

L. Barnum, Dressing Stone.

N^o 79,627.

Patented July 7, 1868.

Fig. 1.

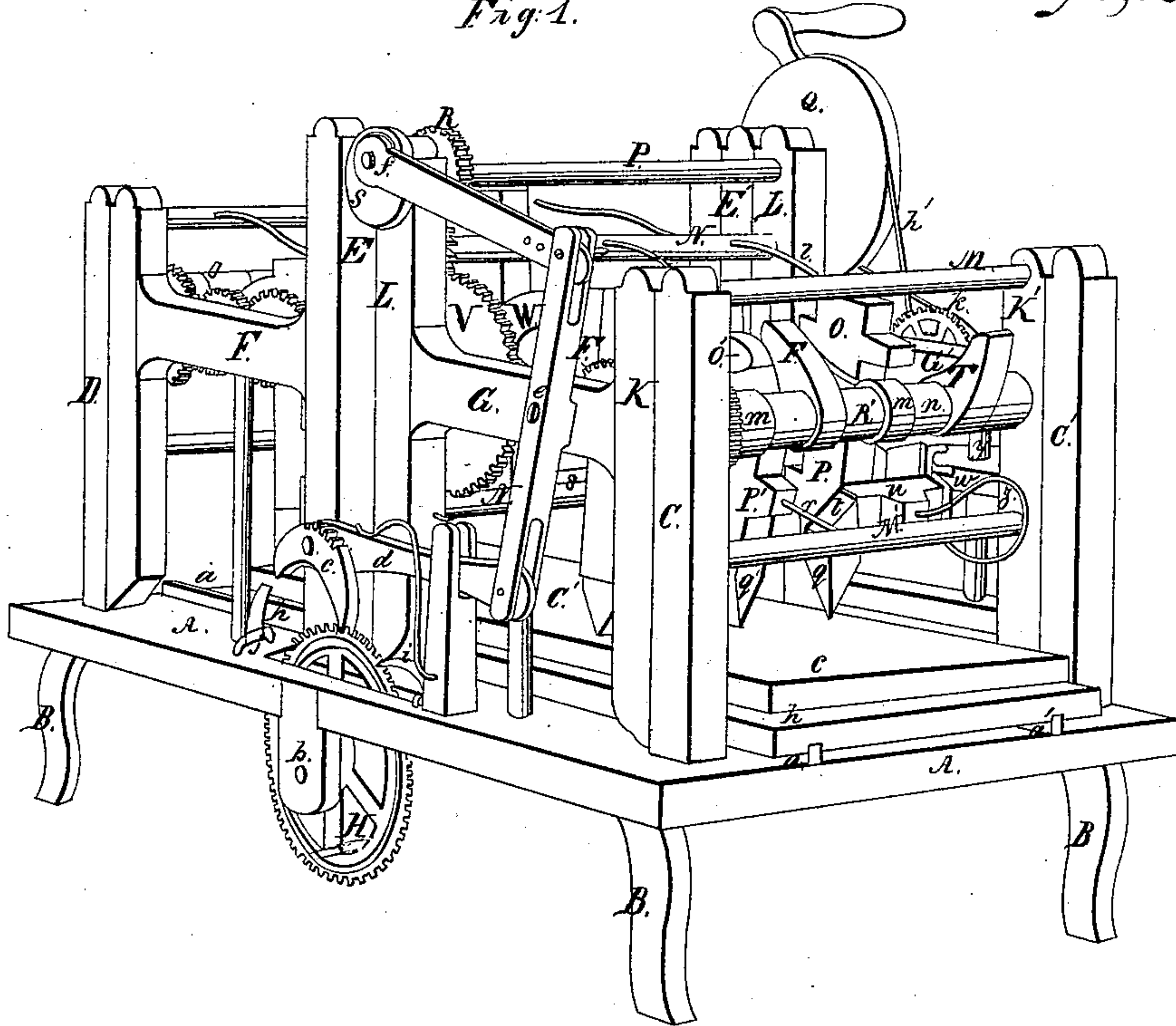
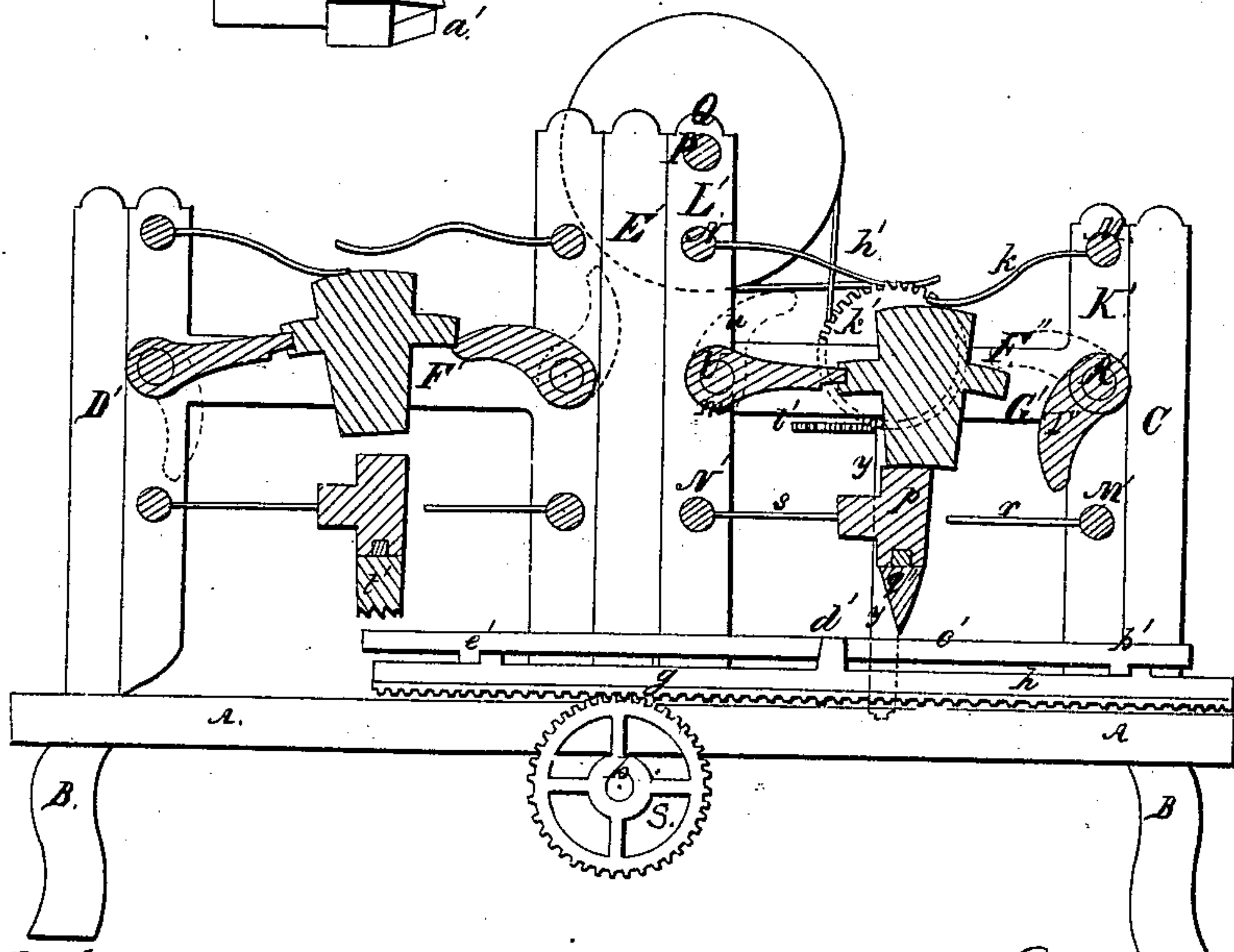


Fig. 3.



Fig. 2.



Witnesses:

John B. Robinson
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Inventor.

Lafayette Barnum

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LAFAYETT BARNUM, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO HIMSELF, LEVI BARNUM, AND CHARLES H. ENSIGN, OF SAME PLACE.

Letters Patent No. 79,627, dated July 7, 1868.

IMPROVED MACHINE FOR CUTTING AND DRESSING STONE.

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, LAFAYETT BARNUM, of the city of Bridgeport, in the county of Fairfield, and State of Connecticut, have invented a new and useful Improvement in Machinery for Cutting or Dressing Stone; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make part of this specification, in which—

Figure 1 is a perspective view of the whole machine, showing one of the main cam-shafts, most of the train of gear-wheels, and of the feed-motion.

Figure 2 is a section of the same, cut longitudinally and vertically through the central part of the machine, showing the cross-section of all of the cam-shafts, and some of the cams, hammers, cutters, springs, &c.

Figure 3 is a perspective view of a double-edged cutter fitted to finish one of the longitudinal corners of the stone at any desired angle.

My improvement consists in constructing the machine with two or more shapes of cutters, as pointed for rough cutting on flat surfaces, wedge-shaped for smoothing, serrated surfaces for finishing, double-edged (as fig. 3) for edging, &c., and in the manner of feeding the stone (to be dressed) on a double carriage, all substantially as hereinafter described.

I make the bed-plate or platform, A A, with suitable legs, as B B, of cast iron or any other suitable material, of sufficient size and strength for the work intended to be done.

On the upper surface of this platform A A, I fit two ways or rails, as represented at *a* and *a'*, fig. 1, on which the sliding bed *h* moves, to feed the stone to the cutters, by means of the feed-motion.

Near each corner of the platform A A, I fit or erect a standard or post, three of which are shown at C, C', and D, fig. 1, and two of them are indicated at C' and D' in fig. 2; and centrally, in each side, I erect another standard or post, as shown at E and E', fig. 1, and one of them is shown at E', fig. 2. These six standards or posts, by means of tongues and grooves, hold the two adjustable frames, F and G, which contain all of the cams, hammers, cutters, &c.

In and under the platform A A, I fit two spur-wheels, one as shown at H, fig. 1, and the other at I, fig. 2, both being on the same shaft or arbor, as shown at *b*, figs. 1 and 2, which, by means of the hand or dog *c*, worked by the jointed lever *d e f*, (the fulcrum of which is at *e*, and the crank-pin which operates it is at *f*), as represented in fig. 1, and the rack *g* on the bottom of the sliding carriage *h*, serve to feed the stone longitudinally in either direction, as is desired, by using the proper pawl, that is, either *i* or *j*, as needed.

I make the adjustable frame G and G' of four upright parts, as shown at K, K', L, and L', in fig. 1, and two cross-bars, G and G', as shown in fig. 1, and as indicated in section at K', L', and G', in fig. 2; and I secure the sides together by bars or rods, as shown at M, M', N, and N'.

To the bars or rods M and N, I attach springs, as *k* and *l*, to force down the hammers, as O and O', upon the stocks, as *p*, of the cutters, as *q*, and to the bars or rods M' and N', I attach springs, as *r* and *s*, which support the cutter-stocks, as *p*, and cutters, as *q*.

In the upper end of the uprights L and L', I fit a shaft or arbor, as shown at P, fig. 1, and indicated at P, fig. 2, to which the main or driving-power is to be applied by means of a belt on the wheel or pulley Q; and on the other end of the shaft P, I place a small gear-wheel, as R, which, when put in motion, works the whole train that puts in motion the cam-shafts, to work the hammers, &c.; and the crank-pin in the plain wheel S operates the feeding-apparatus.

I fit into this frame G G' two cam-shafts, one of which is plainly shown at R', fig. 1, and both indicated at R' and U in fig. 2. On the shaft R' two cams, T and T', are shown as having released the hammers O and O', and allowed them to fall on the cutter-stocks, as *p*, to strike down the cutter-points, as *q*; and on these cam-shafts I fit loosely the ends of the hammer-handles, two of which are shown at *m* and *m'*, fig. 1, and one at *m''*, fig. 2.

The other cam-shaft, in the frame G G', which is indicated in section in fig. 2, at U, (and has its position indicated by the large gear-wheel V, fig. 1, which is on that shaft, and one of the cams is partially shown at W, and indicated by dots at U', fig. 2,) is, with its cams, hammers, and springs, substantially the same as the one described, and is in all respects, but a part of the same series of means for the rough cutting of the flat surface of the stone, although the cutters may in one case be pointed, and in another be wedge-shaped.

I make the adjustable frame F and F', in all essential particulars, the same as G and G', before described, except that the shaft or arbor P is common to both, because the wheel R is connected with both trains of wheels through the large wheel V, &c. But in the frame F and F', I fit cutters for finishing, either with the working-surface of the wedge-shape, or the square form, with its under surface doubly serrated or notched, for the finest finish, as shown in fig. 2, at t', or otherwise.

I use any desired number of cutters in each of these frames; and I have the frames so adjustable vertically, (by means of the tongues and grooves in the uprights,) that they will conform themselves to the thickness of the stone; or the adjustment may be limited by any proper gauge or gauges, so as to cut the stone to any desired thickness. The adjustability of the two frames is wholly independent of each other.

I also use cutters for dressing the edges of the stone, of the same general character as those for the flat surface, and use revolving hammers for working them, as is indicated in fig. 1, where t represents one of the cutters, u the cutter-stock, and w one of the hammers, which revolve horizontally on a vertical shaft or arbor, as represented at y, while the cutter-stock u is represented as being sustained by the curved spring z.

Any desired number of these cutters for dressing the edges may be used, but I would recommend using no more than two revolving hammers on one shaft, which shaft may be revolved by a belt, as h', from the wheel Q on to the vertical wheel k', to revolve the horizontal wheel indicated at l', which is on the vertical shaft y, all of which is represented in fig. 2, and mostly in fig. 1. And when deemed best, the edging-cutter may be made in the double form, as represented in fig. 3, where the edge a' will dress the edge of the stone, while the cutting-edge b' will smooth and finish the upper surface, so as to form a perfect corner of any desired angle. And the feeding-apparatus may be varied to suit any desired curve-line of edge, by fitting a superincumbent table, as represented at c', figs. 1 and 2, which may partially revolve on the centre d', while guided or steadied by the duplicate curved projections indicated at e' and f', fig. 2, which may be continued to a perfect circle, which will enable me to give any desired curve or waving to the edge, as for a mantel-piece, table, &c.

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

1. The combination of the adjustable frames with the cams, hammers, cutters, and feeding-apparatus, when the whole is constructed, arranged, and fitted to operate substantially as herein described and set forth.
2. The apparatus for feeding the stone longitudinally, with the method of swinging it on its centre, so as to form a curvilinear edge, and the edge-cutters, when constructed, arranged, and fitted to operate substantially as herein described and set forth.
3. The combination of the double-edged cutters (fig. 3) with the rotary hammers, when they are constructed and used substantially as and for the purpose herein described and set forth.

LAFAYETT BARNUM.

Witnesses:

JOHN B. ROBERTSON,
R. FITZGERALD.