

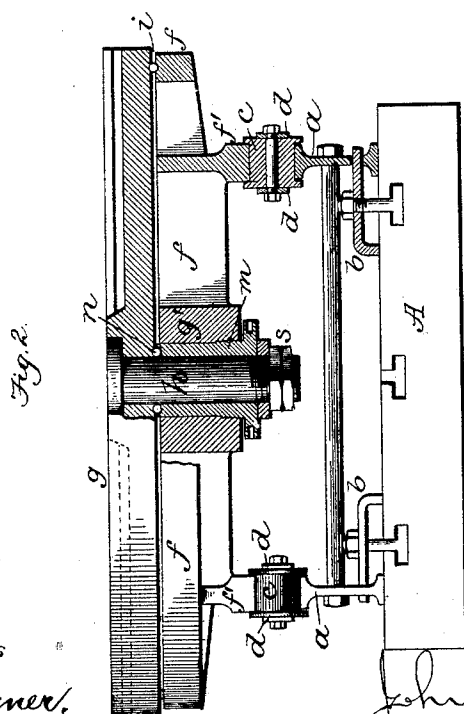
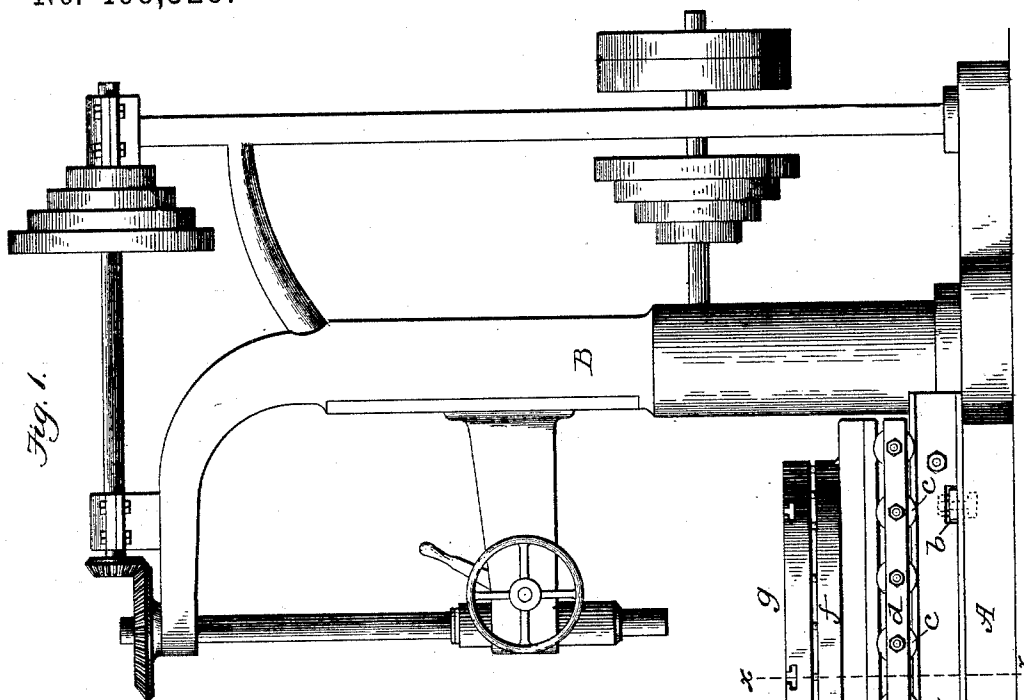
(No Model.)

2 Sheets—Sheet 1.

J. F. CADELL.
DRILLING MACHINE.

No. 468,328.

Patented Feb. 9, 1892.



Witnesses
Philip F. Larnex.
Howell Castle

Inventor
John Franklin Cadell
By *John W. Johnson*
his Attorneys

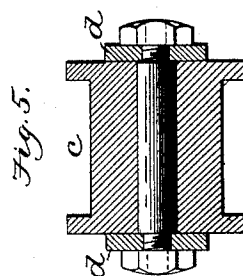
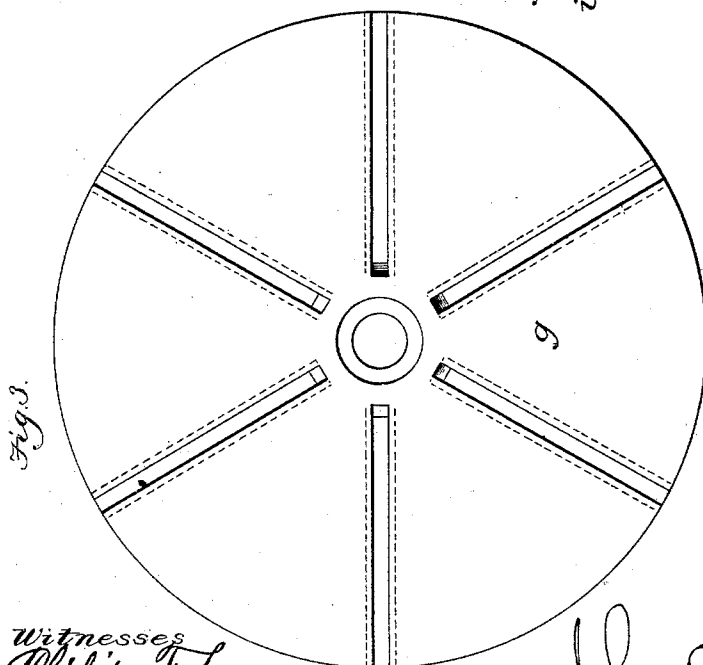
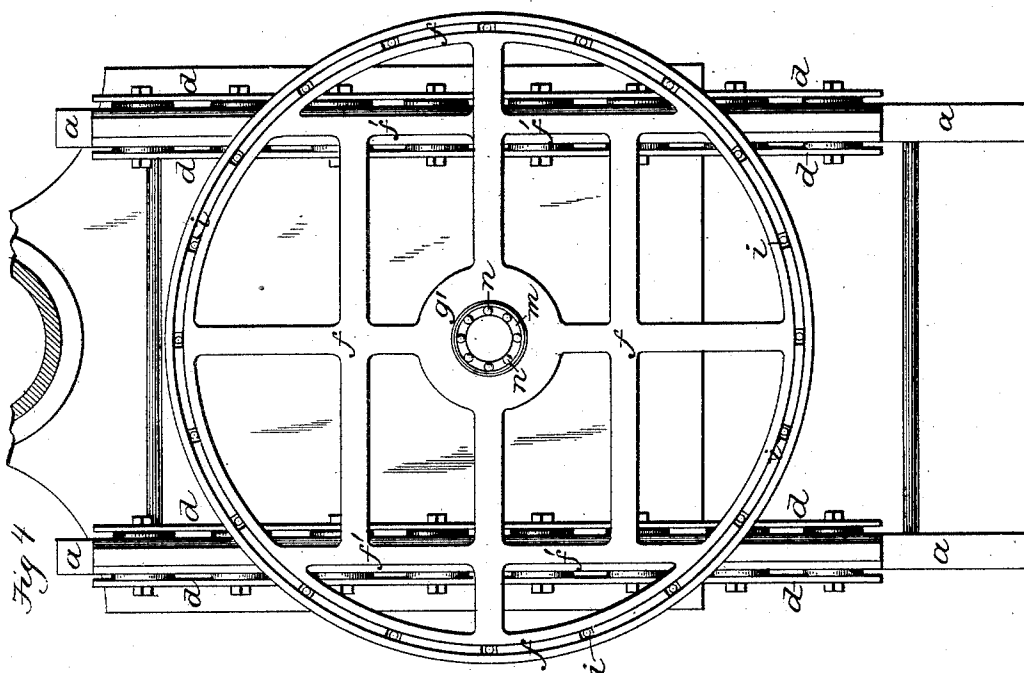
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UNITED STATES PATENT OFFICE.

JOHN FRANKLIN CADELL, OF BALTIMORE, MARYLAND.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 468,328, dated February 9, 1892.

Application filed May 8, 1891. Serial No. 392,055. (No model.)

To all whom it may concern:

Be it known that I, JOHN FRANKLIN CADELL, a citizen of the United States, residing at the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Press-Drills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

I have improved the drilling-machine in the provision of an attachment for supporting the work whereby it can be presented to the drill quickly and easily, and more especially in the provision for supporting the work in the direction of the strain or pressure of the drill in a construction which gives all the advantages of what is known as a "radial drill" without the disadvantages of an overhanging swinging arm or drill-support, wherein the strain is in a direction to cause the radial arm or drill-supporting parts to give and sag at its non-supported end and become out of true working relation from wear at the sleeve bearing on the standard or column.

By my improvement the work-supporting device is mounted upon the base of the standard or column, so as to be free to have a complete revolution and to have a rectilinear movement in whatever position it may be turned to present the work to the drill, so that the pressure and strain upon the work-supporting device will at all times be supported and resisted centrally with the drill.

In the accompanying drawings I have illustrated my invention as applied to the ordinary drill-press; but it may be used with any construction of standard drill or drilling-machine adapted for use with the ordinary revoluble work-support.

Referring to the drawings, Figure 1 is a side elevation of a drill-press having my improvement applied thereto. Fig. 2 is a vertical cross-section of my improved work-supporting device on the line *xx* of Fig. 1. Fig. 3 is a top view of the work-supporting table. Fig. 4 is a top view of the rectilinear movable ring-frame for the work-supporting table in the position it occupies upon the base-track rails; and Fig. 5 is a sectional view of one of the roller-ways for the rectilinear movable ring-frame.

A is the base, and B is the column or standard which carries the drill-spindle and its operating parts, and these parts may be of any suitable construction.

The work-supporting device, which embodies my invention, is arranged upon the base, upon which I secure a track preferably composed of two I-beams *a a*, which are braced together in parallel relation to each other and secured to the base by clamps *b*, as shown, or in any suitable way. These track-beams preferably stand in the same direction as the drill-bearing arms and are equally disposed on each side of a line drawn through the axis of the drill. For each track-beam a roller-way is provided, consisting each of a separate line of flanged rolls *c*, connected by side plates *d*, which serve to hold the rolls at the proper distances apart, whereby they form guideways fitting on each side of the track-beams to hold the roller-way thereon and allow it to have free movement upon the track-beams. The rolls are preferably adapted to turn freely upon their axis-pins, and the side plates are secured upon the latter by nuts and washers, as shown in Fig. 5. Upon these separate and independent roller-ways, which are fitted upon the track-beams, I mount a webbed ring *f*, having parallel trackways or parts *f'*, corresponding to the roller-ways and supported by and movable thereon with a rectilinear movement only, being properly retained upon the roller-ways by means of their flanges, which form guideways at the top of the rolls, fitting on each side of the ring trackways *f'*. Upon this webbed ring I mount the revoluble work-supporting table *g*, which is secured to a hub *g'* of the webbed ring by a pivot-bolt *h*, on which it can have the usual rotary adjustments for presenting the work to the drill.

To provide for an easy revoluble movement for the table I place balls *i* at suitable intervals in a groove on the surface of the ring part of the rectilinear movable web, on which balls the table rests at its circumference, as seen in Figs. 2 and 4, while at its center the table is supported upon balls *n*, preferably seated on the upper end of a tube *m*, which forms a sleeve for the table center bolt, and is made vertically adjustable within the hub of the webbed ring by means of a screw-thread on the outer side of the sleeve and a match-

ing screw-thread in the hub of the webbed ring, the said sleeve-bearing being locked when set by lock-nuts S, as seen in Fig. 2. This capacity for adjustment gives an even bearing at the center and at the circumference of the table and allows the latter to have a free turning movement. This table is formed with the usual radial slots for receiving the usual clamps for securing the article to be drilled. This table therefore is capable of both free rotary and free rectilinear or side movements, so as to present the work properly under the drill and thus save labor and trouble in moving the work on the table. The construction for obtaining this free compound movement of the work-supporting table is durable, greatly facilitates the work, and greatly lessens the labor of the workman in manipulating the work, while it gives the very important advantage of supporting the work in true relation to the drill.

While I prefer to mount the ring table-support on independent roller-ways, as shown and described, it is obvious that the rolls may be arranged in the parallel trackways of the ring table-support and adapted to confine the latter directly on the track-rails.

I claim as my invention—

1. The combination, in a drill, of a revoluble work-supporting table and a rectilinear movable support therefor, for the purpose stated.
2. The combination, in a drill, of a revoluble

work-supporting table, a rectilinear movable support therefor, independent roller-ways for the latter, and fixed track-beams for said roller-ways, for the purpose stated.

3. In a drill, a work-supporting device consisting of a revoluble table, a supporting-ring having parallel trackways, fixed track-beams in coincident relation to said trackways, and intermediate roller-ways, substantially as described, for the purpose stated.

4. In a drill, the combination of a revoluble work-supporting table, the fixed track-beams, and an intermediate table-support adapted to have a free rectilinear movement upon said fixed track-beams, for the purpose stated.

5. The combination, in a drill, of the revoluble work-supporting table, a support therefor having parallel trackways, fixed track-beams in coincident relation to said trackways, and means for securing the table-support for rectilinear movement upon the track-beams, consisting of the flanged rolls connected in lines by plates, so as to form guide-ways for the track-beams and for the trackways of the table-support, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

JOHN FRANKLIN CADELL.

Witnesses:

THOS. SMITH,
G. R. WAGNER.