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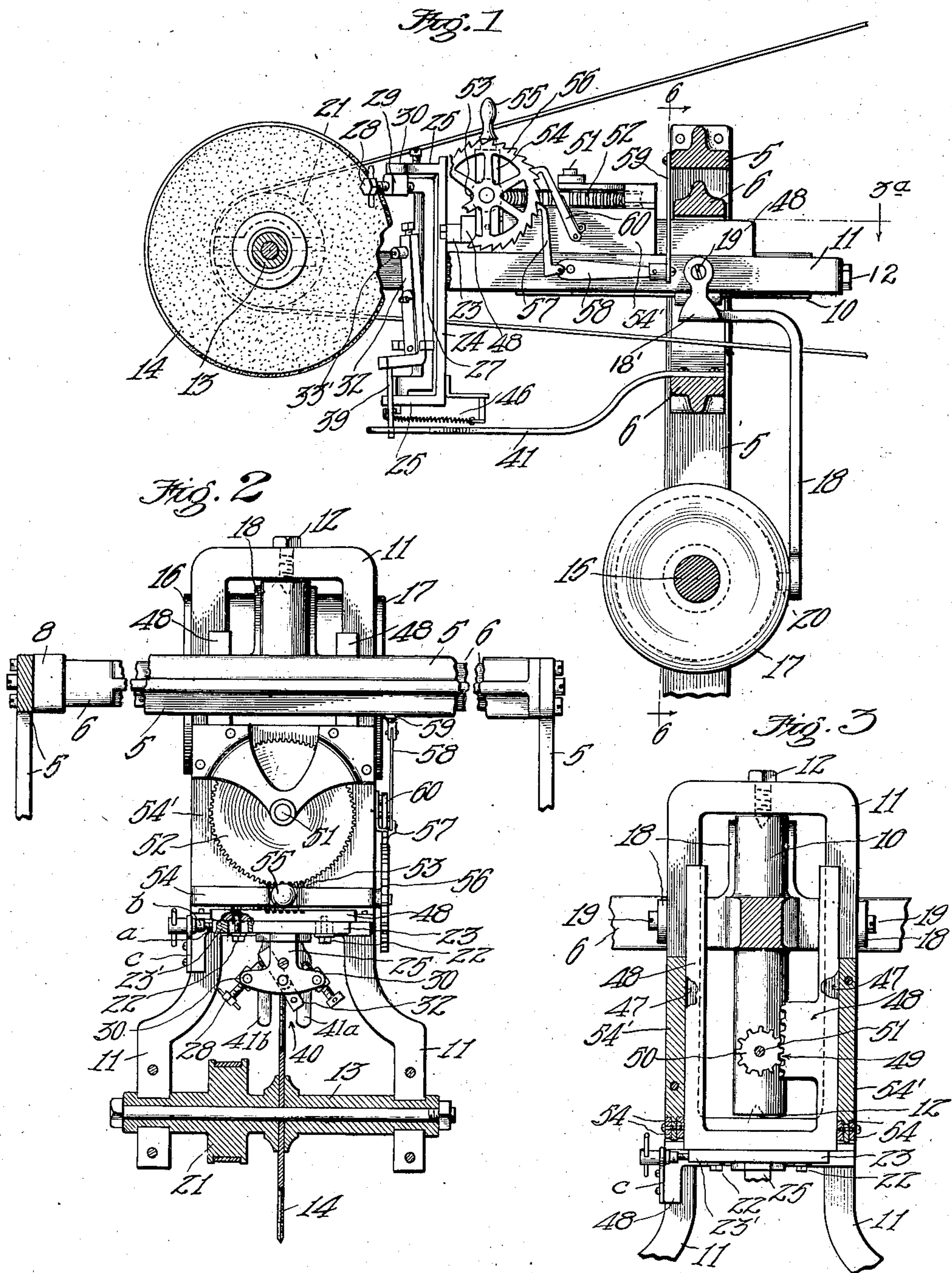
PATENTED SEPT. 10, 1907.

J. A. STANSBURY.

APPARATUS FOR TRUING GRINDING DISKS.

APPLICATION FILED OCT. 10, 1906.

2 SHEETS—SHEET 1.



Witnesses  
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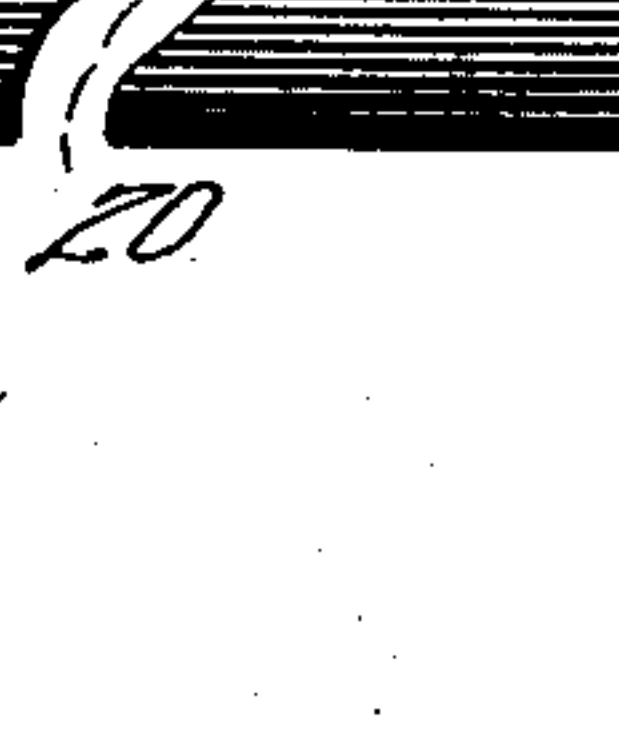
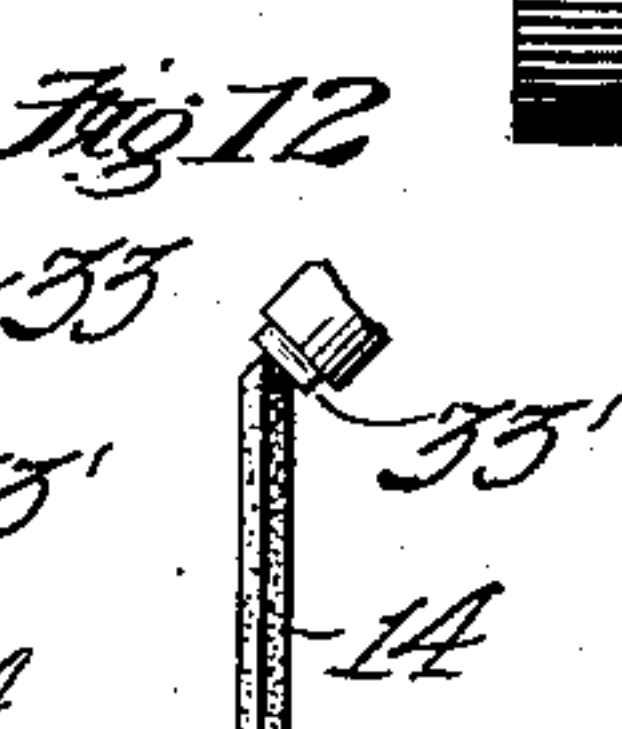
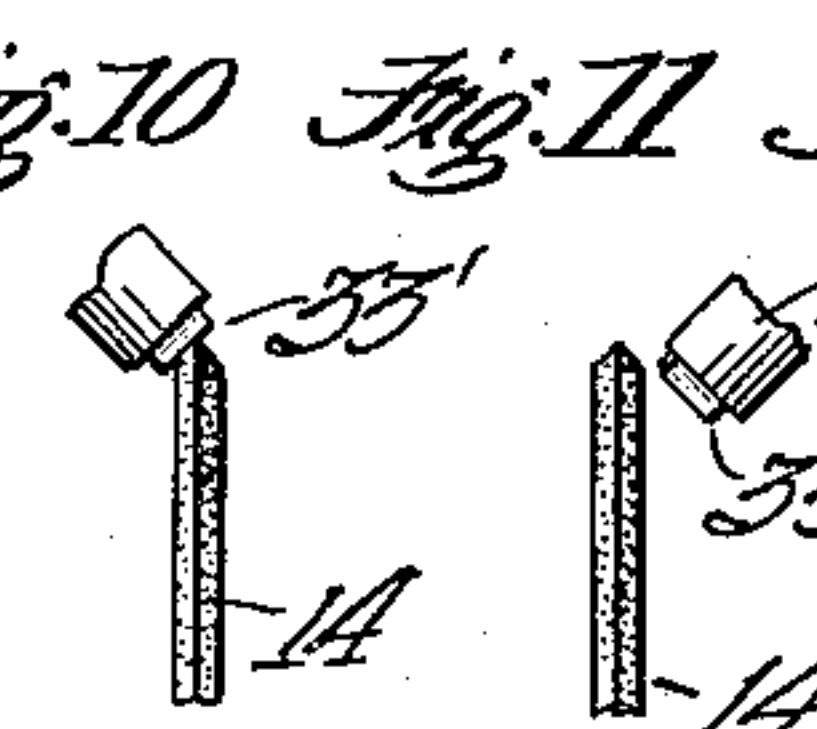
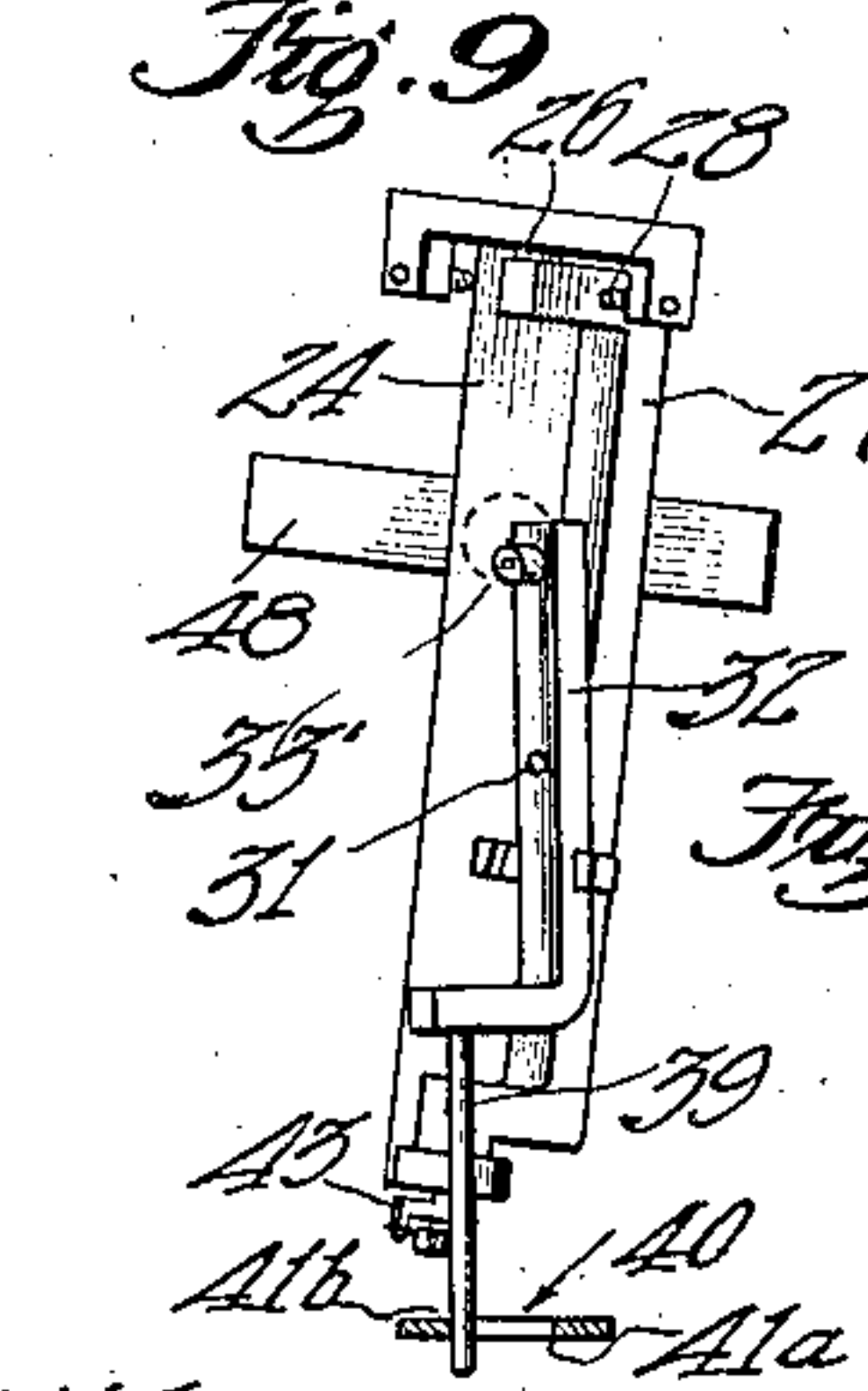
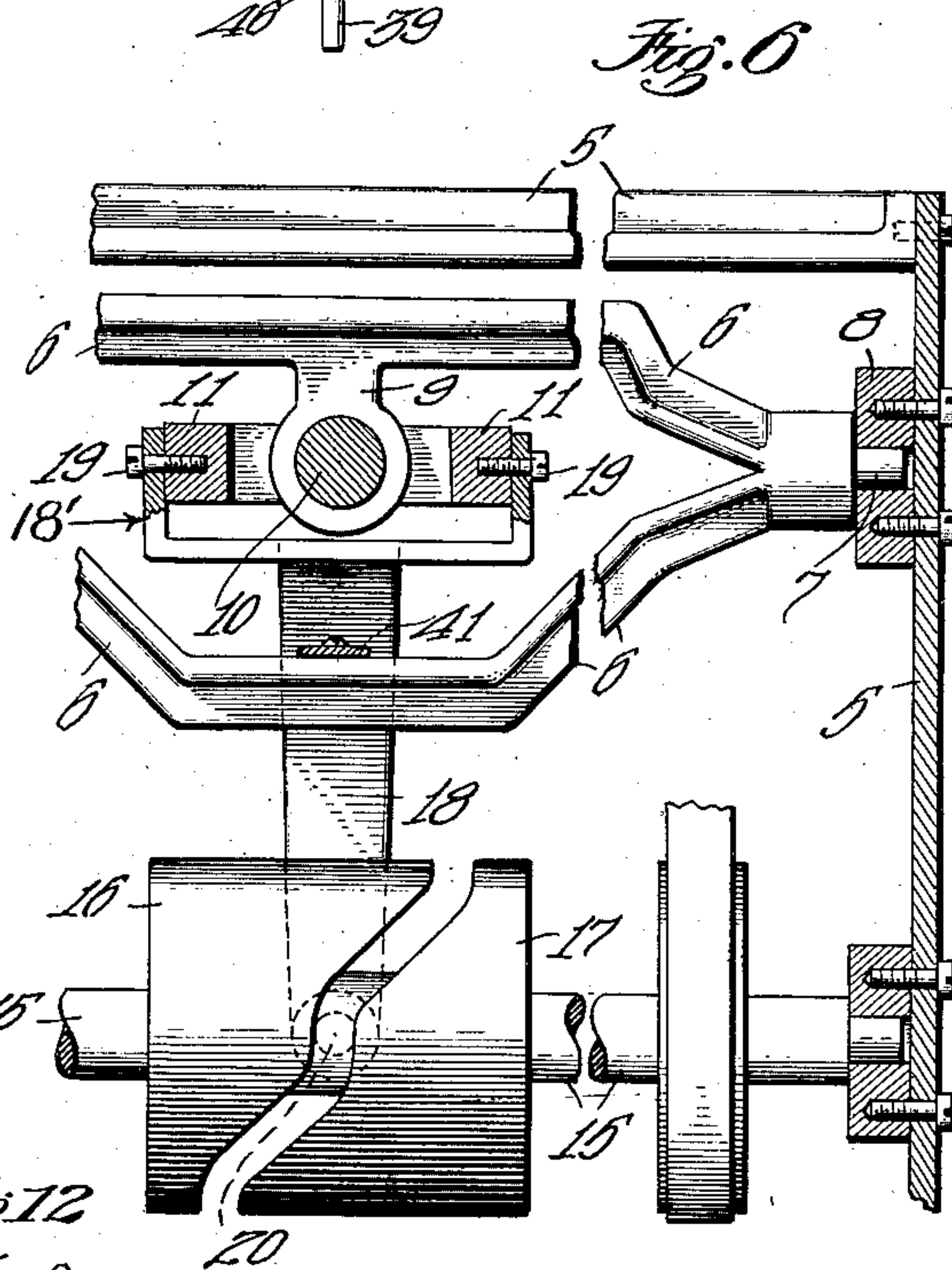
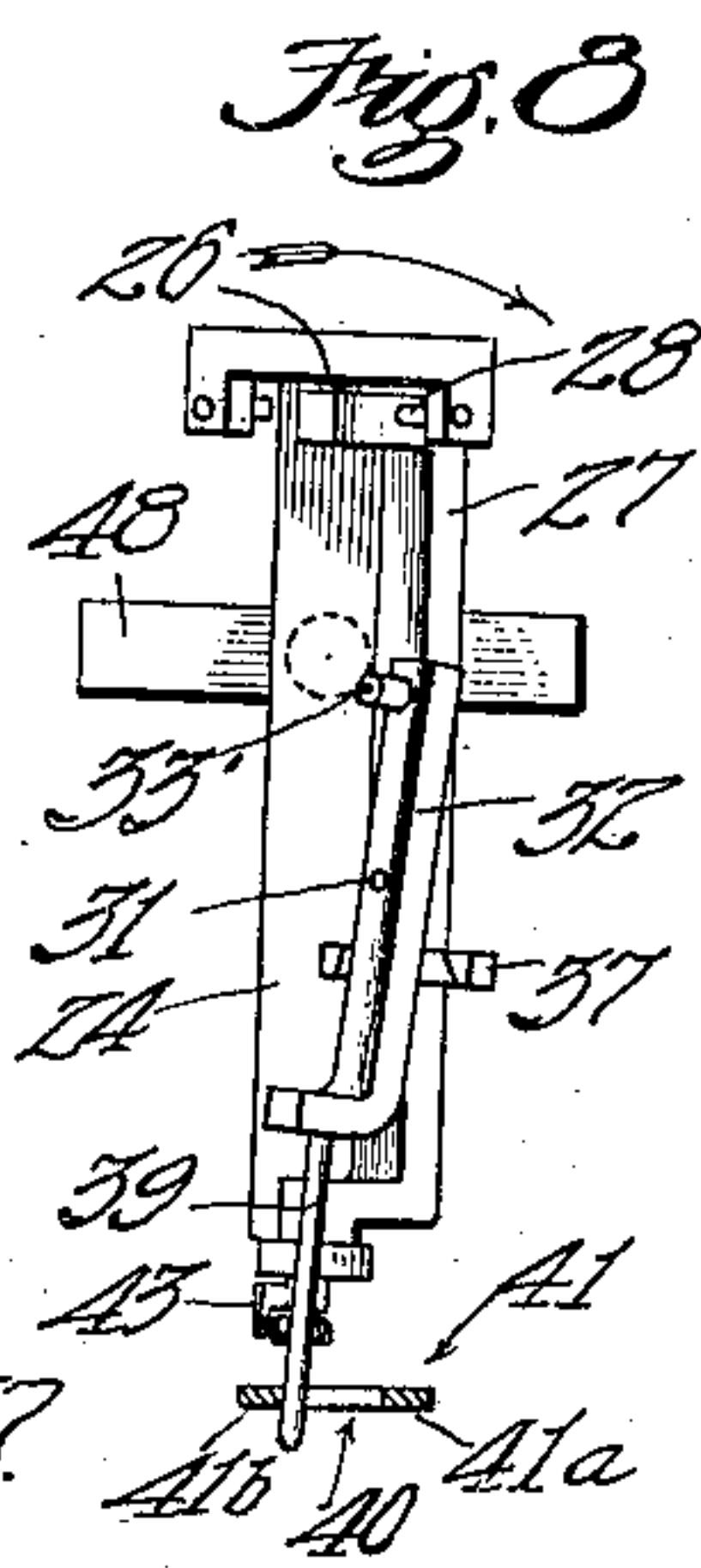
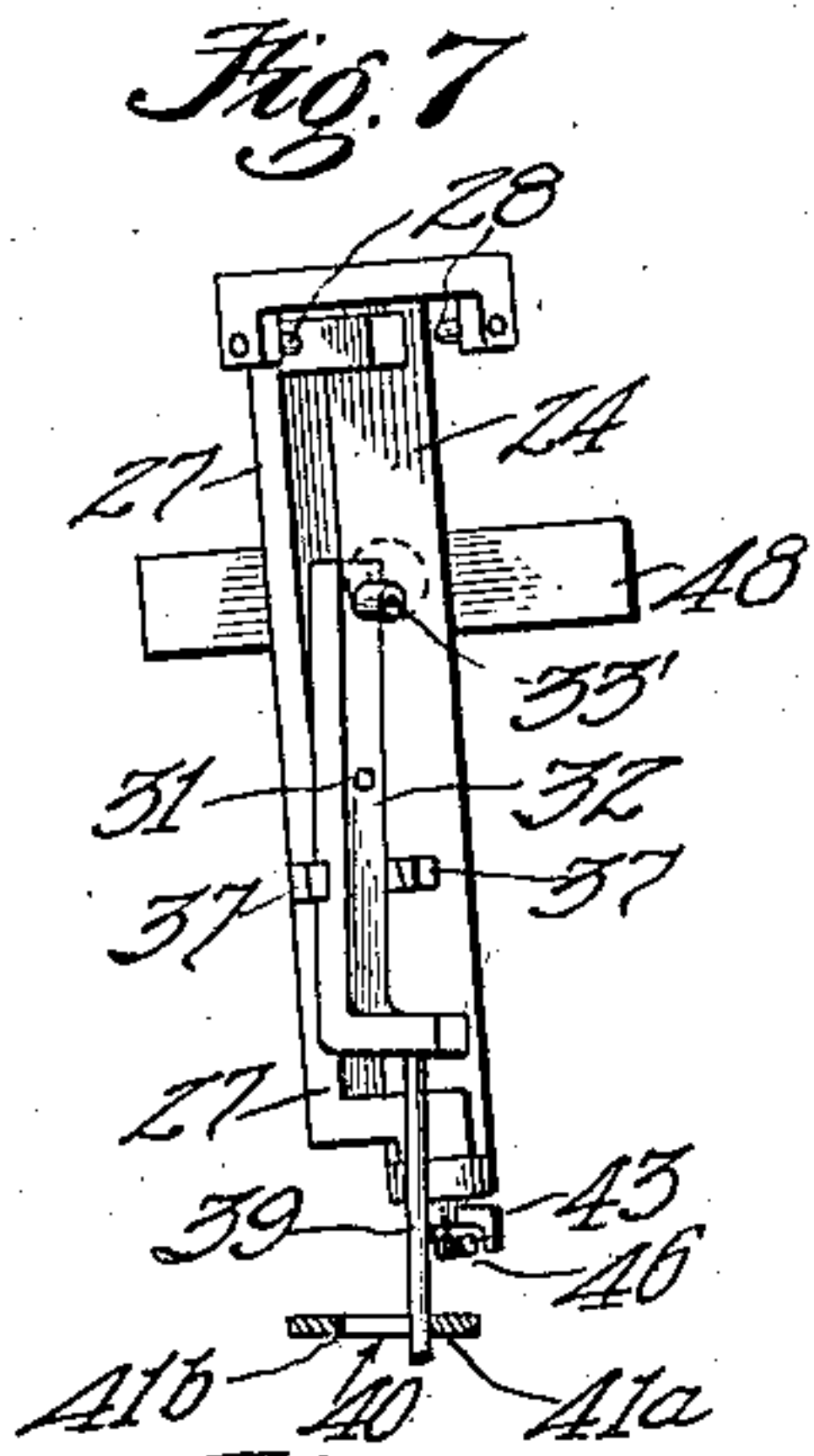
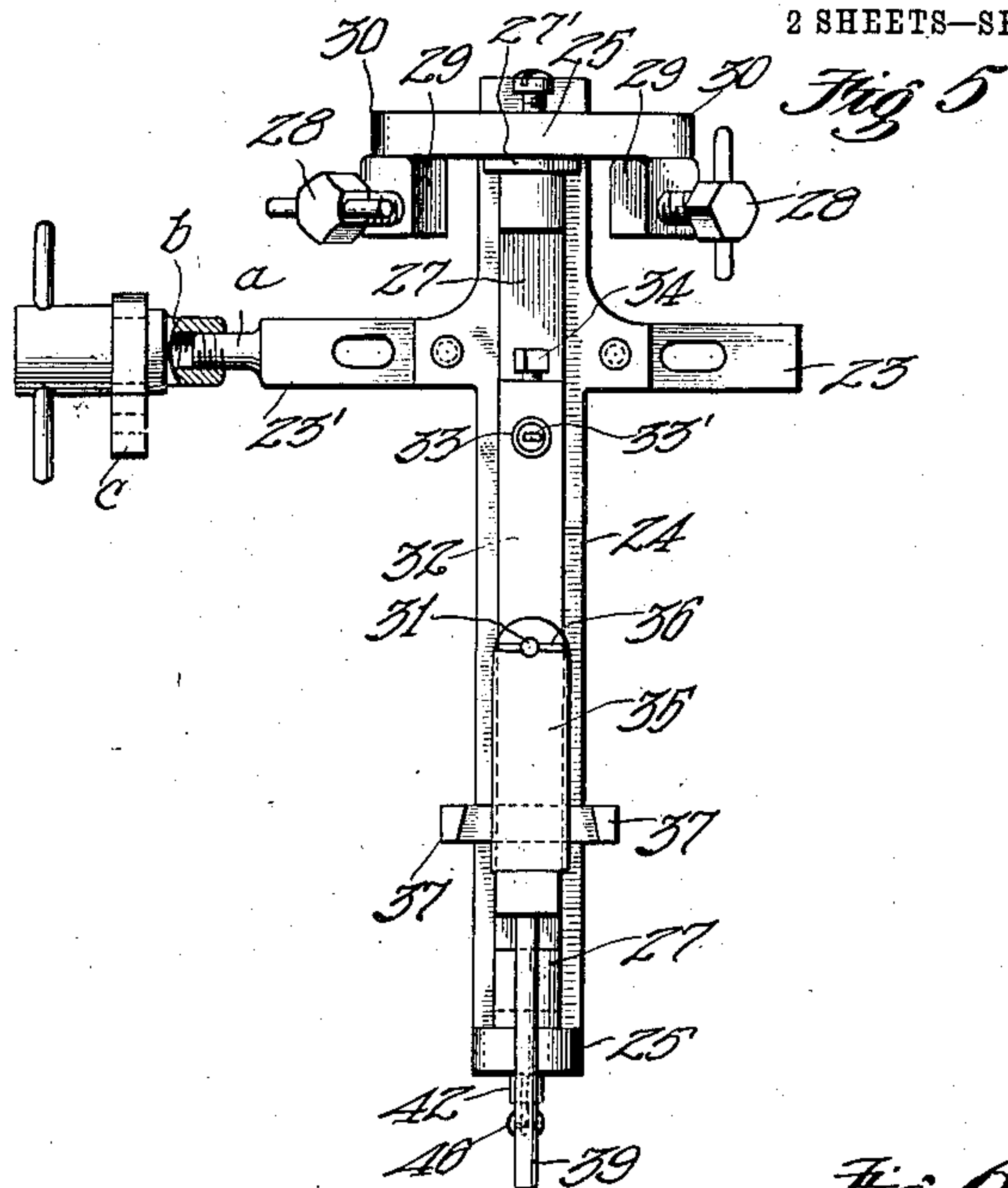
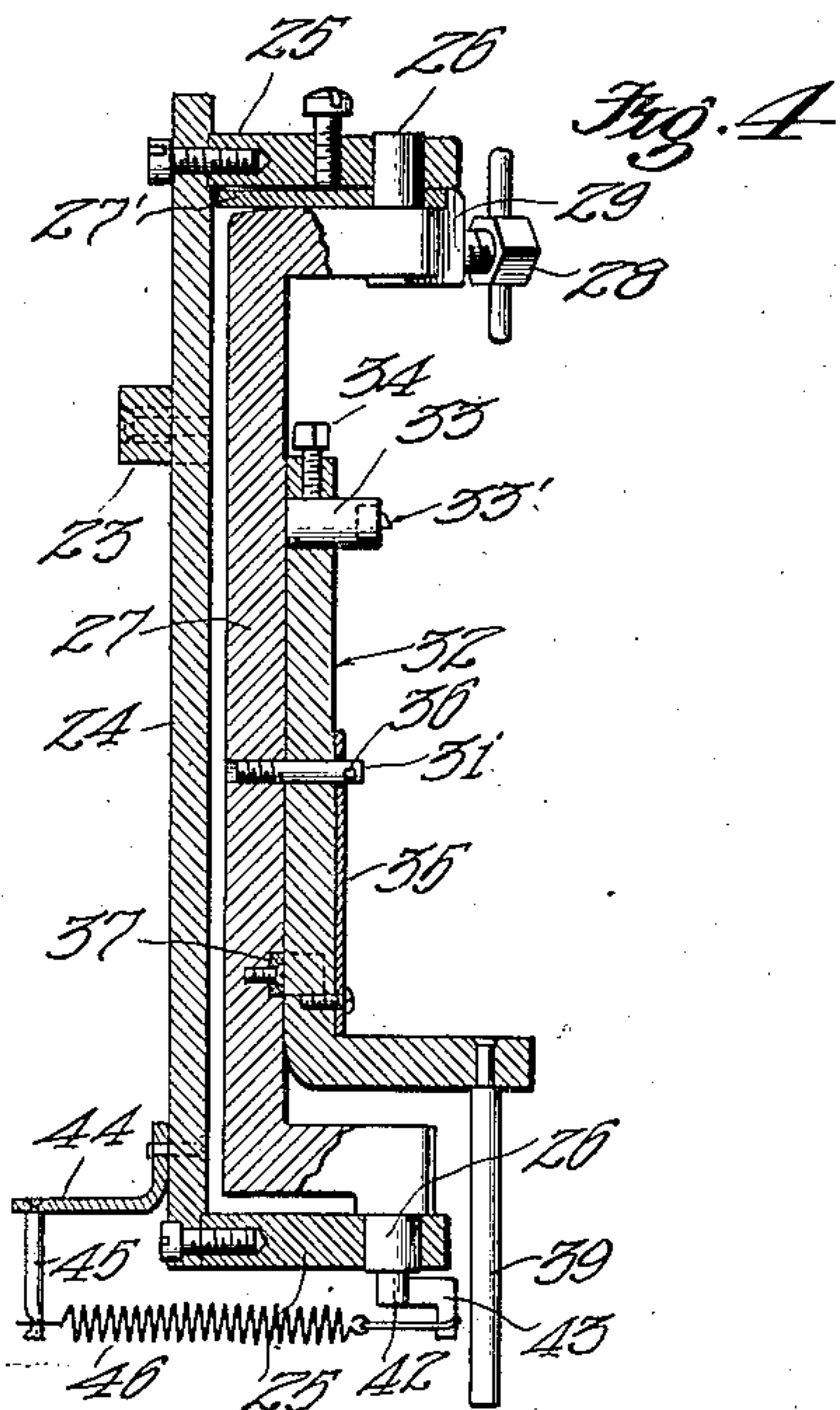
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JOSEPH A. STANSBURY, OF LOS ANGELES, CALIFORNIA.

## APPARATUS FOR TRUING GRINDING-DISKS.

No. 865,959.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed October 10, 1906. Serial No. 338,200.

*To all whom it may concern:*

Be it known that I, JOSEPH A. STANSBURY, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Apparatus for Truing Grinding-Disks, of which the following is a specification.

This application relates to an improved method of truing the edges of a grinding disk, such as is disclosed in a similar application issued to me on May 1st, 1906, No. 819,384. In the patent above referred to the truing operation was accomplished by means of a plurality of diamond points acting on the disk at certain intervals. Considerable difficulty has been experienced with this method for the reason that it has been found to be practically impossible to obtain diamond points whose faces are cut exactly alike, and also the difficulty experienced in mounting them in the mechanism, so that they will true both sides of the disk exactly alike.

The prime object of this invention is to provide a mechanism in which a single diamond point is used for alternately truing the beveled edges of a grinding disk.

A further object is to provide an apparatus in which the mechanism carrying the diamond point will automatically change its position from one side of the disk to the other during the operation of the knife grinding apparatus.

I accomplish these objects by means of the device described herein and illustrated in the accompanying drawings in which:—

Figure 1.—is a side elevation of my apparatus, parts being shown in section. Fig. 2.—is an enlarged top plan view partly in section of the yoke carrying the grinding disk and the mechanism to which the diamond point is secured for truing the edge thereof. Fig. 3.—is an enlarged sectional plan view of the yoke and its connecting mechanism taken on line 3<sup>a</sup> of Fig. 1. Fig. 4.—is an enlarged longitudinal section of the diamond point carrying mechanism. Fig. 5.—is a front elevation of the diamond point carrying mechanism. Fig. 6.—is a sectional view through part of the apparatus taken on line 6—6 of Fig. 1. Figs. 7, 8 and 9—are diagrammatic views illustrating the positions assumed at various stages of the operation of the diamond point carrying mechanism. Figs. 10, 11 and 12—are diagrammatic views showing the relation of the diamond point to the disk when the mechanism is in the position illustrated in Figs. 7, 8 and 9.

Referring to the drawings 5 designates a frame in which is mounted a yoke 6, having spindle ends 7, (only one of which is shown) mounted in suitable bearings in the box 8 of the frame. Depending from the upper portion of said yoke is an apertured lug 9 which carries the shaft 10, said shaft supporting a rocking yoke 11, carrying the screws 12, each of which has its inner end pointed and engaging an indenture as a bearing in

the opposite end of the shaft 10. The forward end of the yoke 11 is bifurcated, and has a shaft 13 journaled therein, which shaft carries a grinding disk 14.

Mounted in suitable bearings in the frame 5 is a revoluble shaft 15, and 16 and 17 designate two complementary segment cylindrical shells, the inner marginal edges of which are cut away to form a cam groove intermediate the same. The shell sections 16 and 17 are keyed to the shaft 15, and 18 designates a lever, the upper end of which is bifurcated, the bifurcation 18' being secured to the frame by means of screws 19. The lower end of the lever 18 carries a lug 20 which is adapted to travel in an irregularly outlined cam groove formed intermediate the shell section as the shaft 15 rotates, whereby said lever 18 may be given a rocking movement, which motion is communicated to the yoke 11, to which said lever is connected, which will impart a tilting movement to the grinding disk 14 for the purpose of alternately grinding the opposite beveled edges of the knife. The shaft upon which the grinding disk is mounted is provided with a pulley 21 belted to a source of power (not shown).

Adjustably secured between the bifurcation 18' of the yoke 11, and to a yoke 48 whose functions will be described later, by means of bolts 22, secured in the cross arms 23 and 23' is a vertically disposed frame 24, which carries the mechanism, to which is secured the cutting means, used in truing the edges of the grinding disk. The outer end of arm 23' has a threaded extension *a*, which is adapted to be engaged by adjusting barrel *b* revolvably secured in an extension *c* rigidly secured to yoke 11. The purpose of this threaded barrel is to secure a relatively fine lateral adjustment of the mechanism carrying the cutting means.

Projecting at right angles from either end of frame 24, are upper and lower arms 25 which are adapted to receive the bearing lugs 26 secured to the arms 25 of a rocking arm 27. This arm 27 is limited in its movement by means of adjusting screws 28 secured in downwardly depending lugs 29 which are attached to cross arms 30 of the upper arm 25 of frame 24. A friction spring 27' is interposed between the upper arm 25 and the rocking arm 27, by means of which the tension on arm 27 is increased or diminished. Secured to the outer face of rocking arm 27 by means of pivot 31, is an L-shaped arm 32, which carries on its upper end a lug 33 adjustably secured thereto, by means of an adjusting screw 34. This lug 33 carries the cutting diamond 33'. Arm 32 is held in frictional engagement with arm 27 by means of a flat spring 35, one end of which is rigidly secured to arm 32, and the other end bearing against pin 36 secured to the outer end of pivot 31.

Projecting from either side of arm 27 are lugs 37, by means of which the movement of arm 32 is limited. Rigidly secured to the outer end of arm 32 and projecting downwardly is a pin 39, which is adapted to engage



a slot 40 in the bifurcated end of a bar 41, which is rigidly secured to the frame of the machine in any suitable manner. To the lower lug 26 of arm 27 is secured a lug 42, and preferably formed integral therewith and at right angles thereto is an arm 43. Secured to the back of frame 24 is a bracket 44 to which is rigidly secured a pin 45, to the outer end of which is secured a coiled spring 46, the other end being secured to arm 43. The purpose of this spring is to accelerate the further movement of arm 27, after the arm has reached its central position, so that only a slight interval of time will elapse in the changing of the diamond point from one side of the disk to the other.

Adjustably mounted in guide-ways 47 upon yoke 11 is a plate 48 having a recess formed therein, and along one of the marginal edges of said recess is a rack 49, which engages with pinion 50 journaled to a sub-shaft 51. Keyed to the sub-shaft 51, is a worm wheel 52, which is adapted to mesh with a worm 53, mounted in a yoke 54, which yoke is pivotally secured to one of the downwardly projecting legs of a table 54' which is rigidly secured to yoke 11, and is provided with a handle 55. Upon the end of the shaft upon which the worm 53 is mounted, is a fixed ratchet wheel 56, which is engaged by a dog 57, the lower end of which is pivoted to an arm 58 which is pivoted to one side of the yoke 11. The other end of the arm 58 being pivotally secured to a downwardly depending arm 59, whose upper end is pivoted to the frame 5. A spring pressed check pawl 60, secured to yoke 54' contacts with the teeth of ratchet 56 to limit its movement.

By means of the above described mechanism when it is desired to feed the mechanism carrying the diamond cutting means toward the grinding disk as it becomes worn, all that is required to complete the operation is to throw the worm 53 into engagement with the wheel 52.

The operation is as follows: The yoke 11 is given a rocking motion through the medium of the cam 16 and 17, which rocks the bifurcated arm 18, the upper end of which is pivotally connected to the yoke 11. The frame 24 which carries the diamond cutting mechanism, is secured to the adjustable plate 48 at its central point, and when the yoke 11 is in the position as shown in Fig. 7, then the diamond cutting mechanism connected to frame 24 has reached the limit of its movement, and the diamond point 33' is in the position as indicated in Fig. 10, with the pivoted arm 32 in a vertical position, and the diamond point contacting with one of the beveled edges of the wheel 14. Yoke 11 having reached the limit of its movement as shown in Fig. 7, now begins to return, the downwardly projecting pin or arm 39 secured to the L-shaped pivoted arm 32 which is in contact with arm 41<sup>a</sup>, as shown in Fig. 7, moves with the diamond carrying mechanism until it contacts with arm 41<sup>b</sup>, as shown in Fig. 8. When arm 39 contacts with arm 41<sup>b</sup> of bifurcated bar 41, the further movement of yoke 11 in the direction as indicated by the arrow in Fig. 8, serves to throw rocking arm 27, which is pivotally mounted in frame 24 around to the other side of the disk, so that the pivoted arm 32 holds the diamond point in the position as shown in Fig. 11, the further movement of the yoke 11, carrying with it plate 48 to which is adjustably secured the cutting mechanism, causes arm 32 to be thrown to a vertical position as shown in Fig. 9 so that the diamond

point 33' will be brought into contact at right angles with the other beveled edge of the wheel 14, as shown in Fig. 12. The above operation is continued during the operation of the apparatus, thus cutting the beveled edges of the abrading wheel 14 true and even.

It will thus be seen from the foregoing description that I have produced an apparatus in which the truing of the grinding disk is easily and successfully accomplished, both sides being trued alternately in exactly the same manner and by the same cutting point.

Having described my invention what I claim is new and desire to secure by Letters Patent is:—

1. A device of the class described, comprising in combination with a rotating disk having beveled edges, a diamond point; and means for causing said point to contact alternately with the opposite beveled edges of the disk as it rotates.

2. A device of the class described comprising, in combination with a tilting disk having beveled edges, a diamond point; and means for causing said point to contact alternately with the opposite beveled edges of the disk as the latter tilts.

3. A device of the class described comprising, in combination with a disk and means for tilting the same; pivotal members secured to said tilting means; a diamond point carried by one of said members; and means for rocking and tilting said pivotal members.

4. An apparatus for truing the cutting edges of a grinding disk comprising, a rocking yoke; means to rock said yoke; a grinding disk revolvably mounted in said yoke; pivotal members rigidly secured to said yoke; a diamond point secured to one end of one of said members; and means secured to the pivotal member carrying the diamond point, whereby when the yoke rocks the pivotal members are thrown from one side of the disk to the other.

5. An apparatus for truing the edges of a grinding disk comprising, a rocking yoke; means to rock said yoke; a disk rotatively mounted in said yoke; a bearing frame rigidly secured to said yoke, adjacent said disk; a rocking arm pivotally mounted in said frame; an arm pivotally secured to said rocking arm, having a diamond point in its upper end; and means secured to said pivoted arm, whereby when the yoke is rocked to automatically cause the movement of said arm from one side of the rotating disk to the other.

6. An apparatus for truing the edge of a grinding disk comprising a bifurcated rocking yoke; a revoluble shaft mounted in the bifurcation of said yoke; a disk mounted on said shaft; a bearing frame rigidly secured to said yoke adjacent said disk; a rocking arm pivotally mounted in said frame, in line with said disk; an arm pivotally secured to said rocking arm, having abrading means secured to its upper end; and means secured to said pivoted arm whereby when the yoke is rocked to automatically cause the movement of said arm from one side of the disk to the other.

7. An apparatus for truing the edge of a grinding disk comprising a bifurcated rocking yoke; a revoluble shaft mounted in the bifurcation of said yoke; a grinding disk mounted on said shaft; a bearing frame rigidly secured to said yoke adjacent said disk; a rocking arm pivotally mounted in said bearing frame, in line with said disk; an L-shaped arm pivotally secured to said rocking arm, having abrading means secured to its upper end; a downwardly depending pin secured to said L-shaped arm, said pin adapted to contact with means secured to the frame of the machine to automatically cause the movement of said rocker arm from one side of the disk to the other; and means to rock said yoke.

8. An apparatus for truing the edges of a grinding disk comprising, a rocking yoke; a disk rotatively mounted in said yoke; a bearing frame adjustably secured to said yoke, adjacent said disk; a rocking arm pivotally mounted in said frame; a tilting arm pivotally secured to said rocking arm, having a diamond point in its upper end; means secured to said pivoted arm, whereby when the yoke is rocked to automatically cause the movement of said arm



alternately from one side of the rotating disk to the other; and means to rock said yoke.

9. An apparatus for truing the edges of a grinding disk, comprising a rocking yoke; a disk rotatively mounted in said yoke; an adjustable plate mounted in guide ways in said yoke; means for moving said plate forward; a bearing frame adjustably secured to said adjustable plate; a rocking arm pivotally secured in said frame; a tilting arm pivotally secured to said rocking arm, having a diamond point in its upper end; means secured to said pivoted arm, whereby when the yoke is rocked, to automatically cause the movement of said arm alternately from one side of the disk to the other; and means to rock said yoke.

10. A device of the class described, comprising in combination with a tilting and rotating disk having beveled edges, a diamond point; means for causing said point to contact alternately with the opposite beveled edges of said disk as the latter tilts and rotates.

11. A device of the class described, comprising in combination with a rotating disk and means for rotating and tilting the same; pivotal members secured to said tilting means; a diamond point carried by one of said members; means for rocking and tilting said pivotal members; and mechanism for feeding the pivotal members forward.

12. A device of the class described, comprising in combination with a rotating disk having beveled edges, a diamond point; means for causing said point to contact alternately with the opposite beveled edges of the disk as it rotates; and mechanism for feeding said diamond point forwardly during the rotation of said disk.

In witness that I claim the foregoing I have hereunto subscribed my name this 2d day of October, 1906.

JOSEPH A. STANSBURY.

Witnesses:

EDMUND A. STRAUSE,  
B. M. WILKINSON.