(No Model.)

J. E. DAVIS.

EARTH BORING MACHINE.

No. 333,931. Patented Jan. 5, 1886.

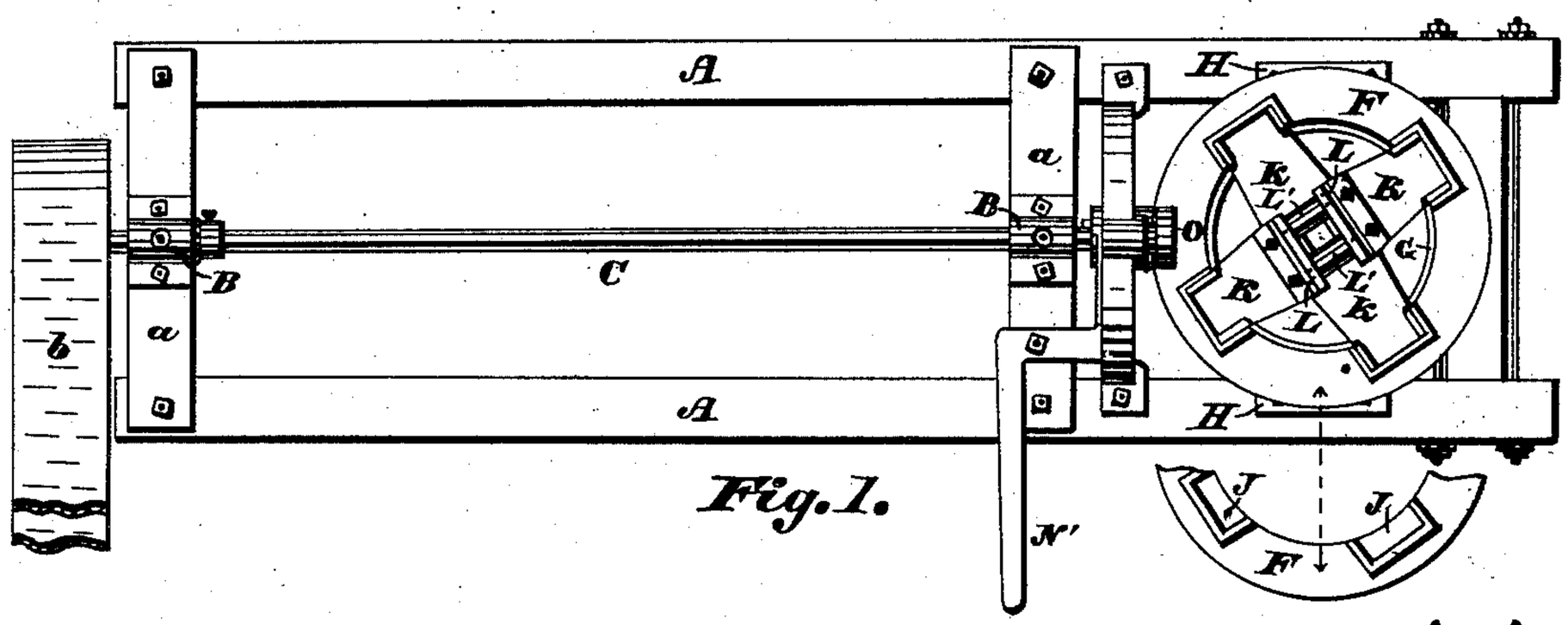


Fig. 1.

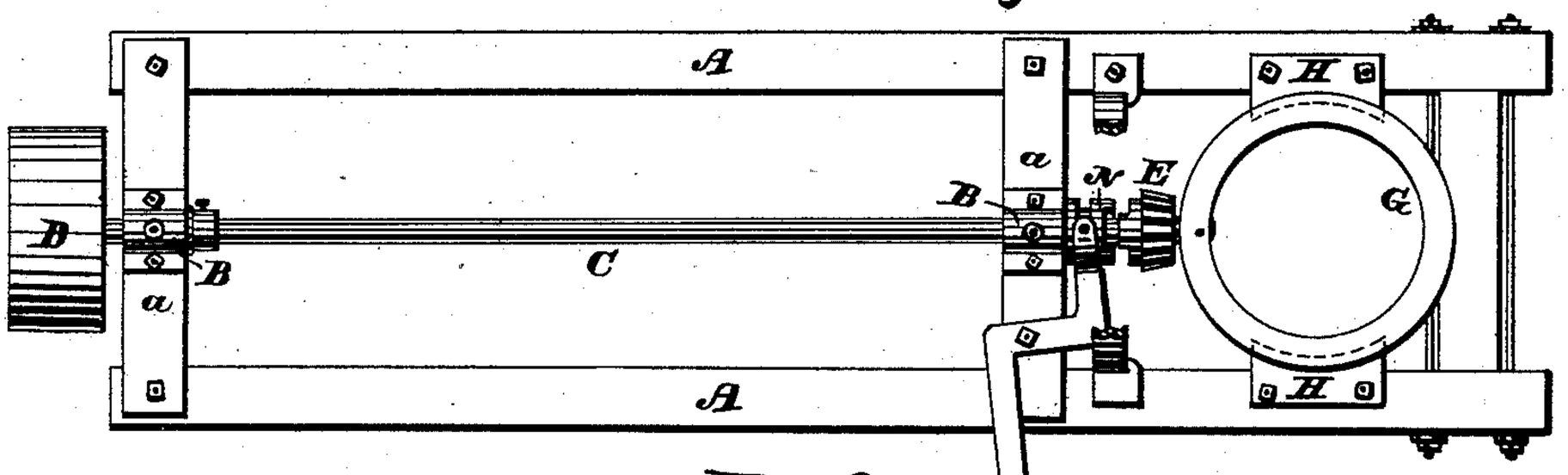


Fig. 2.

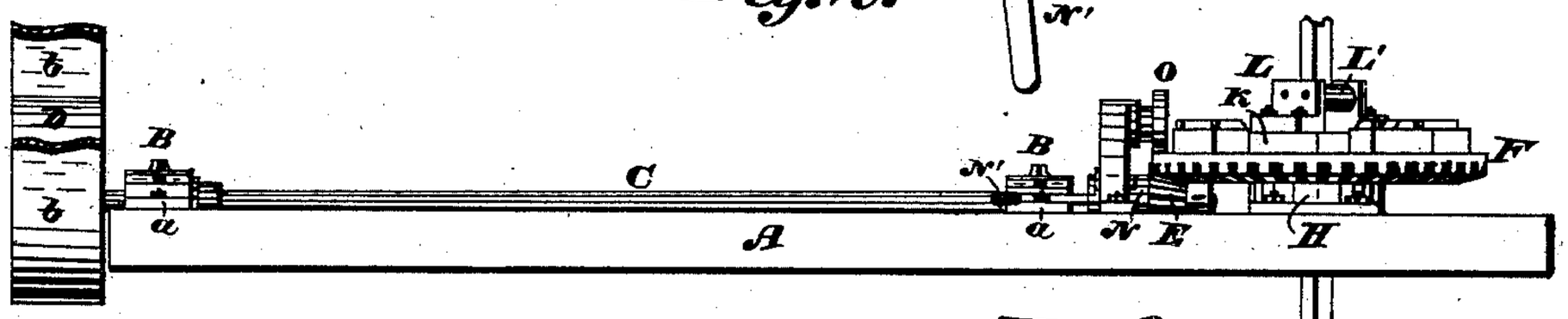


Fig. 3.

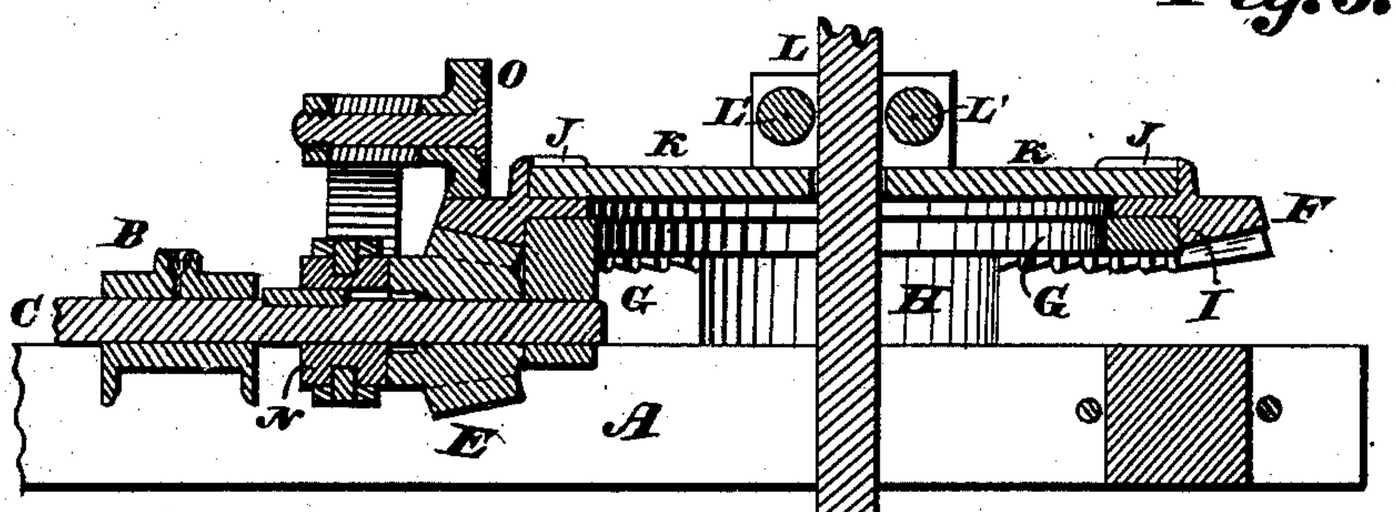
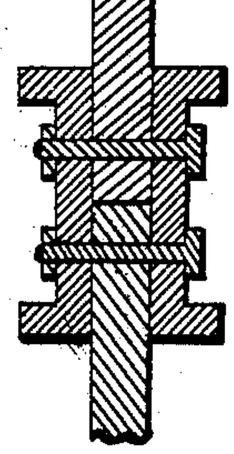


Fig. 4.



WITNESSES:

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EARTH-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 333,931, dated January 5, 1886.

Application filed September 7, 1885. Serial No. 176,332. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. DAVIS, a citizen of the United States, residing at Palmyra, in the county of Portage and State of Ohio, have invented certain new and useful Improvements in Earth-Boring Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon, in which—

Figure 1 is a top view. Fig. 2 is a top view showing the auger-propelling wheel and its parts removed. Fig. 3 is a side elevation. Fig. 4 is a longitudinal section.

The present invention has relation to earth-boring machines designed and calculated to bore through the earth to the rock preparatory to operating a rock-drilling machine; and its nature consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claim.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, A represents the frame of the machine proper, and, as shown, it consists of two longitudinal pieces or bars and cross-bars or bolts properly framed together in any desired and well-known manner. This frame A is firmly secured to the ground by means of suitable stakes properly driven into the ground or in any other manner, so that said frame A will be firmly held in proper position, and is so arranged that the working end of said frame will be located directly over the place where the hole is to be bored.

To the cross pieces or bars *a* are securely attached the bearings B, as shown in the drawings, said bearings being for the purpose of holding in proper position the shaft C, to the outer end of which is attached the pulley D, over which passes the belt *b*, which communicates motion to the machine proper. To the opposite or inner end of the shaft C is loosely attached the pinion E, which meshes in the auger-propelling wheel F, as shown in the drawings.

To the frame A is securely attached the annular plate G by means of the supports H. Said supports may be cast or formed with the annular plate G, or they may be made separate and attached in any well-known manner, said supports being securely held to the frame A by means of suitable clamping-bolts. In the drawings two supports are shown, but more may be used, if desired.

On the top or upper side of the annular plate G is placed the auger-propelling wheel F. As shown in the drawings this auger-propelling wheel is provided with the flange I, (best seen in Fig. 4,) which is for the purpose of holding said wheel F in proper position. The top or upper side of the auger-propelling wheel F is provided with the notches or recesses J, which are located, substantially as shown in Fig. 1, and are for the purpose of receiving and holding the arms K, said arms being substantially of the form shown in Fig. 1.

To the arms K are attached the blocks or supports L, which are for the purpose of receiving and properly holding the anti-friction rollers L′, said rollers being so arranged that the auger-shank can pass between them, as shown in the drawings, said rollers being for the purpose of lessening the friction of the auger-shank, and at the same time preventing the said auger-shank from binding as the auger proper is being elevated or lowered.

When it is desired to communicate motion to the auger M, the clutch N is thrown into contact with the pinion E by means of the operating-lever N′, said operating-lever N′ being pivotally attached to one of the cross pieces or bars *a*, as shown in the drawings; or, if preferred, said operating-lever may be attached in any other suitable manner.

For the purpose of holding the auger-propelling wheel F down on the pinion E, the wheel O is located and attached substantially as shown in the drawings.

It will be seen that by my peculiar arrangement I am enabled to remove the arms K, together with their different parts, at any time desired, and also to instantly properly attach said arms K to the auger-propelling wheel F.

I am aware that to provide an annular wheel and pinion is old, also that a removable piece for engaging the auger-shaft with the

annular driving-wheel has been previously used.

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

The combination of the frame A, provided with the shaft C, having pinion E, of the annular plate G, provided with the supports H, of the auger-propelling wheel F, provided with the notches or recesses J, of the removable arms or spokes K, fitting in the recesses J, of the anti-friction rollers L, and the auger-shank, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES E. DAVIS.

Witnesses:
E. A. KAUFMAN,
FRED W. BOND.