(No Model.)

A. A. LOW.

TYPE CONTAINING CHANNEL.

No. 381,802. Patented Apr. 24, 1888.

Fig. 1.

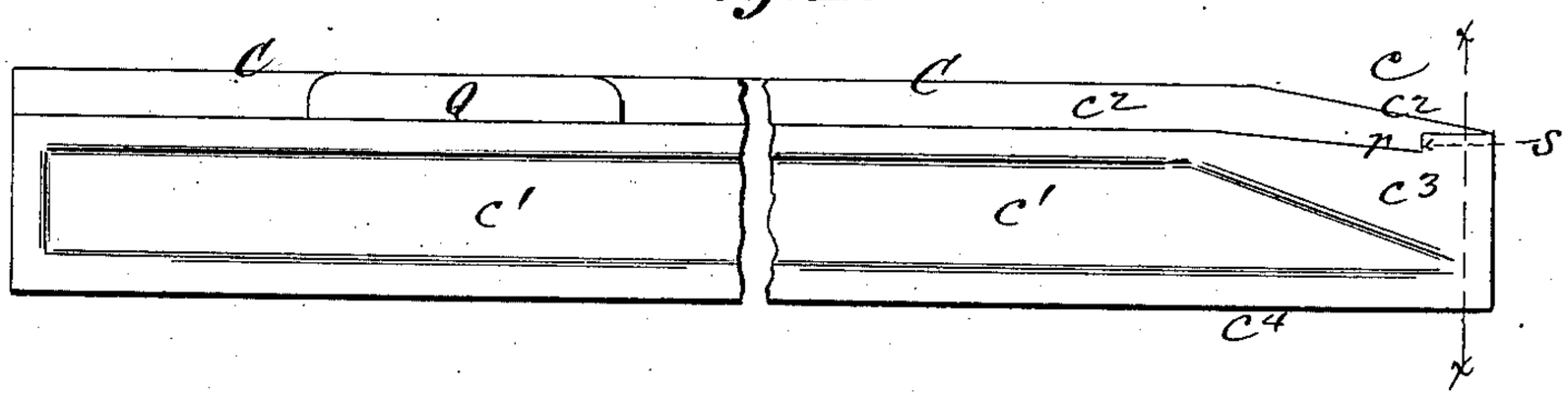


Fig. 2.

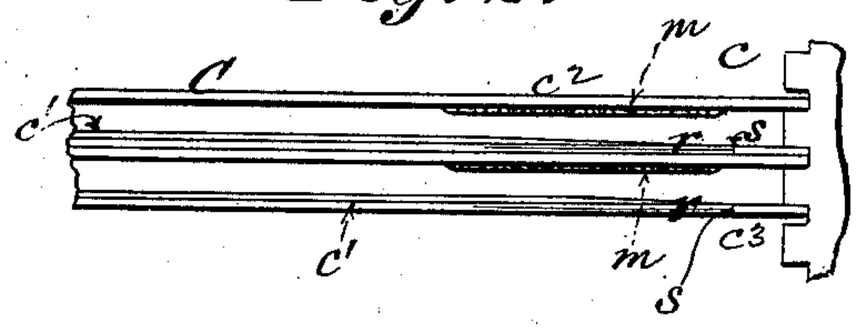


Fig. 8.

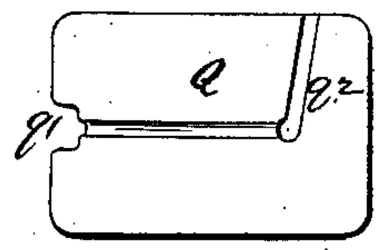


Fig. 9.

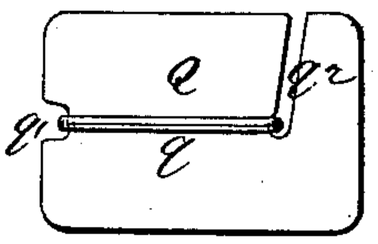


Fig. 3.

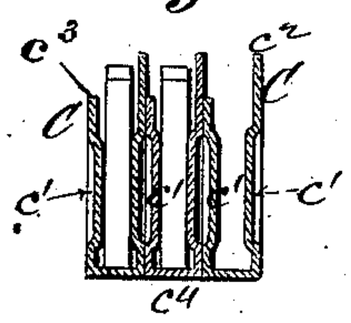


Fig. 4.

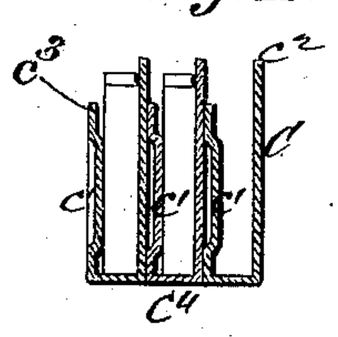


Fig. 5.

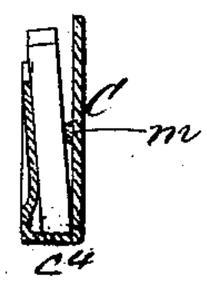


Fig. 6.

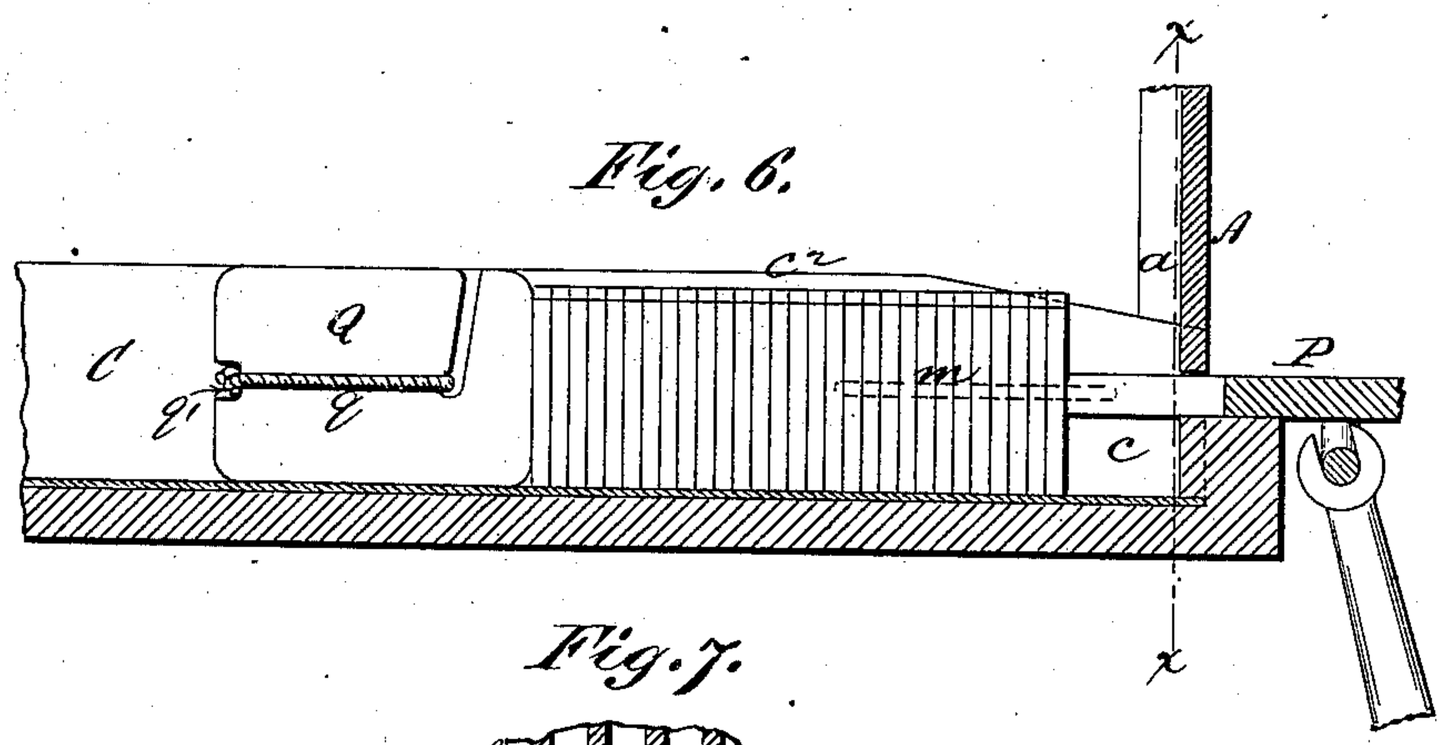
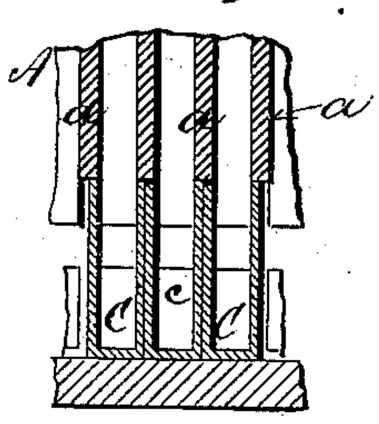


Fig. 7.



Witnesses:
Wm. Gardner.
Wm. A. Pollock.

Inventor:
A. Augustus Low,
By his attorney
Leo. H. Miath

UNITED STATES PATENT OFFICE.

A. AUGUSTUS LOW, OF BROOKLYN, ASSIGNOR TO THE ALDEN TYPE MACHINE COMPANY, OF NEW YORK, N. Y.

TYPE-CONTAINING CHANNEL.

SPECIFICATION forming part of Letters Patent No. 381,802, dated April 24, 1888.

Application filed May 4, 1886. Serial No. 201,105. (No model.)

To all whom it may concern:

Be it known that I, A. AUGUSTUS LOW, a citizen of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Containing Channels, of which the following is a full, clear, and exact description, which will enable others skilled in the art to which it appertains to make and use the same.

My improvements relate to the special construction of the type-containing channels used in conjunction with the class of type setting and distributing apparatus set forth in the following patents, among others, viz: Nos. 203,784, 254,019, 263,707, 264,084, 264,085, 268,409, 271,711, 275,664, 279,168, and 282,988. In this class of apparatus the types are arranged in prescribed positions in the type-containing channels, being successively deposited and forwarded therein while the said channels are situated in the distributing apparatus, and removed therefrom successively while the channels occupy appropriate positions within the channel-case. The forwarding of the types within the type-containing channels while in the distributing apparatus is usually accomplished by a reciprocating pusher situated at the receiving ends of the said channels, acting against the resistance of the columns of types, and also against that afforded by "slugs" or movable supports which precede and sustain the type in the required upright positions within the channels.

For various reasons, set forth in former applications for patent, to which reference may be had, the types have a tendency to retractile movement or "backlash" during distribution, and various means have been devised for obviating or neutralizing the effect of such backlash.

In my application No. 192,493 I describe and claim a means for counteracting or preventing this retractile movement of the types in their containing-channels, consisting of an elastic or semi-elastic section or surface arranged upon the side walls of the receiving ends of the type-channels. This means is practicable and sufficient when used in conjunction with the ordinary sizes and thicknesses of types; but, owing to the greater elasticity and lightness of the smaller sizes of types, a larger proportion of which are in the aggregate bent or distorted in use, when they are in lines or columns within the type-containing channels, they tend to create a disproportionately large degree of retractile movement or pressure.

One object of my present invention is to overcome this difficulty, and thereby adapt the type-containing channels equally to the distribution of types of all sizes and styles. In this connection it is to be remembered that the type-containing channels used in this system of "setting," &c., are formed with side walls of different width to expose and afford access to the heads of the types.

The first feature of my present invention consists in forming the upper edge of the lower side wall of a channel with a recess or depression, which is opposed in position to the elastic or semi-elastic section of resisting-surface, hereinbefore referred to, in such manner that the latter tends constantly to throw the upper portions of the types as they pass between into the said recess or depression, the inclination thus imparted to the types causing their upper portions to project slightly beyond the plane of the inner surface of the side wall, so that they will be positively held upon that side against retractile movement by the shoulder, which terminates the receiving end of the recess or depression, while the elastic or semi-elastic surface upon the other side of the channel supports and holds them in position against lateral or axial movement.

In my applications Nos. 195,866 and 201,104 I show internal projections or ribs extending a short distance along the channel; but such ribs are employed for special purposes entirely distinct from my present invention. They relate to the retardation of the types and the prevention of backlash, &c., and contract a type-passage of the full or maximum width of the channel at certain points only, whereas my present invention consists in a new channel of maximum exterior width formed with a contracted type-passage which is practically continuous and of uniform width throughout.

Another feature of my invention consists in forming the high walls of the channels at their

receiving ends with a curve or inclination which gradually descends to the level of the top of the other or shorter walls. By this means both side walls connect with the side walls of the type-passages in the conduit-plate of the distributing apparatus upon substantially the same level, and all irregularity or unevenness in the type-passage is avoided.

In the accompanying drawings, Figure 1 is a side elevation of my improved form of type-containing channel, the middle portion being broken away. Fig. 2 is a top view of the receiving ends of two adjoining type-containing channels and the stationary tongues or shoulders upon the distributer which engage therewith. Fig. 3 is a transverse section of three adjoining type-containing channels, in each of which both side walls are bent inward to contract the type-passage. Fig. 4 is a similar view, in which one side wall only in each channel is bent inward for the same purpose. Fig. 5 is a transverse section of the receiving end of a type-channel, illustrating the tilting of the type; Fig. 6, a vertical longitudinal section of the receiving end of a type-containing channel and adjoining parts of the distributing apparatus; Fig. 7, a vertical section upon plane of line *x x*, Figs. 1 and 6, of three type-containing channels and adjoining parts of the distributing apparatus except the pusher-fingers; Fig. 8, a side elevation of the type-preceder or slug without its band of elastic or semi-elastic material; Fig. 9, a similar view with the band applied.

The type-containing channel C is formed from sheet metal struck up into the desired shape, as heretofore. Where designed for the largest width of type to be used, it is of the form shown in cross-section in Fig. 7, which represents the receiving ends of the channels, which receiving ends *c* are never altered in shape, but remain of the same width, irrespective of the size of the type-passage in the rear or body of the channel.

When the channel is designed for the reception of types of less than the maximum width, its side walls, one or both, as may be necessary or preferable, are bent inward the greater portion of their length and height, as will be understood by reference to Figs. 1, 2, 3, and 4, so as to contract the type-passage to the degree required. These interior projections, *c'*, of the channels are stamped up or otherwise formed, as may be most convenient, and besides performing the office of contracting the type-passage they tend to stiffen and strengthen the channels materially against lateral strain or bending. The upper receiving end of the higher wall, c^2, is inclined or curved downward, as indicated in Figs. 1 and 6, until its extreme inner end is of the same height only as that of the shorter side wall, c^3. By this means the conduit-walls *a a* in the conduit-plate A may be made to extend down to and join the channel-walls c^2 c^3 on a common level, as indicated in Fig. 7. It is true that the higher side walls, c^2, of the channel might be notched or cut away to receive the lower extremity of the conduit-wall *a;* but in such case the slightest bend or injury tc the vertical edge of the offset thus formed would cause it to project more or less into the path of the types and interfere with their proper alignment. Thus by cutting away the end of the upper side wall, as described, I simplify the construction of both the channels and the bottom of the conduit-plate A, while avoiding all danger of obstruction or interference with the types at that point.

The upper side walls, c^2, of each channel C at the receiving end is provided with an inwardly-projecting rib or section of elastic or semi-elastic material, *m*, which may be applied in any of the ways designated in either of my applications No. 192,493 or No. 195,866, before referred to. This section *m*, of comparatively soft elastic material, is preferably arranged horizontally and longitudinally with relation to the channel, and in a plane corresponding to that of the reciprocating pusher P, which coincides with the middle of the types when upright within the channel. In the adjoining upper edge of the shorter wall, c^3, a recess or depression, *r*, is formed, being deepest at the receiving end, where it ends in an abrupt shoulder, *s*, from the bottom of which the upper edge of the side wall, c^3, inclines or curves upward and backward, as indicated in Figs. 1 and 6, until it merges into the straight horizontal edge which is parallel with the spine or bottom c^4.

The types, as they are forwarded by the pusher, are crowded and tilted by the elastic material *m* toward the lower side wall, c^3, until the shoulder *s* is reached and passed, when their upper portions fall behind the inner edge of the said shoulder *s* slightly, as indicated in Fig. 5, thereby checking their tendency to follow the retractile movement of the pusher. It will be seen that in this arrangement the elasticity of the material *m* throws the types behind the shoulder *s* and sustains them in such position until, during their further progress, they are gradually raised into the vertical position by the increase in the height of the bottom of the depression *r*. In another application for patent bearing even date with the present one I describe and claim a somewhat similar arrangement; but in that case a rigid rib is arranged to tilt the types over into the recess *r* at the proper point, and constitutes, with the shoulder *s*, a positive bar against the return of the types, whereas in the present case the means employed are not positive, but elastic and yielding, and I do not seek herein to cover, broadly, the combination and arrangement of the rib and recess on opposite side walls of the channel, but confine myself strictly to the combination of an elastic or semi-elastic surface upon one side wall when acting in conjuction with a depression or recess in the opposite side wall.

The slug Q is provided with a band of elastic or textile material, *q*, similar to the manner described in my last application, No. 195,866, the only novelty in the present case being the

formation of the recess q', for inclosing and protecting the band at that point, and the securing-knot, when string is used, as indicated in Fig. 6, and the recess or slot q^2, formed near the other extremity of the slug, for the reception and detention of that end of the band or cord q. The slot q^2 is preferably inclined outward to prevent the loosening or displacement of the band q. By the use of the slot q^2 one end of the slug is left unbroken and continuous, affording a straight smooth surface, down which the first type will slide without impediment, as hereinbefore stated.

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

1. A type-containing channel, substantially such as designated, formed with side walls of different height for the greater portion of their length, the upper edge of the higher wall being cut away, so as to gradually decrease in height until it coincides with the height of the lower wall at the receiving end, substantially in the manner and for the purpose described.

2. A type-containing channel, substantially such as described, formed at its receiving end with an abrupt shoulder and a depression or recess in the upper edge of one side wall, and provided with an inwardly-projecting rib or section of elastic or semi-elastic material upon the other side wall, for the purpose and substantially in the manner described.

A. AUGUSTUS LOW.

Witnesses:
GEO. W. MIATT,
WM. GARDNER.