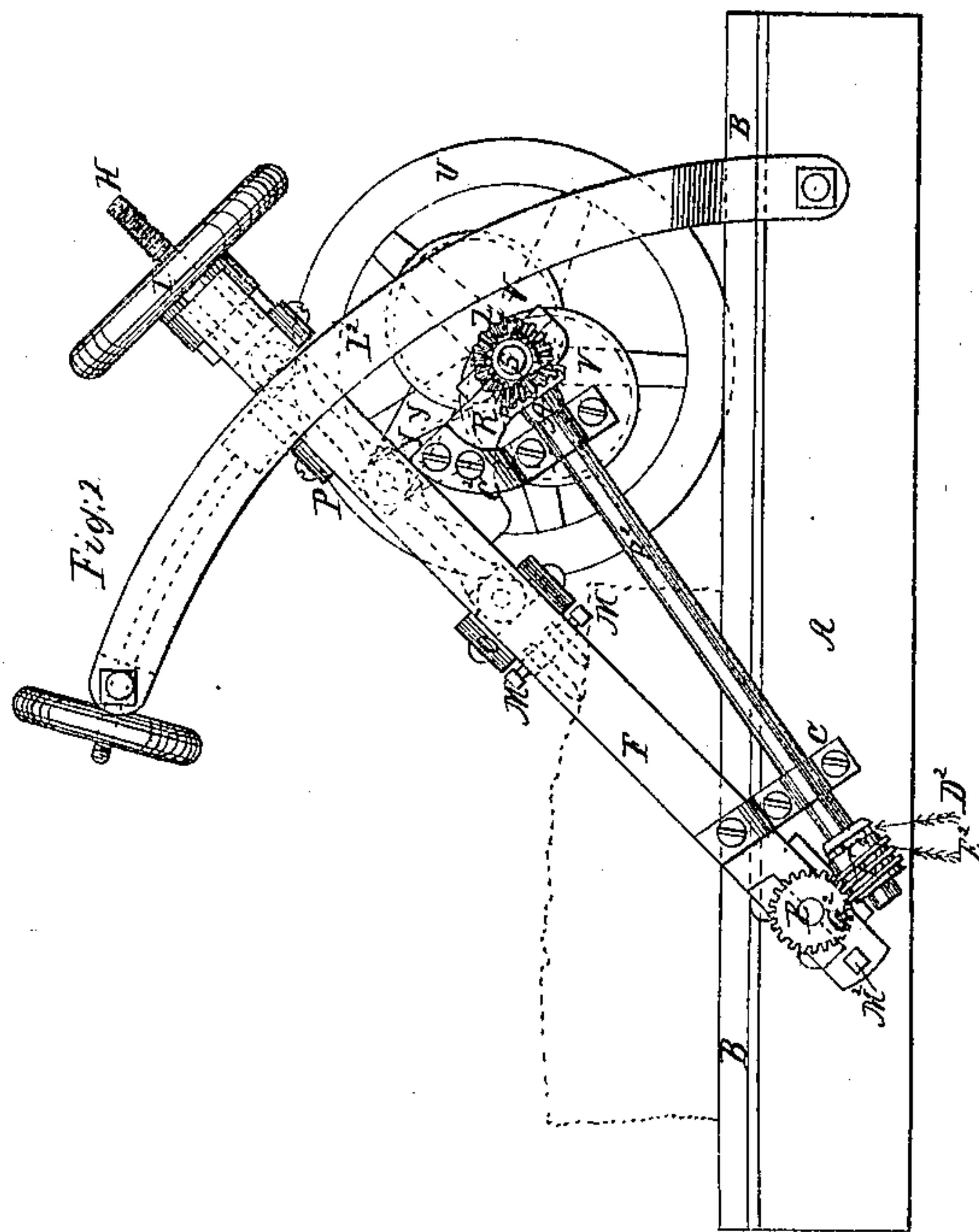
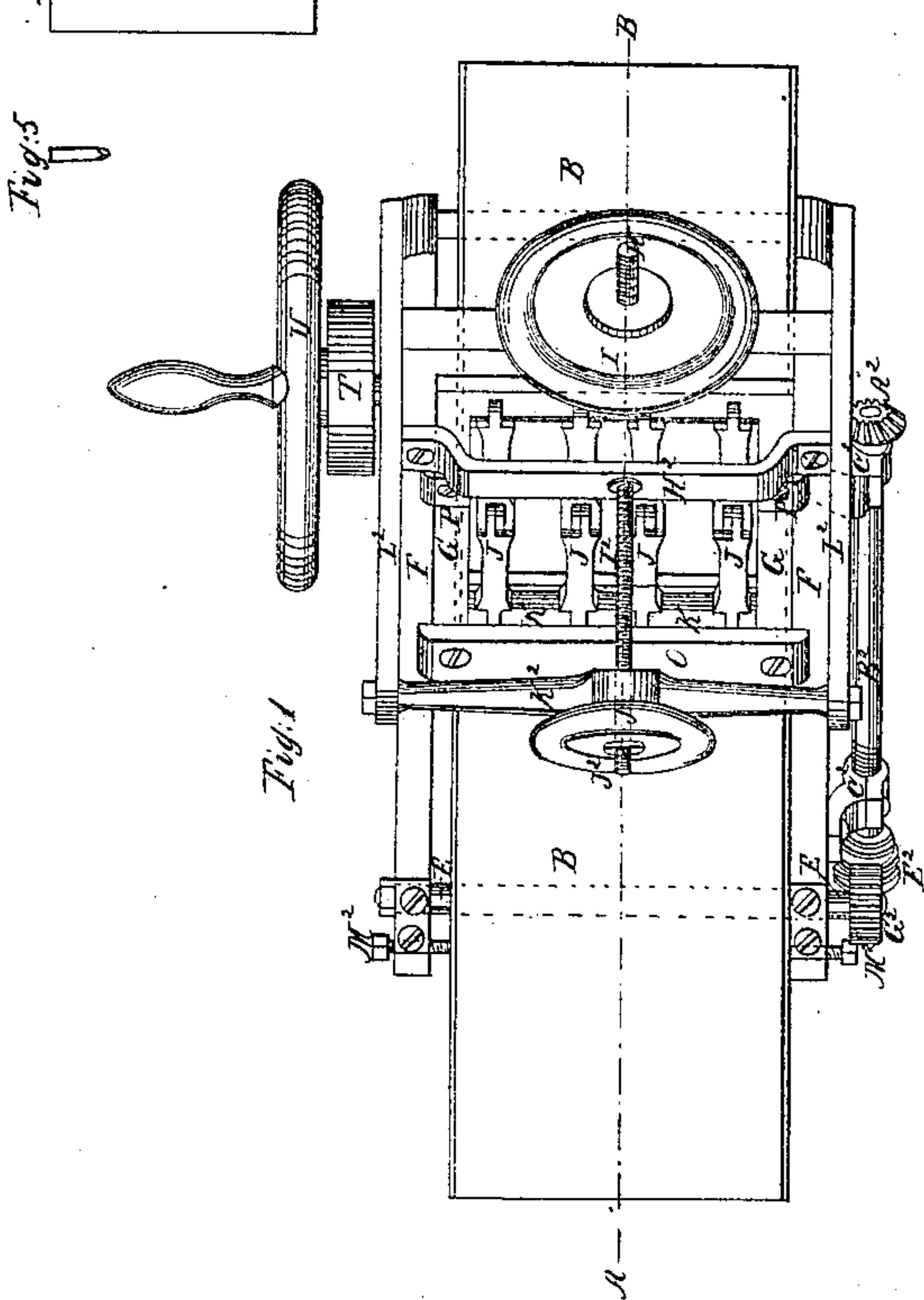
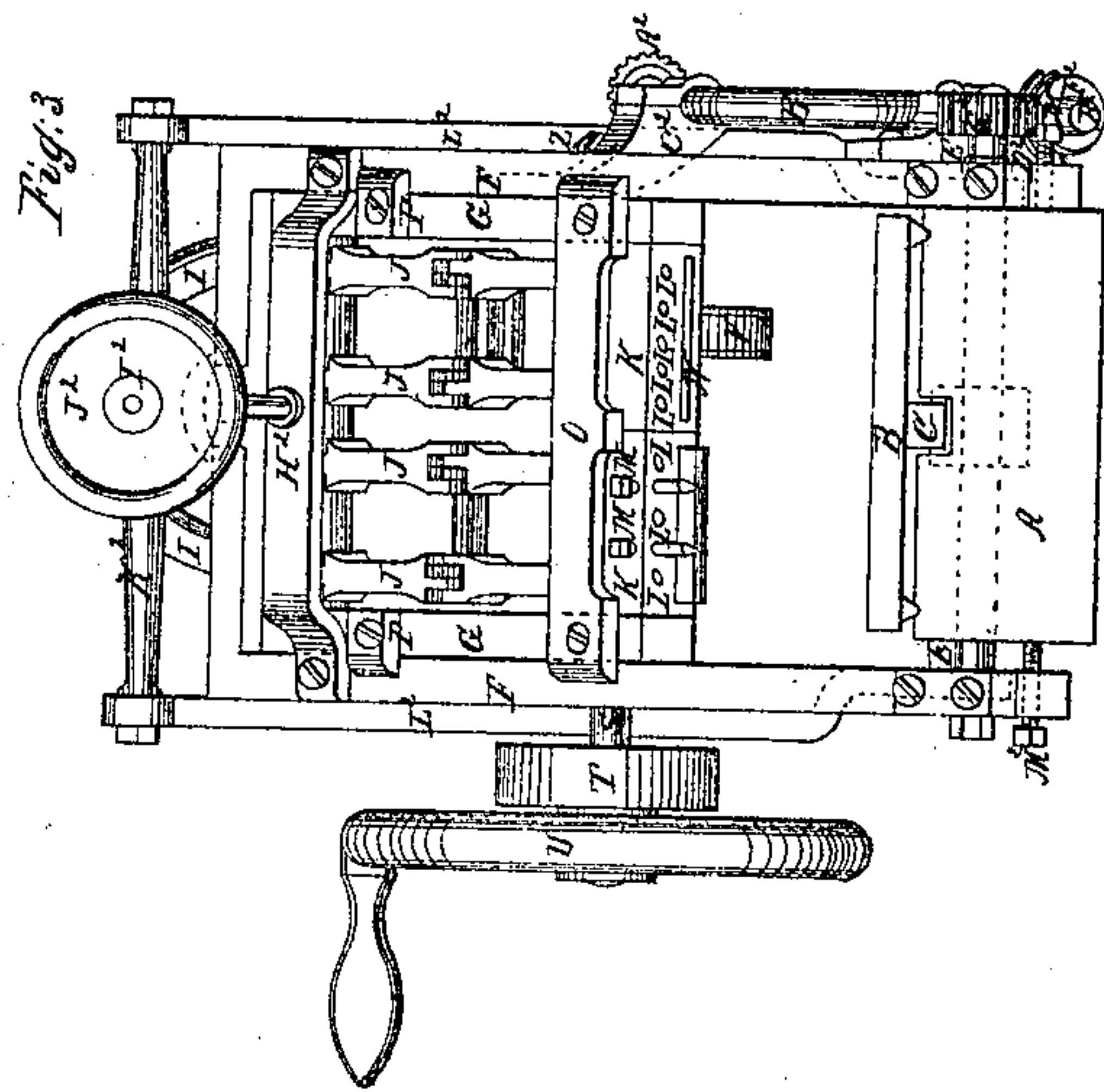
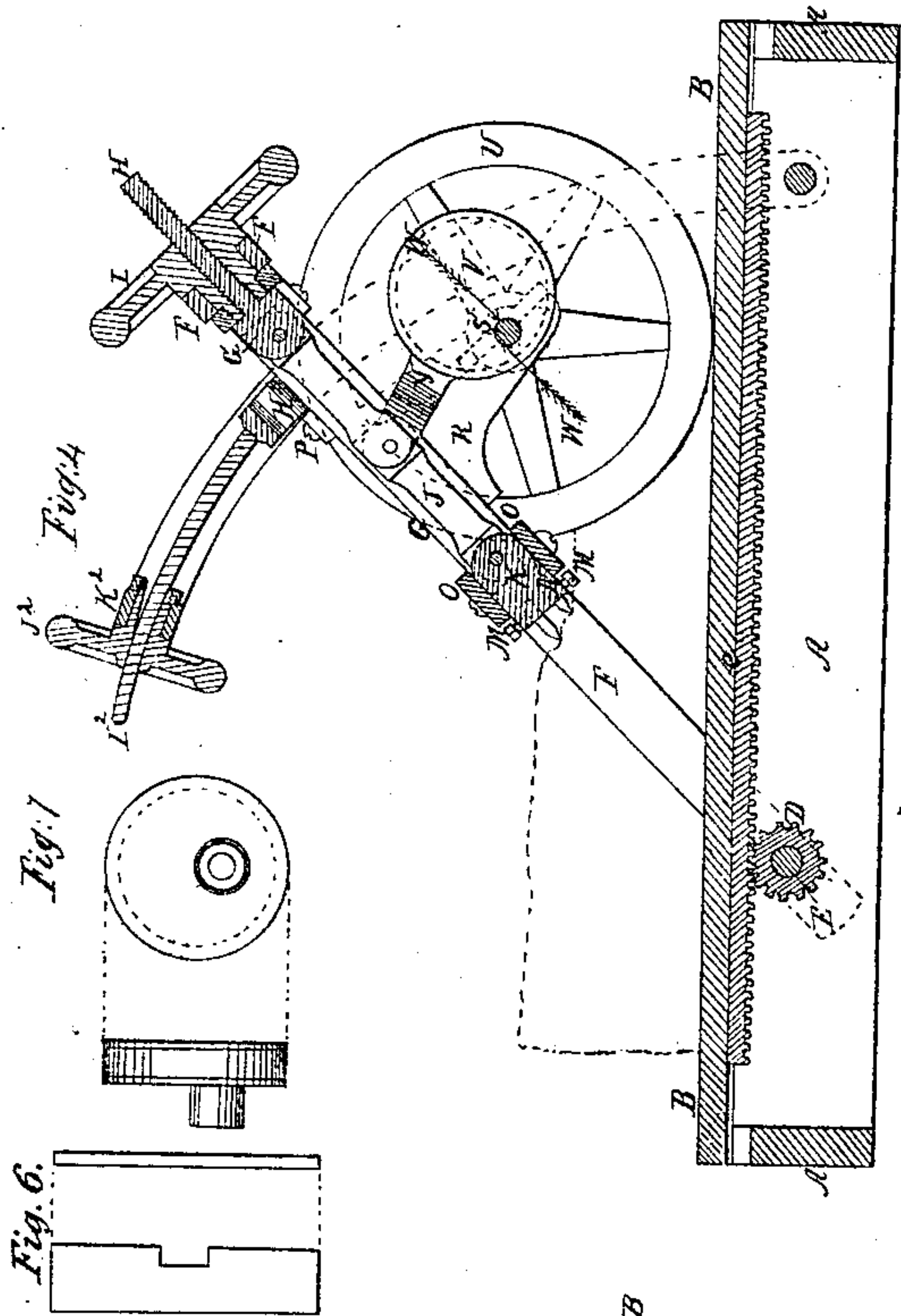


*Nichols & George,*

*Dressing Stone.*

*No 13,952.*

*Patented Dec. 18, 1855.*





# UNITED STATES PATENT OFFICE.

OLDEN NICHOLS, OF LOWELL, MASSACHUSETTS, AND AMMI M. GEORGE, OF NASHUA,  
NEW HAMPSHIRE.

## STONE-DRESSING MACHINE.

Specification of Letters Patent No. 13,952, dated December 18, 1855.

*To all whom it may concern:*

Be it known that we, OLDEN NICHOLS, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, and AMMI M. GEORGE, of Nashua, in the county of Hillsboro and State of New Hampshire, have invented certain new and useful Improvements in Stone-Dressing Machines; and we hereby declare that the following specification, in connection with the accompanying drawings and references thereon, constitute a lucid, faithful, and exact description of its construction and use.

In referring to the said drawings, Figure 1 denotes a plan or top view of it; Fig. 2, a side elevation of the same; Fig. 3, a front end elevation of the same; Fig. 4, a longitudinal and vertical section on line A<sup>3</sup>, B<sup>3</sup>, Fig. 1. Fig. 5, denotes one of the dressing tools; Fig. 6, one of the finishing tools to be used on our machine.

The nature of our invention consists in operating the tools of stone dressing machines by a combination of toggle joints, and adjustable eccentrics, arranged and operated as will be hereafter described.

To enable persons skilled in the construction and use of machines for cutting stone to construct and carry out our invention we will describe the same as follows.

We construct an iron bedpiece or foundation seen at A A, Figs. 2, 3, and 4. On the top of this bed we fit the iron platter seen at B B, which has proper ways formed on it and properly adjusted to grooves formed in the top of the bed piece to receive it and in which it slides from end to end of the required length of the stone to be dressed. To the underside of the platter we firmly secure a strong iron rack, seen at C, which drives the platter by the gear D, which is attached to and revolved by the strong iron shaft seen at E. We construct a strong metallic frame, seen at F, which is fitted to and swings on the shaft E. This frame is adjustable so that it can be swung or elevated to give a greater or less angle or incline to the cutting tools as may be desired, or to give a perpendicular movement to the cutting tools. To the frame F we adjust a secondary frame seen at G which is so constructed that it may slide up or down to accommodate the various thicknesses of stone which it will be necessary to dress. This frame G is elevated or lowered as is neces-

sary by the screw H which is firmly attached to the top of this frame passing through and operated by the balance wheel I which is attached to the frame F so that it may revolve, the center being bored and threaded so as to receive and constitute the nut for the screw H. Near the top of the frame F we fit and fasten a stand seen at H<sup>2</sup>. To this stand we fasten the lower end of the screw I<sup>2</sup> which passes through and is properly threaded to the balance wheel J<sup>2</sup> which constitutes the nut for it. We construct toggle joints seen at J and suspend them to the top of the sliding frame G so that they will freely swing back and forth. The lower ends of the toggle joints are connected to the tool holders seen at K in such a manner that they will freely swing when operating them. The tool holders K have a number of recesses formed in the front of them to receive the picks or roughing out tools, seen at L, and the set screws to hold them at M. Back of the recesses for holding the picks in the tool holders we form a long slot to receive the finishing tool seen at N. These tools are constructed of a flat piece of steel seen at Fig. 6 having a cutting edge formed its entire length, the opposite edge having a recess formed so that this finishing tool can be placed in the tool holders astride of the portion of metal necessary to give the tooth holder the proper amount of strength, as will be readily understood. The picks are designed to pass over the surface of the stone first by the tool holders being driven alternately, which will give the general form to the stone. Then the tool holders are set so as to operate together by changing the eccentrics so that they will both stand the same on the driving shaft. This will bring both the tool holders in the same position, so that they can be operated together, and so that they will receive the long finishing tool, which is of sufficient length to extend across the stone being finished. The sliding frame G is guided in place by the cross bars O O and stands P P. To the back side of this frame we firmly connect two stands seen at R R, which support the main driving shaft seen at S. The driving pulley can be seen at T and the balance wheel at U. We fit adjustable eccentrics seen at V V to the shaft S by means of grooves in this shaft seen at W, into which the ends of set screws enter to hold firmly the eccentrics, both set



screws of course entering the same groove when the eccentrics are set so as to operate the finishing tool and one of the set screws will enter one of the grooves on one side of the shaft and the other set screw will enter the other groove which is formed on the opposite side of the shaft, one quarter way around it, when the eccentrics are so set as to operate the picks alternately. The eccentrics are so formed as to receive the eccentric rods seen at Y which connect and drive the toggle joints as seen in the drawings.

On the end of the driving shaft S we attach a bevel gear seen at Z which gears into another similar one seen at A<sup>2</sup> which is secured to the top of the worm shaft B<sup>2</sup>, this shaft being supported by the stands C<sup>2</sup> C<sup>2</sup> one of which is fastened to the sliding frame G. The worm F<sup>2</sup> is kept from sliding up and down by the forked stand D<sup>2</sup> which fits into a corresponding groove E<sup>2</sup> formed in a portion of said worm F<sup>2</sup> which is so fitted to the lower end of the worm shaft B<sup>2</sup> as to freely slide on and turn with it, by means of a spline fixed to the shaft B<sup>2</sup> and properly fitted to the worm F<sup>2</sup> so that it may slide thereon freely. This worm F<sup>2</sup> fits into and drives the gear G<sup>2</sup> which is firmly secured to the outer end of the shaft E carrying the pinion D which meshes into the rack C of the platen B. These parts just enumerated constitute the feed for feeding forward and running back the platen in our machine.

Near the top of the frame F is firmly secured a cross bar seen at H<sup>2</sup>. To this bar we fasten the lower end of the screw I<sup>2</sup> which passes through and is properly threaded to the hole in the center of the balance wheel J<sup>2</sup>, which constitutes the nut for it. This balance wheel J<sup>2</sup> is connected so as to revolve in the swinging stand K<sup>2</sup>. This stand turns in the two curved supports

seen at L<sup>2</sup> so that the screw H<sup>2</sup> can be made to elevate or lower the swinging frame F so as to give any desired inclination to the cutting tool, which will be readily comprehended.

To each side of the frame F we fit a set screw seen at M<sup>2</sup> for the moving and adjusting the frame F laterally so that the cutting or finishing tool will entirely remove any ridge or unevenness previously left on the stone by defective tools or otherwise.

We design that our machine will cut and finish flat surfaces, moldings, &c., on any kind of stone which may be used for building purposes.

It will be understood that the eccentrics on the driving shaft S will operate the toggle joints, tool holders, and tools, so that they will give the stone two blows at each revolution of the driving shaft S, the tool performing the cutting or surfacing the stone when the two parts of the toggle joint are nearly on a line with each other, thus imparting great power to the cutting chisels which is sufficient to dress the hardest stone.

We do not claim the use of fixed cranks or eccentrics to work the tools of stone dressing machines, for they have been used before, but

What we claim as our invention and desire to secure by Letters Patent is—

The combination of the movable and adjustable eccentrics with the toggle joints for operating or driving stone dressing tools arranged and operated substantially in the manner and for the purposes fully set forth.

OLDEN NICHOLS.  
A. M. GEORGE.

Witnesses:

E. W. SCOTT,  
JOSEPH GREELY.