Dec. 15, 1953 R. H. SCOTT ET AL 2,662,636

TYPOGRAPHICAL COMPOSING MACHINE

Filed Jan. 11, 1951 3 Sheets-Sheet 1

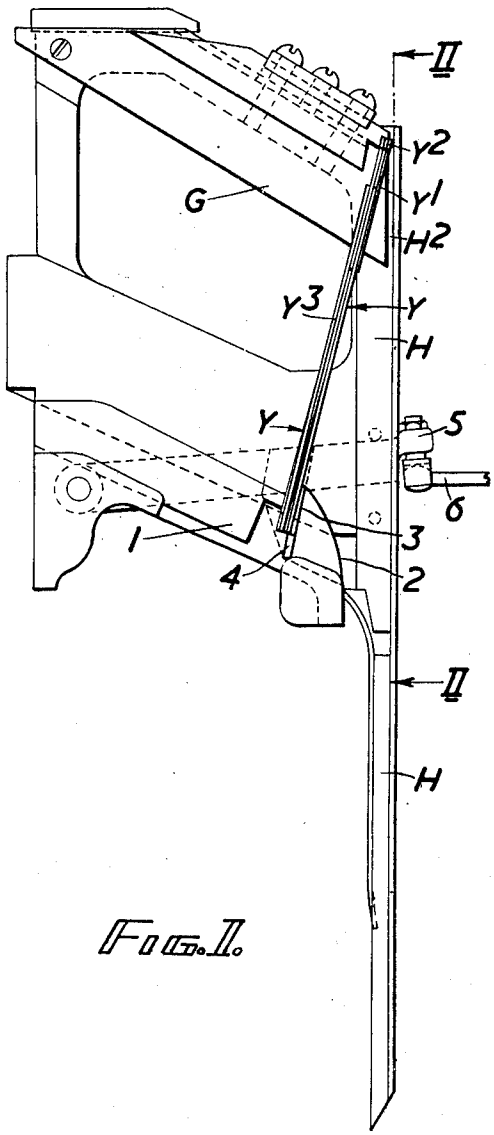


FIG. 1.

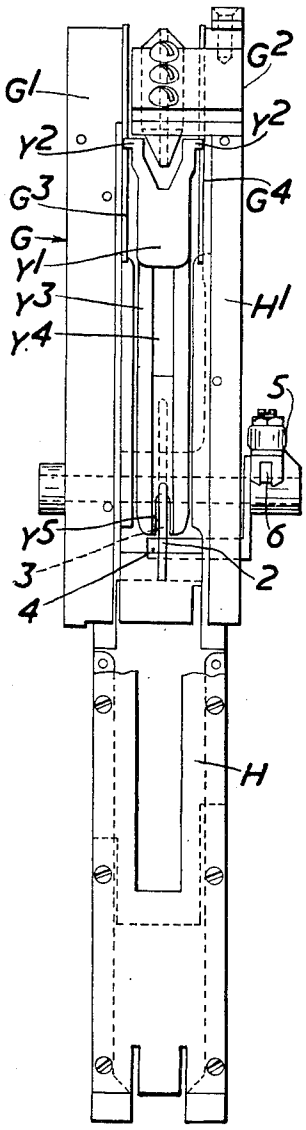


FIG. 2.

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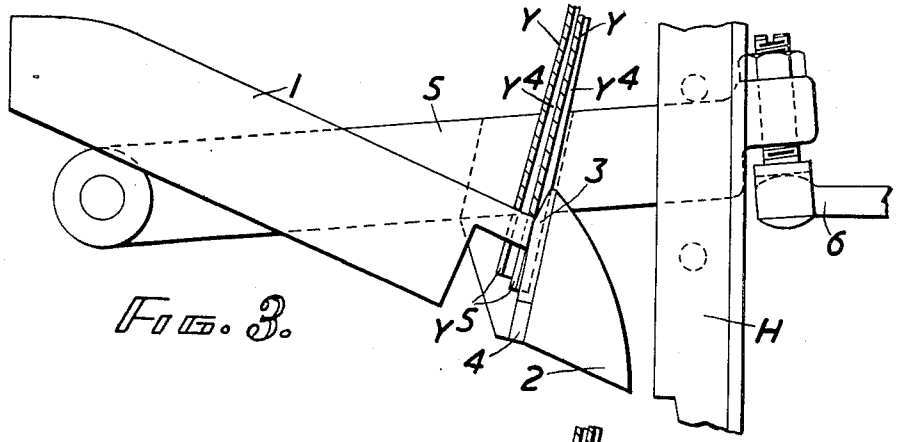


FIG. 3.

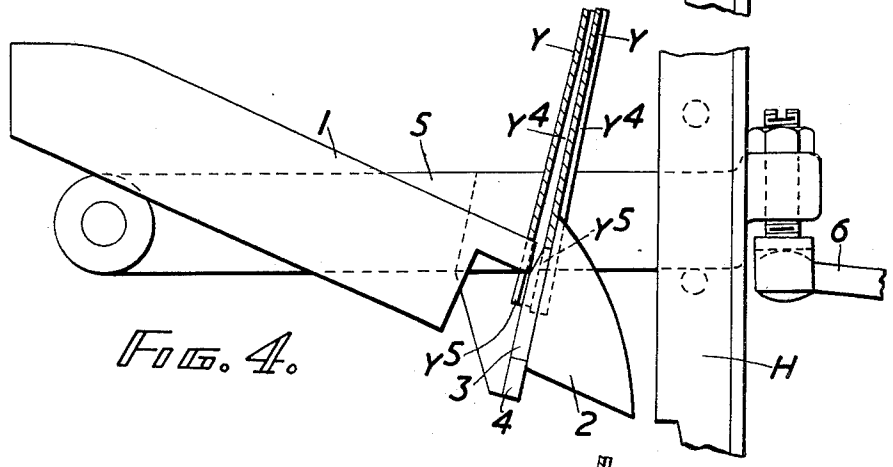


FIG. 4.

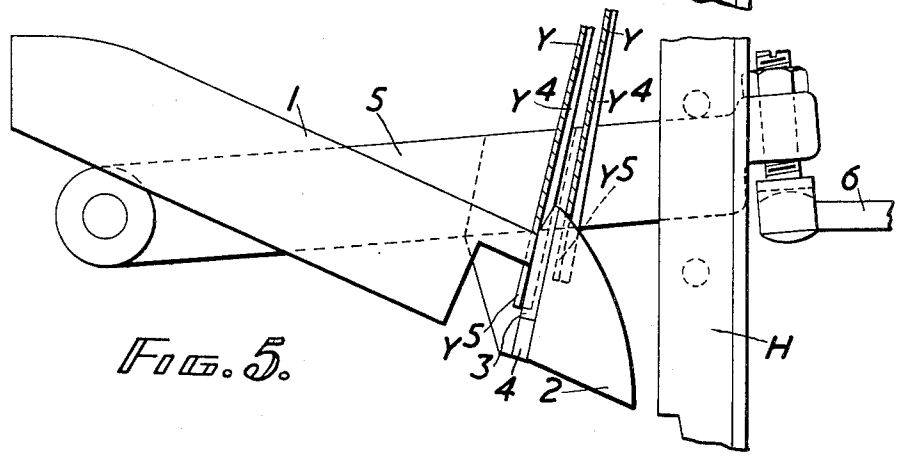


FIG. 5.

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TYPOGRAPHICAL COMPOSING MACHINE

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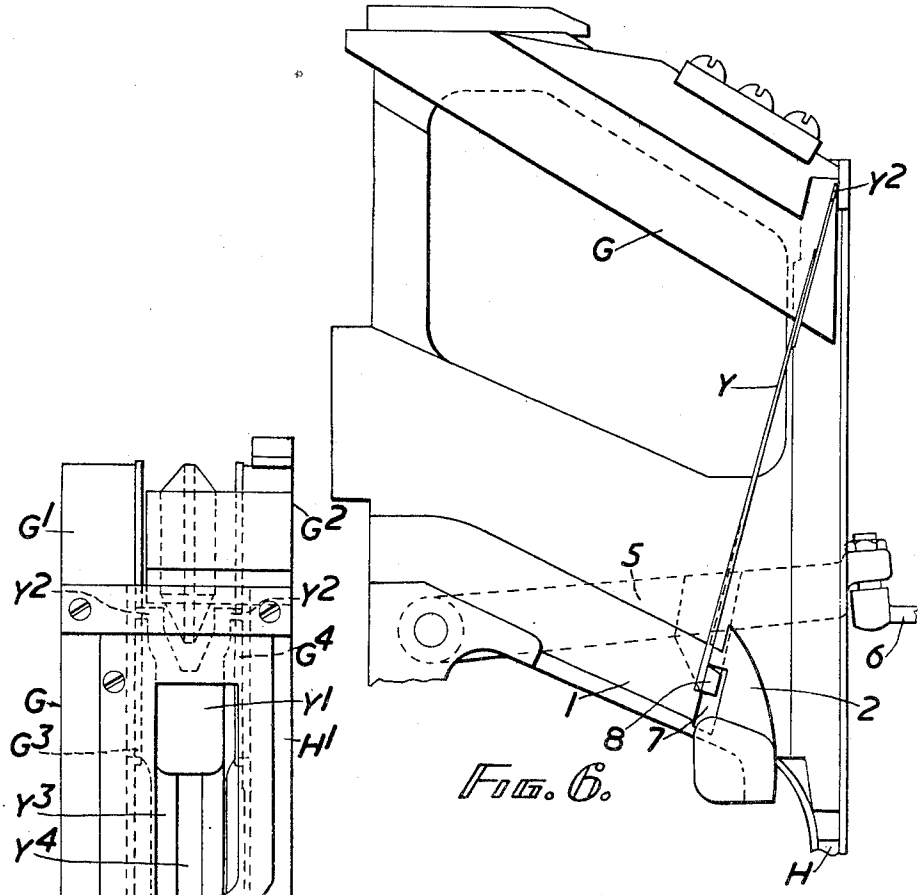


FIG. 6.

FIG. 7.

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UNITED STATES PATENT OFFICE

2,662,636

TYPOGRAPHICAL COMPOSING MACHINE

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Application January 11, 1951, Serial No. 205,470

8 Claims. (Cl. 199—22)

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This invention relates to typographical composing machines such as are commercially known under the registered trade mark "Linotype" wherein circulating matrices and expansible spacebands are released from separate magazines by the manipulation of a keyboard and then composed in line, the composed line transferred to the face of a slotted mould, the mould filled with molten metal to form a type-bar or slug against the matrices which produce the type characters thereon, and the matrices and spacebands thereafter elevated and returned by suitable mechanisms to the magazines from which they started.

The storage magazine for the spacebands is provided with escapement mechanism for controlling the delivery of spacebands one at a time from the magazine and such escapement mechanism usually involves either the lifting of the foremost spaceband above arresting shoulders located at the discharge end of the magazine, or the edgewise displacement of the foremost spaceband to disengage it from an arresting shoulder or abutment to allow it to swing forwardly from an inclined to a vertical position for discharge into a delivery chute.

According to the present invention there is provided an escapement mechanism for controlling the delivery of spacebands one at a time from the storage magazine of a typographical composing machine, said spacebands each having a slide formed with a recessed side surface and a slot at the extreme lower end, and having an upper wedge-shaped section provided with projecting ears by which the spaceband is guided through channels in the storage magazine into a delivery chute, comprising arresting means for engaging the recessed side surface of each spaceband so as to maintain the spaceband in an inclined position and means for lifting the lower end of the spaceband slide to disengage said recessed side surface from the arresting means to allow the spaceband to partake of a swinging movement in the direction of the chute in effecting the release of the spaceband into the chute. The means for lifting the lower end of the spaceband slide may be arranged to engage the top end of the slot formed in the extreme lower end of the slide.

The invention also provides an escapement mechanism for controlling the delivery of spacebands one at a time from the storage magazine of a typographical composing machine, said spacebands each having a slide formed with a recessed side surface and a slot at the extreme lower end and having an upper wedge-shaped section provided with projecting ears by which

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the spaceband is guided through channels in the storage magazine into a delivery chute, comprising an escapement bar for arresting the foremost spaceband in an inclined position, a fixed stop arranged to be engaged by the recessed side surface of the spaceband slide, means for lowering the escapement bar to allow the spaceband to swing into a position in which the recessed side surface of the spaceband slide engages the stop, and means for raising the escapement bar to engage the lower end of the spaceband slide and lift it over the stop to allow the spaceband to partake of a swinging movement in the direction of the chute.

The escapement bar may be in the form of an upstanding finger for engaging the recess formed in the side surface of the spaceband slide to arrest the spaceband and for subsequently engaging the top end of the slot formed in the extreme lower end of the slide to lift the slide over the stop. Alternatively, the escapement bar may be in the form of a finger for transversely engaging the lower side surface of the spaceband slide to arrest the spaceband and for subsequently engaging the extreme lower end of the slide to lift the slide over the stop.

In order that the invention may be more clearly understood a preferred embodiment thereof will now be described in detail with reference to the accompanying drawings in which:

Figure 1 is a front elevation of the spaceband magazine and delivery chute of a typographical composing machine containing the present improvements;

Figure 2 is an end elevation of the spaceband magazine and delivery chute shown in Figure 1, looking from the right in that figure;

Figures 3, 4 and 5 are front elevations on an enlarged scale of a part of the spaceband magazine showing a spaceband in different stages of release;

Figure 6 is a front elevation of the spaceband magazine and delivery chute equipped with a modified form of escapement mechanism; and

Figure 7 is an end elevation of the spaceband magazine and delivery chute shown in Figure 6, looking from the right in that figure.

Referring to Figure 1, spacebands Y are stored in a magazine G and, when released, pass into a vertical chute H which delivers them into an assembler elevator (not shown) in which matrices are also assembled to form a composed line. The spaceband storage magazine G consists of front and back walls G^1, G^2 (see Figure 2) which provide between then a channel along which

the spacebands Y travel by gravity as they are returned to the magazine G. The spacebands Y are of the usual construction, each comprising a short upper wedge-shaped section Y^1 provided at the top with projecting ears Y^2, and a longer lower wedge-shaped section Y^3 slidably connected to and supported by the upper section Y^1, the lower wedge-shaped section or slide Y^3 having a side surface formed with a recess Y^4 and being formed with a slot Y^5 at the extreme lower end for engagement with a supporting rail in the assembler elevator.

In travelling through the storage magazine G the propecting ears Y^2 on the upper wedge-shaped section Y^1 slide along inclined guide rails G^3, G^4 formed on the front and back walls G^1 and G^2 respectively, and the slot Y^5 in the lower end of the slide Y^3 freely engages an inclined guiding rail 1 extending upwardly from the bottom wall or floor of the magazine G, it being understood, of course, that the spacebands Y at this time are in repose or in unexpanded condition. When at rest the spacebands occupy a forwardly inclined position in the magazine (as shown in Figure 1) the foremost or leading spaceband Y, while suspended by its upper projecting ears Y^2 on the guide rails G^3, G^4 resting at its extreme upper end against a cover plate H^1 of the delivery chute H. While maintained in this inclined position, the foremost spaceband cannot enter the delivery chute H but when the spaceband is allowed to swing about its upper projecting ears Y^2 into a vertical position, the upper ears become aligned with vertical grooves H^2 formed in the upper entrance of the chute, and the spaceband is then free to fall through the chute into the assembler elevator.

The end of the inclined guiding rail 1 terminates at a short distance from a fixed stop 2 which is of such a width that it will engage the recess Y^4 formed in the side surface of each spaceband slide Y^3 and between the end of the rail 1 and the stop 2 is a finger 3 which is vertically reciprocable along a face of the stop. The finger 3 is also capable of engaging the recess Y^4 in the side surface of each spaceband slide Y^3 and can also freely engage the slot Y^5 in the extreme lower end of each slide. The finger 3 is upstanding from an L-shaped arm 4 pivotally connected to an escapement lever 5 and operable by a key lever 6 which is movable downwardly and upwardly by the usual cam-operated mechanism (not shown) controlled by a spaceband key provided at the side of the keyboard of the machine.

When in the rest position (shown in Figure 1) the foremost spaceband Y in the magazine G occupies a forwardly inclined position with the recess Y^4 in the side surface of the spaceband slide Y^3 engaging the finger 3. To release the spaceband, the spaceband key is actuated to lower the finger 3 a sufficient distance to allow the slot Y^5 in the extreme lower end of the slide Y^3 to pass over the finger 3 so that the recess Y^4 rests against the stop 2 with the top end of the slot Y^5 overlying the finger 3 (as shown in Figure 4). The finger 3 is then raised and returned to its original position, and during this raising movement the tip of the finger 3 engages the top end of the slot Y^5 thereby lifting the slide Y^3 over the stop 2 (see Figure 5) and allowing the spaceband Y to swing to the vertical position in which it is free to fall through the delivery chute H into the assembler elevator. During such lifting movement the slide Y^3 is moved upwardly relatively to the upper wedge-shaped section Y^1 the extreme upper end of which rests in an inclined position against the cover plate H^1 of the delivery chute H. After the slide Y^3 has been lifted over the stop 2 it returns to its extreme lower or unexpanded position, in which condition the spaceband Y falls through the chute H, while the finger 3 arrests the succeeding spaceband Y by engagement with the recess Y^4 formed in the side surface of the slide Y^3 as before-explained.

The finger 3 is set so that it releases only the foremost spaceband Y in the magazine G and, although spacebands of different thicknesses may be employed in the magazine, the recess Y^4 in the side surface of each slide Y^3 is maintained constant at .040" deep so that there is ample clearance for the finger 3 to lift the foremost spaceband without lifting the following spaceband.

In the modified form of apparatus shown in Figures 6 and 7 the rail 1 is connected to or is formed integral with the fixed stop 2. The lower face of the stop 2 is formed with a recess 7 to accommodate a transversely arranged finger 8 which is movable downwardly and upwardly in a manner similar to the vertical finger 3 described with reference to Figures 1 to 5. The recessed side surface of the foremost spaceband slide Y^3 rests against the transverse finger 8, and, when the spaceband key is actuated the finger 8 is lowered to allow the spaceband Y to move forwardly to a position above the finger 8 and so that the recess Y^4 engages the stop 2. When the finger 8 is raised it engages the extreme lower end of the slide Y^3 and lifts it so that the slot Y^5 passes over the stop 2 and the spaceband swings forwardly to the vertical position in which it drops into the chute H. The finger 8 remains in the raised position and the recessed side surface of a succeeding spaceband rests thereagainst preparatory to a further releasing operation. If a spaceband Y is not correctly located in the magazine G, e. g. if it is in a position in which the non-recessed side surface rests against the finger 8, the spaceband slide Y^3 will not be sufficiently advanced (after lowering the finger) to be lifted by upward movement of the finger so that operation of the spaceband key will be ineffective and the operator's attention will be directed thereto.

The vertical or horizontal finger escapement above described may be readily applied to the spaceband escapement mechanism of existing machines in which a downward and upward movement is imparted to the escapement by the usual key-operated mechanism.

Having described our invention, we declare that what we claim and desire to secure by Letters Patent is:

1. Escapement mechanism for controlling the delivery of spacebands one at a time from the storage magazine of a typographical composing machine, said spacebands each having a slide formed with a recessed side surface and a slot at the extreme lower end and having an upper wedge-shaped section provided with projecting ears by which the spaceband is guided through channels in the storage magazine into a delivery chute, comprising an inclined guiding rail extending upwardly from the bottom wall of the storage magazine for engaging the slot formed at the extreme lower end of a spaceband slide, a fixed stop arranged to be engaged by the recess formed in the side surface of a spaceband slide, an upstanding finger arranged between the guid-

ing rail and stop and reciprocable along a face of the stop for engaging the recess formed in a spaceband slide so as to arrest the foremost spaceband in an inclined position, means for lowering the upstanding finger to allow the spaceband to swing into a position in which the recess engages the stop, and means for raising the upstanding finger to engage the top end of the slot formed in the extreme lower end of the slide and lift the slide over the stop to allow the spaceband to partake of a swinging movement in the direction of the chute.

2. Escapement mechanism for controlling the delivery of spacebands one at a time from the storage magazine of a typographical composing machine, said spacebands each having a slide formed with a recessed side surface and an upper wedge-shaped section provided with projecting ears by which the spaceband is guided through channels in the storage magazine into a delivery chute, comprising an upwardly and downwardly movable escapement element located normally at rest and arranged to arrest the foremost spaceband in an inclined position adjacent the chute, a fixed stop located between the escapement element and the chute and arranged to be engaged momentarily by the recess formed in the side surface of the spaceband slide when the foremost spaceband is released by the escapement element, and means for moving the escapement element first downwardly from its position of rest and then upwardly back to its position of rest at each operation, said escapement element by its downward movement allowing the spaceband to swing forwardly into engagement with the fixed stop and by its upward movement lifting the spaceband above the stop and allowing it to swing forwardly over the stop into the chute.

3. Escapement mechanism according to claim 2, wherein the escapement element is formed and arranged to be engaged by the recess formed in the side surface of the spaceband slide in arresting the foremost spaceband in its inclined position adjacent the chute.

4. Escapement mechanism according to claim 3, wherein the spaceband slide is formed at its extreme lower end with an open slot, said slot permitting the spaceband to clear the fixed stop in its second swinging movement.

5. Escapement mechanism according to claim 3, wherein the spaceband slide is formed at its extreme lower end with an open slot, said slot permitting the spaceband to clear the escapement element and the fixed stop in its two successive swinging movements.

6. Escapement mechanism according to claim 5, wherein the escapement element in its upward movement engages the top end of the open slot formed in the spaceband slide.

7. Escapement mechanism according to claim 2, wherein the escapement element is formed and arranged to engage the forward side surface of the spaceband in arresting it in its inclined position adjacent the chute.

8. Escapement mechanism according to claim 7, wherein the escapement element in its upward movement engages the extreme lower end of the spaceband slide.

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