

No. 640,708.

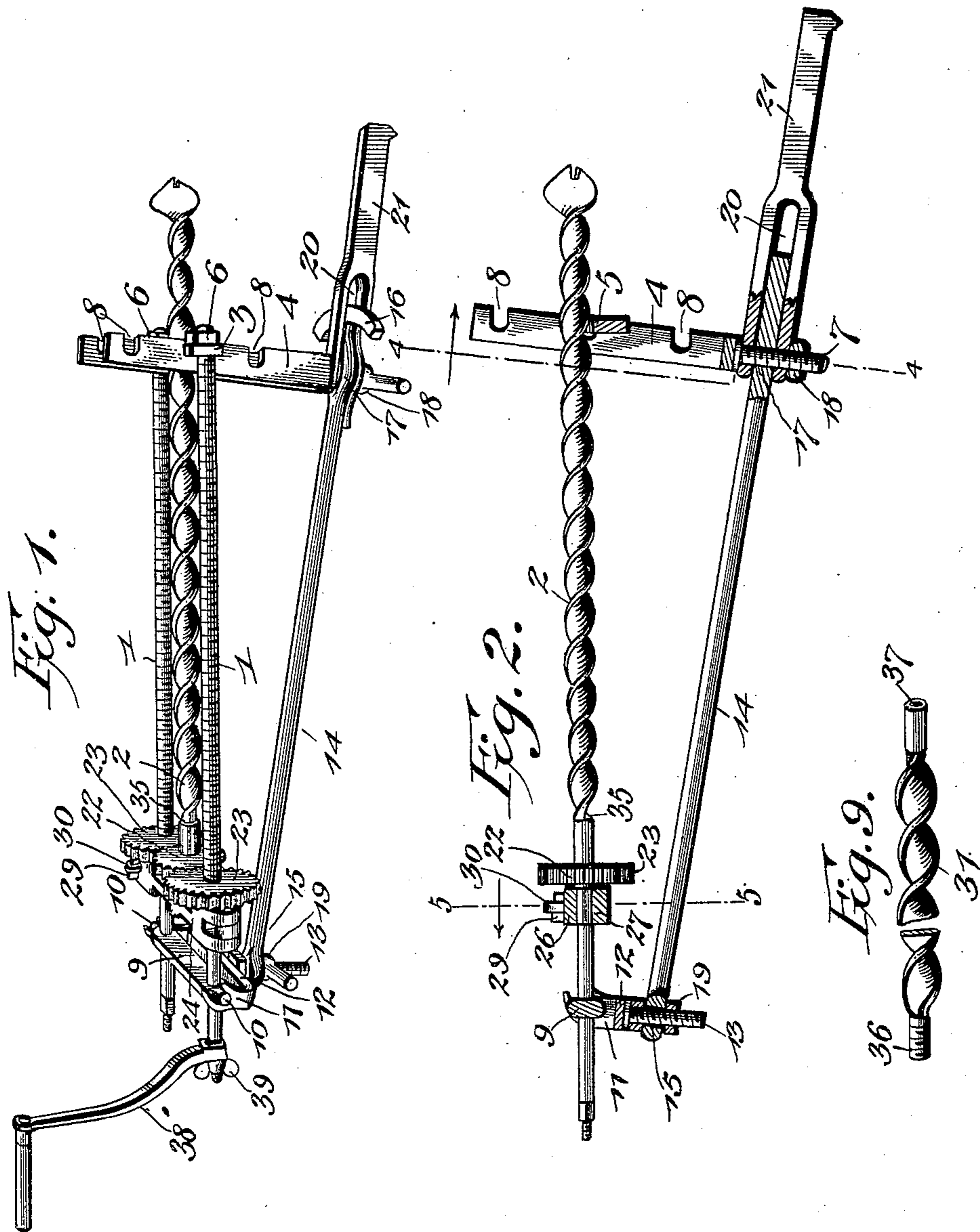
Patented Jan. 2, 1900.

C. SCHMIDT.  
DRILLING MACHINE.

(Application filed Mar. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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By *His* Attorneys,

*Charles Schmidt, Inventor.*

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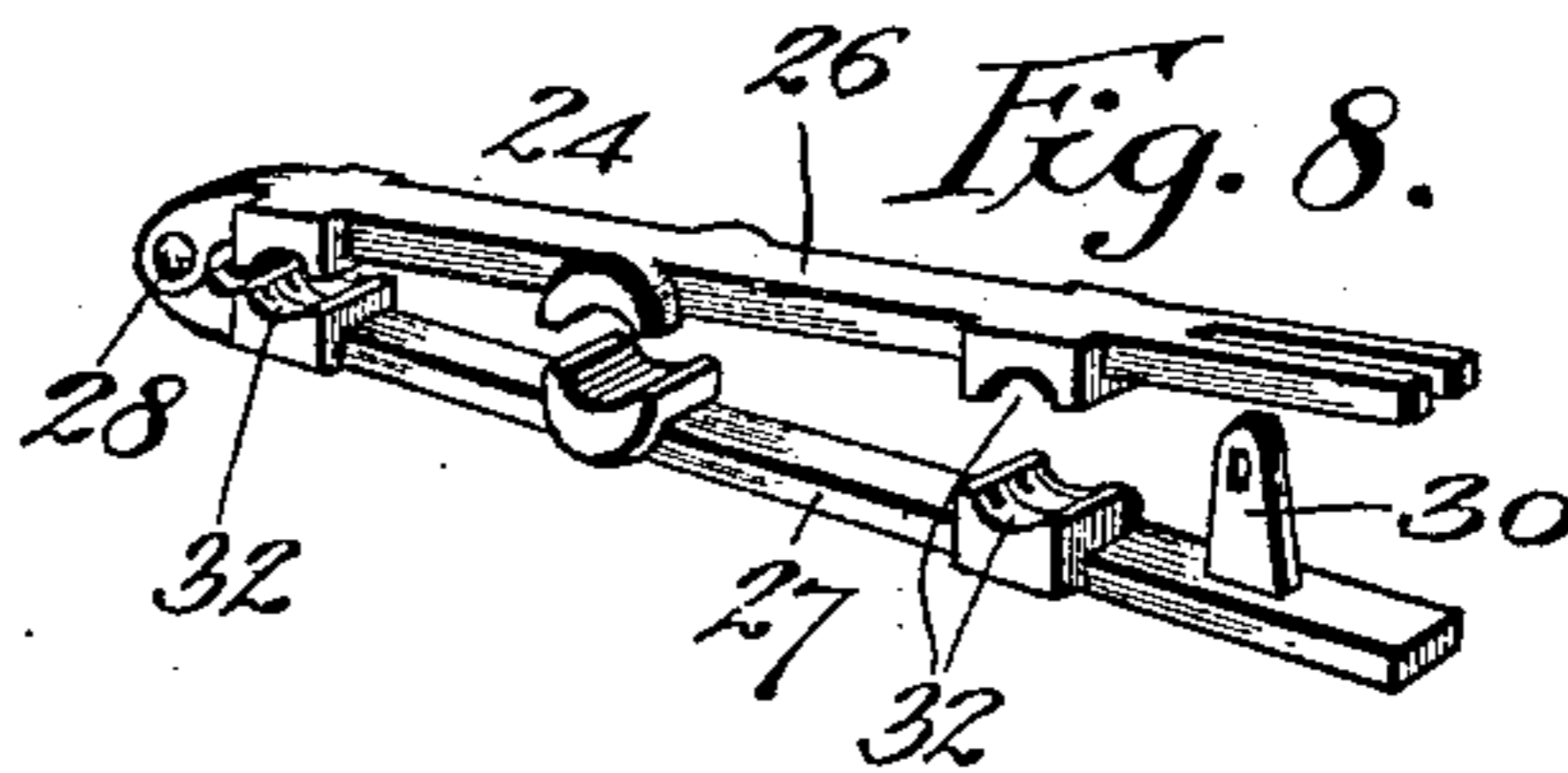
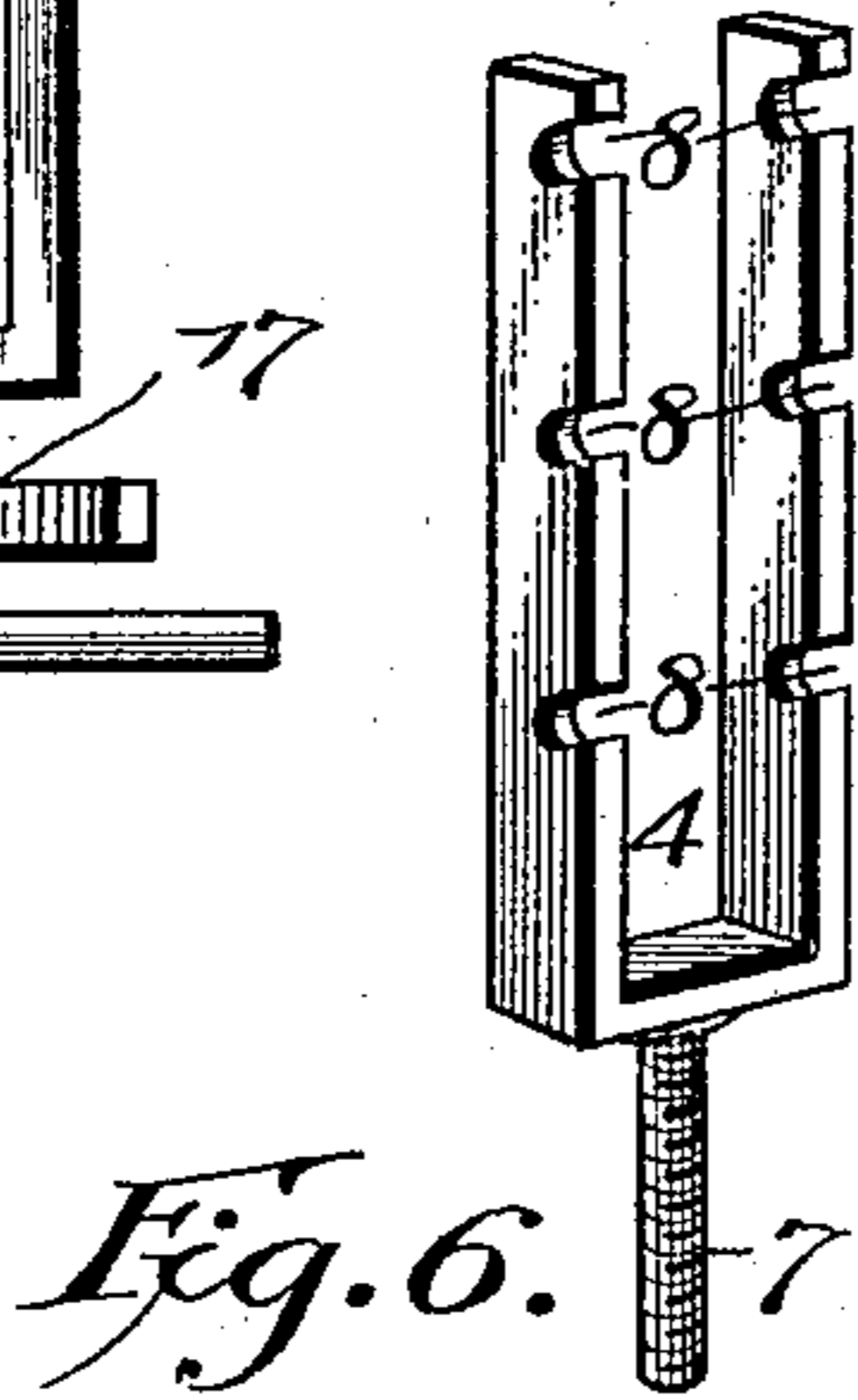
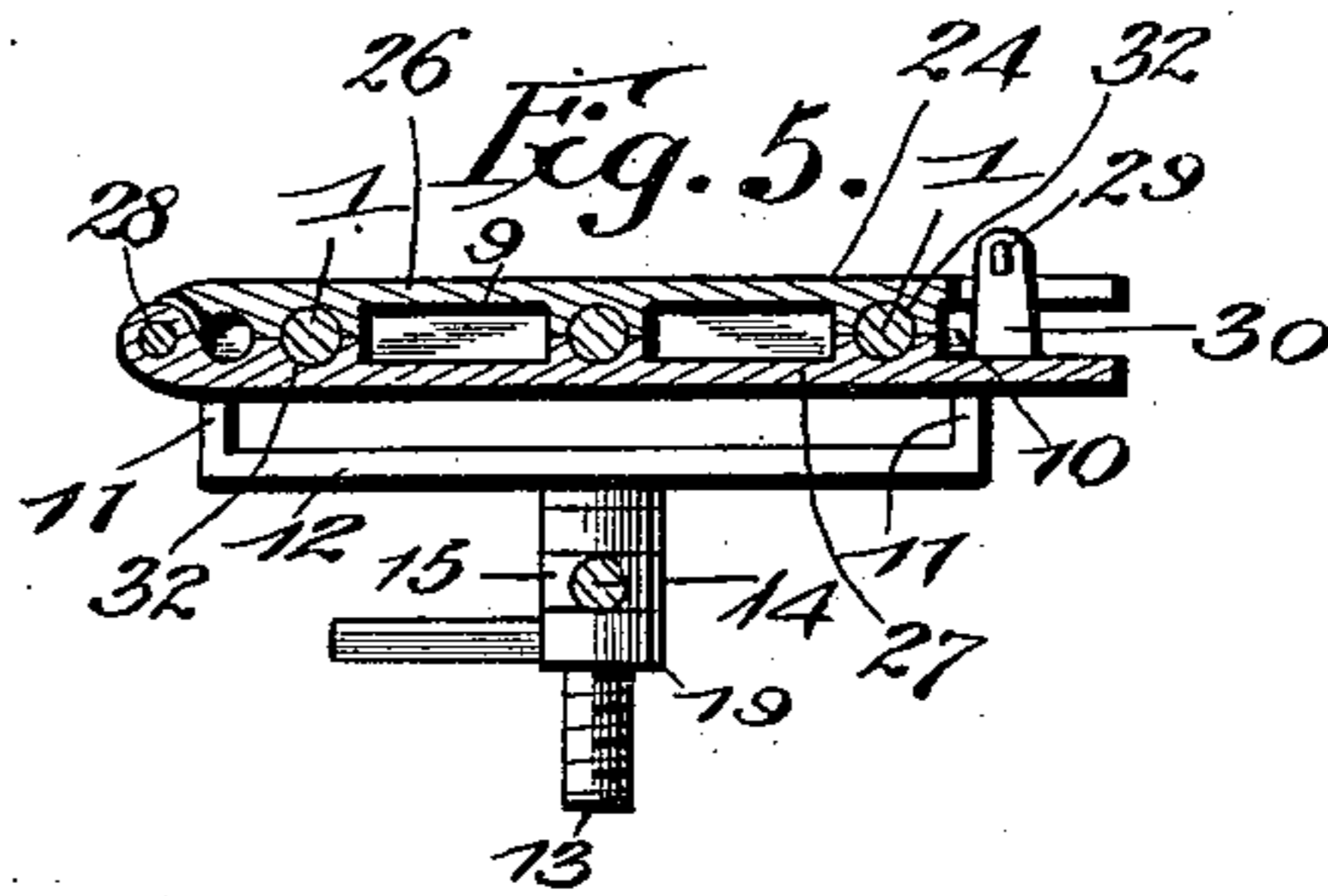
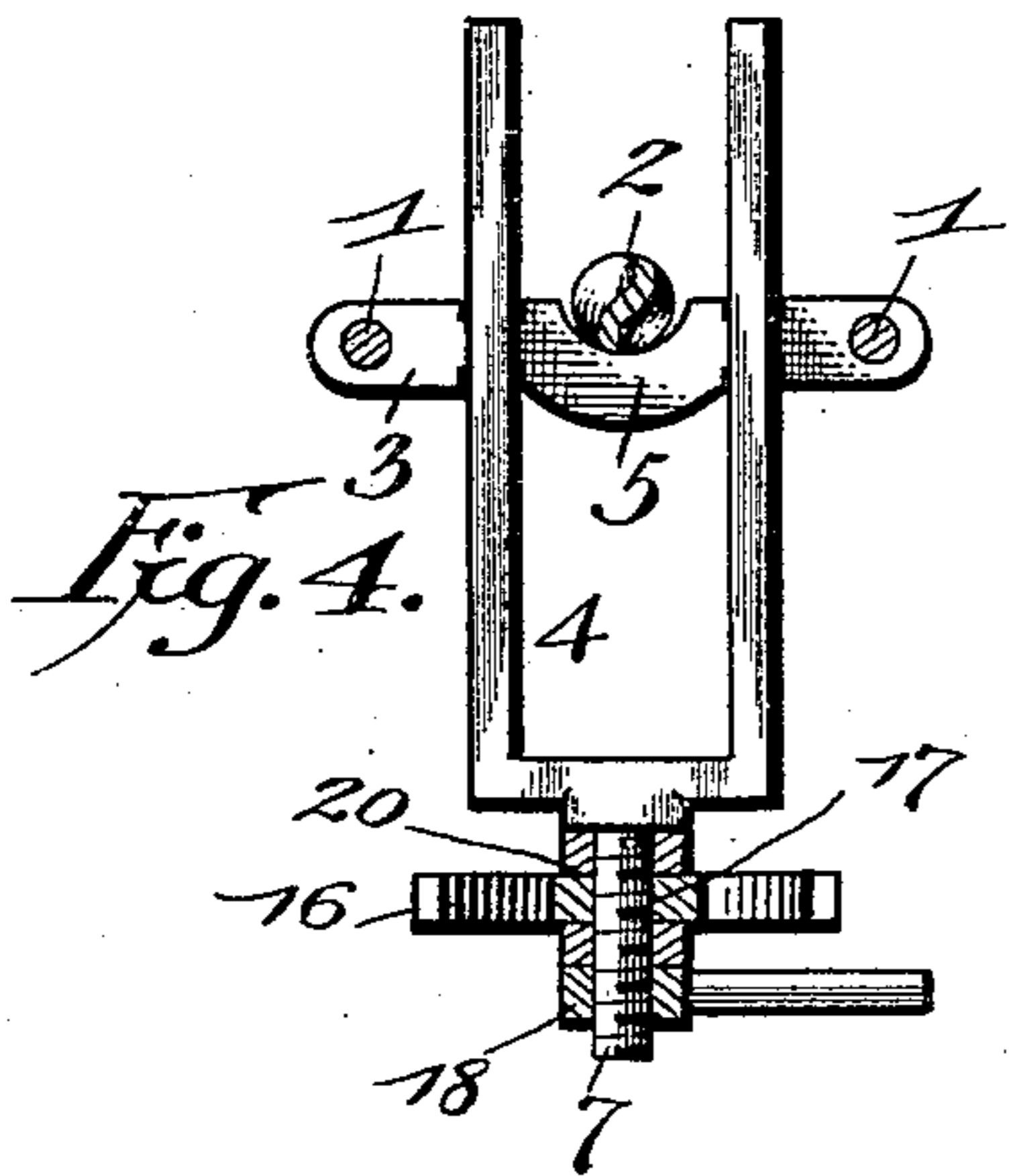
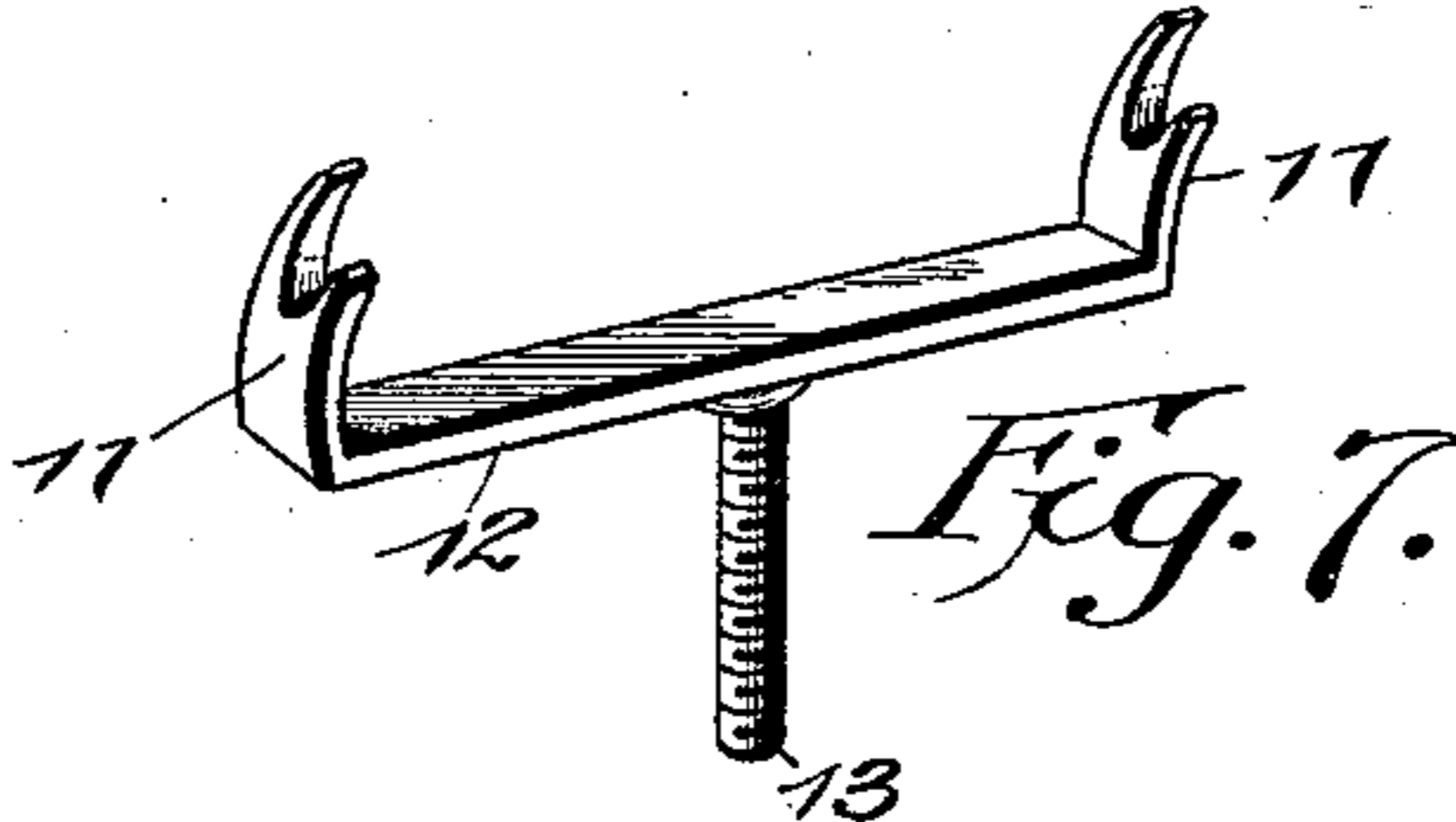
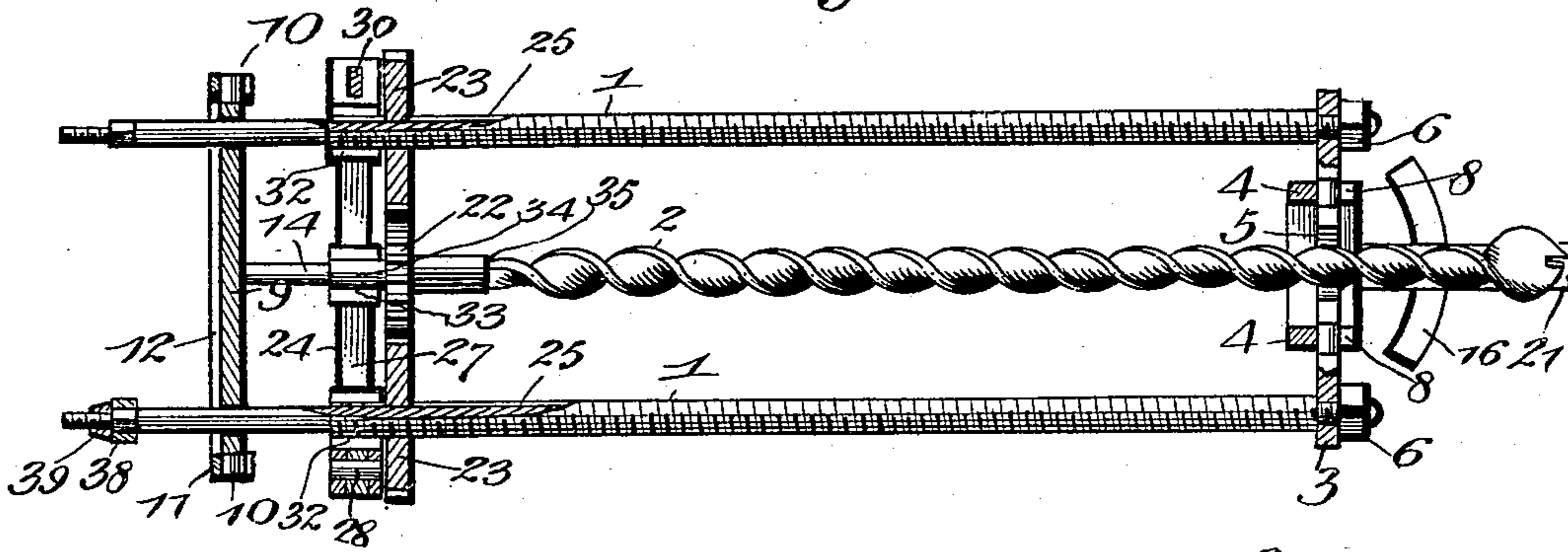
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2 Sheets—Sheet 2.

Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES SCHMIDT, OF AYRSHIRE, INDIANA.

## DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 640,708, dated January 2, 1900.

Application filed March 20, 1899. Serial No. 709,842. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES SCHMIDT, a citizen of the United States, residing at Ayrshire, in the county of Pike and State of Indiana, have invented a new and useful Drilling-Machine, of which the following is a specification.

The invention relates to improvements in drilling-machines.

10 The object of the present invention is to improve the construction of drilling-machines and to provide a simple, inexpensive, and efficient one adapted after it has been anchored in one position to be readily adjusted for  
15 drilling holes in different directions and capable after a bit or auger has been driven into a bed of coal or other material to be readily arranged to receive an extension bit or auger without removing the cutting bit or  
20 auger from the hole.

A further object of the invention is to enable the drilling-machine to be operated from either side of it, to suit the convenience of the operator and the position of the machine,  
25 and to provide means for enabling the auger or bit to be adjusted both vertically and laterally.

The invention consists in the construction and novel combination and arrangement of  
30 parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a drilling-machine constructed in accordance with this invention. Fig. 2 is a central longitudinal sectional view. Fig. 3 is a horizontal sectional view. Fig. 4 is a transverse sectional view on line 4 4 of Fig. 2. Fig. 5 is a similar view on line 5 5 of Fig. 2. Fig.  
40 6 is a detail perspective view of the front support. Fig. 7 is a similar view of the rear support. Fig. 8 is a detail perspective view of the transverse casing. Fig. 9 is a detail view of the extension-section of the auger.

45 Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 1 designate a pair of parallel shafts spaced apart and adapted to receive a bit or  
50 auger 2 between them and connected at their front ends by a cross bar or yoke 3, which is adjustably mounted in a front support 4 and

which has a central depressed portion 5 to clear the auger. The front ends of the parallel shafts 1 are reduced to form shoulders 55 for engaging the cross-bar 3, and they extend through perforations of the same and receive nuts 6, which secure them to the ends of the cross-bar.

The front support 4, which is substantially  
60 U-shaped, is provided with a central depending stem 7, and its sides are provided at intervals with horizontally-alined recesses 8, adapted to receive the cross-bar 3, whereby  
65 the bit or auger is raised or lowered.

The rear portions of the longitudinal shaft 1 are journaled in bearing-openings of a cross-bar 9, provided at its ends with pivots or trunnions 10, arranged in arms 11 of a substantially U-shaped rear support 12 and adapted  
70 to form a fulcrum for the operating mechanism of the drilling-machine. The U-shaped rear support, which is provided with a depending stem 13, consists of a horizontal bottom portion and a pair of short upwardly-extending arms having opening-bearings for the  
75 said journals or trunnions to permit the shaft 1 and the mechanism carried by the same to be readily removed.

The front and rear supports are connected  
80 by a longitudinal bracing-rod 14, provided at its rear end with an eye 15 to receive the rod or stem 13 and having at its front end a curved guide 16 and an eye 17, located a short distance in rear of the guide and receiving  
85 the stem of the front support. The depending stems of the front and rear supports are threaded for the reception of nuts 18 and 19, provided with handles to enable them to be readily adjusted, and the rear nut supports  
90 the longitudinal bracing-rod 14. The front end of the bracing-rod extends into a bifurcation 20 of an anchor 21, which is provided at the sides of its bifurcation with perforations registering with the front eye of the  
95 bracing-rod and receiving the depending stem of the front support. By this construction the drilling-machine is pivotally connected with the anchor and is adapted to be swung laterally with the front depending stem as a  
100 pivot, and the curved guide, which is arranged in the bifurcation of the anchor, supports the machine in any of its adjusted positions.

The front portion of the auger or bit is supported by the central depressed portion of the front cross-bar, which unites the front ends of the shafts 1, and the rear end of the 5 auger is connected with a central gear-wheel 22, journaled on a transverse casing 24 and meshing with side gear-wheels 23, which are adapted to rotate the threaded shaft 1 in the same direction. The shafts 1 are provided 10 with longitudinal grooves 25 for the reception of feathers or splines of the side gears, which bear against the transverse casing. The transverse casing, which constitutes a feeding device for advancing the auger, is pro- 15 vided at opposite sides with threaded openings operating as nuts and engaging the threads of the shaft 1, whereby when the latter are rotated by the means hereinafter described the casing will be advanced on them 20 and will carry the gearing with it.

The transverse casing is composed of upper and lower bars or sections 26 and 27, hinged together at one side of the device at 28 and having their other ends detachably connected 25 by a key 29, which engages an opening of an arm 30, carried by the lower section or bar and extending through the upper section or bar. This construction permits the feeding device to be readily disengaged from the threaded 30 shafts after the auger has been advanced as far as possible by its connection to the central gear, and after the casing has been opened it may be moved rearward to its initial position near the rear ends of the shafts. The 35 side gears can then be moved back to the casing, after which the central gear is disconnected from the auger, which is left in the hole, and the said central gear is placed in its bearing in the casing or feeding device, and 40 an extension or auger section 31 is connected with the auger or bit 2 to enable the hole previously cut to be deepened. The upper and lower sections of the casing or feeding device are provided with side recesses 32, which form 45 the threaded openings for the shafts, and they have central recesses 33, which are smooth, to form a bearing for a hub or extension 34 of the central gear-wheel 22. The central gear-wheel 22 is interiorly threaded to form 50 a socket for the reception of the rear ends 35 and 36 of the auger or bit 2 and the auger section or extension 31, which are threaded to engage the said socket. The front or outer end of the auger section or extension 31 is 55 provided with a threaded socket 37 to enable it to be coupled to the rear end of the bit or auger 2.

The rear ends of the threaded shafts are squared to receive a crank-handle 38, which 60 is adapted to be arranged on either of the shafts to suit the convenience of the operator and the position of the machine, and the handle 38 is detachably secured to the shafts by a winged nut 39.

65 The invention has the following advantages: The drilling-machine, which is simple and comparatively inexpensive in construc-

tion, is easily operated and is capable of ad- 70 justing the auger or bit vertically and laterally, and the machine is supported in its lateral adjustment by the curved guide, which projects laterally from each side of the front end of the bracing-rod. Either of the thread- 75 ed shafts may have the crank-handle attached to it, so that the machine may be operated from either side to suit the convenience of the operator and to enable the machine to be operated in positions in which it would other- 80 wise be inoperative. The sectional feeding device, which engages the threads of the shafts, is adapted to be readily disengaged from the same to enable it to be quickly returned to its initial position. The cross- 85 bars which connect the front and rear portions of the shafts are detachably mounted in the front and rear supports and may be readily disengaged therefrom, and the rear support serves as a fulcrum for the operating mechanism, which is adjusted vertically on 90 the front support, and as the rear portions of the shafts are adapted to move freely longitudinally through the openings or bearings of the rear cross-bar 9 the front cross-bar may be arranged in any pair of the recesses 95 of the front support without adjusting any devices to vary the distance between the front and rear supports.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted 100 to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

1. A drilling-machine comprising a pair of threaded shafts, an auger, gearing connect- 105 ing the auger with the shafts and adapted to slide on the latter, and a feeding device supporting the gearing and having threaded openings to engage the threads of the shafts, said feeding device consisting of a casing com- 110 posed of two sections hinged together at one side of the machine and having their other ends detachably connected, substantially as and for the purpose described.

2. A drilling-machine comprising front and 115 rear supports, a cross-bar provided with bearing-openings and trunnioned in the bearings of the rear support, parallel threaded shafts having their rear ends loosely journaled in the bearing-openings of said cross-bar, a yoke 120 connecting and having journal-bearings for the front ends of said shafts, and adjustable up and down on the front support, an auger parallel to and arranged between the shafts and supported by said yoke, and gearing op- 125 eratively connecting the auger with the shafts, substantially as described.

3. A drilling-machine comprising a drill, front and rear supports therefor, means for adjusting the working end of the drill up and 130 down on the front support, a depending pivot on the front support, an anchor having its rear end slotted and terminally perforated to receive said pivot, and a rod connecting said

supports and provided with a segmental guide arranged to work in the slot of the anchor beyond the point of its pivotal connection with the anchor, substantially as described.

- 5 4. A drilling-machine comprising the substantially U-shaped front and rear supports, a rear cross-bar journaled on the rear support, a front bar detachably interlocked with the front support and capable of vertical adjustment thereon, a pair of parallel shafts  
10 secured at their front ends to the front cross-bar and having their rear portions loosely

journaled in the rear cross-bar, an auger, and means connected with the auger and the shafts for rotating and feeding the former, 15 substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES SCHMIDT.

Witnesses:

THOS. J. SCALES,

W. A. CARTER.