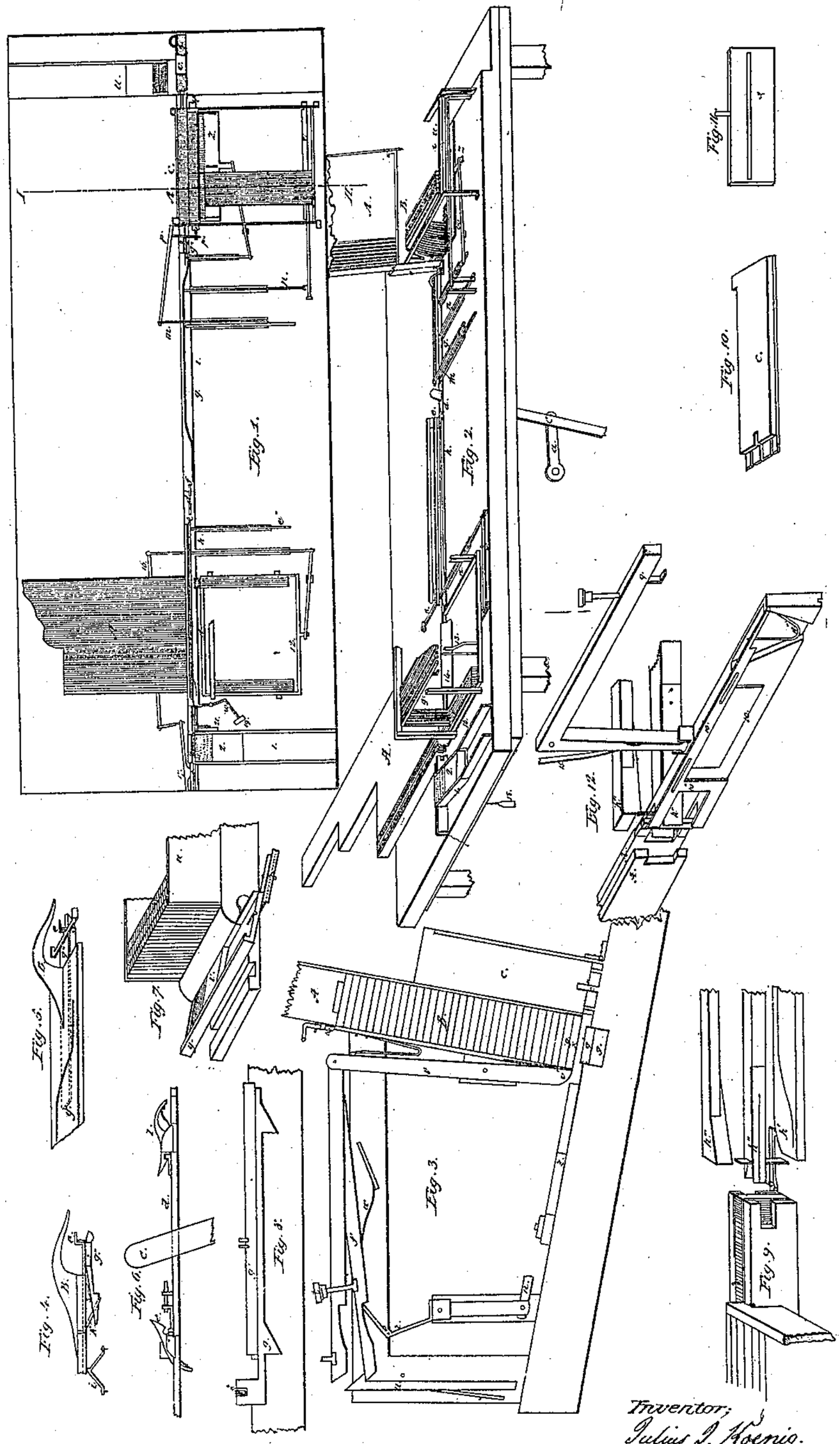
J. J. KOENIG.

MACHINE FOR COMPOSING AND DISTRIBUTING TYPE.

No. 15,340. Patented July 15, 1856.



Inventor;
Julius J. Koenig.

UNITED STATES PATENT OFFICE.

JULIUS J. KOENIG, OF CHICAGO, ILLINOIS.

MACHINE FOR COMPOSING AND DISTRIBUTING TYPE.

Specification forming part of Letters Patent No. **15,340**, dated July 15, 1856.

To all whom it may concern:

Be it known that I, JULIUS J. KOENIG, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Machine for Composing and Distributing Types; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure I is a plan of the machine; Fig. II, a perspective drawing, to the right the composing and to the left the distributing part; Fig. III, cross-section on the line I II. Figs. IV to XII, inclusive, represent the details and single parts of the machine upon an enlarged scale, and will be more particularly referred to in the description of the construction and operation of the machine.

The letters and figures of reference on all the figures represent the same parts wherever they occur.

A is the box with types. It contains from sixty-three to seventy-five grooves for all letters and marks in the alphabet. All types stand on the edge, one above the other, which is shown in the section, Fig. III.

B is the continuation of the type-box A, but can be separated therefrom.

a is a crank fastened to an axle, which is set in motion by a treading-wheel. To this crank a strip C is attached, which moves on the lower end on a hinge or pin and makes on the upper part a motion to and fro. This strip goes through a flat piece *d*, which is connected by hooks *e* and *f* with *g* and *h*.

Suppose the composing-machine is required to work. Then the hook *e* is loosened, and the hook *f* connects the parts *d* and *g*. By moving *d*, *g* must move also, and has in a complete machine from twelve to fifteen inches stroke.

On the head of *g* is a movable pair of tongs *g''*. If *g* moves to the left, these tongs open by sliding up the inclined plane of the angular piece *i* and remain open by being caught by the hook *k*. The angle *i* is fastened in a groove (about one-fourth of an inch wide) in the point *l*, Fig. III. The groove runs along the whole length of the track of *g*, so as to give the lower part of the tongs play-room.

In *g* is a guide-groove curved at both ends, Fig. I. In this groove pins from the parts *m*, *n*, and *o* fit. If *q* moves, those parts *m*, *n*, and *o* come also into motion as soon as the pins come into the curve of the groove. Suppose *q* makes the motion to the right. *m* will commence moving forward as the pin of *m* comes into the curve. In consequence of this motion of *m* the angular piece *p*, which is fastened at *p'* with a pin to the table, will also make a motion, and the point *p''* moves from the left to the right. This point *p''* catches the piece *q*, which runs below the type-boxes B and consists of two parts. *q* must raise in an inclined motion as soon as *p''* moves it, in consequence of the two inclined planes attached to *q* underneath, and *q'* raises also, but in a perpendicular motion. Now if *q* moves still on to the right the pin of *n* comes in the curve of the groove and *n* commences to move. By means of the connection of *n* with *r*, *r* will be pushed from the front to the rear. By this motion of *r* the finger-key *f*, which is pressed down with the finger and caught by the hook *a*, will be pushed also to the rear. Through the connection of *s* and *v v* the spring-key will open in *v'*. As soon as this is done, all the types which belong to this key will slide down till they reach the surface of *q*, which is so low that the lowest type cannot be caught again from *r*. Soon after this the finger-key *s* will be thrown up again to its former place by the spring *s'*. The connection of *r* and *s* is now separated, and the spring-key *r* will close again in *v'* and presses both the lowest types *x* and *y* against the back wall of the box B and prevents, in consequence of this, all types belonging to that key from sliding down. The motion of *q* is now reversed and goes from the right to the left. By this motion *r* comes into its former place, and *m* and *q*, with *q'*, go down again. With *q'* the loose type also comes down to the surface of the table. The motion of *q* continues to the left, and the part *o* commences to move to the front, and by the connection of a lever *o o* with *z* the comb *z* will be pushed to the rear. By its motion the comb takes the loose type from the box B to the movable receptacle *c'*. In this position of the machine the finger-key for the next letter will be pressed down. Now reverse the motion of *q* again from the

left to the right, and the nose B goes through the orifice c'' and lifts all the receptacles c till it comes to the receptacle where the type was pushed in from the comb z. The open tongs touches now the type, and as the type is bearing against the side of the receptacle the tongs will stand still, and as g moves on, and with g the hook k, the tongs must slide from k, and the under lip of the tongs catches the type by means of a spring d and presses it against e, so as to prevent the falling of the type. By this time the nose B has moved so far forward as to raise the receptacle which contains the type. Now the type is free, and the tongs carries it to y, where two springs with barbs catch the type underneath. All the receptacles which follow that in which the type was will be raised by the nose B before the tongs touches them, because the tongs, after receiving the type, is pushed back under the highest point of the nose.

In the box y is a square piece I, which is connected to a spiral spring T by a cord. This piece I pushes against the types and prevents their falling. Now if y is filled with types it must be raised by hand and the whole line delivered at once into the box u, Fig. 1. In the box u is also a movable square piece v, to prevent the falling of the first-delivered line. Practice will prove the best width for the box, if only as wide as the length of a line in a column or page of a book, or three, four, or may be ten times longer. The adjustment of the lines must be made by hand.

If after continued composition of types the box A has one of the grooves empty to the edge (upper edge) of B, the bolt g, which is lined with india-rubber, will be fastened and all the remaining types in A will be shut off. After this is done the whole box A will be laid backward and pushed on a track to the distributing part of the machine.

The small pieces X prevent the types from falling when A is in a horizontal position. In each groove of A one of them is placed behind the types or above the types when the box A is standing up.

Between the spring-keys c and the heads of the types, also between the foot of the types and the hind wall of box B, there are sheets of india-rubber to avoid injury to the types from the pressure of c.

Distributing part of the machine.—1 is a box in which the old composed types will be placed for distribution. Behind the types is a square piece 2, not only to prevent the falling of the types, but also to push the types with by hand as soon as a line is distributed. The box 1 empties into a groove 3. This groove is lined on one of its inner sides with india-rubber, and on the other inner side it has springs also lined with india-rubber. To commence the distribution, the whole body of types must be pushed by hand against the piece 4, which is movable and can be pressed with the fingers a trifle into the groove. After the types are pushed against it 4 must be opened again, and the first line will drop into the groove, which is a little lower than the box 1. This dropped line will now be forced forward from the left to the right by a small piece 5, which is drawn by a weight, till the first type leans against the hook 6. After this is done the small piece 5 must be pulled back again by hand and the next line of types dropped into the groove. The hook e must now be fastened and the hook f opened. e now connects h and d. This part h consists of three pieces h', h'', and h'''. Now if h' comes against the first type (which is to be distributed) the sloped edge of h' presses the the hook 6 back, and the mouth h'', which springs, catches the first type. At this moment the angular finger-key belonging to this type (suppose 9) must be pressed down, and in consequence of this the fork 10 will be pushed against the box A. The motion of h now reverses and goes from the left to the right. The sloped plane h''' presses against the pin 10′, and as this pin is fastened to 10″ the whole part 10″ must be pressed back. In this way the type can go into the fork 10. After this is done the pin 10′ slips off from the sloped plane h''', and 10″ is forced back by means of the spring 10‴ to its former place and incloses the type. h'' moves on and leaves the type in the fork. As soon now as the pin of the piece 11 (which pin runs in a groove in h) comes in the curve of the groove 11 commences to move, and as it stands connected by a lever with the square frame 12, Figs. 1 and 2, the frame 12, which goes between the prongs of the fork 10, must be pushed against the box A, and takes the inclosed type to the grooves of A; but at the same time the hind part of the frame 12 catches also the crooked piece 13, Fig. 2, and opens 14 from the hook 9. As soon as the hook 9 is loose, the whole fork 10 is thrown back to its former place by the spring 15. The piece 11 is also joined to the other side of h by another lever 16 with 17. 11 now moves to the front; and as it is connected by 16 with 17 the piece 17, which is pressed by a spring against 5, will be opened. Now 5 is loose, and the weight 18, Fig. 2, draws it from the left to the right and pushes the whole line in the groove against the hook 6. The motion of h is again reversed and takes the next type, and so on.

If the types should stick too tight together, a hammer 19, Fig. 1, may be used, which hangs on an angular spring-handle 20 and strikes against a wedge 21. This wedge touches every type as it passes, and loosens them all. The handle of the hammer turns on a pivot, and the end of it (pressed by a spring) reaches to the track of h. As soon as h moves against it, the spring will be

pressed back and the hammer thrown off, so that the hammer strikes the wedge at every motion of *h*.

The whole machine stands upon a table with an inclined surface, being higher in the front. The machine itself is constructed of metal. The red-colored parts of the drawings are lined with india-rubber. The points of the comb *z* are tinned or covered with an india-rubber solution, so as to prevent injury to the heads of the types.

After the construction of the machine is given it becomes clear that with every set of characters a finger-key corresponds, which is played upon by an engineer or type-composer in a manner similar to that of a pianist, the machine being set in motion by the foot of the operator, or, if thought proper, by steam or any other motive power.

Having thus fully described my improvements, what I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of parts, substantially as described, for the purpose of composing and distributing type, as herein specified.

In testimony whereof I have hereunto signed my name this 17th day of June, 1856.

JULIUS J. KOENIG.

In presence of—

CHAS. EVERETT,

JOHN S. HOLLINGSHEAD.