

2 Sheets--Sheet 1.

No. 126,262.

Patented April 30, 1872.

Fig. 2.

Inventor

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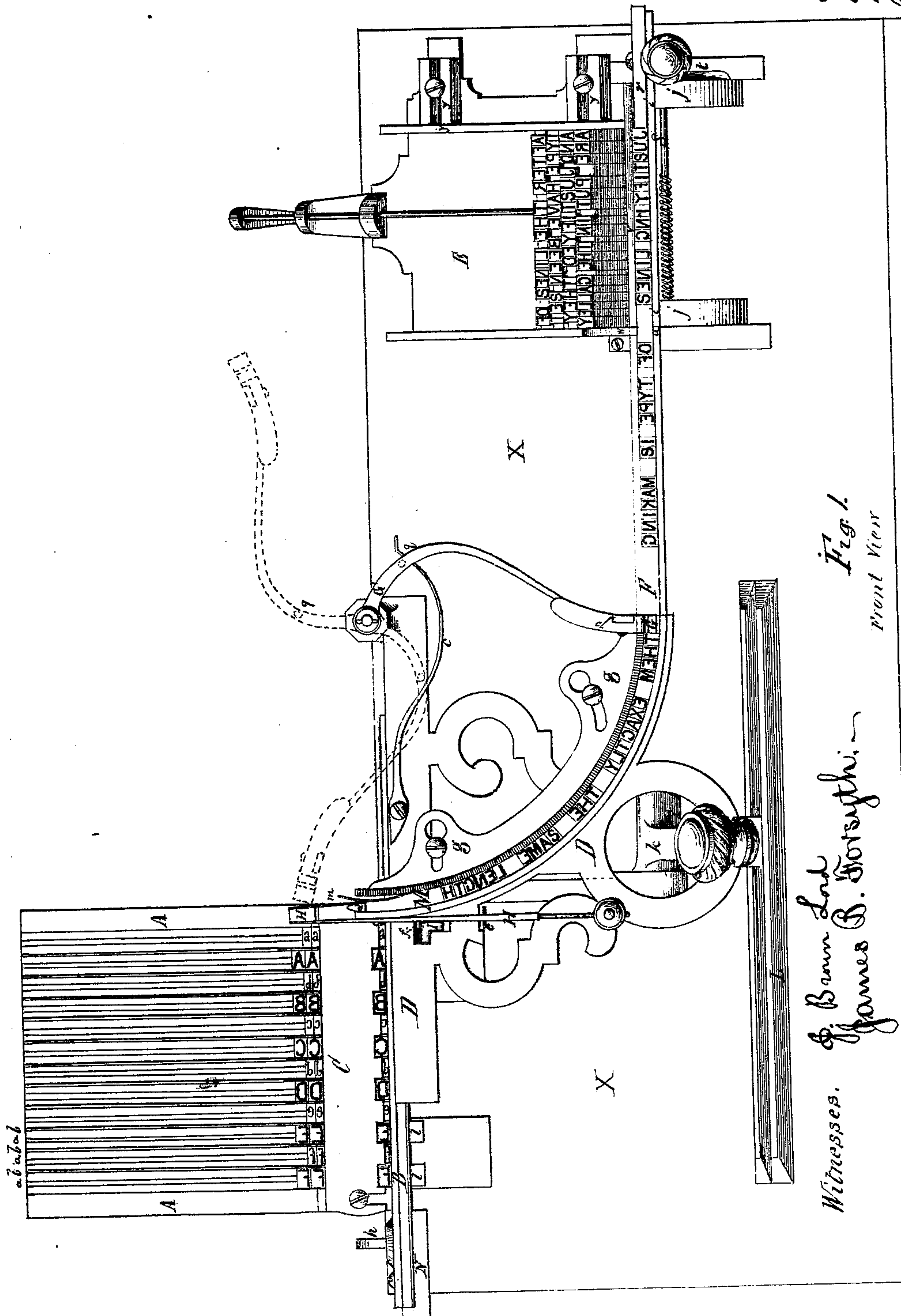
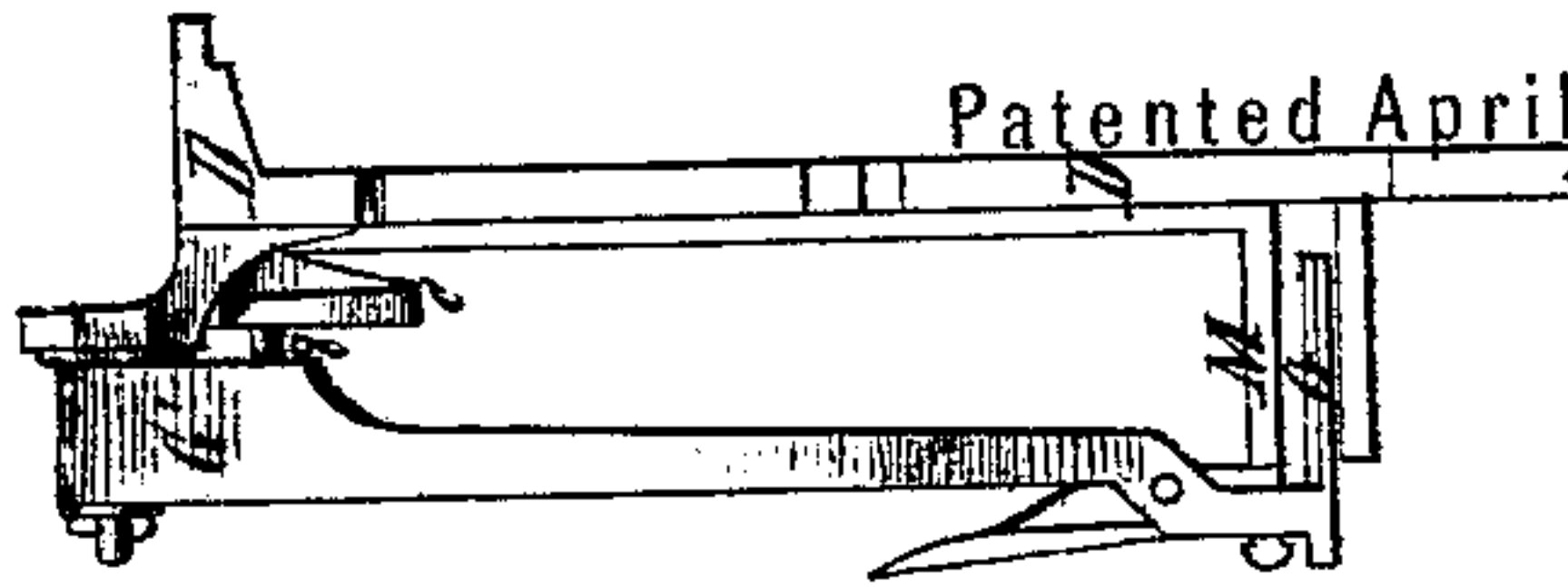


Fig. 1.

Front View

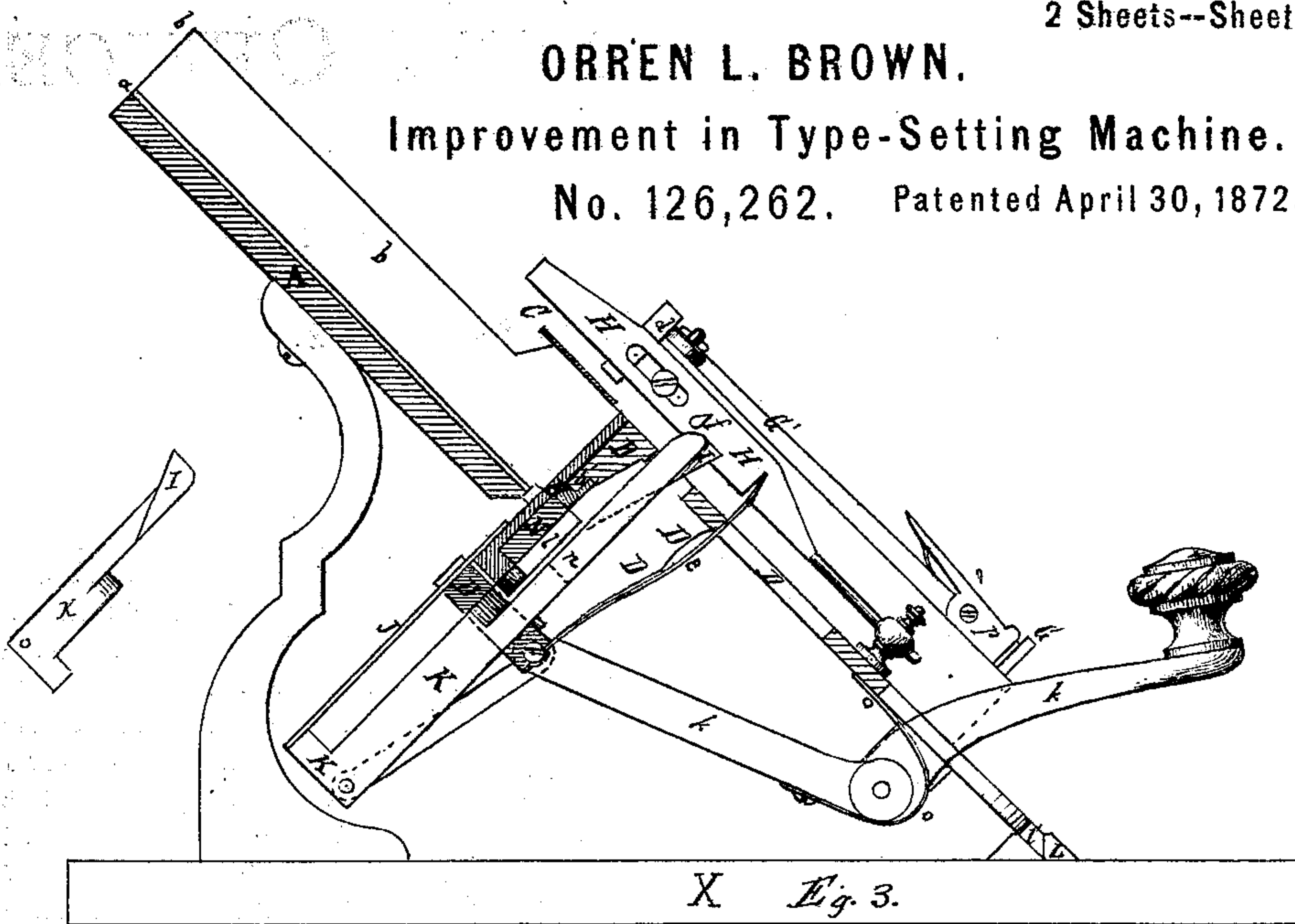
Witnesses.

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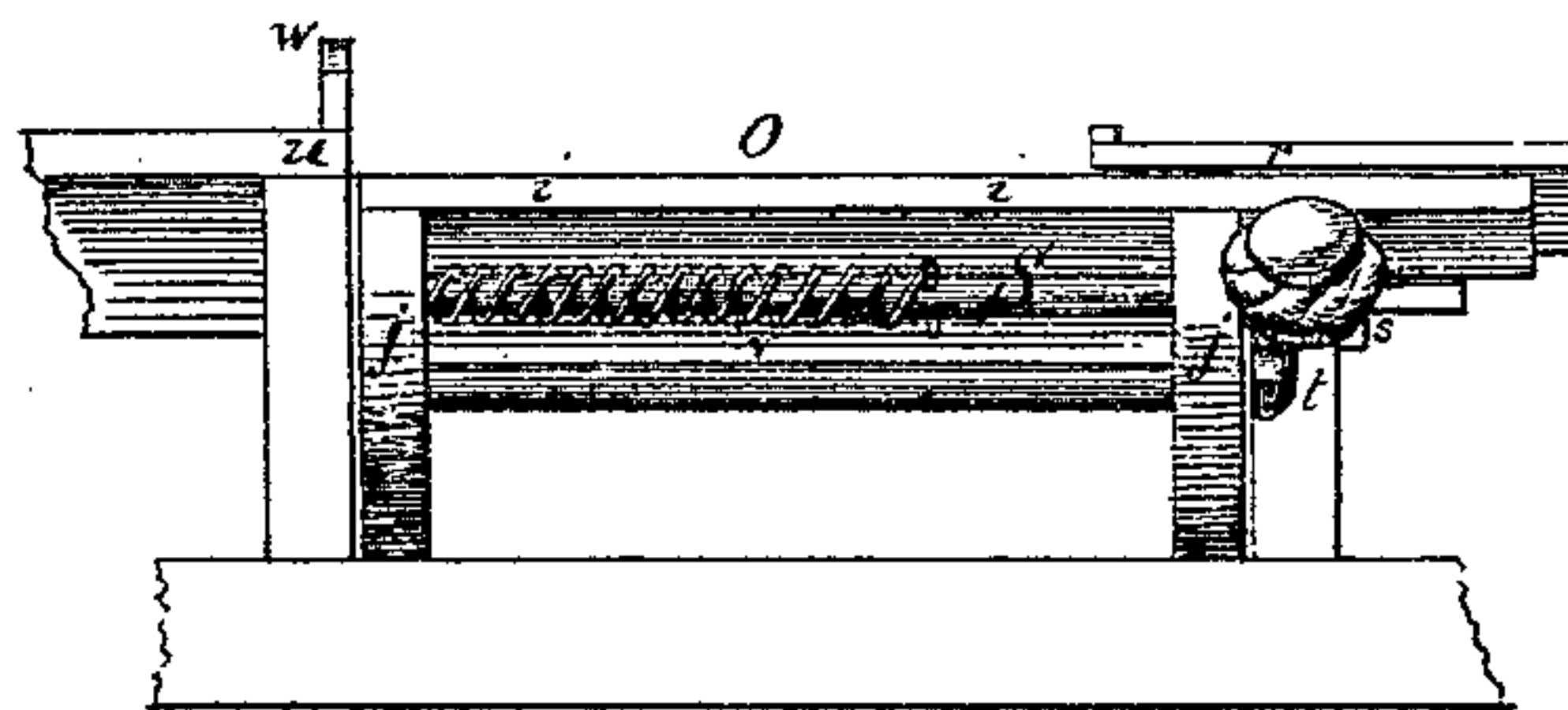
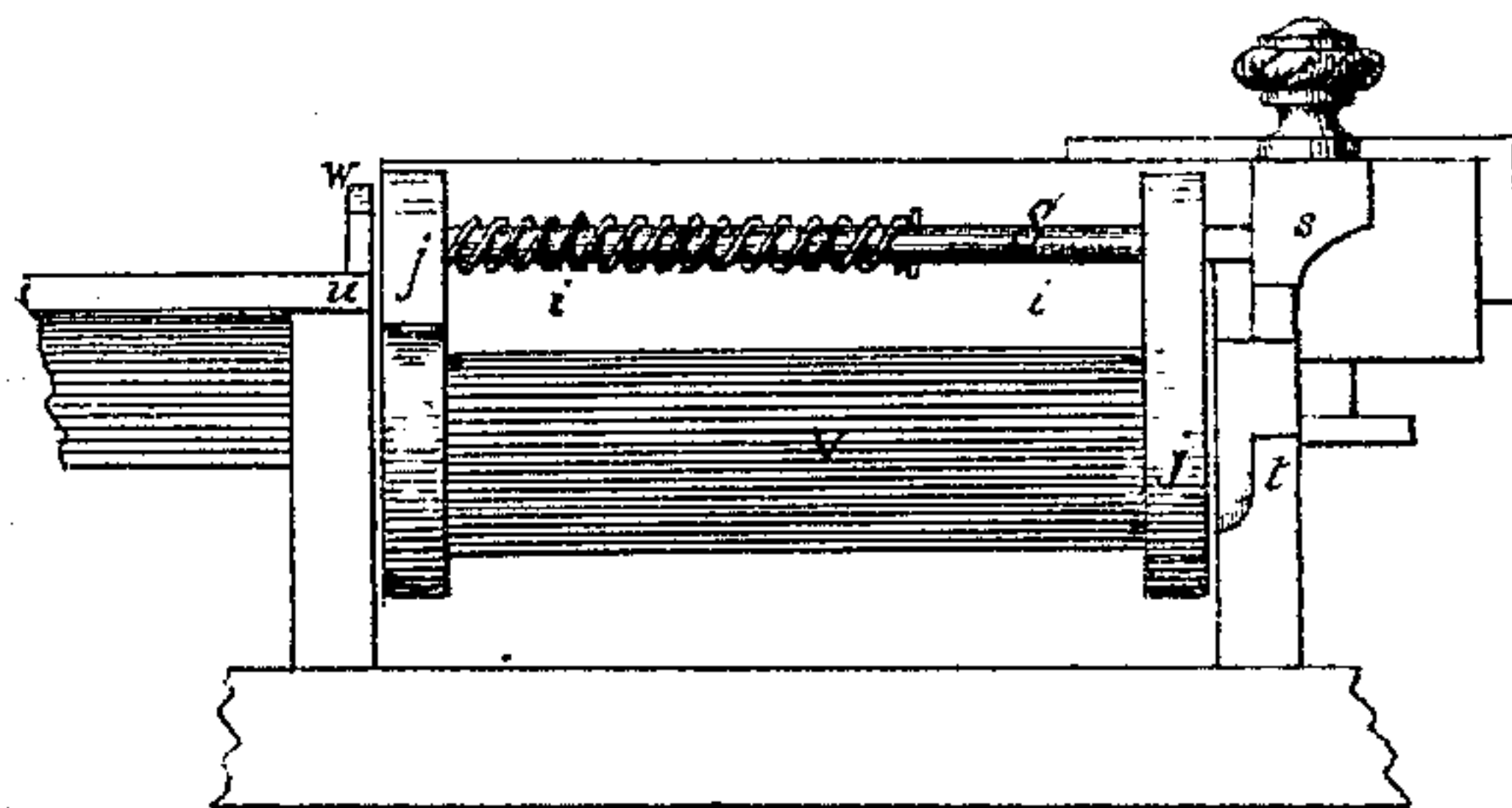
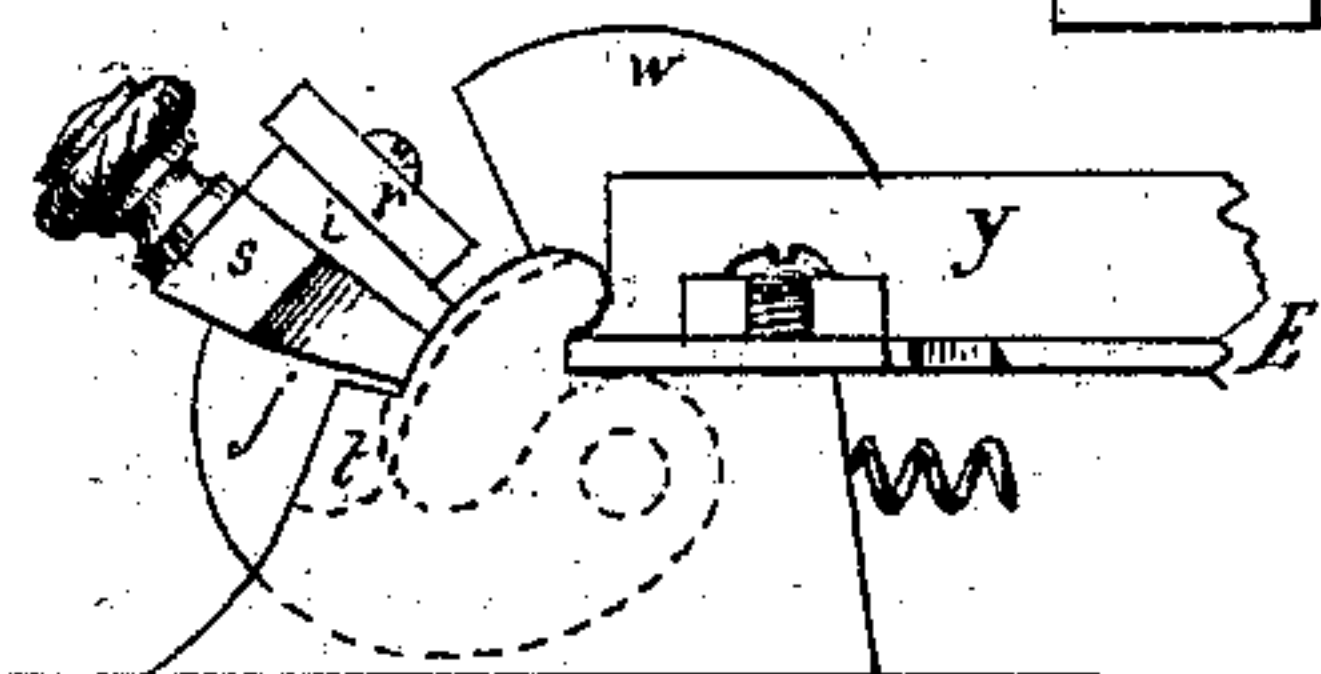
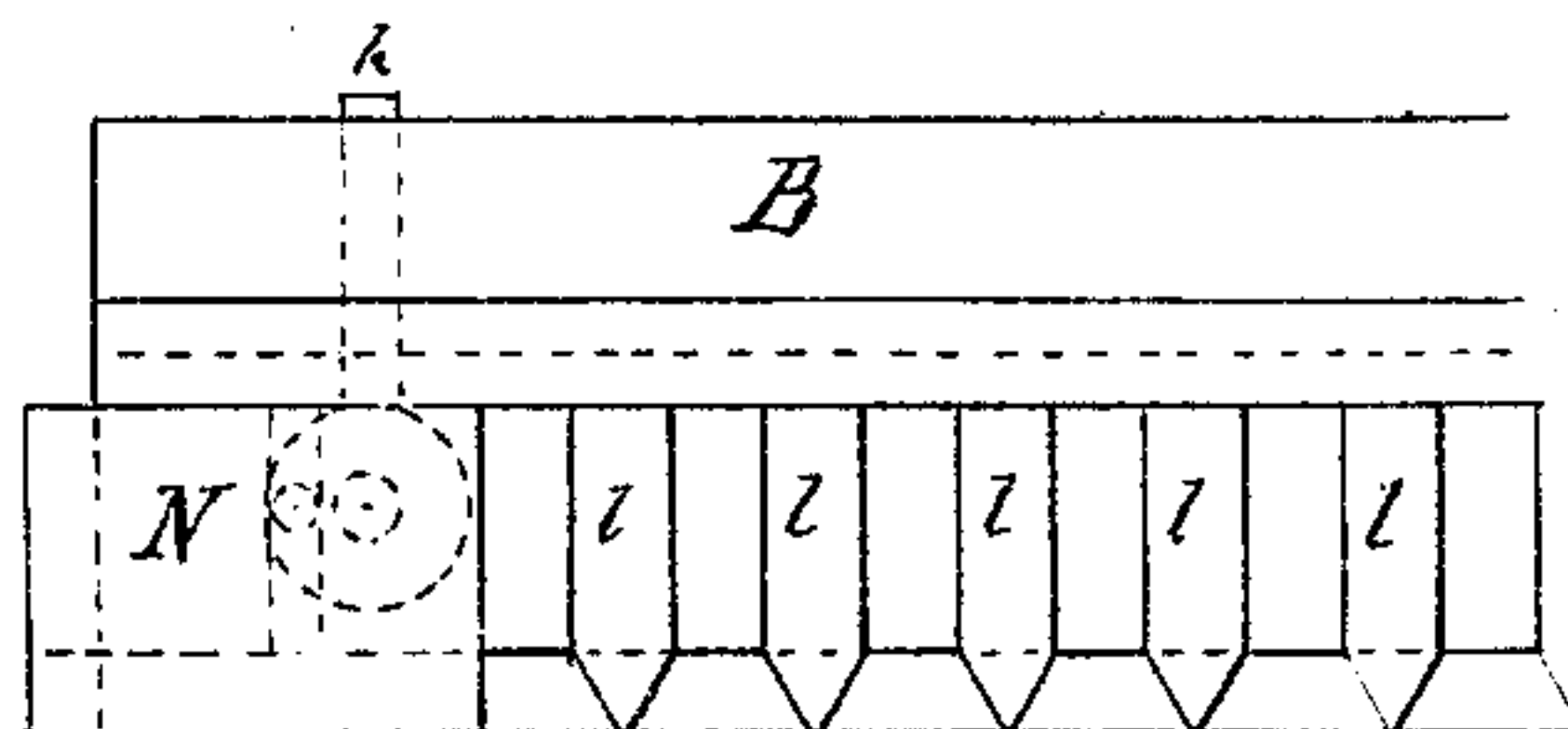
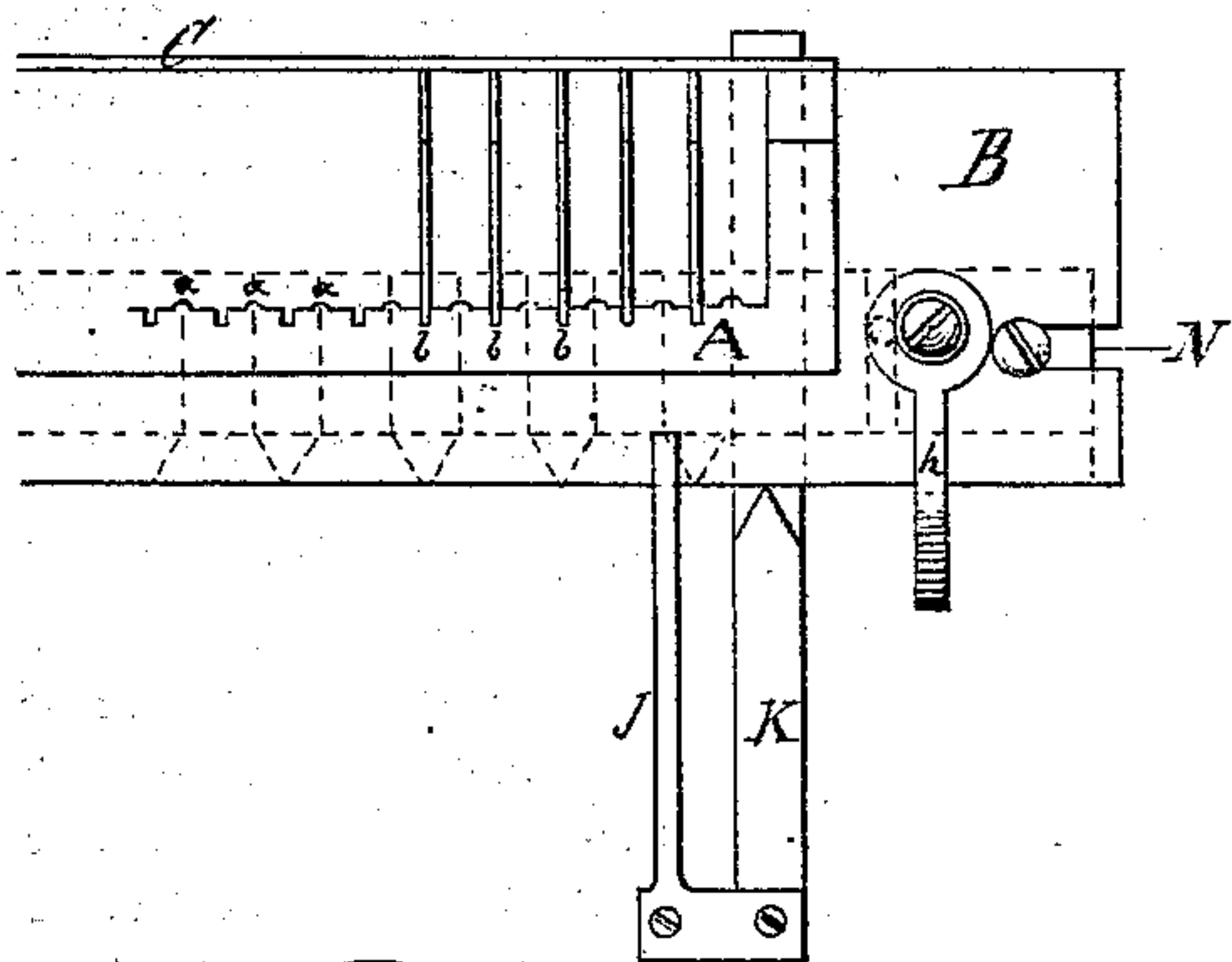
ORREN L. BROWN.

Improvement in Type-Setting Machine.

No. 126,262. Patented April 30, 1872.



X Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

ORREN LEE BROWN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN TYPE-SETTING MACHINES.

Specification forming part of Letters Patent No. 126,262, dated April 30, 1872.

I, ORREN LEE BROWN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements upon the Type-Setting Machine patented to me by Letters Patent No. 36,991 November 25, 1862, of which the following is a specification:

In the drawing, Figure 1 is a front view of my improved type-setter. Fig. 2 is a view of the type-supporter. Fig. 3 is a side elevation partly in section; and the other figures show details.

My present type-setter differs from the one patented to me in nearly all its parts. I propose to describe first the points of difference as to the case, and to point out wherein my improvements consists as to this part.

The case is properly supported in an inclined position, and is divided into a series of cells, as described in my former patent. My first improvement consists in forming a longitudinal rib, *a*, in the bottom of the cell, the object being to save the lower ends of the type from injury, and also to decrease their friction upon the bottom of the cell. The types rest upon this longitudinal rib and slide upon it toward the lower end of the cell, only a small portion of their lower ends being in contact with the rib.

My second improvement (which I rank first in importance) consists in separating the stick proper *D* from the galley *E*. In my former patent the stick is necessarily connected with the galley, both being mounted on a frame moving on ways, and consequently both move together. In my present machine the stick alone is movable, which is a very great advantage, as it is obviously very important to get rid of all unnecessary weight in this part, which requires to be moved rapidly from cell to cell.

My third improvement relates to the type-supporter; and consists in attaching the type-supporter *G* to a pivoted arm, *G'*, and arranging this arm with the spring *c* so that it will be automatic, the whole constituting a new type-supporter.

My fourth improvement relates to the mechanism for actuating the type-follower rod *H*; and consists in combining with a reciprocating cam-rod, *I*, a spring, *e*, and a pin, *f*, so that the pin on the rod *H* will be held by the spring *e* a little above the upper surface of the cam-rod *I* before that rod begins its reciprocating

movement, and will be retracted a short distance to cause it to engage with the cam on the lower surface of the rod *I* when that rod is at the end of its upward movement. The cam then causes the downward movement of the rod *H* and type-follower *d* by the downward movement of its rod, and the spring forces the rod *H* and its pin *f* back to its first position at the completion of the downward movement of the rod, the whole constituting a new mechanism for actuating the type-follower.

My fifth improvement relates to the type-ejector *J*; and consists in attaching it to a reciprocating piece, *K*, properly guided, the object being to insure the more perfect operation of the type-ejector, not only upon the single type upon which it acts, but also to make more certain and easy its acting upon the type desired.

My sixth improvement relates to the method of connecting the stick with the case; and consists in the use of two ways, one on the plate *B* attached to the lower end of the case, into which a projecting lip of the stick enters, and the other, *L*, on the bed-piece *X*, the object being to connect the stick firmly and securely with the case.

Seventhly, I have invented a guide-plate, *N*, the office of which is, first, to insure the certain operation of the type-ejector upon the desired type, although the position of the stick may vary more or less—that is, although the type-ejector may be more or less out of line with the small orifice through the bottom of the cell, through which it must pass to reach the type; second, to determine whether a small letter or a capital shall be carried into the type-receiver.

Eighthly, I have invented a justifier, *O*, in which the lines are justified, and from which they are conveyed to the galley. This justifier is a continuation of the type-channel *F*, one wall of which, *i*—that is, the wall against which the sides of the type rest—is attached to pivoted arms *jj* for the purpose of allowing this wall to be brought to a different level from the wall of the type-channel *F*, and thus separating one line of type—that is, one line of a page—from the long line of type in the type-channel *F*. This separated line of type is then justified, and by the motion of this wall *i* is carried into the galley. This justifier performs two du-

ties: First, it separates the type into the proper length of line for the page or column, and holds this line so that it can be justified; and secondly, it transfers the type from the type-channel into the galley, or into any other proper receptacle.

The apparatus shown—viz., the curved type-receiver M, type-channel F, and justifier O—is the best known to me for carrying out my new method of type-setting; but, as I have before intimated, the receiver may be straight instead of curved, and the type-channel be either straight or curved, the only object of curving the receiver being, as before stated, to enable the arm G' to be used, and for greater convenience in the arrangement of the type-channel and galley.

The operation of my improved type-setter is as follows: The cells are filled with type, the capitals of one letter being next their small letters; and the stick is brought into the proper position to take the letter desired (this position being determined at first by an index, but very soon, by the skill of the operator, in a manner somewhat similar to that by which a pianist determines just how far to move his hand in order to strike the desired key.) If the compositor desires a capital letter, the thumb-piece *h* will be turned half round; then, by depressing the lever *k*, the reciprocating guide-piece K and the type-ejector J are raised, the guide-piece entering between two of the guides *l l* on guide-plate N, and thus guiding the type-ejector into a cell containing capitals, if the guide-plate N has been thrown to one side by means of the thumb-piece *h* and its pin working in a slot in the guide-plate, or into a cell containing small letters, if the guide-plate has not been so moved. The type-ejector passes up on one side of the guide-plate N and the guide-piece K on the other. As the type-ejector passes through the bottom of the cell it carries with it the type, and forces it upward through the orifice over the cell, (that formed by the edges of the plates B C *b b*,) and between the spring *m* and the side of the type-receiver M, where it is held by the spring *m* until acted upon by the type-follower *d*. This lever cannot be depressed beyond the proper distance, as the bottom of guide-piece K comes in contact with that part of the frame D, through which it plays and into which it fits. This upward movement of the type-ejector and its guide-piece causes the cam-rod I to move upward. At the beginning of its motion the cam on the upper face of the rod I engages with the pin *f* on the type-follower rod H, and thus moves it slightly upward against the spring *e*, or rather against that part of this spring which lies above the frame D. Consequently when the pin *f* becomes opposite the groove cut into one side of the cam-rod, (shown by a dotted line in Fig. 3, at *n*,) which it does when the cam-rod is near its greatest elevation, the rod H and its pin *f* are retracted slightly, but enough to cause the pin to enter this groove and fall below the face of

the cam on the lower side of rod I. At this point the lever *k* is fully depressed, the bottom of guide-piece K being in contact with frame D, the type-ejector being in contact with the bottom of the type, which is held by the spring *m* between it and one side of the type-receiver, and the pin *f* is part way through the groove in the cam-rod I. The compositor then raises the knob of the lever, or relieves it from pressure so that it will be raised by the spring *o*, whereupon the lever and its connections—the type-ejector, guide-piece, and cam-rod—return to the position shown in the drawing; but the descent of the cam-rod causes the cam on its lower side to engage with the pin *f*, and thus causes the type-follower *d* and its rod H to move downward against the spring *e*, and the type-follower in its downward motion carries with it the type and forces it against the type-supporter G, thus forcing the type into the receiver M, where it rests against the lower wall of the receiver and the supporter G. Shortly before the cam-rod I completes its downward movement the cam on its lower face becomes disengaged from the pin *f*, by passing below it, and the spring *e* throws the rod H back to its first position. A second type is then taken from a cell by the type-ejector, and forced into the receiver by the type-follower, as before, and so on, the type-supporter G yielding each time sufficiently to admit the type, and being kept stationary while the type is lifted from the cell by the pawl *p* and ratchet on the wall *g*. There is a pin, *q*, in contact with the spring *c* of the type-supporter, so arranged that when the type-supporter is moved downward it acts against this spring *c* by means of the arm G' and pin *q*. When the type-receiver M is thus nearly filled with the type the stick is moved to the right until the lower end of the receiver comes in contact with the end of the type-channel F, and the types are discharged from the receiver into the type-channel. This, of course, releases the type-supporter G from the receiver, and the spring *c*, operating upon the pin *q*, throws the supporter into its original position, as indicated by the dotted lines in Fig. 1. The line of type is then moved through the type-channel into the justifier O, which is a continuation of the type-channel, until the end of the line strikes the stop *r*. The side wall *i* of the justifier is then lowered below the level by the side wall of the type-channel, by moving the shoulder *s* sidewise from off its rest *t* and against the spiral spring on its rod S, and allowing the shoulder to fall into the cavity between *t* and *j*.

The types resting upon the wall *i*, are thus separated from the remainder of the types, and the separated line of type lies between the stop *r* and the end *u* of the side wall of the type-channel, the line of type being supported on one side, at the bottom, and at each end. The line is then justified, and the wall *i* is thrown towards the galley, carrying with it the justified line, the lower ends of the type sliding upon the bottom *v* of the justifier; when the

line is clear of the outer edge of the wall *v*, it falls by its own weight into its place in the galley *E*. When the galley is thus filled the pages are removed, and locked into the chase in the ordinary manner. In my justifier, as I have described it, the side wall *i* falls below the level of the side wall *u* of the type-channel, in order to separate the line to be justified from the long line of type; but I doubt whether this is the best form, and find that if it be raised above the level of the wall *u* of the justifier, so as to bring the ends of the line to be justified between the stop *r* and the side wall *w* of the galley, it will operate quite as well, and for some reasons would be preferable. In this case the rest *t* is of course raised, in order to support the side wall *i* of the justifier in this position, while the line is justifying, this wall *i* being dropped, as before described, to a level with the side wall *u* of the type-channel, in order to receive a new line of type. The stop *r* should be made adjustable, as also the side wall *y* of the galley, in order to receive different lengths of line.

Many modifications may be made of other parts of my type-setter, without altering the principles of operation of those parts, and in particular I would specify one modification of the mechanism for reciprocating the type-follower, as that modification was the first form in which this mechanism was invented by me. It consists in making the cam on the cam-rod *I* movable, so that during the upward movement of the cam-rod, the pin *f* on the type-follower-rod *H*, remains stationary, and forces the lower end of the cam slightly to one side against a small spring, which spring forces the cam back again shortly before its upward movement is completed, and thus brings the pin *f* in proper position to engage with the lower face of the cam during its downward movement, as before described. In this case, the function of the spring *e*, is simply to return the type-follower-rod to its proper place, and its other function (*i. e.*, to bring the pin *f* into the proper position to engage with the cam during its downward movement) is performed by the spring on the movable cam—in other words, the cam is moved against a spring by the pin, instead of the pin being moved against a spring by the cam.

What I claim as my invention is—

1. A type-cell having a longitudinal rib along its bottom, as described.

2. My improved stick, above described, consisting of a sliding carrier, *D*, a single type-receiver, a type ejector, type-follower, and type-supporter, each constructed and operating, and the whole being substantially as above described.

3. My automatic type-supporter, above described, consisting of the supporter *G*, arm *G'*, and spring *c*, all as described.

4. My improved mechanism for actuating the type-follower-rod, consisting of the reciprocating cam-rod *I*, the pin *f*, and spring *e*.

5. The combination of the case and the stick by means of grooves *B L* and projections *B' L'*, which fit into each other, and are formed upon the case and stick, respectively, as described.

6. I claim the movable guide-plate *N*, in combination with type-cells, arranged in pairs as described.

7. The guide-plate *N*, in combination with the thumb-piece *h*, by which its position can be changed, as and for the purpose specified.

8. The justifier *O*, above described, consisting of a type-channel with one wall, *i*, movable, as above specified, in order, first, to bring it to the proper point to receive a portion of a long line of type, and secondly, to separate the portion of the line thus received from the long line, and to carry this separated line between two stops, all as above described.

9. The combination of the type-ejector, and its guide-piece, *K*, with a series of stationary guides, *l l l*, and a series of type-cells, the whole being and operating substantially as specified.

10. The combination of the type-ejector, and the guide-piece *K*, with a series of movable guides, *l l l*, and a series of type-cells, when the cells and movable guides are properly arranged together, as above described, so that when the guide-piece *K* enters between any two of the movable guides, the type-ejector will be guided into one of two cells, determined by the position of the movable guides, the whole combination being and operating substantially as above described.

ORREN LEE BROWN.

Witnesses:

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J. E. MAYNADIER.