

(No Model.)

2 Sheets—Sheet 1.

J. C. FOWLER.
TYPE DISTRIBUTING MECHANISM.

No. 533,389.

Patented Jan. 29, 1895.

Fig. 1

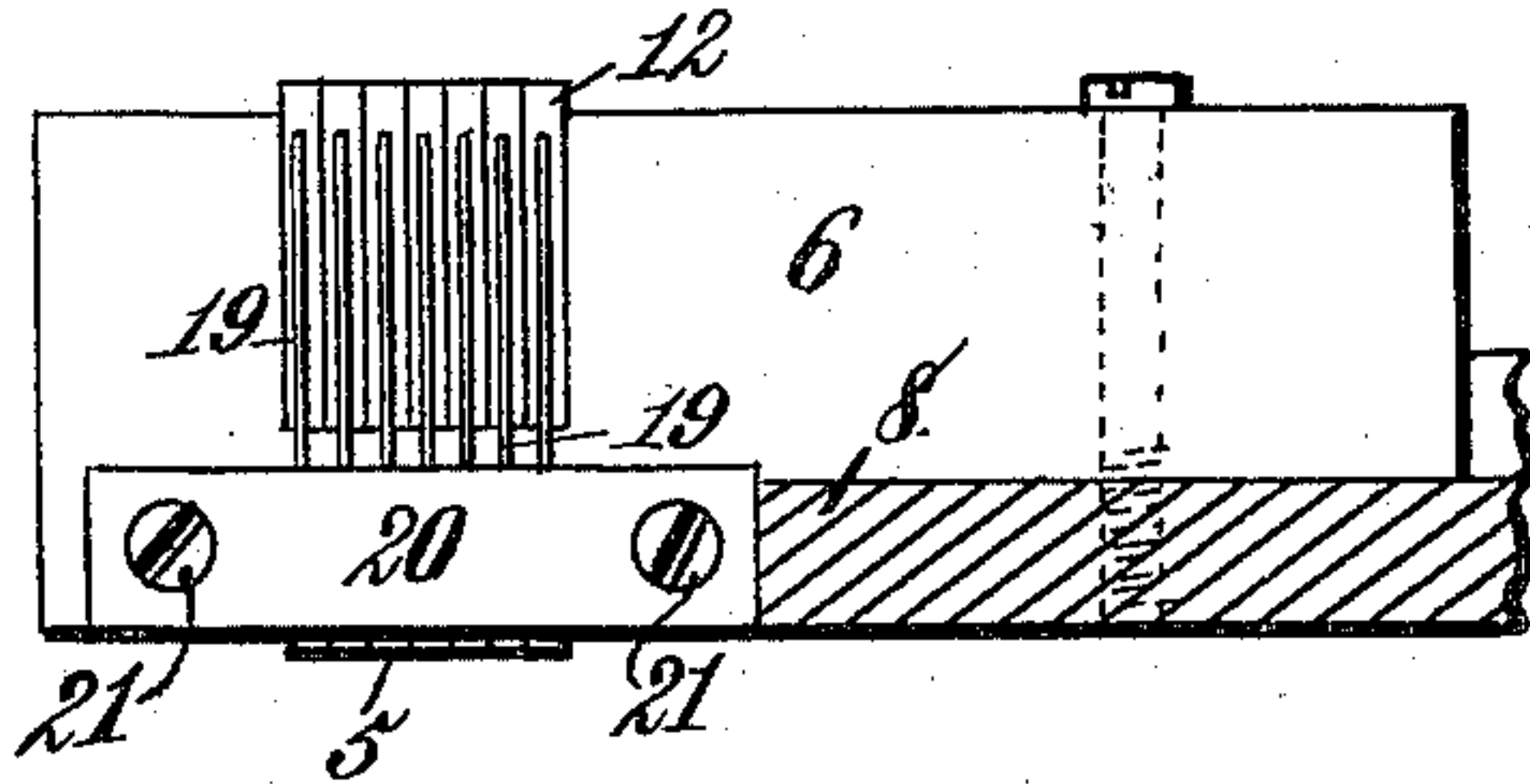


Fig. 2.

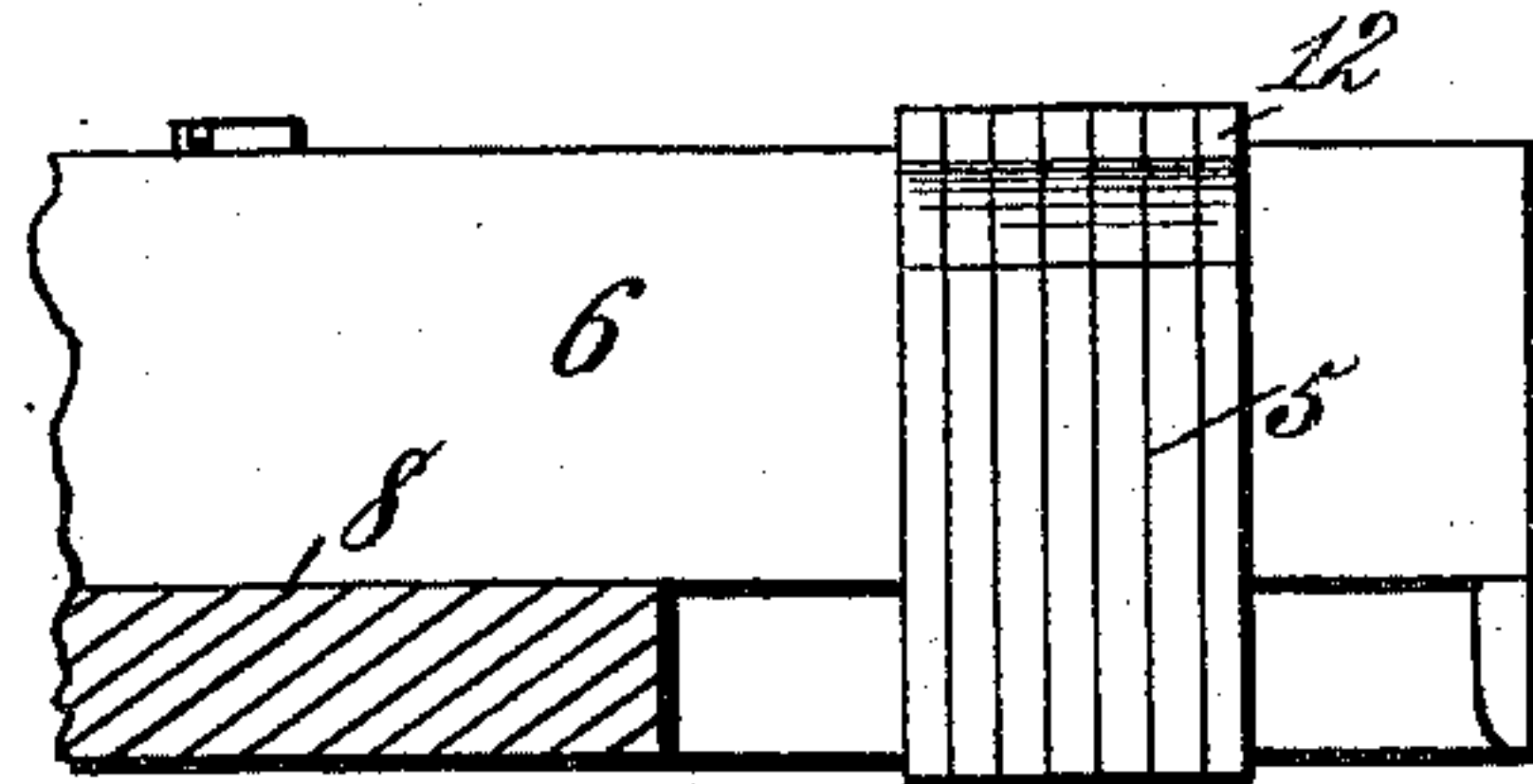


Fig. 3.

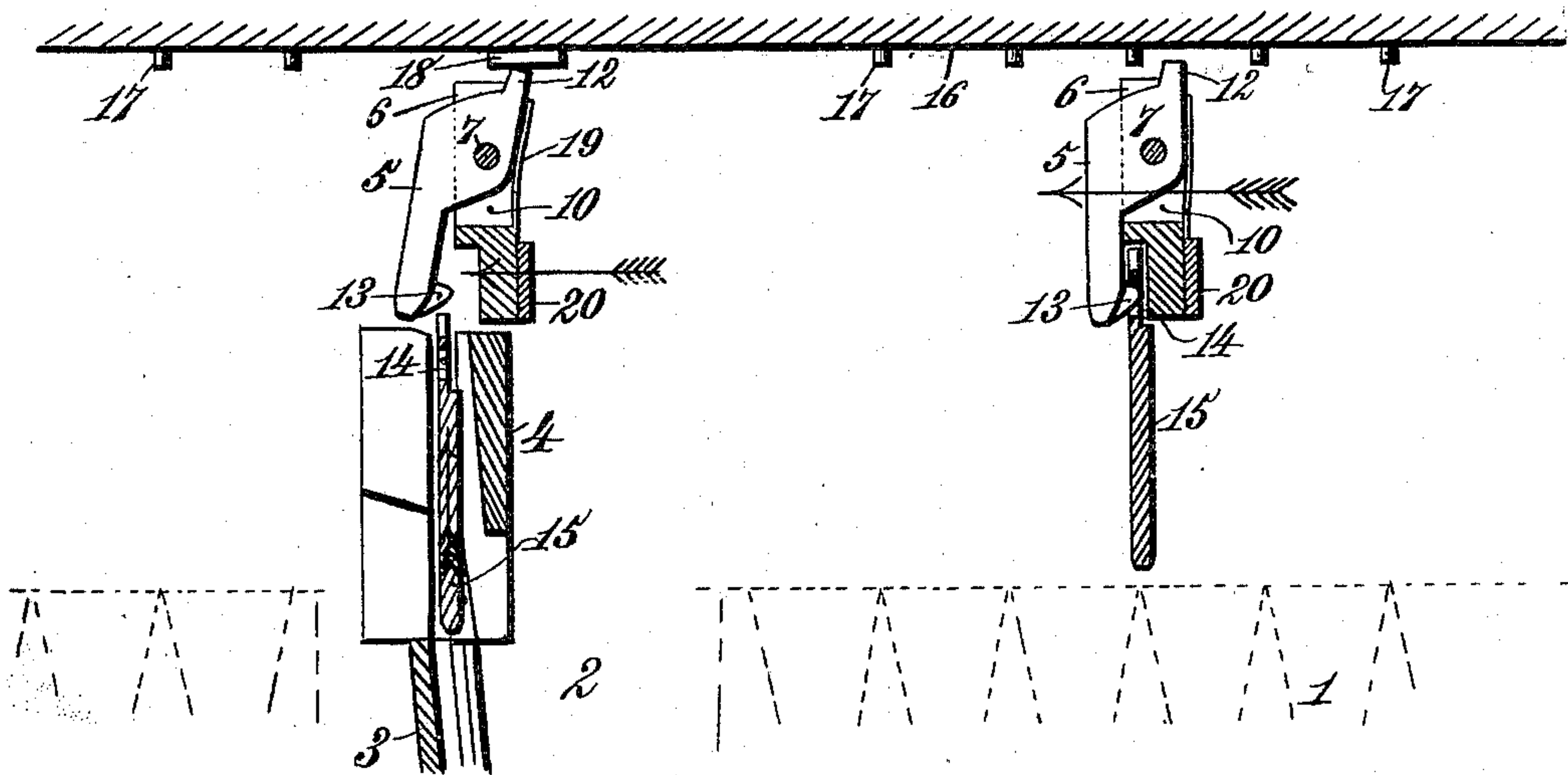


Fig. 4

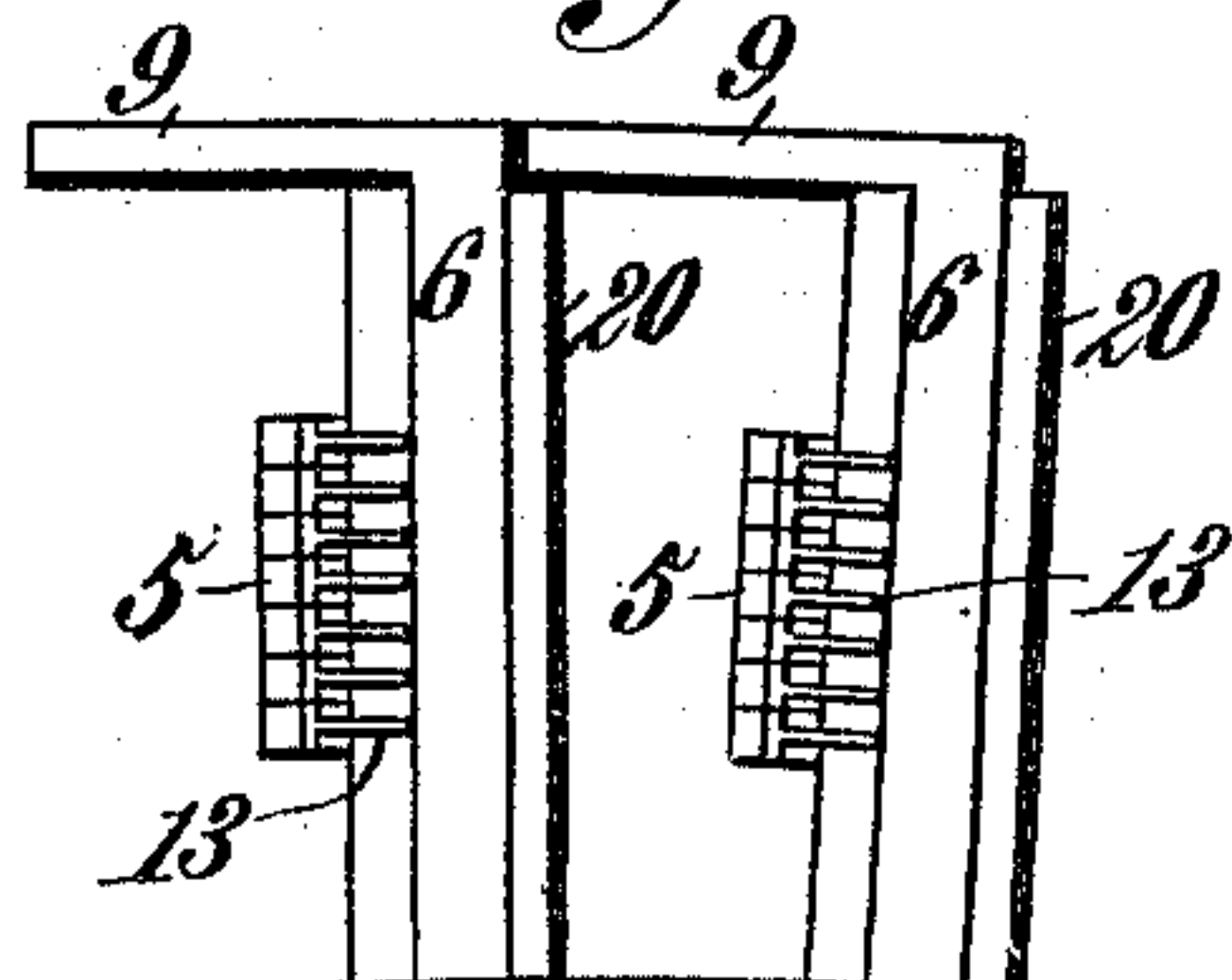
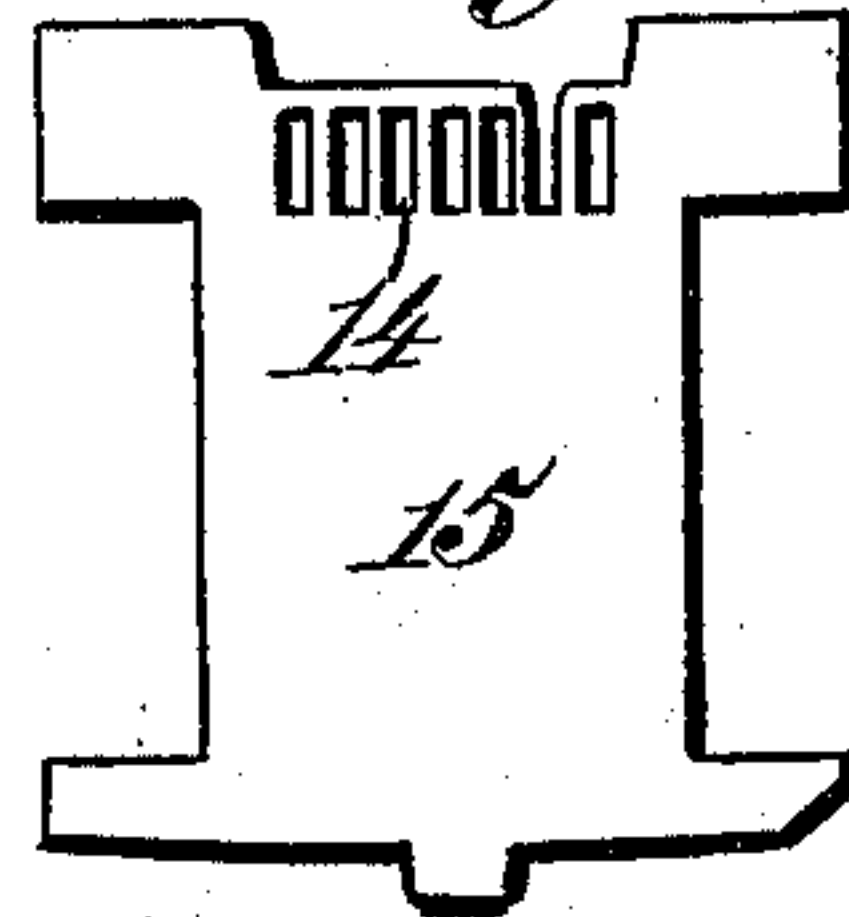


Fig. 5.



Witnesses.
Phat Emmett.

C. P. Lowell.

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

(No Model.)

2 Sheets—Sheet 2.

J. C. FOWLER.
TYPE DISTRIBUTING MECHANISM.

No. 533,389.

Patented Jan. 29, 1895.

Fig. 6.

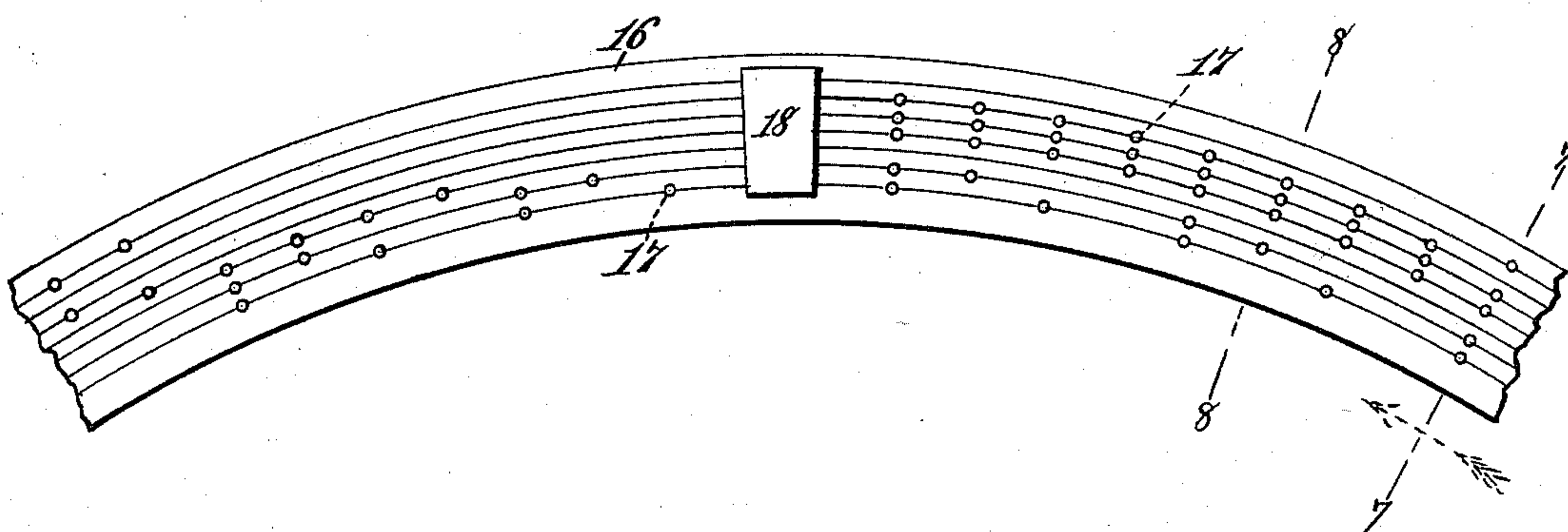


Fig. 7.

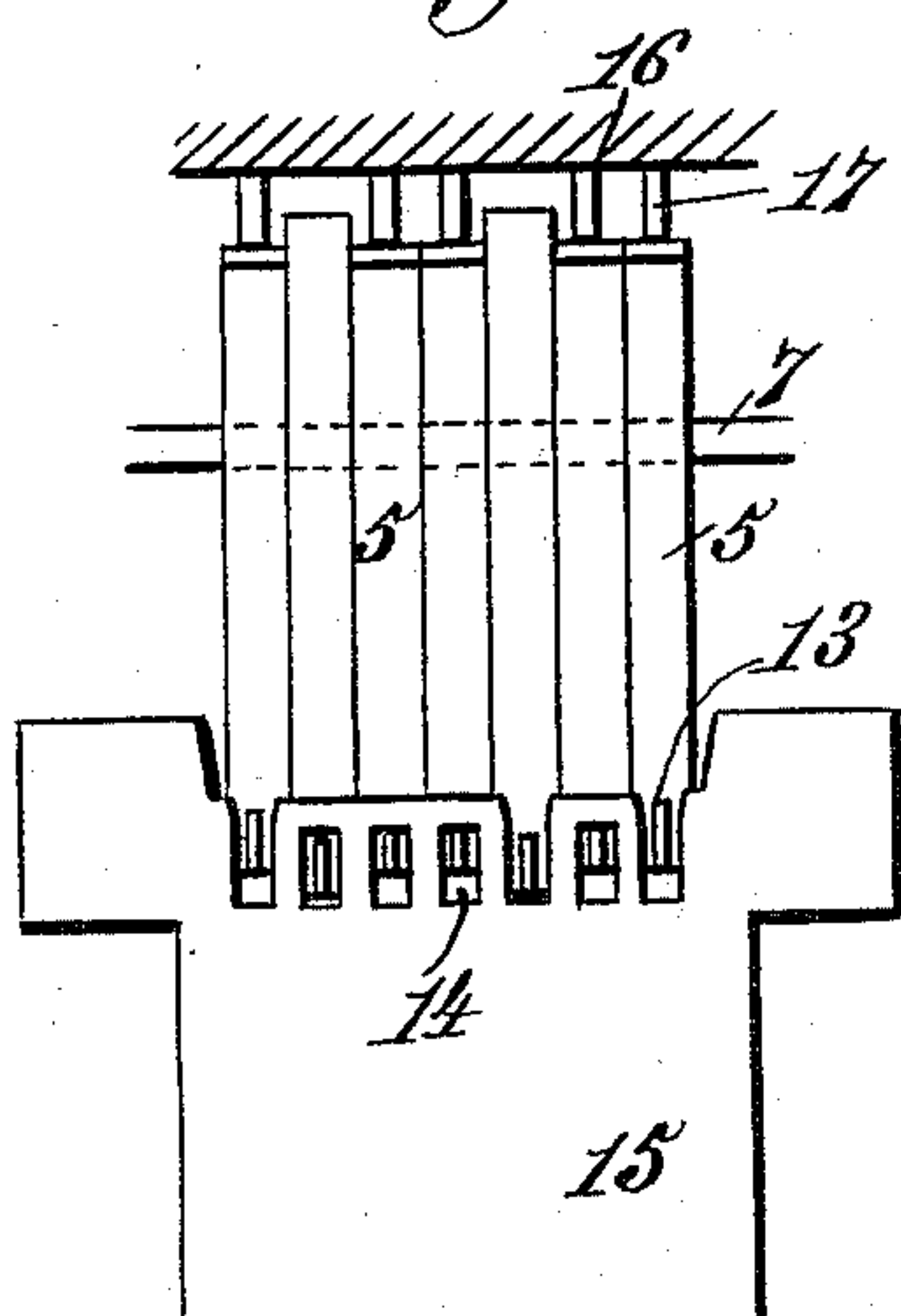
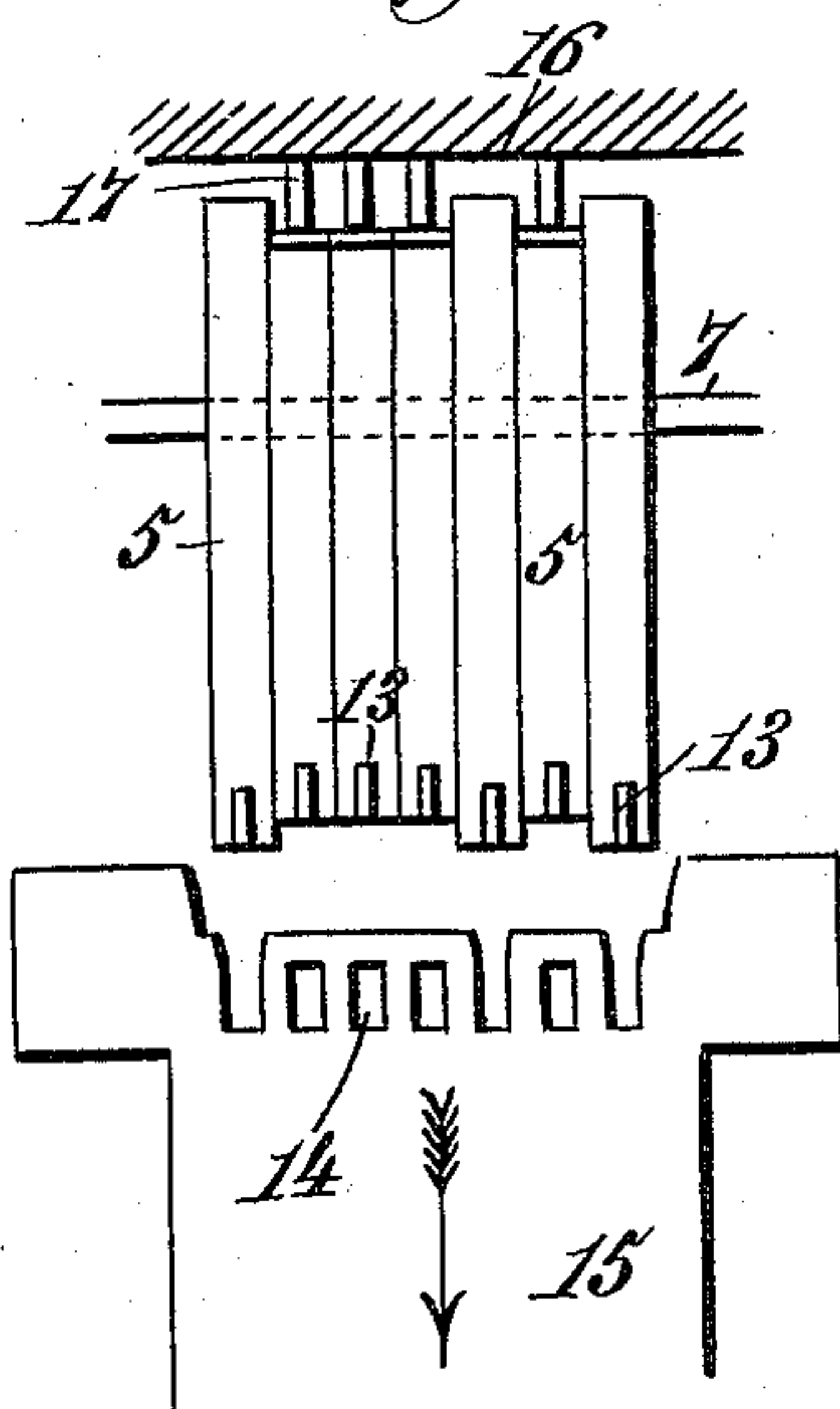
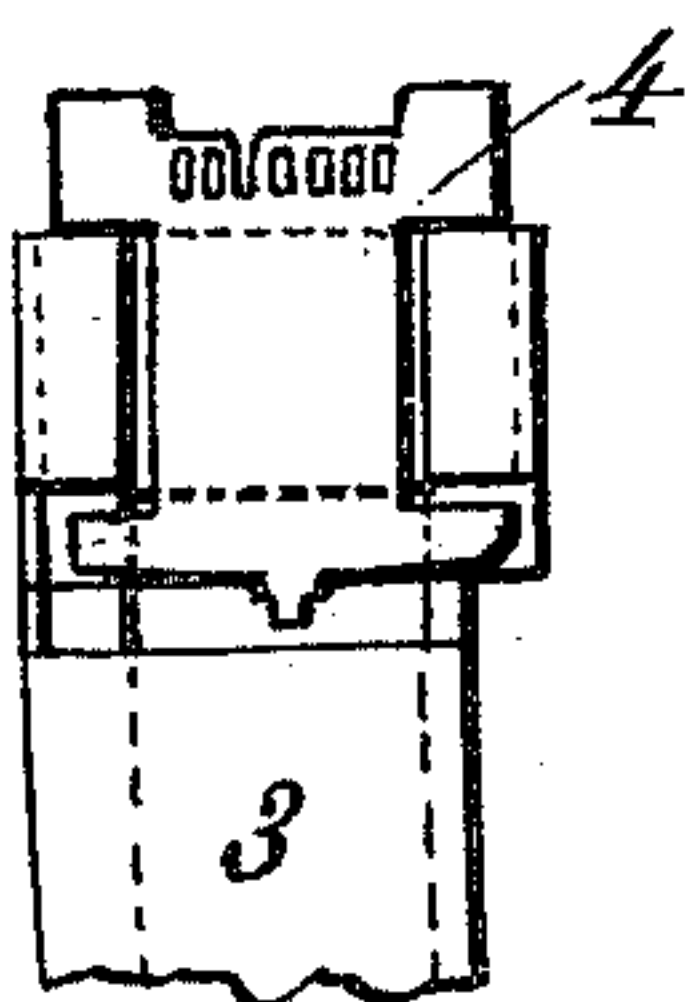


Fig. 8.



Witnesses. Fig. 9.
Robert Emmett.
C. P. Ellwell.



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

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 MECHANISM.

SPECIFICATION forming part of Letters Patent No. 533,389, dated January 29, 1895.

Application filed September 8, 1894. Serial No. 522,489. (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 city, in the District of Columbia, have
5 invented new and useful Improvements in Type-Distributing Mechanism, of which the following is a specification.

This invention relates generally to type-distributing mechanism wherein the types are
10 carried in a circular path by an annular carrier and are automatically released therefrom at the proper points by the conjoint action of pins and disengagers, or cams, for assorting the types in type cases or channels, to be
15 subsequently composed or set in line, as in Letters Patent No. 18,264, issued September 22, 1857, to W. H. Mitchel.

The present invention is designed for use in connection with a machine for producing
20 type-high printing-bars, either by casting the printing-bar direct from a line of types bearing female characters, or by causing a line of male type to indent any suitable matrix material to form a line of matrices from or by
25 which the printing-bar is cast.

In machines of the character referred to the types, whether male or female, are released from type-cases, or channels, by finger-key mechanism and assembled in a line, which is
30 then justified. After 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 thereinto, the types are successively
35 raised to the distributing mechanism and automatically assorted into type cases or channels.

The mechanism for successively raising the types may be of any construction suitable for
40 the purpose in hand, but I prefer to employ the spiral lift or screw described and shown in my Letters Patent No. 510,853, issued December 12, 1893.

The present invention comprises a movable
45 carrier having at intervals sets of oscillatory hooks adapted to engage and suspend types, and a bar supplied with pins or projections, the linear arrangement of which is changed or varied to produce a permutation-bar,
50 whereby all types bearing the same character

or letter are released from the hooks at the same point, and are deposited in the same type case or channel, and so on throughout the group of characters used in the machine.

The chief object of the present invention 55 is to provide a new and improved distributing mechanism particularly designed for use in connection with the spiral lift or screw hereinbefore referred to, whereby the types will drop perpendicularly into the perpendicular, 60 or approximately perpendicular upper ends or receiving mouths of the type cases or channels.

The invention is illustrated by the accompanying drawings, in which— 65

Figure 1 is a detail sectional rear elevation, showing a portion of the movable or rotary-carrier, and one of the radial arms or brackets on which a set of oscillatory hooks is mounted. Fig. 2 is a front elevation of the same. Fig. 3 70 is a sectional elevation, showing one set of hooks open and ready to receive the ascending type, and another set of hooks closed and carrying a type. Fig. 4 is a bottom plan view, showing a portion of the movable or rotary-carrier, and two of the radial arms or brackets, each carrying a set of oscillatory hooks. Fig. 5 is a detail side elevation of one of the types 75 designed to operate in connection with the oscillatory hooks. Fig. 6 is a bottom plan view of a portion of the permutation-bar. Fig. 7 is a detail sectional elevation, on the line 7—7, Fig. 6, showing one set of oscillatory hooks and a portion of the permutation-bar with a type suspended in position prior 85 to being released over the proper type-case or channel. Fig. 8 is a similar view, on the line 8—8, Fig. 6, showing the type released and descending; and Fig. 9 is a detail elevation looking at the left hand side of the guide- 90 block, hereinafter described, to more clearly show its open construction, whereby the types can pass therefrom.

In order to enable those skilled in the art to make and use my invention, I will now de- 95 scribe the same in detail, referring first to Fig. 3 of the drawings, wherein I have indicated by dotted lines, as at 1, the perpendicular, or approximately perpendicular upper ends or receiving mouths of several of the 100

type cases or channels of the magazine exhibited in my patent hereinbefore referred to. The magazine is in practice circular in cross section and substantially in the form of a truncated cone, and at the point indicated by the numeral 2 the type cases or channels are omitted and a vertical guide 3 is arranged for guiding the types vertically through a guide-block 4 into engagement with the oscillatory hooks hereinafter explained. The types are moved upward by the spiral lift or screw substantially as in my patent before alluded to. As each type rises at its upper edge above the upper edge of the guide-block 4, it passes between the oscillatory hooks 5 and a fixed arm or bracket 6, and subsequently the oscillatory hooks engage the type and move in the direction of the arrow, thereby carrying the type to the left, Fig. 3. To permit this movement of the type, the guide-block 4 is of an open construction at its left side, Figs. 3 and 9, so that, although the type really lies vertically in the guide-block, it can be moved outward therefrom at the left hand side, as will be obvious.

The oscillatory hooks 5 are arranged in sets, and each set is pivotally mounted, as at 7, on an arm or bracket 6 projecting radially from a movable or rotary carrier, preferably composed of a disk 8 of metal suitably mounted at its center, so that it can be rotated in the same manner as the rotary-wheel with its carrier fingers is rotated in my Patent No. 510,853.

The means for rotating the movable or rotary-carrier may be of any character to suit the conditions required.

The rotary carrier or disk 8 is provided with a plurality of the arms or brackets 6 which are attached to the disk, and extend radially from the periphery thereof. The number of arms or brackets corresponds with the number of sets of oscillatory hooks necessary to distribute the group of characters employed in the machine. The number of characters may vary, and therefore the number of sets of oscillatory hooks may vary, in which event the number of arms or brackets will vary. The outer ends of the arms or brackets are provided with brace-bars 9 extending substantially at right angles to the arms or brackets, and each bearing against the outer end of an adjacent arm or bracket, as clearly shown in Fig. 4, which construction is advantageous, in that it is simple, economical, strong, and substantial. The arms or brackets are vertically slotted, as at 10, and a set of seven oscillatory hooks 5 is arranged in each slot on one of the pivot pins 7. The body portions of the dogs 5 extend above the pivot-pins 7 to form tail pieces 12, and the lower ends of the bodies of the hooks are provided with the hooked portions 13 adapted to enter the slots 14 in the upper end portions of the types 15, whereby the types are suspended and carried in a circular path over the perpendicular, or approximately perpen-

dicular upper ends or receiving mouths of the type cases or slots until each type arrives over its appropriate type case or channel, when it is released, as will hereinafter appear, and falls perpendicularly into the proper type case or channel.

The device for operating the oscillatory hooks to automatically release the types is composed of a bar 16, in the form of a ring or annulus, and designed to be fixed in a stationary position above the movable or rotatable carrier or disk 8. The lower side of the circular or ring-bar 16 is provided with pins or projections 17, the linear arrangement of which is changed or varied to produce a permutation-bar, whereby the required number of oscillatory hooks in each set of hooks is operated to release the type carried thereby. The number of hooks is seven in each set, and the number of slots is seven in each type, by which means all the required combinations or permutations to properly distribute the number of characters necessary for practical work in the printing art can be effected.

In Fig. 5 it will be observed that the upper end or boundary of one of the slots 14 is omitted, so that when the remaining slots are in engagement with the oscillatory hooks 5, it is only necessary to actually operate six of the hooks in order to release the type, the remaining hook standing in its normal position, but not interfering with the descent of the type, owing to the fact that the slot corresponding thereto has its upper end or boundary omitted, and therefore it can pass freely off of the hook corresponding thereto.

In Figs. 7 and 8, a type is shown wherein three of these slots have their upper ends or boundaries omitted or removed, in consequence of which it is only necessary to operate four of the oscillatory hooks in order to release the type and permit it to fall perpendicularly into its appropriate type case or channel. In like manner the combinations or permutations can be extended throughout the group of characters employed in the machine, so that all the characters will be automatically released and assorted into the proper type cases or channels, the types of the same character being all released and deposited in one receptacle, those of another character in another receptacle, and so on throughout the group of characters employed.

In Fig. 6 the general arrangement of the pins or projections to produce the permutation-bar is illustrated. It will be observed that the linear arrangement of the pins or projections is varied, and the pins are so arranged that over a certain type case or channel a single oscillatory hook will only require to be moved to disengage a type, which type would of course have the upper ends or boundaries of all the slots omitted except one, while over another type case or channel two of the oscillatory hooks will be operated, and over another three, and over another four, and over another five, and so on.

From the foregoing explanation it will be seen that all type bearing the same character can be automatically released over a certain type case or channel; and that a large number of characters can be practicably assorted into their respective type cases or channels, to be subsequently released by key mechanism, and set up in a line for producing type-high printing bars by either of the methods hereinbefore referred to, to wit: by casting direct from a line of type bearing female characters, or by causing a line of type bearing male characters to indent suitable matrix material to form a line of matrices from or by which a printing-bar is cast.

It will be observed by reference to Figs. 3 and 6 that the permutation-bar is constructed with a plain surfaced abutment or block 18, of dimensions sufficient to act upon and open all seven hooks of each set. This abutment or block 18 is located directly above the guide-block 4, and consequently as each set of oscillatory hooks arrives over the guide-block 4 all of the hooks are opened, so that a type can be raised between the hooks and an arm or bracket 6, through the medium of the spiral lift or screw hereinbefore referred to. The instant the tail pieces 12 of the oscillatory hooks leave the abutment or block 18, the oscillatory hooks are thrown to their closed position through the medium of suitable springs 19, thereby causing the hooked portions 13 of the hooks to enter the slots 14 of the type and suspend the same until the proper hooks are acted upon by the proper pins 17 to release the type and permit it to fall by gravity into the appropriate type case or channel.

The springs 19 may be of any construction suitable for the purpose in hand, so that they will constantly act upon the oscillatory hooks and tend to hold them in their closed positions, as shown at the right hand side of Fig. 3, where the hooks are represented as engaging and suspending a type. In the present instance the springs 19 bear at one end against the dogs 5 at a point above the pivot 7, while the lower ends of the springs are secured by a plate 20 attached to the arm or bracket 6 through the medium of metal screws 21, Fig. 1. The construction and arrangement of the springs, however, can be variously modified, and likewise the supports for the oscillatory hooks can be changed without altering the spirit of my invention.

It will be seen by reference to Fig. 8 that in order to drop a type at the proper point, three of the slots in the type have their upper ends or boundaries omitted; and that three of the oscillatory hooks have no engagement with the pins or projections of the permutation bar, Fig. 8, but those hooks which require to be operated in order to release the type have engagement with the pins or projections, so that the type will be released and permitted to fall into its type case or channel. As the carrier or disk rotates beneath

the permutation-bar, Fig. 8, the first hook, beginning at the left, has no contact with a pin or projection on the permutation-bar, but it is necessary to rock the second, third, fourth and sixth hooks, for which reason these hooks have contact with pins or projections on the permutation bar. In other words, in order to properly release a type at the proper point, it is only necessary to operate those hooks whose hooked ends enter slots which are closed at their upper portions or boundaries, because those hooks which enter the open ended slots will not prevent the free dropping of the type when it arrives over the type case or cell into which it is to be deposited.

The form, shape or outline of the types may be variously modified and is immaterial so long as the types are susceptible of being mechanically handled or manipulated.

As regards all elements not specifically illustrated in the drawings, they may be the same as in my former patent, or any other construction suitable for the purpose in hand, and for this reason I do not deem it necessary to more fully illustrate and describe those parts of the machine which are necessary in the production of type-high printing bars.

My present invention enables me to place the upper ends of the type cases or channels quite near the suspended types and to drop the latter perpendicularly into the cases or channels. This facilitates the distribution of the types, simplifies the machine, and renders it possible to materially reduce the dimensions or size thereof.

Inasmuch as the hooks are positively operated by pins or projections, the types will be properly released without any liability of one part hanging, and thus causing the type to fall improperly, or become twisted or distorted, or out of the proper plane necessary to entirely avoid choking the machine, or the entrance of a type into an improper type case or channel.

Having thus described my invention, what I claim is—

1. In a type-distributing mechanism, the combination of a permutation-bar, with a movable carrier having a series of sets of oscillatory hooks adapted to engage and suspend types and to be acted on by parts of the permutation-bar to release the types over the proper type cases or channels.

2. In a type-distributing mechanism, the combination of types having slotted end portions, and a bar having pins or projections the linear arrangement of which is varied to produce a permutation-bar, with a movable carrier arranged below the bar and provided with devices constructed to engage the slotted ends of the types and to be acted on by the said permutation pins or projections to release the types over the proper type cases or channels.

3. In a type-distributing mechanism, the combination of types having slotted end portions, and a bar having pins or projections the linear arrangement of which is varied to
5 produce a permutation-bar, with a rotary carrier mounted on a vertical axis and having a series of sets of type suspending devices constructed to engage the slotted ends of the types and to be acted on by the permutation
10 pins or projections to release the types over the proper type cases or channels.

4. In a type-distributing mechanism, the combination of a permutation-bar, with a rotary carrier arranged under said bar and having
15 a series of sets of oscillatory hooks adapted to engage and suspend types and to be acted on by the permutation-bar to release the types over the proper type cases or channels.

5. In a type-distributing mechanism, the combination of a bar having pins or projections the linear arrangement of which is varied to produce a permutation-bar, with a rotary-carrier having a series of sets of oscillatory hooks, and types having slotted ends with
20 which the hooks are adapted to engage to suspend

pend the types, substantially as and for the purpose described.

6. In a type-distributing mechanism, the combination of a permutation-bar, a rotary-carrier having a series of sets of type-engaging
30 and suspending devices, and types provided with slotted end portions with which the type-suspending devices are adapted to engage, substantially as and for the purposes described.

7. In a type-distributing mechanism, the combination of a circular permutation-bar, with a rotary-carrier having a series of sets of oscillatory hooks adapted to engage and
40 suspend types and to be acted on by the permutation-bar to release the types over the proper type cases or channels.

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 H. NORRIS,
C. P. ELWELL.