

No. 747,756.

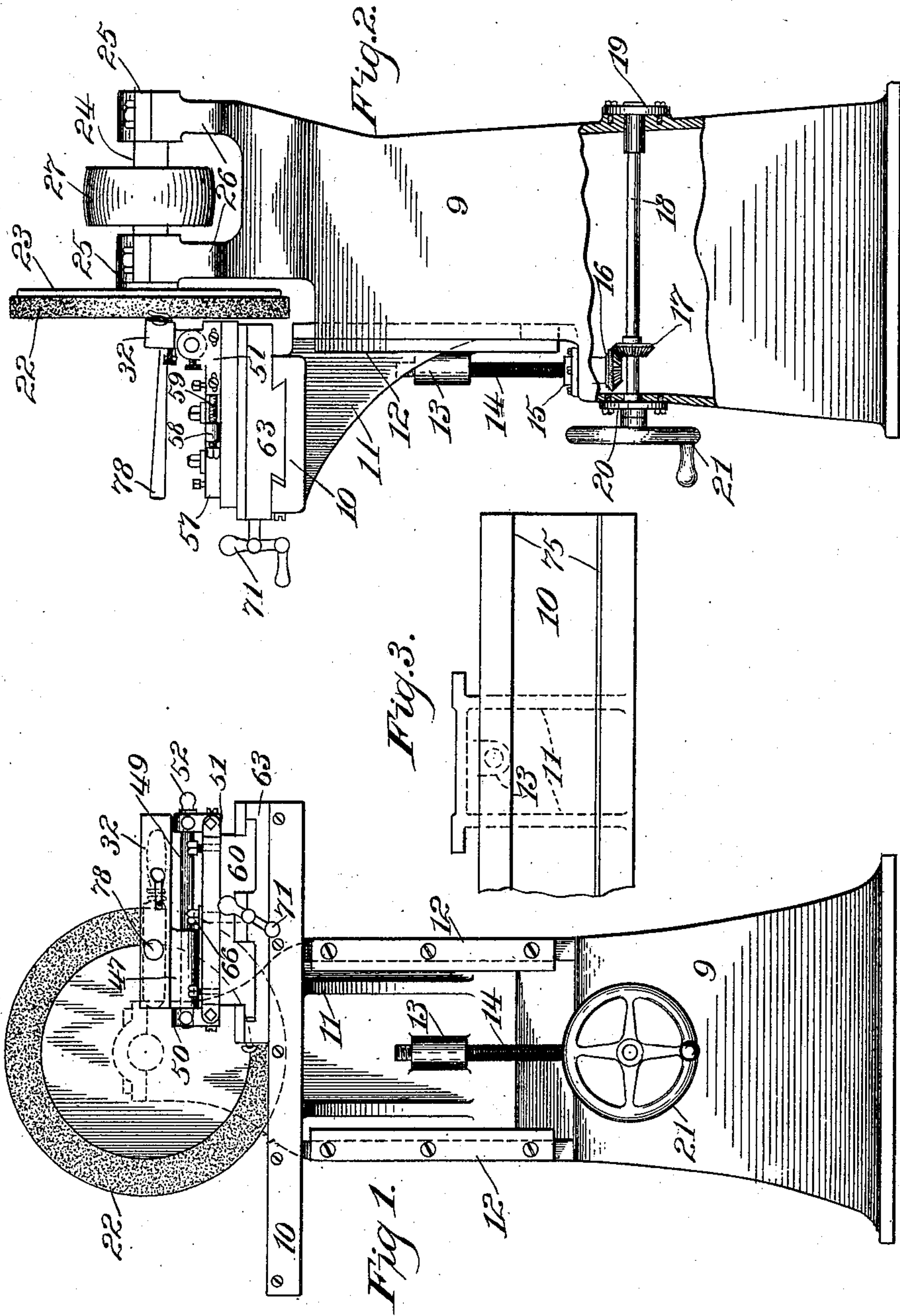
PATENTED DEC. 22, 1903.

J. OEFINGER.  
CUTLERY GRINDING OR OTHER MACHINE.

APPLICATION FILED APR. 9, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

*A. M. Pittman*  
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*Jacob Oefinger*  
By his Attorney  
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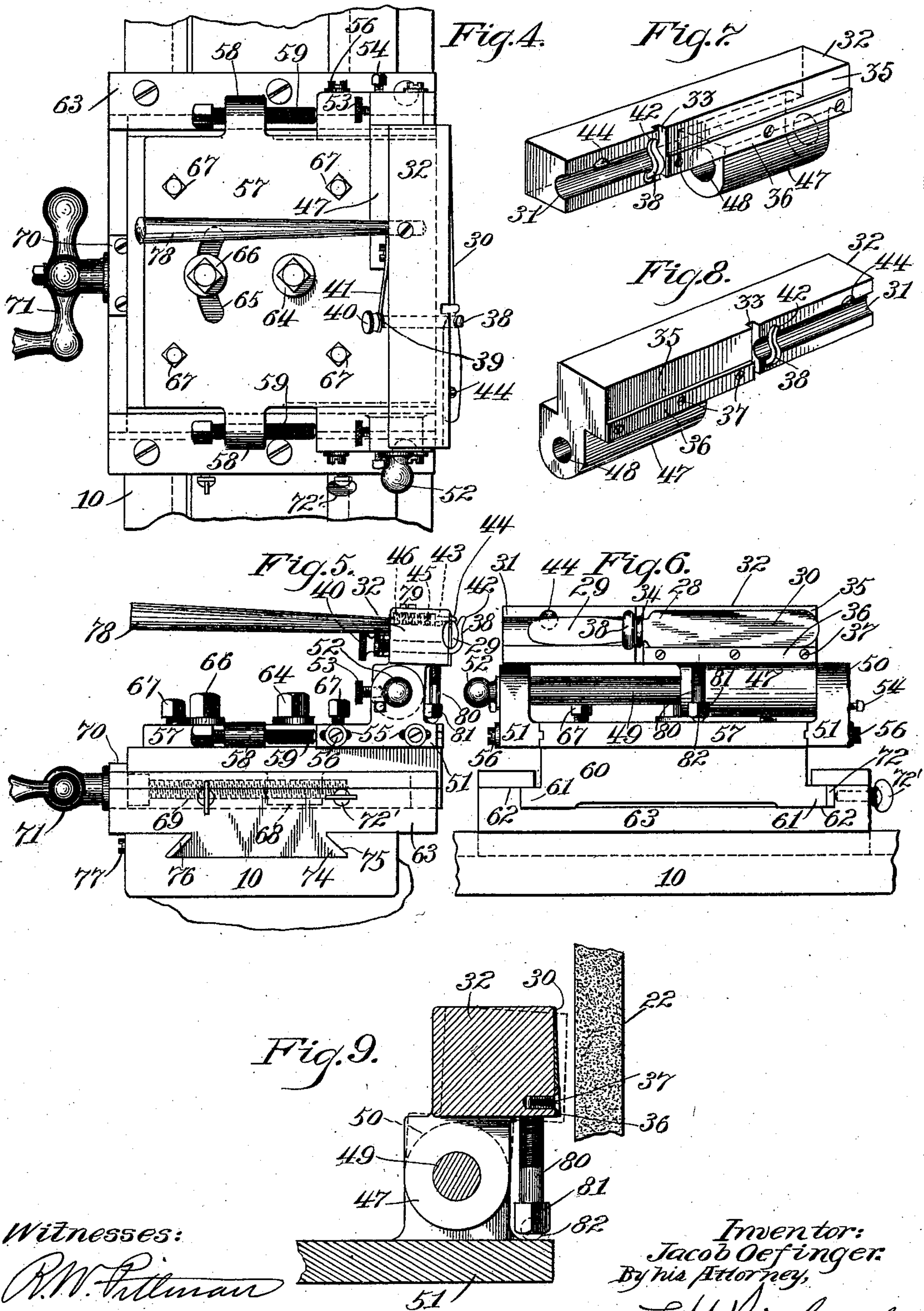
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# UNITED STATES PATENT OFFICE.

JACOB OEFINGER, OF MERIDEN, CONNECTICUT.

## CUTLERY-GRINDING OR OTHER MACHINE.

SPECIFICATION forming part of Letters Patent No. 747,756, dated December 22, 1903.

Application filed April 9, 1903. Serial No. 151,728. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB OEFINGER, a citizen of the United States, residing in Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Cutlery-Grinding or other Machines, of which the following is a specification.

This invention relates to improvements in cutlery grinding, polishing, and finishing machines.

In the manufacture of cutlery, particularly knives, it is desirable to have the blade beveled from the edge to the back and to have a bevel from the point or end to the handle or tang end, thus making two bevels, which it is slow and difficult to procure by hand-grinding or to maintain if the blanks have been forged to the approximate shape of the finished article. It is also desirable to employ mechanism which will readily admit of nice adjustment and at the same time will afford the operator an opportunity for individuality within the limits of adjustment. The present improvement, however, provides means whereby the bevels are controlled and preserved by predetermined setting of mechanical parts, and the work-holder may be so adjusted as to control the range of the work and positively set a maximum and a minimum limit of range for the product and also afford means whereby the operator may manually control and manipulate the work within such range of preadjusted limits. In some classes of work it may be found desirable to have quite a large latitude of range for the exercise of the operator's discretion and to have such discretionary limits adjustable. Each particular piece of work the product of the present improvements will not only correspond with other pieces of work from the same machine so far as the same may be the result of accuracy of precisely-adjusted mechanism, but will also have qualities inherent to work which is the product of the manual manipulations of a skilled laborer.

In the drawings accompanying and forming a part of this specification a form of my invention is illustrated, wherein—

Figure 1 is a front elevation. Fig. 2 is a side elevation. Fig. 3 is a plan view of the bed-plate or table. Figs. 4, 5 and 6 are respec-

tively plan, side, and rear views of the blade-holder slide or head. Figs. 7 and 8 are perspective views of a right and left hand head or carrier slide; and Fig. 9 is a diagrammatical view of the carrier, showing how the same may be adjusted to bring the blade into various positions relatively to the face of the working tool.

The various parts of the machine are shown supported by a standard 9 and mounted upon a bed-plate or table 10, which is supported by a bracket 11 slidable in ways 12, secured to the standard, and having a screw-threaded boss 13 receiving a screw 14, which is held from longitudinal movement by collars 15, and carries at its end a bevel gear-wheel 16, mating with a bevel gear-wheel 17 upon a shaft 18, mounted in bearings 19 and 20, and having upon one end a hand-wheel 21, whereby the bed-plate or shelf may be raised and lowered as the requirements of the work demand. The active tool, which may be an abrasive body for grinding, finishing, or polishing, as the case may be, in the present instance is shown as an annular body 22, mounted upon a plate 23, fast upon a shaft 24, supported by two-part bearings 25 upon arms 26 of the standard 10, and upon which shaft is a pulley 27, which may be driven from any suitable source of power, (not shown,) preferably a counter-shaft, such as is generally employed for imparting movements in either of two directions.

The work, in the present instance shown as a case-knife 28 of the form which is generally employed for silver-plated knives, having a handle 29 and an integral blade 30, is shown with the handle seated in a recess 31 of a head 32, in the present instance in the form of a carrier-slide. The block of the head, as shown, has a portion cut away at 33 to accommodate the guard 34 upon the handle of the knife and also has a flat or plane face 35, against which the side of the blade will rest, adjacent to which is a rest 36 for the back of the blade. In the present instance the rest is secured to the block or head by screws 37, whereby the same is removable for the purpose of adjustment or renewal. In most cases the work will maintain its proper position on the head, but at times the water used in grinding or other causes will disturb the position.



To prevent such movement, a hook or clamp 38 is shown passing over the portion 31 of the block and organized to embrace, in the present instance, the handle of the knife.

5 The shank 39 of the hook extends through to the back of the block, where it is provided with a handle or head 40 and is held in place by some suitable means, here shown as a leaf-spring 41. The hook is provided with an out-

10 wardly-turned end 42 to enable the work to be readily placed in position, and to assist in holding it a pin or detent 43 is provided, which may have a chamfer or bevel 44 at its end and a stem 45 entering the block and

15 having a spiral spring 46 to return it to place. By means by this chamfer or bevel 44 and the hooked end 42 and the respective springs the work may be slipped into place and automatically and securely held there, the back

20 of the knife resting upon the guide 36.

The holding block or head is shown provided with a dependent bearing or way 47, which is in the present instance shown rigid therewith and less than one-half the length

25 of the block, it being shown upon the blade-carrying end and where the greatest strain from work will naturally come, and thus be in position to afford the greatest amount of support. Through the bearing 47 is shown

30 an opening 48 of cylindrical contour, which in the present instance is mounted upon a shaft 49, supported in bearings 50, which are carried on blocks 51. The shaft 49 is provided at one end with a head or handle 52 and

35 is removably held in place in its bearing by suitable set-screws 53. The blocks 50 are far enough apart to permit the bearing 47 to reciprocate upon the shaft 49, and suitable set-screws 54 are shown passing through the

40 standards of the bearings to limit the reciprocation. Each of the blocks 51 is shown as provided with a pair of slots 55, through which pass set-screws 56, which enter screw-threaded holes in a plate or slide 57, upon each side

45 of which plate is a lug or projection 58, internally screw-threaded, through which passes a set-screw 59 for limiting the movement of the blocks 51 and relieving some of the strain which will come upon the screws 56 during

50 the working of the device.

The plate 57 is shown as imposed upon a slide-block 60, having ways 61 shiftable in ways 62 of a slide-block 63, constituting a cross-feed carriage. A set-screw 64 passes through

55 a hole in the plate 57 and engages a screw-threaded hole in the plate 60, which screw acts as a pivot upon which the plate 57 may be moved to adjust the position of the holder, and thereby adjust the work to regulate the

60 bevel which will be given the knife or work from the handle end to the point or tip. A segmental slot 65 is provided in the plate 57, and a set-screw 66 traverses the same and enters a screw-threaded hole in the slide 60,

65 whereby the plate may be locked in its adjusted position, the screws 66 and 64 serving such purpose. If it be desired, however, to

tip either the front or the back of the plate 57 toward or away from the work or to tip one side of the plate or to otherwise adjust

70 the same relatively to the slide 60, set-screws 67 are provided for such purpose, which set-screws pass through screw-threaded holes in the plate 57 and their ends engage the surface of the slide 60. These screws, in con-

75 junction with the former set-screws, will permit adjustment of the plate and assist in its securement. The plate 60 is provided with a dependent internally-screw-threaded boss 68, traversed by a screw 69, which is prevented

80 from longitudinal movement by a removable plate 70, carried by the slide-block 63, and is provided at its end with a hand-crank 71. This will permit the operator, after the plate 57 and the various parts have been adjusted

85 and set, to feed the work to the wheel or whatever tool is employed for operating upon the work. A gib 72 is inserted between the ways 61 and 62, and set-screws 72' are provided for tightening the gib to compensate for wear, or

90 if it is desired to operate the machine in a fixed position without recourse to the screw 69 the gib may be tightened and locked in place. The slide 63 acts as a cross-feed carriage and is provided with ways 74, shiftable

95 in ways 75 of the bed-plate or table 11. A gib 76 may be inserted between the ways 74 and 75 and tightened to compensate for wear or bind the cross-feed carriage in a stationary position by means of suitable set-screws 77.

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For operating the head or work-carrier a suitable handle 78 may be employed, which, if desired, may be held in the head by means of a set-screw 79. As a fore stop for limiting the

105 work a screw 80 may enter the under side of the forward side of the head and be provided with a nut 81 for engaging the same for adjustment, which nut will engage and slide upon the plate 57 and limit the movement of the work toward the wheel or other tool em-

110 ployed. For the purpose of assisting the ease of operation a ball 82 may be held in a socket in the nut 81 and act as an antifriction-bearing. In whatever position the head of the nut may be the antifriction-bearing will al-

115 ways be in an operative position, and an angular change of position of the sides of the nut will not alter the supporting height of such bearing, as would be the case if a caster were employed.

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The carrier slide or head, mounted upon the machine in the present instance, is organized for holding a knife during operation upon one side of it, which holder is shown

125 dismantled in Fig. 7. When it is desired to operate upon the other side of the blade, a head similar to the one shown in Fig. 8 may be mounted upon the shaft 49 and the cross-feed slide 63 shifted in the ways 75 until it comes to the other side of the machine, when

130 it will be in position to perform its work.

The operation of the machine may be briefly described as follows: The knife or other article will be fastened in place, in the present



instance by pressing it against the detent 43 and the hook 38, when the back of the blade will rest upon the support 36. The first blade which is put in may be run up to the wheel or other abrasive surface until the plate 36 is worn down to the desired thickness and taper, when it will then be possible to use the same as a guide. The bed-plate or table 11 will be raised until the knife is put on a line horizontal with the axis of the wheel or ring 22, which in the present instance is in the region of the shaft 24. The bevel which will be given the blade from handle to point will be accomplished by swinging the plate 57 upon pivot 64, and the bevel from the back to the edge of the blade will be accomplished and adjusted by adjustment of the fore stop 80. Such adjustment may also be had by means of the set-screws 67. The relative adjustment of the head or work-carrier will be by means of the set-screws 56 and 59. After these have been set in position it will be possible for the workman to advance the work against the wheel by means of the hand-crank 71. The bevel may be controlled between the limits set by oscillating the head upon the shaft 49 by means of the handle 78 and the work may be passed along the face of the grinding or other wheel by reciprocating the carrier-head upon the shaft 49, the screws 54 limiting the extreme movements of the head along the shaft.

It will be apparent that this device may be used for grinding, finishing, and polishing various articles besides table-knives, such having been shown herein for the purpose of illustration, and it will also be apparent that various changes may be made as each particular employment may require without departing from the spirit of this invention.

Having described my invention, I claim—

1. The combination with a carrier-head, of means to secure a blade thereon; means to support the carrier-head to permit reciprocation and oscillation; and means to angularly adjust the line of reciprocation from its normal line to an intersecting line.

2. The combination with a carrier-head, of means to secure a blade thereon; a shaft to support the carrier-head to permit reciprocation and oscillation; means to limit the oscillation; means to limit the reciprocation; supports for the shaft; and means to adjust the supports and shift the axis of the shaft to adjust the line of reciprocation from its normal to an intersecting line.

3. The combination with a carrier-head, of automatic means to secure a blade in position; a bearing upon the head; a shaft upon which the bearing is mounted; supports for the shaft; means to adjust the supports; a back stop and a fore stop for the head, one of which is adjustable to adjustably limit the oscillation of the bearing upon the shaft.

4. The combination with a work-holder; a shaft for supporting the same and upon which it is capable of reciprocation and oscillation;

a fore stop to limit the oscillation and comprising a screw having a nut, a socket in the nut and a ball mounted in the socket and protruding beyond the surface of the nut.

5. The combination with a shaft, of a bearing thereon; a block carried thereby and having a recess to receive the handle of a knife; a recess to receive the guard of the knife; a spring-pressed hook to engage the handle to hold it against the block; a spring-pressed detent to coöperate therewith and assist in holding the knife in position; a pair of blocks; bearings in the blocks for supporting the shaft; a plate upon which the blocks are mounted; and means to angularly adjust the plate to adjust the axial line of the shaft from its normal to an intersecting line.

6. The combination with an abrasive body, of means to hold the work therefor and comprising an oscillatory and reciprocatory head; means for limiting the oscillation; means for limiting the reciprocation; and means to adjust the line of reciprocation to a line at an angle to the normal line of reciprocation.

7. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; blocks and bearings for supporting the shaft; means to shift the blocks to angularly adjust the shaft relative to the abrasive body; and means to shift the blocks to change the position of the shaft toward and from the same.

8. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the shaft relatively to the face of the abrasive body; and means to secure the plate in its adjusted position.

9. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the shaft relatively to the face of the abrasive body; means to secure the plate in its adjusted position; and set-screws through the plate to adjust the plane thereof.

10. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same re-



spectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; means to secure the plate in its adjusted position; set-screws through the plate to adjust the plane thereof; a slide-rest supporting the plate and holding the pivot thereof; and means for shifting said slide-rest toward and from the abrasive body.

11. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; means to secure the plate in its adjusted position; set-screws through the plate to adjust the plane thereof; a slide-rest upon which said former slide-rest is mounted; a screw carried by the latter slide-rest and engaging the former slide-rest; and means for rotating the screw.

12. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; means to secure the plate in its adjusted position; set-screws through the plate to adjust the plane thereof; a slide-rest upon which said former slide-rest is mounted; a screw carried by the latter slide-rest and engaging the former slide-rest; means for rotating the screw; and means to lock the slide-rests in their adjusted position relatively to each other.

13. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; means to secure the plate in its adjusted position; set-screws through the plate to adjust the plane thereof; a slide-rest upon which said former slide-rest is mounted; a screw carried by the latter slide-rest and engaging the former slide-rest; means for rotating the

screw; means to lock the slide-rests in their adjusted position relatively to each other; and a bed-plate provided with ways transversely to the ways upon said latter slide-rest and upon which the same is shiftable.

14. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; means to secure the plate in its adjusted position; set-screws through the plate to adjust the plane thereof; a slide-rest upon which said former slide-rest is mounted; a screw carried by the latter slide-rest and engaging the former slide-rest; means for rotating the screw; means to lock the slide-rests in their adjusted position relatively to each other; a bed-plate provided with ways transversely to the ways upon said latter slide-rest and upon which the same is shiftable; and means for locking the same to the bed-plate.

15. The combination with an abrasive body, of means to hold the work therefor comprising a head; a shaft upon which the same may be reciprocated and oscillated across the abrasive body and toward and from the same respectively; bearings or supports for the shaft; a plate to carry the bearings and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; means to secure the plate in its adjusted position; set-screws through the plate to adjust the plane thereof; a slide-rest upon which said former slide-rest is mounted; a screw carried by the latter slide-rest and engaging the former slide-rest; means for rotating the screw; means to lock the slide-rests in their adjusted position relatively to each other; a bed-plate provided with ways transversely to the ways upon said latter slide-rest and upon which the same is shiftable; means for locking the same to the bed-plate; a bracket supporting the bed-plate; a standard for the machine; ways upon the standard upon which the bracket is shiftable; and means for controlling the shifting of the bracket in said ways.

16. The combination with a standard, of a rotary tool supported thereon; a table mounted upon the standard; means to elevate the table; ways upon the table in line with the working face of said tool; a slide-block shiftable upon said ways; a slide-block shiftable transversely thereon; a plate pivoted to said slide-block; means to set the same after adjustment about its pivot; means to adjust the plane of said plate; standards carrying bearings and adjustably secured to said plate; a shaft in said bearings; a work-holding head



shiftable upon said shaft and capable of oscillation thereon and organized to pass the work across the face of the tool; a fore stop to limit the oscillations toward the tool; an  
5 antifriction-roll upon the contact end of the fore stop; and means to hold the work upon the head.

17. The combination with an abrasive body, of means to hold the work therefor comprising  
10 interchangeable right and left heads; a removable shaft upon which the same may be mounted to reciprocate and oscillate across the abrasive body and toward and from the

same respectively; supports for the shaft; means to hold the same therein; a plate to  
15 carry the supports and upon which the same are shiftable toward and from the abrasive body; a pivot upon which the plate may be rotated to angularly adjust the same relatively to the face of the abrasive body; and  
20 means to secure the plate in its adjusted position.

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