

C. E. HALL.  
STONE DRILL.

APPLICATION FILED APR. 8, 1908.

927,723.

Patented July 13, 1909.

2 SHEETS—SHEET 1.

Fig. 1

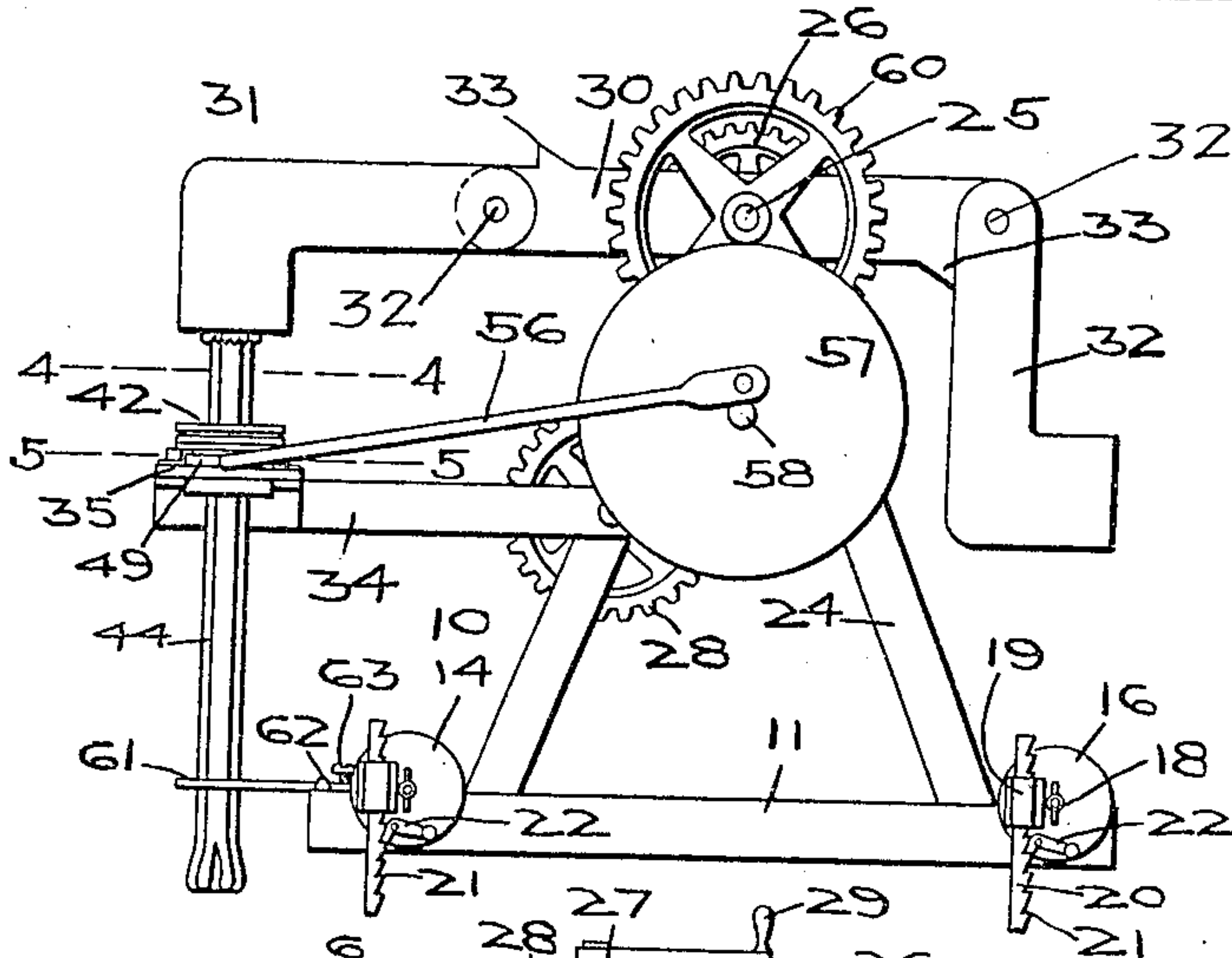


Fig. 2

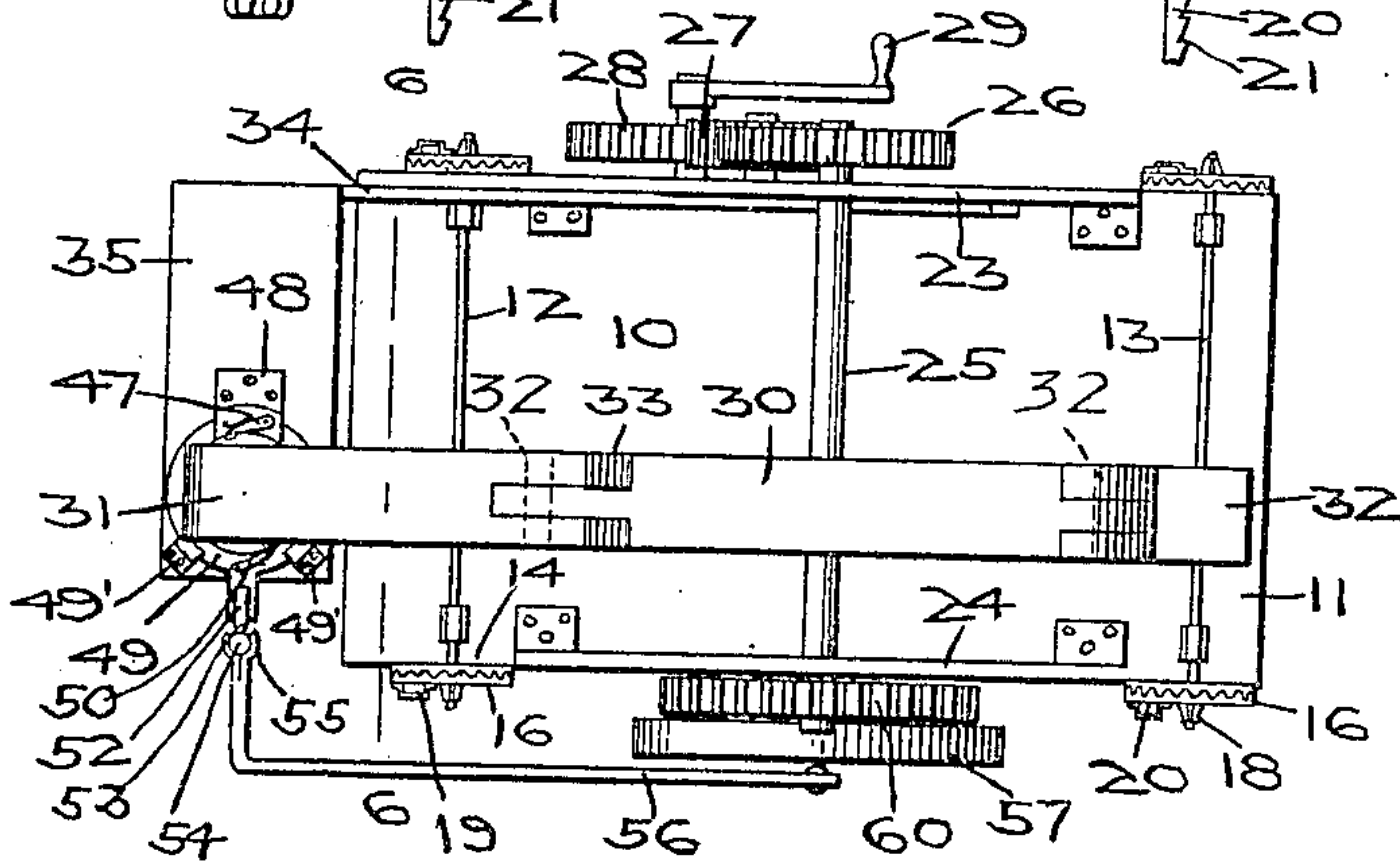
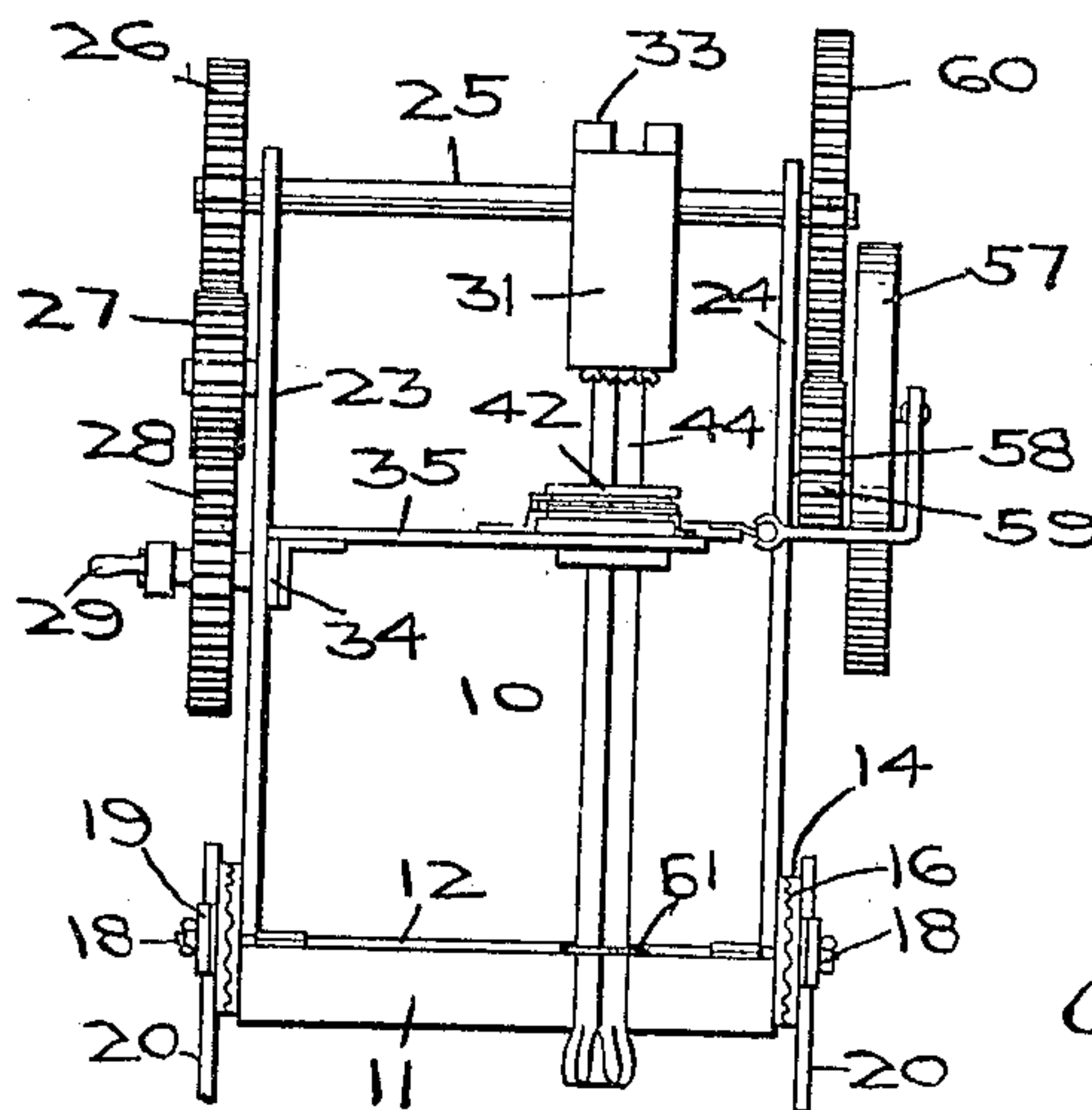


Fig. 3



Witnesses

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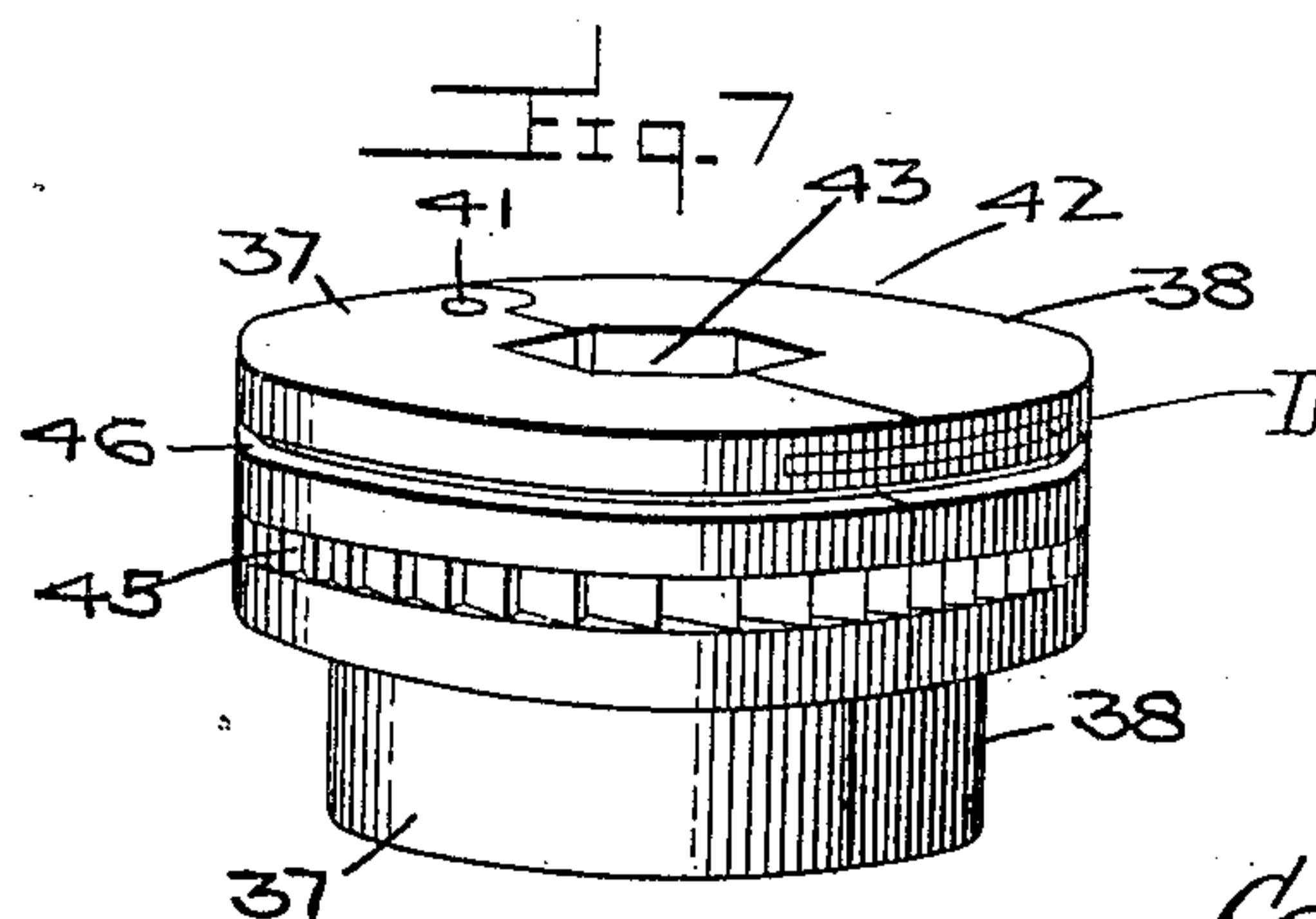
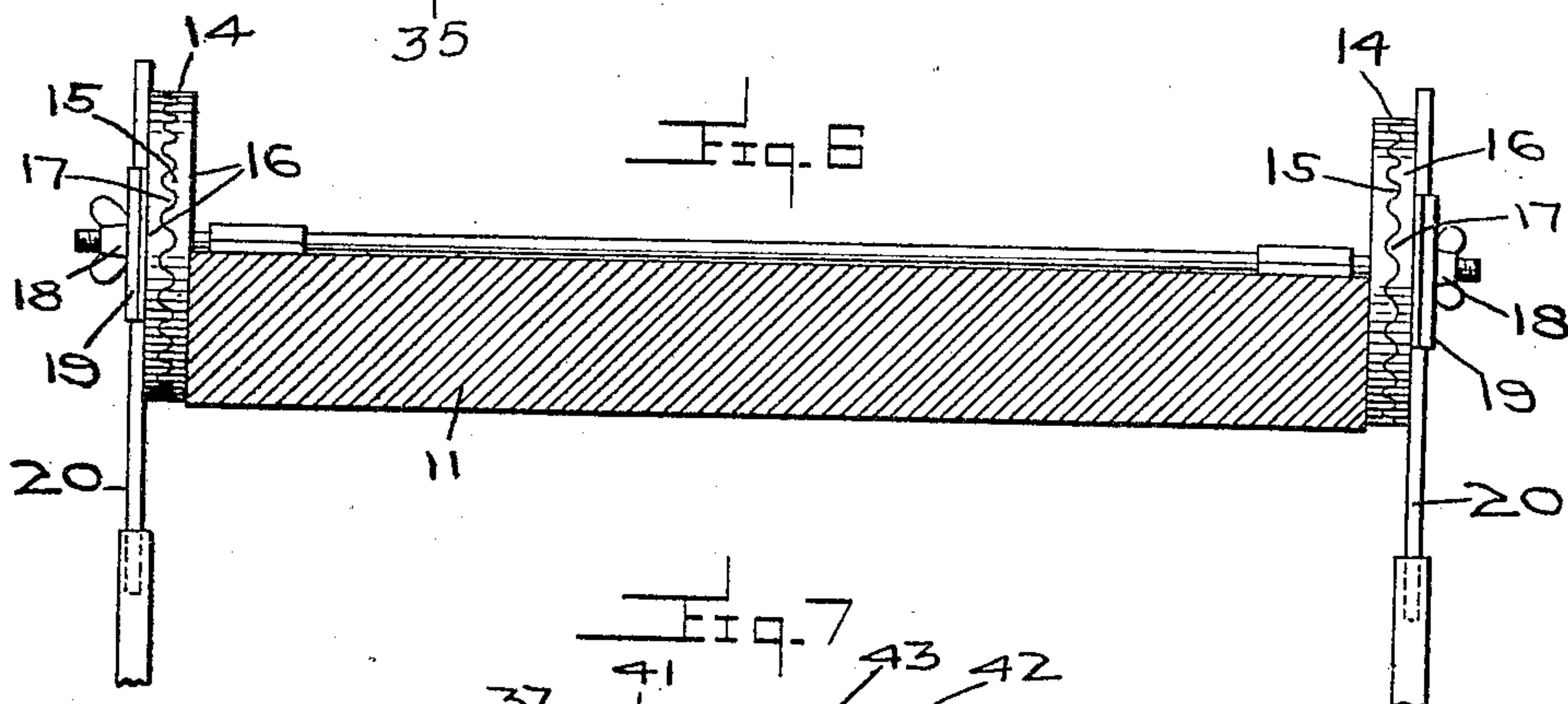
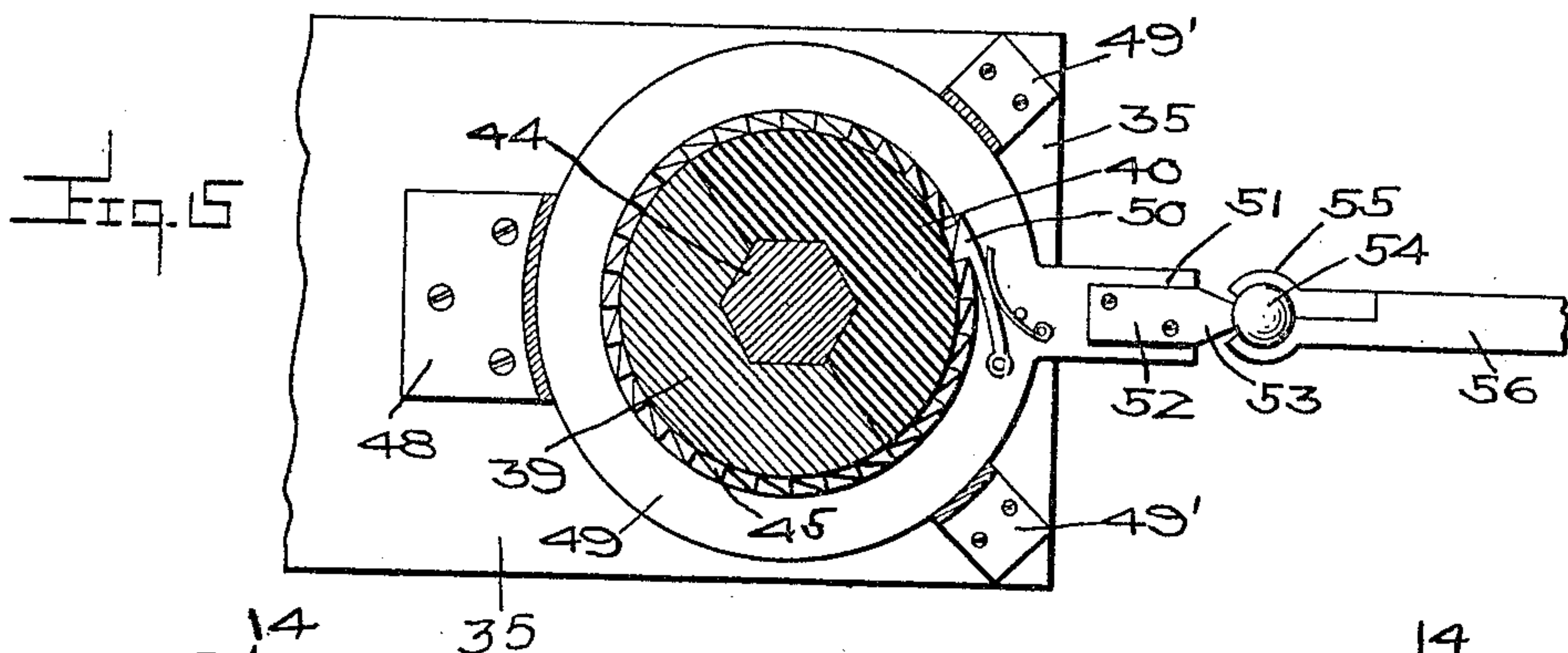
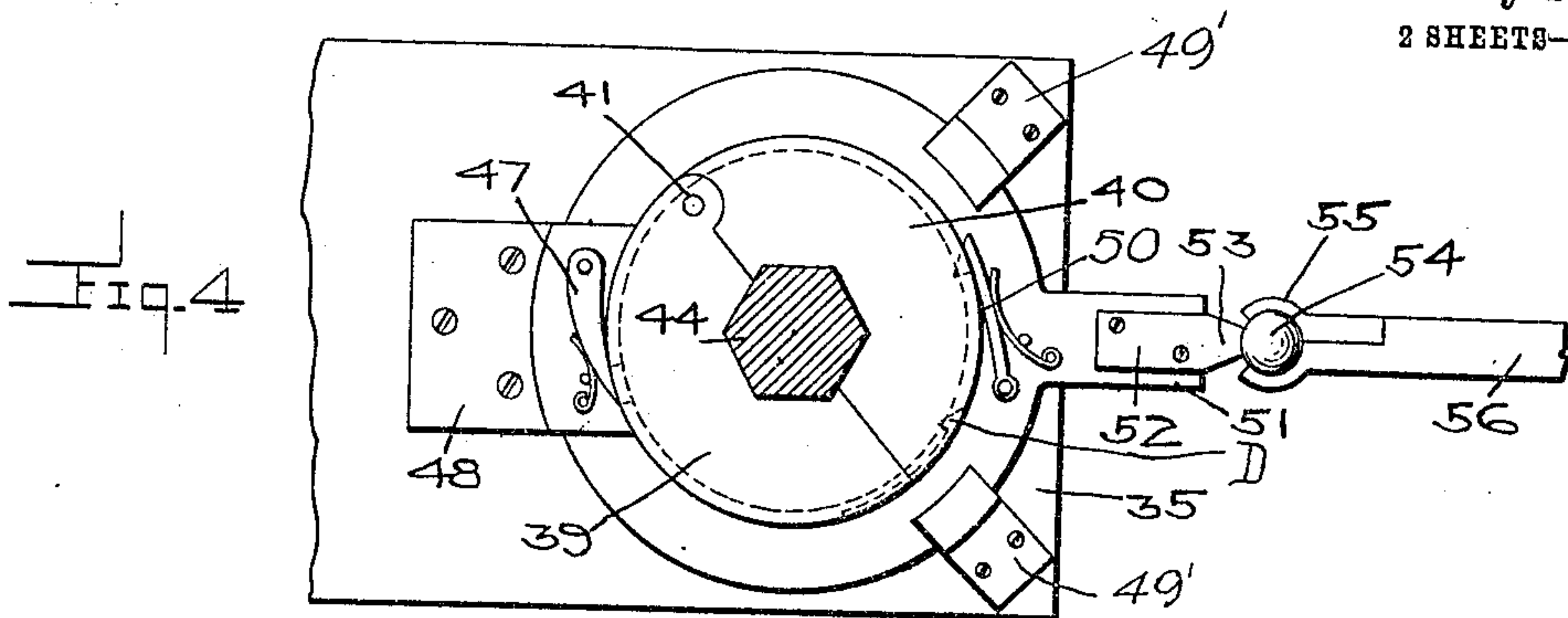
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# UNITED STATES PATENT OFFICE.

CARL E. HALL, OF ATWATER, MINNESOTA.

## STONE-DRILL.

No. 927,723.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed April 8, 1908. Serial No. 425,943.

*To all whom it may concern:*

Be it known that I, CARL E. HALL, a citizen of the United States, residing at Atwater, in the county of Kandiyohi and State of Minnesota, have invented certain new and useful Improvements in Stone-Drills, of which the following is a specification.

This invention relates to drills and more particularly to stone drills and has for an object to provide a drill especially adapted for use upon farms and which may be operated manually.

A further object of this invention is to provide a drill with revoluble hammers operable against the upper end of an oscillating drill shank.

A further object of this invention is to provide means for adjusting the bed plate of the drill whereby the drill bit may be driven at the desired angle into the ground.

Other objects and advantages will be apparent from the following description and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like characters of reference indicate similar parts in the several views, Figure 1 is a side view of the present drill, Fig. 2 is a top plan view, Fig. 3 is an end view, Fig. 4 is a detail horizontal sectional view on the line 4—4 of Fig. 1, Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 1, Fig. 6 is a transverse sectional view on the line 6—6 of Fig. 2, Fig. 7 is a perspective view of the bit holder.

Referring now more particularly to the drawings, there is shown a drill comprising a bed plate 11 having transversely extending rods 12 and 13 respectively adjacent its ends. Each rod is provided at each side of the bed plate with a circular plate 14 having a corrugated outer face 15. The ends of the rods outwardly of each plate 14 are provided with similar revoluble plates 16 having corrugated inner faces 17 for adjustable coengagement with the corrugations of the plate 14. The rods are threaded at their outer ends, and these threaded portions receive thumb nuts 18 for holding the plates engaged with each other.

The plates 16 are provided with socket members 19 arranged to receive legs 20 provided with usual slidable extensions 20' and

having toothed edges 21 engaged with pawls 22 carried by the bed plate 11. The legs are thus adjustable vertically and by means of the plates 14 and 16 respectively it is obvious that the bed plate may be adjusted angularly with relation to the legs.

The bed plate 11 is provided with brackets 23 and 24 respectively, and journaled in the upper ends of these brackets there is shown a transversely extending shaft 25 provided at its end outwardly of the bracket 23 with a gear wheel 26 in mesh with an idler gear 27, and this gear 27 is in mesh with a drive gear 28 provided with a crank handle 29, as shown.

The shaft 25 is provided at its center with a fixed arm 30 provided at each end with a hammer 31 pivoted to the arm 30 as shown at 32. Stops 33 are carried by the arm 30 and are arranged to limit the inward movement of the hammers 31.

The bracket 23 is provided with an outwardly extending arm 34, and located at the outer end of this arm there is shown a plate 35 arranged in parallel relation to one end of the bed plate. The plate 35 is provided adjacent its outer end with a vertically disposed passage arranged to receive semi-circular depending portions 37 and 38 respectively of bit holding sections 39 and 40 respectively which are hingedly connected as shown at 41. The sections 39 and 40 when closed, form a circular head 42. The sections 39 and 40 respectively are provided with angular notches 43 which forming a passage receive a vertically disposed bit 44. The head 42 of the bit holder is provided with a peripheral series of ratchet teeth 45, above which there is shown a circular groove 46 arranged to receive a spring pressed finger 47, carried by a guide plate 48 secured to the plate 35, serving to prevent upward movement of the bit holder. The section 39 carries a resilient toothed catch D, detachably engaged with a suitable recess in the opposite section, and arranged to lie flush with the peripheral face of the head, as shown in Figs. 4 and 7.

An oscillating band 49 is arranged to encircle the bit holder, and this band is movable in the guide 48 and in similar guides 49' which are also carried by the plate 35. The band is provided with a spring pressed dog 50 engaged with the ratchet teeth 46 of the holder. The band is also provided with an outwardly extending arm 51 which carries



at its outer end a plate 52 having an inwardly directed reduced portion 53, and formed upon the outer end of this reduced portion there is shown a spherical member 5 54 which receives the socket 55 carried by a reciprocating arm 56. The arm 56 is thus universally connected at its lower end and at the upper end, this arm is connected in a like manner to a crank wheel 57 mounted 10 upon a stub shaft 58 carried by the bracket 24. The stub shaft 58 is provided with a gear wheel 59 in mesh with a gear wheel 60 carried by the shaft 25. The bit 44 is disposed in a passage formed in the outer end of 15 a plate 61, which is slidable in guides 62 carried by the bed plate 11. The plate 61 is provided with a set screw 63 engaged with the upper surface of the bed plate.

It will thus be seen that a simple, efficient 20 and inexpensive drill is provided which may be conveniently driven by manual power, and by the connections shown and described it will be seen that during the oscillating movement of the bit the arms 30 will be re- 25 volved, carrying therewith, the hammers 31 which will in turn strike the upper end of the bit and thereby facilitate its movement into the ground.

What is claimed is:

30 1. A drill of the class described comprising a frame, including a bed plate, circular plates secured to the sides of the bed plate, and having corrugated outer faces, trans- 35 versely disposed rods carried by the bed plate and having their inner ends disposed through the circular plates, plates carried by the rods and having corrugated faces adapted for clamping engagement with the first 40 named corrugated faces, adjustable legs

and legs being adapted for adjustment of the bed plates at various angles with respect to the perpendicular, while retaining the legs in perpendicular position, revoluble 45 hammers carried by the frame, a bit holder revolubly mounted on the frame, means for operating said hammers, and operative connections between said hammers and bit holder.

2. In a drill of the class described, a sup- 50 port having a circular opening therethrough, a collar secured revolubly over said opening, and having a laterally extending portion carrying a ball and socket joint, and adapted for connection with a source of power 55 for oscillation of the collar, a bit holder engaged revolubly and detachably in said collar, said holder comprising opposite hinged sections having angular notches in their ad- 60 jacent portions forming a passage adapted to hold a bit slidably therein against relative rotation, said head having peripheral ratchet teeth therein and a peripheral groove adja- 65 cent to the teeth, and having also a spaced top member adapted to secure the opposite sections in coengaged position, a finger 70 carried by the collar and disposed slidably in said groove, to retain said head against disengagement from the collar, and a spring pressed dog carried by the collar and adapted for engagement with said ratchet teeth, for rotation of the head upon oscillation of the collar.

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

CARL E. HALL.

Witnesses:

NELS A. NELSON,  
OLIVER HALL.