

D. Brainerd Ray's
Type Distributing and Setting Machine.

No. 120,398.

Patented Oct. 31, 1871.

Fig. 1. Back Elevation.

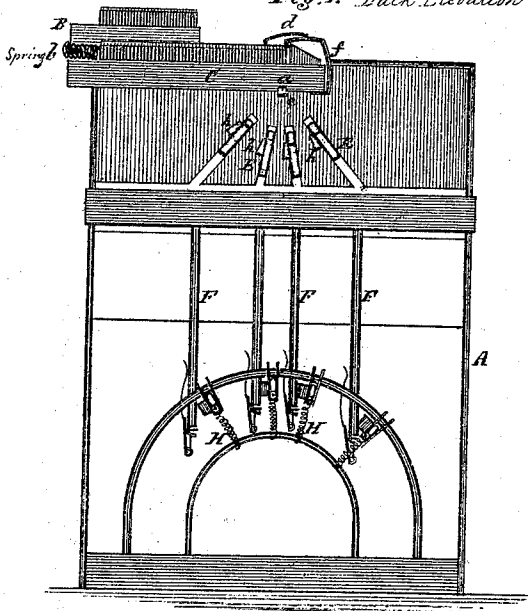
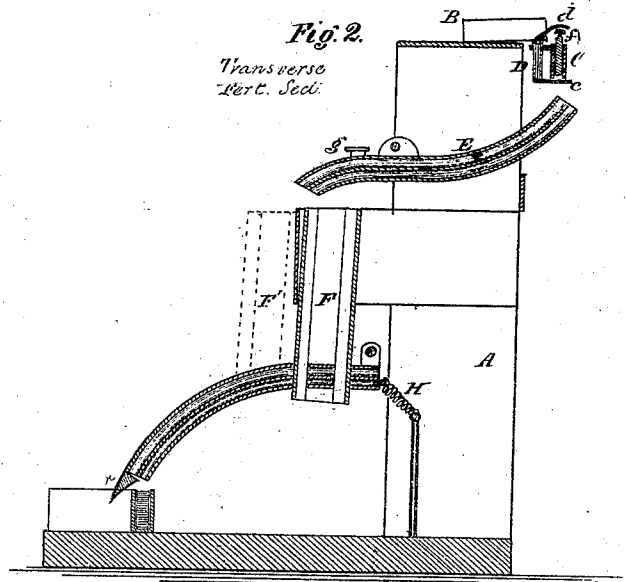
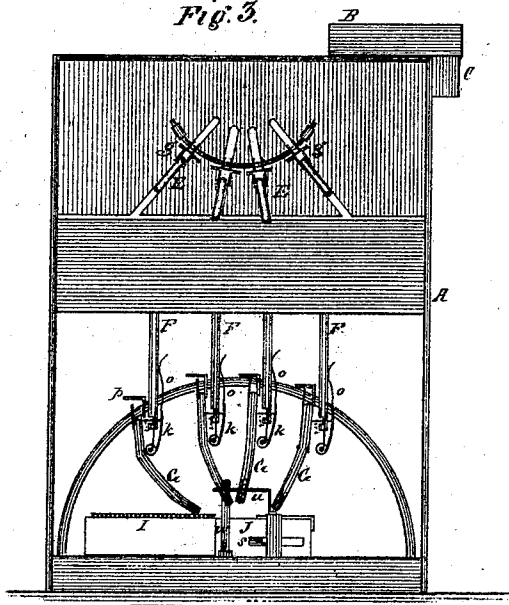


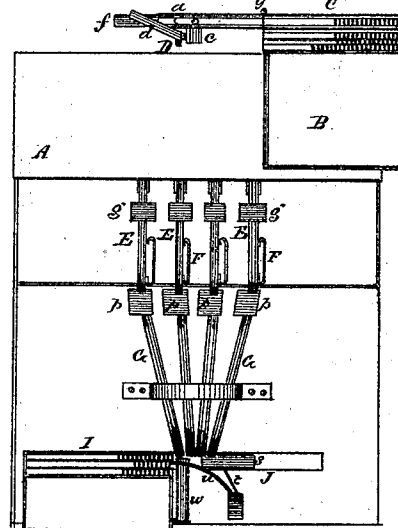
Fig. 2.
Transverse
Perf. Sect.



Front Elevation.
Fig. 3.



Plan.
Fig. 4.



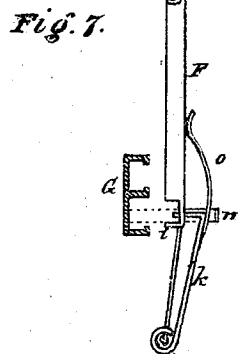
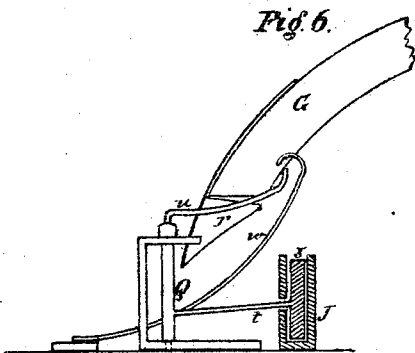
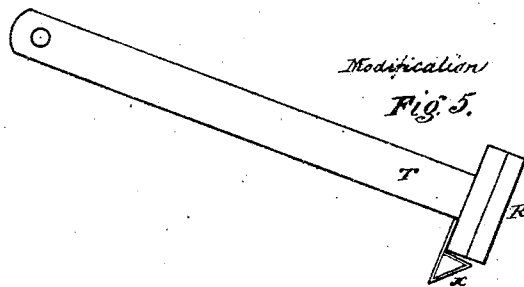
Witnesses.
Wm. Thomson
Ray

Inventor.
D. Brainerd Ray

D. Brainerd Ray's
Type Distributing and Setting Machine.

No. 120,398.

Patented Oct. 31, 1871.



Witnesses.

Alfred Thornton.

C. Rogers

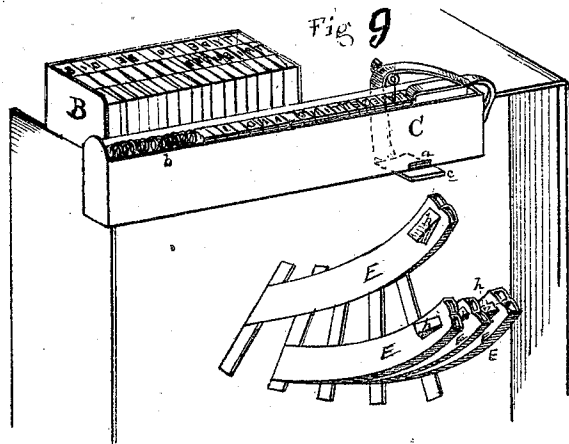
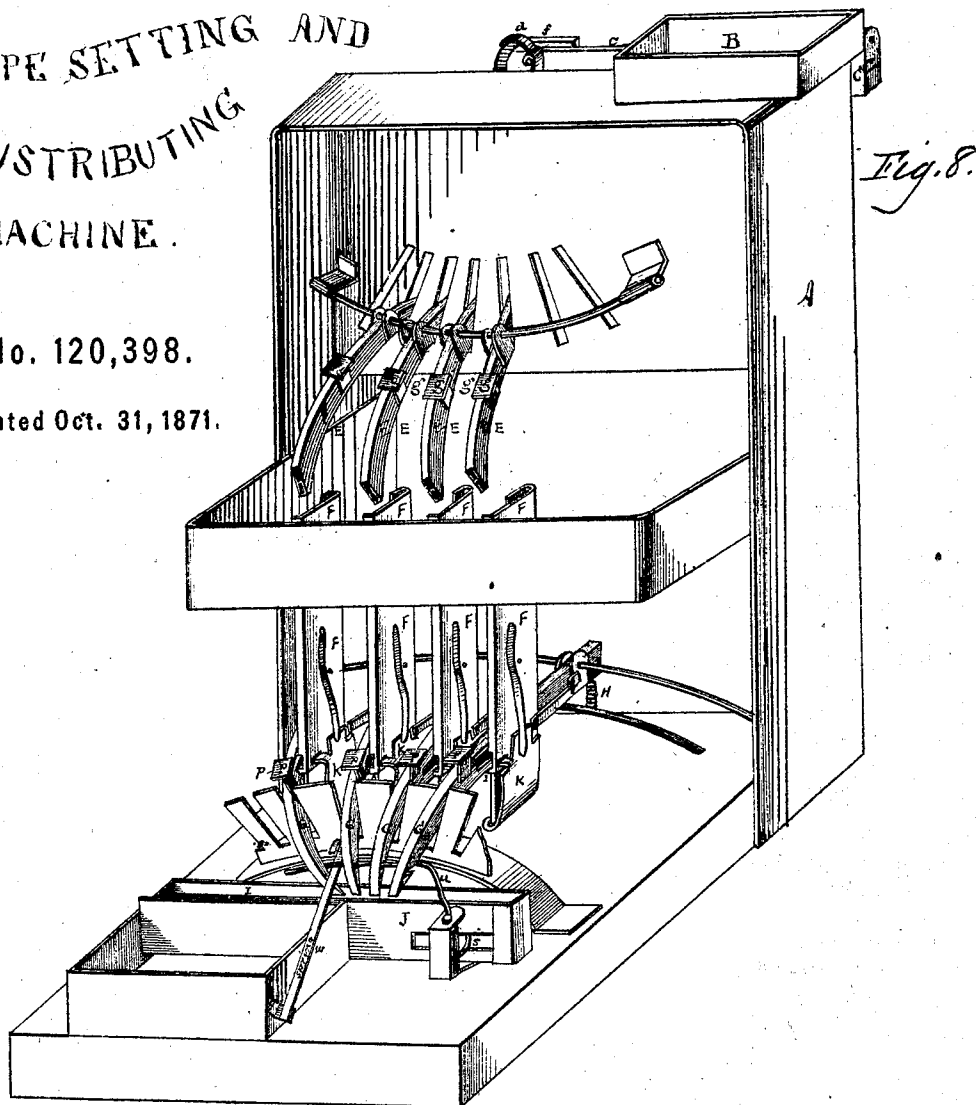
Inventor.

D. Brainerd Ray

D. Brainerd Ray,
TYPE SETTING AND
DISTRIBUTING
MACHINE.

No. 120,398.

Patented Oct. 31, 1871.



D. Brainerd Ray
By his atty
R. D. Smith

Witnesses -
C. M. H. Caw
J. C. Lyons

UNITED STATES PATENT OFFICE.

D. BRAINERD RAY, OF NEW YORK, N. Y.

IMPROVEMENT IN TYPE SETTING-AND-DISTRIBUTING MACHINES.

Specification forming part of Letters Patent No. 120,398, dated October 31, 1871.

To all whom it may concern:

Be it known that I, D. BRAINERD RAY, of the city, county, and State of New York, have invented a new and Improved Machine for Distributing and Setting Type; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, and to the letters of reference marked thereon.

The object of my invention is to provide a machine of novel and peculiar construction for distributing and setting type; and also for spacing the lines, which said machine is designed to be worked by hand and automatic in its operation. The nature of my invention consists: First, in a novel and peculiar device for distributing the type by the employment of distributing-keys or tubes of suitable form, into one end of which the type is received from a trough containing one line of type, and discharged from the other end into type-holders. It consists, secondly, in a novel and peculiar device for receiving the type from the distributing-keys and arranging them in rows ready for use. It consists, thirdly, in a novel and peculiar device for setting the type. It consists, fourthly, in a composing-stick of novel and peculiar form.

To enable others skilled in the art to make and use my invention, I will proceed to describe more particularly its construction and operation.

Figure 1 shows an elevation of the back of my machine. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a front elevation. Fig. 4 represents a plan view. Fig. 5 represents another form in which the distributing-keys may be made. Fig. 6 is a detached view, showing the construction and arrangement of the rock-shaft and slide for setting the type. Fig. 7 is a detached view of the device for transferring the type from the type-holders to the setting-keys. Figs. 8 and 9 represent, in perspective, front and rear views of my machine.

Letters of like name and kind indicate to like parts in each of the figures.

A represents the frame of the machine. B is the galley for holding the column of type to be distributed, which is located on the top of the frame in a nearly horizontal position, being slightly raised at its outer end to prevent the type from falling out. The width of its interior is

equal to the width of the column of type. C is a trough of sufficient width to hold one line of type at a time, running parallel with the raised end of the galley and a little below the same, and extending a little beyond the center of the frame. Into this trough the type is removed, one line at once, from the galley, and is moved forward to the distributing-point *a* by means of a spring, *b*, or other suitable device. It may be hinged at a suitable point, as at *y*, for the purpose of making it adjustable, so as to bring the distributing-point directly over the upper end of the distributing-key when a capital is to be taken out. At this said distributing-point a hole or perforation is provided in the bottom of the trough C for the purpose of allowing the type to fall through one by one. D is a bent lever, on the lower end of which is secured a slide or strip of metal, *c*, which comes directly underneath the hole in the trough C, for the purpose of preventing the type from falling out until desired to do so. On the upper end of this rock-shaft is an arm, *d*, that extends to and over the end of the trough C, and operates in connection with a spring-catch, *f*, secured to the end of the said trough, and provided with a projection directly above the hole at the distributing-point *a* for the purpose of pushing down the type through the hole. E E E E are the distributing-keys, of which twenty-six or more are employed, each being designed to receive a particular letter from the trough C and convey it to its appropriate type-holder F. These keys are pivoted to the frame A in such a manner that their upper ends all converge to or toward the distributing-point *a* as a common center to receive the type therefrom, and that their lower ends shall come directly over their respective type-holders or receivers F so as to deliver the type to the same. These keys are tubular, and are divided longitudinally into two compartments, one for the small letters and the other for the capitals, these compartments being of sufficient width and height to allow the type to slide through them lengthwise by force of gravity, and are curved in such a manner that their respective ends may most efficiently adapt themselves to the distributing-point *a* and type-holders F so as to receive the type from the former and deliver them to the latter. Each of these keys is provided with a finger-piece, *g*, for the

purpose of operating the same. When one of these keys is pressed down by the finger of the operator its upper end comes directly under the distributing-point *a*, and a wedge-shaped projection, *h*, on the key near its upper end pushes the slide *c* so as to allow the type to fall through the hole in the trough *C* into the upper end of the key, at the same time causing the arm *d* to press down on the spring-catch *f*, which pushes the type through the hole, thus facilitating the passage of the type from the trough to the key. The type then slides through the key into its appropriate holder *F*. When the key is released the spring *f* raises the arm *d*, which causes the slide *c* to resume its original position under the hole or distributing-point *a*, spring *b* pushes the whole line forward to supply the vacancy created by the removal of the last type in the line just completed.

The type-receivers or holders *F F'*, which receive the type from the keys *E*, are in two sets or series, each set corresponding in number to the number of keys *E*, one set, *F'*, being for holding the capitals and the other set *F* for the small letters. They are made in the form of an oblong tube of sufficient capacity to hold the type in horizontal layers, and are placed perpendicularly or nearly so on a movable horizontal bar that extends across the front of the frame *A*, so that one entire series can be removed when full and be replaced by another series. Into the upper ends of these holders the type are received from the keys *E* and drop down the same, assuming a horizontal position as they fall, and rest on a ledge, *i*, at the bottom of the holder, the holders being placed at a slight angle of inclination for the purpose of assisting them to assume this position as they fall. At the bottom of the holder and above the ledge *i* is an opening or slot, for the purpose of allowing the type to pass in a horizontal position from the holder to the setting-key *G*, and underneath the holder and attached to the same is a hinged plate, *k*, provided at its upper end with two or more prongs, which pass through perforations provided in the side of the holder so as to strike the type as it lies on the ledge *i*. When the setting-key *G* rises after being struck a curved arm, *m*, attached thereto, presses against the hinged plate *k*, forcing the said prongs through the said perforations and pushing the type lying on the ledge *i* from thence into an opening in the side of the setting-key *G*, and when the said key *G* is pressed down the said arm *m* ceases to press upon the said hinged plate *k*, and the said prongs are drawn back by means of the spring *o*, allowing another type to drop down and take its position on the ledge *i*, ready to be transferred in its turn into the key. The setting-keys *G* are twenty-six or more in number, each being designed to receive one particular letter from its respective type-holder and convey the same to the composing-stick. These keys also are made in the form of a double tube, each being divided longitudinally into two compartments, one for small letters and the other for capitals. They are so constructed that the type will slide through them lengthwise by their own weight or force of

gravity, and they are pivoted on the frame in such a manner that their lower ends shall all converge to or toward one common point in the composing-stick, and so that one side of each, toward its upper end, shall work close to the side of its respective type-holder *F*. An opening is provided in the side of each key opposite the opening in the side of its corresponding type-holder already mentioned, for the purpose of receiving the type from the latter. Each of these keys is provided with a finger-piece, *p*, for operating the same. At the lower end of each key is a spring-catch, *r*, covering the end of the key, for the purpose of preventing the type dropping out until required to do so. When the key is pressed down this catch *r* strikes against the side of a rectangular box attached to the composing-stick, and is thereby moved a sufficient distance from the end of the key to allow the type to fall therefrom into the composing-stick. These keys are raised and held in that position by means of spiral springs *H* or other suitable device. *I* is the composing-stick, at the one end of which is a trough or rectangular box, *J*, into which the type are delivered by the keys *G* at one common point therein, and are placed within the same in an upright position. As the type are thus delivered or deposited they are pushed forward by means of a slide, *s*, working within the said box and operated by an arm, *t*, of a rock-shaft, *Q*. To the upper end of this rock-shaft *Q* is attached a curved arm, *u*, extending in a horizontal direction to the under side of the keys *G G G G*. When one of these keys is pressed down by the finger of the operator the under side of the same strikes against the said arm *u* and forces it back, and at the same time the arm *t* forces back the slide to allow the type to be deposited in the box *J*. When the key is again released a spring, *w*, brings the arm *u* forward to its original position, and at the same time the slide *s* is forced forward by means of the arm *t*, and pushes the type from the box *J* into the composing-stick *I*, so as to make room for another to be deposited.

Figs. 8 and 9 represent my improved device for spacing out the lines when full, which consists of two wedge-shaped spaces, *S* and *N*, which I place between each word in line in the position shown in Fig. 8, so that when the upper wedge is pushed down against the side of the lower its width is added to the width of the lower one, thereby doubling the space between the words. Fig. 9 shows their position after being pressed down. In order to brace the wedges firmly against each other the wedge which slides down has a shoulder or projection near the bottom, which braces against a similar projection near the bottom of the stationary wedge; it also has less bevel than the stationary one. When the line has been set up the tops of the wedges that are to be pushed down are higher than the tops of the type, and the operator by laying a compositor's rule upon the line can push them all down into position at once, and thus space the whole line at a single motion. These spaces or wedges are placed in the line by one or more of the keys *G*.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent of the United States, is—

1. A series of distributing-keys, *E*, constructed and arranged so that they will all work or converge to or toward one common point for the purpose of receiving the type therefrom, substantially as shown and described.

2. The trough *C*, provided with the bent lever *D*, slide *c*, arm *d*, and spring *f*, in combination with the keys *E* and incline *h*, substantially as shown and described, and for the purposes set forth.

3. A series of setting-keys, *G*, constructed and arranged so that they will all work or converge to or toward one common point, for the purpose

of delivering the type thereat, substantially as shown and described.

4. The setting-keys *G* provided with the arms *m*, in combination with the type-holders *F F'*, hinged plate *k*, and spring *o*, substantially as shown and described.

5. The setting-keys *G* provided with the spring-catch *r*, in combination with the slide *s*, rock-shaft *Q*, arms *t* and *u*, and spring *w*, substantially as shown and described.

D. BRAINERD RAY.

Witnesses:

JOHN S. THORNTON,
C. ROGERS.

(117)