

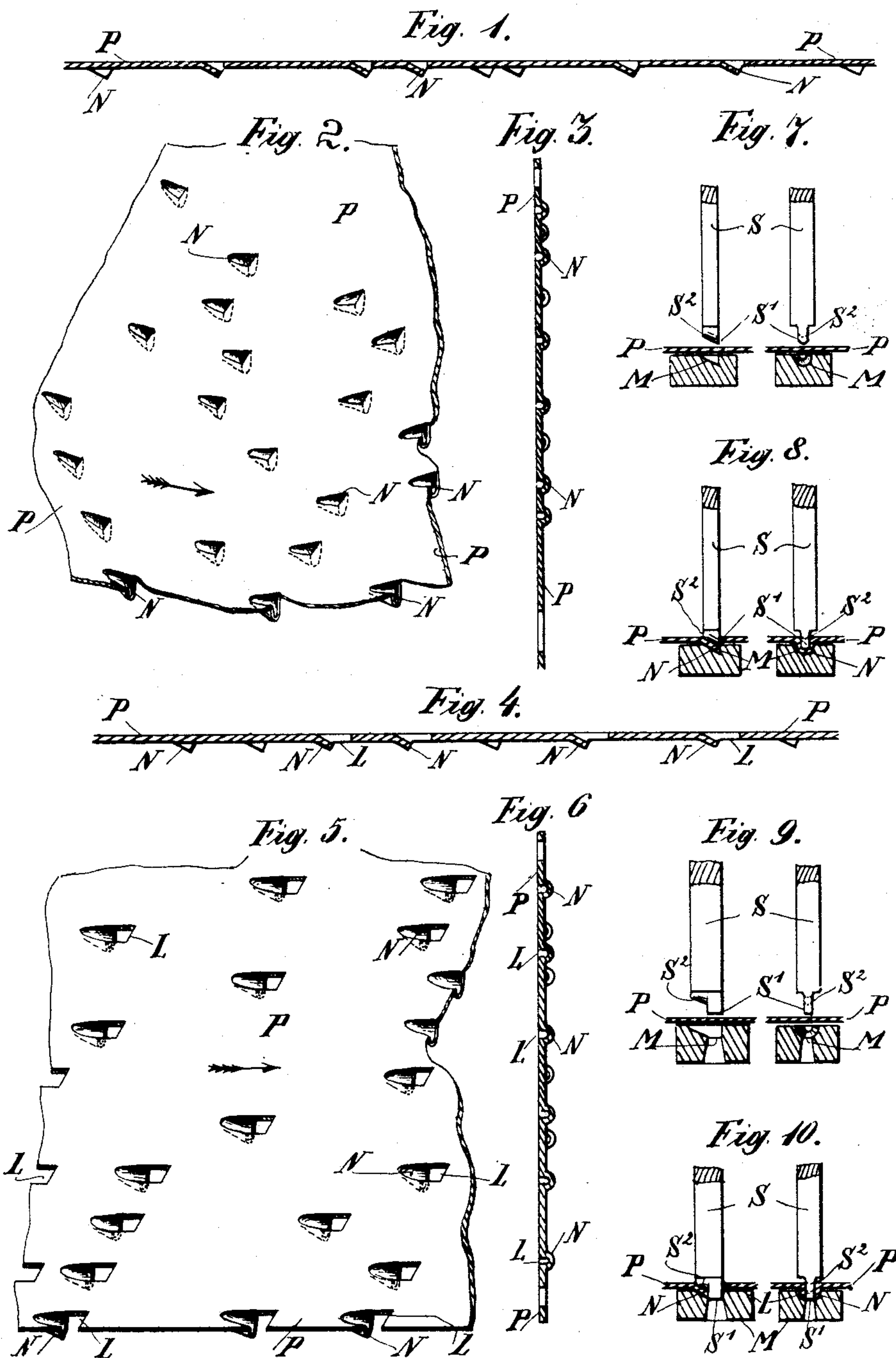
(No Model.)

2 Sheets—Sheet 1.

B. RÜCKERT.
PLATE FOR MUSICAL INSTRUMENTS.

No. 541,123.

Patented June 18, 1895.



Witnesses:

N. G. Sandberg
C. C. Barker.

Inventor:

Bruno Rückert
by Fairbanks & Wether
Attorneys

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Fig. 11.

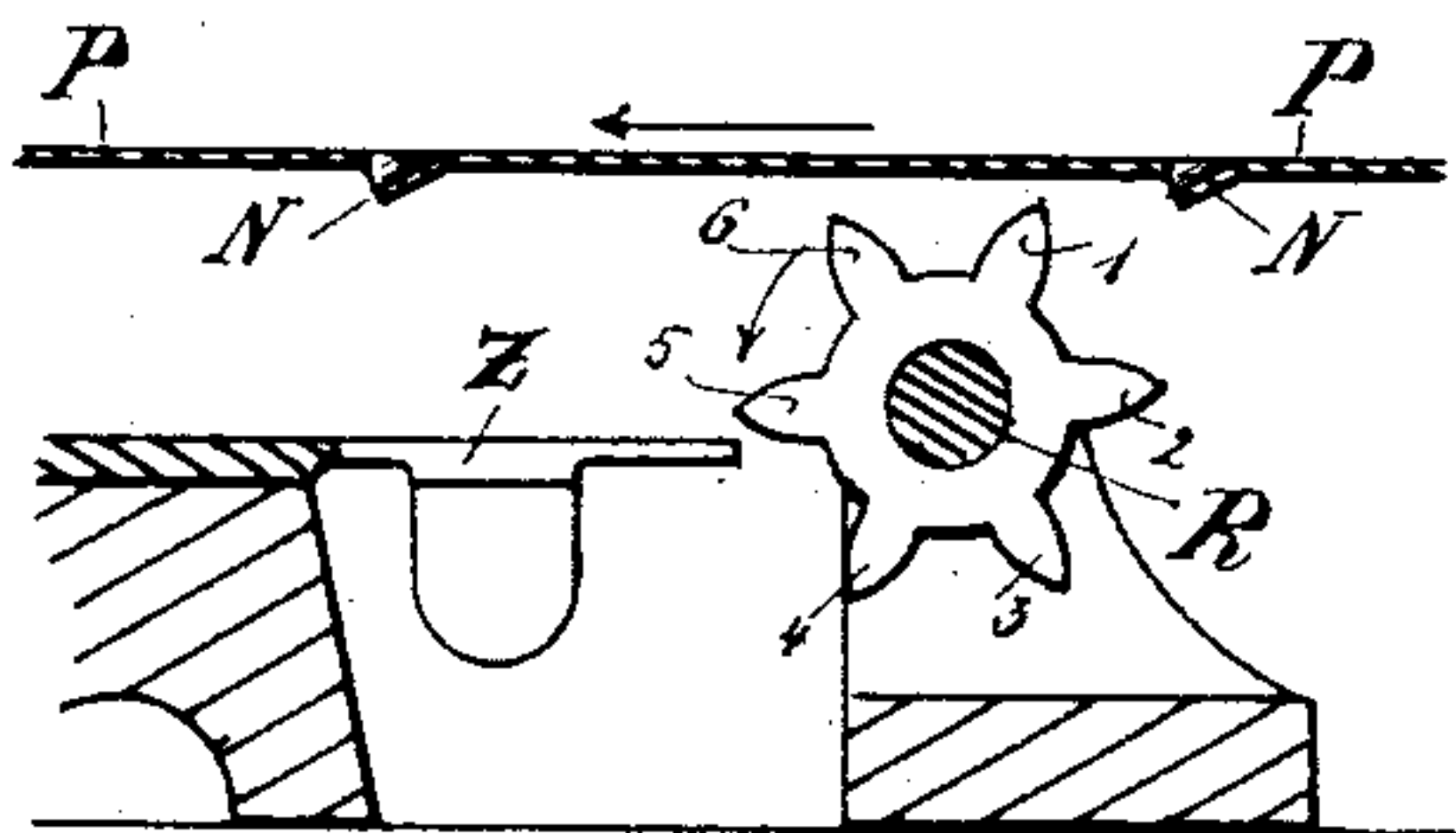


Fig. 15.

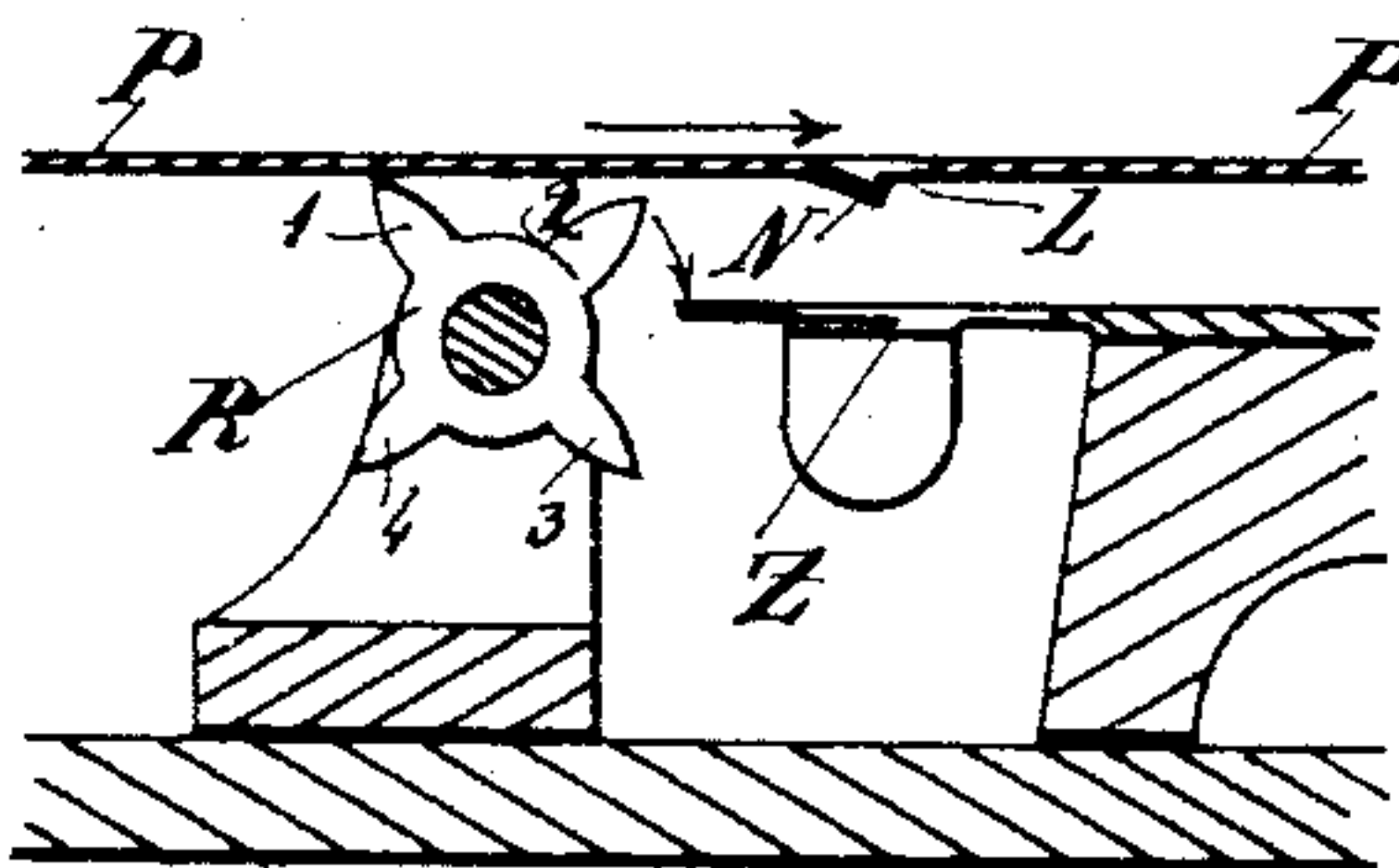


Fig. 12.

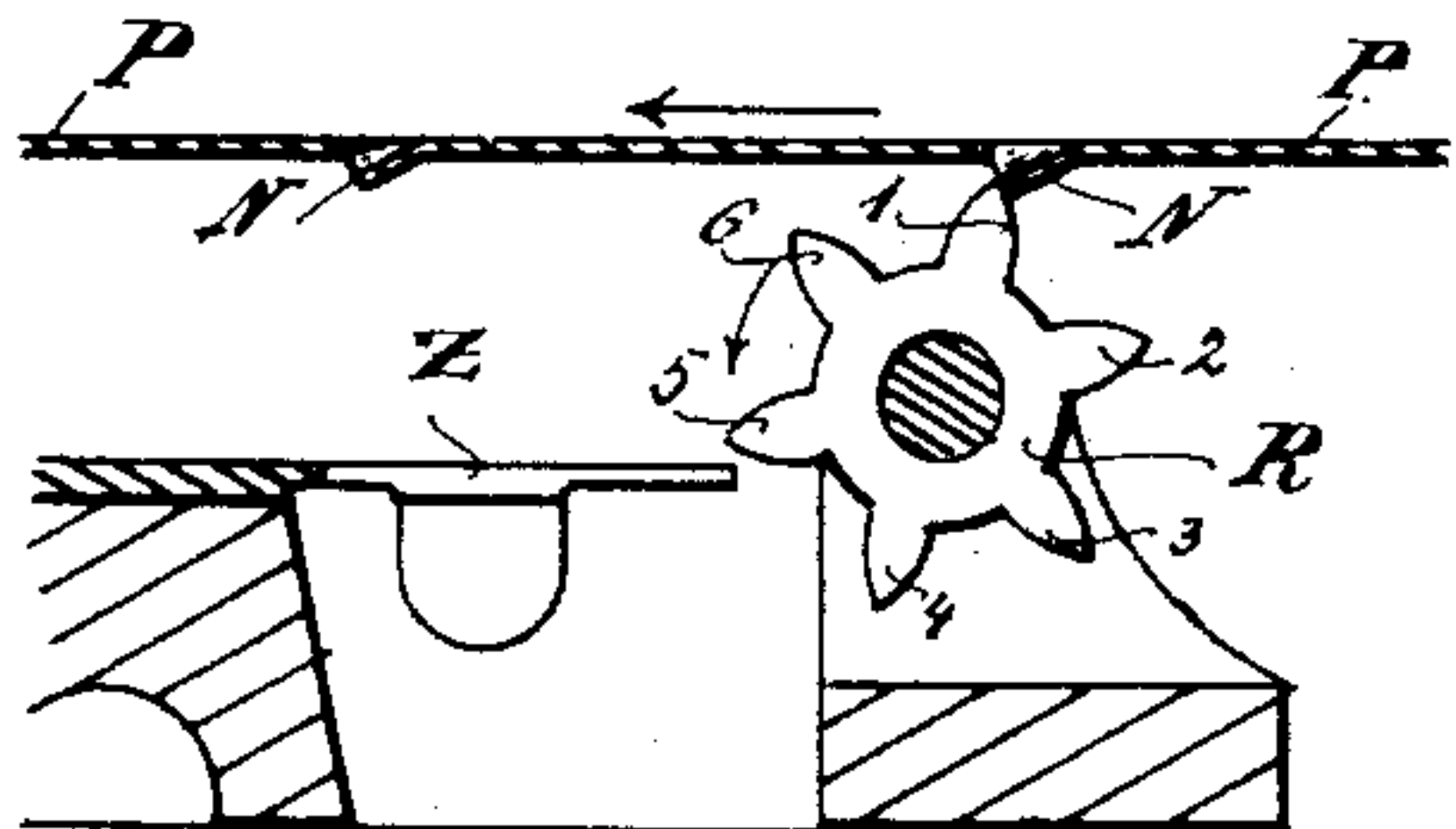


Fig. 16.

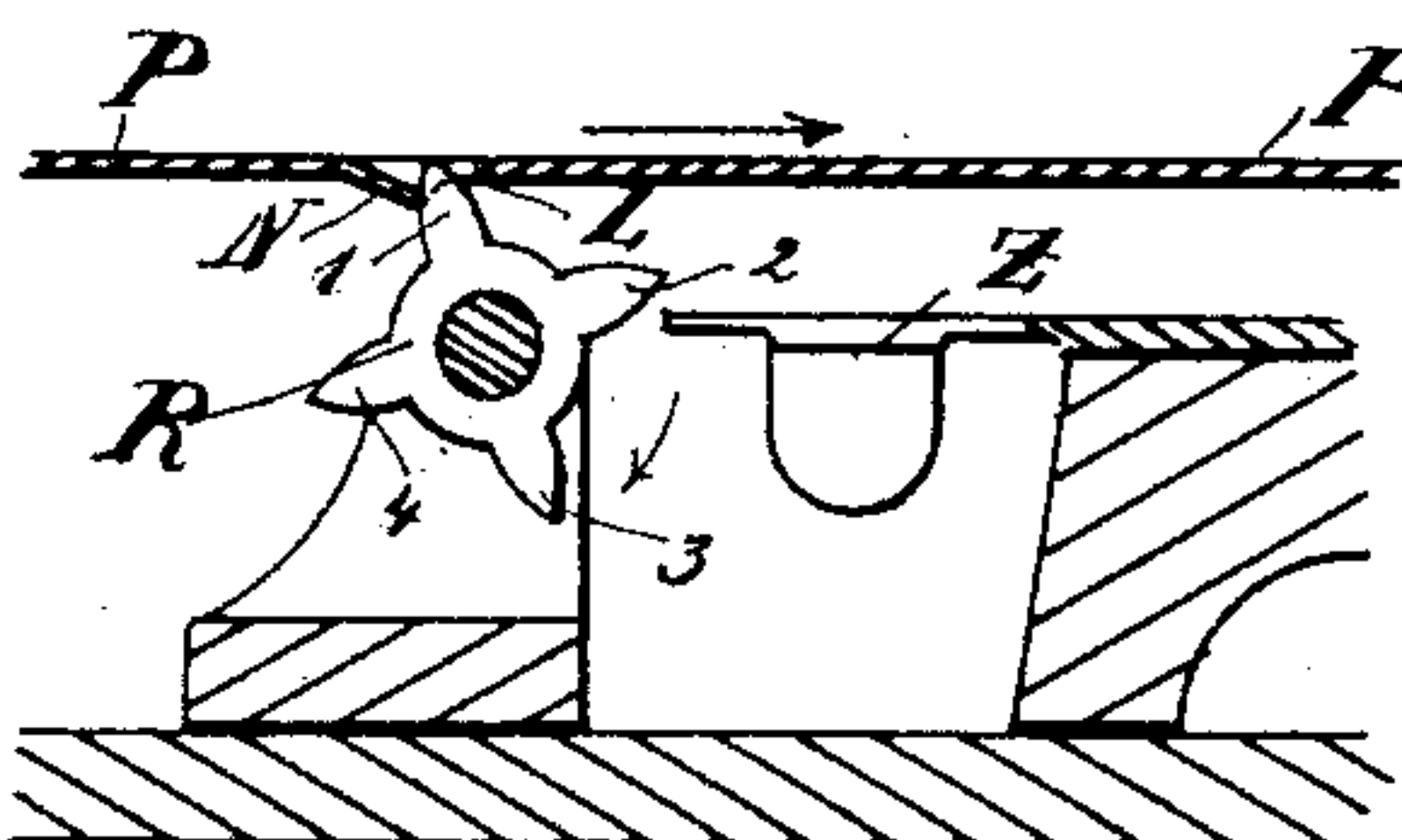


Fig. 13.

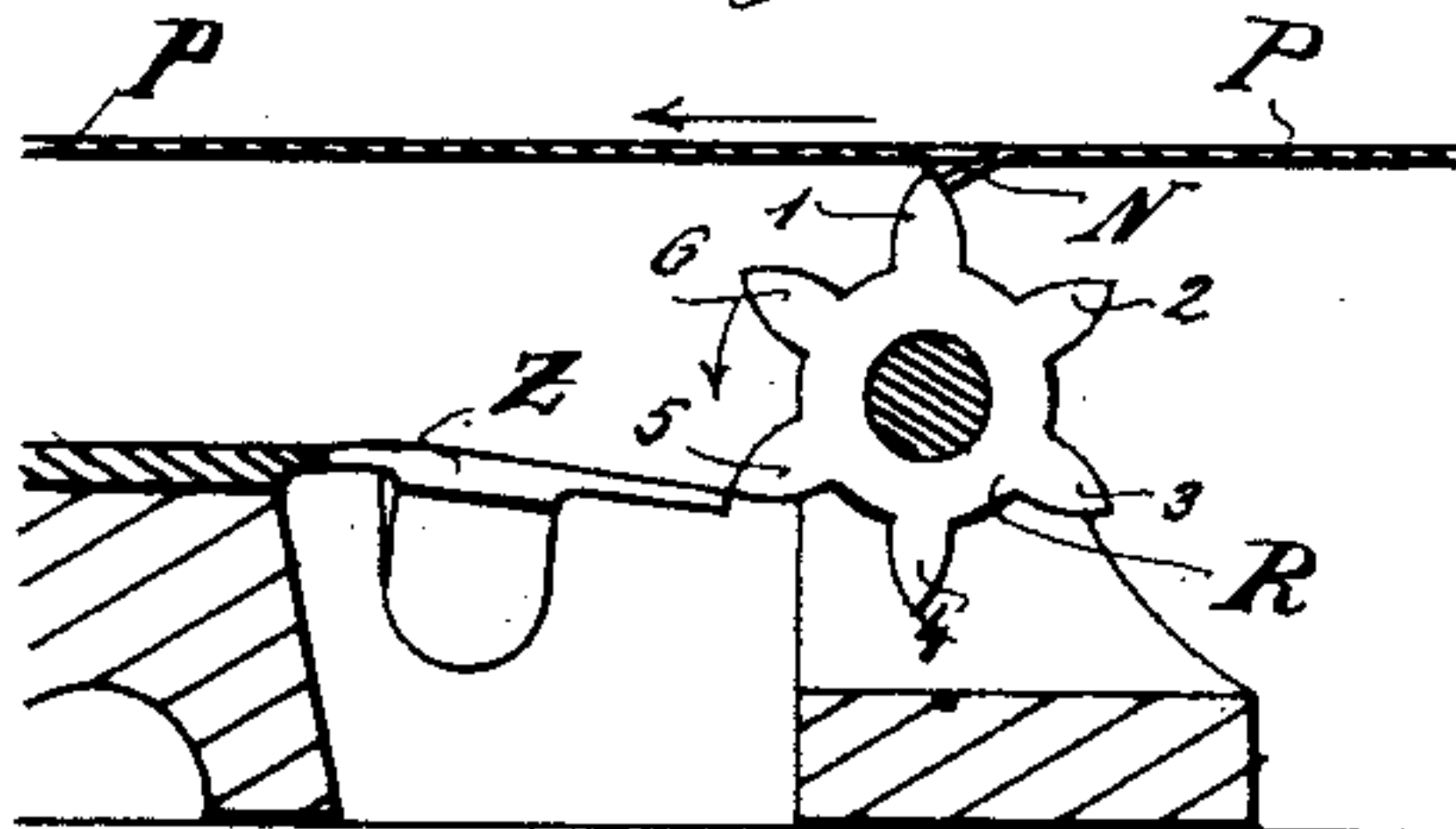


Fig. 17.

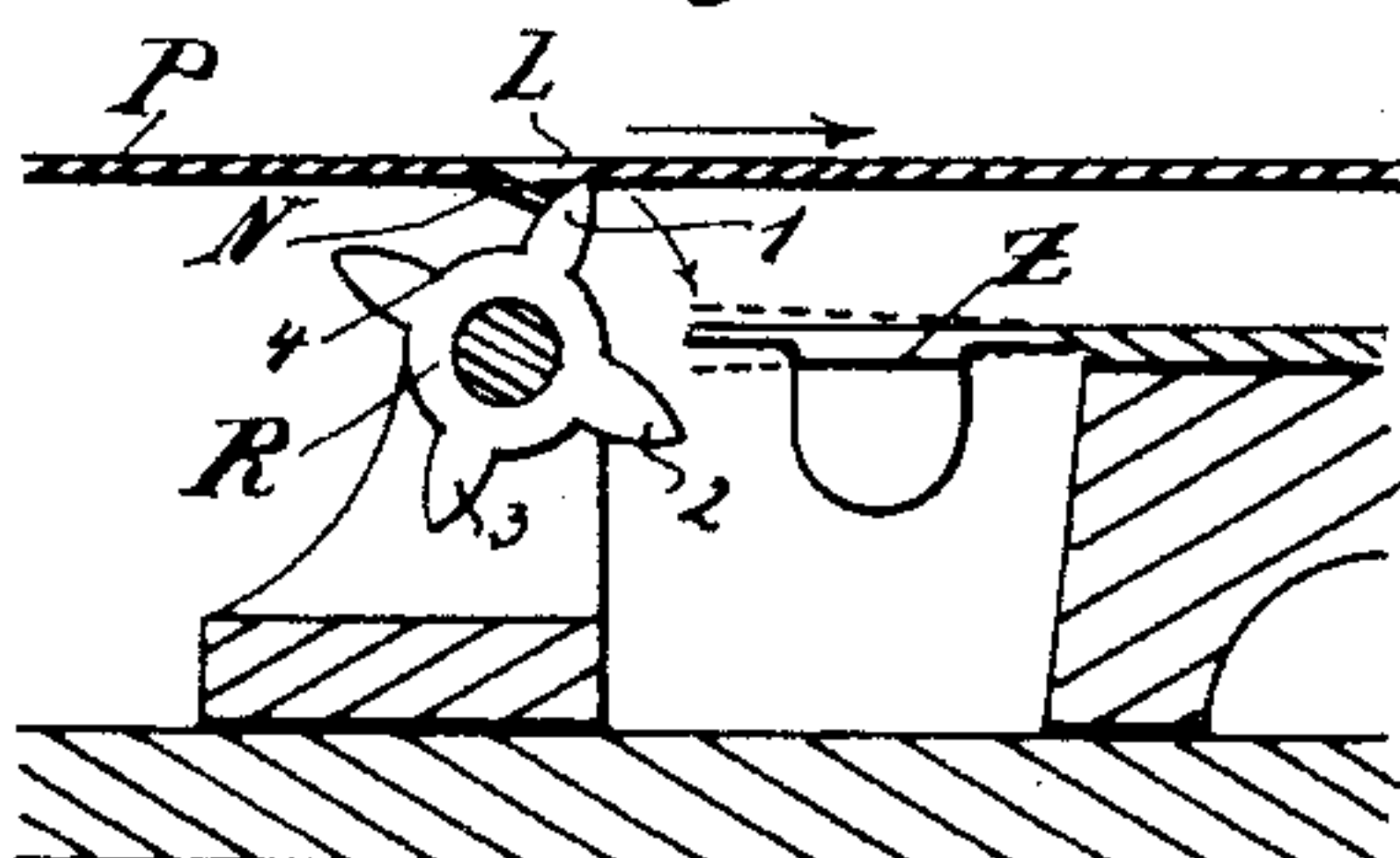


Fig. 14.

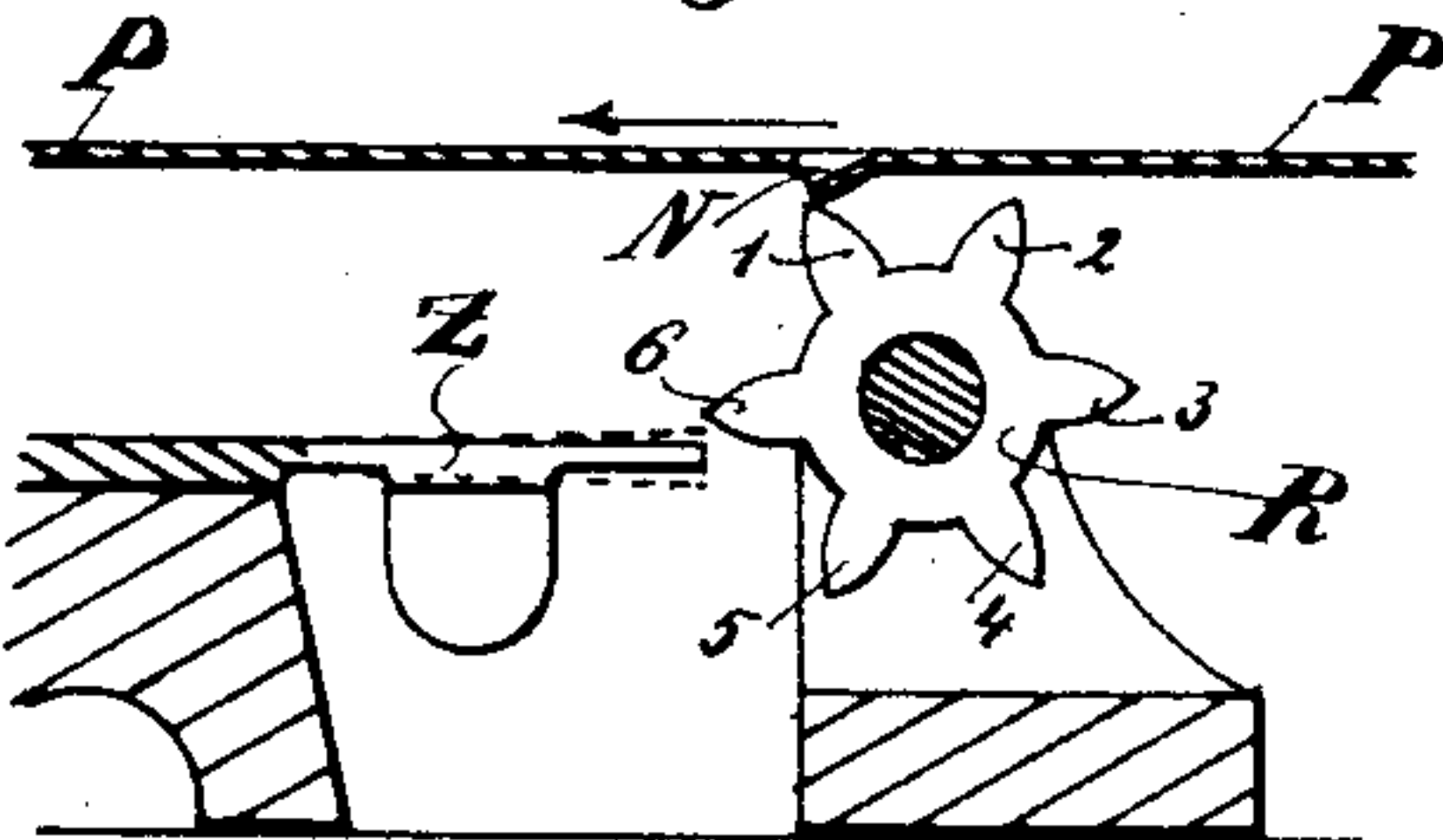
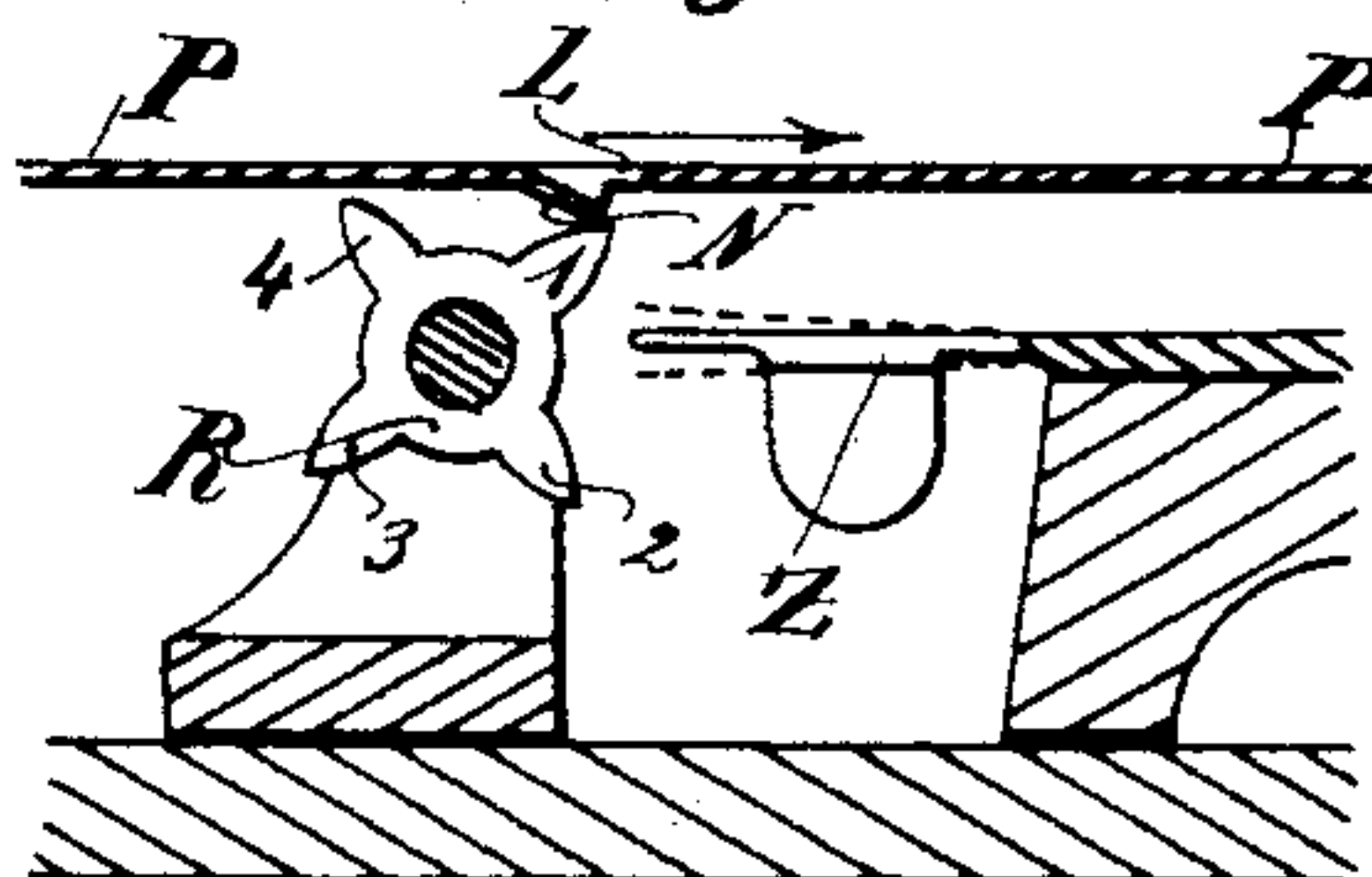


Fig. 18.



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UNITED STATES PATENT OFFICE.

BRUNO RÜCKERT, OF LEIPSIC, GERMANY.

PLATE FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 541,123, dated June 18, 1895.

Application filed April 13, 1893. Serial No. 470,202. (No model.) Patented in Switzerland April 26, 1892, No. 5,010, and in France May 4, 1892, No. 208,165.

To all whom it may concern:

Be it known that I, BRUNO RÜCKERT, of Leipsic, in the Kingdom of Saxony, Germany, have invented an Improvement in Plates for Musical Instruments, (which has been patented in Switzerland April 26, 1892, No. 5,010, and in France May 4, 1892, No. 208,165,) of which the following is a specification.

The novel feature of my note plates for mechanical musical instruments is the specially shaped note mark, which serves to drive a star wheel or analogous sound producer, said note mark being formed in the material of the note plate as a grooved depression open toward the side which acts on the teeth of the said wheel. This grooved depression may be combined with a hole or slot punched out of the note plate, in which case the said hole, together with the grooved depression, sets in motion the star wheel or analogous sound producing device.

The accompanying drawings represent by way of example various forms of the new note plate, its method of manufacture and its use in connection with a reed instrument, the reeds or vibrating tongues of which are actuated by small wheels having teeth of uniform length.

Figures 1 and 3 are partial sections, and Fig. 2 is a partial plan, of a note-plate in which the note-marks are simply formed by grooved depressions. Figs. 4 and 6 are partial sections, and Fig. 5 is a partial plan, of a note-plate in which each note is represented by a grooved depression and a short slot. Figs. 7 and 8 illustrate suitable means for producing the note-marks shown in Fig. 1, Fig. 7 showing two elevations (at right angles to each other) of a punch moving toward the note-plate, which is placed on a die, while Fig. 8 shows the same after it has formed the note-mark. Figs. 9 and 10 illustrate the means for producing the note-marks shown in Fig. 5, Fig. 9 showing two elevations (at right angles to each other) of a punch moving toward the note-plate, while Fig. 10 shows the same after it has formed the note-mark. Figs. 11 to 14 illustrate the application of the note-sheet shown by Fig. 1. Figs. 15 to 18 illustrate the application of the note-sheet shown by Fig. 5.

In the figures P indicates the note plate, N the grooved depressions in the same, and L the slots, which in Fig. 5 are situated in front of the said depressions.

For producing the note marks, the blank sheet is placed on a small bed plate or die M, which has a recess corresponding to the groove to be produced in the note plate, and a punch S is applied by means of a hammer or other suitable instrument, the working extremity of the punch shown in Figs. 7 and 8 being beveled off in a backward direction and also rounded so as to form in front a cutting edge S' and at the back an obtuse angle S² corresponding to that of the recessed groove N. As the punch descends, the cutting edge S' pierces the material of the plate only in front, while the sides remain intact, and the inclined part S² of the punch forces the material into the recess of the die M. The result is a note mark N, having the shape of a grooved recess, which is separated from the material of the plate on one side only, while the other sides remain united.

In the case represented by Figs. 9 and 10 the working part S' of the punch is so shaped, as to act first by cutting a slot L out of the plate P and subsequently forming a grooved depression N adjoining one side (the rear) of the slot. The result is a note mark consisting of the said groove shaped depression and a hole or slot adjoining the front of the same.

Of the two kinds of note marks described above, either the one or the other may be adopted, according to circumstances. The essential feature of both is a groove shaped depression working with its front edge.

If the mechanical musical instrument to be played by means of the improved music sheet or note plate contains vibrating tongues or reeds Z and intermediate star wheels R of large diameter, as represented by Figs. 11 to 14, I prefer to employ the first type of note marks (shown in Figs. 1 to 3), and if star wheels of smaller diameter are employed, as shown by Figs. 15 to 18, I prefer to use the second type of note plates, because in the first case the angular travel of each tooth corresponding to one note mark is shorter and the height of the corresponding arc of circle is less than in the second case. A similar dis-

inction between the two forms of note plates is made in the case of instruments which have other sound producing organs.

If in the example shown by Figs. 11 to 14, the note plate travels in the direction of the arrow, the front edge of a note mark N approaches the tooth 1 of the star wheel, (Fig. 11) and meets the latter, as shown by Fig. 12, thereby turning the wheel on its axis, as indicated by 13, and causing it to act on the reed Z, which now begins to vibrate freely. The wheel continues to turn, until the front edge of the note mark N has left the point of the tooth 1, and the wheel has therefore again arrived in its position of rest (Fig. 14), which it retains, until a fresh note mark meets the following tooth of the wheel.

In the second example, (Figs. 15 to 18) Fig. 15 represents the wheel R in a position of rest, while the note plate P moves in the direction of the arrow. Fig. 16 represents the moment, when the edge of the note mark N has reached the tooth 1 and the wheel R has therefore commenced to turn. In turning, the point of the tooth 1 enters the slot L formed in the plate N, and does not leave the same before the tooth (2) has acted on the reed Z and caused it to vibrate (Fig. 17). The wheel R continues to turn, until the edge of the note mark N has passed the tooth 1 and the wheel is therefore again in a position of rest (Fig. 18), as in its starting position, Fig. 15.

Such note plates may be made of thin sheet metal or other material suitable for the treatment described above.

What I claim is—

1. A note plate having note marks each consisting of a depression on one side of the plate

forming a projection on the other side of the plate, one end of the said projection presenting an abrupt edge raised above the general surface of the plate, substantially as and for the purpose herein shown and described.

2. In a note plate, a note mark consisting of a hole cut through the plate combined with a depression immediately behind the said hole in the direction of travel, substantially as and for the purpose herein shown and described.

3. In a note plate, a note mark consisting of a hole cut through the plate combined with a projecting edge situated immediately behind the said hole in the direction of travel, substantially as and for the purpose herein shown and described.

4. In a note plate, a note mark consisting of a hole cut through the plate combined with a projecting edge situated immediately behind the said hole in the direction of travel and tapering back to the general surface of the plate, substantially as and for the purpose herein shown and described.

5. In a note plate, a note mark consisting of a hole cut through the plate and the material removed therefrom upon three sides and left integral with and projecting above the general surface of the plate on the fourth side of the hole, substantially as and for the purpose herein shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BRUNO RÜCKERT.

Witnesses:

CARL BORNGRAEBER,
WILLIAM KASTEN.