

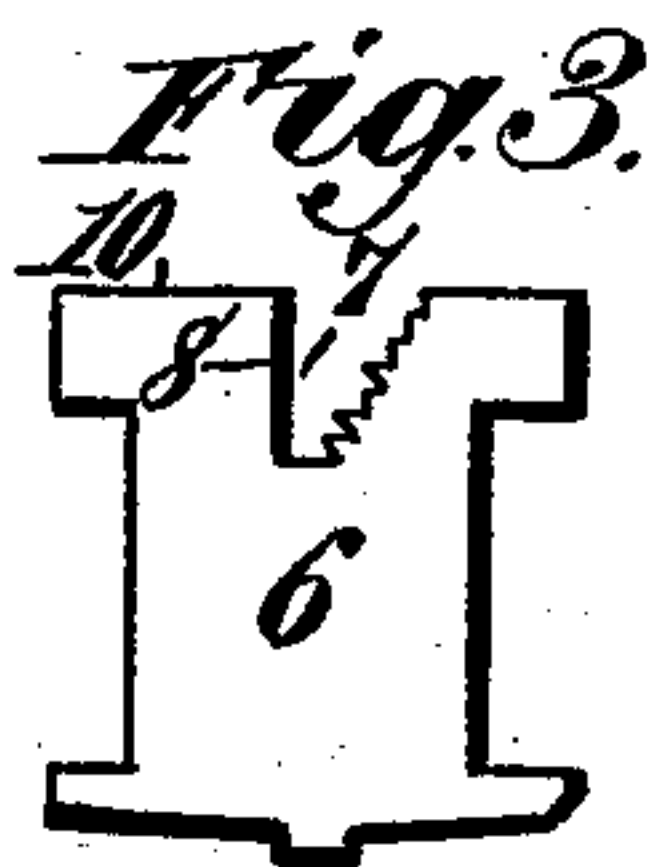
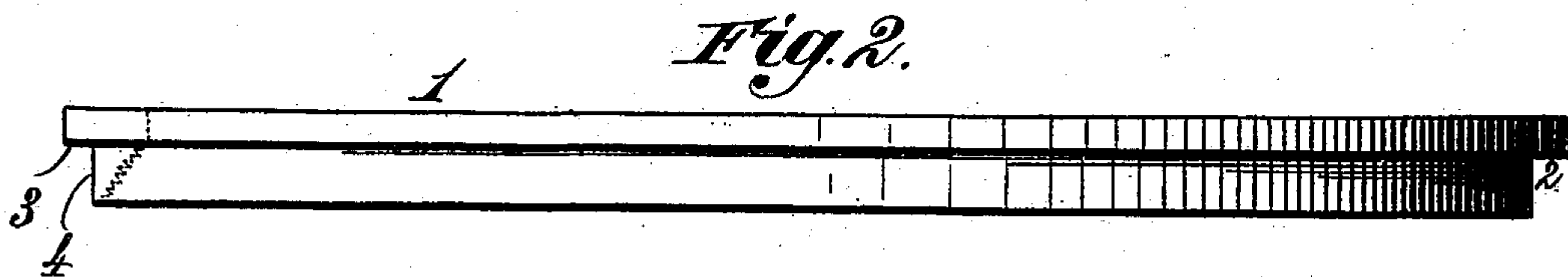
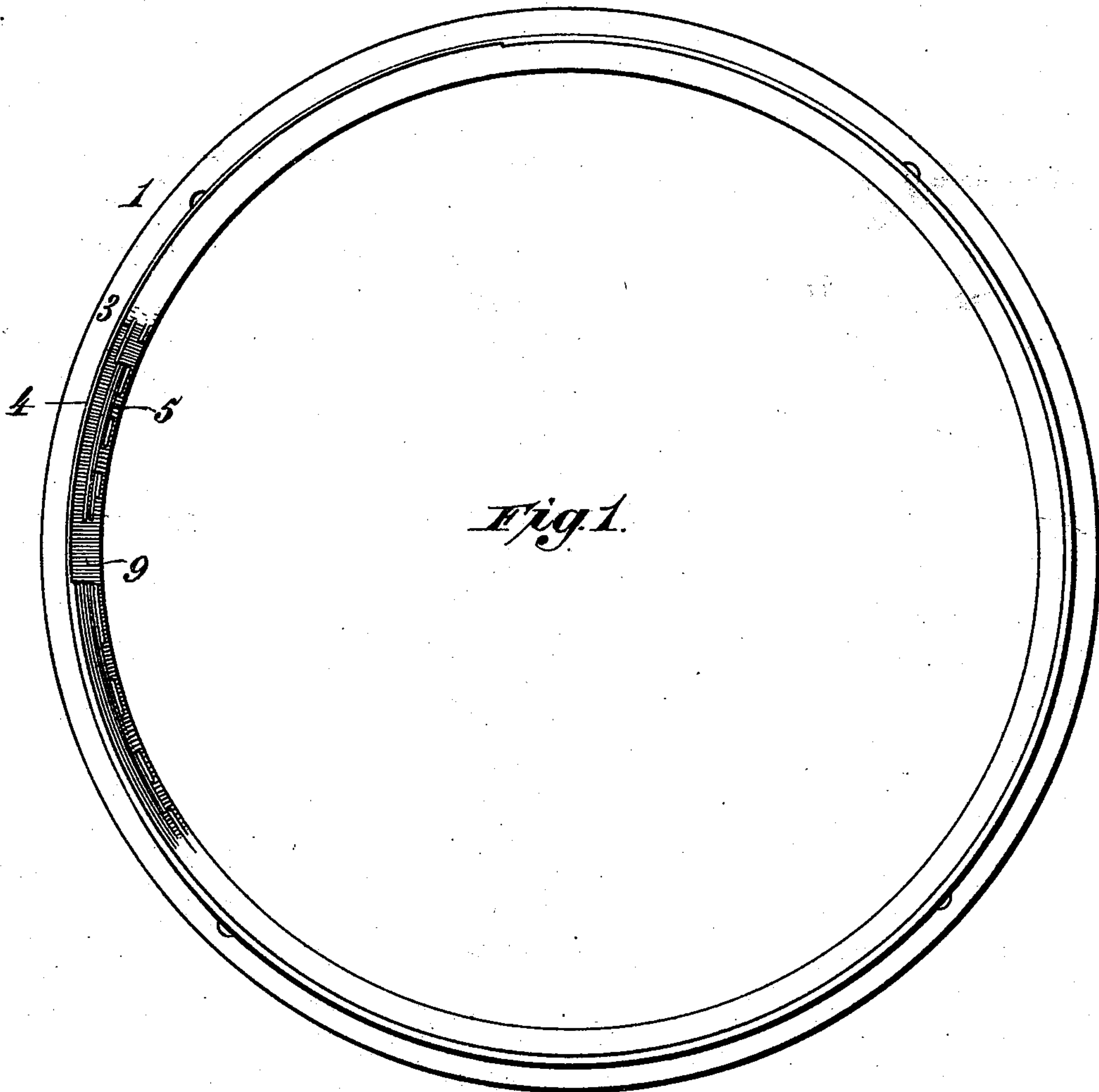
(No Model.)

2 Sheets—Sheet 1.

J. C. FOWLER.
TYPE DISTRIBUTING RAIL.

No. 546,610.

Patented Sept. 17, 1895.



Witnesses:
Robert Everett
Vinton Coombe

Inventor:
Joseph C. Fowler
By *Albert H. Norris*
Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

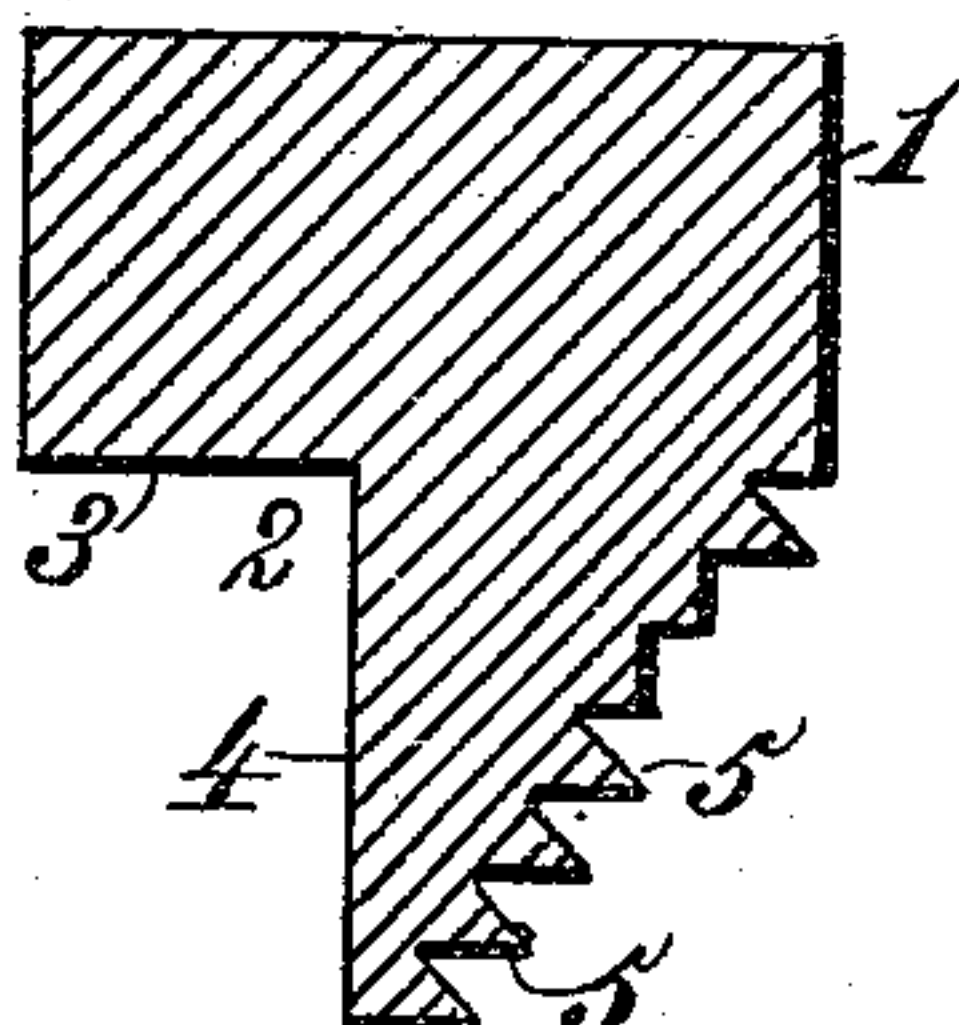
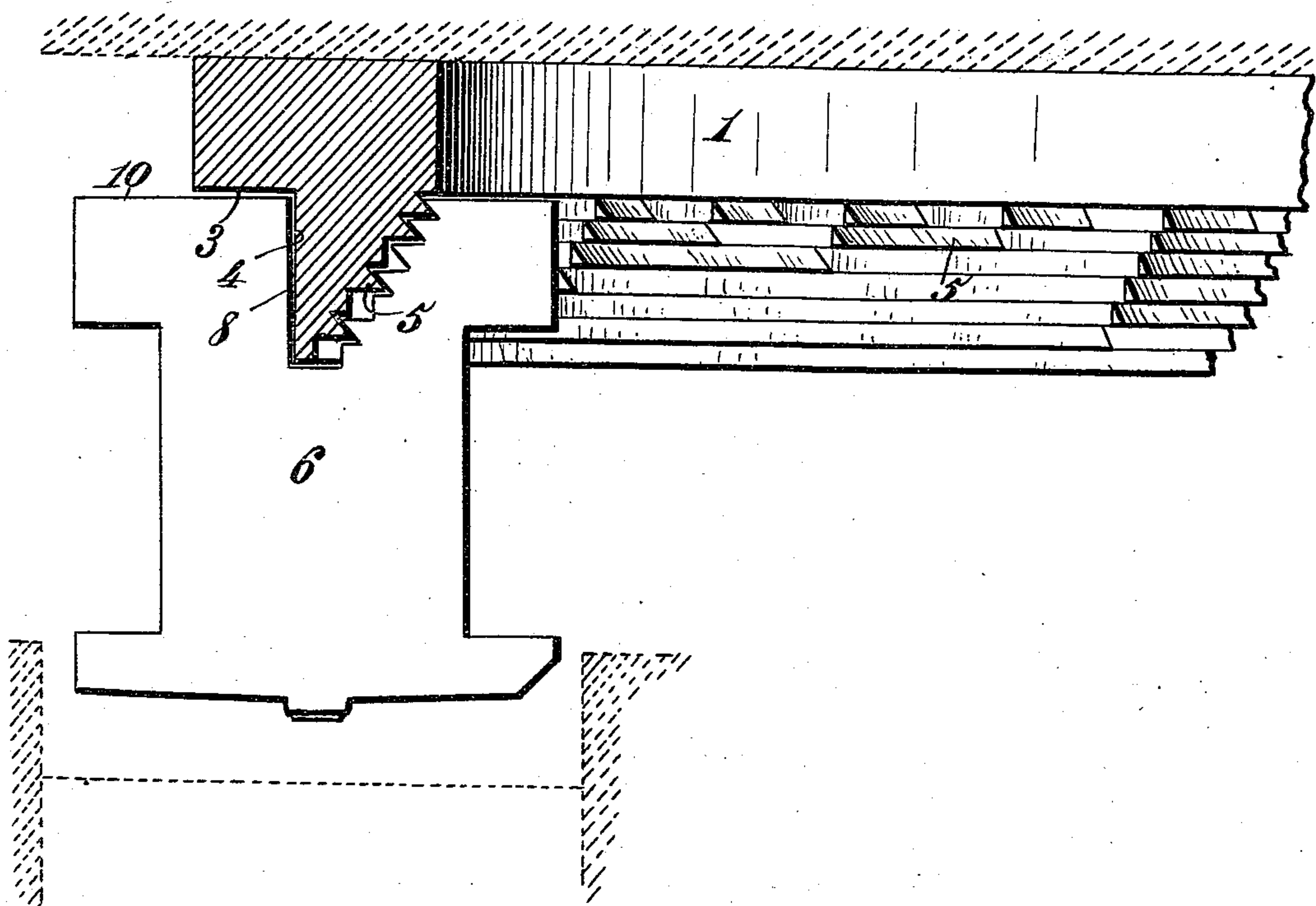


Fig. 5.



Witnesses,
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UNITED STATES PATENT OFFICE.

JOSEPH C. FOWLER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO THE FOWLER COMPOSING AND TYPE SETTING COMPANY, OF CHICAGO,
ILLINOIS.

TYPE-DISTRIBUTING RAIL.

SPECIFICATION forming part of Letters Patent No. 546,610, dated September 17, 1895.

Application filed August 20, 1894. Serial No. 520,821. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. FOWLER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Type-Distributing Rails, of which the following is a specification.

This invention relates generally to devices for distributing types, wherein the latter are held suspended through the medium of suitable notches and are deposited automatically in type-receiving cases or channels when the notches are released from shoulders or pins in juxtaposition to the receiving ends or mouths of the type cases or channels, whereby all the types are assorted in proper receptacles, the types of the same character being placed in one receptacle, those of another character in another receptacle, and so on throughout the group of characters employed, as disclosed in Letters Patent No. 18,264, issued September 22, 1857.

The present invention is specifically an improvement on the distributing devices described in my Letters Patent No. 510,853, issued December 12, 1893, wherein the notched or toothed distributing-rail is circular and is supported above a circular magazine composed of a plurality of type cases or channels. In my patent alluded to the opposing faces of the circular rail are inclined and converge downwardly approximately to a point, and these inclined faces are constructed with the usual combination notches or teeth to co-operate with the notches or teeth in the edges of the angular recess formed in each type-plate. This requires opposite notches or teeth of each type-plate to become released simultaneously from opposite notches or teeth of the rail, which does not always occur, and consequently imperfect distribution or choking of a part of the distributing mechanism is the result.

The objects of my present invention are to improve the prior construction of distributing-rails, to facilitate the distribution of the types, to insure their proper deposit in the respective type cases or channels, and to avoid the liability of one part of the type temporarily hanging and causing it to drop at such an angle or in such position as not to enter

the proper type case or channel or interfere with or obstruct the distribution of the other types.

To accomplish these objects my invention consists, essentially, in a type-distributing rail having at one side a smooth unbroken guiding-surface and at the opposite side a notched or toothed surface arranged at an angle of inclination greater than the angle of the smooth guiding-surface, said smooth guiding-surface serving to retain the notched or toothed type in engagement with the notched or toothed surface of the rail and to guide the types perpendicularly when they become free from the notches or teeth, whereby the types will drop perpendicularly in proper position into the perpendicular or approximately perpendicular upper ends or receiving-mouths of the type cases or channels.

The invention also consists in other features, which will be hereinafter described in detail and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a bottom plan view of a circular type-distributing rail constructed in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail side view of one of the types. Fig. 4 is a detail transverse sectional view of a portion of the distributing-rail; and Fig. 5 is a similar view showing a greater portion of the rail and illustrating one of the types suspended thereby, and a portion of the rail-support and a portion of one of the type cases or channels being indicated by dotted lines. Figs. 4 and 5 are enlarged or magnified to more clearly illustrate the details of construction.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the type-distributing rail, which is composed of an annulus or ring, preferably, but not necessarily, in a single piece of metal, and fashioned to be secured by metal screws or other suitable fastening devices to an overhanging support, which is indicated by dotted lines in Fig. 5. The outer side of the annulus or ring is formed with an annular right-angled recess 2 to provide a

horizontal top guide-surface 3 and a perpendicular side guide-surface 4. The inner annular side of the annulus or ring is inclined at an acute angle, and this side is constructed or provided with the combination or permutation notches or teeth 5 for suspending the types which are to be carried on the rail until they reach the points where the notches or teeth are cut away or omitted and the types are to be automatically released and deposited in the type cases or channels. In Fig. 5 I have illustrated by dotted lines the perpendicular or approximately perpendicular upper end portion of a single type case or channel, as this is deemed sufficient to enable my invention to be clearly understood by those skilled in the art. The types 6 are each constructed at one end with a recess 7, the walls of which form rather an acute angle, and one edge of this recess is notchless or toothless, as at 8, to provide a plane smooth surface which constitutes a guiding and retaining edge portion, while the opposite edge, which is arranged at a greater angle of inclination than the angle of the plane or smooth edge is constructed with the combination or permutation notches or teeth to engage the notches or teeth of the rail.

The rail is constructed with a portion 9 perfectly free from notches or teeth, so that types can be moved vertically over this smooth portion 9 to place their notches or teeth in proper coincidence with the notches or teeth of the rail, after which the types are carried in a circular path by any suitable mechanism. In the travel of the types in a circular path they are supported by the notches or teeth of the rail until the types reach those cut-away portions which permit the types to drop by gravity into the type cases or channels. The types can be carried upward in any suitable manner, but I prefer to accomplish this by means of the spiral lift or screw described and shown in my patent hereinbefore alluded to, and I also prefer to carry the types in a circular path on the rail by means of the finger-carrying wheel disclosed in said patent. I do not consider it necessary to illustrate anything more than the distributing-rail and one of the types, as my present invention relates strictly thereto. As regards all other elements they may be the same as in my former patent or they may be of any construction suitable for the purpose in hand.

Where the distributing-rail is constructed with opposite notched or toothed surfaces, as in my Letters Patent referred to, if one edge of the type should be moved slightly in advance of the other edge, or if from any cause the type is twisted in its movement and is moved at one edge slightly in advance of the opposite edge it is liable to become disengaged at one side and temporarily hang at the opposite side, whereby it will drop at such an angle or in such position that it would not enter the proper type case or channel or would fall upon one of the type

cases or channels and thereby interfere with or obstruct the distribution of the other types, or possibly choke the machine. This objection is more likely to arise and is particularly serious in that construction of magazine wherein the type cases or channels are perpendicular or approximately perpendicular, as in my former patent, at their upper ends or receiving-mouths.

In my improved construction the perpendicular edge 8 of the type is plane or smooth and glides easily along the perpendicular plane surface 4 of the rail, and this perpendicular plane surface 4 acts not only as a guide for the type but retains the type in proper engagement with the notches or teeth of the rail. When the type reaches the point where it is free to drop it is not required to become disengaged from opposite notches or teeth of the rail but only to disengage from notches or teeth at one side thereof, in consequence of which there is no liability of one edge temporarily hanging and causing the type to assume an improper angle or position when it descends. Further, even if one edge of the type should be moved in advance of the opposite edge, it is impossible for the type to become accidentally disengaged, because the perpendicular smooth surface 4 of the rail maintains the notched edge of the type in engagement with the notched portion of the rail until the proper point is reached where the notches or teeth of the rail are cut away and the type is free to drop. This result could not be attained by simply making one side of the rail (shown in my former patent) plane or smooth, because in such event there would be no provision for retaining the type in engagement with the rail and the construction would be impracticable and useless.

It is the ordinary practice to make the sides of the distribution-bar converge at substantially the angle shown in my Patent No. 510,853, for the reason that such angle permits employment of the greatest number of ribs on each side of the bar that will allow the matrix to drop from any two opposite ribs without catching the ribs below. In the former construction it is necessary to duplicate the ribs on both sides of the distribution-bar, as otherwise the matrix will fall from the said bar. I have discovered, however, that the ribs can be omitted from one side of the bar, provided that such side is made approximately perpendicular, or in such way that the side from which the ribs are omitted operates to retain the type in engagement with the ribs on the opposite side of the bar. The improved construction avoids the expense of cutting the ribs on both sides of the bar.

The horizontal surface 3 of the rail constitutes a top guide for the upper end portion 10 of each type, and guards the latter against undue oscillation or swinging motions at right angles to the vertical plane.

I find in practice that by employing the notches or teeth only at one side the types

drop much freer and in straighter directions than where the rail is provided with opposite notches or teeth, and, further, that the types in every instance properly and correctly enter the type cases or channels of the magazine.

5 The present invention is designed particularly for machines constructed to produce type-high printing-bars, each of which is cast with a line of characters or letters on one
10 edge. In producing such bars they can be cast direct from a line of types bearing female characters and placed at one side of a mold into which any suitable type-metal is injected, as in my patent mentioned; or the
15 bars can be produced by causing a line of male types to indent any suitable matrix material to form a line of matrices from or by which the printing-bar is cast. In machines
20 for producing type-high printing-bars by either of the foregoing methods, the types, whether male or female, are released from the type cases or channels by finger-key mechanism and assembled in a line, which is then justified by mechanical means. After
25 the printing-bar is cast from or by the line of types, or from or by a line of matrices produced in some suitable matrix material by impressing the line of types therein, the types are successively raised to the distributing-rail and assorted into the type cases or
30 channels. In the present instance the type-plates are provided with cameo or relief characters, and therefore in practice a line of matrices are formed by impressing the types
35 into some suitable soft material or other matrix material.

Having thus described my invention, what I claim is—

40 1. A type-distributing rail having at one side a smooth unbroken guiding surface and

at the opposite side a notched or toothed surface arranged at an angle of inclination greater than the angle of the smooth guiding surface, said smooth guiding surface serving
45 to retain notched or toothed types in engagement with the notched or toothed surface of the rail and to guide the types in the downward motion when free to drop from the rail.

2. A type-distributing rail having a smooth unbroken guiding side surface and a notched
50 or toothed side surface arranged at different angles relatively to one another, said smooth side surface serving to retain notched or toothed types in engagement with the notched or toothed side surface of the rail and to temporarily guide the types in their downward
55 motion, substantially as described.

3. The combination of a type-distributing rail having a smooth unbroken guiding side surface and a notched or toothed side surface
60 arranged at different angles relatively to one another, with types each having an angular recess, the edges of which are at different angles, one edge having a smooth unbroken surface and the opposite edge provided with
65 notches or teeth, substantially as described.

4. A type-distributing rail having a top guide surface 3, a smooth unbroken side surface 4, and a notched or toothed surface arranged at an angle of inclination greater than
70 the angle of the side guide surface, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

JOSEPH C. FOWLER. [L. S.]

Witnesses:

ALBERT ZORN,
EDW. G. STHAMER.