Sheet 1. 2 Sheets.

V. Beaumont.

Type Distributing Mach.

No. 10656. Patented Mar. 21. 1854.

Fig. 1.

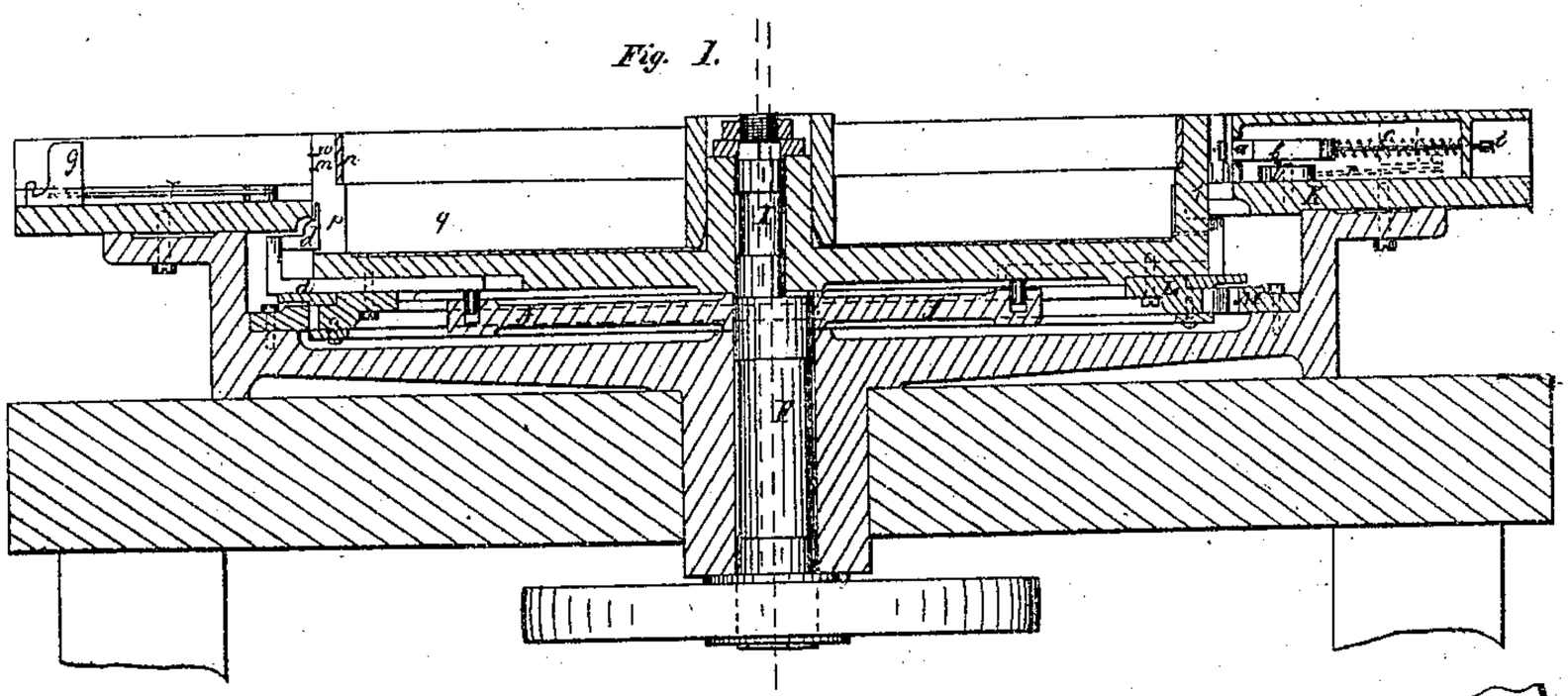


Fig. 2.

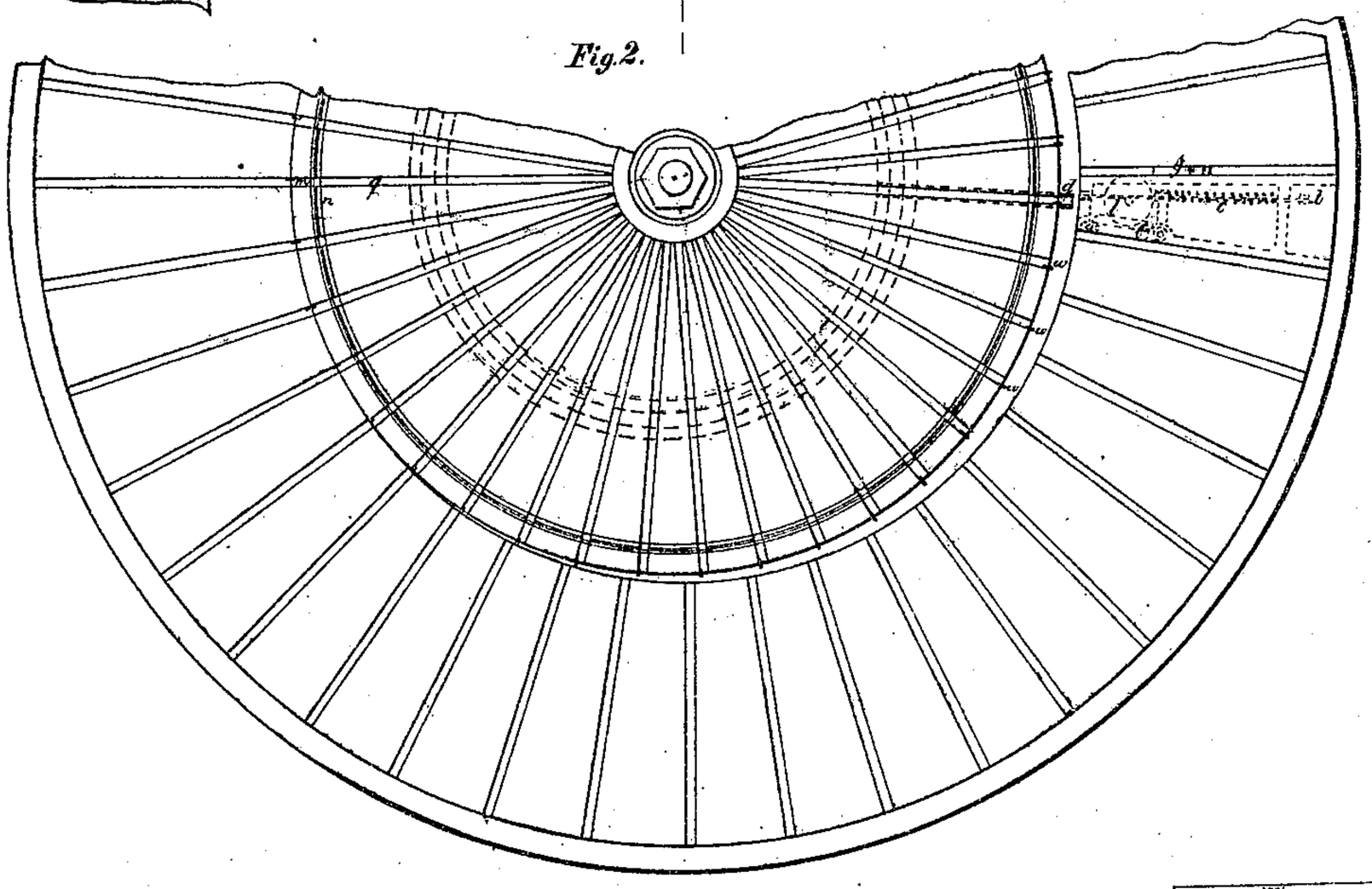
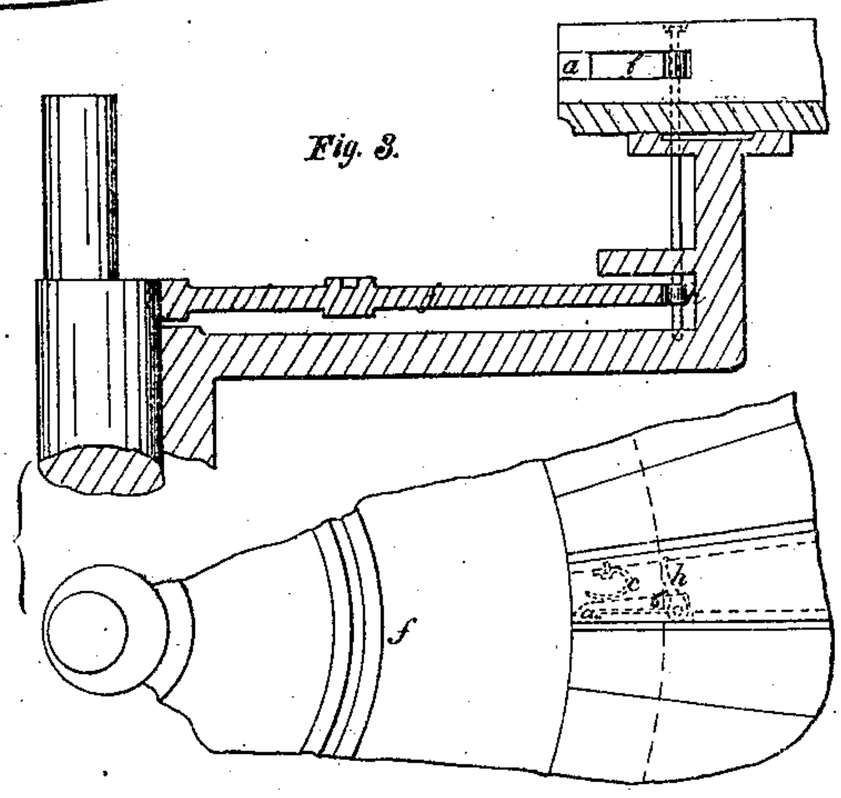


Fig. 3.



Witnesses

Chas Mullin

Inventor,

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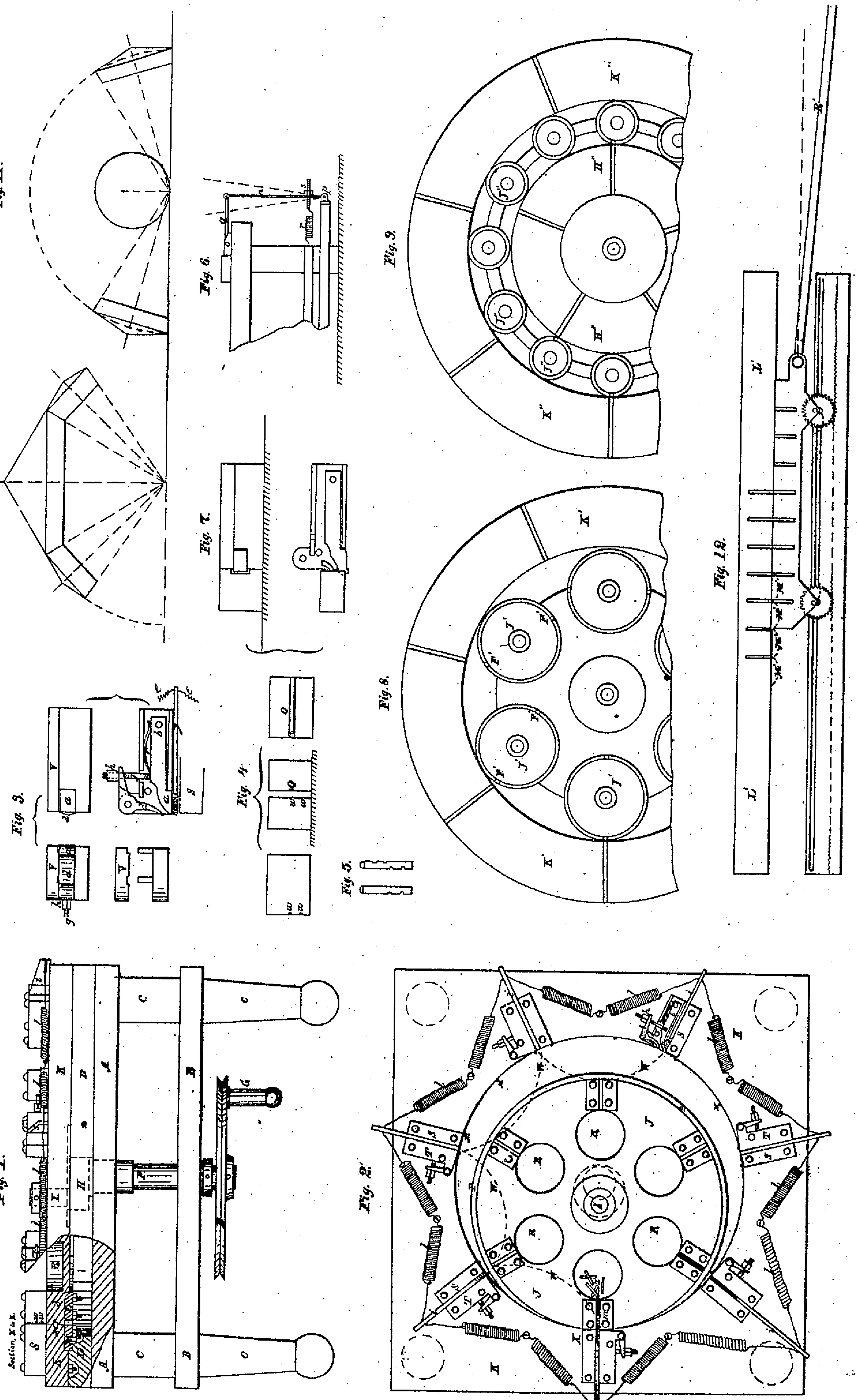
V. Beaumont. Sheet 2. 2 Sheets.

Type Distributing Mach.

No. 10656. Patented Mar. 21. 1854



Witness,

Inventor,

V. Beaumont

UNITED STATES PATENT OFFICE.

VICTOR BEAUMONT, OF NEW YORK, N. Y.

IMPROVED MACHINE FOR DISTRIBUTING TYPES.

Specification forming part of Letters Patent No. **10,656,** dated March 21, 1854.

To all whom it may concern:

Be it known that I, VICTOR BEAUMONT, of New York, in the county of New York and State of New York, have invented a new and Improved Mode of Distributing Printers' Types; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Before describing my invention, and in order that it may be fully understood in what respects it differs from other methods of distributing types, I will first give a brief description of the known processes.

Etienne R. Gaubert's distributing-machine, patented in 1840: The types are thrown in a heap on an inclined grooved table, and by constant shaking, combined with diverse apparatus, are brought, properly disposed, to slide successively over a number of openings. Each kind of type is notched differently. Each opening is the counterpart of a kind of type, so that each type must pass over the openings corresponding to other letters and fall through its own corresponding one. The principal objections to this machine are its wearing the types, on account of the shaking motion, and its high price and complication.

Clay and Rosenborg's machine, patented in 1843: In this machine the page of types is carried on a carriage, going backward and forward across a number of parallel grooves, each groove corresponding to a letter-type. A distributer has to read the last letter of the last line and to press upon its corresponding key, by which the carriage is made to stop in front of the proper groove, and the type is made to fall therein. This machine was accessory to one for setting up types, patented at the same time by the same inventors.

C. Sorensen's machine, exhibited at the London world's fair: Its principal part is a circular revolving horizontal disk. Openings corresponding in form to the shape of the various notched types are cut through the disk, all converging toward the center and equally distant from it. Over the disk is a vertical spout, so placed that when the disk revolves each of the openings in it is in its turn and for an instant the prolongation of the spout itself. In that spout the lines of types to be distributed are placed the face of the character in front. The operator reads the first letter which presents itself, and he presses on the corresponding key. This stops the disk when the proper opening is under the spout, and the letter falls through. Each kind of type has a particular notch, and each opening is as if modeled on the type which it is intended to receive.

I make use in my machine of notched types and corresponding openings, as is done in two of the preceding machines. I have it self-acting, as in the first one. But the difference is that in them the types arrive to the openings sidewise by sliding on the surface into which the openings are cut, and that in mine they come to the openings frontwise, like a hammer on the anvil, following a curve whose last element is perpendicular to the face of the opening.

To enable others to make use of my invention, I will proceed to describe its construction and operation, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front view, partly cut. Fig. 2 is a top view of the machine; Fig. 3, details of a distributing-channel; Fig. 4, a view of a receiving-channel entrance; Fig. 5, specimen of a notched type; Fig. 6, another arrangement of the pushing-spring; Fig. 7, another form of the finger, and Figs. 8, 9, 10, 11, and 12 various forms of the machine.

In the machine represented, Figs. 1 and 2, the two square boards A A and B B, the feet C C C C, and the flat ring D D form the frame. In the center is a vertical shaft F. On its lower end is a pulley E and a hand G, by which it is made to revolve. At the upper end is fixed the eccentric H with its pin I. Around that pin, as on its axis, the circular disk J J may revolve freely, and around this disk and in the same plane a flat circular ring K K, concentric with the shaft, is fastened to the frame. This disk is internally tangent to the ring, so that when the shaft F is made to revolve the disk J J rolls on the inside of the ring K K. To prevent its sliding, there are fastened to the ring and to the disk the two cog-wheels L and M, which act on each other, and to key the upper surfaces on exactly the same level there is the groove N

around the ring and a corresponding tongue P projecting around the disk. Upon the rolling disk are fastened the receiving-channels.

A receiving-channel entrance is represented in front view, Fig. 4. It is made the exact counterpart of one kind of types, with protuberances corresponding to the notches of the types, so that when one of that special kind of type standing vertically is forced against it that type will pass in, but any other in which the notches are not similarly situated will be prevented from entering the protuberances or projecting parts. Behind the entrance the receiving-channels may be prolongated, as in Figs. 1 and 2, or stop short, as represented in Figs. 8 and 9. The first arrangement is adapted when it is found desirable to keep the types in lines after distributing. In such case a light spring Q may be advantageously inserted in one of the sides of the channel to create a pressure against the sides of the types and prevent them from falling down or of being projected when they are pushed in. At the end of the channels are the receiving-boxes R R, in which the types will fall.

Upon the immovable ring are fastened the distributing-channels. One of them is represented in Fig. 3. It is formed by two parallel blocks screwed on the ring, forming a channel between them equal in width to the gage of the types. One of the blocks S is a solid piece. The other T is of two pieces, and the cover V being taken off discloses a lever *a b*, which I call the "finger," and an elbow-lever *d f*, acting on the finger by means of the rod *g*, the relative position of the two levers being regulated by the nut *h*. Forming a part of the distributing-channel there is the sliding piece *j*, pushed constantly forward by the springs *l l*.

When types are inserted into a distributing-channel, the spring *l l*, acting upon the slide *j j*, presses the line forward; but the end *a* of the finger, pressing on the sides of the foremost types, prevents any motion from taking place; but when any receiving-channel comes in contact with a distributing-channel, so as to be for a moment a continuation of it, as represented at X, Fig. 2, the block *m* presses against the arm *d* of the elbow-lever *d f*, the other arm draws back the finger, which ceases to press on the types, the line of types released is pushed forward by the spring *l l*, and one or more of the foremost types, as many as have notches corresponding to the opening of the receiving-channel, will pass through; but if the foremost does not correspond there will be no passage of any type.

The relative proportions between the circumferences of the disk and ring are such that each distributing-channel will come successively in contact with all the receiving-channels. The principles requisite to obtain this result are, first, that the distance between the receiving-channels measured on the circumference of the disk must be exactly equal to that of the distributing-channels measured on the circumference of the ring; second, that the number of the distributing-channels and the number of the receiving-channels must have no common factor.

To illustrate the way in which the machine works, I will add that each distributing-channel does exactly what a man would do if, having notched types and corresponding openings, he were taking successively each type between his thumb and forefinger and trying to push it in at each successive opening. The difference is that the machine has as many hands as are wished for.

The machine, as represented, Figs. 1 and 2, is made to divide the types into six different portions. For example, if there are sixty kinds of types mixed, the machine may be made to send ten kinds into each receiving-channel, which will have to be brought to another machine having ten receiving-channels to be separated completely. The machine may also be made to take out of the types five particular kinds, sending all the rest into the sixth receiving-channel; but it may, in fact, be constructed with any number of receiving and distributing channels.

Although the arrangement represented in Figs. 1 and 2 is the one I prefer, it will nevertheless be obvious that my invention may be carried into effect by various modifications of it. For example—

Fig. 6 is a second arrangement of the springs used to push the sliding piece. The lever *n*, hinged at *p*, is connected with the sliding piece by the rod *q*. A spring *r* is attached to the frame of the machine, and its tractive power on the lever is regulated by the nut *s*.

Fig. 7 represents a distributing-channel in which the finger is hooked at the extremity, so as to keep the types from moving more assuredly than is done by side pressure only. A corresponding notch is cut in the receiving-channels to leave room for the hook.

Fig. 8: In this the disk has been diminished, so as to contain only two receiving-channels F′ and F′; but six disks are used instead of one.

Fig. 9: Ring K″ K″ is immovable and supports distributing-channels. A number of small receiving-disks J″ J″ J″ are caused to move as rollers against it by the large revolving disk H″ H″, on which are also a number of distributing-channels.

Figs. 10 and 11 represent conical disks revolving against each other or on a plane whereon the receiving and distributing channels could be fixed, though not so advantageously as on cylindrical disks and rings.

Fig. 12: Here the distributing-channels are on a straight board L′ L′. The receiving-channels are on another straight board, moving in front of the first by means of two cog-wheels acting on a rack, each wheel bearing an eccentric-pin to connect it with the board. A reciprocating motion is communi-

cated from a crank by rod. Each point of this moving board has the same form of motion as the eccentric points of the rolling disks in other figures—that is to say, each of them describes an epicycloidal curve, whose general property is to have its last element perpendicular to the circle or straight line on which the epicycloid is described. The curve is shown in M, Fig. 12, and in W, Fig. 2. This last arrangement admits of the machine being vertical, inclined, or horizontal.

In any of the preceding figures the receiving and distributing channels may exchange places without interference with the good working of the machine.

On Plate II, Fig. 1 is a transverse section of a distributing-machine; Fig. 2, a top view of the same; Fig. 3, a new arrangement of a distributing-channel; Fig. 4, a type-feeder.

In Plate II is represented, Figs. 1 and 2, a machine which we are actually building. It will have thirty-nine receiving-channels and forty distributing-channels. It will distribute the twenty-five characters most frequently in use, which form of themselves seventy-five per cent. of the total quantity. The remaining twenty-five per cent. will have to pass through the machine a second time in order to their being separated from each other. This will be effected by means of additional notches cut in the back of such characters. The slides J are drawn against the types by a cord *r*, wound round the spring-box *l*. The pressing-finger *a b* is in the form of a bell-crank. It is opened by the rod *t* and closed by the spiral spring *c*. Each receiving-channel is divided into two different parts situated on different levels, so that when the types have entered it at *m* they are arrested by the partition *n* and fall down by their own weight at *p*, whence they are pushed farther on into the second part of the channel *g*, which may be taken out of the machine to be emptied. In this second channel is a light piece of wood, movable therein with a slight friction and used as an abutment for the foremost types, these channels being made of plate that yields a little. The arrangement to push the types forward and make room for others consists in the slides *d*, which receive their motion backward and forward from the eccentric-wheel *f*, keyed to the shaft. The little studs *w*, corresponding to the notches of the types, are here made to extend a little outside the receiving-channels. Fig. 3 represents another method of arranging a distributing-channel. The axle of the finger *a b* extends downward, and a cam *h* is fastened to it, the end of which is pressed against the eccentric *f* by means of spring *c*, acting on the finger *a b*, which in this case is fastened to its axle. The eccentric has to be shaped so as to open the distributing-channels when they are in contact with the receiving ones and to let the spring *c* close it when they are separated.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, called "distributing-channel," of the sides S and T, lever *a b*, and slide J, with two springs *c* and *l*, lever *f d*, and rod *g*, or their equivalents, substantially as described.

2. The combination of distributing and receiving channels with disk *j j*, ring *k k*, and eccentric-shaft H, or their equivalents, by which the distributing and receiving channels are brought into contact along a curve W, the last element of which curve is perpendicular to their faces of contact, substantially as described.

V. BEAUMONT.

Witnesses:
RICHD. M. HOE,
C. E. DETWOLD.