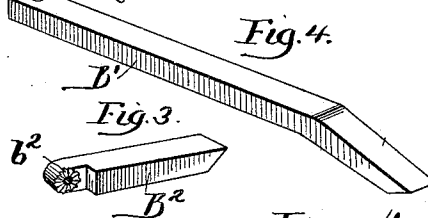
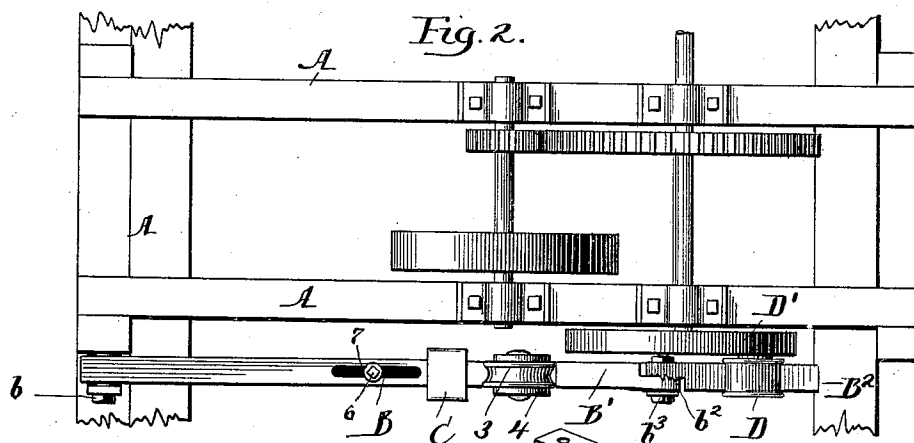
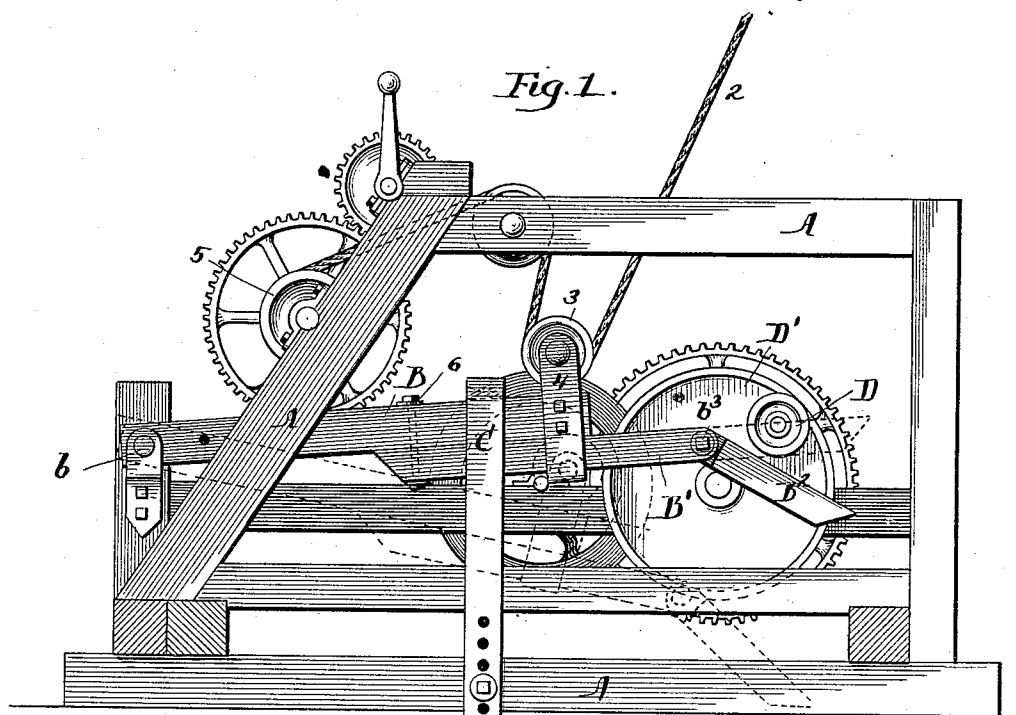


(No Model.)

J. R. DAVIS.
APPARATUS FOR DRILLING WELLS, &c.

No. 479,059.

Patented July 19, 1892.



Witnesses:
Fred Geilach
Ida B. Carpenter.

Inventor:
John R. Davis
By Perce Fisher
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN R. DAVIS, OF CHICAGO, ILLINOIS.

APPARATUS FOR DRILLING WELLS, &c.

SPECIFICATION forming part of Letters Patent No. 479,059, dated July 19, 1892.

Application filed February 8, 1892. Serial No. 420,622. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. DAVIS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Drilling Wells and other purposes, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

In the use of machines designed for drilling wells and like purposes it is very desirable that provision should be made whereby the movement of the drill shall be moderated in keeping with the character of the earth through which the drill is passing and in accordance also with the depth at which the drill is operating. Thus, for example, in the use of drilling-machines in deep and heavy work it is desirable that a slow movement shall be imparted to the drill, whereas when the machine is operating in shallow and light work it is desirable that a sudden drop movement shall be imparted to the drill.

In Letters Patent No. 467,277, granted to me January 19, 1892, there are set out certain improvements whereby either a slow movement or sudden drop can be imparted to the drill. I have found, however, in practice that it is not only desirable that these two extremes of movements should be given to the drill, but it is also very desirable that provision be made whereby the movement of the drill can be moderated between the extremes of a sudden drop and of a slow and continuous "walking-beam" motion.

One of the main objects of my present invention is to accomplish this desirable result; and to this end the invention consists, primarily, in providing a walking-beam with means whereby either a slow and continuous movement or a sudden drop can be imparted to the drill and the movements of the drill can be moderated between these extremes.

My invention also consists in various novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a view in side elevation of a drilling-machine embodying my invention.

Fig. 2 is a plan view. Fig. 3 is a view showing the end of the extension of the walking-beam illustrated in Fig. 2. Fig. 4 is a perspective view illustrating a modified form of extension for the walking-beam.

The framework A, whereby the operating mechanism of my machine is sustained, may be of any suitable construction. At one end of this framework is pivoted, as at *b*, the walking-beam B, whereby the raising of the drill through the medium of the drill-rope 2 is effected, this drill-rope 2 passing around a pulley 3 that is carried by a hanger 4, affixed to the walking-beam, and the end of the rope passing around a windlass-drum 5 in manner well understood in the art. The extent of upward movement of the walking-beam B is determined by means of a buffer-strap C, that is preferably adjustably connected, as shown, to the base portion of the machine, the buffer *c* being interposed between the crown of this strap C and the upper edge of the walking-beam. To the free end of the walking-beam B is connected the extension B', this extension passing through the lower portion of the strap 4 and being adjustably connected to the walking-beam by suitable means—as, for example, a bolt 6, passing through a slot 7 formed in the walking-beam. In the preferred form of my invention the outer end of the extension B' has connected thereto an adjustable end piece B². The adjustment of the end piece B² with respect to the extension B' can be effected in a variety of ways without departing from the spirit of my invention. In the drawings I have shown the parts B' and B² connected together by providing the abutting ends of these parts with ratchet and notched faces *b*², these ends and faces being held together by means of a bolt *b*³. Hence it will be seen that when it is desired to vary the position of the part B² with respect to the part B' this can be readily accomplished by loosening the bolt *b*³, so as to permit the parts to be shifted to the new position, after which the bolt will be tightened to retain said parts in such new position. The extension B' of the walking-beam and its adjustable end B² are designed to form a way upon which can travel the eccentric pin or roller D of the drive-wheel D', this drive-

wheel receiving its motion from the source of power in manner well understood in the art.

From the foregoing description it will be seen that when it is desired to impart to the drill a slow and continuous walking-beam motion it is only necessary to adjust the end portion B^2 until it is brought into substantial alignment with the walking-beam and its extension B' , and when the parts are so arranged the roller or eccentric D will contact continuously with the upper edge of the extension B' and its end B^2 . If now it is desired to impart a sudden drop movement to the drill, it is only necessary to remove the end B^2 or adjust it at right angles to the extension B' , so that as the roller D travels around it will, after depressing the walking-beam, pass from off the extension D' of the beam, thereby allowing the beam to be drawn suddenly upward and permitting a correspondingly sudden drop of the drill. Manifestly, also, the movement of the drill can be readily moderated between the extremes of the slow walking-beam motion and the sudden drop motion above defined by merely adjusting the part B^2 at different angles with respect to the walking-beam and its extension. It is manifest, also, that by the adjustment of the extension B' with respect to the walking-beam so that this extension shall project to a greater or less extent therefrom the exact point at which the roller D shall pass from off the extension of the walking-beam can be varied, and consequently the exact time and extent of drop of the drill can be correspondingly varied as desired.

It is obvious that various other means may be employed for moderating the movement of the drill between the slow walking-beam motion and the sudden drop than by adjustment of the end of the extension B' in manner above defined without departing from the spirit of my invention. Thus, for example, in Fig. 4 of the drawings I have shown an extension B' for the walking-beam having its outer end or part B^2 bent or otherwise formed at an angle to the body of this extension, and it is manifest that when this construction is employed the angular outer extension B' will serve to impart to the drill a movement intermediate the slow walking-beam movement and the sudden drop movement above described.

I do not wish my invention to be understood

as restricted to the details of construction above set out, since obviously these may be varied within wide limits without departing from the spirit of my invention, and features of the invention may be employed without its adoption as an entirety. Thus, for example, while the walking-beam is shown as provided with an extension B' it is manifest that it would be within the spirit of my invention to form the outer end of the walking-beam itself with a part B^2 , connected directly thereto adjustably in the same manner as such part is connected to the extension B' or formed in piece therewith in the same manner in which such part B^2 is formed in piece with the extension B' . (Shown in Fig. 4 of the drawings.)

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus for drilling wells and like purposes, comprising the combination, with an eccentric-pin and suitable adjunctive devices, of a walking-beam provided with an inclined extension or end portion, along which said eccentric-pin will travel and whereby the drop of the walking-beam will be moderated, substantially as described.

2. An apparatus for drilling wells and like purposes, comprising the combination, with suitable adjunctive devices, of a walking-beam and an extension for said walking-beam, having an inclined end portion, said extension being detachably connected to said walking-beam, substantially as described.

3. An apparatus for drilling wells and like purposes, comprising the combination, with suitable adjunctive devices, of a walking-beam having an extension or end portion provided with a part B^2 and means for adjusting said part at different inclines, substantially as described.

4. An apparatus for drilling wells and like purposes, comprising the combination, with suitable adjunctive devices, of a walking-beam provided with an extension B' , adjustably connected to the walking-beam, and a part B^2 , adjustably connected to said extension B' , substantially as described.

JOHN R. DAVIS.

Witnesses:

GEO. P. FISHER, Jr.,
FRED GERLACH.