

(No Model.)

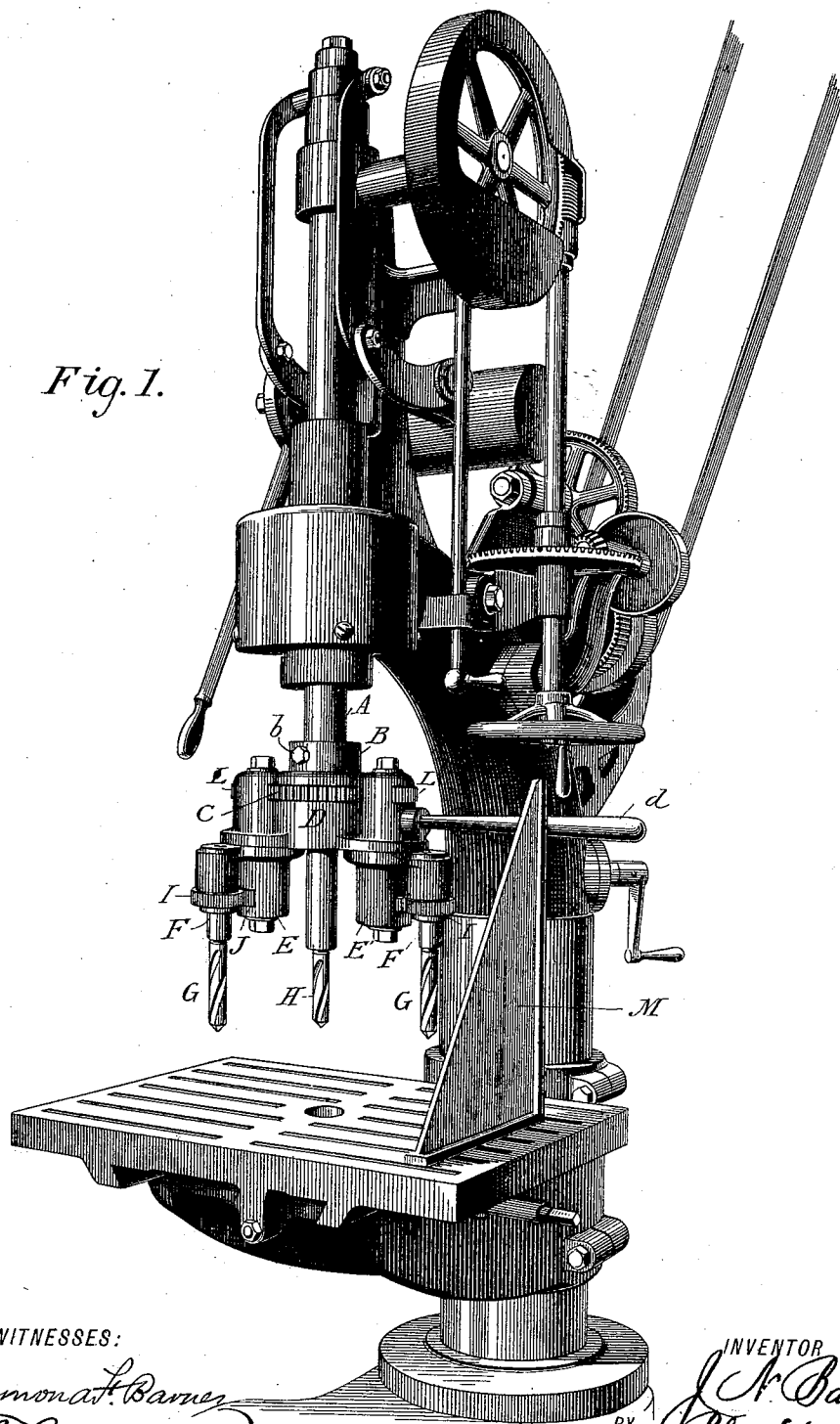
3 Sheets—Sheet 1.

J. N. BARR.
DRILL PRESS.

No. 512,355.

Patented Jan. 9, 1894.

Fig. 1.



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(No Model.)

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Fig. 2.
on line 2-2.

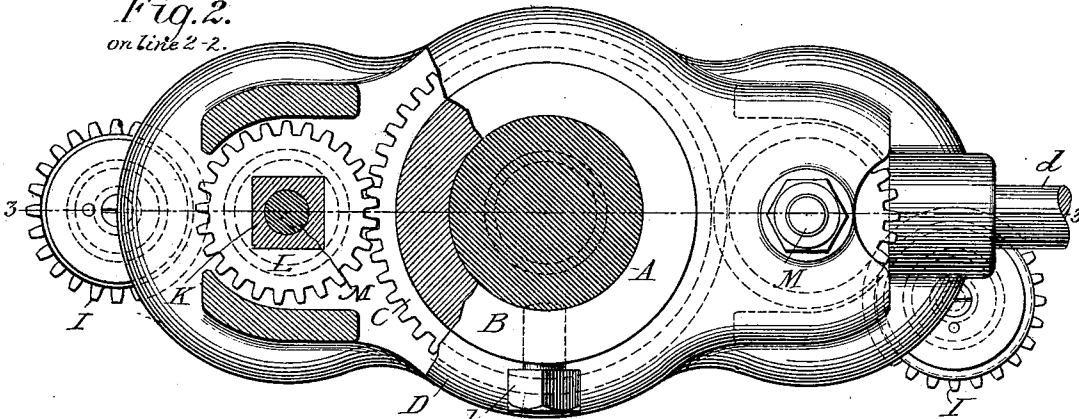
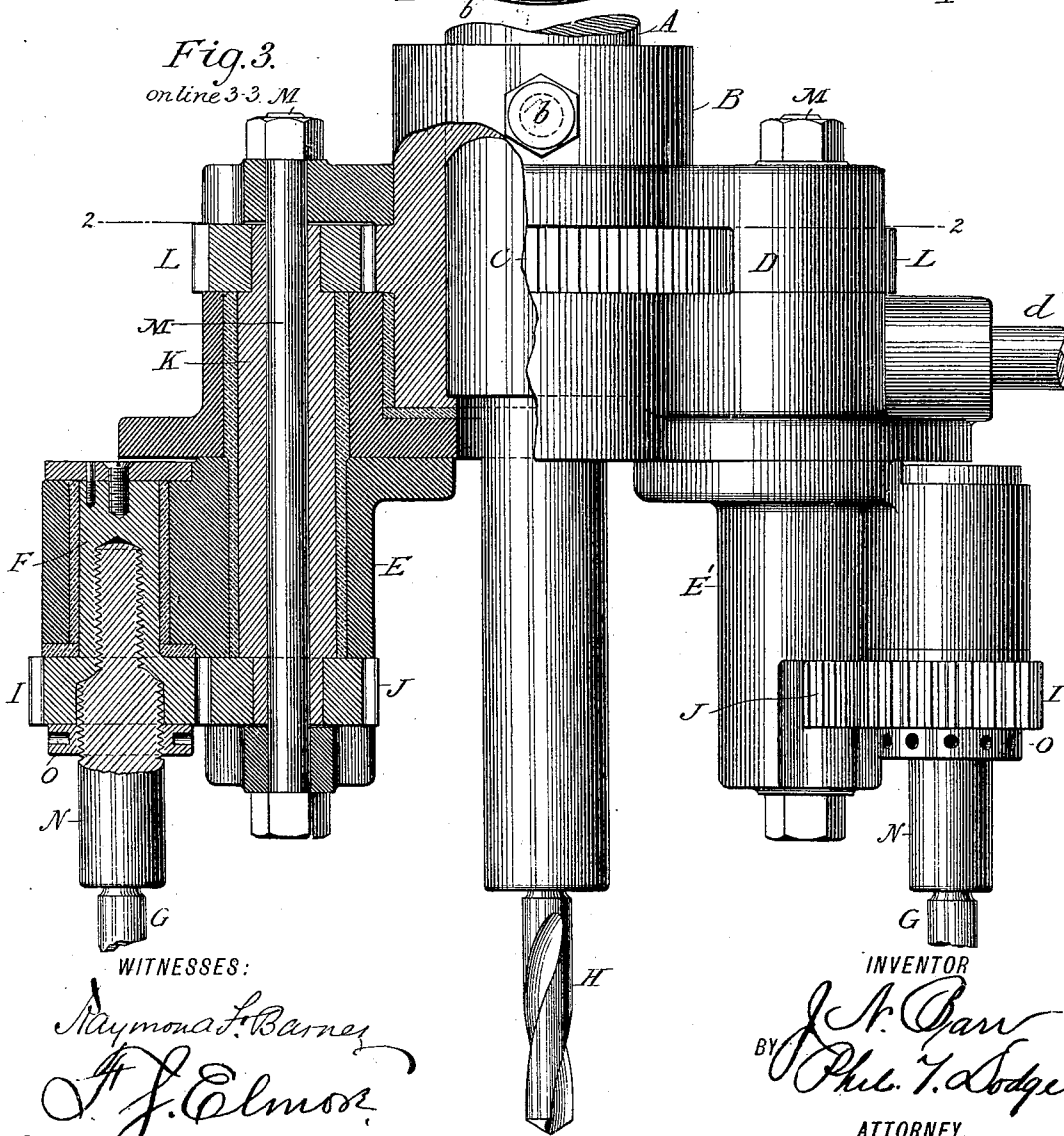


Fig. 3.
online 3-3. M.



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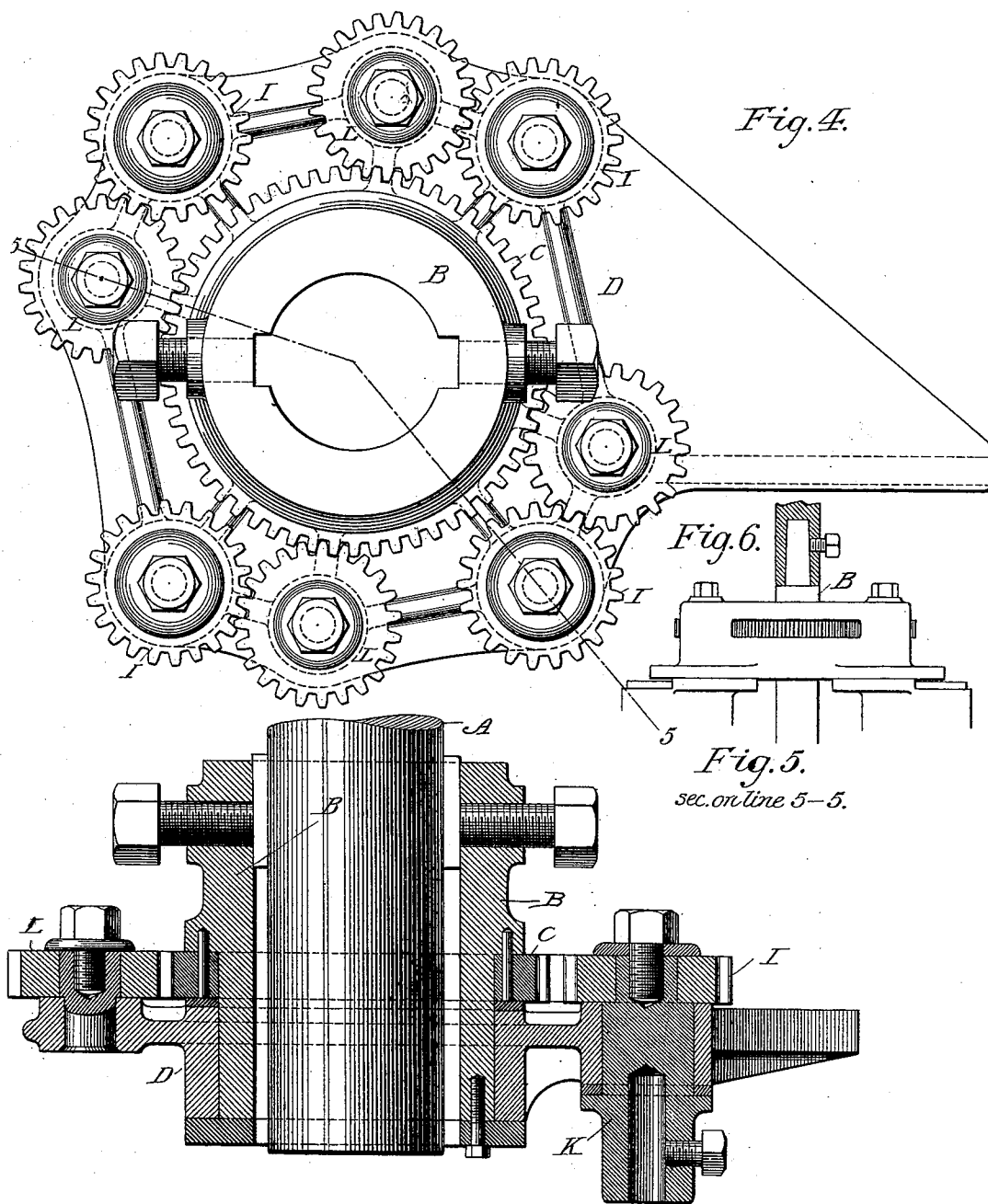
(No Model.)

3 Sheets—Sheet 3.

J. N. BARR.
DRILL PRESS.

No. 512,355.

Patented Jan. 9, 1894.



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UNITED STATES PATENT OFFICE.

JACOB N. BARR, OF MILWAUKEE, WISCONSIN.

DRILL-PRESS.

SPECIFICATION forming part of Letters Patent No. 512,355, dated January 9, 1894.

Application filed November 24, 1891. Serial No. 412,933. (No model.)

To all whom it may concern:

Be it known that I, JACOB N. BARR, of Milwaukee, county of Milwaukee, and State of Wisconsin, have invented a new and useful
5 Improvement in Drill-Presses, of which the following is a specification.

The aim of my invention is to provide a device which may be instantly applied to and removed from the spindle of an ordinary drill-
10 press for the purpose of enabling the machine to operate at one time a number of drills.

To this end it consists essentially in a frame adapted to be attached to and sustained and adjusted by the ordinary spindle of a drill-
15 press, and containing a series of secondary drill-spindles and gearing through which they may all be operated at one time from the main-spindle.

In its most highly developed form the mechanism includes also means for adjusting the secondary drills in order to change their relation to each other and to the central drill thus permitting a series or group of holes to be made at one operation and in any required
25 relation to each other.

In the accompanying drawings,—Figure 1 represents a perspective view of an ordinary drill press provided with my attachment in its preferred form. Fig. 2 is a horizontal
30 section of the attachment on the line 2—2 of Fig. 3. Fig. 3 is a side elevation of the same with one end shown in vertical section on the line 3—3 of Fig. 2. Fig. 4 is a top plan view of the mechanism in its more simple
35 form. Fig. 5 is a vertical cross-section of the same on the line 5—5. Fig. 6 is a modification.

Referring to Figs. 1, 2 and 3, A represents the spindle of an ordinary drill press combined with mechanism by which it is rotated and raised and lowered endwise at the will of the attendant.

B is a sleeve or collar adapted to fit snugly over the lower end of the spindle, and provided with a set-screw *b*, or other means, by
45 which it may be firmly attached to the spindle, so as to be sustained and rotated thereby. The sleeve B is provided with an encircling gear C fixed rigidly thereto. The sleeve
50 is also encircled by, and gives support to a secondary drill carrying frame D, to which there are connected secondary frames or

arms E E', having vertical journals K, seated therein, so that the secondary frames may be swung horizontally around their journals. 55 Each of the arms E E' carries at its outward end a vertical rotary spindle F, with the projecting lower end socketed to receive a secondary drill G. As these drills are carried in the outer ends of the arms it will be observed that the horizontal turning or swinging motion of the arm has the effect of changing the distance between the drills G and a central drill H, carried by the spindle of the drill press. 65

Each of the secondary spindles is provided with a driving pinion, I, receiving motion from a pinion J. The pinions J are each mounted on a vertical shaft or spindle K, passing vertically and axially through the arm E, and carrying at the upper end a pinion L, which engages with the main gear C, before referred to. 70

The frame D is provided with a laterally-projecting arm *d*, of any suitable form adapted to bear against and slide along the vertical edge of the plate M, which is bolted temporarily to the bed or other suitable portion of the press for the purpose of preventing the rotation of the frame D, while allowing it to be raised and lowered by the spindle. 75 When the spindle A is set in motion it rotates the sleeve B, and its gear C, which latter in turn imparts motion to the pinions L, and thence through shafts K, and the pinions J on the lower ends of said shafts, to the pinions I on the secondary spindles. 80

From the foregoing it will be understood that the frame D and the various parts mounted therein constitute a portable attachment 85 which, being applied to an ordinary drill-press, enables the same to operate in addition to its ordinary drill a series of secondary drills turning in the same direction and adjustable to and from the central drill at will. 90

The arms E E', carrying the secondary spindles, are secured in positions in which they may be adjusted by clamping bolts M, passing axially through the spindles K, and through the frame and provided with a binding nut at one end. 95

It is to be observed that my attachment as a whole is sustained and adjusted vertically by the main spindle, the main and the second- 100

ary drills being controlled alike in their vertical movements.

While I have represented the frame B as provided with only two arms E E', it is to be understood that the number may be increased to any desired extent.

In order to control the relative depths of the holes formed by the several drills, I propose to provide each of the secondary spindles F, with a drill-carrying socket N, screwed therein so that it will be raised or lowered in relation to the spindle, and to lock these sockets by means of jam nuts or collars O, as plainly shown in the drawings.

In the event of its being required only to drill the several holes in a constant relation to each other I may dispense with the swinging arms E E', and mount the secondary spindles directly in the frame D. This construction is shown in Figs. 4 and 5, in which B represents a sleeve or attachment to the drill-press; C, the pinion fixed to said sleeve; D, the frame sustained by the sleeve, and K, the secondary drill-spindles mounted in the frame and provided with pinions I, which receive motion through intermediate or idle pinions L, from the main gear C. The idlers are used for the purpose of causing the secondary spindles to turn in the same direction as the main spindle. This, of course, is not necessary but is advisable because drills are generally constructed to cut to the right.

In making use of this second form of my device it will be fixed upon the spindle of a drill-press or other machine in the same manner as the device first described and will be prevented from rotating by an arm or guide of any suitable character with which it will contact.

While I have described my attachment as constructed with its driving-shaft or sleeve B, in the form of a tube or sleeve to slip over the spindle of a drill-press I propose, in some cases, and particularly where the spindle of the press is of small diameter, to make the shaft B solid, that is to say, in the form of a shank or arbor to be fitted into a socket in the end of a drill-spindle in the same way that an ordinary drill fits in, as indicated in outline in Fig. 6. It is to be understood, therefore, that my invention is not limited to the use of the spindle or sleeve B in tubular form, and that the word "sleeve" as employed in the claims is intended to include the spindle B, whether tubular or of solid form, provided only it is adapted for attachment to the spindle of the drill press or other controlling machine.

While I have shown my device attached to a press having a longitudinally-movable spindle it will, of course, be understood that it is applicable in the same manner to that class of drill-presses in which the rotary spindle is fixed against end motion and a rising bed employed to carry the metal against the drill.

Having thus described my invention, what I claim is—

1. A multiple drilling attachment for drill presses, comprising a sleeve adapted to be removably attached to the spindle of the press, a secondary spindle-carrying frame swiveled on, and supported by, said sleeve, secondary spindles supported by said frame, and independently adjustable toward and from the axis of the sleeve, and gearing between the sleeve and the secondary spindles, the whole constituting a removable and interchangeable attachment for the spindles of drill presses, substantially as shown and described.

2. A multiple drilling attachment for a drill press consisting of a sleeve or shank adapted for attachment removably to the spindle of the press and provided with a circumferential gear, a frame swiveled on said sleeve and sustained thereby, secondary spindles mounted in the frame, and gears encircling said spindles and engaging with the gear of the sleeve.

3. In an attachment for drilling presses, the combination of a frame, a sleeve mounted to revolve therein and adapted for attachment to the spindle of the press, a spindle-carrying arm journaled in the frame, a secondary drill-carrying spindle in said arm, and gearing between said sleeve and the secondary spindle, substantially as shown and described.

4. The combination of the frame, the sleeve B, adapted for attachment to the spindle of a drill-press and carrying the circumferential gear C, the spindle-carrying arms E E', spindles F F mounted in said arms and provided with gears I, and intermediate gears L, between the gears C and I, substantially as shown and described.

5. In a drill-press attachment the combination of the spindle carrying frame, the sleeve swiveled therein and adapted to be attached to the drill-spindle of the press, the circumferential driving gear on said sleeve, the arms journaled on the frame, the secondary spindles mounted in said arms with their axes eccentric to the journals thereof, gears on said secondary spindles, and intermediate gears for driving the spindles from the driving gear.

6. In a drill-press attachment the combination of the spindle-carrying frame, the sleeve swiveled in said frame and adapted to be removably attached to the drill spindle of the press, the driving gear on the sleeve, the swinging arms journaled on the frame, the secondary spindles mounted in the outer ends of said arms, the gears on said spindles, and transmitting gears between the spindles and the sleeve.

7. In a drill press attachment the combination of the spindle-carrying frame, the sleeve swiveled therein and adapted to be attached to the drill spindle of the press, the secondary spindles mounted on the frame and movable toward and from the axial center, and intermeshing gears between the sleeve and the secondary spindles to drive the latter.

8. In a drill-press attachment the combina-

tion of the spindle-carrying frame, the sleeve
swiveled therein and adapted to be attached
to the drill-spindle of the press, the secondary
spindles mounted in the frame and movable
5 independently of each other toward and from
the axial center, and driving gear between
the sleeve and the secondary spindles to trans-
mit motion to the latter.

In testimony whereof I hereunto set my
hand, this 10th day of October, 1891, in the presence of two attesting witnesses.

JACOB N. BARR.

Witnesses:

J. C. GRIEB,
LOUIS G. SCHERTL.