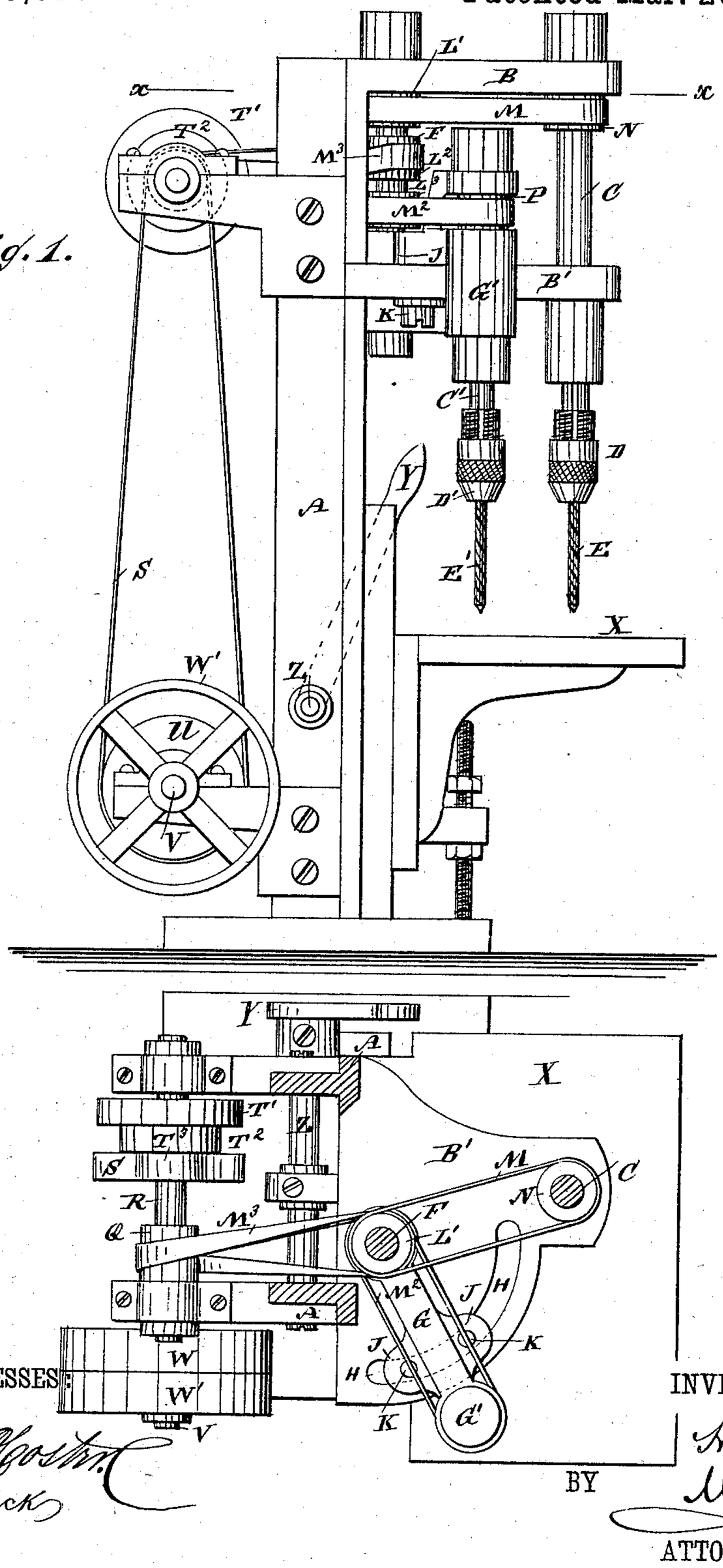
(No Model.)

H. HAGER.

DRILLING MACHINE.

No. 255,618. Patented Mar. 28, 1882.

Fig. 1.



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HENRY HAGER, OF ELIZABETH, NEW JERSEY.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 255,618, dated March 28, 1882.

Application filed January 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY HAGER, of Elizabeth, in the county of Union and State of New Jersey, have invented a new and Improved Drilling-Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for drilling two holes simultaneously at variable distances from each other.

The invention consists in a drilling-machine constructed with a fixed drill-shaft and with a circularly movable drill-shaft.

The invention further consists in devices for rotating the two drill-shafts simultaneously, and for guiding the movable shaft and locking it in any desired position, as will be fully described hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal elevation of my improved drilling-machine. Fig. 2 is a sectional plan view of the same on the line *x x*, Fig. 1.

Two standards, A A, are united by suitable transverse bars, and by two horizontally-projecting plates, B B′, at the upper end of the standards and a short distance from each other. A vertical shaft, C, is journaled in the outer ends of these plates, and is provided at its lower end with a chuck, D, of the usual construction for holding a drill, E. A vertical shaft, F, is journaled in the plates B B′, near the standards, and to this shaft an arm, G, is attached, which projects beyond the quadrant edge of the lower plate, B′, and carries at its outer end a bearing, G′, in which is journaled a shaft, C′, provided at its lower end with a chuck, D′, of the usual construction for holding a drill, E′. The lower plate, B′, is provided with a quadrant slot, H, parallel with the quadrant edge of this plate, the center of the circle of which slot is also the center of the shaft F. The arm G is provided with two side lugs, J, into which screws K are passed through the slot H, these screws forming guides in the slot H for the arm G, and serving to lock the arm G in the desired position. Three belt-pulleys, L′, L^2, and L^3, are rigidly mounted on the shaft F. A belt, M, passes around the pulley L′ of the shaft F and around a pulley, N, on the shaft C. A belt, M^2, passes around the pulley L^3 of the shaft F and around a pulley, P, on the shaft C′, and a belt, M^3, passes around the pulley L^2 of the shaft F and around a pulley, Q, on a horizontal shaft, R, journaled in projections of the standards A A. A belt, S, passes around a pulley, T′ T^2 T^3, on the shaft R and around a pulley, U, on a horizontal shaft, V, provided with fixed and loose driving-pulleys W W′, over which the belt from the motor passes. The material that is to be apertured or recessed is placed on a vertically-movable table, X, below the lower ends of the drills, and adapted to be raised by means of a lever, Y, attached to a horizontal shaft, Z, provided with a pinion engaging with a vertical rack projecting downward from the table X, or the table can be adjusted by means of other suitable devices.

The operation is as follows: The position of the drill-shaft C is fixed and cannot be changed; but the drill-shaft C′ can be turned in a circular line, the center of rotation of which coincides with the center of the shaft F. As both shafts C and C′ are rotated from the same shaft F, both drills E and E′ will operate simultaneously, and the two holes drilled into the article resting on the table X will always have the same depth. The distance between the two drills can be adjusted as may be desired by varying the position of the shaft C′, and this shaft can be locked in any desired position by turning up the screws K, the heads of which rest against the under side of the plate B′. The tension of the belt M^2 will always remain the same, as the length of the arm G is never changed, in whatever position the shaft C′ may be. By means of the drill E′ circular slots or recesses can be cut by moving the shaft C′ on its circular track.

This drill-machine can be used to drill holes in wood or metal, as may be desired.

The special advantage of this machine is that two holes can be drilled simultaneously, and the distance that these holes are apart can be varied as may be desired.

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

1. A drilling-machine made substantially as

herein shown and described, with a fixed drill-shaft and a circularly moving or swinging drill-shaft, as set forth.

2. In a drilling-machine, the combination, with a suitable supporting-frame, of a fixed drill-shaft and a circularly-movable drill-shaft, and devices for rotating both shafts simultaneously, substantially as herein shown and described, and for the purpose set forth.

3. In a drilling-machine, the combination, with the fixed drill-shaft C and the circularly movable drill-shaft C′, of the intermediate pulley-shaft F, and belts for transmitting the motion from the shaft F to the shafts C C′, substantially as herein shown and described, and for the purpose set forth.

4. In a drilling-machine, the combination, with the shafts C, C′, and F, of the swinging arm G and the plate B′, provided with a guide-slot H, substantially as herein shown and described, and for the purpose set forth.

5. In a drilling-machine, the combination, with the shafts C, C′, and F, of the swinging arm G, the plate B′, provided with a guide-slot, H, and of devices for locking the arm G in any desired position on the plate B′, substantially as herein shown and described, and for the purpose set forth.

6. In a drilling-machine, the combination, with the shafts C, C′, and F, of the swinging arm G, the plate B′, provided with a guide-slot, H, and the screws K, passing through the slot H into lugs J of the arm G, substantially as herein shown and described, and for the purpose set forth.

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