

D.B. Ray Sheet 1 of 2 Sheets
Type Setting Mach.
N^o 34265. *Patented Jan. 28. 1862.*

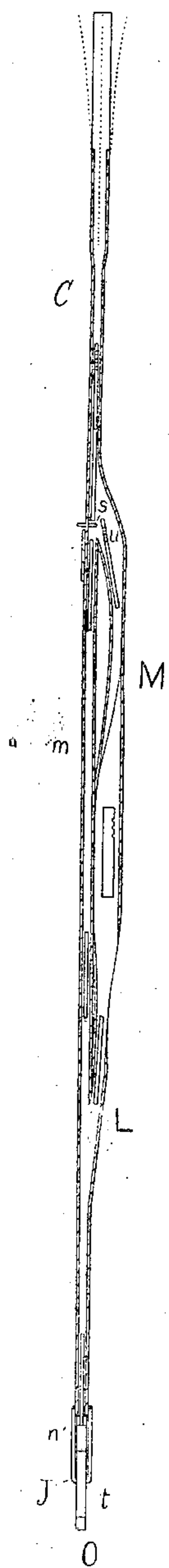


Fig. 4.

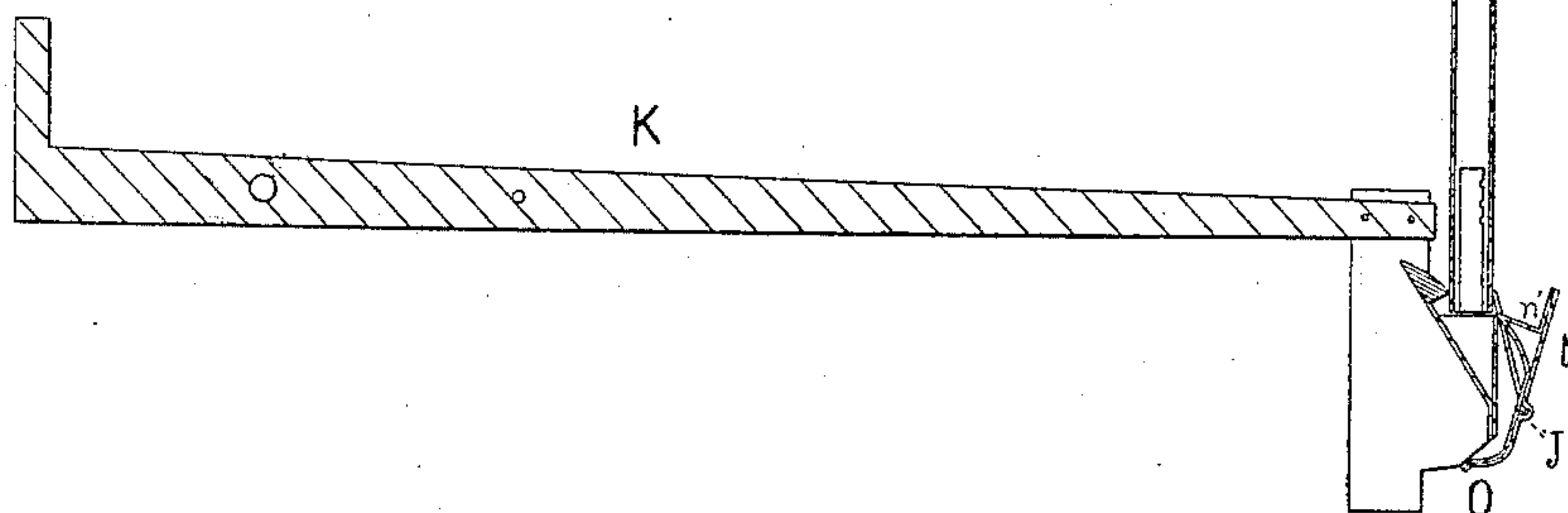


Fig. 2.

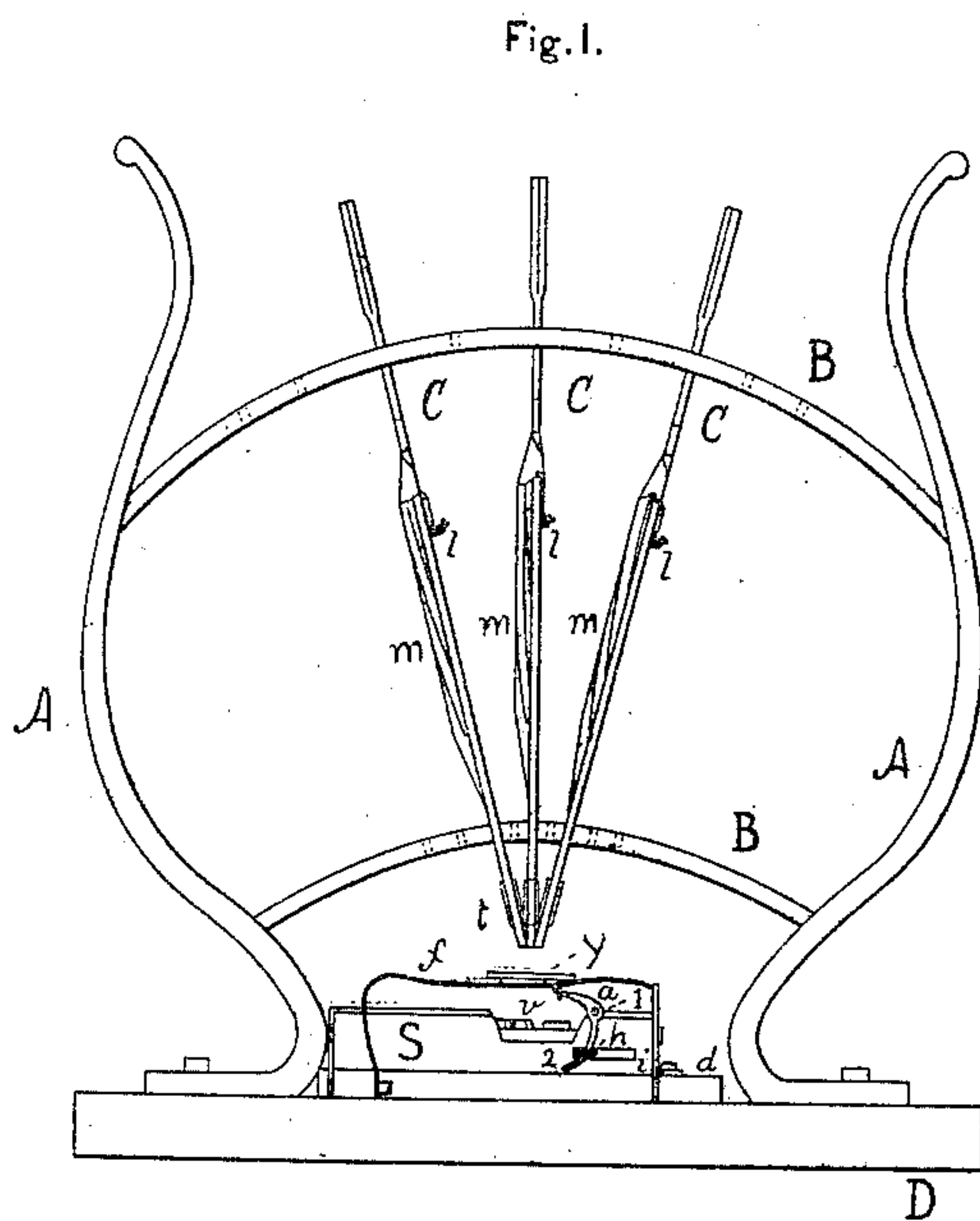
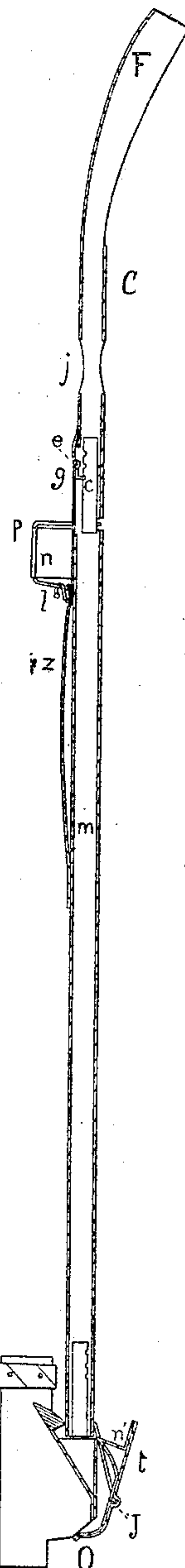


Fig. 1.



Witnesses.

Wm. Gale
Edu. P. Brown

Inventor.

D. Brainerd Ray

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Fig. 6.

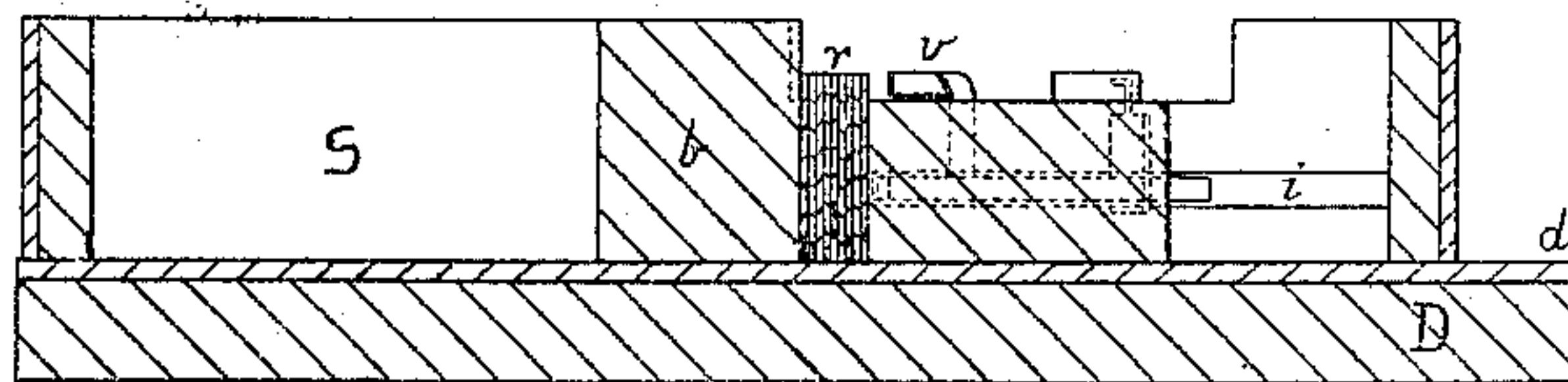


Fig. 5.

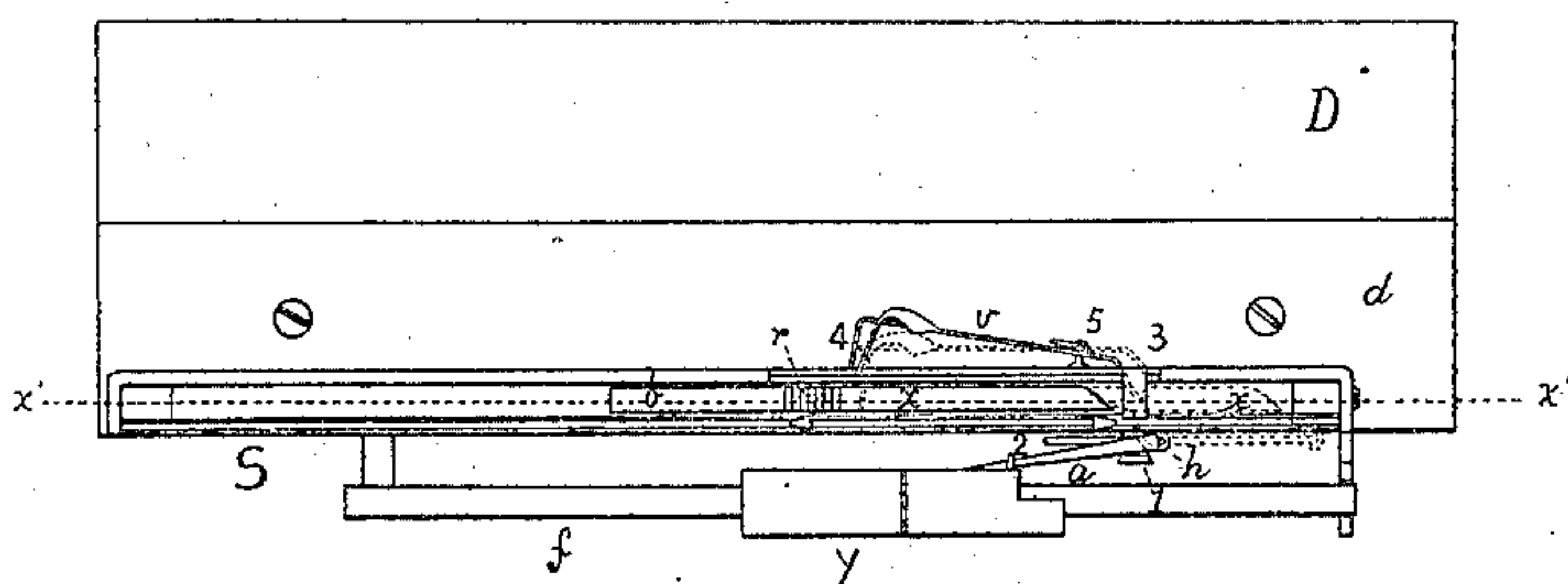
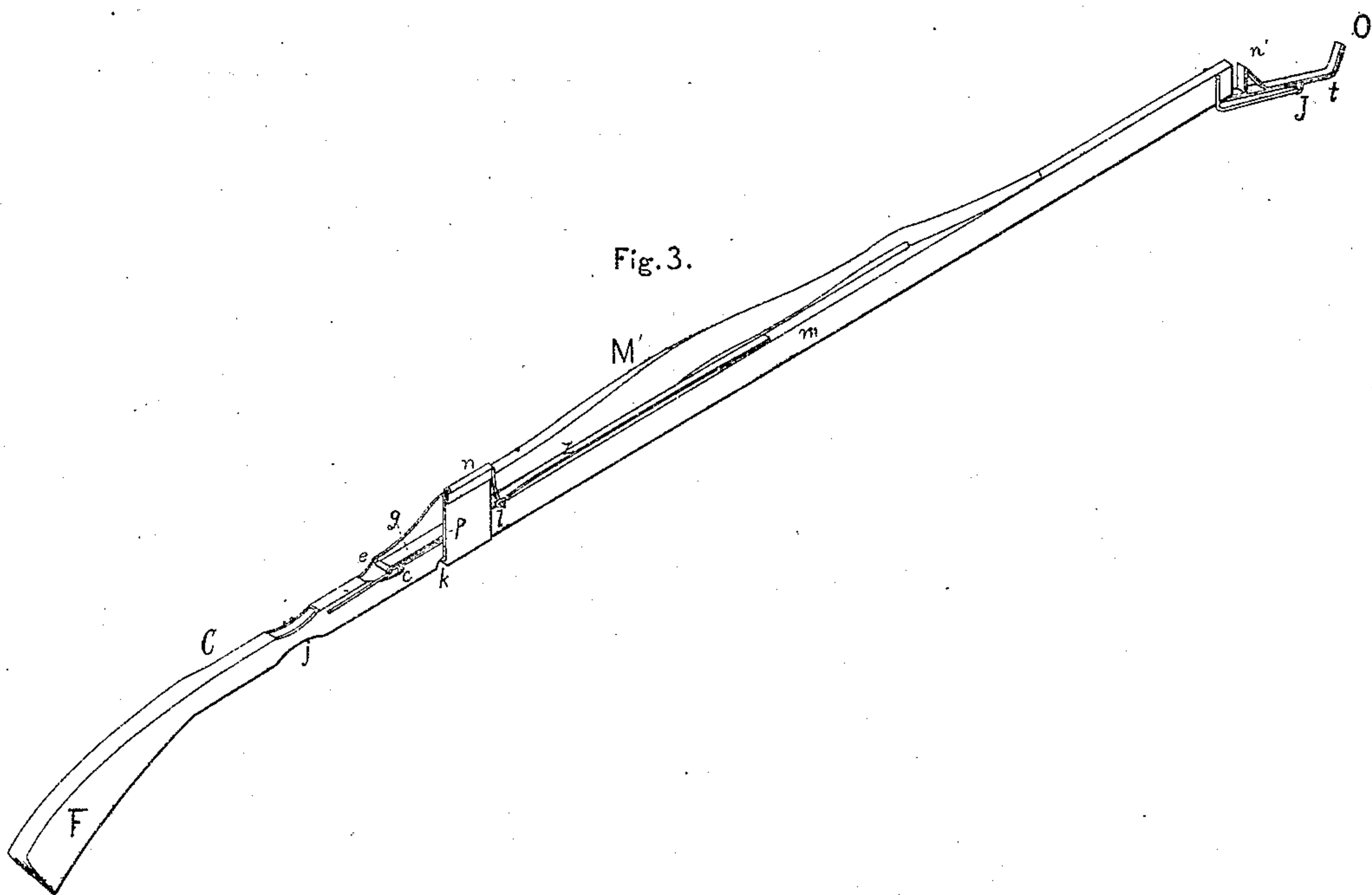


Fig. 3.



Witnesses.

E. D. Gale
Edw. P. Brown

Inventor.

D. Brainerd Ray

UNITED STATES PATENT OFFICE.

D. BRAINERD RAY, OF CIRCLEVILLE, OHIO.

TYPE-SETTING MACHINE.

Specification forming part of Letters Patent No. 34,265, dated January 28, 1862.

To all whom it may concern:

Be it known that I, D. BRAINERD RAY, of Circleville, in the county of Pickaway and State of Ohio, have invented a new and Improved Machine for Setting Type; 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, whereof—

Figure 1 is an elevation of a part of the machine, showing only three of the tubes for containing the type arranged in position and the "composing-stick" placed below, a key-board to be placed in front for the purpose of setting type not being shown, as it is no part of my invention. Fig. 2 is a vertical longitudinal section of one of the tubes with one key in working position. Fig. 3 is a perspective view of one of the tubes. (Shown in an inverted position.) Fig. 4 is a vertical longitudinal section of one of the tubes, taken in a direction at right angles to Fig. 2, showing the type in process of turning. Fig. 5 is a top view of the composing-stick, showing the various parts of the same in working order. Fig. 6 is a vertical section of the composing-stick, taken in the line $x' x'$ of Fig. 5.

The nature of the first part of my invention consists in constructing tubes (or their equivalents) in such a manner that type being distributed by hand into hoppers or funnels leading into the tops of the tubes, in passing through the tubes will be made to arrange themselves with the notched edges all turned the same way, and this I accomplish by making use of the notches on the type, together with a suitable mechanism for turning the type, when necessary, into a second tube or channel so arranged as to cause all the type passing through it to be reversed during their descent. The number of tubes used should correspond to the number of characters intended to be employed in printing. I place a key-board in such a position that each key should be connected with a particular tube, and on being pressed by the finger of the operator should take a type from its own tube and place it in its proper position in the composing-stick below.

My invention also consists in arranging the tubes (or their equivalents) for type like the radii of a circle; also in constructing a com-

posing-stick with a spring and slide attached designed to bring the type into a perpendicular position at whatever angle they may be dropped into the stick, the whole being described as follows:

A A, Fig 1, is a frame with the curved strips B B, to which the radial tubes C C are attached, the whole being mounted on a stand.

C C are radial tubes designed for type, each tube being suited to a particular letter. At the top of each tube is placed a funnel or hopper F, Figs. 2 and 3, to convey the type into the tube C. Joined to each tube C and near the top is a spirally curved or twisted arm or branch M', making one-half revolution in its length, which is designed to reverse the position of the type which enters the tube C⁶ with the notches turned the wrong way, so that all the type will pass into the lower end of the main tube M with the notched edges turned the same way. A straight tube or groove could be used instead of a twisted one, the design being to arrange the type with the notches turned in the same way, either in the main tube M or the branch. The construction of the tube will be more fully described herein after.

$t t$ are catches designed to allow one type at a time to pass out of the tubes, being somewhat similar in their action to the escapement of a clock.

Fig. 2 is a vertical longitudinal section of one of the tubes.

F is a funnel or trough into which the type are dropped by the operator with the faces or letter end turned upward in the same direction, there being one funnel for each tube.

g is a regulator having a motion around the center e and having a projection c on its under side, which projection slides into the notches on the type as they pass down the tube. When the regulator g is raised, it raises the spring r , to which is attached the rock-shaft p by means of a hook l . The rock-shaft p has a motion on its axis at n , and as the regulator g rises and falls, and with it the spring r , the projection s on the upper arm of the rock-shaft (projection shown at s , Fig. 4) passes in and out of the opening k , Fig. 3. When the regulator g falls (which it will do when the projection c on its under side sinks into the notches on the type) the

spring *r* causes the projection *s* on the rock-shaft *p* to strike against the side of the type near the bottom, and moves it into the position shown at *u*, Fig. 4, so that the type passes down the arm *M'*, which is twisted so as to reverse the position of the type. The arm *M'* re-enters the main tube *m* at *L*, Fig. 4, but it may be left straight if two separate tubes were desired; but if the notches in the type are turned from the regulator *g* the projection *c* on the under side of the regulator *g* cannot sink into the notches on the type, so that the regulator *g* remains raised, and with it the spring *r* is raised. The spring *r*, when raised, holds the rock-shaft *p* in such a position that the projection *s*, Fig. 4, cannot touch the type, but allows it to pass down the straight tube.

t t are catches, one being placed at the bottom of each tube and operated by the key *K* belonging to the key-board before mentioned. The catch *t* has a motion on an axis at *J*. When the key *K* strikes against the projection *n'* on the upper end of the catch *t*, the catch is thrown into the position shown in Fig. 2, so that the projection *O* on the lower end of the catch *t* will prevent the type from sliding out. When the key *K* moves down, it pushes out the lower end *O* of the catch *t* and brings the projection *n'* on the upper end of the catch *t* under the column of type in the tube, as shown in Fig. 4.

Fig. 5 is a top view of the composing-stick *S*.

f is a spring, to which is fastened a strip of metal *y*, upon which strip *y* all the keys strike. The keys are all made to work to one common center. When the key moves the strip *y* down, the rock-shaft *a*, connected with the piece *y* by a hook 2 and having a motion on an axis at 1, is moved into the position represented by the red lines. The lower arm of the rock-shaft *a* is connected with a slide *x*, passing backward and forward inside the stick *S*, by means of a hook or loop *h*, which

passes through the slot *i*, Fig. 1. As the rock-shaft *a* moves up and down, its lower arm moves the slide *x* backward and forward, and the slide *x* brings the type into a perpendicular position as fast as they are dropped by the key into the composing-stick *S*.

v is a rock-shaft moving on an axis 5, having each end curved inward. When the slide *x* moves to the right, it pushes out the end 3 of the rock-shaft *v*, bringing the rock-shaft into the position shown by the red line, so that the other end 4 of the rock-shaft holds the line of type *r* in position. When the slide *x* passes back again to the left, it moves the end 4 of the rock-shaft *v* out and brings the type which the key has dropped into the stick into line.

b is a sliding block to hold the line of type *r* in a perpendicular position in the composing-stick.

d is the bottom of the stick, and *D* is the stand.

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

1. Constructing tubes *C C* or their equivalents, with two branches or arms *m* and *m'*, and a regulator *g* and its mechanism, substantially in the manner and for the purpose set forth.

2. The spirally curved or twisted tube *M*, in combination with the main tube *C*, substantially in the manner and for the purpose set forth.

3. Arranging the tubes or their equivalents like the radii of a circle.

4. The catch *t*, for feeding out the type.

5. The spring *f*, slide *x*, and rock-shaft *v*, combined with the composing-stick *S*, substantially in the manner and for the purpose set forth.

D. BRAINERD RAY.

Witnesses:

S. D. GALE,

EDM. F. BROWN.