

No. 740,720.

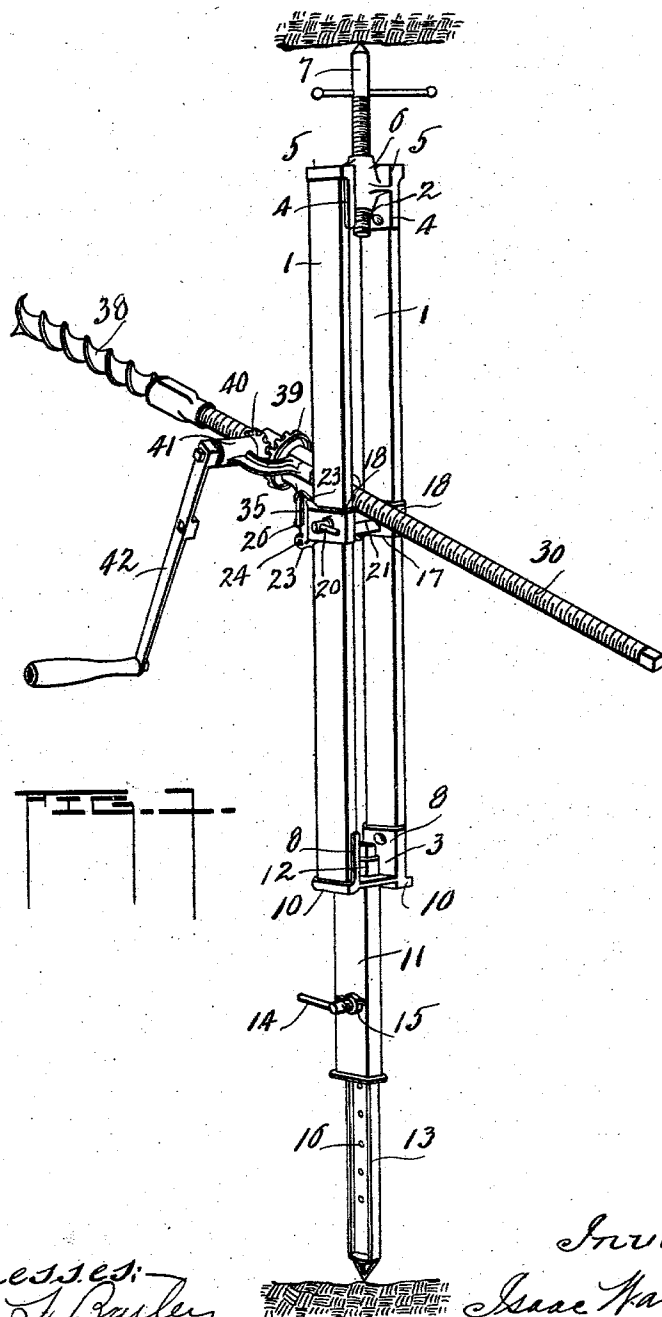
PATENTED OCT. 6, 1903.

I. WANTLING.
COAL OR ROCK DRILL.

APPLICATION FILED AUG. 22, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Chas T. Bailey
Harry B. Schmelz

Inventor:
Isaac Wantling
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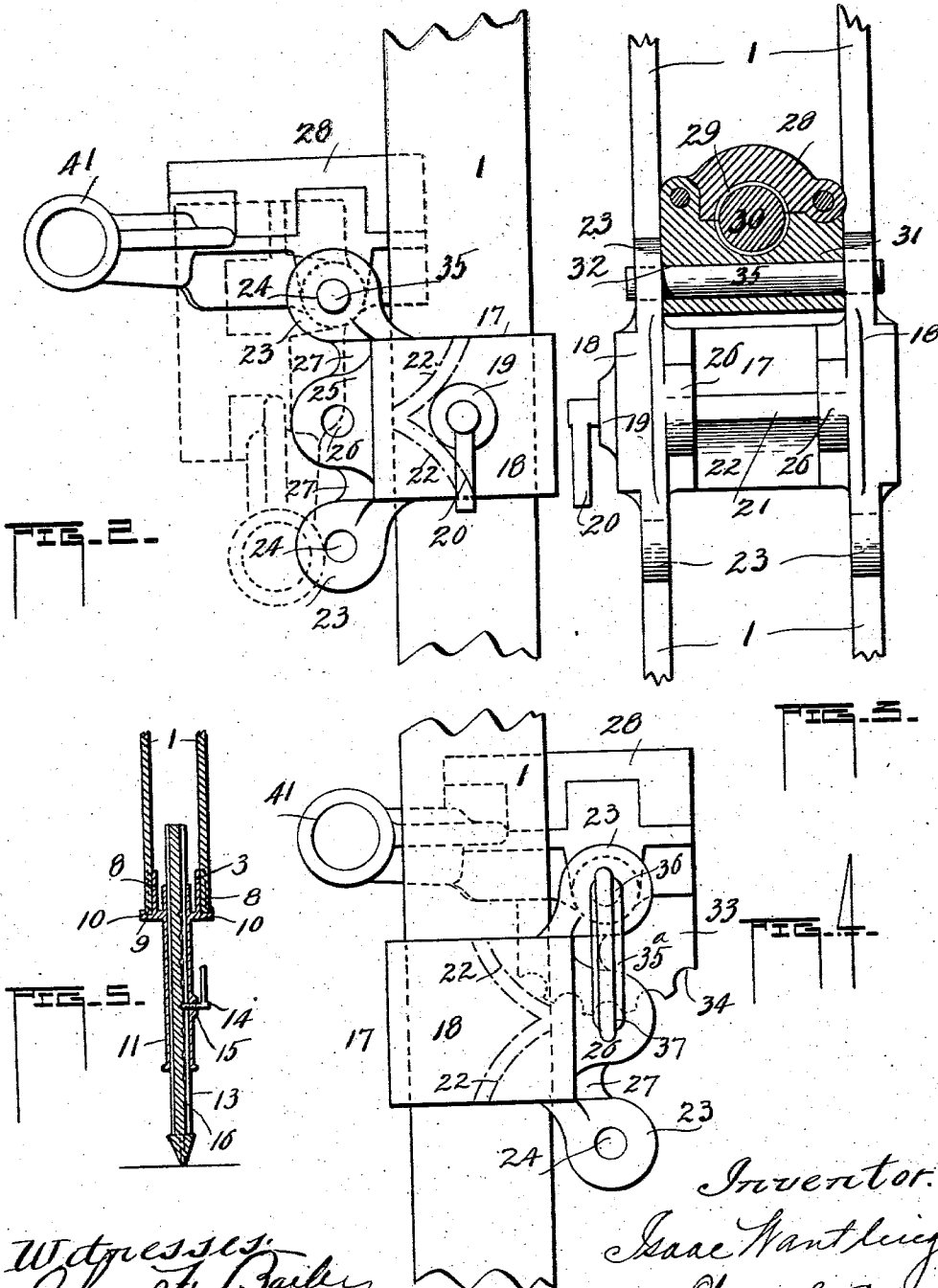
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UNITED STATES PATENT OFFICE.

ISAAC WANTLING, OF PEORIA, ILLINOIS, ASSIGNOR TO WANTLING'S
FAVORITE COAL DRILL COMPANY, OF PEORIA, ILLINOIS, A COR-
PORATION OF ILLINOIS.

COAL OR ROCK DRILL.

SPECIFICATION forming part of Letters Patent No. 740,720, dated October 6, 1903.

Application filed August 22, 1902. Serial No. 120,671. (No model.)

To all whom it may concern:

Be it known that I, ISAAC WANTLING, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Coal or Rock Drills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to drills, and to that class of drills known as "coal" or "rock" drills.

More particularly, the invention relates to an improvement upon the drills illustrated and described in Letters Patent No. 678,845, dated July 16, 1901; No. 683,158, dated September 24, 1901, and No. 683,628, dated October 1, 1901, issued to me; and the object of the present invention is to provide a drill of a support comprising two standards joined in common castings at their upper and lower ends and in such a manner as to prevent vertical or lateral displacement, the lower casting having an extended portion of considerable length with a central aperture, through which is carried an adjustable shoe, also of considerable length.

A further object of the invention is a yoke having two sockets adapted to the standards of the drill and provided with extensions for supporting the boxings for a drill-rod and its operative parts, the arrangement of the yoke support for said boxing being such that the boxing and drill parts may be raised and lowered on the standards and the drill-rod swung into a vertical, horizontal, or other desired positions and the standard and drill ports moved into positions, as will become apparent, heretofore not made possible in drills of this class.

To these ends my invention consists in the novel features and in the construction and arrangement of parts hereinafter fully described, and definitely pointed out in the appended claims following the description, due reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view illustrating my complete drill. Fig. 2 is an enlarged side elevation of the support, the yoke and boxing shown supported thereby, the boxing also shown in dotted lines swung into a vertical position. Fig. 3 is a front elevation of Fig. 2 with the boxing shown in cross-section. Fig. 4 is an elevation similar to Fig. 2 with the standard swung around and the boxing supported in a position opposite to that in Fig. 2, the boxing also provided with a flared extension whereby it may be locked in adjusted positions. Fig. 5 is a vertical cross-section of the lower end of the standards and the adjustable supports therefor.

Referring to the figures, 11 indicate standards or post-supports for the operative parts of a drill. They appear substantially rectangular in cross-section and are joined in common castings or cross-braces 2 and 3 at their upper and lower ends, respectively. The brace 2 has the face-plates 4 engaging the inner faces of the standards and lap over the edges, as shown, and the upper ends of the standards are seated in sockets formed by the overlapping end portions 5 of the brace, and the said brace is riveted or otherwise suitably secured to the standard. The brace is further provided with a vertical bearing 6, through which is carried a threaded spindle 7, arranged for positive engagement with the wall of the coal or rock being drilled.

Referring to the brace 3 at the lower end of the standards for connecting the lower ends of the standards, the same is provided with the face-plates 8 engaging the inner faces of the standards and lap over the edges, and the ends of the standards are seated in sockets 9, formed by the overlapping end portions 10, and 11 is a rectangular extension integral with the brace 3, of considerable length, depending from the brace, and with the short upper extension 12 of the part 11.

13 indicates a shoe in cross-section, substantially an I-beam, adjustably carried through the part 11 and fixed in the adjusted positions by a pin 14, carried through the part 11, and a boss 15, and adapted to engage depressions 16 in the body of the shoe 13, although these depressions may be dispensed with if desired,

as they are not essential. The brace 3 is secured to the standards by being riveted or otherwise secured thereto, and the function of the extension 11 and the shoe 13 will be further described.

17 indicates a yoke of a casting, comprising the rectangular hollow body parts 18, adapted to the standards 1 to slide up and down thereon, and 19 is a boss through which a threaded pin 20 is carried to engage the face of one of the standards for adjusting the yoke 17 at different heights on the standard. The rectangular body portions are joined by a web 21, having oppositely-curved faces 22. Extending forwardly and upwardly from each of the body parts and also downwardly therefrom are shown ears or extensions 23, each provided with the perforations 24, lying in the same vertical line, and 25 represents centrally-disposed ears or extensions extending forwardly from the body parts 18, with perforations 26 in the same vertical line with perforations 24 in the ears 23, and the said ears 25 are displaced inwardly and slightly out of vertical line with the ears 23 and are connected therewith by the webs 27.

28 refers to a two-part hinged boxing having the nut portion 29, and 30 is a threaded drill-rod passing through said boxing and engaging the nut 29 therein. The boxing is provided with an extended body part 31, having an aperture 32. The boxing herein is similar in construction throughout to the boxings in the patents above referred to. In Fig. 4 the boxing has the flared portion 33, provided with a series of apertures or semicircular serrations 34, which lie in an arc of a circle struck from the aperture 32. It is desired to support the boxing between the ears 23 of the yoke 17, and a pin 35 is employed for supporting the boxing on the yoke by passing it through the aperture in the ear 23 and the aperture in the boxing. For supporting a boxing like that shown in Fig. 4 a yoke-pin 35* is employed, having the parts 36 and 37, which will pass, respectively, through the ears 23 and 25 and engaging the aperture 32 and a serration in the extension 33, adapting the boxing to be swung on its support and locked in different positions. Thus the function of the ears or extensions 23 and 25 are readily apparent.

In this present invention I have provided for not only supporting the boxing to enable the same to be raised or lowered on the standards 1, but have provided a support whereby the boxing may be swung in any angle from vertical to horizontal, or vice versa, and have constructed the support in such a manner that the standard may be turned upside down and the boxing rearranged for operating the drill when the standards are in such reverse position and have provided further adjustment, which will be described.

It will be seen without further explanation that by reason of the extensions of the yoke the support of the boxing is such that it may be swung into the positions above suggested.

If it should occur, and it often happens, that in fixing the standards 1 preparatory to setting the drill-rod and boxing in an opening it is found that to place the boxing in the position shown in Fig. 2 the auger is longer than the distance from the boxing to the wall of the cut where it is desired to drill, the standards may be swung so that the yoke 17 will be in the position shown in Fig. 4, which is just opposite to that shown in Fig. 2, when the boxing will be placed similar to that shown in Fig. 2, but with the main body and forward portion thereof extending between the standards, as shown. Ordinarily in placing the drill if the distance is, as above suggested, between the boxing and wall of the cut it is generally such that by moving the standards from four to six inches it is sufficient, but this resetting of the standards is obviated by the construction of the boxing-support, whereby the standard may be swung and the boxing adjusted as in Fig. 4.

Referring again to the brace 3 and the extension 11, which is of considerable length, it will be seen that the standard may be fixed in cuts or openings of considerable height and at the same time the drill operated in cuts or openings that will carry as small a drill—that is, in height—as any drill now offered to the trade. As the shoe represented in the drawings is approximately twenty-two inches in length and by reason of the extension through which it is carried, which is also of considerable length, the opening in which the extension may be carried is readily apparent and by reason of the sockets in the braces 2 and 3, in which the upper and lower ends of the standards are seated, the same are assured an additional brace, as will be seen from an examination of Fig. 5 of the drawings, and by reason of the extension 11 and the shoe 13, which are both of considerable length, as has been suggested, it oftentimes happens that the boxing cannot be placed low enough on the standards 13, and it is necessary to swing the standards so that the threaded spindle 7 will be caused to engage the floor of the cut or opening and the shoe 13 the ceiling, when the boxing may be adjusted in as low a position as any similar drill, and thus the reversibility and practical utility of the oppositely-disposed ears 23 of the yoke 17, which enables me to place the boxing whether the standards are in the position shown in Fig. 1 or in a position opposite thereto, will be readily seen.

A further object of the depending extension 11 from the lower end of the post is to give to the post any reasonable length under varying conditions by using only one length shoe. This rectangular extension or depending body acts not only as an additional support for the shoe and the post, but is an extension itself, for it is the practice in machines of this character, when wishing to extend the height of the post to a greater distance than that attained by the use of an ordinary shoe, to em-

ploy two shoes and make two joints at the base of the post, whereas by providing such an extension as I show, which is of considerable length, I need only employ one shoe, making the shoe of an I-beam. The support for the post is more substantial and is a saving in weight and construction, and whereas it has been necessary when using an additional shoe for extending the post to use two locking-points, one with the base and the other with the shoe which weakens the support, I only use one.

The drill-rod 30 has shown attached thereto the auger 38 and carries the bevel-gear 39. meshing with the bevel-pinion 40, operatively carried by the boxing 41, which forms a part of the boxing 28, and 42 is a crank whereby the said gears may be actuated for operating the drill-rod 30 for the purposes herein.

I wish to call particular attention to the fact that the boxing herein employed is void of trunnions or studs commonly employed and integral with boxings of this class, and the support for such a boxing carried by the standards have loops or sockets in which the trunnions or studs are dropped, which in some instances necessitate the standards being farther apart than is necessary in my drill, and it is to be especially noted that the form of support herein employed with perforated extensions to adapt them with a boxing with a transverse aperture, instead of the trunnion heretofore used, which is not practical with this form of support, will prevent the boxing from dropping out of its support when the drill is turned upside down, and in addition by the provision of the means whereby the standards may be extended or shortened or turned upside down the boxing may be attached or detached and replaced when the standard is upside down by the provision of an extension of the member 17, as suggested.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A drilling-machine, comprising suitable uprights, a boxing of two hinged sections together forming a feed-nut, a support for said boxing vertically adjustable on the uprights having upwardly and downwardly disposed sustaining-points, and means for supporting the boxing between the sustaining-points of the support, substantially as described.

2. A drilling-machine comprising parallel supports connected top and bottom, a member having two rectangular bodies having telescopic connections with the supports, forwardly and vertically extended ears from said rectangular portions, having perforations therein, a boxing of two hinged sections together forming a feed-nut the lower section having a transverse opening and a pin or similar device whereby the boxing may be supported between the ears of the aforesaid member by engagement with the perforation therein and the perforation through the boxing, substantially for the purpose described.

3. A support for the feed-nut of a drill, comprising two standards together forming a post, a yoke having portions vertically adjustable on the standards and having upwardly and downwardly disposed perforated supports, substantially as described.

4. A support for the feed-nut of a drill of the class described, comprising two standards, two rectangular bodies arranged for telescopic connection with said standards and connected by a web, the forwardly and vertically extended ears 23 and the intermediate ears 25 from the aforesaid bodies and each having apertures arranged in the same vertical line, substantially for the purpose described.

5. A support for the feed-nut of a drill, comprising a vertically-reversible post of two standards connected top and bottom, a member having oppositely-disposed bodies vertically adjustable on the post having means for fixing the said member in adjusted positions on said post, and upwardly and downwardly disposed supports projecting laterally from said member, substantially for the purposes described.

6. In a drilling-machine, the combination with uprights 1 connected top and bottom, of the member 17 having oppositely-disposed hollow bodies having telescopic connection with the standards 1, and the extended ears 23 and the ears 25 of the member 17 each having perforations, a hinged boxing forming a feed-nut having a transverse aperture and an extended body with a serrated edge, and means whereby the boxing may be supported from either of the ears 23 and locked in adjusted positions by means passing through the ears 25 and engaging the serrations in the extension of the boxing.

7. In a drilling-machine, the combination of a vertically-reversible post, the rectangular extension of considerable length from the lower end of the post, and the shoe 13 having telescopic relation therein, a feed-nut, and a member vertically adjustable on the post having upwardly and downwardly disposed sustaining-points for said feed-nut, substantially as described.

8. A drilling-machine, comprising suitable uprights, a feed-nut, a support for said feed-nut vertically adjustable on the uprights having upwardly and downwardly disposed sustaining-points projecting laterally from the uprights, a supplemental and lateral sustaining-point arranged between the first-mentioned sustaining-points, and a yoke-pin for supporting and locking the feed-nut to the support, substantially as described.

9. A drilling-machine comprising a suitable support of two standards connected top and bottom, a feed-nut support comprising a member having parts adapted for telescopic connection with the standards, and provided with extended ears adapted to support a feed-nut with a transverse aperture in its body, as and for the purpose set forth.

10. A drilling-machine, comprising a vertically-reversible post, drilling mechanism, a support vertically adjustable on the post having upwardly and downwardly disposed supports for said mechanism, and a supplemental support between the first-mentioned supports, substantially for the purposes described.

11. A drilling-machine, comprising a vertically-reversible post, drilling mechanism, and a support vertically adjustable on the post having upwardly and downwardly disposed sustaining-points for said mechanism.

12. A drilling-machine, comprising a vertically-reversible post, drilling mechanism, and upwardly and downwardly disposed supports for said mechanism projecting laterally from the post.

13. Supporting means for drilling mechanism, comprising a vertically-reversible support, drilling-mechanism-sustaining means vertically adjustable on the support having upwardly and downwardly disposed sustaining-points and a supplemental sustaining-point between the first-mentioned points.

14. Supporting means for drilling mechanism, comprising a reversible support, drilling mechanism, and drilling-mechanism-sustaining means on said support having upwardly and downwardly disposed sustaining-points and an intermediate sustaining-point to provide for securing the drilling mechanism to the first-mentioned sustaining-points.

15. Supporting means for drilling mechanism, comprising a vertically-reversible post, and drilling-mechanism-sustaining means consisting of a two-part support having oppositely-arranged upwardly and downwardly disposed sustaining-points.

16. Supporting means for drilling mechanism, comprising a vertically-reversible post, and drilling-mechanism-sustaining means consisting of a two-part support having oppositely-arranged upwardly and downwardly disposed sustaining-points projecting laterally therefrom.

17. Supporting means for drilling mechanism comprising a vertically-reversible support, and drilling-mechanism-sustaining means projecting laterally therefrom and having reversely-disposed sustaining-points.

18. Supporting means for drilling mechanism comprising a vertically-reversible support, and drilling-mechanism-sustaining means vertically adjustable on the support

and having upwardly and downwardly disposed sustaining-points.

19. Supporting means for drilling mechanism comprising a vertically-reversible support, and drilling-mechanism-sustaining means thereon having upwardly and downwardly disposed sustaining-points.

20. A drilling-machine, comprising a post, a slidable member on the post having laterally-extended perforated ears, a feed-nut having a transverse aperture, and a detachable pin adapted to be passed through the aforesaid ears and aperture in the feed-nut for supporting the latter.

21. A drilling-machine, comprising a post, a slidable member on the post having drilling-mechanism-sustaining means projecting laterally therefrom, and supplemental lateral projections, a feed-nut having a transverse aperture and a serrated edge struck on an arc of a circle from said aperture, and a detachable member adapted to engage the sustaining means and transverse aperture of the nut and also engage the supplemental projections and serrations of the nut to lock the nut in different angles, substantially as specified.

22. A drilling-machine, comprising a vertically-reversible post, a vertically-adjustable member on said post having upwardly and downwardly disposed sustaining-points and supplemental and intermediate sustaining-points, a boxing having a feed-nut provided with a depending wing having a corrugated edge, and a transverse aperture disposed between the nut and corrugated edge, detachable means for pivoting the nut to either the upwardly or downwardly disposed points, and means for engaging the supplemental points together with the corrugations of the nut to lock the said nut in positions of differing angles, for the purposes set forth.

23. Supporting means for drilling mechanism, comprising a vertically-reversible post, and drilling-mechanism-sustaining means thereon having upwardly and downwardly disposed perforated supporting-points, substantially for the purposes specified.

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

ISAAC WANTLING.

Witnesses:

CHAS. W. LA PORTE,
CHAS. F. BAILEY.