

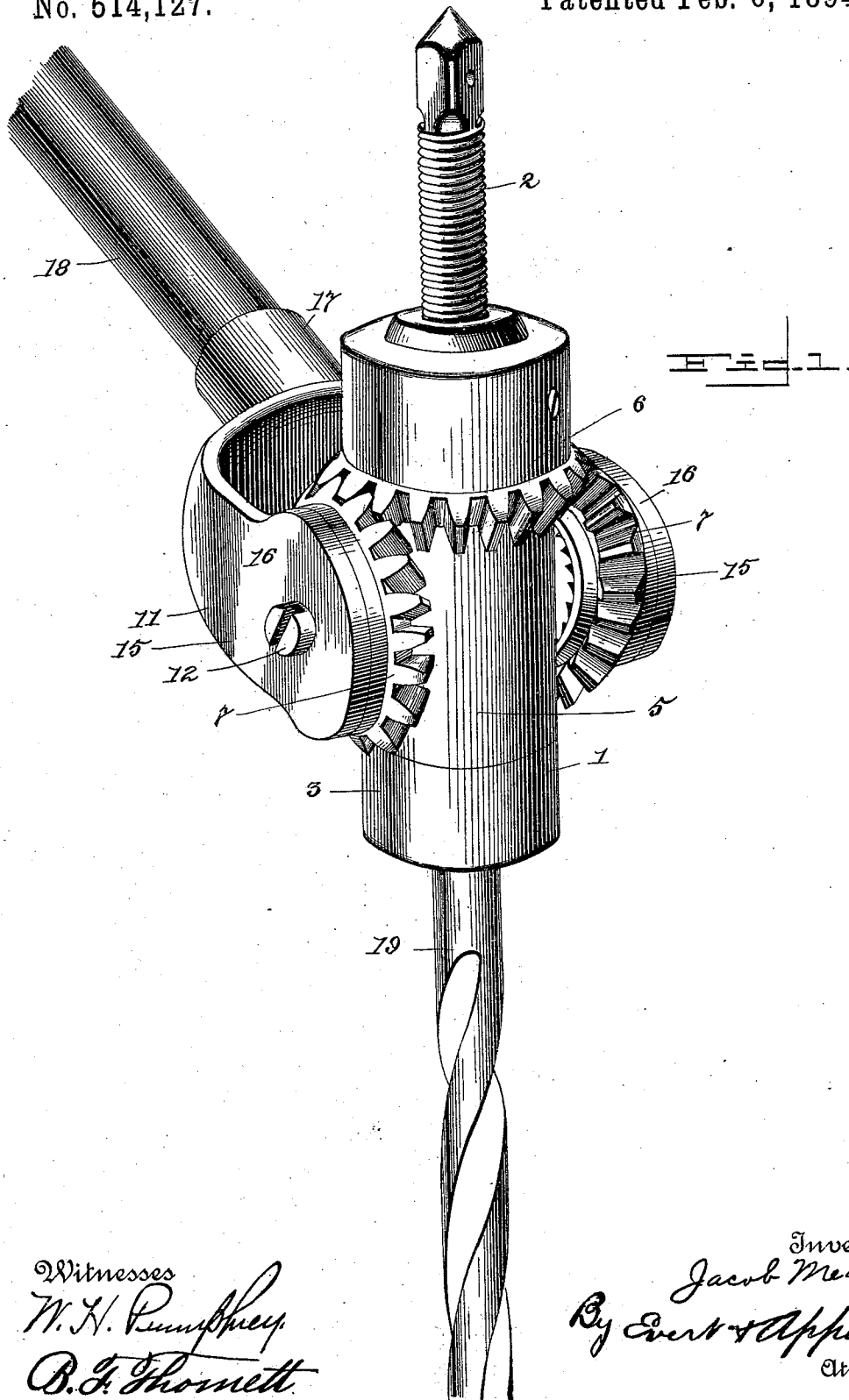
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3 Sheets—Sheet 1.

J. MEAHL.
DOUBLE ACTING RATCHET DRILL.

No. 514,127.

Patented Feb. 6, 1894.



Witnesses

W. H. Humphrey
B. J. Thonett

Inventor

Jacob Meahl

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Attorneys

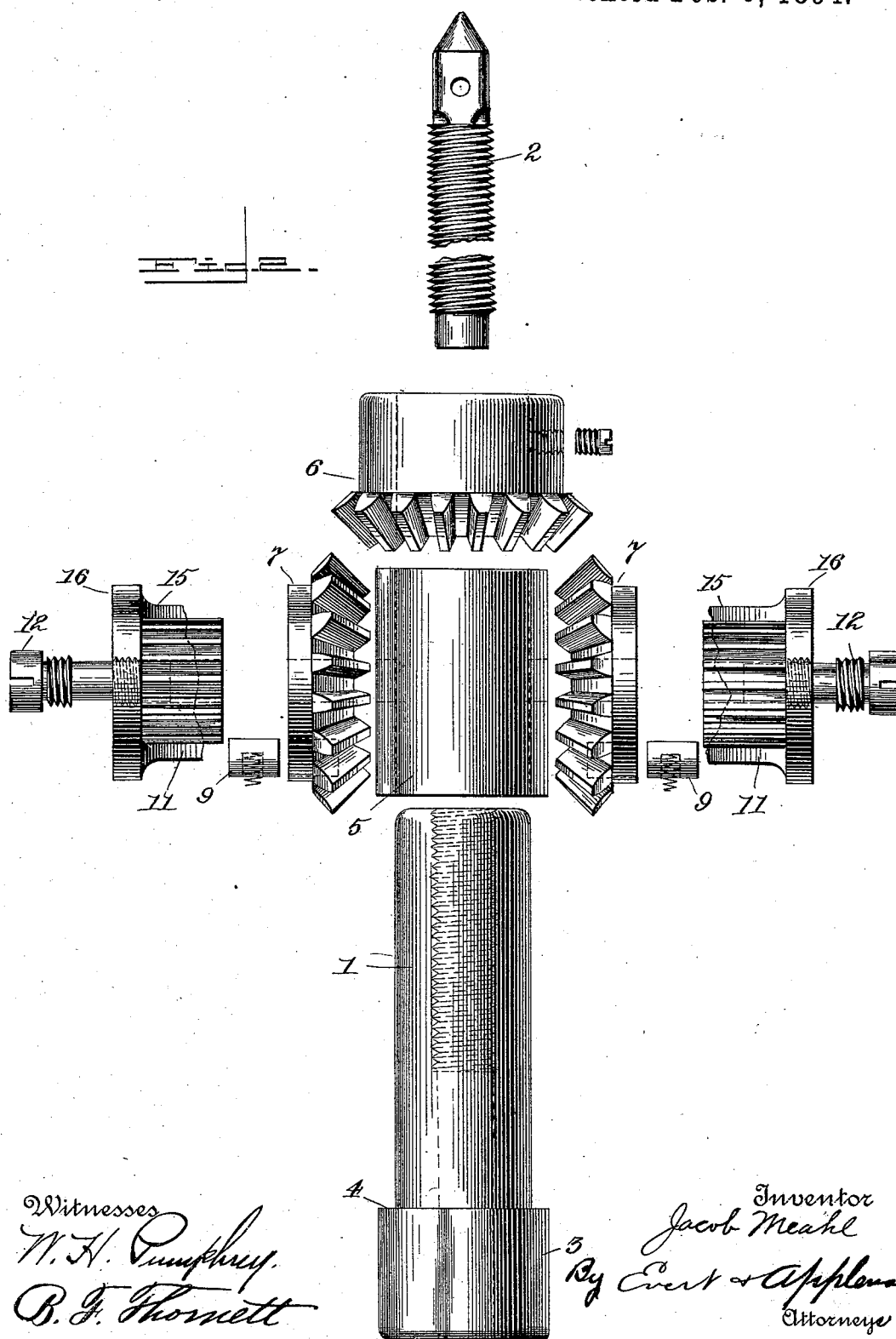
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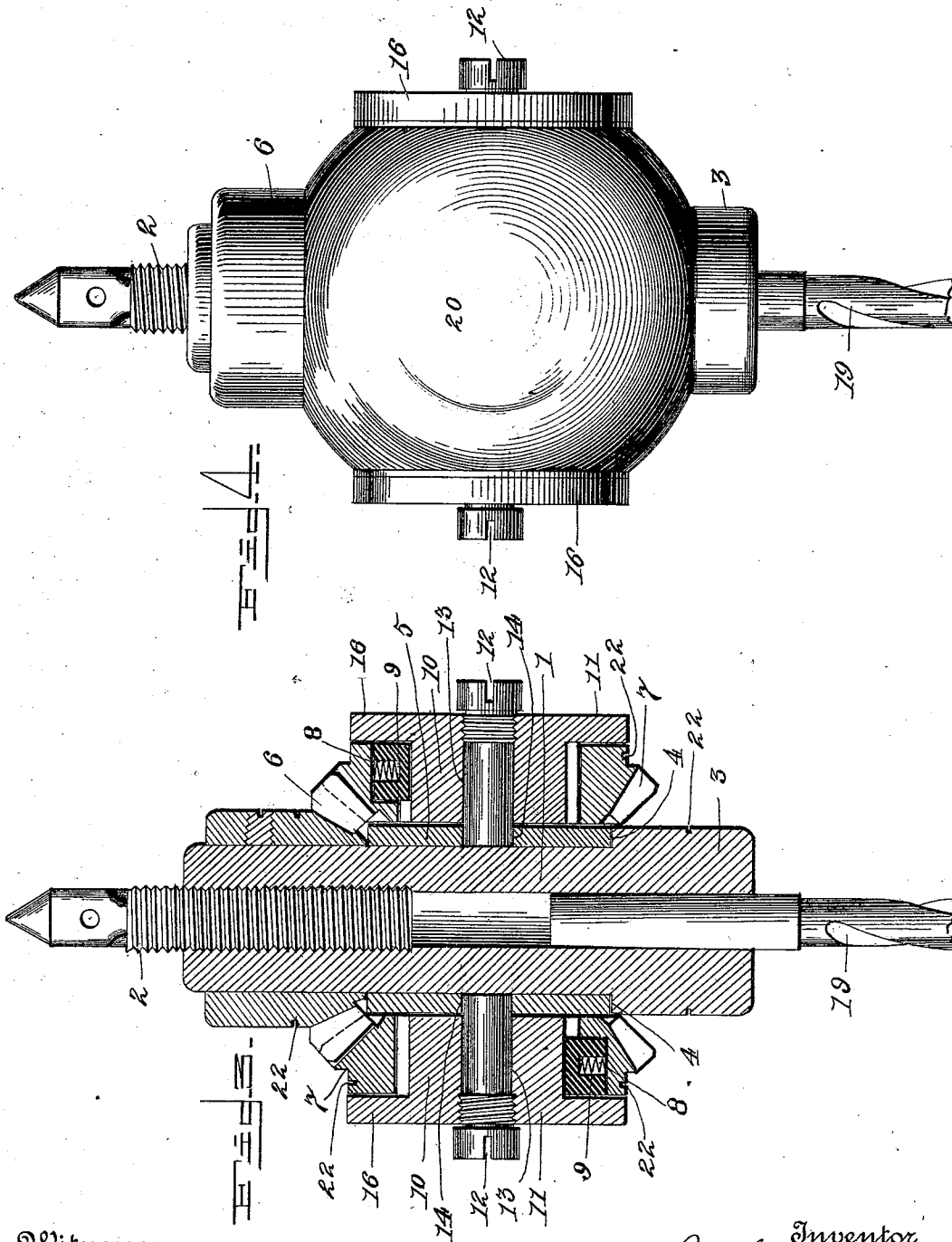
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UNITED STATES PATENT OFFICE.

JACOB MEAHL, OF CLEVELAND, OHIO.

DOUBLE-ACTING RATCHET-DRILL.

SPECIFICATION forming part of Letter Patent No. 514,127, dated February 6, 1894.

Application filed July 8, 1893. Serial No. 479,970. (No model.)

To all whom it may concern:

Be it known that I, JACOB MEAHL, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Double-Acting Ratchet-Drills, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain new and useful improvements in "driving gear" for drills, and more particularly to that class known as "ratchet drills."

The primary object of the invention is to provide improved means by which either continuous or intermittent rotary motion may be imparted to a drill bit by the reciprocation of an operating lever or handle in any direction.

A further object is to employ a minimum number of interchangeable members in the construction of the device, said members being of common form, and comparatively inexpensive of manufacture and at the same time possessing advantages in point of simplicity, durability and general efficiency.

In attaining these and other objects, various novel combinations and arrangements of elements are employed which will be hereinafter more fully set forth and specifically pointed out in the claims.

When describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification and wherein like numerals indicate corresponding parts in these several views, in which—

Figure 1. is a view in perspective showing one form of ratchet driving gear constructed and arranged to embody my improvements. Fig. 2. is a view in elevation of the same, with the several members shown detached and relatively positioned. Fig. 3. is a view showing a central vertical longitudinal section of the device with the members in operative position. Fig. 4. is a view in elevation showing the application of a dust cap or spherical casing.

In these drawings,—1, denotes a tubular drill-bit receiving spindle which is interiorly screw-threaded to about half its length for engagement with a feed screw 2. This spin-

dle is provided with a lower terminal enlargement or head 3, which forms thereon an annular shoulder 4, and normally resting against this shoulder is a collar 5, which is mounted to revolve freely upon the spindle. Immediately above this collar and keyed to the spindle, is a beveled gear 6, which is driven by the inter-meshing bevel gears 7, 7. These gears are cored out centrally and radially recessed as at 8, to receive spring pressed dogs or pawls 9, and are rotatably mounted on ratchet pinions 10, 10, which latter are fixed to or form part of the frame 11. The frame 11, is secured to the spindle by means of the bearing pins 12, 12, which are passed through centrally aligned openings 13, 14, of the frame and collar and are screw-threaded adjacent the heads thereof to engage threaded openings of the frame, thus effectually locking the several members composing the device, in operative position. The frame 11, is preferably V-shaped, as best shown in Fig. 1., with the branches 15, 15, thereof enlarged to form circular heads 16, 16, between which the driving gears 7, 7, are mounted. At the junction of these branches, a rearwardly extending and integral socket piece 17, is formed, into which any suitable handle 18, may be fitted.

The socket disks 10, 10, are herein shown arranged so as to produce a continuous rotary movement of the bit 19, when the handle is reciprocated. This arrangement consists in forming the teeth of the disks on the opposite slant, and referring to Fig. 1., it will be seen that on the upward stroke of the handle the pawl carried by the left hand gear will engage the ratchet disk and form a locked connection between the gear and the rotating disk, thus imparting motion to the bit through the driven gear 6. The pawl carried by the right hand gear, during this movement of the handle is not engaged by the ratchet, but rides idly thereon. As the handle is forced downwardly the last mentioned pawl engages, while the other rides freely. If desired, these pawls and ratchets may be toothed alike to drive only on the downward stroke of the handle.

An important feature of this invention resides in the peculiar arrangement by which the handle may be reciprocated in any direc-

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tion to describe either a straight or a curved line and without loss of motion as a result.

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

1. In a ratchet drill, the combination with a drill-bit-receiving spindle provided circumferentially with engaging teeth, of a handle terminating in a bifurcated head, toothed disks formed on the inner faces of the branched arms of said head, gears sleeved on the disks and engaging the teeth of the spindle, and spring pressed pawls carried in recesses of the gears and engaging the toothed disks, as specified.

2. In a ratchet drill, a handle terminating in a bifurcated head and provided on the in-

ner faces of its branched arms with toothed disks, gears sleeved on the disks, and pawls carried by the gears engaging the teeth of the disks, in combination with a drill-bit-receiving spindle having a pinion keyed thereon and working in said pawl-carrying gears, a feed screw, a sleeve loosely mounted on the spindle, and bearing pins passing through coincident openings of the branched arms, disks and collar, as specified.

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

JACOB MEAHL.

Witnesses:

JAMES A. WILEY,
JAMES HUTSON.