

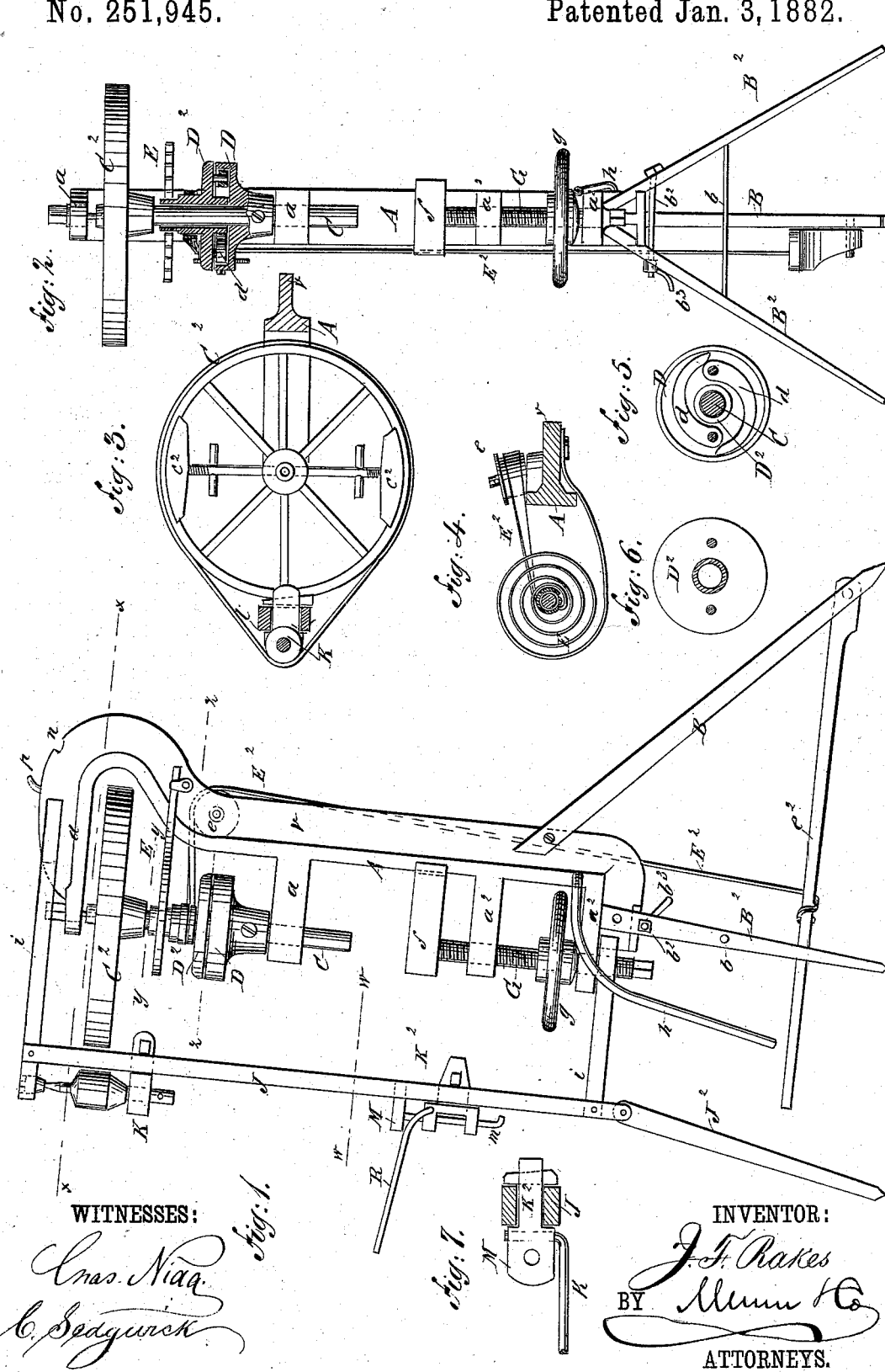
(Model.)

J. F. RAKES.

COMBINED LATHE AND DRILLING MACHINE.

No. 251,945.

Patented Jan. 3, 1882.



WITNESSES:

Chas. Naa
C. Seagrove

Fig. 1.

Fig. 7.

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JOHN F. RAKES, OF GREENUP, KENTUCKY.

COMBINED LATHE AND DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 251,945, dated January 3, 1882.

Application filed March 21, 1881. (Model.)

To all whom it may concern:

Be it known that I, JOHN F. RAKES, of Greenup, in the county of Greenup and State of Kentucky, have invented a new and Improved
5 Combined Lathe and Drilling-Machine, of which the following is a full, clear, and exact description.

My invention consists in a novel construction, arrangement, and combination of devices
10 whereby a reciprocating drilling-machine is produced and provision is made for converting the frame of the drilling-machine into the frame of a lathe, and for driving the lathe by the wheel used for operating the drill, as hereinafter more particularly described.

In the accompanying drawings, Figure 1 is a side view of an apparatus embodying my improvements. Fig. 2 is a front view of the same, partly in section. Fig. 3 is a horizontal
20 section taken in the line xx of Fig. 1. Fig. 4 is a horizontal section taken in the line yy of Fig. 1. Fig. 5 is a horizontal section in the line zz of Fig. 1. Fig. 6 is a detail view. Fig. 7 is a horizontal section taken in the line ww
25 of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents a frame or standard, made preferably of cast-iron, and provided with three
30 legs, $B^2 B^2$. The leg B is inclined at an angle of about forty-five degrees, and is permanently attached to the standard A . The two legs B^2 are connected by a brace, b , so as to resemble the letter A , and are provided with a
35 screw-rod, b^2 , and hand-nut b^3 above the brace b , for clamping the upper ends to the frame or standard A .

In the upper portion of the standard A there are two arms, $a a$, in which works a vertical
40 shaft, C , the lower end of which is provided with a socket and serves as a drill-holder. The upper portion of the shaft C carries a fly-wheel, C^2 , provided with counterbalance-weights c^2 , which may be removed when desired.

To the shaft C , below the fly-wheel, is attached a clutch, composed of two parts, $D D^2$.
45 The part D is attached firmly to the shaft, and is concave. The part D^2 is loose on the shaft, and is convex, and works in the concave portion of the part D , and it is provided with two

frictional retarding-dogs, which engage with said concave part.

To the part D^2 is attached one end of a spring, E , which is coiled several times around
said part D^2 , and has its other end attached
55 to the standard A . Below this spring is attached one end of a rope or cord, E^2 , which is wound around the part D^2 in an opposite direction from the coil of the spring, and then
60 passes over a pulley, e , and down to a treadle, e^2 , pivoted to the leg B . When the treadle is pressed down the unwinding of the rope or cord turns the shaft C in one direction, so as
65 to rotate the bit or drill carried by the lower end of said shaft and winds up the spring E .
When the pressure on the treadle is removed the unwinding of the spring moves the loose
part D^2 of the clutch in the opposite direction,
and the shaft C and part D remain stationary,
70 while the pawls d slip around the inner surface of the part D until the first position is attained, and then they again engage with said
surface, and the first motion is repeated. By
this means a reciprocating rotary motion is
75 imparted to the part D^2 and an intermittent motion in one direction to the part D and the shaft C .

In the lower portion of the frame or standard A there are two arms, $a^2 a^2$, in which a
80 screw, G , works loosely, and carries at its upper end a feed-table, f . On the screw G , between the arms, is a hand-wheel, g , by turning
which the feed-table is raised or lowered, as desired. The table f is prevented from turning
85 by means of a notch engaging with a rib on the standard A .

Pivoted to the standard, near the lower arm, is a lever, h , which is curved downward under
the hub of the wheel g , so as to be used as a
90 cam. When the feed-table is at rest the hub of the wheel g rests on the lower arm a^2 .
When the table contains work to be drilled or bored it is fed up to the drill or bit by raising
the lever h , so as to lift the wheel g , and
95 with it the screw and table.

The standard A is formed with a web, v , extending rearward from end to end. The
A-shaped leg-frame B^2 is attached to the lower
end of the standard by clamping the lower end
100 of said web between the upper ends of said legs

by means of the hand-nut b^3 on the screw-rod b^2 , as before described. When it is desired to use the standard A as a frame for a lathe the legs B² are removed from the lower end and placed at the opposite end, which is provided, near the corner thereof, with a notch, n , and a hook or projection, p . The legs are inclined outward from the frame, which then lies horizontally, and the notch n rests on the rod b^2 , and the hook or projection p lies between the upper ends of the legs, which are then clamped, as before described.

The lathe-heads are carried by a bar, J, at the ends of which are arms i , provided with notches at their ends, which engage with the web v , as shown in Fig. 1. This lathe attachment may be readily placed in position and removed, and it may also be used when the standard is in an upright position, in which case the bar J is provided with a leg, J². The lathe is driven by a band, l , from the fly-wheel C² to a pulley on the fixed head K. When the machine is in an upright position the treadle e^2 is arranged as shown in Figs. 1 and 2. When used in a horizontal position the treadle is arranged at about ninety degrees from the position shown in said figures, so as to bring its free end nearly under the pulley e .

The movable head K² is arranged to slide on the bar J and to be held in place by a wedge or key in the usual or any suitable manner. It is provided with a feeding device consisting of a plate, M, carried by a rod or bar, m , working in lugs or arms on the head, and a curved lever, R, arranged and operating in a similar manner to the feeding device above described. By this means provision is made for using the lathe attachment for drilling and boring purposes.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

1. The metallic frame or standard A, formed with the web v and the arms a and a^2 in one piece with said standard, as shown and described, for the purposes specified.

2. The combination, with the frame or standard A and arms a , of the vertical shaft and drill-holder C and the fly-wheel C², provided with removable counterbalance-weights c^2 , arranged as herein shown and described.

3. The combination, with the frame A and the shaft C, of the clutch D D², dogs d , spring E, and rope or cord E², as shown and described, for the purpose specified.

4. The combination, with the frame A, shaft C, and clutch D D², of the rope or cord E², pulley e , treadle e^2 , and diagonally-inclined rear leg, B, when arranged and operating as herein shown and described.

5. The removable and adjustable leg-frame, consisting of the legs B² B², brace b , screw rod or bolt b^2 , and hand-nut b^3 , in combination with the frame or standard A, provided with the web v , notch n , and hook or projection p , as shown and described, for the purpose specified.

6. The combination, with the frame A and arms a^2 a^2 , of the feeding device consisting of the table f , screw G, hand-wheel g , and curved lever h , arranged and operating as shown and described, for the purpose specified.

7. The combination, with the frame or standard A, of the lathe attachment consisting of the bar J, provided with the notched or forked arms i and carrying the lathe-heads K K², as herein shown and described.

JOHN F. RAKES.

Witnesses:

NOAH ANDERSON,
H. M. GLOVER.