tail form, the bar C being fitted on a corresponding dovetail projection on the bar A, so that the bar C may slide back and forth on the bar A. To each end of the bar C there is attached a hanger or pendent *a* having screws *b* passing horizontally through their lower ends, see Fig. 1. Between the two screws *b b* a frame D is centered. This frame may be secured in a horizontal position or in a slightly inclined position by means of a set screw *c*, which passes through a slotted segment arm *d* attached to the bar C, the set screw passing into one side of the frame D.

E represents a shaft which is fitted in the

frame D. This shaft has a driving pulley F upon it, and a pulley G is attached to its outer end. The pulley G has a lip *e* formed on its edge, said lip projecting at right angles from the edge of the pulley, as clearly shown in Fig. 2.

H represents cutter stocks or blocks which are attached by pivots *f* to the inner side of the pulley G. Four stocks or blocks are represented in the drawing, but more or less may be used as desired. The ends of the stocks H have chisels or cutters I attached to them, one to each, and these cutters or chisels work through slots *g* in the lip *e*.

To the outer end of the frame D a circular arm J is attached, said arm forming about three-fourths of a circle, as shown in Fig. 1. The ends of the stocks opposite to the ends where the chisels or cutters I are attached have pins *h* attached to them and these pins, when the stocks are passing around above the shaft E bear against the arm J, the pins being kept against the arm by springs *i*. The cutters I are also drawn inward when the pins *h* are upon or against the arm J.

On the shaft E there is placed loosely a collar K. This collar has a pulley L upon it and also a cam M, which resembles in form a ratchet wheel, as plainly shown in Fig. 1. The cam M is placed contiguous to the inner side of the pulley G, as shown in Fig. 2.

The pulley G is rotated by a belt which passes around the pulley F and the cam M is rotated by a belt which passes around the pulley L. The cam M is rotated with a much greater speed than the pulley G.

The cutters I as they pass around are drawn inward when above or over the shaft E in consequence of the pins *h* bearing against the arm J, as before stated, but as the cutters pass around below the shaft E and pass off the end of the arm J, the springs *i* throw the inner ends of the stocks H against the cam M, and the teeth of the cam, as said cam rotates rapidly, give a vibratory motion to the stocks H and the cutters I, are forced rapidly in and out from the lip *e*, of the pulley G, the cutters making a groove into the slate, shown in red, Fig. 2, and acting upon it till the pins *h* are caught by the opposite end

of the arm J, when the cutters are again drawn inward and the inner ends of the stocks freed from the action of the cam M.

5 The frame D and pulley G may be gradually fed forward in any proper manner, as the cutters operate and the frame D as before stated may be inclined, when the slate is slightly inclined, so that the cutters may form grooves in it at right angles with its
0 surface.

The cutters I may be set a little angularly, every alternate cutter inclining to the right and the other to the left, similar to the "set" of saw teeth so that the grooves may
5 have taper or inclined sides to prevent the binding of the cutters in the grooves.

It will be understood that the slate has horizontal seams or lies in thin strata in the quarries, and by cutting at proper dis-

tances apart vertical grooves in the slate 20 with the machine described, it is readily shelled or split off from the mass or bed.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is, 25

The combination of the cutter stocks or blocks H, and cam M, the stocks or blocks being pivoted to the pulley G, which is placed on a shaft E in the frame D, and the cam placed loosely on the shaft E, the above 30 parts being otherwise arranged and operating, as shown for the purpose specified.

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Witnesses:

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EDW. B. COOKE.