G. M. DURELL.

SELF LOCKING AND POINT SETTING COMPOSING STICK.

APPLICATION FILED FEB. 17, 1910.

984,804.

Patented Feb. 21, 1911.

Fig. 1.

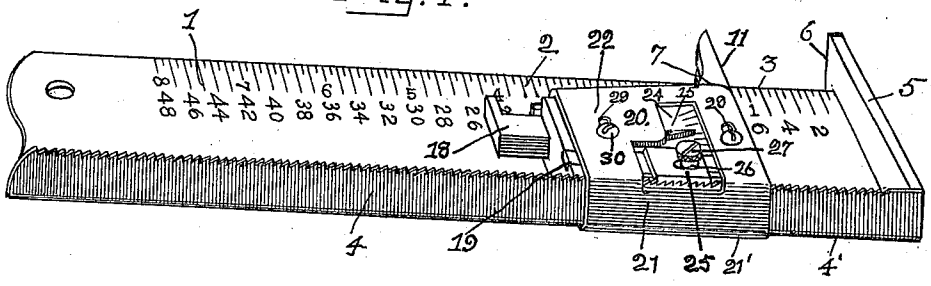


Fig. 2.

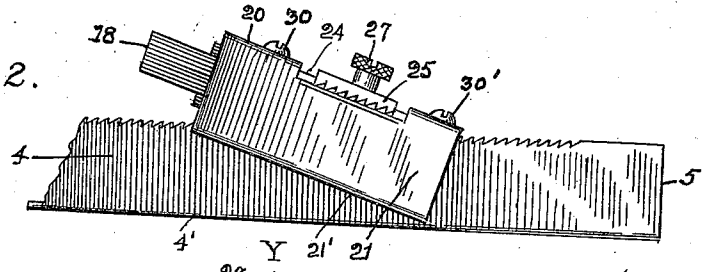


Fig. 3.

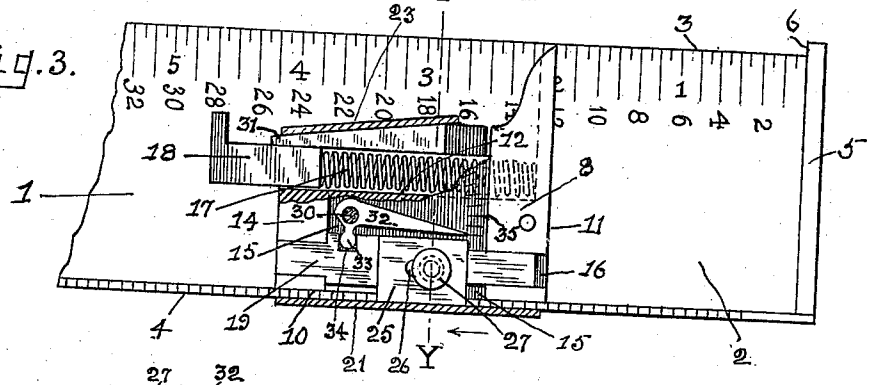
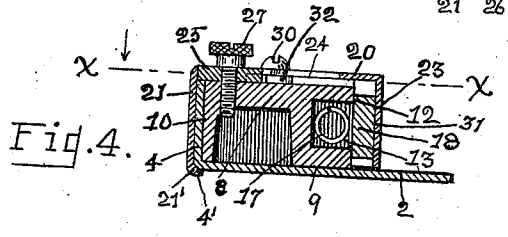


Fig. 4.



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SELF-LOCKING AND POINT-SETTING COMPOSING-STICK.

984,804. Specification of Letters Patent. Patented Feb. 21, 1911.

Application filed February 17, 1910. Serial No. 544,475.

To all whom it may concern:

Be it known that I, GEORGE M. DURELL, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Self-Locking and Point-Setting Composing-Sticks, of which the following is a specification.

My invention relates to a composing stick and has for its object to provide a convenient and accurate device of the kind that is readily adjustable for setting lines of type of any desired nonpareil, pica or point length, and that is self locking when adjusted for any length of line. I accomplish these objects by the construction and combination of parts, as hereinafter described and illustrated in the drawings, in which—

Figure 1 is a view in perspective of a composing stick constructed in accordance with my invention, with the knee in position and locked thereon. Fig. 2 is a side elevation of the same partly broken away, and showing the knee in position either for adjustment, attachment, or detachment. Fig. 3 is a top view of the same, sectioned on line *x—x* of Fig. 4, and showing a portion of the top of the knee block broken away. Fig. 4 is a cross section of the stick on line *y—y* of Fig. 3.

In the drawings 1 designates the body of a composing stick, formed preferably of sheet metal, and comprising the graduated receiving base 2 of suitable width and length, and having a straight edge 3; a back wall 4 at right angles to the base, and parallel with the straight edge 3, and having its top edge provided with ratchet teeth; the end wall 5, at right angles to the base, the back wall, and the straight edge, and having an end portion 6 projecting beyond the line of the straight edge forming a hook adapting the base for line measurement; and the adjustable knee 7.

The knee 7 comprises the rectangular L shaped block 8, having its bottom 9 faced to engage and rest on the base 2, the side wall 10 faced to closely engage the back wall 4, the end wall 11 faced at right angles to the bottom 9 and the side wall 10, the side 12 provided with a lengthwise groove 13, and the top 14 having the recessed portion 15 and the lengthwise groove 16 adjacent to the side wall 10; the helical spring 17 in the groove 13; the push bar 18 movable along the side 12 and in the groove 13 and engaging one end of the spring; the ratchet bar 19 adjustably mounted in the groove 16; and the movable locking plate 20 having a side 21 bent downward at right angles from a central portion 22 parallel with the side wall 10, and a side 23 bent downward from the central portion 22, but diverging at an angle from the side 12 toward the wall 11, the central portion 22 being provided with a rectangular opening 24 above the recess 15 of the block 8 and extending to the side 21.

The ratchet bar 19 has a central top portion 25 of increased width which extends outward over the back wall 4, and central through the portion 25 of the bar 19 is provided a short slot 26, which extends lengthwise of the bar. Below the slot the block 8 is tapped to receive a set screw 27, which extends through the slot into the block, and when partly run into the block allows limited lengthwise movement of the ratchet bar, and when run in until the head of the screw is shouldered against the bar, locks it against movement. The under side of the margin of the central portion 25 of the ratchet bar 19 has ratchet teeth formed thereon complementary to the teeth of the back wall 4, and when the side 10 of the knee 7 is placed against the back wall 5 at any point, the teeth of the ratchet bar fit into the incuts forming the adjacent teeth of the back wall 5.

The locking plate 20 is provided with the slightly elongated holes 29 to receive the stud screws 30 which are tapped into the block 8 and movably secure the plate to the block, the elongations of the holes 29 being adapted to permit limited movement of the plate transverse the block 8.

The push bar 18 on its outer face is provided with an incline face 31, complementary to the inclined inner face of the side 23 of the locking plate 20, and when the plate is mounted on the block 8 with the side 23 engaging the incline face 31 of the push bar, the spring normally holds the push bar to the limit of its outward movement, whereby the plate is moved to bring the side 21 of the plate toward the side 10 of the block 8, and when the bar 18 is pushed inward, compressing the spring, the incline face of the push bar is disengaged from the side 23 of the plate, and the plate may then be moved oppositely to increase the distance between the side 10 of the block from the side 21 of the plate.

In the recess 15 of the block 8 alongside

the ratchet bar 19 is provided a point index 32 which is pivoted on the stud screw 30 by one end, and extends therefrom toward the face 11 of the block 8. The index 32 has a short arm 33 extending at right angles to the pivotal bearing of the index and into a notch 34 of the ratchet bar 19 whereby when the ratchet bar or the block 8 is moved relatively to the other, in one direction, the point of the index is moved outward from the bar 19 through an arc, over the graduations 35 on the recessed face of the block, and when relatively moved in the opposite direction the point of the index is moved over the graduations 35 toward the bar 19. The distance of relative movement of the ratchet bar 19 and the block 8 is equal to the measured line space of a nonpareil em, and the graduations 35 indicate the points into which a nonpareil space is divided according to the point system of type line measurement.

The teeth of the back wall 4 have a shoulder face perpendicular to the base 2 and faced toward the end wall 5, and the distance between the perpendicular faces of the teeth is equal to a nonpareil em.

The perpendicular faces of the teeth of the ratchet bar are faced opposite from the face 11 of the block 8 and the distance between the perpendicular faces of the teeth of the ratchet bar being also equal to a nonpareil em, when the teeth of the ratchet bar are in engagement with the teeth of the back wall, the perpendicular faces of the teeth of the ratchet bar coincide with and abut the perpendicular faces of corresponding teeth of the back wall, whereby the knee 7 is held at any position it is placed against the back wall against movement in the direction away from the end wall 5. The perpendicular faces of the teeth of the back wall are also in cross alinement with the lines forming the nonpareil divisions of the graduated scale of the base 2.

Thus constructed, the operation of setting the knee 7, to any desired length of line is as follows:—Holding the stick 1 in his left hand with the back wall uppermost and the knee 7 in the right hand with the top plate uppermost beneath the palm, with the fingers against the face 11 and the thumb pressing against the push bar until the locking face is loosened and free to move, the operator pushes the knee downward on the stick with the back wall between the side 21 of the locking plate, and the side 10 of the block, and with the face 11 alined with the graduation on the scale designating the length of line in nonpareil ems desired. When the bottom side of the knee rests on the base 2, on releasing the push bar, the spring moves it outward and the incline 31 of the bar engaging the side 23 of the locking plate wedges between the side 23 and the block 8 and moves the plate until the side 21 of the plate and the side 10 of the block are engaged with and pressed oppositely against the back wall 4. The outer angle 4′ of the back wall 4 with the base 2 is slightly rounded, and the side 23 is slightly curved inward along its free edge 21′, whereby when the side 21 is moved into engagement with the back wall by the push bar, the curved edge portion 21′ of the side 23 engages the rounded corner 4′ of the back wall, and locks the knee against being lifted from the base 2, and the teeth of the ratchet bar together with the edge portion 23′, locks it against being moved lengthwise of the back wall in either direction.

If it is desired to move the knee from any position on the base 2 to a position farther away from the end wall 5, the knee is grasped as before described and when the push bar has been pushed in by the thumb and the locking plate released the knee is tilted by the thumb engaging the push bar on the lower corner formed by the face 11 with the bottom side of the block 8, in which position the teeth of the ratchet bar being disengaged from the teeth of the back wall 5, the knee may be moved along the back wall until the lower edge of the face 11 coincides with the desired graduating line of the base 2. The raised end of the knee being then pushed down on the base 2 and the push bar released, the knee is again automatically locked in its new position. If it is desired to move the knee toward the end wall 5 from any position, after the lock plate has been released by pressure of the thumb on the push bar the knee may be moved along the back wall and base without tilting the knee, and upon releasing hold of the knee the action of the spring on the push bar will again automatically lock the knee in its new position. Should it be desired to lengthen the line thus established one or more points less than a nonpariel em, the set screw 27 of the ratchet bar is run outward sufficiently to unlock the bar and pressure is applied on the face 11 of block 8 to move it relatively to the ratchet bar until the index point 32 has (by reason of its pivotal bearing being moved relatively to the notch 34 of the ratchet bar), been moved over the graduations 35 the desired number of points. The bar being then locked by the set screw the knee is firmly established on the base 2 for the line desired. It is apparent that this adjustment for points greater or less than any number of nonpariel units of measurement may be made when the knee 7 is detached from the stick, by movement of the ratchet bar relative to the block 8 until the index shows the desired number of points of variation and then locking the bar by the set screw 27, and when thus adjusted, wherever attached to the back wall 4, the point

variation of the knee from the scale of the base will be constant. This adjustability enables each individual user to adjust the stick to suit his own personal preferences as to tightness or looseness of a type composing a line.

While the graduating lines indicating pica and nonpareil ems are preferably made on the base 2, it is manifest that they may be conveniently placed on the back wall 4, in line with the perpendicular faces of the teeth of the back wall, and I therefore do not limit myself to placing such graduations on the base. It is further manifest that the teeth of the back wall, the ratchet bar, the point index, and the graduations of the base and knee, all being omitted, the knee may still be conveniently adjusted on the base and automatically locked on the back wall for a desired length of line, by adjusting the knee on the base to a slug of a line of that length. I therefore do not limit myself in the construction of my invention to the use of those elements in combination with a self locking knee.

What I claim to be new is—

1. The combination with the base, back wall, and end wall of a composing stick, of a knee comprising a rectangular block member faced to abut the back wall and rest on the base, a clamping member movably mounted on the block and adapted to engage the back wall oppositely to the block, when the block is mounted on the base abutting the back wall, and locking means adapted to automatically press the block and the clamping member oppositely on the back wall, when the knee is manually so mounted on the base and released, and that is adapted to release the clamping member by manual pressure on the locking means and the knee.

2. The combination with the base and back wall of a composing stick, of a knee adapted to be mounted on the base abutting the back wall, a clamp movably mounted on the knee and adapted to clamp the knee to the back wall when the knee is in position on the base abutting the back wall, and means engaging the clamp and the knee comprising a push bar and a spring, adapted to automatically press the knee and the clamp oppositely on the back wall, and lock the knee thereto when the knee is manually placed thereon and released as set forth, and to unlock the knee by moving the push bar to compress the spring while manually lifting the knee from the base.

3. The combination with the base and back wall of a composing stick, of a knee adapted to be mounted on the base abutting the back wall, a clamp mounted on the knee and movable thereon from the abutting face of the knee, to receive the back wall therebetween, and toward the knee to engage the back wall and clamp the knee thereto, and locking means comprising a push bar and a spring, operating, when the push bar is pressed against the spring in manually placing the knee on the base, to permit the clamp to open from the knee to receive the back wall between the knee and the clamp, and when the knee is resting on the base abutting the back wall and manually released, to automatically press the knee and the clamp oppositely on the back wall and lock the knee thereto.

4. The combination with the base and back wall of a composing stick of a knee adapted to be mounted on the base, and automatically clamped to the back wall, said knee comprising a rectangular block having parallel side faces, one adapted to abut the back wall and the other provided with a groove, a helical spring in the groove, a push bar movable along the grooved face of the block and engaging one end of the spring, said push bar having an outer face inclined to its inner face, a clamping plate mounted and movably secured transverse the block, said plate having side portions angled, one parallel with the back wall abutting face, and spaced therefrom to receive the back wall therebetween, and the other parallel with the inclined face of the push bar, whereby the expansion of the spring automatically wedges the push bar between the block and the inclined side portion of the plate, and clamps the block and plate on the back wall, and the compression of the spring by the push bar releases the pressure of the push bar on the block and the plate and leaves the knee free to be lifted from the base.

5. In a composing stick, the combination with a base, end wall, and a back wall having its top edge uniformly serrated, with the points of the teeth at intervals equal to a nonpareil em, of a knee adapted to be mounted on the base abutting any portion of the back wall, a ratchet bar mounted on the knee and relatively adjustable thereon by a movement of the bar or the knee, and having a portion extending laterally over the back wall, said portion being provided with teeth complementary to and engaging the teeth of the back wall when the knee abuts the back wall, a point index pivotally mounted on and movable over the upper face of the knee and adapted to be moved on its pivot through an arc by any movement of the ratchet bar or the knee relative to the other of them, index lines on the knee dividing the arc of movement of the point of the index and indicating point distance of movement of the ratchet bar or the knee relative to the other of them.

6. In a composing stick, the combination with a base, end wall, and a back wall having its top edge uniformly serrated with the points of the teeth at intervals equal to a

nonpareil em, of a knee adapted to be mounted on the base abutting any portion of the back wall, a ratchet bar mounted on the knee and relatively adjustable thereon by movement of the bar or the knee, and having a portion extending laterally over the back wall, said portion being provided with teeth complementary to and engaging the teeth of the back wall when the knee abuts the back wall, and means to indicate in points any relative adjustment of the bar or the knee relative to the other of them, and means to lock the bar to the knee as adjusted.

7. In a composing stick, the combination with the end wall, a base having graduating lines indicating nonpareil distances from the end wall, and a back wall having its top edge provided with teeth of a uniform width of base of a nonpareil em, and corresponding with the graduations of the base, of a knee adapted to be mounted on the base abutting any portion of the back wall, a bar secured on the knee and having a portion projecting therefrom over the back wall, said portion having teeth complementary to and adapted to engage the teeth of the back wall when the knee abuts the back wall, a clamping member movably mounted on the knee and adapted to engage the back wall oppositely to the knee when the knee is abutting the back wall, and locking means comprising a push bar and a spring adapted to automatically compress the knee and the clamping member oppositely on the back wall when the knee is lifted by the push bar and the knee, placed on the base and released, and that is adapted to release the pressure of the clamping member on the back wall by pressure on the push bar when the knee and the push bar are gripped to lift the knee from the base.

8. In a composing stick, the combination with the end wall, a base having graduating lines indicating nonpareil distances from the end wall, and a back wall having the top edge provided with teeth of a uniform width of base of a nonpareil em, and corresponding with the graduations of the base, of a knee adapted to be mounted on the base abutting any portion of the back wall, a bar adjustably secured on the knee and having a portion projecting therefrom over the back wall, said portion having teeth complementary to and adapted to engage the teeth of the back wall when the knee abuts the back wall, means to indicate in points the distance of relative adjustment of the bar, a clamping member movably mounted on the knee and adapted to engage the back wall oppositely to the knee when the knee is abutting the back wall, and locking means comprising a push bar and a spring adapted to automatically press the knee and the clamping member oppositely on the back wall when the knee is gripped as set forth, placed on the base abutting the back wall, and released, and that is adapted to release the pressure of the clamping member on the back wall by pressure on the push bar when the knee and the push bar are gripped to lift the knee from the base.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses, this 31st day of January, 1910.

GEORGE M. DURELL.

In presence of—
MARK WINCHESTER,
M. S. SMITH.