

(No Model.)

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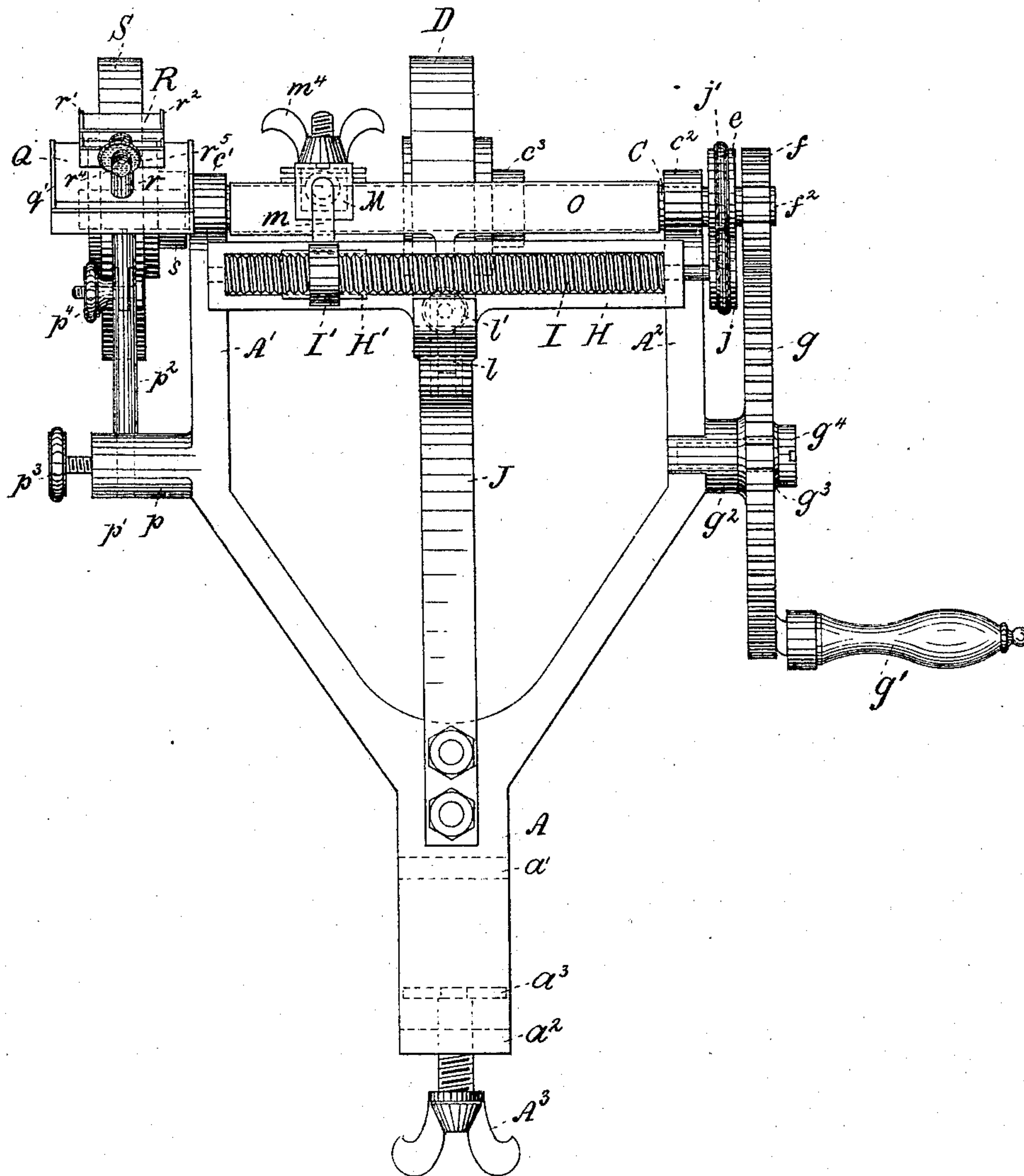
J. F. CAMPBELL.

APPARATUS FOR SHARPENING SCISSORS.

No. 369,771.

Patented Sept. 13, 1887.

Fig. 1.



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Thomas M. Smith.

INVENTOR.

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(No Model.)

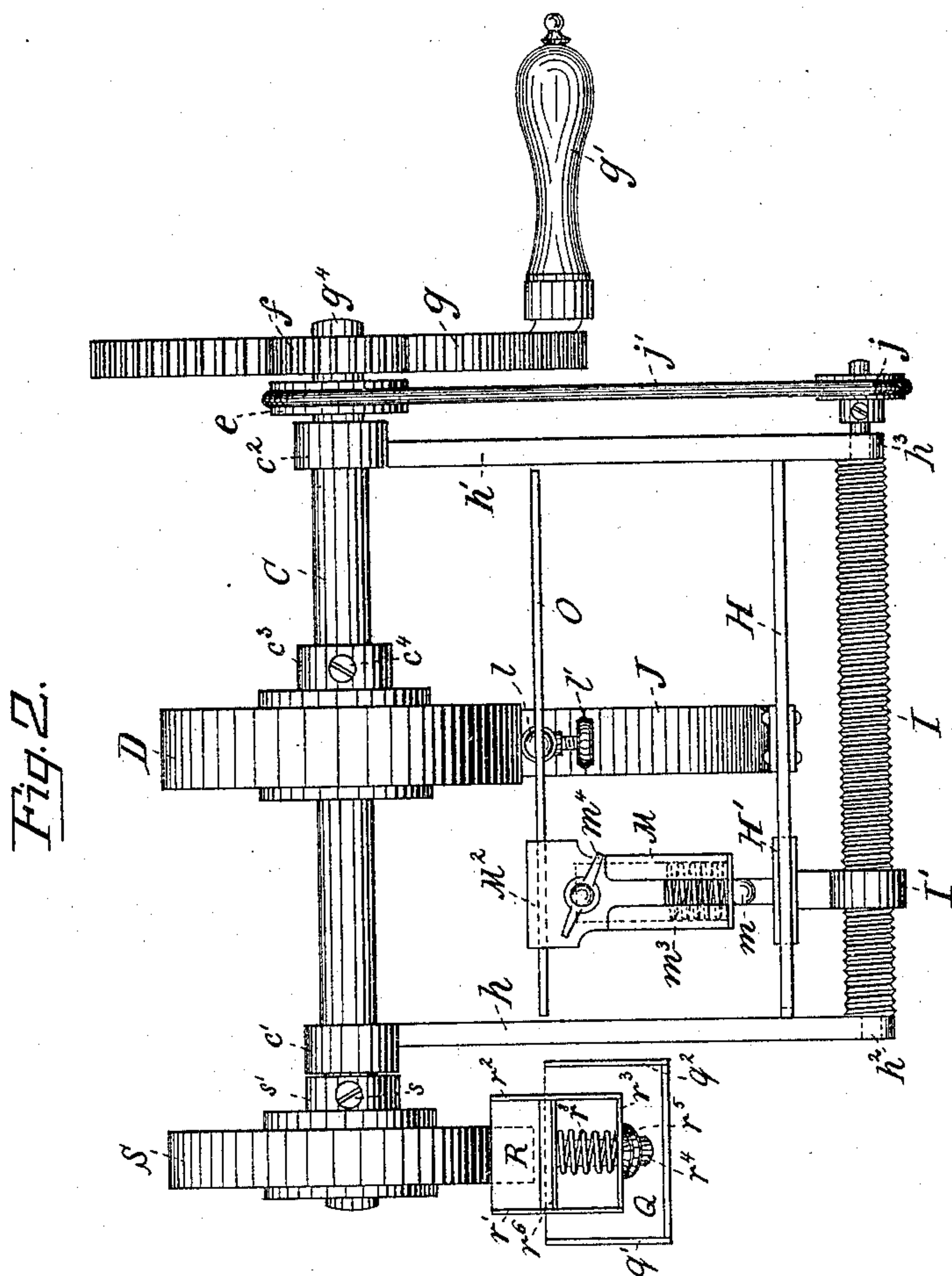
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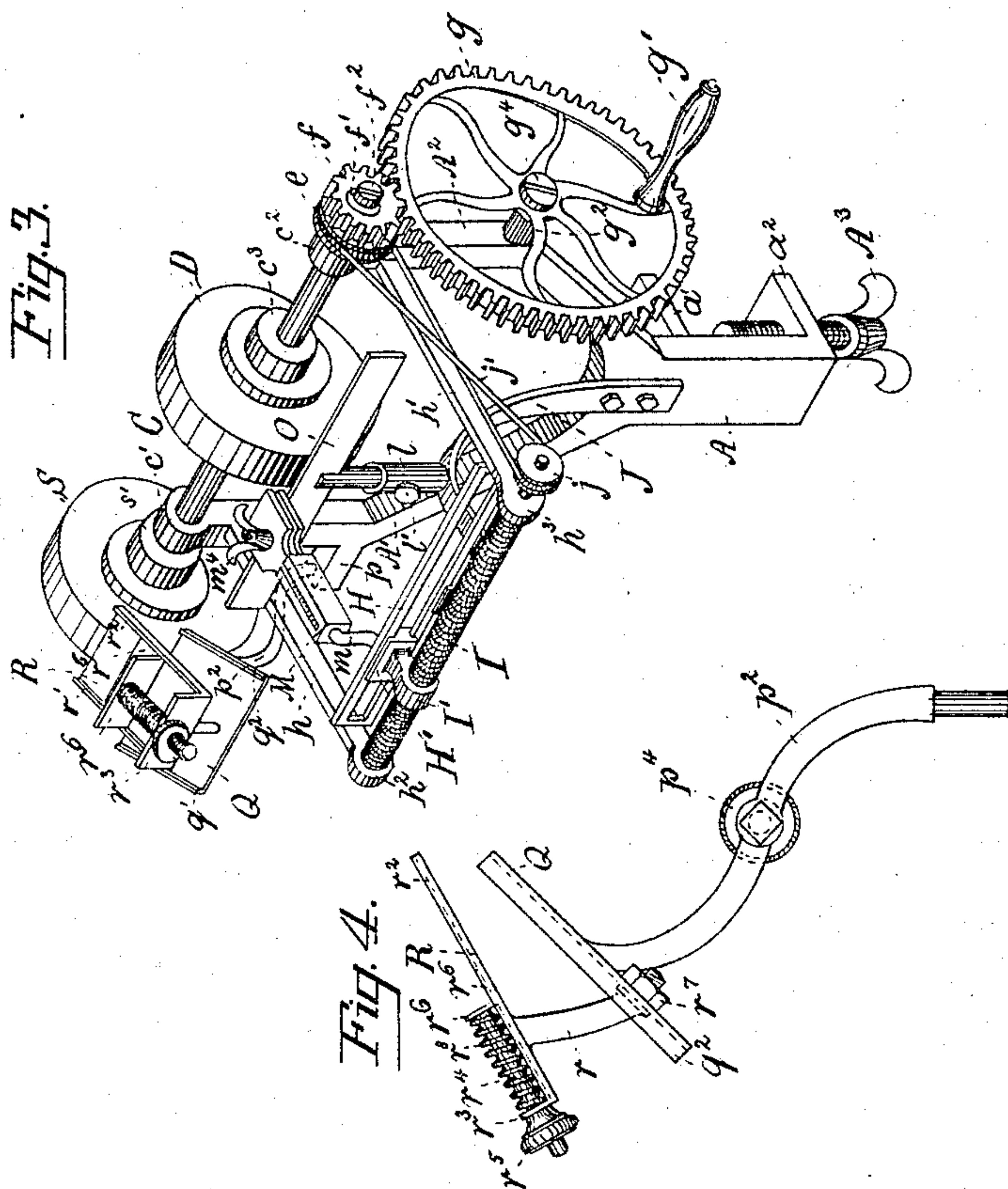
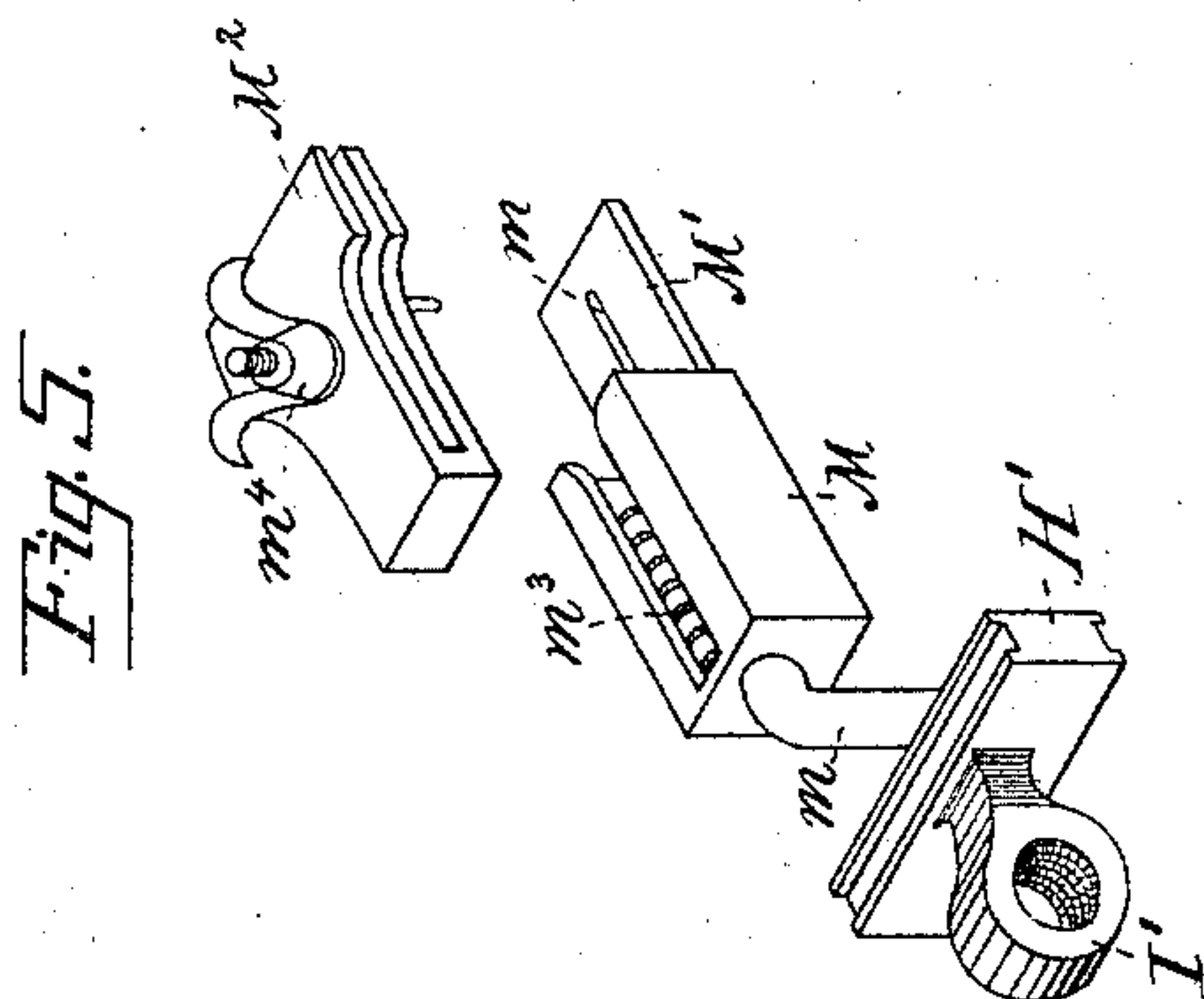
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APPARATUS FOR SHARPENING SCISSORS.

SPECIFICATION forming part of Letters Patent No. 369,771, dated September 13, 1887.

Application filed January 23, 1887. Serial No. 225,749. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH F. CAMPBELL, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Sharpening Scissors, &c., of which improvements the following is a specification.

The object of my invention is to provide apparatus of simple construction and of a portable nature for grinding and sharpening, either automatically or otherwise, scissors, knives, and chisels, and which grinding and sharpening apparatus is designed more especially for the purpose of meeting the wants of the housekeeper.

My invention consists of the construction and arrangement of the parts hereinafter described, and pointed out in the claims.

In the accompanying drawings I have shown my invention in a form which I have found practically efficient, embodying the essential features thereof, and in which—

Figure 1 is a front elevation of my improved portable grinding and sharpening apparatus. Fig. 2 is a top or plan view of the same. Fig. 3 is a perspective view of the apparatus, showing the several parts in their operative positions. Fig. 4 is an elevation of the adjustable arm carrying the knife and chisel holders, and Fig. 5 is a perspective view of the gripping device detached from its housing and automatically-operating mechanism for holding the tool against the grinding-wheel.

Referring to the drawings, A represents a standard having vertical arms A' and A², forming a Y-shaped standard. Cast with or otherwise secured to the leg of the standard are two lateral projecting jaws, a' and a², forming seats for fitting onto and under the top of a table or bench, and the apparatus held firmly thereto by means of an adjustable set-screw, A³, passing upward through the lower seat, a², carrying a pivotal disk, a³, and as thus arranged obviating any disfiguring of the table or other piece of furniture to which the grinding and sharpening device may be attached. The vertical arms A' and A², at their upper extremities, are preferably constructed so that they form journal-bearings c' and c² for the main driving-shaft C, and to which shaft, by means of a hub, c³, carrying a tightening-screw, c⁴, is attached a grinding and sharpen-

ing wheel, D, made of emery or other suitable material. Beyond or outside of the journal-bearing c² of the vertical arm A² is secured fixedly to the main driving-shaft C a grooved wheel, e, of any suitable construction, and in near proximity on the shaft C is attached a pinion, f. To the end of this shaft C is fitted a metallic washer, f', and screw f², which washer fits snugly against the pinion f, for holding it, in conjunction with the screw, in place on the shaft C. The pinion f meshes with a cog-wheel, g, of suitable construction, provided with a handle, g', and supported upon the bracket g², cast or otherwise secured to the vertical arm A², having an axle which permits the cog-wheel g to revolve freely thereon, while at the same time held to place by means of a washer, g³, and screw g⁴.

Two cross-bars, h and h', are secured to the vertical arms A' and A², having at their opposite extremities journal-bearings h² and h³, for the reception of the worm-screw I. To one of the journals of the worm-screw I, beyond the journal-bearing h³, is attached a pulley-wheel, j, carrying a belt, j', passing forward over and around the pulley e, and causing the worm-screw I to revolve when the cog-wheel g has been actuated. To the upper portion of the leg A of the standard is rigidly attached a curved bar, J, supporting centrally upon its opposite extremity a double guideway, H. The curved bar J is provided with a vertical projecting socket, l, having an adjusting-screw, l', and this socket l is so arranged as to form a housing for the vertical bar riveted to the rail O, for a purpose to be described.

A worm-nut, I', is fitted on the worm-screw I, and this nut is caused to travel first to the left to the limit of the double guideway H, and thence to the right to the limit of this guideway H, by the operator turning the cog-wheel g first in one direction and then in the opposite direction, as will be readily understood from the drawings, which will actuate the pinion f alternately in opposite directions, and thereby cause motion to be imparted to the pulleys e and j through the belt j'.

To the worm-nut I' is rigidly attached a channeled guide or slide, H', fitting into and traveling along the double guideway H, and to this slide H' is secured a curved or Z-shaped bar, m, to which is attached an oblong box-

shaped seat, M' , having an oblong slot, m' , therein for the reception of a bolt or pin passing through or fastened to the gripping device M^2 when snugly fitted to place in the housing M , and this slot m' forms a guideway for the pin secured to or passing through the gripping device. Abutting against the rear wall of the housing M and gripping device M^2 is suitably held a helical spring, m^3 , to regulate the extent of movement of the gripping device while the tool is being presented to the grinding and sharpening wheel; and when the worm-nut I' has reached the limit of its movement along the worm I , by turning the cog-wheel g in one direction, to either the left or the right of the operator, by simply placing the hand upon the tightening-screw of the gripping device M^2 and drawing the same backward, this device, with the tool therein, will be kept out of contact with the sharpening-wheel until the reverse limit of movement of the worm-nut I' has been reached, by the turning of the cog-wheel g in the reverse direction, for again sharpening or grinding the tool, by the operator revolving the cog-wheel g in the direction hereinbefore fully described.

The jaws of the gripping device are drawn together or released from each other or from the tool being ground and sharpened by means of a tightening-screw, m^4 , as clearly shown in Fig. 3. The gripping device M^2 is either moved to the left or right, or vice versa, automatically along the guide-rail O , by turning the cog-wheel g first in one and then in the opposite direction, thereby actuating the pinion f , and the pulleys e and j are caused to revolve by means of the belt j' , which permits the worm-nut I' to travel along the worm I . The belt j' in Fig. 3 is shown crossed, while in Figs. 1 and 2 it is shown open; but this makes no real difference, for the reason that the sharpening or grinding is only done in one direction, and hence it can be as effectually accomplished one way as the other.

Beyond the vertical arm A' , and to the main driving-shaft C , is secured in any suitable manner a grinding and sharpening wheel, S , for grinding knives and chisels, and which may be readily removed from the shaft C by removing a set-screw, s , passing through a hub, s' , which holds the sharpening-wheel S to the shaft C , as shown in Fig. 2. Cast with or otherwise secured to the vertical arm A' , a short distance beneath the wheel S , is a bracket, p , having a socket, p' , therein, into which fits a toggle-jointed curved rod, p^2 , having a tightening-screw, p^3 . This toggle-jointed curved rod p^2 , held in the socket p' of the bracket p , may be moved in any desired position, and held firmly in the socket p by means of the tightening-screw p^3 in the bracket p .

Upon the upper extremity of the toggle-jointed curved rod p^2 is riveted a chisel-holder, Q , with bent-up sides q' and q^2 , for holding the chisel while being ground and sharpened. Fitting through a slot provided in the holder Q is fastened, by means of a nut, a curved bar, r ,

carrying a knife-holder, R , having short bent-up sides r' and r^2 and a vertical bent-up back, r^3 , through which a horizontal bar, r^4 , carrying an adjustable nut, r^5 , is attached, and coiled around this horizontal bar r^4 is a helical spring, r^6 . To the horizontal bar r^4 is attached a guard-plate, r^6 , fitting snugly into the knife-holder R , and moving backward and forward on the bottom thereof, for holding the knife to be sharpened at the proper angle of inclination to the grinding and sharpening wheel S for the performance of its work, as shown in Fig. 2.

The operation of the apparatus for grinding and sharpening scissors will now be described.

The scissor-blade is placed between the two jaws of the gripping device M^2 , and held to place between them by means of the set-screw m^4 . The cog-wheel g is revolved by the attendant in charge actuating the pinion f on the main driving-shaft C , and the pulleys e and j , carrying the belt j' , revolving the grinding and sharpening wheel D on the main shaft C , and at the same time the worm-nut I' is permitted to travel either to the left or the right along the worm-screw I , moving the gripping device M^2 , holding the scissor-blade, along the guide-rail O , for presenting the same to the grinding and sharpening wheel D ; and this operation may be repeated until the tool is ground or sharpened in a satisfactory manner.

The manner of conducting the operation for grinding and sharpening knives and chisels may be explained in the following manner: The holder R being adjusted to the proper angle of inclination to the grinding and sharpening wheel S , a knife is placed in position therein at right angles to the holder, with the back thereof resting snugly against the adjustable guard-plate r^6 , and with the edge of the knife against the grinding and sharpening wheel S . The cog-wheel g is then turned by the operator and the knife moved by hand backward and forward at right angles to the holder until ground and sharpened, and in sharpening a chisel the stationary holder Q is used, and the adjustable holder R and curved arm r removed from the slot in the bottom of the stationary holder Q by simply removing the nut r^5 , and the chisel or other similar tool moved forward through the channeled holder Q into contact with the grinding and sharpening wheel S , and the cog-wheel revolved around and around, actuating the shaft C , carrying the grinding and sharpening wheel S , and the tool presented to this wheel ground thereby.

The only difference in the operations above described is, that in grinding a chisel or other tool it is held in the same plane with the grinding-wheel S , while in sharpening a knife it is held at a right angle to the wheel S , which will be fully understood upon reference to Fig. 3 of the drawings without further explanation.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a portable sharpening device, the com-

5 combination, with a Y-shaped standard, a horizontal shaft held in bearings in said standard, an adjustable hub secured to said shaft, and a grinding and sharpening wheel fitted rigidly to said hub, of a pinion on said shaft meshing with a cog-wheel journaled in a bracket secured to said standard and an operating-handle attached to said cog-wheel, all arranged substantially as and for the purposes set forth.

10 2. In a portable sharpening device, the combination, with a Y-shaped standard, of a curved bar attached to said standard, a socket supported in position by said curved bar, a rail having a central depending rod fitting into said socket, and a set-screw for holding the depending rod of said rail in position in said socket, substantially as described.

15 3. In a portable sharpening device, the combination, with a Y-shaped standard, of an arm secured centrally thereto and carrying a removable socket, a rail having a central depending rod fitting into said socket and held by a set-screw, a double guideway supported by said curved arm, a worm-screw journaled in brackets attached to said guideway, a traveling worm-nut, and a double-grooved slide, substantially as and for the purposes set forth.

20 4. In a portable sharpening device, the combination, with a Y-shaped standard carrying a curved arm centrally supported thereby, of a double guideway attached to said arm, a worm-screw held in bearings in brackets riveted to said guideway, a worm-nut and a double-grooved sliding device, an arm secured to said nut, carrying a box-shaped housing, and two clamping-jaws provided with an adjusting-screw held in said housing, all arranged substantially as and for the purposes set forth.

25 5. In a portable sharpening device, the combination, with a Y-shaped standard, a driving-shaft held in bearings in said standard, and a grinding-wheel secured to a hub carried on said shaft, of a curved arm centrally supported by said standard, carrying a socket to which the depending arm of a guide-rail is supported, a double guideway, a worm-screw held in bearings in brackets riveted to said guideway, pulleys attached, respectively, to one of the jour-

nals of the worm-screw and to the main driving-shaft, a belt passing around said pulleys, a pinion secured to said main driving-shaft, and a cog-wheel meshing therewith, provided with an operating-handle, all arranged substantially as and for the purposes set forth.

30 6. In a portable sharpening device, the combination, with a Y-shaped standard provided with lateral jaws, a tightening-screw carrying a pivotal disk, a curved bar centrally supported by said Y-shaped standard, carrying an adjustable socket, a guide-rail provided with a central depending rod held firmly in said socket, a guideway supported by said curved arm and provided with end brackets, and a worm-screw journaled therein, of a traveling nut, to which a Z-shaped bar is attached, carrying a double-grooved slide and a box-shaped housing having a supporting-seat, and gripping-jaws provided with a tightening-screw held in and pivoted to said housing, substantially as and for the purposes set forth.

35 7. In a portable sharpening device, the combination, with a Y-shaped standard, to which is journaled a driving-shaft carrying one or more grinding-wheels, a pinion secured to said shaft and meshing with a cog-wheel journaled to a bracket attached to said standard, having an operating-handle, a worm-screw journaled in brackets attached to a double horizontal guideway and supported by said standard, a pulley attached to one of the journals of said worm-screw, and a grooved pulley carried upon said driving-shaft, and with a belt passing around the respective pulleys, of a nut attached to said worm-screw, a Z-shaped bar attached to said nut, carrying a double-grooved slide, and a box provided with a supporting-seat and two clamping-jaws pivoted thereto, all arranged and operating substantially in the manner and for the purposes set forth.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOSEPH F. CAMPBELL.

Witnesses:

ANDREW ZANE, Jr.,
THOMAS M. SMITH.