C. E. HOLT & P. R. RAUCH.

FEED HEAD FOR DRILLING MACHINES.

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1,066,817. Patented July 8, 1913.

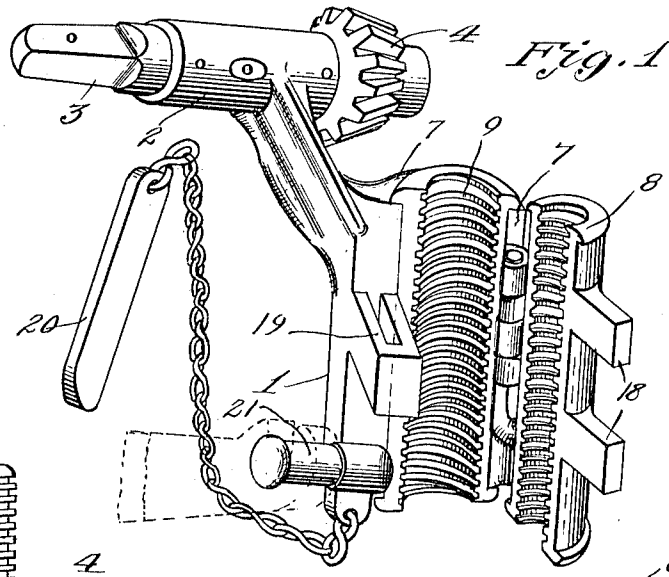


Fig. 1.

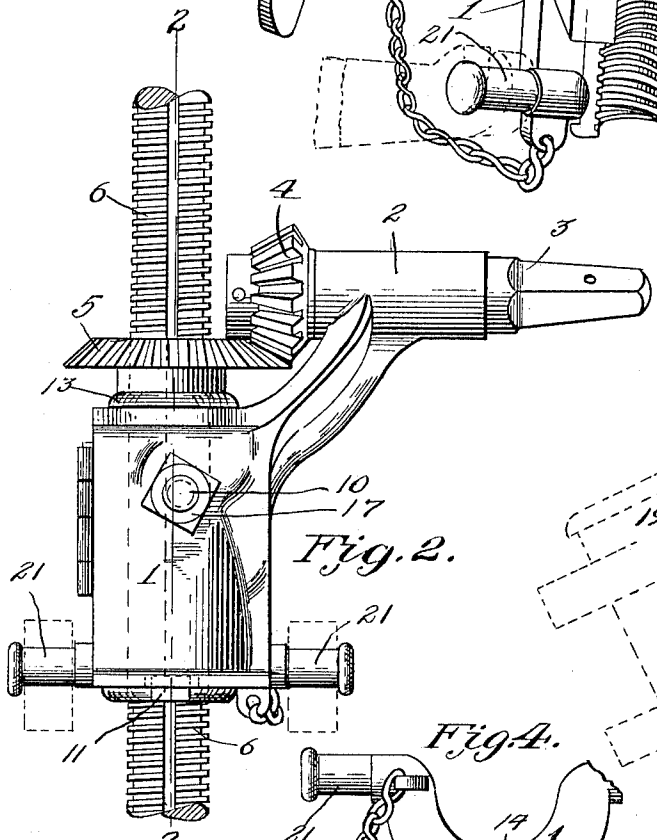


Fig. 2.

Fig. 4.

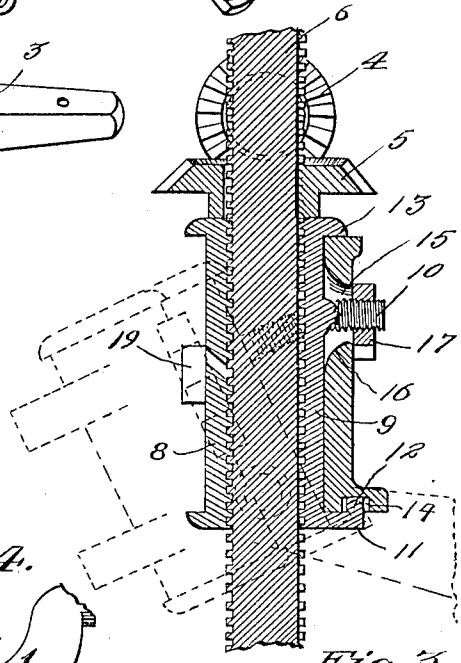


Fig. 3.

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FEED-HEAD FOR DRILLING-MACHINES.

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To all whom it may concern:

Be it known that we, CORNELIUS E. HOLT and PROVEST R. RAUCH, citizens of the United States, CORNELIUS E. HOLT residing at Washingtonville, in the county of Columbiana and State of Ohio, and PROVEST R. RAUCH residing at Leetonia, in the county of Columbiana and State of Ohio, have invented a new and useful Feed-Head for Drilling-Machines, of which the following is a specification.

Our invention relates to improvements in feed head for drilling machines, and is especially adapted for use in coal-mining, although it may be employed for other purposes as it is immaterial as to the particular material upon which the structure to which our invention pertains is applied or operated upon. In mining coal the drill as it is rotated is fed into the body of the coal, and owing to the fact that the drill together with the parts pertaining to the drill are subject to hard usage, the parts designed to feed the drill are necessarily more or less worn and frequently such parts must be renewed.

The objects of the present invention are, first, to provide means for easily removing from the frame and connecting to the frame the screw threaded bushing or lining, and second, to provide a light frame, easily constructed and well adapted for the purpose intended. These objects together with other objects readily apparent to those skilled in the art, we attain by the construction illustrated in the accompanying drawings, although our invention may be embodied in a variety of other mechanical forms, the construction illustrated being chosen by way of example.

In the accompanying drawing—Figure 1 is a view of the frame showing the hinged member released, and in its open position. Fig. 2 is a side elevation of the frame showing the drill-shaft and its drilling gear properly arranged. Fig. 3 is a section on line 2—2, Fig. 2. Fig. 4 is an end view showing a portion of the frame proper.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

In the accompanying drawing, the frame or body 1 is provided with the usual bearing 2 designed to carry the crank or power shaft 3, which is provided with the gear wheel 4, which gear wheel meshes with the gear wheel 5, which gear wheel is rotatably connected to the drill-shaft 6.

The parts just above described are common in drills of the class to which this invention pertains and hence no detailed description is necessary. The frame 1 is provided with the integral semi-circular portion or part 7, in which portion is located the bushing 9 and to this bushing 9 is hinged the member 8, said member 8 and the bushing 9 when closed and secured together constitute a screw threaded opening for the drill shaft, through which opening the drill-shaft passes as it is rotated to feed the drill into the material designed to be operated upon.

It is well understood that by the rotation of the drill shaft, the screw threads become worn, owing to the rough usage to which mining drills are subjected and consequently it is of importance to provide means whereby the parts provided with the screw threads can be easily removed and new ones substituted without the necessity of providing an entirely new structure or frame.

Within the semi-circular grooved portion of the frame is normally located the bushing 9, which bushing is provided with the screw threads corresponding with the screw threads formed in the hinged member 8 or in bushings which may be connected to said hinged portion. It is well understood that the bushing or bushings should be held in a rigid condition with reference to the frame, but at the same time so connected that it can be easily attached and detached.

The hinged member 8 is pivotally connected to the bushing 9, by which arrangement the bushing and hinged member 8 can be detached from the frame. For the purpose of rigidly connecting the bushing 9, said bushing is provided with the screw threaded stud 10, located intermediate the ends of the bushing and one end of said bushing is provided with the flange 11, said flange being provided with the right angled portion or lip 12, which lip is located substantially parallel with the bushing 9, the other or opposite end of the bushing 9 is provided with the lateral flange 13. One end of the frame 1 is provided with the socket 14, which socket is for the purpose of receiving the angled portion or lip 12. The frame 1 is provided with the aperture 15, which aperture is so formed as to size and shape that the screw threaded stud 11 may be entered

through said aperture when the bushing 9 is located at an angle to the semi-circular portion of the frame 1 and in order that the screw threaded stud may properly enter the opening or aperture 15, said aperture is provided with the inclined faces or walls 16. When it is desired to connect the bushing 9 together with the hinged member 8 to the frame 1, said bushing 9 and hinged member 8 are set at an angle to the frame 7 or to that portion of the frame designed to receive the bushing and the lip 12 entered in the socket 14 as best illustrated in Fig. 3, after which the bushing 9 is brought into the position illustrated in Figs. 1 and 3, which position brings the screw threaded stud 10 through the aperture 15 and the flange 13 against the end of the frame 1, opposite the end provided with the socket 14 and when in this position the holding nut 17 is placed upon the screw threaded stud 10, thereby securely and firmly connecting the bushing 9 to the frame 1 and at the same time bringing the hinged portion 8 into position to properly hold the drill shaft 6 when said hinged member 8 has been closed and fastened by means of the keepers 18, the staple 19 and the key 20.

The keepers 18, staple 19 and the key 20 are of the usual construction and hence no detailed description is necessary. When it is desired to remove the bushing 9 from the frame 1 the nut 17 is removed, after which the bushing 9 is moved at an angle to the frame 1 a sufficient distance to clear the flange 13, after which the bushing can be moved a short distance endwise, thereby detaching the lip 12 from the socket 14, after which the bushing 9 together with the hinged member 8 can be entirely detached and new parts connected to the frame if desired without the necessity of providing an entirely new frame or head. It will be understood that the frame 1 should be provided with the ordinary bearings or trunnions 21, which are located in suitable notches or their equivalents formed in the post designed to support the drill head.

Having fully described our invention what we claim as new and desire to secure by Letters Patent, is—

In a device of the character described, the combination of a frame, said frame provided with a grooved portion, a drill shaft bushing, a member hinged to said drill shaft bushing, said bushing adapted to carry a drill shaft, the bushing provided at one of its ends with a lipped flange and intermediate its ends with a screw threaded stud, the frame provided with an aperture intermediate its ends, said aperture provided with inclined face walls and a socket located in one end of the frame, said aperture and socket adapted to receive the screw threaded stud and the lipped flange respectively, and means for holding the bushing and hinged member in fixed relationship with reference to each other and with references to the frame, substantially as set forth.

In testimony that we claim the above, we have hereunto subscribed our names in the presence of two witnesses.

CORNELIUS E. HOLT.
PROVEST R. RAUCH.

Witnesses:
E. V. WARREN,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."