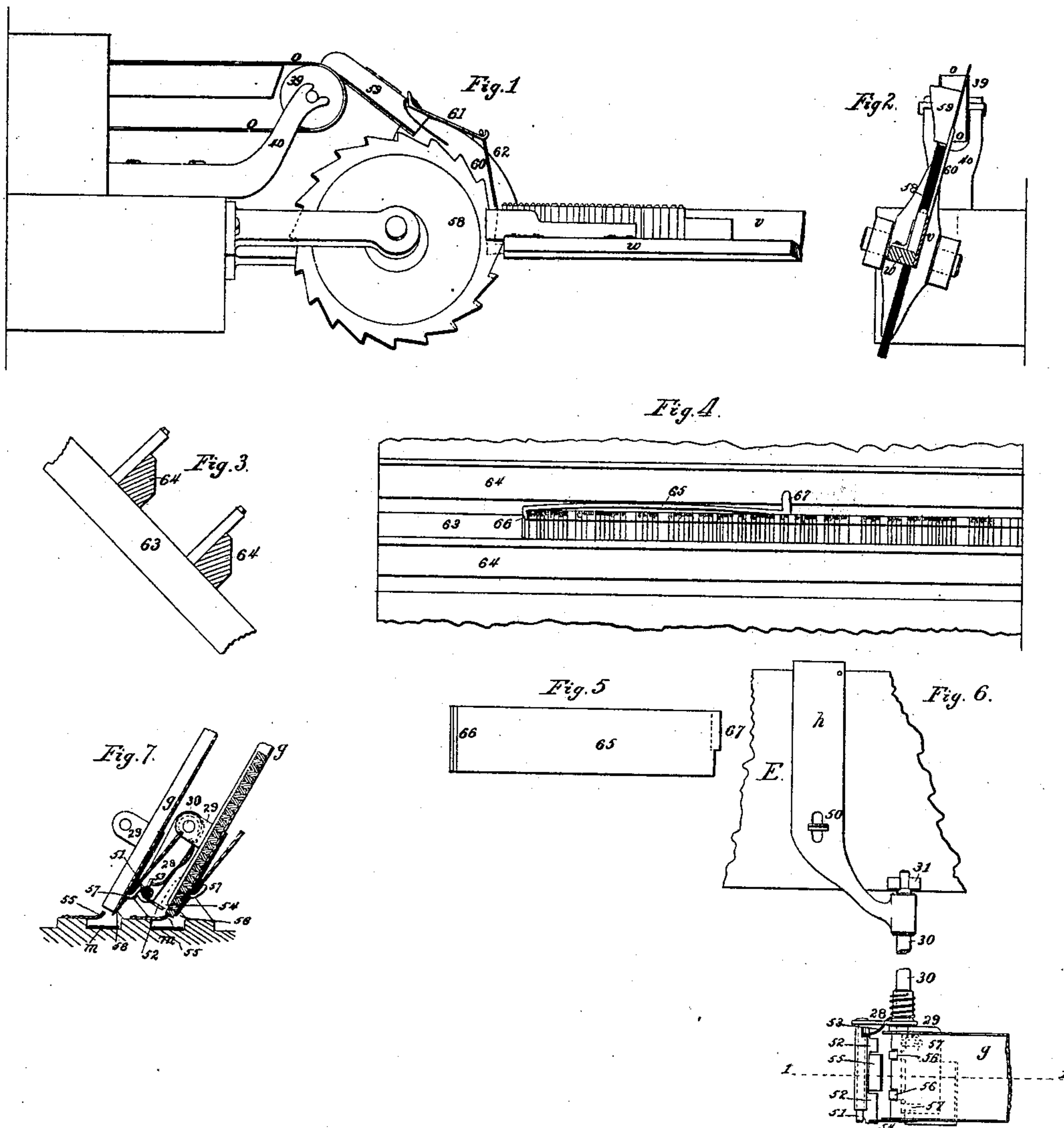


W. H. MITCHEL.
MEANS FOR COMPOSING TYPE.

No. 16,743.

Patented Mar. 3, 1857.



Witnesses:

Samuel H. Perrell.
Thomas H. Perrell.

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UNITED STATES PATENT OFFICE.

WILLIAM H. MITCHEL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR COMPOSING TYPES.

Specification forming part of Letters Patent No. 16,743, dated March 3, 1857.

To all whom it may concern:

Be it known that I, WILLIAM H. MITCHEL, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use certain new and useful Improvements in Means for Composing 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 part of this specification, wherein—

Figure 1 is a side elevation of the composing-wheel. Fig. 2 is an endwise view of the composing slide and wheel. Fig. 3 is an end view, and Fig. 4 is a front view, of the justifying-stand, showing the grab used for transferring the lines to the compositor's stick. Fig. 5 is a plan of said grab. Fig. 6 is a plan of my improved key for dropping the types, and Fig. 7 is a section vertically at the line 1 1.

Similar marks of reference indicate the same parts.

The nature of my said invention consists in certain improvements on Letters Patent granted to me August 30, 1853, and relates to the means for dropping the types onto the series of belts *m*, therein set forth; also in means for setting up the types into a continuous line as they arrive on the diagonal belt *o* at the composing-wheel, and also in means for facilitating composing the types into pages or columns and justifying the same by the use of a peculiar grab to transfer each short line to the compositor's stick from the continuous line of the machine.

The operation of the series of belts and the diagonal belt being fully set forth in the before-mentioned patent, and also the manner in which the various types pass to the composing-wheel, the same will not require repetition herein.

In the drawings, the key *h* is fitted to the board *E*, and provided with a spring to throw the key up, and with a screw 50 to regulate the extent of upward motion and to facilitate the removal of the key in case of any obstruction thereto, said screw 50 is made with a T-head, so that by giving the same a quarter-turn it coincides with a slot in the key *h*, to allow of the key being lifted out. 30 is the shaft of said key set in the bearings 29 and

31, the latter of which is formed as a notch. 28 is an arm extending from near the end of said shaft 30, next the slides or conductors *g*, on the end of which arm 28 a fixed pin 51 takes the pusher 52. This pusher is formed as a cylinder on the pin 51, and the pushing-points are kept to the correct position by the spring 53, which is only just strong enough to keep the pushing-points up to the guide 54 on the side of the slide *g*, when said pushers are not otherwise acted on. The bottom type of the line of types in each of the slides or conductors *g* rests upon a stop 55, that is so placed that the top side of the lowest type is just below the lower end of the conductor or slide *g*. If the key *h* be now struck, the pushers 52 carry the lowest type off the stop 55, and the line of types descends against the yielding pushers and rests on said stop 55. The type that is thus carried off drops correctly onto its belt *m* to be taken to the composing-wheel, in the manner set forth in the before-mentioned patent, and on relieving the key the pushing-points draw back on each side of the support or stop 55 and spring up ready to take the next type. If this pusher alone were used, the type might be thrown sidewise some distance and not fall correctly onto the belt. I therefore make use of fingers 56, formed on a plate of metal hung on hooks 57 at the back of the conductor *g*, and said fingers project below the lower end of said conductor *g* about half the thickness of the type, so that as said type is carried off the stop 55 it is partially held between the pushers 52 and fingers 56, (which yield as the type moves back,) and drops vertically onto the belt in the correct position. The types having been carried to the composing-wheel by the before-mentioned belts, I will now proceed to describe the peculiarity of my present composing-wheel.

In Letters Patent granted to me May 16, 1854, a composing-wheel is shown as formed of thin plates of metal similar to saws, driven backward, and the types are deposited onto metal plates running nearly horizontally in between the plates of said revolving wheel. I make use of the same device herewith, and therefore the peculiar operation of this part need not be specified herein; but in said patent the composing-wheel stood on a horizon-

tal shaft and had a fence or guide on each side and a chute or conductor supplying types from the diagonal belt *o* at the roller 39. I have found a difficulty to exist in this connection—viz., that if a type becomes stuck or wedged into the conductor or chute there is no indication of the same, and the whole mass of types accumulates in disorder at the composing-wheel and either the types or machine may be injured. To avoid this difficulty I set my composing-wheel at a suitably-inclined angle and only use one fence or side to the conductor or chute, so that the type lie and slide down in the lowest corner or angle, and if any type passes incorrectly or becomes clogged in consequence of oil or other matter on the body, so that itself or its successors do not pass correctly onto the composing-wheel, they are thrown off at one side, and in falling onto the floor, or a sheet of tin placed for that purpose, attract the attention of the operator, who removes the obstruction and rectifies the error in the composition.

In the drawings, *o* is the diagonal belt before mentioned, moving around the roller 39, as shown.

58 is the composing-wheel, formed as before specified, and set at the angle shown in Fig. 2, or such other inclination as will best answer with the types.

59 is the inclined conductor or chute formed with only one side and passing the types down its angle into the composing-wheel.

60 is the fixed side of the conductor or fence, against which the types move, and 61 and 62 are small hanging checks or springs to prevent the type jumping out of the teeth of the composing-wheel.

w is the bottom of the composing slide or bar, and *v* is the fence, against which the types rest, and these may be of any desired length to contain the continuous line of types. From this line of types shorter lines of type are successively taken and placed in the justifying-stand by means of a thin sheet-metal trough.

The justifying-stand is shown in Figs. 3 and 4, and is composed of a flat inclined board 63,

across which horizontal ribs or strips 64 are attached, and the shorter lines of type (about two feet each) are placed in this stand and retained for justifying and setting up in the compositor's stick into columns or pages. For this purpose I make use of the grab 65, which is formed of a slightly-arch-shaped piece of metal with a lip 66 and finger-piece 67, and said grab is of a length corresponding to the width of column or page. The compositor, holding his stick in the left hand, with the top of the page or column next him, takes the grab in the right hand and seizes the length of one line of types by pressure from the thumb, arching the types to the curved form of the grab and transfers them to his stick and there justifies the same; and the manner of composing and then storing the types in the justifying-stand brings the types upside down in the stand ready to be correctly transferred to the compositor's stick.

Having thus fully described the nature of my said invention and improvements, I would herein distinctly state that my claims do not relate to those parts already secured to me by the before-mentioned Letters Patent; but What I claim, and desire to secure by Letters Patent, is—

1. The manner of dropping one type at a time from the lines of types in the conductors *g* by the combined operation of the pushers 52, stop 55, and fingers 56, substantially as and for the purposes specified.
2. Inclining the composing-wheel, when used in connection with the inclined chute or conductor 59 and fence 60, on the lower side only of the inclined composing-wheel, for the purposes and substantially as specified.
3. The compositor's grab 65, formed in the curved shape and used in the manner and for the purposes specified.

In witness whereof I have hereunto set my signature this 8th day of January, 1857.

WM. H. MITCHEL.

Witnesses:

LEMUEL W. SERRELL,
THOMAS G. HAROLD.