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TOOL DROPPING APPARATUS FOR DRILLS.

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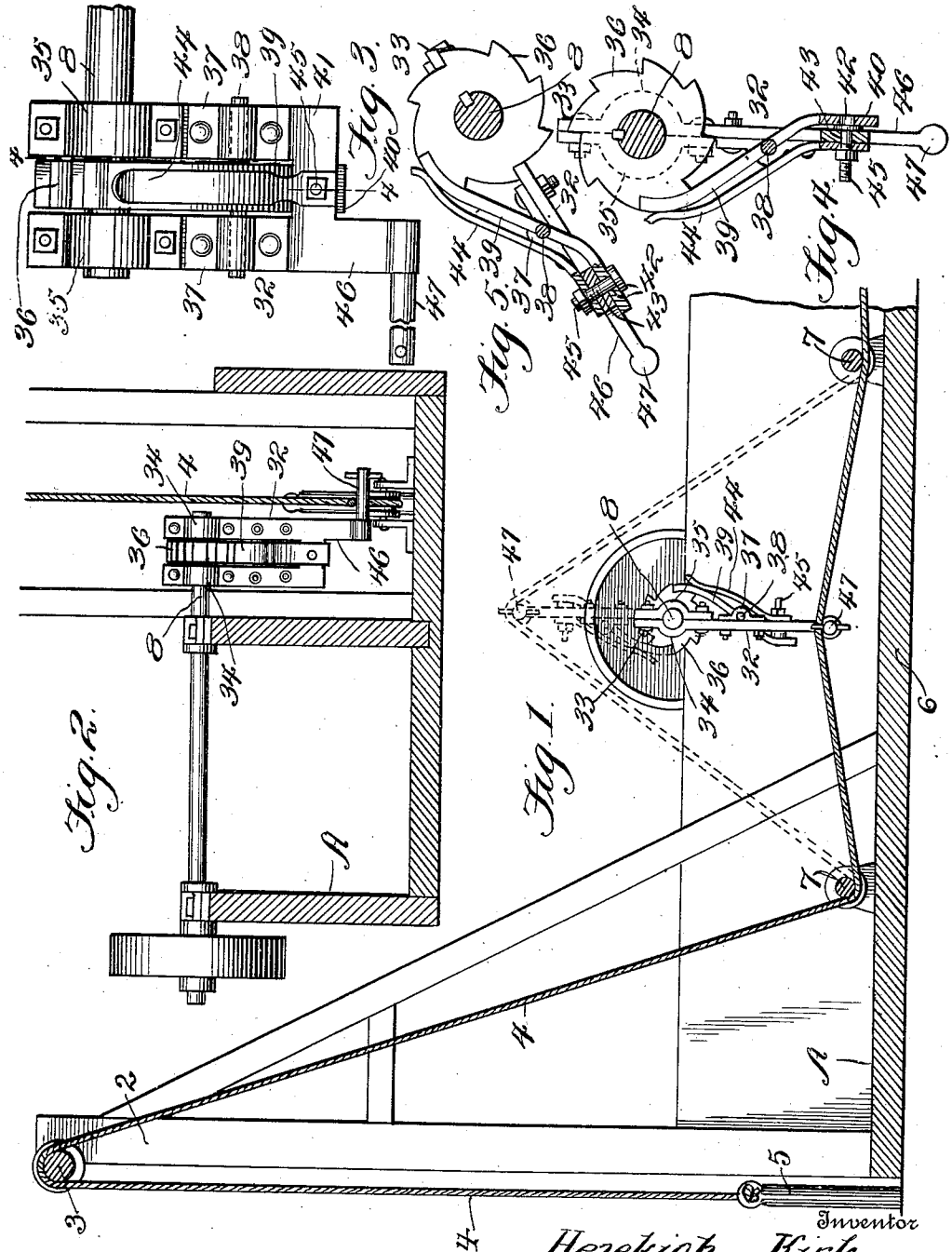
977,409.

Patented Nov. 29, 1910.



Witnesses

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TOOL-DROPPING APPARATUS FOR DRILLS.

977,409. Specification of Letters Patent. Patented Nov. 29, 1910.

Application filed May 7, 1909. Serial No. 494,557.

To all whom it may concern:

Be it known that I, HEZEKIAH KIRK, a citizen of the United States, residing at Yorkville, in the county of Wayne and State of West Virginia, have invented new and useful Improvements in Tool-Dropping Apparatus for Drills, of which the following is a specification.

This invention relates to tool dropping apparatus for drills, and has for an object to provide an apparatus of this character that can be installed upon any forms of drills and which will be so constructed as to operate the connection with the drill tool carrying cable so as to actuate the same to impart to the tool a hammering movement.

Other objects and advantages will be apparent as the nature of the invention is better set forth, and it will be understood that changes within the scope of the claims may be resorted to without departing from the spirit of the invention.

In the drawings, forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views:—Figure 1 is a detail longitudinal section through a portion of a drill showing my improved tool dropping apparatus in connection therewith. Fig. 2 is a transverse section through a portion of the drill showing the position of my dropping apparatus with respect to the tool carrying cable. Fig. 3 is a side elevation of the tool-dropping apparatus. Fig. 4 is a detail vertical section taken on the line 4—4 of Fig. 3. Fig. 5 is a similar view showing the trip element in its locked position.

In the drawing the shaft 8 is provided with a depending frame 32 comprising spaced arms 33 provided with box forming portions 34, and as illustrated the said arms have secured thereto box forming portions 35 which act in conjunction with the portion 34 so that the frame 32 can be conveniently suspended from and loosely mounted upon the shaft 8. As stated, the arms 33 of the frame are spaced from each other and secured upon the shaft 8 and disposed between the arms is a ratchet wheel 36. The arms 33 are provided with alining boxes 37 which receive a pin 38 upon which is mounted a ratchet engaging pawl 39 having a tail portion 40 disposed at one side of the lower connecting portion 41 of the frame 32. Adjacent to the lower extremity the tail portion 40 has formed therein a passage 42 disposed in line with a passage 43 formed in the portion 41. A leaf spring 44 is secured at one end by means of a removable bolt 45 to the portion 41 of the frame 32 and the upper or free end of the spring is engaged with the pawl so as to hold it yieldingly engaged with the ratchet wheel.

It will be appreciated that when the shaft is revolved the ratchet wheel 36 through its engagement with the pawl 39 will impart to the frame 32 a rocking movement. The frame 32 is provided with a depending arm 46 which carries a cable engaging pin 47. Should it be desired to cause the frame 32 to revolve with the shaft I release the bolt 45 from the portion 41 of the frame and pass it through the passages 42 and 43 and in this manner I make the pawl a stationary part and it is effectively held against pivotal movement.

The well drill 1 can be of any suitable well known type, but as illustrated, it is shown as having a supporting element 2 for receiving the guide roller 3 over which is passed a cable 4. This cable has secured thereto at one end a drill tool 5 and the opposite end of the cable is connected in the usual well known manner to the winding or reel drum, (not shown). The base 6 of the drill is provided with a pair of horizontally disposed rollers 7 for guiding the cable.

In operation of the apparatus herein described by positioning the mechanism so that a portion of the drill cable 4 is disposed immediately above the pin 47 and incident to the ratchet movement of the said finger the said cable will be actuated in a manner that will impart a hammering-like motion to the drill tool.

I claim:—

1. An apparatus of the class described comprising a driven shaft, a ratchet wheel upon the driven shaft, a frame suspended from the shaft, a pivoted dog adapted to be engaged by the teeth of the ratchet wheel to impart oscillatory movement to the frame, and means for engaging the pawl to hold it against pivotal movement to cause the frame to rotate with the shaft.

2. In an apparatus of the class described, a driven shaft, a ratchet wheel fixed on the shaft, a frame suspended from the shaft and free for oscillatory movement, a pivoted dog upon the frame adapted to be engaged by the ratchet wheel to impart movement to the frame, a pin extending from the frame,

spring means for normally holding the pawl yieldingly engaged with the ratchet wheel, and means for engaging the pawl to hold it against pivotal movement to cause the frame to revolve with the shaft.

3. In an apparatus of the class described, a driven shaft, a ratchet wheel fixed to the shaft, a frame suspended from the shaft and adapted to rock thereon concentrically of the shaft, a pivoted pawl upon the frame, spring means engaging the pawl to hold it yieldingly engaged with the ratchet wheel, and a spring retaining bolt adapted to be engaged with the pawl to hold it against pivotal movement to cause the frame to revolve with the shaft.

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

HEZEKIAH KIRK.

Witnesses:

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IDA PRATT.