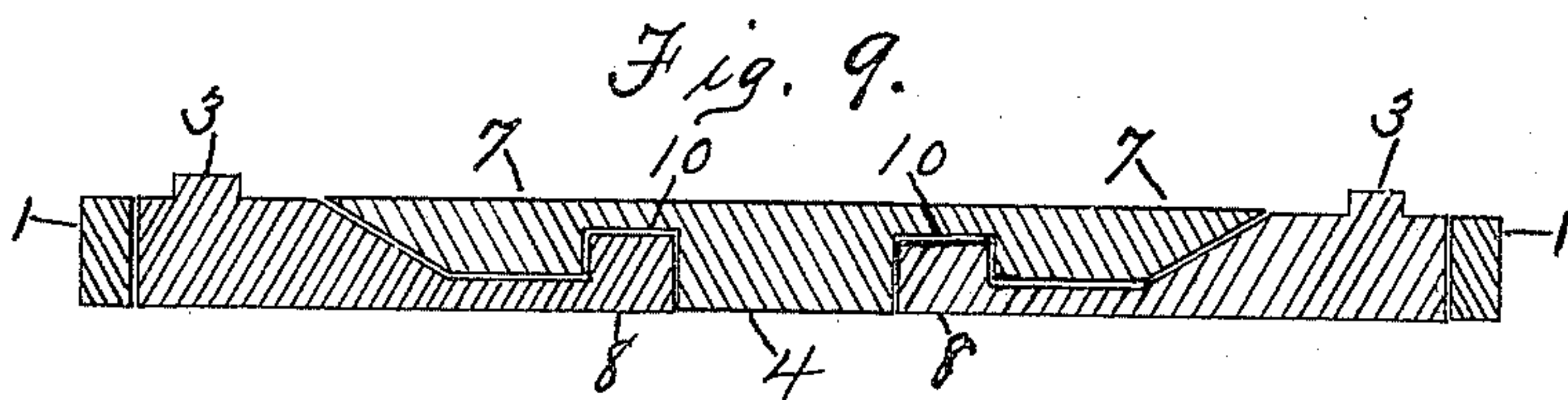
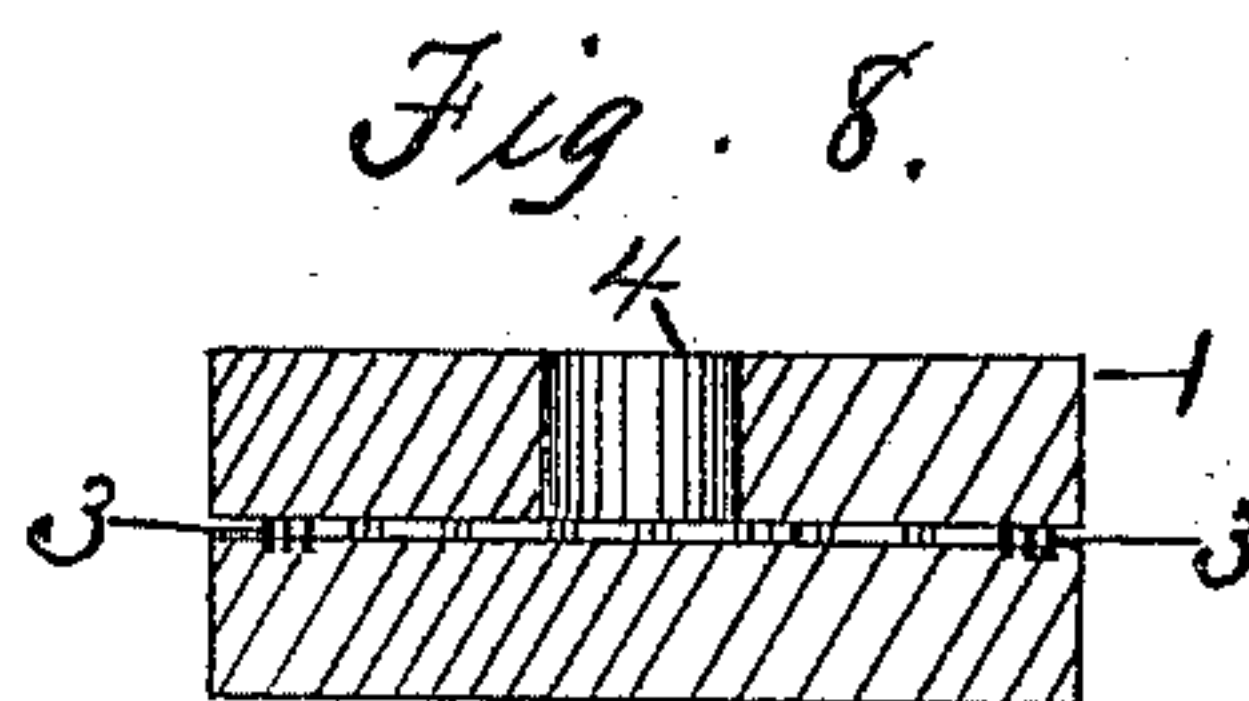
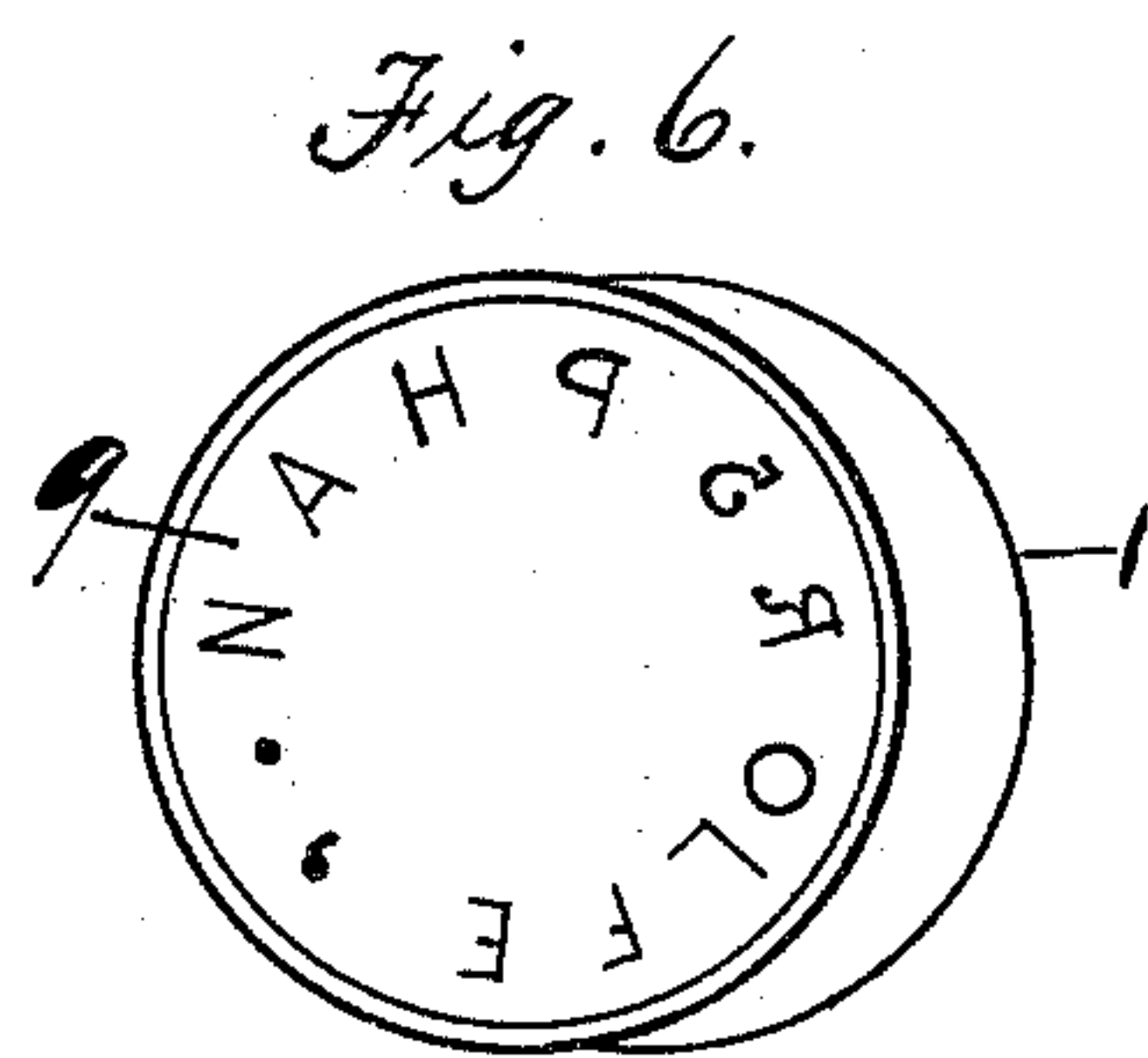
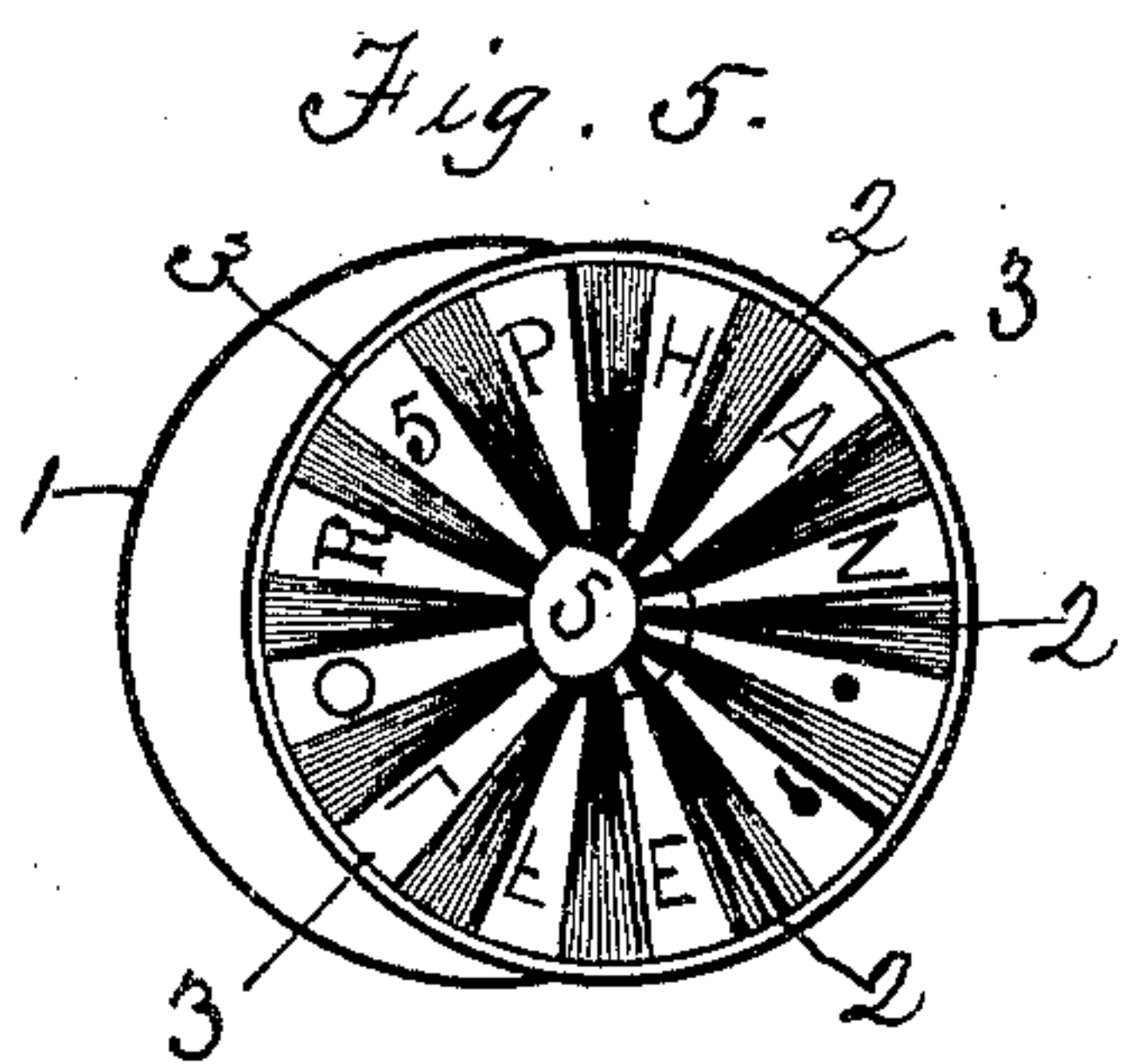
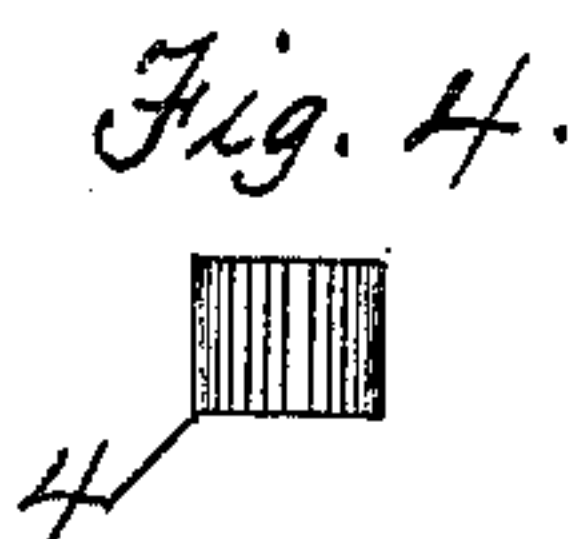
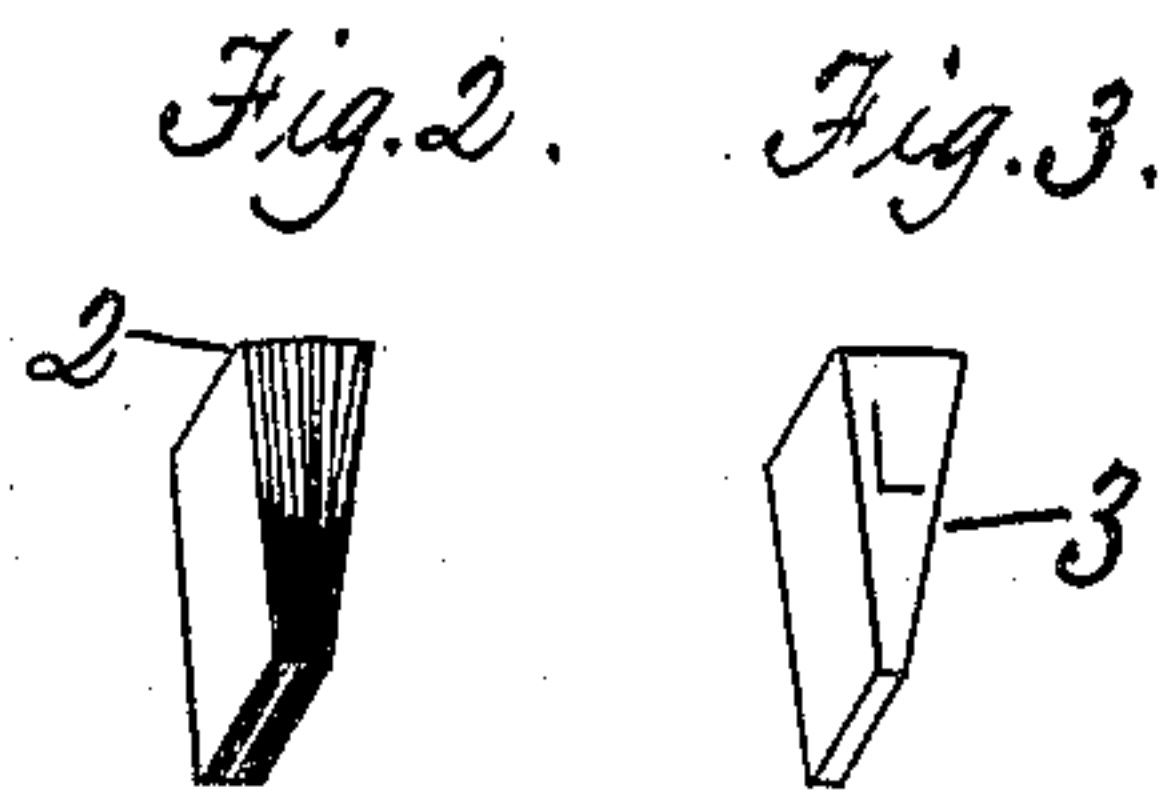
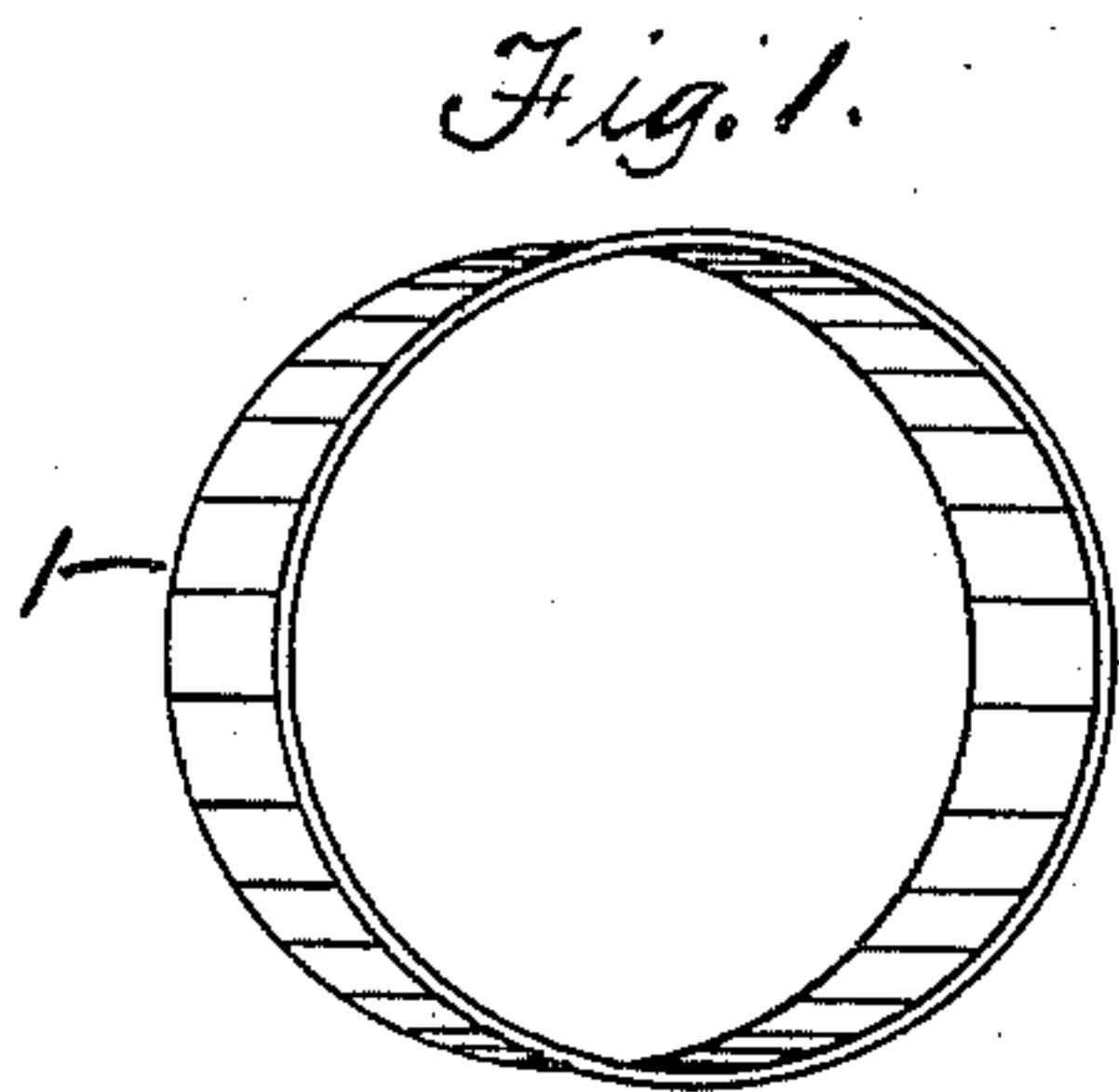


(No Model.)

H. B. ANABLE.
INTERCHANGEABLE DIE.

No. 444,682.

Patented Jan. 13, 1891.



WITNESSES:
J. F. Harris
B. V. Scattergood.

INVENTOR
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UNITED STATES PATENT OFFICE.

HENRY B. ANABLE, OF ALBANY, NEW YORK, ASSIGNOR TO GEORGE H. TREADWELL, OF SAME PLACE.

INTERCHANGEABLE DIE.

SPECIFICATION forming part of Letters Patent No. 444,682, dated January 13, 1891.

Application filed March 15, 1890. Serial No. 343,952. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. ANABLE, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Interchangeable Dies; 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a die for producing raised characters in substances in which the characters may be changed at will, and my invention is an improvement on that set forth in my patent specification granted April 1, 1890, No. 424,686.

In the drawings similar figures refer to similar parts.

Figure 1 shows a simple ring of metal used to surround the characters used in my die and keep them in place. Fig. 2 shows a wedge-shaped package of thin sheets of metal used as quoins with which to block up the characters in the die. Fig. 3 shows one of the type of my die, showing it to be wedge-shaped and having a letter raised on its upper face. Fig. 4 shows a metal or other plug used as a key to finally fasten the type in position. Fig. 5 shows a face view of my die set up with various letters, figures, &c., showing the type 3, separated by the quoins or wedges 2 and having an opening through the center of the die at 5, all contained within the ring 1. Fig. 6 shows the force or matrix of the die, it being a ring 1, filled with lead or other substances and having the impression of the type sunken in its face to correspond with the type in the die. Fig. 7 shows my die and the force or matrix set together and having a piece of sheet metal between them ready to be operated on. Fig. 8 shows a longitudinal cross-section of my die and matrix when set together, showing the plug 4 set in position in the opening 5. Fig. 9 shows an enlarged longitudinal cross-section of my die, showing the plug 4 to have a circular flange 7, said flange having grooves 10 in its under surface, and

also showing the bodies of the type cut away and having projections 8 on their inner ends to match with the grooves 10 in the flange of the plug, thus providing an additional locking device to hold the type in place.

The numeral 1 shows the ring in which the type is held; 2, sheets of metal, thicker at the wide than at the narrow end, used as quoins to hold the type in position; 3, wedge-shaped type; 4, a plug used to finally lock or squeeze the type and the quoins in position and hold them there; 5, openings in the die, into which the plug 4 is inserted; 6, a sheet of metal ready for the operation of the die; 7, a flange on the plug 4, overlapping the inner ends of the type 3; 8, projections on the inner ends of the type; 9, the matrix; 10, a groove cut in the under side of the flange on the plug 4.

A full description of my invention is as follows:

My invention consists of a ring or band of sufficient strength, and the ring or band may be of any desired configuration; but I prefer it to be circular, as shown. I form type of any sufficiently firm substance and form them preferably in the shape of wedges, and each of these wedge-shaped type has upon its upper face any desired character. I also form other wedge-shaped pieces whose office is to act as quoins or blocks to hold the wedge-shaped type in position, and I prefer these pieces to be composed of a number of these plates thicker at one end than the other; but a solid wedge may be used, if desired. I also form the type and wedge-shaped quoins, preferably so that when they are set in the band or ring there shall be left an opening at or near the center of the die, as shown in Fig. 5, at 5, and in this opening, after all the type are set and the quoins in position, I put the plug, the upper face of the plug being then on at least a level with the face of the die. I then set the die on a level solid bed-plate, and, if desired, I fasten this bed-plate to the band or ring by any well-known means and the die is ready for the formation of the matrix. The matrix 9 is formed by taking a ring or band and pouring it full of melted lead, and after it has cooled the matrix is set upon the die and forced upon it until the char-

acters in the die are sunk into the face of the matrix. The die and matrix being prepared, they are set in a press or drop and operated like ordinary dies.

5 In Fig. 9 I have shown another method of securing the type in position, in which the type have their inner ends cut away, leaving a projection on their inner ends, as shown at 8, and the wedge-shaped quoins are similarly
10 formed. The plug 4 is formed with a flange 7, as shown, and this flange has a groove 10 cut or formed in it. When the type and quoins are set as desired, the flanged plug 4 is dropped into position and the projections 8
15 on the inner ends of the type and quoins fit into the channel 10 in the flange 7 of the plug 4, and the type and quoins are thus held in position.

If it is desirable to change the reading of
20 the die, the characters are removed or changed about to cause them to read in any manner desired, and are then blocked in, as shown and described.

Having fully described my invention, what
25 I claim is—

1. In an apparatus for producing raised characters in substances, a die consisting of a retaining-band and having type distributed within said band and separated from each
30 other therein by removable strips or blocks, and having an opening at or near the inner ends of the said type and said strips and a

plug to fit in said opening, and also having a matrix having representations of the faces of the type arranged in the retaining-band 35 sunken in its face so as to correspond with said characters in said retaining-band, substantially as described.

2. In an apparatus for producing raised characters in substances, a die consisting of 40 a retaining-band and having type distributed within the retaining-band, and removable strips or blocks separating the type and having an opening through said type and said strips or blocks, said strips or blocks having 45 a portion of their upper surfaces cut away to form a groove and their inner ends having a vertical projection rising from them, and a plug to fill said opening, said plug having a flange projecting from the upper end, said 50 flange having a groove to correspond with the vertical projections on the inner ends of the type and strips or blocks and a projection to correspond with the groove in said type and blocks, and having a matrix having 55 the faces of the type in the die sunken in its face to correspond with said type, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY B. ANABLE.

Witnesses:

I. S. POWELL,

H. V. SCATTERGOOD.