

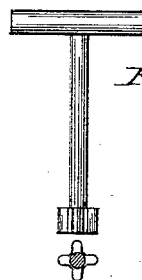
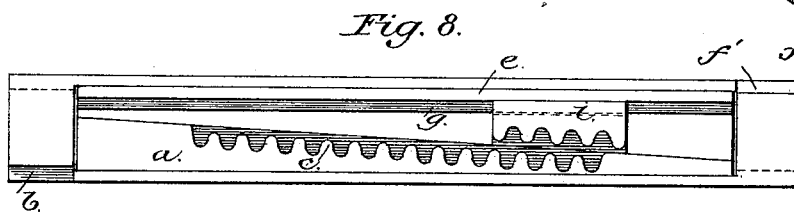
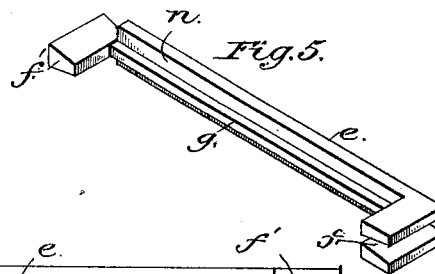
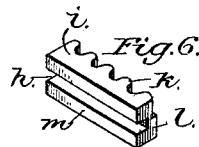
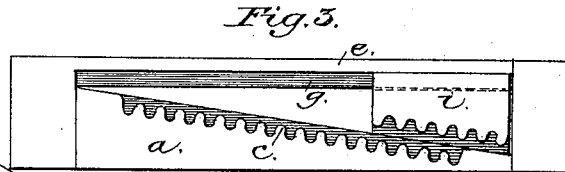
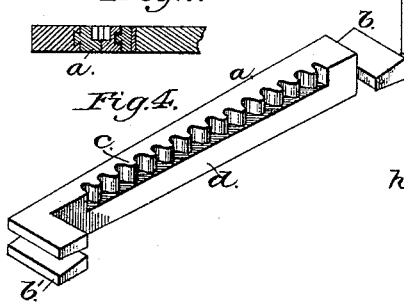
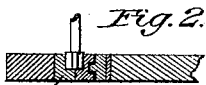
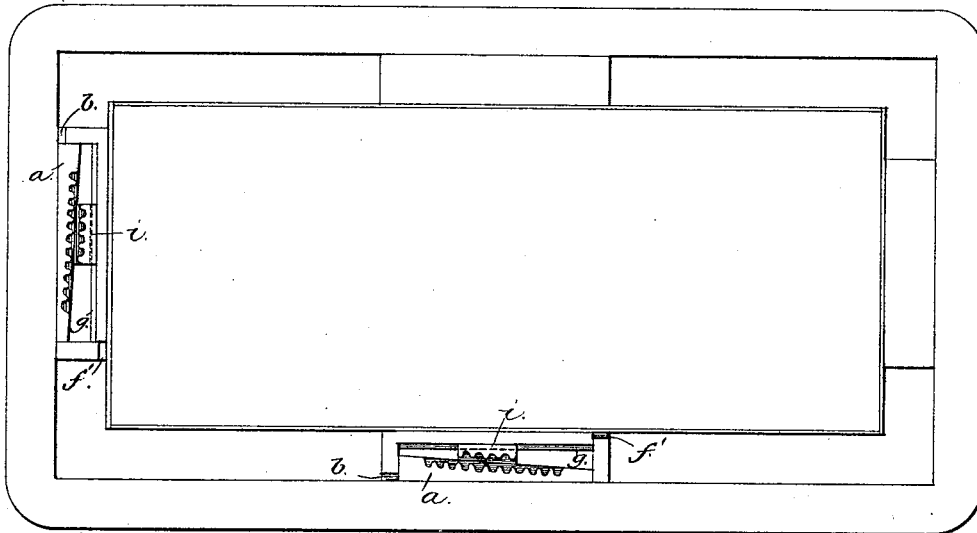
(No Model.)

J. J. BARNSDALL & E. C. BELL.

DEVICE FOR TIGHTENING FORMS OF TYPE IN CHASES.

No. 346,457.

Fig. 1. Patented Aug. 3, 1886.



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UNITED STATES PATENT OFFICE.

JOHN J. BARNSDALL AND EDWIN C. BELL, OF TITUSVILLE, PENNSYLVANIA.

DEVICE FOR TIGHTENING FORMS OF TYPE IN CHASES.

SPECIFICATION forming part of Letters Patent No. 346,457, dated August 3, 1886.

Application filed February 4, 1885. Serial No. 154,931. (No model.)

To all whom it may concern:

Be it known that we, JOHN J. BARNSDALL and EDWIN C. BELL, citizens of the United States, and residents of Titusville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Tightening Forms of Type in Chases, of which the following is a specification.

Our invention relates to a new and novel device for tightening a form of type within a chase, of which a full, clear, and description will be given hereinafter.

Our invention consists of a metallic bar having a projection at each end thereof and at right angles therewith, one of the said projections having an opening therein, the other forming a dovetailed tongue, both of which engaging with a corresponding opening and tongue on a second bar, which will be at all times parallel with the first. The second bar is also provided with a longitudinal tongue on the inner side thereof extending from one projection to the other, said tongue receiving a corresponding groove made in one side of a sliding lug made in wedge shape, said lug having teeth forming a rack thereon, said teeth having their sides flush with the upper surface thereof and extending from end to end, the face of the teeth having suitable depth, the object of which will be described further on. The first bar is also provided with teeth flush with the upper surface thereof, which form a rack, the teeth of which corresponding in shape and size with those of the sliding lug, but not engaging therewith. The teeth of the said bar, like those of the lug, project at right angles from the body with which they are integral. The face of these teeth extend downward at a suitable distance, where they join a portion of the body of the said bar and are flush therewith. This portion of the bar, which we term the "oblique face," engages with a corresponding face of the sliding lug, the operation of which will be fully described hereinafter.

We do not wish to confine ourselves to the hereinbefore-described device, as we may use the bars without the beveled tongues and openings by placing them within a case composed of two pieces, one of which has a beveled

tongue on one end thereof, which slides in corresponding openings in the end of the second piece, and vice versa. It will be observed that in this modification the same result will be accomplished as in the device first described.

In the drawings, Figure 1 represents a form of type held within the chase by our improved device. Fig. 2 is a cross-section of a portion of the chase, which also shows the tightening device; Fig. 3, a plan view of the tightening device closed; Fig. 4 a detailed perspective of the rack side; Fig. 5, a detail perspective of the side having the longitudinal tongue; Fig. 6, a detail perspective of the sliding lug. Fig. 7 represents a modification. Fig. 8 represents a modification, showing the manner in which the tightening device may be attached to the chase; Fig. 9, detail views of the key.

Similar letters refer to similar parts throughout the drawings, in which—

a represents the metallic bar, having a beveled tongue, *b*, at one end and a projection, *b'*, at the other, having an opening therein.

c are the teeth, forming the rack integral therewith.

d is the oblique face.

e is the second bar, provided with an opening, *f*, at one end and a dovetailed tongue, *f'*, at the other, both engaging with *b* and *b'* when in operation.

g is the tongue on the inner side of the bar *e*, said tongue engaging with a groove, *h*, made in the side of the metallic lug *i*, provided with teeth *k*, forming a rack thereon. Said lug *i* is made in wedge shape, the oblique face *l* of which engages with the face *d* of the bar *a*. The straight face *m* of the lug *i* engages with the face *n* of the bar *e*.

Mode of operation: Whenever the form of type shall have been made ready and placed within the chase, the device is placed between it and the chase, a key having teeth corresponding with those of the racks is inserted between them and turned, the operation of which forces the two bars apart, imparting to them a lateral movement, whereby the type composing the form is tightened without distorting the lines of the column. It will be obvious that when the wedge-shaped lug is moved in a smaller-shaped opening it will cause the parts forming the opening, when

loose, to move apart. It will also be obvious that the beveled or dovetailed tongues working in corresponding openings prevent the bars from moving longitudinally, thus making
5 it a perfect device, the function of which could never have been performed by the devices now used for tightening forms within the chase.

We are aware that angular pieces have heretofore been made with racks operated by a key,
10 the whole used for tightening forms; but we are not aware that angular pieces provided with a dovetailed tongue at one end and a projection at the other, having an opening therein engaging with corresponding opening and tongue of
-15 a second angular piece, the whole separated by a sliding lug made in wedge shape, as herein described, have ever been made or used prior to our invention.

Having thus described our invention, what
20 we claim as new, and desire to secure by Letters Patent, is—

1. In a device for tightening type-forms within a chase, the combination consisting of two metallic bars with locking devices, sub-
25 stantially as described, at each end thereof,

one of said metallic bars carrying a sliding lug between the two metallic bars, the lug adapted to be operated by a key engaging with corresponding means, substantially as described, on one side of the said lug and metallic bar, 30 whereby a lateral movement will be imparted to said bars when operating the key, substantially as shown and described.

2. In a device for tightening forms of type in a chase, the combination consisting of the 35 metallic bar *a*, beveled tongue *b*, slotted projection *b'*, teeth *c*, second metallic bar, *e*, tongue *g*, slotted end *f*, dovetailed tongue *f'*, metallic lug *i*, having grooves *h*, and teeth *k*, the whole adapted to be operated by a key, substantially 40 as shown and described.

Signed at Titusville, in the county of Crawford and State of Pennsylvania, this 12th day of October, A. D. 1883.

JOHN J. BARNSDALL.
EDWIN C. BELL.

Witnesses:

SAMUEL GRUMBINE,
J. A. HURDLE,
JOHN A. ELLIS.