

June 23, 1936.

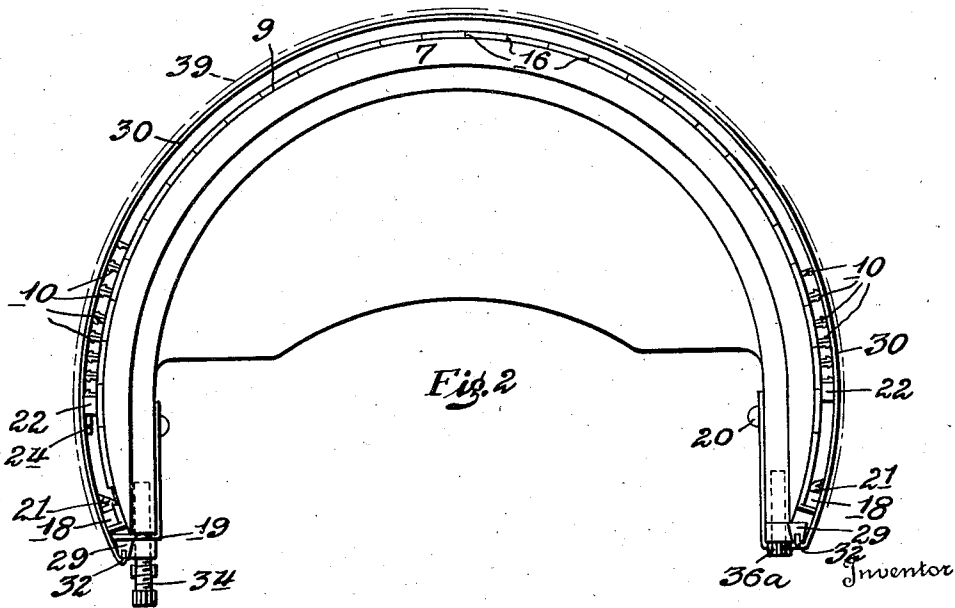
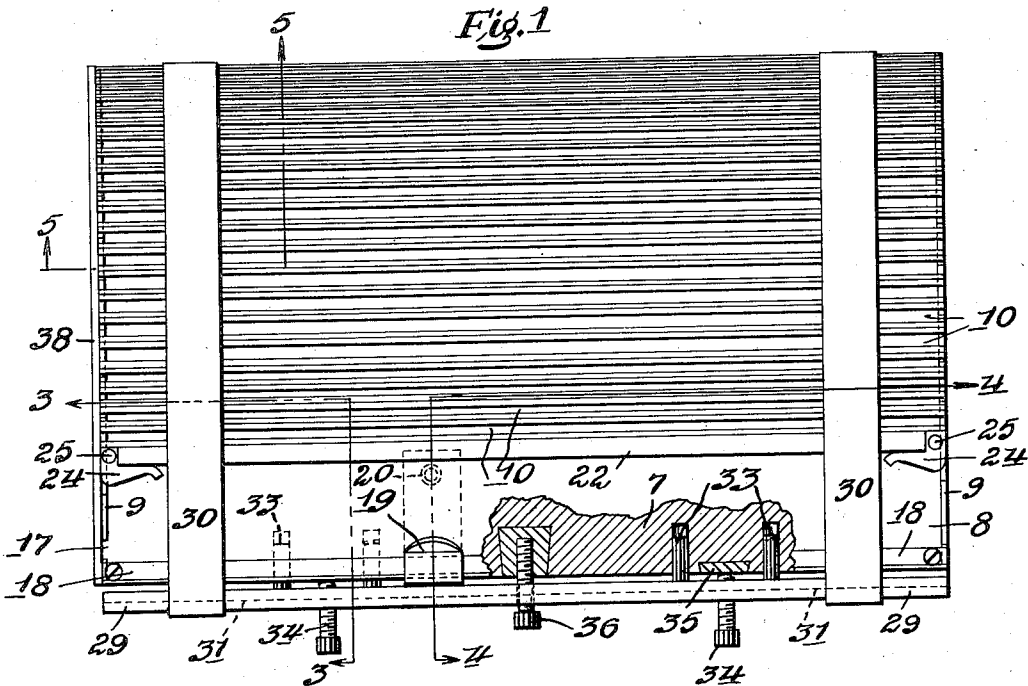
W. G. READ

2,045,408

PRINTING MECHANISM

Filed Sept. 21, 1935

2 Sheets-Sheet 1



Worth G. Read

By *Styger & Styger* Attorneys

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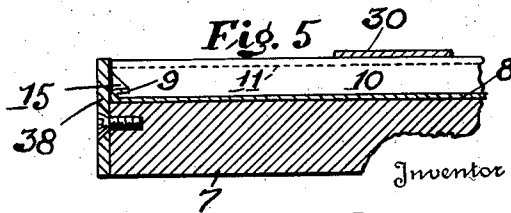
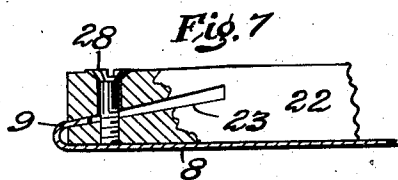
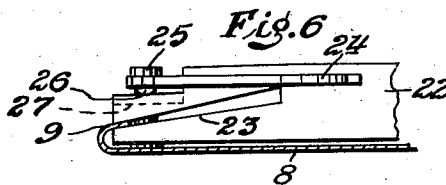
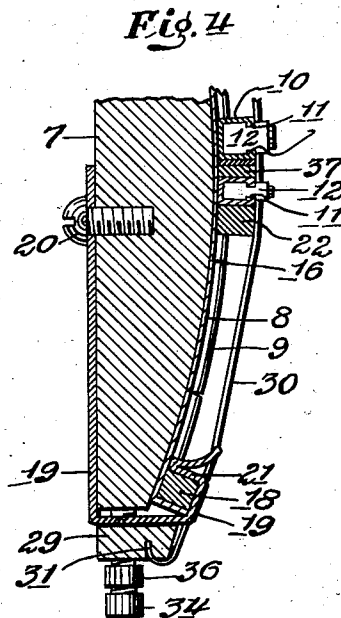
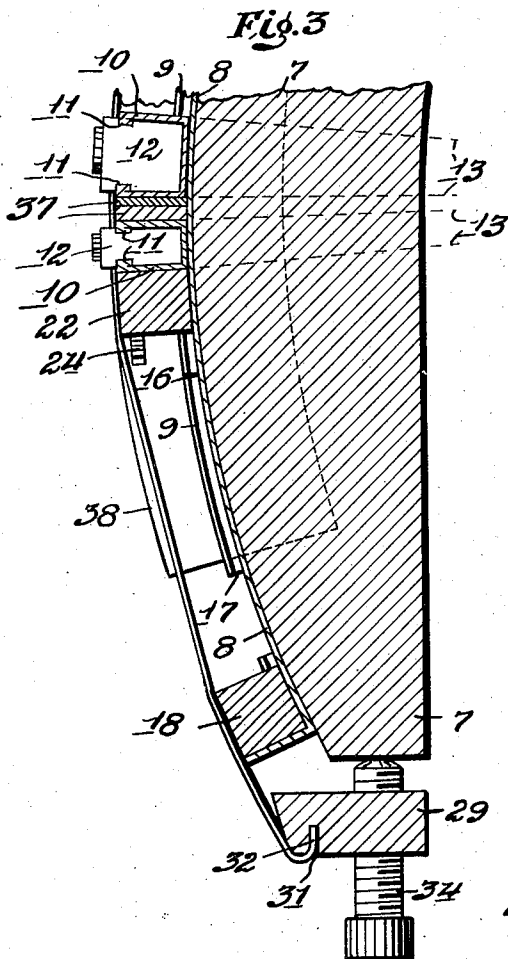
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2 Sheets-Sheet 2



Worth G. Read

By *Styker & Styker*
Attorneys

UNITED STATES PATENT OFFICE

2,045,408

PRINTING MECHANISM

Worth G. Read, St. Paul, Minn.

Application September 21, 1935, Serial No. 41,561

8 Claims. (Cl. 101—377)

This invention relates to improvements in printing mechanism of the type described in my co-pending application Serial No. 646,866, filed December 12, 1932, for a printing machine, and has for its principal object the provision of improved means for securing individual line members or holders in place on an arcuate or segmental printing form.

A particular object is to provide a form holder or galley, of the flexible type adapted to be stored flat, with novel means for securing a multiplicity of individual line members in such rigid relation to said form holder and to an arcuate or segmental chase that the quality of the printing is improved while the work of composing the printing members and making the necessary connections for printing are facilitated.

Referring to the accompanying drawings:

Figure 1 is a side elevation of my device partly in section;

Fig. 2 is an end view of the same;

Fig. 3 is a greatly enlarged fragmentary section taken on the line 3—3 of Fig. 1 and showing some of the type in place in the form;

Fig. 4 is a similar view taken on the line 4—4 of Fig. 1;

Fig. 5 is a section taken on the line 5—5 of Fig. 1;

Fig. 6 is a fragmentary view of one of the followers showing the means for securing the same to the flanges on the flexible form holder, and

Fig. 7 is a similar view of an alternate form of follower bar.

In the drawings the numeral 7 indicates a segment adapted to be secured to a press in the usual or suitable manner. Fitting on the cylindrical, outer surface of the segment 7 is a flexible form holder 8 formed at each side edge with an intumed flange 9 adapted to engage individual line holders 10. These line holders are channel shaped members extending parallel to the axis of the segment 7 and each formed with intumed flanges 11 adapted to slidably engage printing members 12 which may be either individual type, slugs of various lengths or other members bearing the characters to be printed. As shown in Figs. 3 and 4, the printing members have grooves in the opposite sides thereof to receive the flanges 11 and the sides of said members and of the line holders 10 preferably extending radially to the segment 7, as indicated by the dotted lines 13 in Fig. 3.

As shown in Fig. 5, the ends of the line holders 10 are formed with notches 15 to slidably receive the flanges 9 of the form holder 8. These flanges

have slits 16 severing them transversely at suitable intervals to facilitate bending the holder 8 from the flat form, in which it is usually handled when removed from the segment 7, to the arcuate shape of the segment 7. A portion of one of the flanges 9 is preferably cut away, as indicated at 17 to facilitate insertion of the line holders 10 into engagement with the flanges 9.

Secured to each end of the form holder 8 is a rigid bar 18 adapted to be clamped in engagement with the segment 7 by spring clips 19. As best shown in Fig. 4, each of these clips 19 may be secured to the inner surface of the segment by a screw 20. The clips have free extremities 21 adapted to be sprung into engagement with the bars 18. A follower bar 22 is placed adjacent to the line holder 10 at each end of the form and the ends of these bars have slots 23 to receive the flanges 9 of the form holder 8. The material from which the bars 22 are constructed is sufficiently resilient to permit the gripping of the flanges 9 in the slots 23. Suitable means are provided for forcibly gripping the flanges 9 in the slots 23. As illustrated in Fig. 6, the gripping device comprises a small cam lever 24 pivotally secured to the end of the bar 22 by a rivet 25 and formed with a cam 26 adapted to be moved to and from a recess 27 in the bar by angular movement of the lever. To move the bar 22, with the parts in the gripping position shown in Fig. 6, it is necessary to actuate the lever 24 and allow the cam 26 to enter the recess 27, whereupon the end portions of the bar spring apart to enlarge the slot 23 sufficiently to release the flange 9.

In the alternate form of gripping device shown in Fig. 7, the screw 26 is substituted for the lever and cam arrangement of Fig. 6, the screw being arranged, when turned inwardly, to draw the resilient end portions of the bar together to reduce the size of the slot 23 and grip the flange 9. Obviously, by a reverse turn of the screw 26, the bar 22 is released from the flange 9.

Mounted on each end of the segment 7 is a bar 29 to which is secured the ends of a pair of thin, strong bands 30 adapted to be drawn tight upon the multiplicity of line holders in place on the segment 7. One end of each of the bands 30 is secured to one of the bars 29 and the other end to the other of said bars. The bands 30 are removable from the line holders and may be adjusted longitudinally thereof to apply pressure as near as possible to the printing members 12. To provide for the latter adjustment, the bars 29 are formed with grooves 31 extending from end to end thereof and the ends of the bands 30 have

inturned flanges 32 slidably fitting in the grooves 31. Rigidly secured to one of the bars 29 is a series of spaced, parallel studs 33 which are slidable in sockets formed in the end surfaces of the segment 7. Thrust screws 34 are threaded in the bar 29 and the inner ends of these screws severally bear against hardened metal plates 35 secured in suitable recesses in the ends of the segment 7. Near the center of the same bar 29 a screw 36 is arranged to limit movement of said bar away from the segment, this screw fitting loosely in an opening in the bar and being threaded in the segment. The bar 29 at the opposite end of the segment may be secured thereto by cap screws 36a (Fig. 2) as adjustment is not likely to be required at both ends of the bands. Obviously both bars 29 may be made adjustable to increase the range of adjustment when required. By having at least one of the bars arranged to be forcibly actuated longitudinally of the bands 30 and by permitting limited turning of the bar out of parallelism with the end of the segment, substantially uniform tension may be applied in the two bands 30 irrespective of the ordinary and slight irregularities in the group of line holders on the segment found in practice.

As shown in Figs. 3 and 4, suitable spacing strips 37, preferably having thicknesses of one point and integral multiples thereof, are placed between line holders where required to properly space the printing members. The line holders are also furnished in various widths to accommodate type of various heights, as indicated. Mounted on one of the arcuate side edges of the segment 7 is a stop plate 38 which projects from the periphery of the segment, as indicated in Fig. 5, sufficiently to engage the ends of the line holders 10 and one of the side edges of the form holder 8. The plate 38 thus affords a guide for one of the side edges of the assembled galley.

My improved device permits wide variations in the arrangement and extent of the printing members on the form holder and changes may be made in any arrangement rapidly and without skilled operators. The composing is done with the form holder 8 removed from the segment 7 and laid flat, the type being set in the individual line holders and the latter assembled by sliding the ends thereof into engagement with the flanges 9. The follower bars 22 are placed at the ends of the form and are quickly secured so as to lock the line holders 10 and spacers 37 in place either by actuating the cam levers 24 of the preferred form or screws 28 of the alternate form shown in Fig. 7. The form holder is then placed on the segment 7 by bending to the arcuate form and springing the clips 19 into engagement with the bars 18. At this point one of the bars 22 is moved to compact the line holders which are loosened somewhat by bending the flexible base or holder 8 from its flat to its arcuate shape. The flexible bands 30 are next placed with their flanged ends 32 in engagement with the grooves 31 of the bars 29 in such position as to extend parallel to the flanges 9 and close to the ends of the lines of printing members 12. As the final operation in making the segment ready for printing, the screws 34 are turned in the appropriate direction to draw the bands 30 tightly and uniformly against the line holders in a radial direction. Ample force is applied in this manner to firmly compress each of the line holders and the flexible form holder 8 radially against the cylindrical surface of the segment 7. This greatly improves

the printing and uniformity of the impressions and makes it unnecessary to apply tension to the form holder 8. By my arrangement of the bands 30, I also make it unnecessary to apply substantial force transversely of the form holders by means of the bars 22 or otherwise to forcibly compact the line holders and spacers together. It will be evident that the bands 30 are made thin enough so that they do not project to the printing faces of the members 12 which are located on the cylindrical surface 39 indicated by dotted lines in Fig. 2.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. Printing mechanism having in combination a segment, a form holder mounted on the periphery of said segment, a multiplicity of individual line members removably secured to said form holder, a flexible member extending transversely of said line members in engagement therewith and means for tensioning said flexible member upon said line members.

2. Printing mechanism having in combination a segment having a substantially cylindrical periphery, a form holder mounted on said periphery, a multiplicity of individual line members extending in parallel relation to each other and from side to side of said form holder, a flexible band extending transversely of said line members upon the outer surfaces thereof and means engaging said segment for tensioning said band upon said line members.

3. Printing mechanism having in combination, a segment, a flexible base conforming to the periphery of said segment, a multiplicity of individual line members removably secured to said base, means for securing the ends of said base to the ends of said segment and means for compressing said line members and base upon the periphery of said segment comprising, a flexible member extending transversely of said line members in engagement with them and means for forcibly tightening said flexible member.

4. Printing mechanism having in combination, a segment, a form holder mounted on the periphery of said segment, a multiplicity of individual line members mounted on said form holder, a plurality of flexible bands extending transversely of said line members in engagement therewith, a bar extending along an end of said segment, means connecting the ends of said bands to said bar, means for guiding said bar for movement longitudinally of said bands and means for forcibly actuating said bar to tighten said bands upon said line members.

5. Printing mechanism having in combination a segment, a thin flexible base mounted on the periphery of said segment, a multiplicity of individual line members extending from side to side of said base and removably secured thereto, a plurality of flexible bands extending transversely of said line members upon the outer surfaces thereof, a bar extending along an end of said segment and formed with a groove extending longitudinally thereof, flanges formed on the ends of said bands to engage said bar in said groove, means for guiding said bar for movement longitudinally of said bands and means for forcibly actuating said bar to tighten said bands upon said line members.

6. Printing mechanism having in combination a segment, a flexible base mounted on the periphery of said segment, a multiplicity of individual

line members removably secured to said base, a plurality of flexible bands extending transversely of said line members in engagement therewith, a bar extending along an end of said segment, means for connecting the ends of said bands to said bar, means for guiding said bar for movement longitudinally of said bands and threaded means engaging said bar and segment for forcibly actuating said bar to tighten said bands upon said line members.

7. Printing mechanism having in combination a flexible form holder, narrow retaining members extending along opposite side edges of said holder, a multiplicity of individual line members each having ends slidably engaging said retaining members, a follower bar slidably engaging said retaining members, means for securing the ends of said bar to said retaining members to confine groups of line holders of various sizes, a segment adapted to receive said form holder, means removably securing the ends of

said holder to the ends of said segment and means engaging said line members to retain them and said holder securely in place on said segment.

8. Printing mechanism having in combination a flexible form holder, narrow retaining members extending along opposite side edges of said holder, a multiplicity of individual line members each having ends slidably engaging said retaining members, a follower bar slidably engaging said retaining members, means for securing the ends of said bar to said retaining members to confine groups of line holders of various sizes, a segment, adapted to receive said form holder, spring clips removably securing the ends of said holder to the ends of said segment and flexible bands extending in spaced parallel relation to said retaining members upon the outer surfaces of said line members to retain them and said holder securely in place on said segment.

WORTH G. READ.