O. C. FOSSELMAN.

DRILLING APPARATUS.

APPLICATION FILED AUG. 29, 1913.

1,097,709.

Patented May 26, 1914.

2 SHEETS—SHEET 1.

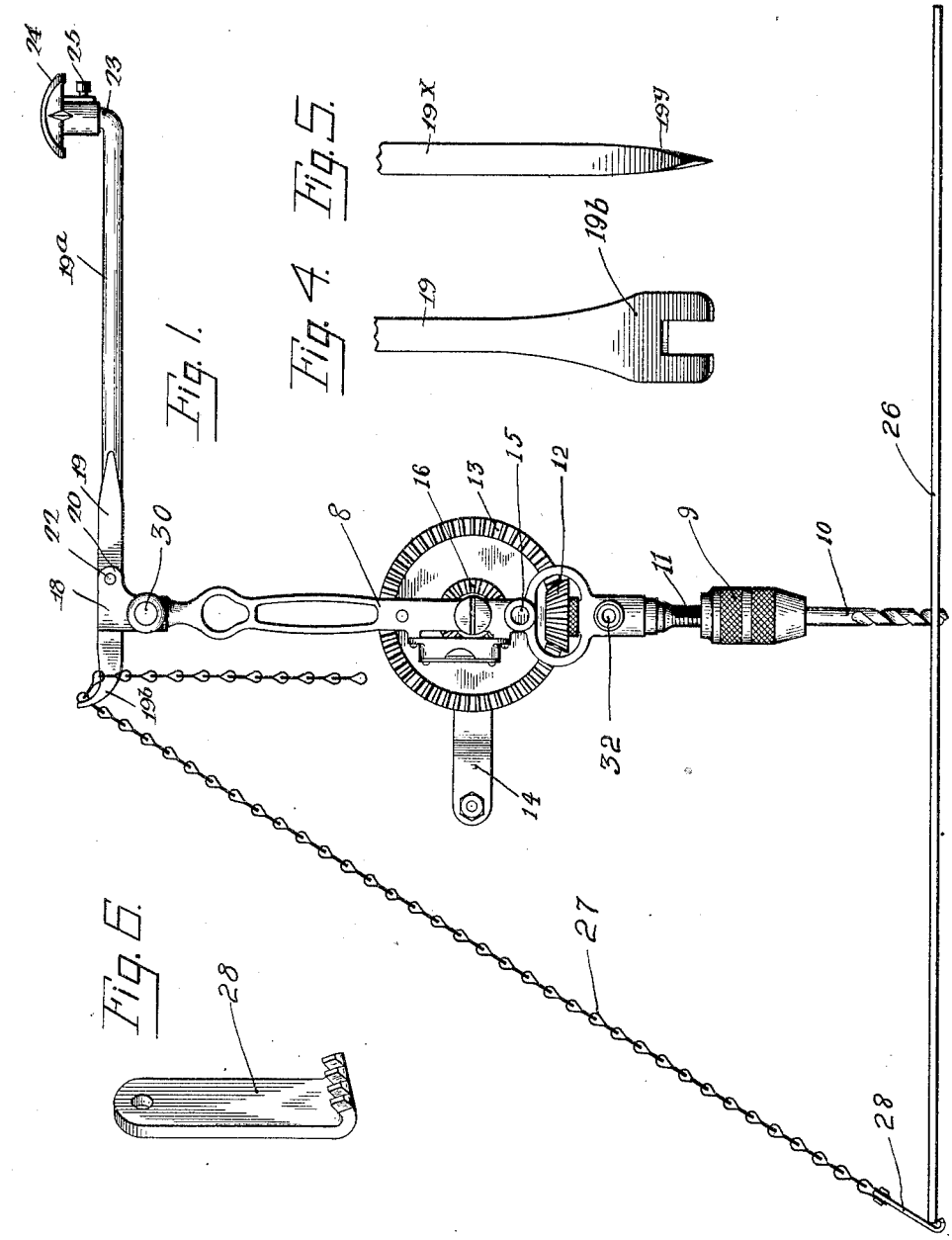


Fig. 1.

Fig. 4. Fig. 5.

Fig. 6.

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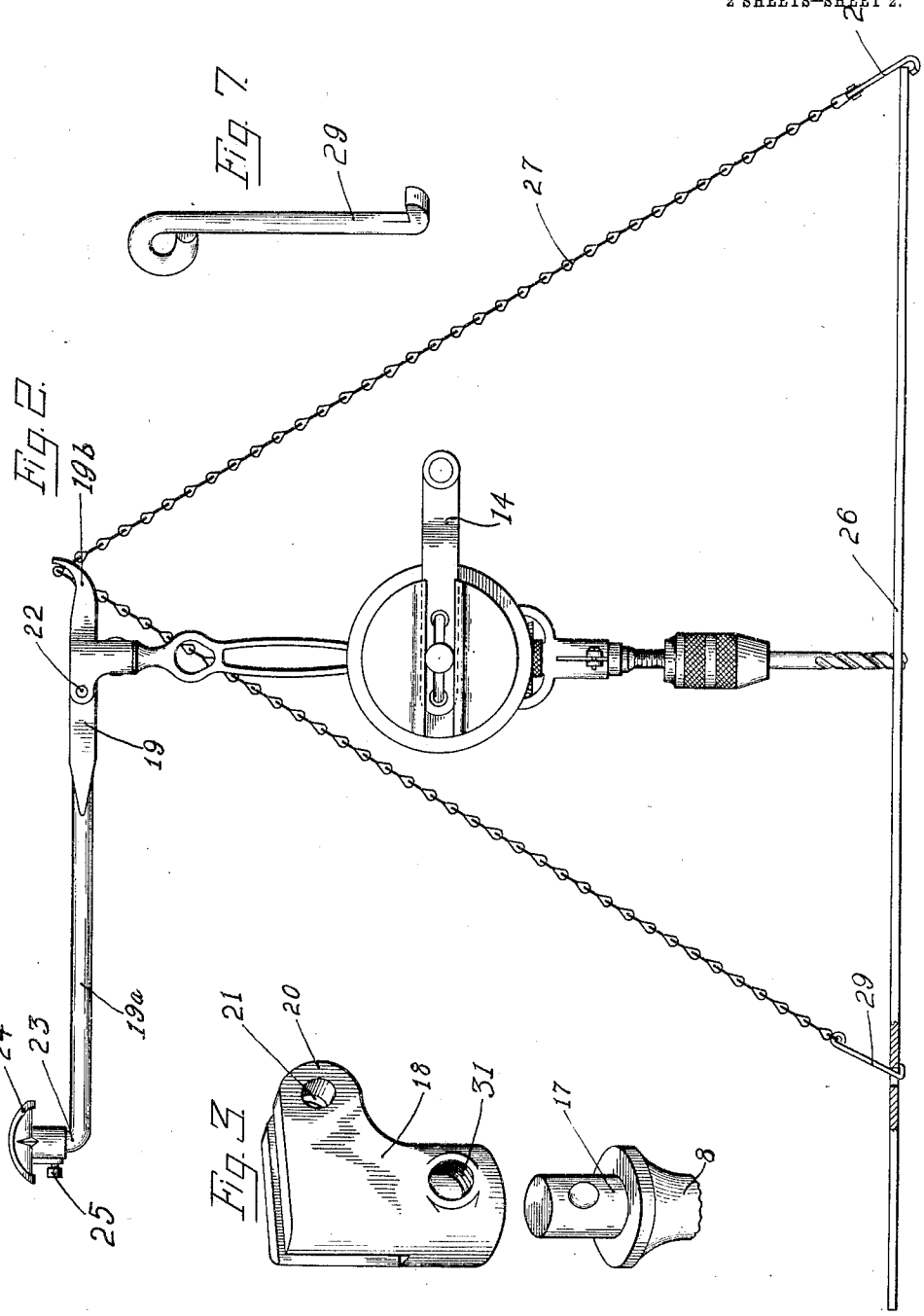
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UNITED STATES PATENT OFFICE.

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DRILLING APPARATUS.

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To all whom it may concern:

Be it known that I, OTTO C. FOSSELMAN, a citizen of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Drilling Apparatus, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to drilling apparatus, and its object is to provide an efficient apparatus of this kind which is simple in operation and which may be economically manufactured.

My invention is more fully set forth in the following description and is illustrated in the accompanying drawings, in which—

Figure 1 illustrates in side elevation a drilling apparatus embodying my invention. Fig. 2 illustrates in side elevation a somewhat modified application of my invention. Fig. 3 is a perspective view illustrating how the member 18 is secured to the upper portion of the drill frame. Fig. 4 is a fragmentary elevational view of the short arm of the lever. Fig. 5 is a similar view of a somewhat modified form of lever. Fig. 6 illustrates a form of hook which may be provided for engaging the article to be drilled, and Fig. 7 shows another form of hook which may be used if desired.

Similar reference numerals refer to similar parts throughout the several views.

As clearly shown in Fig. 1, the apparatus of my invention comprises a frame 8 which is provided at its lower end with a rotatable drill holder 9, arranged to receive a suitable drill 10, as shown. The drill holder is threaded upon a shaft 11 bearing in the frame 8, said drill holder being preferably provided on the inside thereof with suitable jaws arranged to engage the upper portion of a drill, as in the ordinary drills of the prior art. Rigidly mounted upon the upper end of the shaft 11 is a beveled pinion 12 meshing with a beveled gear 13 mounted upon the frame 8. This beveled gear 13 is provided with a suitable arm 14 rigidly secured thereto, which arm is equipped with a handle for rotating the gear 13. It is evident that when the gear 13 is rotated the drill 10 will be correspondingly rotated owing to the structure just described. If desired, instead of rotating the gear 13 manually, the said gear may be rotated by means of any suitable power device. A suitable way for applying said power to the gear 13 being to drive a shaft which may be mounted in a bearing 15 formed in the frame 8, the said shaft being provided at its inner end with a beveled pinion arranged to engage the teeth of a beveled pinion 16 formed integral with the gear 13. The present invention is not particularly concerned with the details of the device just described, it being merely important that the device comprises a frame, a drill and suitable means for rotating the drill.

The frame 8, as clearly shown in Fig. 3, is provided with a reduced upper portion 17 on which reduced portion is rigidly secured member 18 which serves as a bearing for the lever 19. As shown, member 18 is provided with ears 20, having apertures 21 therethrough. Lever 19 is pivoted in the member 18 by means of a pin 22 passed through said lever and entering the apertures 21 of the ears 20.

As clearly shown in the drawings, the lever 19 comprises an arm 19^a provided with an upturned portion 23, and a bifurcated shorter arm 19^b. The upturned portion 23 of the arm 19^a is preferably provided with a suitable plate 24 retained in position by means of a screw 25. This plate is similar in all respects to the ordinary breast-plate which, in the usual drill constructions, is secured to the upper portion of the drill frame.

In the operation of ordinary drilling apparatus, the drill or bit is held in engagement with the article to be drilled, by placing the breast against the breast-plate mounted at the upper portion of the frame. I provide, however, suitable means whereby the drill or bit may be held in engagement with the article 26 to be drilled, without the operator placing his breast against a breast-plate unless he desires so to do. This means comprises, in addition to the lever 19, a chain 27 which, at its lower end, is provided with a hook 28 preferably of the conformation shown in Fig. 6. The bifurcated arm 19^b is arranged to engage one of the links of the chain 27, as clearly shown in the drawings. It will readily be seen that when the hook 28 is in engagement with the article to be drilled, as shown in Fig. 1, and when the bifurcated shorter arm of the le-

ver 19 engages the chain, that if downward pressure be exerted upon the longer lever arm, that there will be a force exerted upon the upper end of the frame 8 tending to move the frame and parts carried thereby, toward the article to be drilled. Thus, by exerting pressure upon the arm 19^a of the lever during the drilling operation, I am able to secure the same result as is secured in ordinary constructions by placing the breast against a breast-plate.

If the operator is right-handed, the right forearm, or other portion of the body, is rested upon the plate 24 and arm 19^a is grasped by the right hand. The frame is thus held in vertical position and pressure is exerted upon the plate 24, leaving the other hand free to operate the handle secured to the gear 13.

In Fig. 2 is shown an arrangement wherein the chain 27 is secured to the article to be drilled, at two points, the lever 19 engaging the chain at some point intermediate its ends. The chain in this instance, is provided with a hook 28 similar to the hook shown in Fig. 6, and a hook 29 similar to the hook shown in Fig. 7. As clearly shown in Fig. 2, the hook 29 has been inserted in an aperture previously bored in the article 26.

The member 18 is preferably secured to reduced portion 17 of the frame 8 by means of a handle 30, which handle is provided with a reduced portion arranged to thread into the aperture 31 in the member 18, and so engage the reduced portion 17 of the frame. In an ordinary breast-drill, the handle 30 would be threaded into the aperture 32 in the lower portion of the frame. It will readily be seen that by removing the member 18 and securing plate 24 upon the upper end of the frame and threading the handle 30 into the aperture 32, an ordinary breast-drill is had.

At 19^x in Fig. 5 I have illustrated a somewhat modified form of lever which may be substituted for the lever 19 if desired. The lever 19^x differs from the lever 19 only in that it is provided with a sharpened short end 19^y instead of the bifurcated end 19^b of the lever 19. The sharpened end 19^y of the lever 19^x is, of course, adapted to be inserted in one of the links of a suitable chain.

While I have illustrated my invention in the particular embodiments herein shown and described, I do not limit myself to these particular constructions, but desire to claim any equivalent constructions coming within the terms and spirit of the appended claims.

What I claim is:

1. Drilling apparatus of the class described, comprising a frame, a drill carried thereby, means for rotating said drill, a lever pivoted to said frame and a flexible member arranged to connect said lever and the article to be drilled, whereby said drill is held firmly in engagement with the article to be drilled when the lever is depressed, no portion of the apparatus other than the drill or flexible member engaging the article to be drilled.

2. Drilling apparatus of the class described, comprising a frame, a drill carried by the frame, a flexible connection arranged to engage an article to be drilled, or something stationary relative thereto, and a lever pivoted to said frame, said lever comprising an arm arranged to be manipulated by the operator and a shorter arm arranged to engage flexible connection, whereby a tensile stress is exerted upon the flexible connection when the longer lever arm is operated.

3. Drilling apparatus of the class described, comprising a frame arranged to carry a drill, means carried by the frame for rotating the drill and a lever pivoted to the upper end of said frame arranged to engage a flexible member arranged to be connected to the article to be drilled, or some object stationary relative thereto.

4. Drilling apparatus of the class described, comprising a drill frame, a drill carried by the frame, means carried by the frame for rotating said drill, a lever pivoted to the upper portion of said frame, said lever comprising a power arm and a bifurcated shorter arm, a chain arranged to have one portion thereof engage an article to be drilled, or something stationary relative thereto, and another portion thereof engaged by said bifurcated lever arm, said chain being provided with a hook for engaging the article to be drilled, or something stationary relative thereto, substantially as described.

In witness whereof, I hereunto subscribe my name this 27th day of August, A. D. 1913.

OTTO C. FOSSELMAN.

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