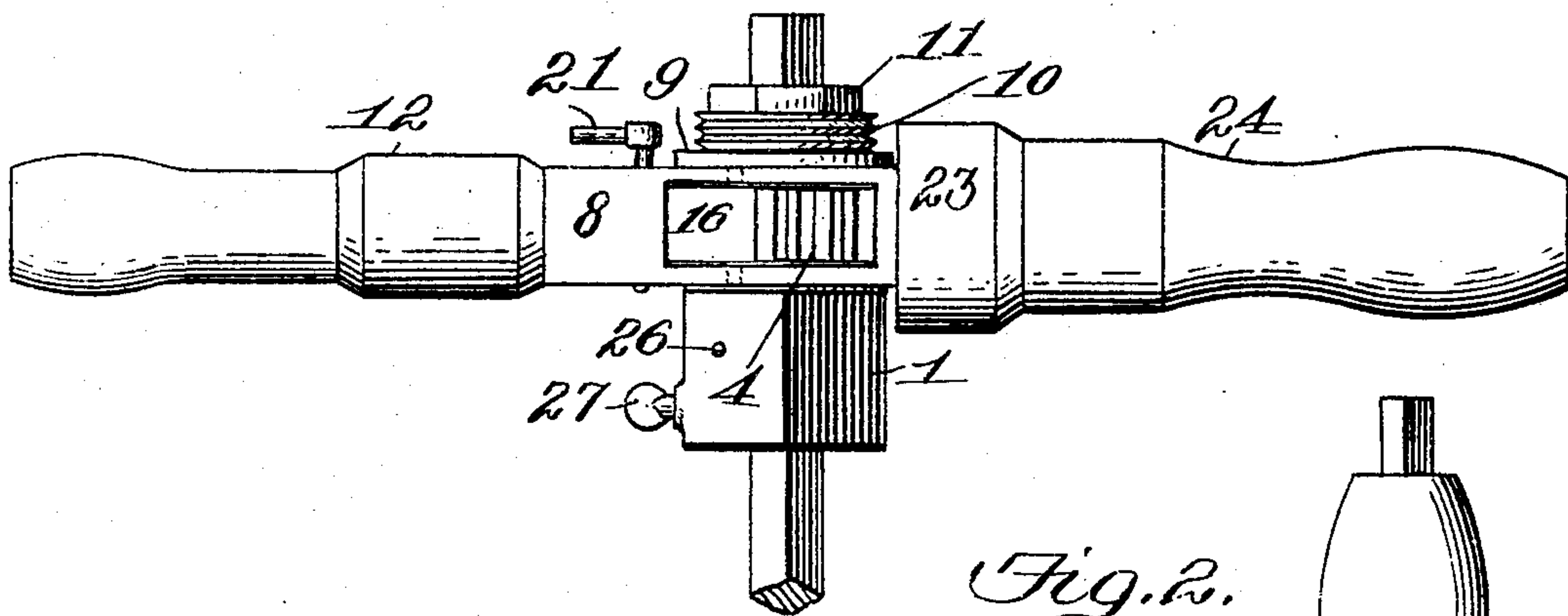


No. 796,911.

PATENTED AUG. 8, 1905.

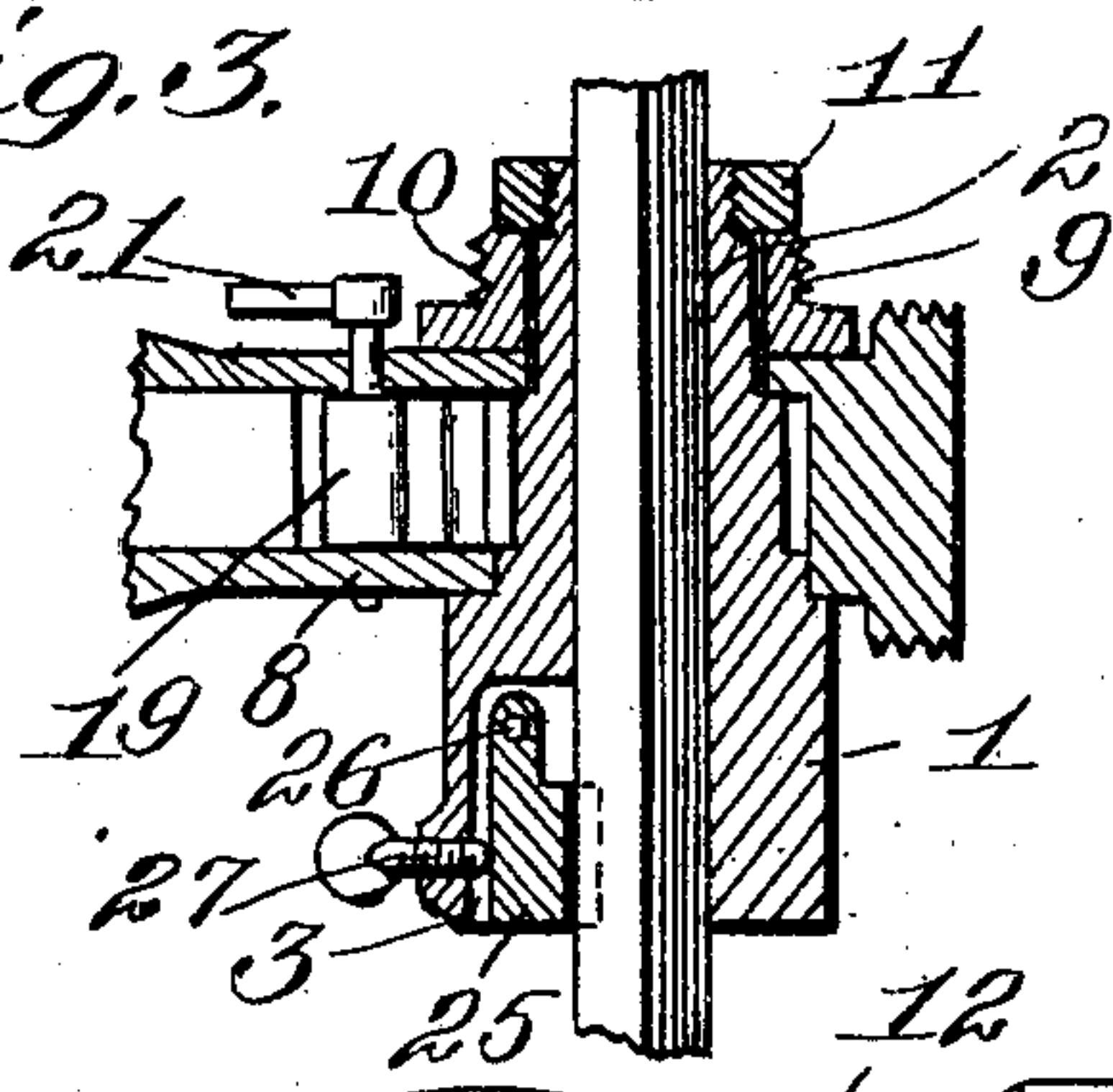
R. R. HILL.  
OPERATING ATTACHMENT FOR BORING TOOLS.  
APPLICATION FILED AUG. 11, 1904.

*Fig. 1.*

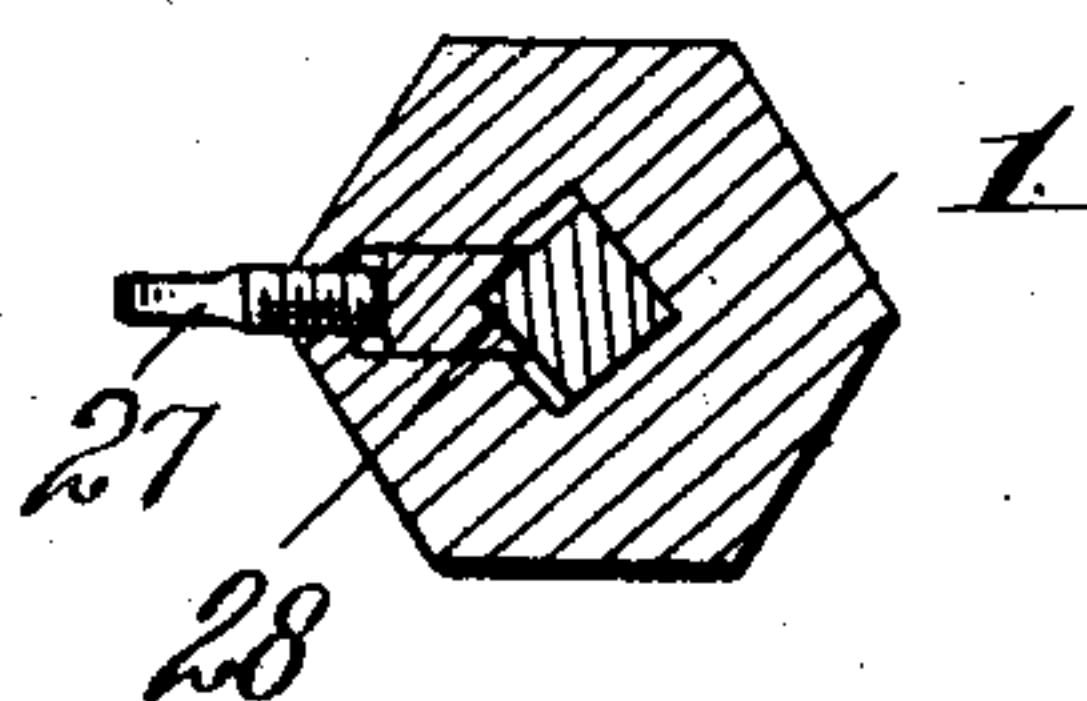


*Fig. 2.*

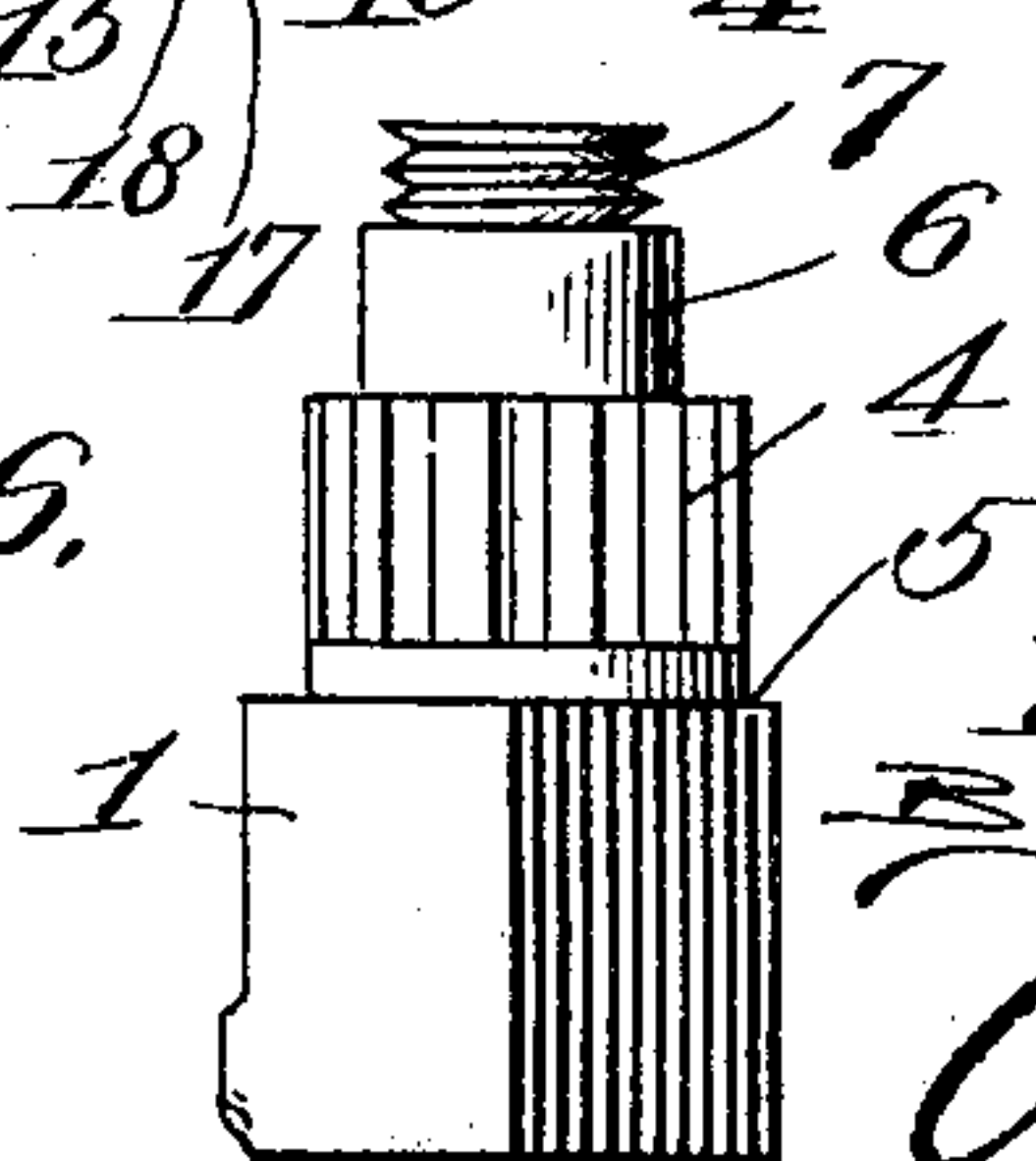
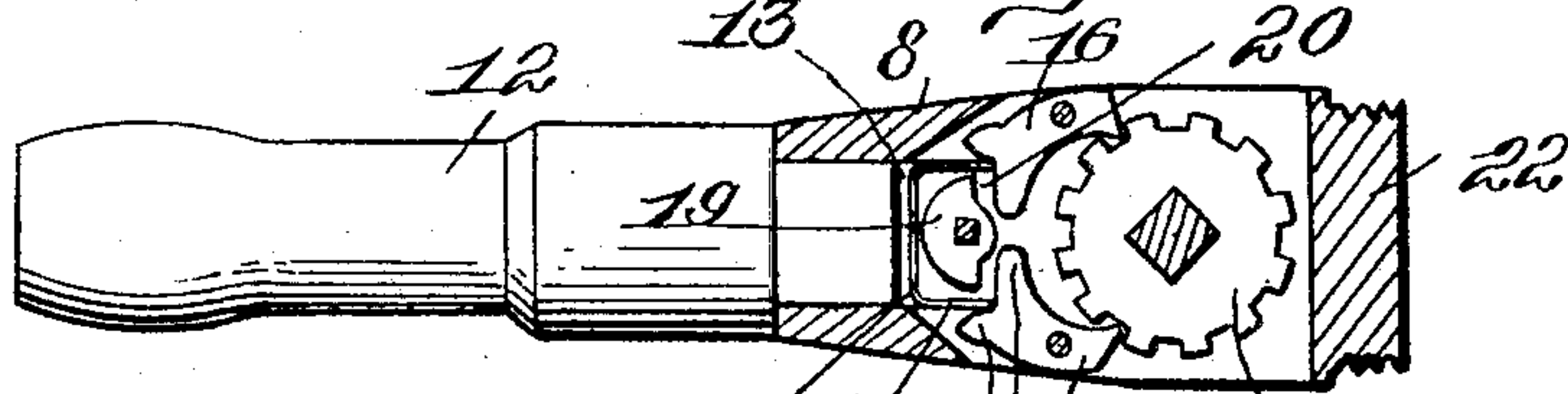
*Fig. 3.*



*Fig. 5.*



*Fig. 4.*



Witnesses: *Fig. 6.*  
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# UNITED STATES PATENT OFFICE.

ROBERT R. HILL, OF EDWARDSVILLE, PENNSYLVANIA.

## OPERATING ATTACHMENT FOR BORING-TOOLS.

No. 796,911.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed August 11, 1904. Serial No. 220,439.

*To all whom it may concern:*

Be it known that I, ROBERT R. HILL, a citizen of the United States, residing at Edwarsville, in the county of Luzerne and State of Pennsylvania, have invented new and useful Improvements in Operating Attachments for Boring-Tools, of which the following is a specification.

This invention relates to an operating attachment for augers or boring-tools, and embodies in its organization a ratchet or rotating clutch mechanism and handle or grip elements supported by a tubular body or head to fit over the stem or shank of the auger or boring-tool, one of the handle or grip elements being applicable to the body or head in either one of two positions to adapt the attachment for operating an auger or boring-tool in a confined space or close to a wall or in an unobstructed position.

The attachment also contemplates the use of means in connection with the body or head thereof for securing or clamping the latter at any elevation desired on the auger or boring-tool stem or shank to permit the attachment to be controlled as to its elevation relatively to the user in the initial boring operation or during the penetration of the auger or boring-tool to compensate for the depression of the latter.

The attachment also has a tubular body or head with ratchet or clutch devices and handle or grip means for operating the same, a part of the handle or grip means being tubular and applicable vertically to the body or head over the stem or shank of the auger or boring-tool to hold the latter steady when the hole to be bored is close to a wall or other obstruction, which will prevent the operation of the handle or grip means when disposed in horizontal alinement.

The attachment also embodies novel details in the construction and arrangement of parts, which will be more fully hereinafter set forth.

In the drawings, Figure 1 is an elevation of the attachment shown applied to a portion of an auger or boring-tool stem or shank. Fig. 2 is a similar view showing one of the handle or grip elements in a different position. Fig. 3 is a longitudinal vertical section through a portion of the attachment as shown arranged by Fig. 1. Fig. 4 is a horizontal section on the line 4-4, Fig. 2. Fig. 5 is a horizontal section on the line 5-5, Fig. 2. Fig. 6 is a detail elevation of the tubular body or head of the attachment.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The body or head 1 of the attachment is formed of suitable metal and has a vertical bore 2 extending centrally therethrough, with a lateral recess 3 communicating with the lower portion thereof to receive a clamping device which will be more fully hereinafter specified. The bore 2 may be of any contour conforming to the shank or stem of the auger or boring-tool over which the attachment is applied, and at an intermediate point the body is provided with a ratchet member 4, which is of materially less diameter than the lower part of the body, and the upper edge of the lower maximum diametrically extending part of the body forms a circumferential shoulder 5 with respect to the ratchet member. Above the ratchet member the body or head is further diametrically reduced to form a collar-receiving member 6, the outer surface of the latter member being smooth, the upper terminal of the body having the least diametrical extent and formed with a series of screw-threads 7. A detent-carrying member 8 is movably applied to and rotatably surrounds the ratchet member 4, the detent-carrying member being supported on the shoulder 5 of the body 1. The detent-carrying member is held down in operative position with respect to the ratchet member 4 by a loose collar 9, having exterior screw-threads 10 and engaged by a nut 11, which is applied to the upper screw-threaded terminal of the body and has an opening through the center thereof corresponding to the bore 2. While the collar 9 is held between the nut 11 and the detent-carrying member 8, it is free to turn on the member 6 for a purpose which will be presently explained. The detent-carrying member 8 has a handle or grip element 12 projecting therefrom and preferably formed of wood, and adjacent to the ratchet member 4 the said handle or grip element is chambered, as at 13, this chamber continuing into the opening of the grip-carrying member and provides a seat for a U-shaped spring 14, of flat metal of suitable width, and it is so positioned as to have the legs 15 thereof projected equally toward the ratchet member 4 of the body, said legs being also located at equal distances from the median line of the handle or grip element 12 and the detent-carrying element 8 and ratchet member 4. A pair of opposed detents 16 are pivotally mount-



ed in the carrying member 8, the pivots for said detents being intermediately positioned to permit the opposite extremities of each detent to have unrestricted movement when free to so operate. The outer ends of the detents have contact edges 17, one on each, terminating in a transverse direction at stop projections 18, which are engaged by the ends of the legs 15 of the spring 14. Centrally disposed with respect to the legs 15 of the spring 14 and the outer ends of the detents 16 is a double cam 19, formed with inner opposed recesses 20 to provide a clearance and angular terminals to engage the contact edges 17 of the detents to throw either one of the latter out of engagement with respect to the ratchet-teeth of the member 4. The detents 16 are engaged at such points, by the ends of the legs 15 of the spring 14, with relation to the pivots of the detents that the inner noses of the latter are normally thrown into biting contact with opposite ratchet-teeth of the member 4, and when a swinging movement in opposite directions is imparted to the detent-carrying member 8 the one detent will rotate the body 1 and the other detent will slip over the ratchet-teeth against the resistance of the spring-leg engaging the same.

Of course it will be understood that when both detents are in engagement with the ratchet-teeth it is not intended that the carrier 8 be alternately moved or oscillated in opposite directions, particularly during a boring operation, for the simple reason that the rotation of the body 1 in one direction to cause the penetration of the auger or boring-tool would be counteracted and the tool withdrawn by a rotation of the body 1 in the opposite direction. Hence unless it is desired to completely rotate the detent-carrying member continuously in either one of two directions one of the detents will be thrown out of engagement with respect to the ratchet-teeth by turning or adjusting the cam 19, and to so operate the cam a stem 20 rises therefrom and passes upwardly through the handle or grip member 12 and is supplied with a handle 21, which is readily accessible for operation to reverse the engagement of the detents with respect to the ratchet-teeth.

The detent-carrying member 8 terminates in a projecting attaching-head 22, which is exteriorly screw-threaded to receive the socket end 23 of a tubular handle 24. When the attachment is arranged to operate the stem or shank of an auger or boring-tool in an unrestricted manner, the tubular handle 24 is maintained in engagement with the head 22. When, however, the hole to be formed by the auger or boring-tool is in proximity to an obstruction or wall where it will be impracticable to use the attachment, as shown by Fig. 1, the handle 24 is detached from the head 22 and slipped longitudinally over the stem or shank of the auger or boring-tool and

connected to the screw-threads 10 of the collar 9 for use in maintaining the auger in upright position without interfering with the rotation thereof during the actuation of the body 1 by the handle or grip element 12. It is preferred that the handle or grip element 24 be formed of metal; but it will be understood that both handles or grip elements 12 and 24 may be composed of wood and metal, or, if desired, the handle 24 may be constructed solely of wood or any other material adapted for the purpose.

The lateral recess 3 in the lower part of the body 1 has a clamping jaw or grip 25, movably mounted therein and connected at its upper extremity to the body by a pivot-pin or analogous device 26, which engages the jaw or grip at a point outwardly beyond the vertical center to permit the lower free extremity of said jaw or grip to swing inwardly and be operated to effectively perform its function. A clamping-screw 27 extends inwardly through the lower portion of the body and engages the jaw or grip 25, and when said screw is adjusted against the jaw it forces the latter inwardly to bite against the stem or shank of the auger or boring-tool, and by this means the attachment is held at any elevation desired on the auger or boring-tool stem or shank and may be adjusted at will. The inner edge of the jaw or grip 25 will have a contour corresponding to the portion of the stem or shank of the auger or boring-tool with which it is adapted to engage, and in the present instance said jaw or grip is constructed with an inner angular recess 28, as clearly shown by Fig. 5, to cooperate and bite against a stem or shank of an auger or boring-tool having an angular contour in cross-section. The jaw or grip also in some instances serves to hold the attachment in rotating relation to the stem or shank of the auger or boring-tool; but it is preferred that the bore 2 of the body 1 be of angular contour or approximately the same shape as the cross-sectional contour of the stem or shank of the auger or boring-tool, so as to render the body effective in rotating the latter.

The improved attachment will be found exceptionally convenient and useful, and in view of the comparatively small number of parts included in the organization thereof the cost of manufacture will be reduced to a minimum. Moreover, the several parts are of a strong and durable nature and will not easily become disarranged or broken and are capable of resisting considerable strain. It will also be understood that changes in the proportions, dimensions, and minor details may be resorted to without departing from the nature or spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. The combination with the shank of a boring-tool, of ratchet mechanism for rotating



the same and movable vertically different distances thereover, means carried by the ratchet mechanism for holding the latter in adjustable position on the shank, the shank continually extending through the ratchet mechanism, and a hollow handle open at both ends and removably and slidably fitted over the shank and applicable in a plane at right angles to the shank, to a part of the ratchet mechanism.

2. The combination with the shank of a boring-tool, of ratchet mechanism for rotating the same having a vertical adjustment thereon, and a hollow handle open at both ends and slidably applicable over the shank and also removably attachable in planes at right angles to the latter to a part of the ratchet mechanism.

3. The combination with the shank of a boring-tool, of ratchet mechanism for rotating the same and movable vertically different distances thereover, pivoted means carried by the ratchet mechanism for controlling the elevation of the latter on the shank, and a hollow handle open at both ends removably applicable over the shank and a part of the ratchet mechanism.

4. The combination with the shank of a boring-tool, of ratchet mechanism for rotating the same vertically adjustable thereover at different distances, a grip device pivotally carried by the lower part of the ratchet mechanism and having a set-screw cooperating with the lower extremity thereof to prevent displacement of the ratchet mechanism in a vertical direction with respect to the shank, a handle fixed in horizontal position with relation to the ratchet mechanism, and a hollow handle open at both ends and vertically slidable over the shank above the ratchet mechanism and also removably attachable to a part of the said mechanism in alinement with the before-mentioned handle.

5. An operating mechanism for a boring-tool, having an elongated shank, consisting of a body with ratchet mechanism and two handle elements, one of the handle elements being tubular and open at both ends and slidably applicable over, as well as removable from the shank of the boring-tool, and also capable of removable application to one side of the body independently of the adjustment of the latter and the ratchet mechanism.

6. An operating mechanism for a boring-tool having an elongated shank, a body, ratchet devices and handle elements, one of the handle elements being tubular and open at both ends and applicable over the shank of the boring-tool, and terminally and removably at-

tachable to the upper part of the body or detachably connectible to the side of the said body, the tubular handle element being changeable from one of its positions to the other independently of the adjustment or position of the body and ratchet devices.

7. An operating mechanism for a boring-tool, having ratchet devices, handle elements, and a loose collar at one extremity of the operating mechanism through which the shank of the boring-tool loosely extends, one of the handle elements being tubular and open at both ends and removably applicable over the shank of the boring-tool or detachably connectible to the upper terminal of said collar and also to the side of the operating mechanism independently of the adjustment or position of the latter.

8. An operating mechanism for a boring-tool, having a body with a bore therethrough to receive the shank of the tool, the said body being formed with intermediate ratchet-teeth, a smooth collar-receiving member, and a screw-threaded extremity, a detent-carrier engaging the intermediate part of the body provided with the ratchet-teeth and having handle elements projecting therefrom in opposite directions, the one handle being removable and tubular, a screw-threaded collar loosely disposed on the collar-receiving member of the body and adapted to have the removable handle attached thereto, and a nut applied to the screw-threaded extremity of the body.

9. An operating mechanism for a boring-tool, consisting of a tubular body adapted to be applied over the shank of the tool and having intermediate ratchet-teeth, a detent-carrying member having a handle rigidly fixed thereto and means diametrically opposite the handle for receiving a second removable handle, said member also having a recess with a U-shaped spring inserted therein, detents in the carrier having outer recessed extremities continually engaged by the ends of the legs of the said spring, a double cam centrally disposed between the legs of the spring and the outer ends of the detents and operative from the exterior of the carrier, and a removable handle applicable to the detent-carrying member and also over the shank of the tool and attachable to a part of the body.

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

ROBERT R. HILL.

Witnesses:

WM. J. TREMBATH,  
KATIE MORITZ.