(No Model.)

C. B. NICHOLS.

DIAL PRINTING MACHINE.

No. 423,077. Patented Mar. 11, 1890.

Fig. 1.

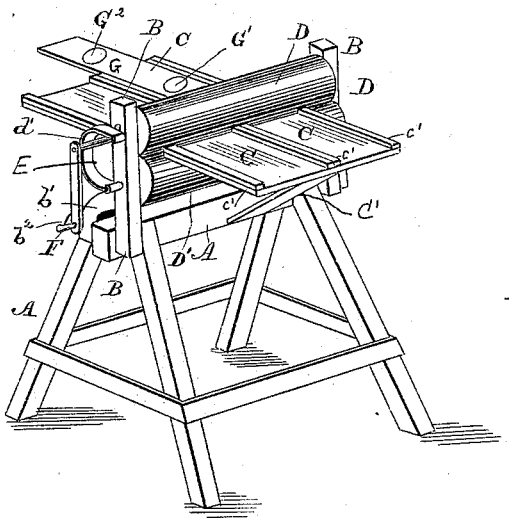


Fig. 4.

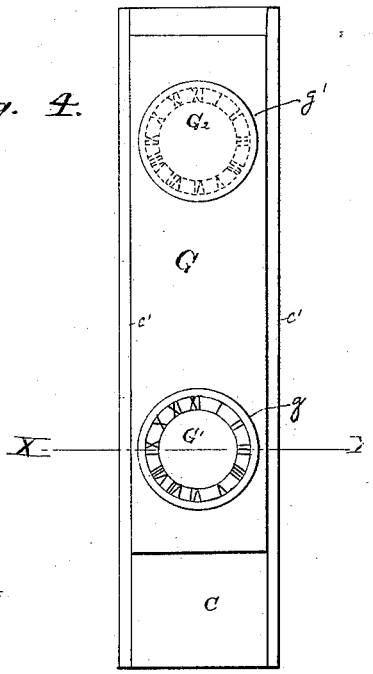


Fig. 5.

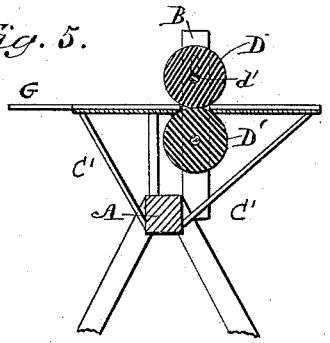


Fig. 2.

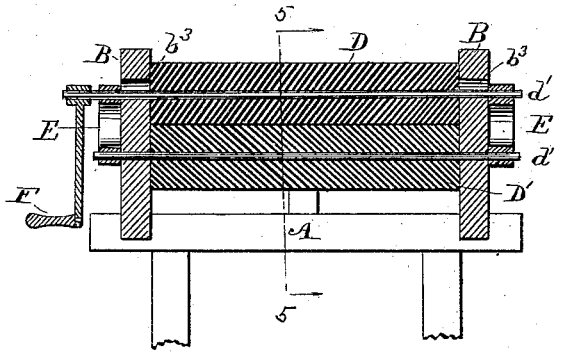
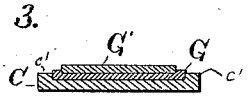


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES B. NICHOLS, OF SPRINGFIELD, ILLINOIS.

DIAL-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 423,077, dated March 11, 1890.

Application filed June 21, 1888. Serial No. 277,852. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. NICHOLS, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Improvement in Dial-Printing Machines, of which the following is a specification.

The object of my invention is to provide means for imprinting on the face of one or more dial plates or disks any desired letters, numerals, or ornamental design, and to finish the same ready for firing. This I accomplish, by the means herein described, more rapidly, neatly, and uniformly than the same can be done by hand or other known process.

The mechanism I employ is clearly shown in the accompanying drawings, in which—

Figure 1 is a perspective view of the machine, showing one of the slides in position. Fig. 2 is a vertical section through the axes of the rolls. Fig. 3 is a transverse section through one of the dial-plates, the slide and its supporting-guide, on the line X X of Fig. 4. Fig. 4 is a top view, on an enlarged scale, of one of the slides in position in its guide; and Fig. 5 is a transverse section on the line 5 5 of Fig. 2.

Similar letters refer to the same parts in all the views.

A A represents any suitable supporting-frame.

B B are standards supporting the journals of the rolls D and D′. These standards have rearward extensions or arms b', and the top of the frame A, being inserted between the standard B and the extention b', is clamped by the thumb-screw b^2, and thus the standard B and the connected rolls are secured to the frame A. The rolls D and D′, preferably of rubber or other yielding material, have suitable journals d'. These rolls serve a double purpose: the upper roll receives the ink or paint from the engraved plate or die and deposits it on the dial-plate, and both rolls come in contact with the slide G and as they are turned propel the slide forward or backward, as may be desired. The journal-bearings b^3 in the standards B, supporting the upper or printing roll, are vertically elongated so that the roll may rise with pressure from below and fall when said pressure is removed. The projecting ends of the journal d' are enclosed in the ends of the U-shaped springs E, which are also secured to the projecting journals of the lower or impression roll D′. These springs regulate the pressure on the rolls, normally tending to draw the upper roll into contact with the lower roll, between the tables, as indicated in Fig. 2.

To the projecting journal of the upper or printing roll is connected a crank F, by which the rolls are turned.

C C are the supporting guide-tables, suitably supported on the frame A by rods or beams C′. The upper surfaces of the guide-tables are a little below and parallel to the upper surface of the lower roll D′.

G is a die-carrying slide fitted to move freely in the channel of the guide C, between longitudinal strips or flanges c' on the guide-table. The surface of the slide is a little above the sides of the guide C, so as to receive the pressure of the rolls, as hereinafter explained.

G′ represents a die or inking-plate, of steel or other suitable material, on which is engraved, in sunken characters, the design of the watch or clock face to be transferred to the dial plate or disk G^2, as indicated in dotted lines. The plate G′ rests in a suitable recess or holder g in the top of the slide G. The dial-plate G^2, upon which the characters are to be printed, rests in a suitable holder g' on the slide, and is held in position in line with the plate G′, and at a distance from same equal to the circumference of the upper or printing roll D.

It is obvious that any desired number of guide-tables C, with a corresponding number of die-carrying slides G, may be used; also, that one or more inking-plates or dies may be used on each slide, to imprint a corresponding number of dials carried by said slides; also, that more than one design may be engraved on each inking-plate, so that a number of dials may be simultaneously printed from the same plate.

The operation of my device is as follows: The inking-plate or die G′, on which is engraved the design to be transferred to the dial, is placed in position on the slide G, and the slide is then placed in the guide C, in front of and in contact with the printing and

impression rolls D and D′. The plate G′ is thoroughly covered with a specially-prepared ink or paint until all the engraved lines on the plate are filled with the ink. The top of the plate is then carefully cleaned, leaving the ink in the sunken lines only. The dial plate or disk G^2, to which the design is to be transferred, is then placed in position on the slide, the crank is turned, putting in motion the rolls, which draw forward between them the slide G. As the slide passes between the rolls the yielding surface of the upper or printing roll D is pressed into the sunken lines of the inked plate and takes up the ink from the plate G′, and the slide moves forward until the dial-plate G^2 comes under the roll, when the ink is deposited on the plate and the dial formed. The printed dial is removed, and this operation is repeated as often as may be desired.

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

1. The combination, substantially as hereinbefore set forth, of the main supporting-frame, the lower roll, the standards mounted on the main frame in which the lower feed-roll has its bearings, the upper roll mounted in bearings in the standards and free to move vertically therein, a guide-table supported on the main frame, on each side of the rolls, and in line with their adjacent faces and with which the rolls engage to feed it forward, the die-carrying slide supported on the guide-tables, the die or engraved plate secured to the front end of the slide and projecting above its upper surface, and a recess or holder for the disk or plate on the upper surface of the slide, on which the dial is to be printed.

2. The combination, substantially as hereinbefore set forth, of the main frame, the printing-roll of yielding non-absorbent material, the spring-bearings in which the printing-roll is journaled, the impression-roll parallel with the printing-roll and co-operating therewith, the slide which is moved between the printing and impression rolls, and the guide or table mounted on the main frame and supporting the slide.

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