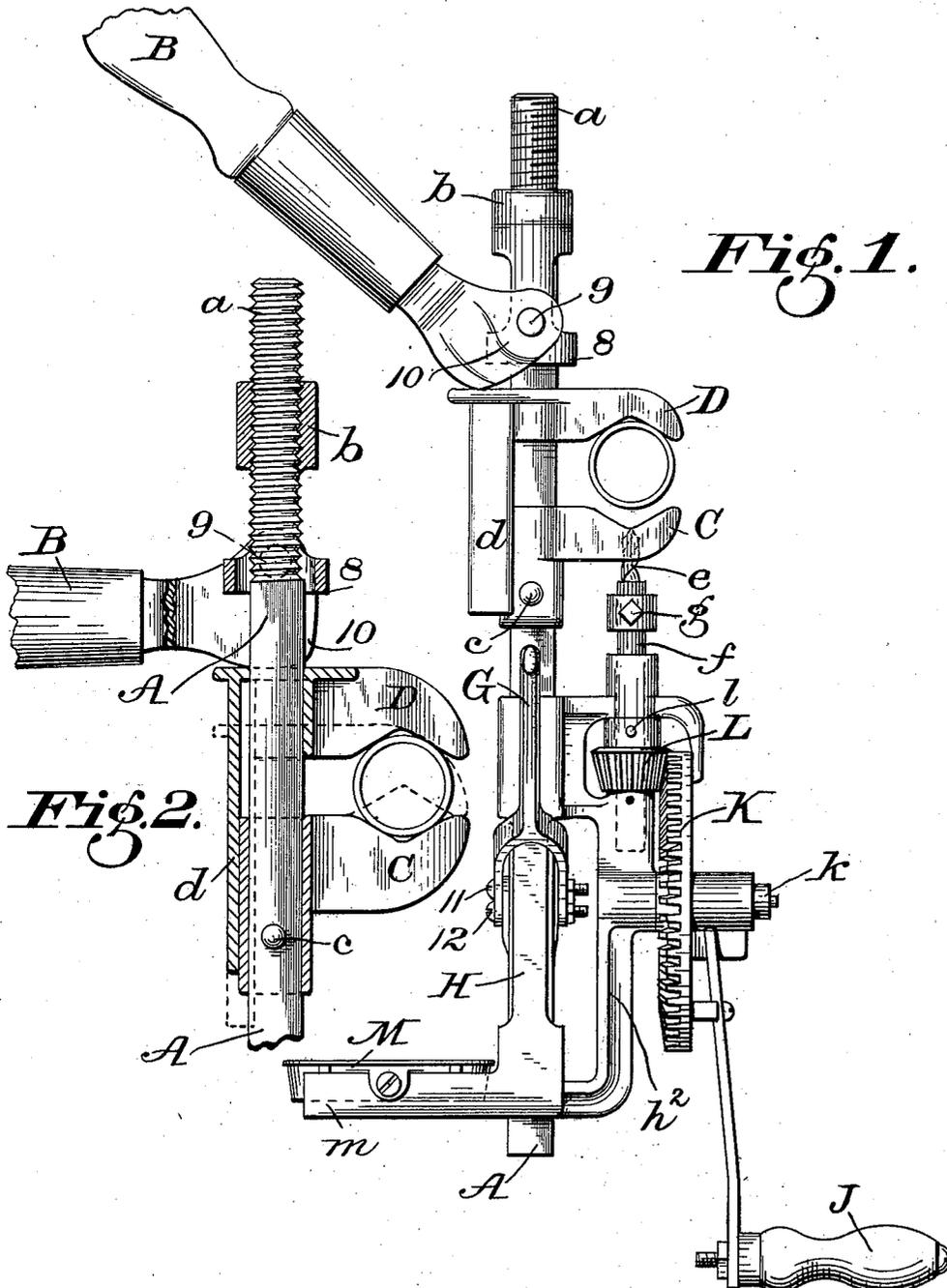


No. 893,667.

PATENTED JULY 21, 1908.

C. W. SKINNER.
HAND DRILLING DEVICE.
APPLICATION FILED NOV. 5, 1904.

2 SHEETS—SHEET 1.



WITNESSES:
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2 SHEETS—SHEET 2.

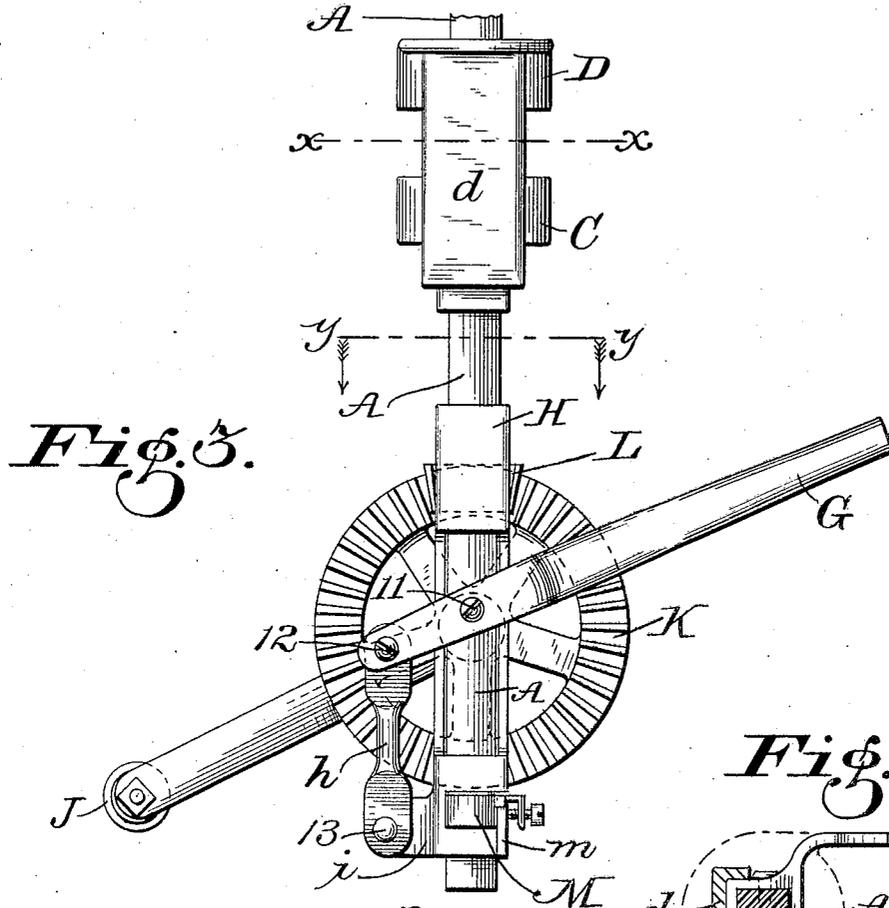


Fig. 3.

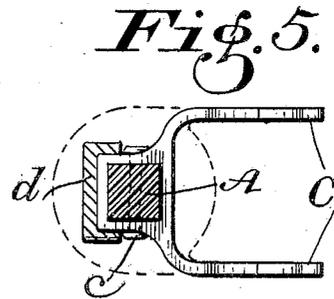


Fig. 5.

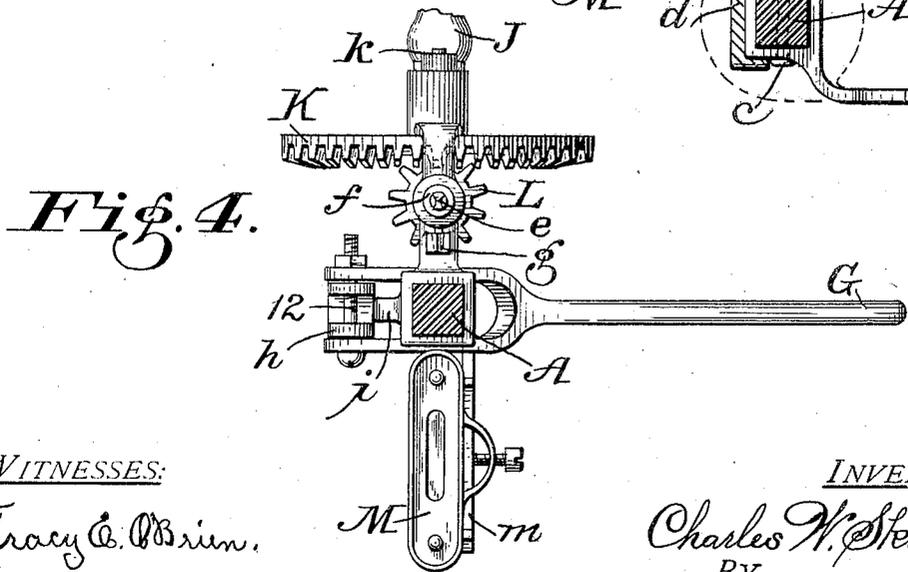


Fig. 4.

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UNITED STATES PATENT OFFICE

CHARLES W. SKINNER, OF TROY, OHIO.

HAND DRILLING DEVICE.

No. 893,667.

Specification of Letters Patent.

Patented July 21, 1908.

Application filed November 5, 1904. Serial No. 231,528.

To all whom it may concern:

Be it known that I, CHARLES W. SKINNER, a citizen of the United States, residing at Troy, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Hand Drilling Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable all others as well as those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to a hand drilling device; and has for its objects or purposes,—the providing of a device adapted to be operated by hand,—for drilling holes in any hard substance,—but more particularly in metal; and is more especially designed and intended for drilling holes in cylindrical bodies, and particularly pipes; which usually, on account of their tendency to roll and shift position, have to be placed in drilling machines; and where it is necessary to drill a number of holes to register in a direct line with each other in pipes which are connected together and in a stationary position,—such, for example, as drilling holes in the pipes to receive small nozzles after said pipes are in position, as in my "system of irrigation", for which Letters Patent of the United States No. 614,507 were issued to me on the 22nd day of November, 1898; for by the peculiar construction of my device, these pipes can now be drilled by hand while standing in the field, thus saving the time and extra labor and hardship incidental to taking them down and disconnecting them so as to place them in a drilling machine as heretofore.

Among some of the many advantages of my improved drilling tool, may be mentioned the following; to wit:—it will in many instances take the place of a drilling machine; is readily operated to advantage; is simple in construction and composed of few parts; and inexpensive in cost of manufacture.

This invention consists essentially,—referring in general terms to the construction of my improved hand drilling device; of the supporting-rod; the clamping-jaws, and swivel handle; the drill-point, and spur and bevel-gear wheels provided with a handle for revolving the drill-point; and other minor details; and the very novel and peculiar arrangement, formation, and combination of

these various parts as will be more fully referred to and described in detail hereinafter, and particularly pointed out in the subjoined claims, in accordance with the statutes in such cases made and provided therefor.

Referring to the annexed drawings illustrating my invention, and wherein the same letters and numerals of reference indicate like parts wherever occurring throughout the several views:—Figure 1, is a view in side elevation of my improved hand drilling device, showing the upper clamping-jaw resting upon a pipe, and the handle in position ready to cause the lower jaw to also grip the pipe. Fig. 2, is a vertical sectional view in detail, on a slightly enlarged scale, partially broken away and showing the handle moved down, forcing the jaws into engagement with the pipe; and the screw-threaded and swivel connection of said handle with the supporting-rod. Fig. 3, is a view in side elevation at right angles to Fig. 1; with upper portion broken away. Fig. 4, is a plan view taken on line *y-y* of Fig. 3: and Fig. 5, is a broken away plan view in detail,—on line *x-x* of Fig. 3;—showing the relative position of the clamping-jaws and the supporting-rod.

In describing my said invention in detail, and having reference to the different mechanical elements or features of construction which make up my improved hand drilling device; as illustrated in the drawings and indicated by means of letters and numerals of reference as aforesaid; A, designates the supporting-rod, which is screw-threaded at *a* to receive the screw-threaded socket *b*, of loose sleeve 8 of handle B; thus permitting said handle,—which is pivotally connected at 9, by ears 10, to sleeve 8;—to have a swivel movement as well as a vertical sweep; see Figs. 1 and 2.

Mounted upon supporting-rod A, which passes entirely through them; are the clamping-jaws;—the lower clamping-jaw C, being firmly and immovably connected to the supporting-rod by a rivet *c*—or otherwise;—while upper clamping-jaw D, which rests loosely around the supporting-rod, and is provided with a grooved extension or guide which assists in guiding said lower-jaw, as it moves up when gripping the pipe:—said pipe being of course held firmly up in a stationary position, by means of the other pipes to which it is connected,—or otherwise supported as the case may be;—when handle B by reason of its pivot at 9—which now acts as

a fulcrum; and by reason of the operator forcing said handle downward as a lever, when ears 10 will bear or press against the top of said upper clamping-jaw, until the pipe is firmly gripped or clamped between said upper and lower clamping-jaws, and the parts have assumed the position shown in Fig. 2:—it of course being clearly understood, that as the lower clamping-jaw moves upward; as just described,—the supporting-rod to which it is immovably attached or connected by pivot *c* will necessarily move up also, and as it rises will carry with it all the lower parts or members of the device which are below said jaws;—(which will be fully described hereinafter,)—until drill-point *e*,—which is held in position in staff *f* by means of set-screw *g*, in any well-known and ordinary manner;—comes up close to the pipe, and by forcing lever *G* downward from the position shown in Figs. 1 and 3, to the position shown in Fig. 4; and as said lever being fulcrumed at 11 to the supporting-rod, and also at 12 to link *h*, while said link is in turn connected by a pivot at 13 to a projection or lug *i* of sliding frame *H*,—through which the supporting-rod passes, as seen in Figs. 1 and 3;—said sliding frame will rise, and with it staff *f* and drill-point *e*, which will now be brought in direct contact with the pipe or article to be drilled; and by the operator now turning crank handle *J*, which is rigidly attached to, or made part of, bevel gear wheel *K*; the axle *k* of which projects from the outer portion *h*² of sliding frame *H*; the bevel gear wheel will now be revolved; and as its teeth mesh with the teeth of spur-wheel *L*, the latter will also revolve; and as said spur-wheel is held in position on staff *f*, by pin *l*;—see Fig. 1,—said staff will also revolve as well as drill-point *e*, which is connected to it, and will drill the desired hole in the pipe: when by the operator pushing lever *G* upward in an opposite direction, these parts—as just described—will now move downward and back to their normal position, and the drill-point will pass out of the hole ready to drill a fresh hole or opening; by repeating the operation.

For the purpose of drilling the holes even and in a regular line one with the other, a small level *M*, of any suitable style may be

employed, and connected to arm *m* of the sliding-frame, by a set-screw—or otherwise, as shown in Figs. 1 and 3, if so desired.

It will be observed from the foregoing description taken in connection with the drawings, that my invention is a valuable one, providing as it does a drilling device which can be used in most cases, in place of a large cumbersome machine;—and often when it is impossible to use a machine.

I am of course aware of other small hand devices wherein a vertically supported staff, is operated by a crank-handle through the medium of gear wheels; but I do not claim these parts, nor do I lay claim to any parts broadly, but limit myself to the peculiar and novel arrangement and combination of the various parts, including other new elements.

Therefore what I claim is:—

1. In a hand drilling device, a means for clamping said device to the pipe or body to be drilled, consisting of:—a supporting rod partially screw-threaded; a stationary clamping jaw mounted upon said supporting rod; a movable clamping jaw provided with an extension or guide mounted upon said supporting rod; a sleeve having a screw-threaded socket by which it is adjustably mounted upon said supporting rod; and a handle fulcrumed to said sleeve so as to give said handle a swivel movement as well as a vertical sweep, and adapting said handle to act as a lever when bearing against the movable clamping jaw.

2. In the herein referred to device, a drilling means consisting of the supporting rod; the frame slidably mounted upon said supporting rod; the drill point and staff carried by said frame; the lever fulcrumed to said supporting rod and having a link connection, thus adapting it to operate said frame; the bevel gear wheel supported by said slidable frame; and the spur-wheel connected to said staff, the teeth of which are in mesh with the teeth of said bevel gear wheel.

In testimony whereof, I have affixed my signature, in presence of two witnesses.

CHARLES W. SKINNER.

Witnesses:

HENRY B. PRUDEN,
C. E. BAUER.