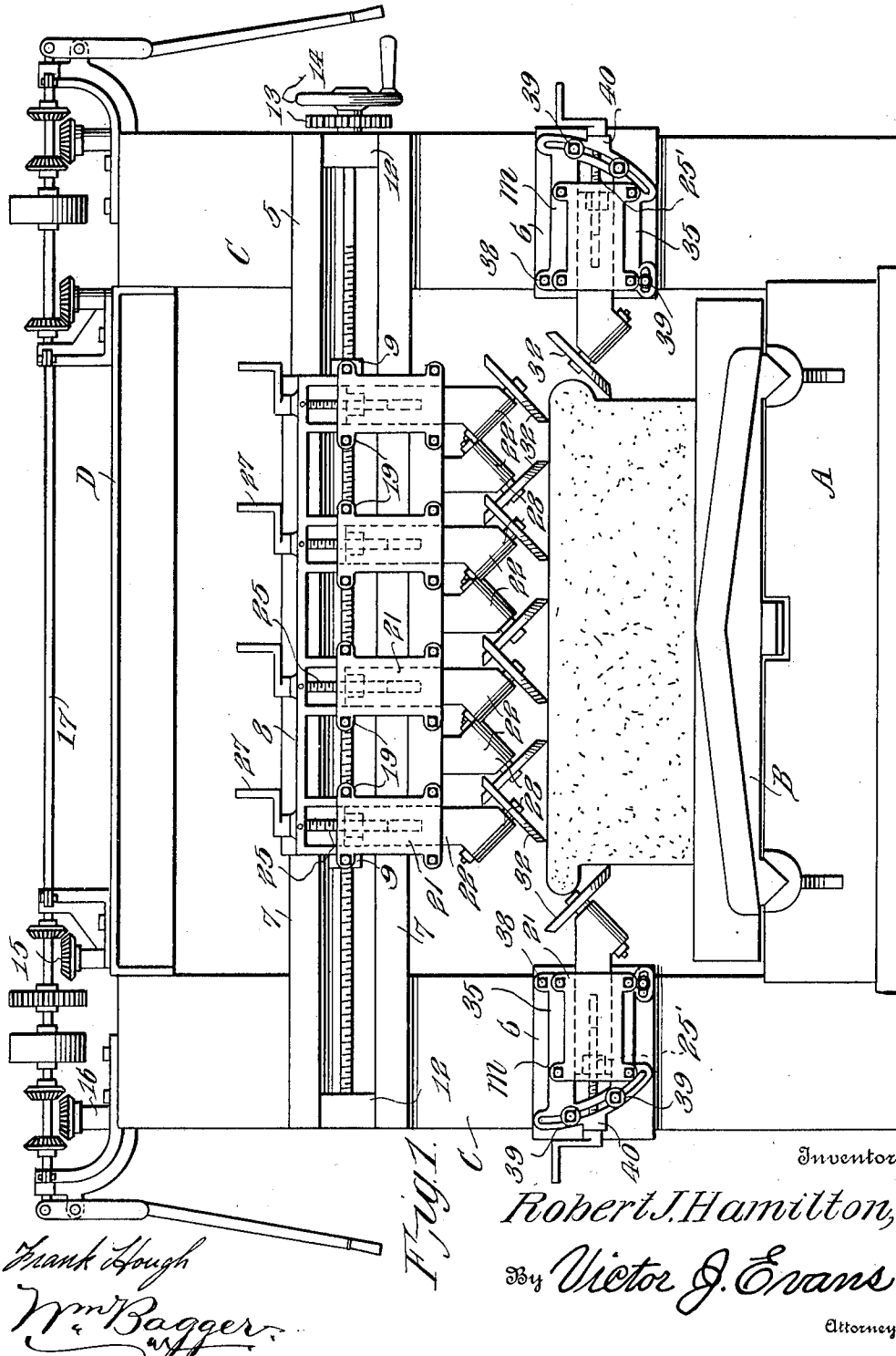


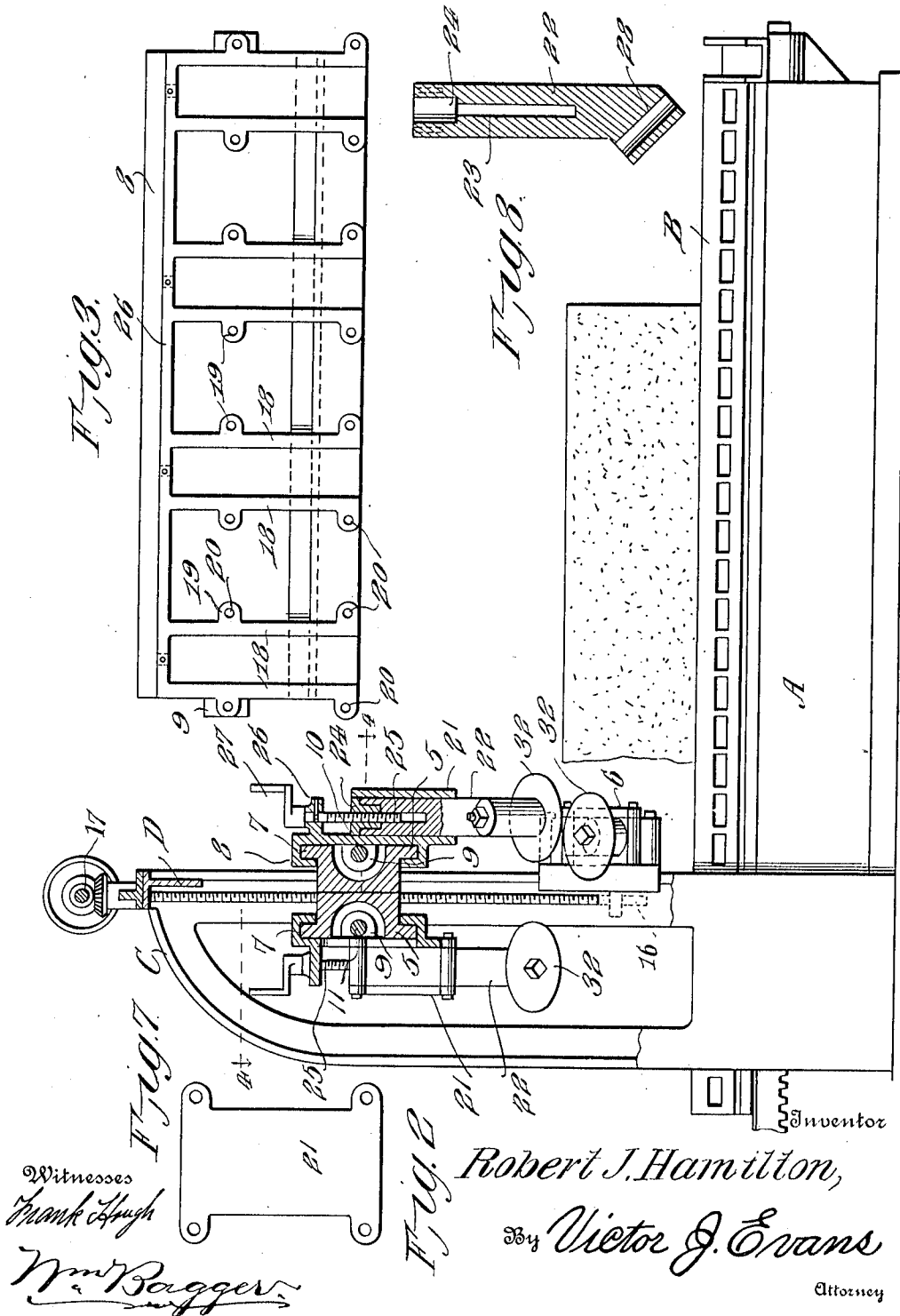
R. J. HAMILTON.
 STONEWORKING MACHINE.
 APPLICATION FILED MAR. 25, 1911.

1,035,785.

Patented Aug. 13, 1912.
 3 SHEETS—SHEET 1.



3 SHEETS—SHEET 2.



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Fig. 4

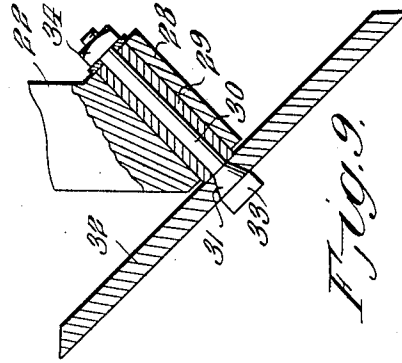
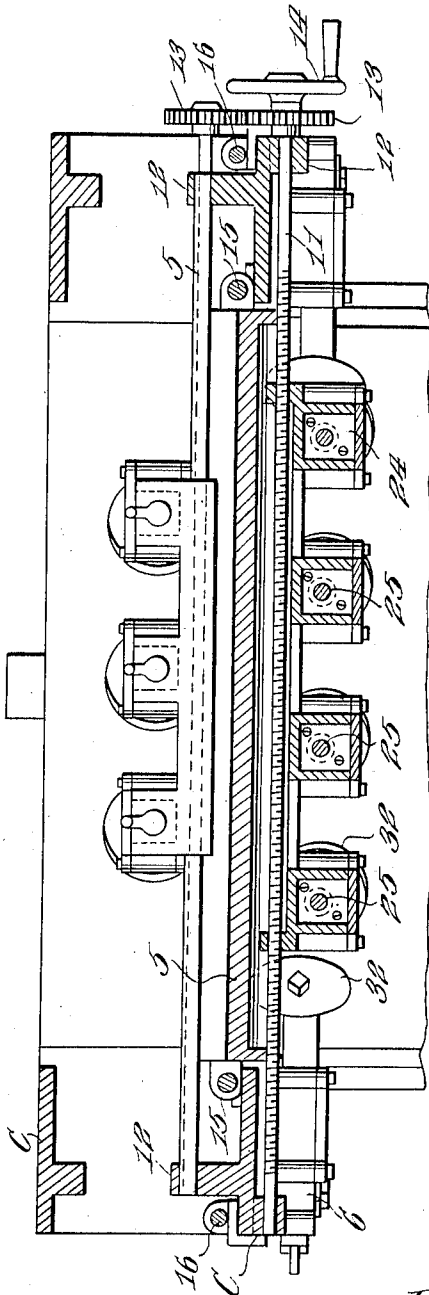


Fig. 9

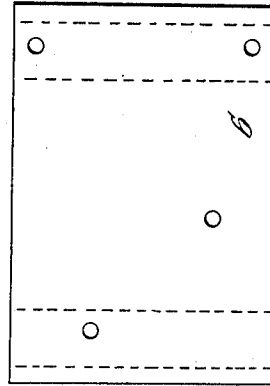


Fig. 6

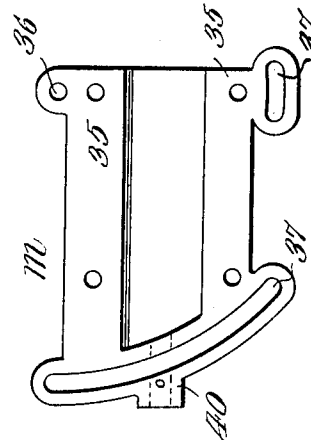


Fig. 5

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UNITED STATES PATENT OFFICE.

ROBERT J. HAMILTON, OF CAIRO, ILLINOIS.

STONEWORKING-MACHINE.

1,035,785.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed March 25, 1911. Serial No. 616,792.

To all whom it may concern:

Be it known that I, ROBERT J. HAMILTON, a citizen of the United States, residing at Cairo, in the county of Alexander and State of Illinois, have invented new and useful Improvements in Stoneworking-Machine, of which the following is a specification.

This invention relates to stone working machines, and especially to machines for dressing, planing or surfacing hard stone, such as marble or granite.

This invention has particular reference to that class of stone dressing or planing machines in which disk cutters are used.

A prime object of the invention is to provide improved tool carrying means of simple construction that will admit of independent adjustment of each of a plurality of disk cutters carried by a single cutter head, thereby enabling the cutting edges of the several cutting tools to be disposed exactly in the same plane, or in the proper desired planes relatively to one another, this being essential to compensate for uneven wear upon the several cutting tools, whereby they are frequently reduced to different diameters.

A further object of the invention is to provide a construction whereby two cross heads carrying cutting tools that are tilted in opposite directions may be simultaneously fed in opposite directions, the arrangement being such that a large surface may be covered and operated upon in a very short time and with few intermediate adjustments.

A still further object of the invention is to provide simple and improved tool holding means whereby the angle of the cutting tool with reference to the work may be quickly and accurately varied, as may be desired.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a front elevation, showing the invention applied to a stone dressing machine of conventional construction. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a front elevation of one of the slides movable upon the main cross head, the tools and face plates having been detached. Fig. 4 is a sectional view taken on the line 4—4 in Fig. 2. Fig. 5 is a detail view of a tool carrying member adapted for angular adjustment. Fig. 6 is a detail view in front elevation of a slide with which the adjustable tool carrying member may be associated. Fig. 7 is a detail view of one of the facing plates. Fig. 8 is a sectional detail view of one of the tool carrying shanks. Fig. 9 is a sectional detail view, enlarged, of the lower end of the tool carrying shank and showing the rotary cutting tool carried thereby.

Corresponding parts in the several figures are denoted by like characters of reference.

The present invention is adapted to be applied to and to be used in connection with stone dressing machines of the kind known as "planers", and the invention may be applied to and used in connection with various types of this class of machines used at the present time. A conventional form of this class of machine illustrated in the drawings embodies in its construction a base A, a reciprocatory bed B, upon which the block of stone that is to be operated upon may be supported, uprights C, C connected at their upper ends by a cross beam D, and means for actuating the bed and various other moving parts of the machine, which need not be described in detail, except so far as they directly relate to the present invention, as will be hereinafter set forth.

The uprights C are provided with guides or ways for a vertically movable cross head 5 extending across the bed of the machine, and each of said uprights also carries an independently movable and adjustable slide 6. The cross head 5 straddles the uprights C, and said cross head is provided on its front and rear faces with guides or ways 7 upon which slides 8 are movably supported, said slides being movable longitudinally of the cross head and transversely across the machine. Each of the slides 8 is adapted to carry a plurality of cutting implements which are adjustably connected with said slide, as will be presently more fully described. It is desired to be understood that

a plurality of slides may be mounted upon each side or face of the cross head, especially when the machine is of very large dimensions, but for all ordinary purposes a single slide on each side of the cross head will be sufficient. The slides 8 at opposite sides of the cross head are provided with lugs 9, see Fig. 2, said lugs being accommodated in grooves or recesses in the opposite sides or faces of the cross head. The lugs are provided with apertures 10 which are threaded for the reception of screw threaded rods 11 which are supported for rotation in suitable bearings 12 upon the cross head, said threaded rods being provided with intermeshing gears 13, and one of said rods being provided with a crank wheel 14, whereby it may be conveniently rotated. It will be seen that by manipulating the hand wheel or crank wheel 14, the screw threaded rods 11 will be rotated in opposite directions, thus feeding or moving the slides 8 in opposite directions.

Feed screws 15 and 16 are provided to effect vertical adjustment of the cross head 5 and the slides 6 upon the uprights C, and said feed screws may be mechanically operated by suitable gearing from a counter shaft 17.

The slides 8, see Fig. 3 have been shown as being provided each with a plurality of guideways each comprising a pair of flanges 18 having laterally extending lugs 19 provided with threaded recesses 20 for the reception of fastening means, such as bolts or screws, whereby face plates 21 may be secured in position and tightened. Each of the guideways accommodates a shank member 22 having a vertical slot 23 at the upper end of which a nut 24 is mounted for the passage of an adjusting screw 25 which is associated for rotation with a flange 26 upon the slide, each of the adjusting screws having a crank handle 27 whereby it may be rotated for the purpose of adjusting the shank 22. The shank 22 is provided at its lower end with an obliquely disposed sleeve 28 in which is fitted a tubular collar 29 through which extends a pin or bolt 30 having an enlarged conical portion 31 upon which a circular disk 32 constituting a cutting tool is mounted for rotation. The bolt 30 is also provided adjacent to the conical portion 31 with a non-circular head portion 33 which may be held by means of a wrench while the nut 34 at the opposite end is being tightened. By this construction the cutting disk may be firmly connected with the tubular collar 29, which latter is associated for rotation with the sleeve 28, and the cutting disk will thus be mounted for rotation without danger of binding. It is obvious that the sleeve 28 may be formed at any desired angle with reference to the shank 22. It is usually found, however, that an angle of

about 45 degrees will be suitable. It is also to be understood that the cutting disk itself may be beveled to present a cutting edge at any desired angle and that it may be in other respects constructed in any suitable, preferred and appropriate manner.

It will be seen that by manipulating the cranks or handles of the feed screws 25, the shanks 22 carrying the cutting tools may be independently adjusted. This is regarded as an important and valuable feature of the invention, for the reason that the cutting disks are apt to become unevenly or unequally worn until the diameters of said disks vary to an appreciable extent. By providing means for independently adjusting the disks, it is obvious that the engaging portions of the cutting edges of the several disks may be adjusted in a common plane, or in such relative planes as may be necessitated by the work. If this independent adjustment were not provided, a plurality of disks could not be profitably associated with a single slide. On the other hand, by associating a plurality of cutting disks with a single slide, the construction of the machine is simplified, and work may be performed more expeditiously and in a superior manner.

The face plate 21 may constitute clamping means which, by tightening said plates upon the shanks 22, will serve to retain said shanks with absolute security in the positions at which they are adjusted by means of the adjusting screws while the machine is in operation. This is another feature that is regarded of no little importance, for the reason that the machine when in operation is subject to considerable jarring and concussion which, if no preventive means were employed, would be apt to loosen the feed screws, causing displacement of the tool carrying shanks.

Associated with the slides 6 upon the uprights C, there has been shown special tool-carrying members *m*, one of which has been shown in detail in Fig. 5 of the drawings. It is desired to be understood that similar tool-carrying members may be substituted for the guiding devices consisting of the flanges 18 and associated parts that have been used in connection with the slides 8 of the cross head, as hereinafter described, when it shall be desired to provide for independent angular adjustment of the cutting disks or tools. Each of the tool-carrying members comprise a base portion provided with parallel flanges 35 and having an aperture 36 and one or more arcuate slots 37 concentric with said aperture for the passage, respectively, of a pivotal bolt or member 38 and clamping bolts or members 39, whereby the tool-carrying member *m* is pivotally and adjustably connected with the slide with which it is to be associated. The

flanges 35 constitute a guideway for a tool-carrying shank 22 which is in every respect constructed like the tool carrying shanks hereinbefore described and with which the cutting disk 32 is associated in a similar manner. It will be noted, however, that the adjusting screw, here designated 25', is in this instance associated for rotation with a bearing 40 upon the tool-carrying member in place of being associated with a bearing in a flange 26, as previously described. It will be seen that the tool carrying shanks are adjustable lengthwise of the guideways in which they are mounted, and that by proper adjustment of the tool-carrying members *m*, the cutting disks or tools may be adjusted to present the planes of the disks at any desired angle with reference to the surface of the work.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The construction is simple and inexpensive and of such a nature that the invention may be readily applied to and used in connection with stone working machines of various up-to-date types and patterns without necessity for material alteration.

The invention may be utilized for dressing plane surfaces, for cutting flutings, cornices and the like and for all other purposes to which devices of this kind are usually employed.

Having thus described the invention, what is claimed as new, is:—

1. In a stone dressing machine, a frame including uprights, a cross head vertically movable on said uprights, the opposite faces of said cross head being provided with longitudinal grooves, slides independently supported for longitudinal movement on opposite sides of the cross head and having lugs operating in the longitudinal grooves, screw threaded rods supported for rotation on opposite sides of the cross head and having threaded engagement with the lugs of the slides, said screws being provided with intermeshing gears, tool carrying shanks

movably supported for vertical adjustment upon the slides, and rotary cutting disks carried by the shanks, the cutting disks carried by the shanks on opposite sides of the cross head being tilted in opposite directions.

2. In a stone dressing machine, a frame including uprights, a cross head straddling the uprights, slides independently supported for longitudinal movement on opposite sides of the cross head, feed screws engaging the slides and having intermeshing gears whereby said slides will be simultaneously moved in opposite directions, and tool carrying shanks mounted upon the slides and having rotary cutting disks which are supported in a tilted position, the cutting disks of the shanks associated with the slides on opposite sides of the cross head being tilted in opposite directions.

3. In a stone dressing machine, a frame including uprights, a cross head straddling the uprights and vertically movable thereon, slides mounted for longitudinal movement on opposite sides of the cross head, means for simultaneously moving said slides in opposite directions, vertical flanges constituting a plurality of guideways on each slide, horizontal flanges on the slides adjacent to the upper ends of the vertical slides, tool carrying shanks independently supported for vertical movement in the guideways formed by the vertical slides, feed screws supported for rotation in the horizontal flange and having threaded engagement with the tool carrying shanks, face plates mounted upon the flanges constituting the guideways, means for tightening said face plates upon the tool carrying shanks, and tilted or inclined rotary cutting tools carried by the shanks, the cutting tools carried by the shanks associated with the slides on opposite sides of the cross head being tilted in opposite directions.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT J. HAMILTON.

Witnesses:

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MARY J. BARROW.