

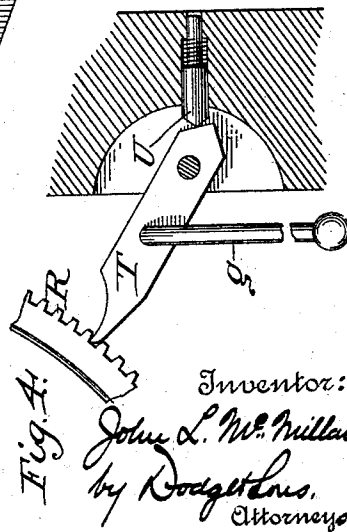
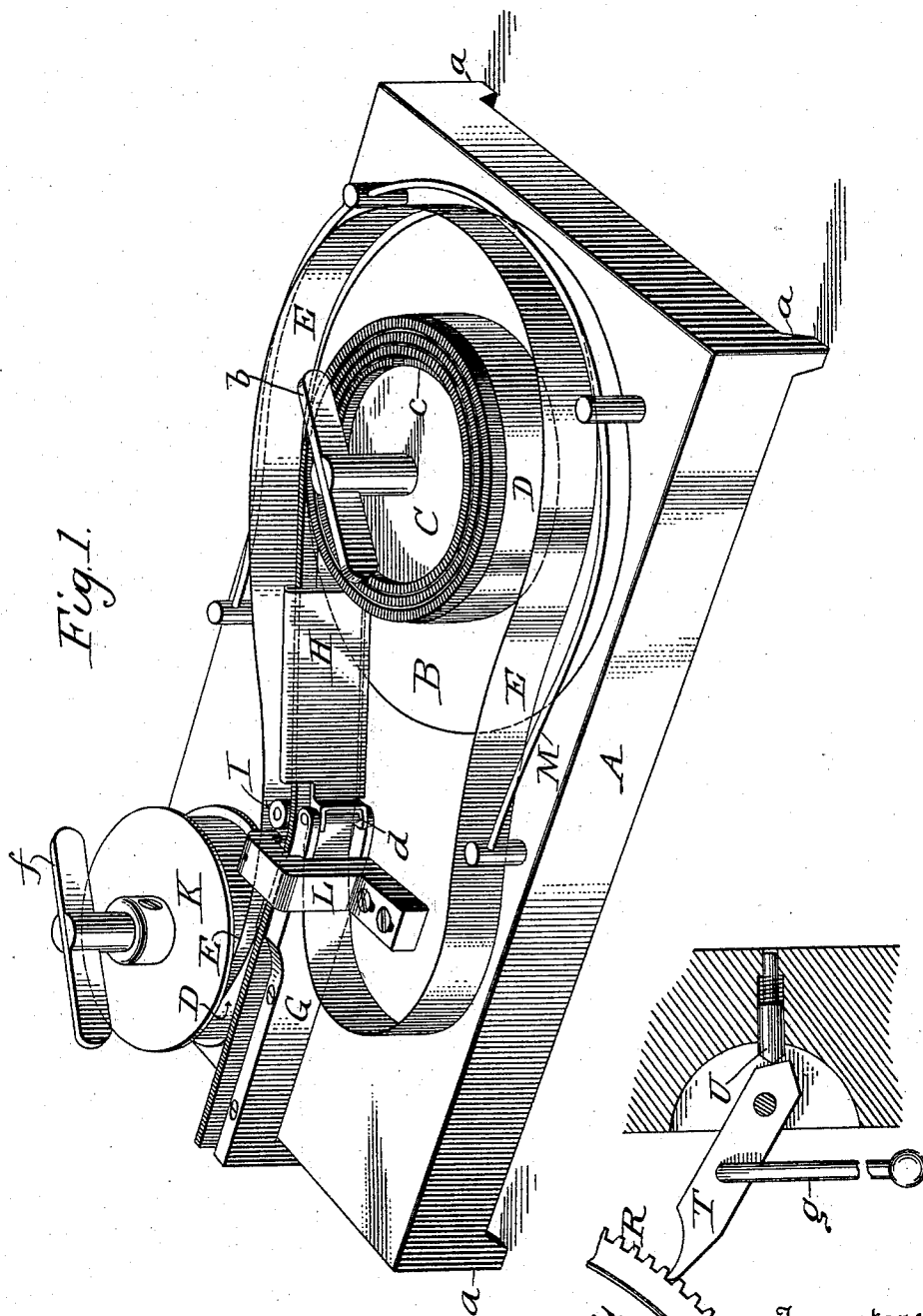
(No Model.)

3 Sheets—Sheet 1.

J. L. McMILLAN.
HOLDER FOR TYPE.

No. 578,828.

Patented Mar. 16, 1897.



Witnesses
C. L. Burdine.
C. P. Bull.

Inventor:
John L. McMILLAN,
by Dodge & Sons,
Attorneys.

(No Model.)

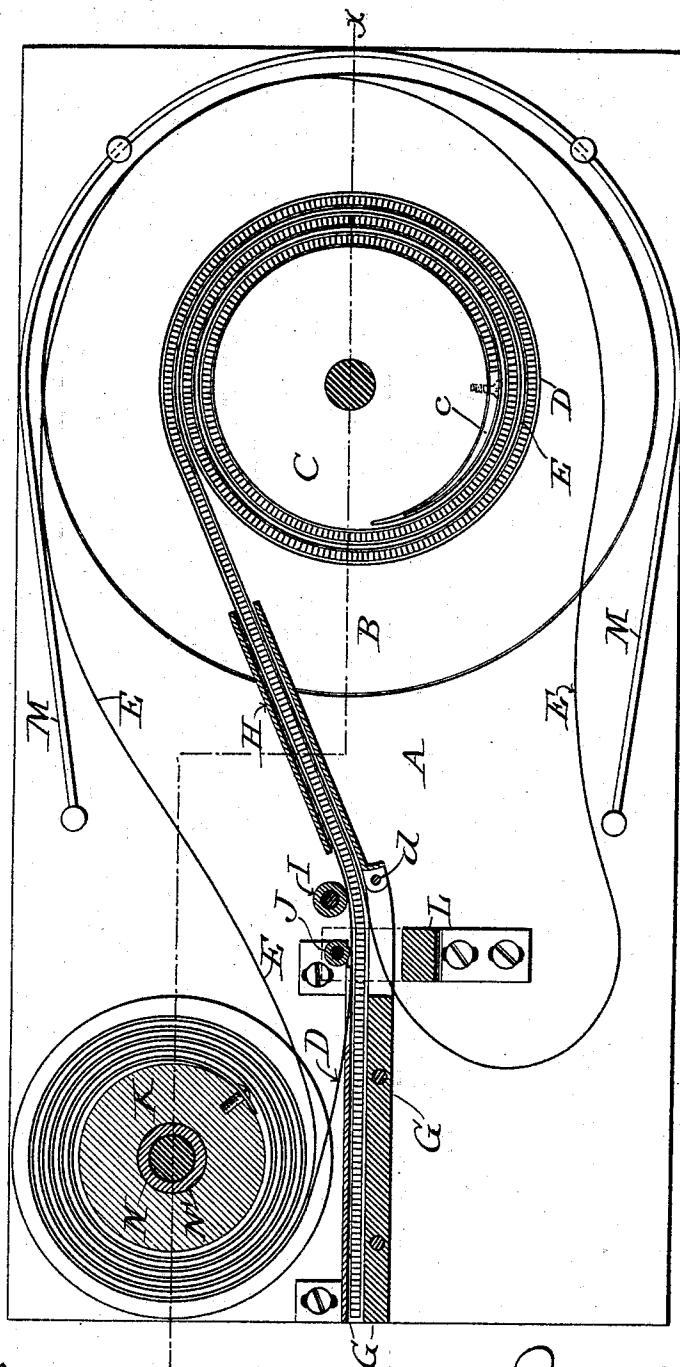
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Fig. 2.



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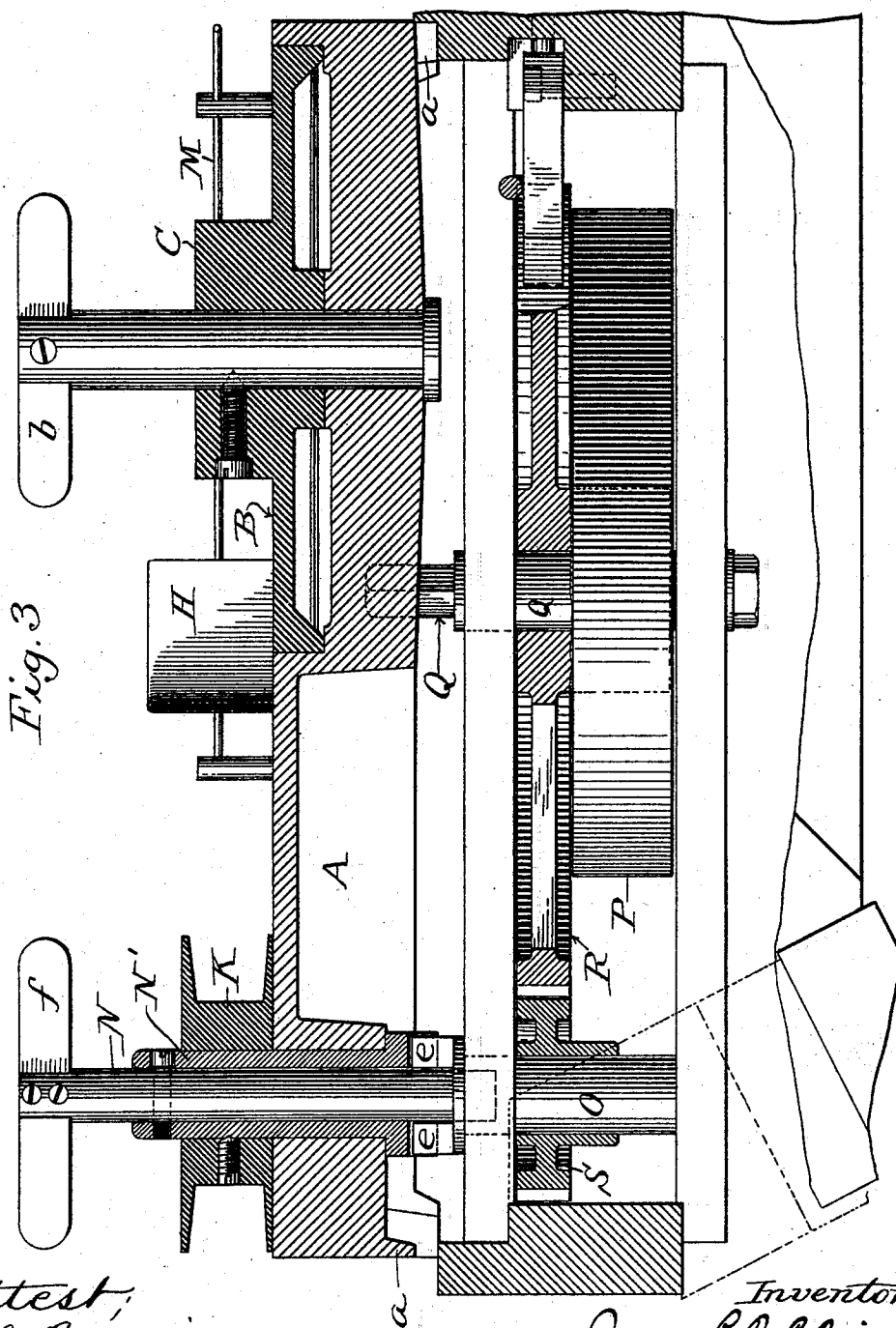
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Attest;
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Inventor:
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by Dodge & Sons,
Attys.

UNITED STATES PATENT OFFICE.

JOHN LOUDON McMILLAN, OF ILION, NEW YORK.

HOLDER FOR TYPE.

SPECIFICATION forming part of Letters Patent No. 578,828, dated March 16, 1897.

Application filed December 21, 1895. Serial No. 572,882. (No model.)

To all whom it may concern:

Be it known that I, JOHN LOUDON McMILLAN, a citizen of the United States, residing at Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Holders for Type, &c., of which the following is a specification.

My invention relates to holders for type, type-spaces, and the like; and it consists, essentially, in a rotatable drum or spool and two thin flexible and resilient bands, preferably of metal, arranged to wind about said drum and to hold between them the type, spaces, or other objects. Other parts will ordinarily be combined with those noted, but they constitute the more important elements and may be used to considerable advantage in the absence of other parts.

In the drawings forming part of this specification, Figure 1 is a perspective view of the device in a form suited to hold spaces for a type-justifying machine; Fig. 2, a top plan view of the same, partly in section; Fig. 3, a sectional view on the line *xx* of Fig. 2, and Fig. 4 a detail view of the catch or detent.

The structure hereinafter set forth is more particularly designed to contain type-spaces and to be used as an adjunct to or as a part of a type-justifying machine wherein spaces of one thickness are automatically removed and replaced by others of greater thickness. In such machine it is desirable that a large number of spaces be contained in small compass, and that they be fed therefrom as required by the justifying-machine, to the end that the machine may, without being unduly bulky, continue a long time in operation without replenishing its supply of spaces.

A justifier to which the invention is applicable is set forth in Letters Patent of the United States, granted to me on the 29th day of December, 1891, and numbered 465,877, though its use is not confined thereto.

It is desirable that the space holder or magazine be made detachable from the justifier and conveniently portable, in order that when emptied it may be removed for charging and replaced by another duly filled.

With these objects and considerations in view I construct the magazine or holder as follows:

A indicates a bed or platform provided

with short legs or corner-supports *a* and advisably made of metal.

B indicates a disk or circular plate sunk into a recess in the top of bed A until their upper faces are flush or upon the same level. Rising concentrically from the disk B and either made integral with or secured firmly to the same is a circular drum or spool C, provided with a key or cross-bar *b*, by which it may be rotated.

Secured to the periphery of the spool or drum C are two thin flexible bands D and E, which are preferably made a little narrower than the height of the spaces to be held, and advisably of gilders' metal. This metal, which has an appearance similar to thin copper or phosphor-bronze ribbon, is very tough and flexible and possesses considerable resilience, all of which properties adapt it to the purposes of the present invention. Steel, phosphor-bronze, brass or other metal or alloy, celluloid or other non-metallic substances, or even woven bands, provided they possess due resilience, may be used instead of gilders' metal, though I find that admirably suited to the uses here proposed.

In order to separate the two bands D and E sufficiently to permit the spaces to enter properly between them, I employ a curved wedge-block or filling-piece *c*, which is secured to the spool or drum C by screws or rivets passing through the bands and the block and into the drum. In practice I find it convenient to fold a single band over the block or filling-piece, giving to each section the length required, and thus more securely fastening the two parts in place.

At one end of the bed or platform A and extending inward toward the drum or spool C is a fixed guide or channel bar G, having a passage through it of width sufficient to permit the free travel of a line of type or spaces of the size and character to which the machine is adapted or adjusted. For the purpose of enabling adjustment to be made, so that the device may be used with different fonts of type, either or both walls of the channel bar or guide G may be made adjustable in any convenient manner, a simple way being to form the wall or walls with slotted feet and to clamp said feet to the platform by screws, as indicated.

H indicates a swinging or laterally-movable guide hinged to the inner end of the channel bar or block G and having a longitudinal passage-way through it of proper size to freely carry the line of spaces and the two bands D and E, between which they are held.

Opposite or nearly opposite the hinge *d* of the swinging guide H is a vertically-arranged roller I, and a little beyond this, or farther from drum C, is a second roller J, the positions of both rollers being shown in Fig. 2.

The bands D and E after winding about the drum C, with the spaces between them, pass through the swinging guide H and then separate and pass out on opposite sides of the channel bar or guide G, which is cut away for the purpose, as shown in Fig. 2. Band D passes directly to and winds upon a spool or drum K, located upon the platform A at one side of the guideway G. Band E, which passes to the opposite side of the guideway, is bent backward and carried around the drum C and the coils of band and spaces thereon and finally to drum K, the two bands D and E winding thereon together, as indicated. If desired, however, band E may be permitted to pass off freely to one side after leaving guide H. As the coils increase in number upon the drum C, and consequently in diameter, a tangential line drawn therefrom to the inner end of guide or channel block G will make more and more of an angle with said channel, and it is for this reason that the swinging guide H is provided, said guide moving about its hinge-pin to adapt itself to the direction of the bands D E and the interposed spaces.

To prevent the too sudden deflection or too sharp bending of the bands in passing from the movable to the fixed guide, the roller J is provided, and this may be made of soft rubber or other yielding and elastic material, or otherwise adapted to yield, to further facilitate the proper travel of the bands.

The roller J serves to hold the band D in line with the guideway or channel of block G until the line of spaces is well entered therein, beyond which point it bends away and passes to the drum K, as mentioned. This roller is carried by an axle supported at its upper end by an overhanging arm or bracket L, which may be made adjustable, if desired, to permit it to be kept in proper relation to the wall of channel block or guide G. If not made adjustable, the lower end of the axle will be carried in one of the feet of channel-block G or in the bed or platform A.

A curved guard M passes about the disk B, except on the side toward guides G and H, and serves to confine the returning portion of band E, which band, as indicated, is somewhat longer than band D.

Drum K is provided with a central stem or spindle N, encircled by a sleeve N', the latter slotted at its lower end to receive the cross-rib *e* of a driven shaft O, which serves to rotate drum K. Spindle N, which is rigidly

connected with sleeve N' and drum K, is also furnished with a cross-bar *f*, by which to turn it manually.

Any convenient motor may be employed to rotate drum K, but in practice I have employed and found very convenient a spring-motor, such as illustrated in Fig. 3, comprising a strong coiled spring P, provided with a winding-arbor Q, and a gear-wheel R, secured to said arbor and meshing with a pinion S, fixed upon the arbor O above mentioned.

When the magazine is in use, the spaces can escape only when the space-carrying disk of the justifier is moved. Hence there is at such time no occasion to make other provision to prevent unwinding of spring P; but when the magazine is removed for filling such unwinding should be prevented. To this end I provide a locking-dog T, Fig. 4, one end of which is moved into and out of engagement with the teeth of gear-wheel R by a rod or handle *g*, the other end being beveled in two directions or made V-shaped and arranged to move to opposite sides of a spring-pressed plug U, by which it is retained in one or another position, as will be readily understood.

Any equivalent motor and any interlocking connection between the motor and drum K may obviously be substituted for those shown.

The apparatus being thus constructed, the magazine is charged with type-spaces or other objects requiring to be so held by first winding the bands from drum C to drum K, then pushing the spaces or other objects from a case or holder into and through guide G and between the bands D and E, pressing them back until they reach the block *c*, and while continuing to thus feed in the spaces turning the drum C to wind the filled bands upon said drum. When the magazine or holder is thus charged, the bed-plate A is set upon a frame containing the spring-driven shaft and its spindle is duly connected with such shaft. The force of the spring turning drum K draws upon band D, thereby feeding the spaces forward and to the outer end of guide-block G, from which they escape under the control of the justifier or other device. The band E being slack bows outward, but being connected to drum K and quite resilient keeps well out away from the coils on drum C and passes back to drum K, upon which it winds beneath band D, as shown.

The spiral coils with only the two thin bands between them contain a very large number of spaces and enable me to dispense with long cases or magazines, which were of insufficient capacity at best and occupied space which could be ill-afforded in composing-rooms and like places.

Details may be considerably varied without departing from the spirit of my invention, the essential feature of which is the clasp-
ing of type or like articles between two resilient flexible bands and advancing them by moving one of said bands.

The bands must possess a considerable de-

gree of resilience in order that they may properly sustain the type, maintain them in position, and preserve at all times a proper relation or position. Bands devoid of this property will permit the type to turn or to fall out of proper position and will not properly return to the winding or take-up drum.

A single band will not answer the purposes of my invention, for the reason that if the coil be permitted to loosen at all the type will get out of line or off their feet or will turn or fall over. By the employment of two resilient bands of high flexibility I am enabled to maintain the type in proper position in every way, to carry them from point to point with ease and certainty and with entire safety from disarrangement, and this entirely regardless of whether the coils remain tightly wound or become slack and separated. I am also enabled to mount the drums in fixed bearings and to avoid the use of sliding boxes, springs, and the like.

Having thus described my invention, what I claim is—

1. A magazine or holder for type, spaces, and the like, consisting essentially of two resilient flexible bands arranged to hold the type or other articles between them in a single line, substantially as described and shown.

2. In a magazine or holder for type, spaces, and the like, the combination of two resilient flexible bands adapted to clasp a line of type between them, and means for moving one of said bands longitudinally to advance the line of type.

3. In a magazine or holder for type, &c., the combination of a spool or drum; two resilient flexible bands attached thereto; a channel-bar or guideway to receive the type; and a second drum connected with one of the bands and serving to draw it from the first drum to and past the receiving end of the channel-bar or guideway.

4. In combination with a fixed guideway, a drum; a flexible type-holder comprising two resilient flexible bands adapted to wind about said drum; and a movable guide extending from the fixed guideway toward the drum, substantially as shown and described.

5. In combination with a fixed guideway, a drum; a flexible type-holder comprising two resilient flexible bands adapted to wind about said drum; a hinged guide extending from the fixed guideway toward the drum, and a roller located at the side of the type-holder opposite the hinge of the movable holder, for the purpose explained.

6. The herein-described magazine or holder comprising a bed or platform A; a disk B flush therewith; a drum C fixed to said disk; bands D and E attached to said drum; a fixed guideway G; a movable guide H, rollers I and J located beside the fixed guideway; and a winding-drum K adapted to take up the band D, all substantially as described and shown.

7. In combination with supply-drum C and take-up drum K, bands D and E attached to said drums; and means for rotating drum K.

8. In combination with drums C and K; flexible bands D and E; a guideway entering between said bands; and a guard M, to confine the band E, substantially as set forth.

9. In combination with drum K and bands D, E; a motor for rotating said drum, the drum being detachable from the motor; and a detent for holding said motor out of action when drum K is disconnected therefrom.

10. In combination with spring-motor P, Q, R, S, and driven spindle O, a magazine substantially such as described and shown, having a drum K adapted to enter into and to pass out of operative engagement with said motor.

11. In combination with a flexible magazine substantially as described, a motor for paying out the contents of the magazine, the magazine being separable from the motor; a locking-dog T to lock or release the motor; and a detent U adapted to hold the dog in position to engage or to release the motor, as required.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOHN LOUDON McMILLAN.

Witnesses:

FREDERICK SEARLE MUNGER,
G. B. BRAND.