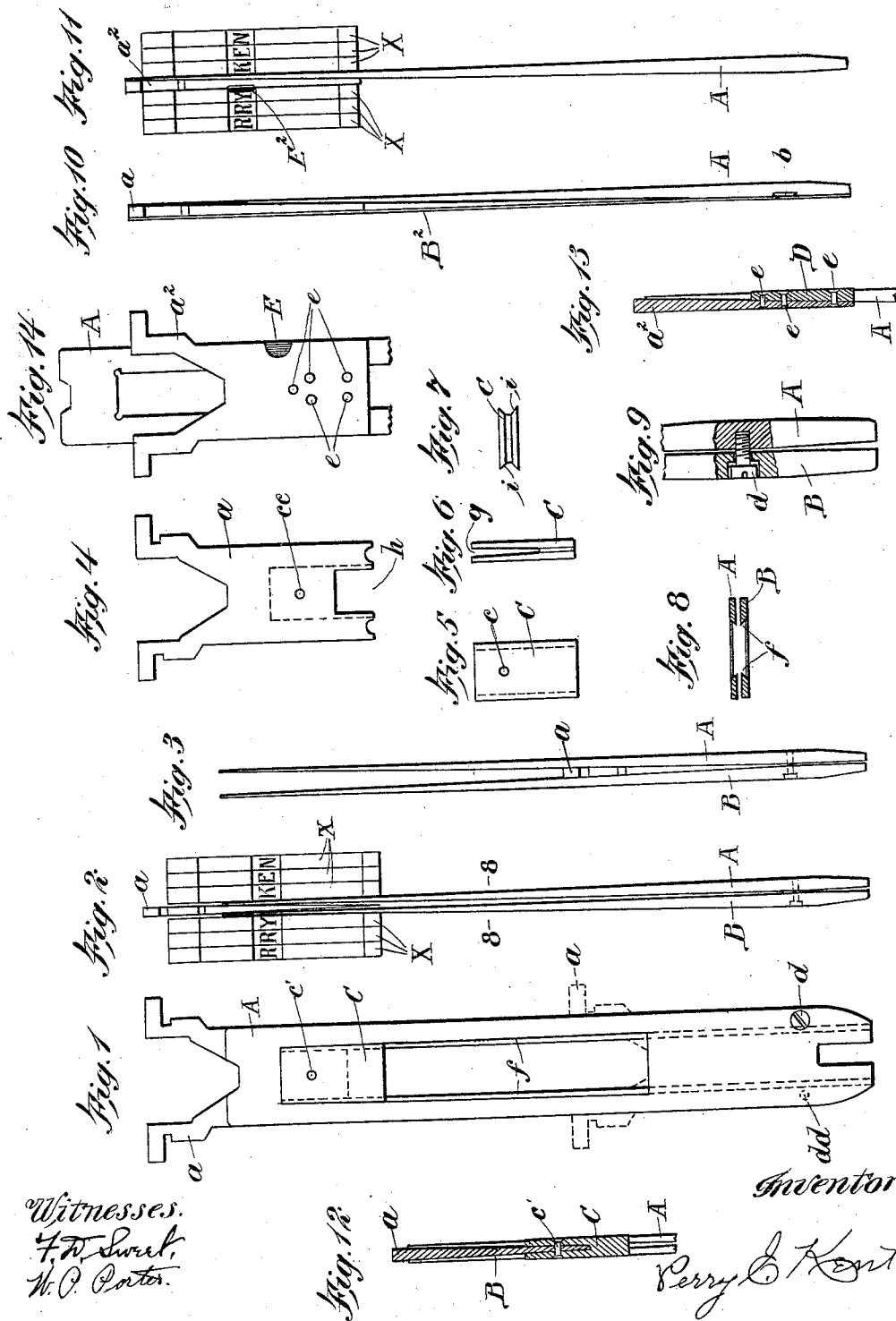


P. E. KENT.
 AUTOMATIC SELF CLEANING SPACER.
 APPLICATION FILED DEC. 15, 1910.

Patented Dec. 10, 1912.

1,046,468.



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AUTOMATIC SELF-CLEANING SPACER.

1,046,468.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PERRY E. KENT, a citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Self-Cleaning Spacers, of which the following is a specification.

This improvement relates more particularly to the spacing device or spaceband used in linotype machines, or machines of its class and may be appropriately termed in its new construction and improved form, an automatically self-cleaning spaceband.

Heretofore, and at the present time, spacers or spacebands used in the Mergenthaler linotype machine have consisted of a double or two-part wedge; comprising an apron or stationary portion which remained located in the matrix line and comprised one of the bevels thereto as one part, and a longer pendant or movable lower portion as the other part, comprising a sliding wedge which, when pushed up into the matrix line by suitable mechanism against the beveled portion of the apron located in the matrix line, caused the several matrices constituting the line to be spread apart longitudinally of the line, and consummated the justifying or necessary spacing-out of the words contained in the line. This apron or stationary sleeve is attached to the pendant sliding portion by a suitable beveled lug attached to one side of the apron which moves in corresponding beveled sliding ways on either inner edge of the lower portion, thus movably clamping one part securely to the other, permitting the two parts to travel in the machine practically as one piece, and whenever performing its allotted functions by justifying or spacing-out a line of matrices the sliding together of the two beveled surfaces accomplished the spreading of the matrices desired. The greatest fault however of this arrangement was in the apron or upper portion which remained stationary in the line and was always located in exactly the same position as regards the casting point or that portion of the line of matrices and justifying spaces lying directly in front of the mold mouth which received the hot metal to form the slug or linotype. In consequence thereof this particular portion of the side and front of the apron or sleeve was repeatedly and continuously being reheated and subjected to the deleterious ac-

tion of the molten metal, while the other part of the spacer comprising the pendant or sliding portion was compelled by the varying of the height or distance to which it was forced into the successive lines to not only change its position each time as regards this casting point, but as well to rub continuously against the adjacent matrix on its other side and the beveled part of the apron itself at each up and down movement thereof; thereby, and by frictional contact it not only kept scrupulously clean that part and side of the apron against which it moved but as well kept practically clean or cleaned that side of that matrix against which it came in contact. These conditions resulted in forming a dry and overheated point or "spot" on the flat side of the apron of the spacer at the casting point, where, on account of the necessary indentation of the letter or character contained in the adjoining matrix the hot noxious metal began to accumulate on the stationary portion or apron making it thicker at this spot and unless frequently and thoroughly removed caused the side walls of the alternate matrices coming in contact therewith to be successively crushed in by the justifying process and the matrix was thereby ruined, as these walls are vital to the effectiveness of the matrix, and when bent in or crushed leave a space or opening between them into which the metal continuously flows at each cast thus aggravating the trouble and finally forming a "fin" which shows in the printed line and ruins its appearance. These crushed walls of the matrices are in turn peculiarly adapted to accumulate metal and dirt by successive use and in coming in contact with other matrices in turn crush their walls and the disease seems to become epidemic as the successive contact with succeeding matrices progresses. Unless drastic measures are taken this will soon result in the ruination of the entire set of matrices. The only cure or preventive heretofore known has been to frequently and thoroughly clean the aforesaid spacers or spacebands at this point particularly, and in some cases it has become necessary to do so several times in a day, causing continuous expense and delaying the operation of the machine, and in many cases this cleaning was not properly done and frequently resulted in scouring or rubbing off the corners of the spacer which further aggravated matters.

In the aggregate these causes produced much damage, deterioration, and continual loss, and at the best, even if frequently, and thoroughly, and effectively performed constitute a continuous and ever increasing outlay and seemingly irremedial expense.

One object of my invention or improvement is to do away with this damage and continuous expense by producing an automatically self cleaning spaceband or spacer for the linotype or machines of its class, and thereby remove the prime cause of damage, and at the same time effect a great saving in the expense of maintenance and also in the life of the matrices.

Another object of my invention is to produce a tri-part spaceband or line justifying device for linotypes or machines of its class which will contain a yielding joint or separating-connection at the bottom of the two pendant parts whereby they will automatically separate slightly as they are forced upward toward the stationary wedge so as to permit of their being driven fully up if necessary during the justification of the matrix line without in the least binding on the wedge in action (which must necessarily separate them more or less to produce the necessary spreading of the matrices), and, also, thereby permit the moving parts or sliding pendants to as freely disengage themselves and descend in the usual manner after justification, which they otherwise would not do with a solid or rigid joining at the bottom end which produces a "hugging" tendency, the more expansion is demanded.

Another object of my invention is to produce an improved apron or stationary wedge for a tri-part line spacer for linotypes or machines of its class which can be constructed in a more simple manner and as well more substantially, and which can be more easily repaired outside of the factory than any heretofore produced.

I accomplish these objects by aid of the improvement illustrated in the accompanying drawings.

Figure 1 is an upright view of improved spaceband (from either side). Fig. 2 is an edge view of same with matrices of line in position. Fig. 3 is an edge view of Fig. 1 with the spacer expanded and apron or sleeve in a lower position. Figs. 4, 5, 6, 7, show the apron or sleeve of improved spacer in its various details of construction. Fig. 8 is a top view of Fig. 2 cut off at 8—8. Fig. 9 shows details of separating joint or expanding connection and bottom construction of spacer. Fig. 10 shows another style of attaching the self-cleaning feature to spacer. Fig. 11 shows edge view of construction of two-part spacer formerly used, with accompanying matrices comprising part of a line. Fig. 12 shows new method of constructing sleeve of

the improved tri-part spacer. Fig. 13 shows method of constructing sleeve of two-part spacer heretofore used. Fig. 14 is a front view of sleeve or apron and part of the wedge of old spacer, and shows the accumulation of metal at casting point on the face of sleeve.

Similar letters of the various views refer to similar parts throughout the several views.

Referring more particularly to the drawings A is the pendant or wedge portion of the spacer and is movably connected to the sleeve portion by suitably beveled lugs fastened thereto which permit it to be forced upward from positions shown in Figs. 2 and 11, through the line of matrices, as partially shown in Fig. 14, and as more fully illustrated by position of sleeve in Fig. 3, and by Fig. 1 in outline.

B is the added or improved portion which moves upward simultaneously with A in justifying the line; it slides on the opposite side of the sleeve *a* in precisely the same manner as A and is a counterpart thereof, except when constructed as B² in Fig. 10, or in some other equivalent form, which shows a different style or form of constructing the self-cleaning portion or sliding pendant. It is shown only in Fig. 10, and may be attached at the bottom by the expanding joint.

C is the double-beveled improved mortised lug, which projects from both sides of the sleeve *a* and is firmly fastened thereto by the mortises in lug and sleeve, and by one pin *c'* (Fig. 12) passing through hole *cc* and *c* (Figs. 4 and 5), of which Fig. 5 is a side view, and shows pin hole *c*, and Fig. 6 is an edge view and shows slot *g* which slides up into mortise *h* (Fig. 4) and receives a portion of sleeve *a*, and Fig. 7 is an end view of same and shows the double bevels *i* which slide on corresponding bevels *f* located longitudinally of A and B, as shown in Figs. 1 and 8.

D (Fig. 13) is the lug in present use for securing the sleeve *a*² to wedge A as shown in Fig. 11, and is shown in detail in Fig. 13 pinned on to sleeve *a*² by pins *e*. A front view of same is illustrated in Fig. 14.

E is the "spot" or accumulation of metal which accumulates on present sleeve and is soon formed at casting point unless prevented by unceasing care and labor, but is prevented from forming as well as the adjoining matrix cleaned and polished by this improved form of construction and the sliding action of pendant or wedge B continuously rubbing across the place and always presenting a different surface to the casting point. E² (Fig. 11) shows how this "spot" increases sideways and ruins the matrix by crushing in the side walls and continuing the operation as each successive matrix comes in contact with it, but is prevented

from forming by the frictional action of this new tri-part spacer.

X represents a portion of the line of matrices (Figs. 2 and 11) and shows one band of the present or two-part style now used (Fig. 11) inserted between the words and illustrates the casting point at the matrix character and shows how the walls are pressed against the lump of metal accumulated on the band and crushed in by the squeezing action of the justification. It also shows in Fig. 2 a band of the improved tri-part form inserted in its place, and illustrates the manner of preventing the metal formation by the interposition of the sliding pendant B.

a (and *a'* Fig. 11) is the sleeve or apron constituting the stationary part of the spacer which remains inoperative in the line of matrices and is located between the words, as shown in Figs. 2-11. In its improved form it is mortised at the bottom to admit of lug C being immovably fastened.

b (Fig. 10) is a lateral dovetailed piece attached to B² and slides into corresponding lateral dovetailed slot in A securing the two parts together, the lateral piece can also be made plain and joined to A with the expanding or yielding joints.

cc and *c* (Figs. 4 and 5) are the holes through which passes pin *c'* (Figs. 1 and 12) to fasten lug C to sleeve *a*.

d (Figs. 1 and 9) is the countersunk screw which forms a loose joint by not having the head of the screws fully seated down and holds the pendant wedges A and B movably together at the bottom and allows the two parts to separate slightly to permit of their being pushed fully up between the matrices;

dd shows end of screw from the other side. *e* (Figs. 13 and 14) are the pins used in the present style of spacers to fasten on lug D to one side of the sleeve.

f are the double-beveled ways (Figs. 1 and 8) located longitudinally on either side of A and B on which move the corresponding double bevels (*i*) on lug C attached to sleeve *a*.

g and *h* are respectively the groove in lug C and the mortise in sleeve *a* which form a part of the fastening and prevent lateral movement of lug C and make the joining simpler and firmer.

i are the double longitudinal bevels on the inner edges of lug C that move along the corresponding bevels *f* in Figs. 1 and 8, located on pendants A and B.

It will be readily seen from the foregoing that the spaceband as formerly and at present constructed is unavoidably subject to conditions which require frequent, continual and thorough cleaning and never-flagging watchfulness to prevent serious damage, and that a slight relaxation of same or the least carelessness will start irreme-

dial damage which rapidly increases or seems to breed throughout the entire font. It will also be plainly evident that the frictional operation of the added factor B wherein the casting point is ever changing will surely keep this malignant spot from forming, and as well clean the matrices on that side as does the sliding motion of the present wedge keep the other side comparatively free from accumulations of any sort, and, were it not for the contagious action of the deposit from the accumulations of the spacer from one matrix to another it might seem as if a set of matrices might last indefinitely; certainly it is that the doing away of this damaging and expensive and trouble-brewing factor will prove a blessing to all connected with the linotype. And it is not alone in the elimination of the trouble that the benefit consists, but in the stopping of the continuous expense necessary to keep up the plant in creditable shape.

It will be observed that the apron or stationary wedge is attached to the double-beveled lug C by only one securing pin in conjunction with the mortises in both lug and apron and can therefore be much more easily assembled and taken apart. Also that the two pendants or sides of the spacer are identical as constructed in Figs. 1, 2, and 3, so that should any one be injured another could be easily substituted.

I am aware that prior to this improvement on the spacing mechanism of linotypes that two-part spacers have been used, and that the justifying of the line was accomplished by essentially the same means as I employ, and that such means was a modification or adaptation of Letters Patent No. 474,306, issued May 3d, 1892 to J. W. Schuckers. I therefore do not claim broadly any such device.

Having fully described my invention what I claim as original and pertinent there- to is as follows:

1. In a spacer, or matrix line justifying device for linotype machines or machines of its class, a tri-part spaceband comprising a centerpiece or sleeve located in the matrix line, provided with suitably beveled lugs on either side constituting a stationary wedge, sliding pendants movably attached thereto located on both sides of said wedge separating it from the adjoining matrices and adapted to move upward in unison as the line is justified, in combination with a yielding connection at the bottom of pendants constructed in such movable manner as to permit of the bottom portions separating to conform to the spreading of the upper portions as they are forced upward against the bevels of the stationary wedge while justifying the line.

2. In a spacer or line-expander for lino-

types, or machines of its class, two upright wedges traveling below the matrix line, connected at the upper part by a double-grooved lug provided with suitably beveled traveling ways on either side and attached to a double-beveled sleeve adapted to slide between said wedges as they are pushed up into the matrix line in justifying the same, movably joined at the bottom of the pendants to permit of lateral expansion during justification, and to avoid binding of the wedge, essentially as described herein.

3. In a linotype machine, or machines of its class, the combination of a tri-part justifying line-spacer, comprising an appropriately shaped beveled sleeve located in the matrix line, a beveled wedge adapted to be pushed up through or between said matrices on one side of the sleeve and an auxiliary piece attached to the side of said beveled wedge and sliding in unison therewith located on the opposite side of said sleeve between the sleeve and the matrix, and means for movably connecting the two component parts at the bottom to allow of lateral expansion during justification and to permit of properly sliding without binding, on either side of the sleeve at the top.

4. In a line-expanding device for linotype machines or machines of its class, a tri-part line-justifying compound wedge comprising a beveled center or sleeve located in the matrix line, combined with sliding or movable portions located on either side and movably connected to permit of expanding laterally at their bottom ends and with sliding joints at the top, and adapted to be moved longitudinally constituting a frictionally self-cleaning spacer, essentially as described.

5. In a self-cleaning justifying device for linotypes or machines of its class, a compound tri-part matrix spacer, comprising a suitably shaped stationary sleeve located in the matrix line, longitudinally sliding bevel pendants movably joined at bottom to permit of lateral expansion and slidingly attached to each side of said sleeve interposed between either side of the sleeve and the adjacent matrices, and driven upwardly by appropriate mechanism in justifying the line.

6. In a linotype machine or machines of its class provided with the usual line receiving and retaining mechanism, the combina-

tion of a line of matrices assembled therein interspersed with tri-part space bands or justifying spacers, two of such parts being pendant and movable longitudinally and joined at their lower portions with an expansibly-movable connection permitting of lateral spreading during justification, essentially as described.

7. In a line-spacing device for linotypes or machines of its class, the combination of a line of matrices assembled therein, a center wedge located between the several words, sliding pendant portions movably connected thereto at the top and operating longitudinally on both sides of said center wedge, and a laterally-expansible movable joint-connection located at the lower end of the sliding pendant portions for the purposes set forth.

8. In a line-spacing device for linotypes or machines of its class, a stationary wedge member beveled from top to bottom and containing a double beveled lug on both sides thereof located in the line of matrices, two longitudinally sliding pendant members operating on either side of said stationary member containing longitudinally-beveled ways sliding on the beveled lugs of the stationary member, said pendant members being movably connected at the lower portions with an expansible joint or link permitting of lateral expansion of the pendant members during the justification of the line of matrices.

9. In a tri-part spacer for matrix lines in linotypes or machines of its class, a stationary wedge portion slidingly joined to two pendant portions, a rocking joint connecting the lower ends of the pendant portions permitting the bottom of pendants below the joint to move slightly together or inwardly while the portions above the joint separate or move outward as they move upward during justification, thereby eliminating any binding or contact pressure in the ascending and descending movements that a rigid connection of the pendant portions would involve.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

PERRY E. KENT.

Witnesses:

CHARLES D. STEURER,
WILFRED S. COUSINS.