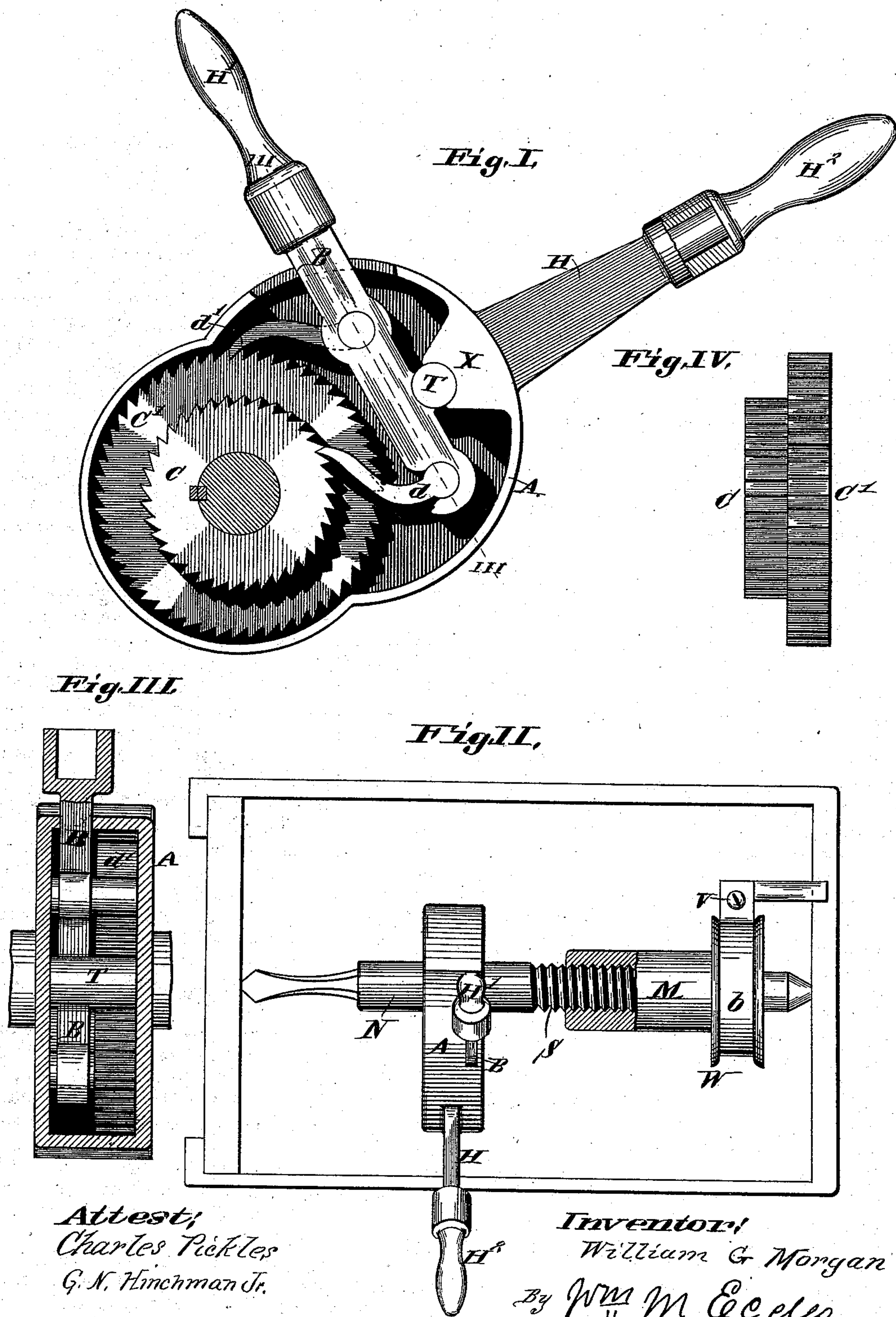


(No Model.)

W. G. MORGAN.
RATCHET DRILL.

No. 402,096.

Patented Apr. 23, 1889.



Attest:
Charles Pickles
G. N. Hinchman Jr.

Inventor:
William G. Morgan
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att'y

UNITED STATES PATENT OFFICE.

WILLIAM G. MORGAN, OF ST. LOUIS, MISSOURI.

RATCHET-DRILL.

SPECIFICATION forming part of Letters Patent No. 402,096, dated April 23, 1889.

Application filed June 11, 1888. Serial No. 276,753. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. MORGAN, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have
5 invented a new and useful Ratchet-Drill, of which the following is a specification.

My invention relates to improvements in ratchet-drills; and it consists in the construction and combination of parts hereinafter described and claimed.
10

My object is to construct a ratchet-drill that will automatically feed itself and at the same time have a continuous revolution at both strokes of the handle, as well as to construct a cheap and durable drill. I attain
15 these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure I is an elevation view showing the front plate removed and showing the handles partly in section. Fig. II is a top view of the drill. Fig. III is a transverse section drawn on the line III III in Fig. I. Fig. IV is a view of the ratchet-wheels detached.
20

Letter A is an outside casing, in which the parts of the drill mechanism are inclosed. It is provided in its interior with a shoulder, *a*, against which the arm B is fulcrumed, or against which the arm presses or bears when being pulled backward or pressed forward, so
30 as to take the strain off the teat T, and also with a teat, T, which passes through a hole in the handle B. It is provided on its outside with a sheath, H, made to inclose and retain a handle, H², which handle serves to steady
35 the drill.

Letter B is an arm fulcrumed in the casing A, and is provided on each side of the fulcrum with a recess, which passes around more than a half-circle and holds circular ends of
40 pawls *d d* and allows them to work in said recesses, and contains a handle, H'.

c c are two ratchet-wheels fixed on the shaft of the drill, and which engage the pawls *d* and *d*, respectively. These may be made
45 in one; but by making them separately the one can be made smaller than the other, and thus enable the whole mechanism to be put in a smaller and more compact form and enable the drill-handle to have more thrust and
50 greater action than if both pawls operated on the same ratchet-wheel.

N is the drill-shank, which is made to contain the drill at one end and is provided with a screw at the other. This screw is designed

by the letter S, and is adapted to fit in 55 and engage a female thread in a shank, M. This shank is provided with a friction-wheel, W, about its center, and at the end opposite where the screw end of the drill-shank enters it is tapered off to a point and adapted
60 to turn in the frame-work of the drill. This friction-wheel W is surrounded by a band, *b*, which is united at its ends by a set-screw, V, and has an extension of one or both ends to meet and engage the frame-work of the
65 drill, which will prevent the friction-wheel W from turning when the set-screw is screwed tightly or allow it to turn when it is screwed lightly.

D is the drill.

Now, when the handle H² is grasped, and the ratchet-casing is firmly held, and the shank M is placed against the frame-work, and the end of the drill proper is placed against the object to be drilled, and the handle H' is
70 moved backward and forward, the drill-shaft and drill are continuously moved in the same direction at the backward as well as the forward thrust of the handle H'.
75

Now, what I claim, and for which I ask Letters Patent to be granted me, is—
80

1. A ratchet-drill composed of an outside casing, A, provided with a fulcrum-rest in its interior portion to engage the arm B, the arm B, having pawls *d d* engaging ratchet-wheels
85 *c c*, two ratchet-wheels, *c c*, handles H' H², shaft N, adapted to hold the drill at one end and containing a thread at the other, shank M, and band *b*.

2. In a ratchet-drill, an arm, B, fulcrumed
90 in a casing, A, and having a circular recess on each side of said fulcrum for the reception and retention of pawls *d d*, in combination with a ratchet-wheel and casing, substantially as described.
95

3. In a ratchet-drill, the combination of two ratchet-wheels, one larger than the other, fixed to a drill-shank, an arm fulcrumed between two pawls held and operated by said arm and engaging the ratchet-wheels, and a
100 casing inclosing said ratchet-wheels, pawls, and arm, substantially as described.

Witness my hand this 5th day of June, 1888.

W. G. MORGAN.

Witnesses:

WM. M. ECCLES,
HARRY S. GRIFFITH.