

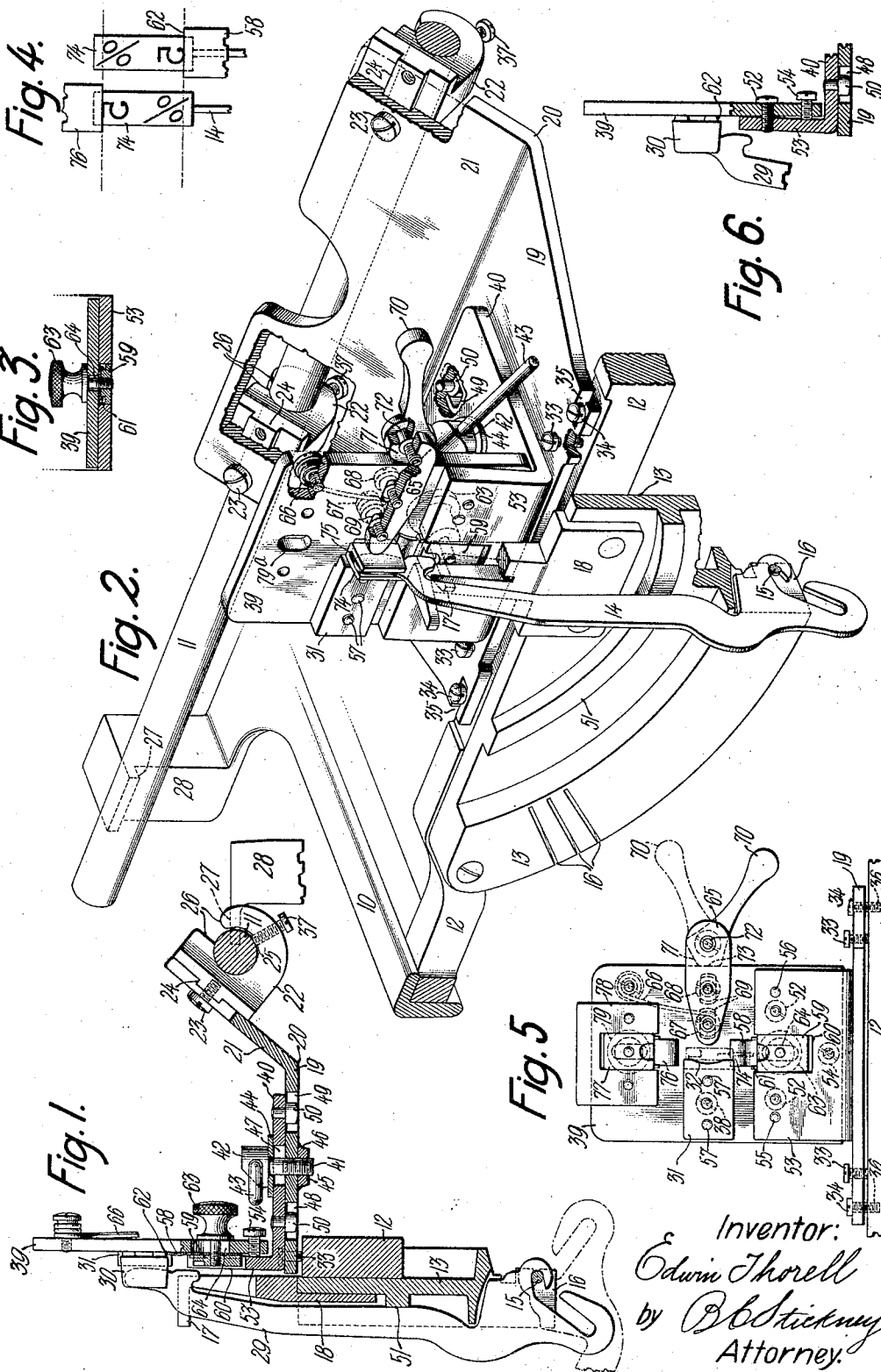
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TYPE SOLDERING DEVICE

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TYPE-SOLDERING DEVICE

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This invention relates to apparatus for use when attaching the slotted types to the tips of the type-bars of typewriting machines.

Heretofore a fixed magnet was used and the type was dropped against a bottom gage, where it was held by the magnet. However, the slot in the type is over-width for the type-bar, and it was found that the types were not accurately or uniformly located, and that their sides were not properly aligned. Moreover, during the soldering, the weakly held types were apt to be knocked by the stick of solder, causing trouble.

According to another method accuracy of alignment has been secured by fastening each type in a cradle, the latter having accurate dimensions, and then holding the cradle accurately and firmly in a jig in which the typewriting machine was also mounted, and then swinging the type-bar into its position in the type-slot, and then applying the solder.

It is an object of the present invention to reduce the cost of such soldering fixtures and to reduce the room taken up thereby, and avoid the necessity of fitting the typewriter upon a jig and of securing the jig to a work-bench. It is one of the aims to simplify, cheapen and improve type-soldering appliances.

In place of locating said type in a matrix by means of its projecting type-face, the invention eliminates the necessity for providing a complete set of combined gages and matrices, one for each type-face, and also avoids the necessity of selecting each matrix preparatory to attaching the type thereto in each case, and of providing proper holders for the matrices when not in use.

A feature of the present invention is that the type is first located or aligned at both the bottom edge and the side edge, and is then clamped and held in said position preparatory to the soldering. After the type is clamped, the type-bar is swung into the slot in the type-head and then the solder is applied thereto. After the type is so soldered, the clamp is easily and quickly released, and the type-bar, together with its type-head, is swung away. In this manner the type can be

held mechanically in a perfectly centered position, which insures accurate type soldering.

It is a feature of the present invention to gage each type as accurately as was practicable with the use of the old gage-matrix, while dispensing with said gage-matrix. To this end, the face of the type is set back against a flat type-face gage, which may consist of a vertical face of a stationary plate. This locates each type-face parallel with the faces of all the other types and insures that the face of the type shall be presented accurately to the platen, since said type-face gage-plate occupies the position which is to be subsequently occupied by the platen in the typewriting machine.

The type is at the same time set sidewise against a side gage, which engages the side of the type-head. This provides for accuracy of side-spacing of the type, or, in other words, brings the type into an exact central position in the typewriting machine.

The type is also set down against a bottom gage, which consists of a razor-edge, which lies flat back against the face of said type-face gage-plate (which is vertical). The bottom-edge gage is so thin that it engages the bottom or base bevel of the type at the corner between said bevel portion and the type-face itself, so that the types are all brought into perfect bottom alignment, notwithstanding there may be variations in the degree of beveling the different types.

The type is brought to these gages which have been previously set, so that the type is now exactly in its printing position in the typewriting machine. Then the type is clamped in place.

This accurate production of types enables the present type-soldering device to afford extreme accuracy, since it clamps each type-head at exactly the same position, after first having its bottom and side edges aligned.

The type-bar is swung up, and its tip enters the slot in the fixed type-head. This slot is made over-width, so that the type-bar may enter therein, notwithstanding that the tip of the type-bar may be a little bent or twisted, or otherwise out of place. Then the solder is introduced into the type-slot, thus solder-

ing the type to the bar while the type still remain in it perfectly aligned and in level position. The bent, twisted or misplaced condition of the type-bar still persists, but the type-bar must nevertheless, bring the type
5 always to the same accurately-aligned position, when the typewriter-key is being operated. The position of the type is not affected by faults of the type-bar to which it is
10 attached.

The foregoing gages are mounted upon a jig which is very simple, compact and cheap, and is attached to the typewriting machine itself, having accurate bearings which fit
15 upon the rear carriage-guiding rail. The fixture is leveled in the machine, and rigidly secured. The gages are adjusted to a master type-bar, which carries a master type, which is preliminarily inserted in the machine in
20 the same position as a regular type-bar, and is brought to printing position against the usual stop-ring of the typewriter. While the master type is held in this position, the several gages of the jig are, one by one,
25 brought into exact position with reference to the master type, thereby assuring that all of the printing types which, thereafter, one by one, are set to said gages, will occupy the exact positions predetermined by the master
30 type. Thus the need of a set of individual gage-matrices is avoided, and alignment is effected by means of a very simple and inexpensive device, readily attached to the machine and readily set up.

In the jig, a main base-plate is provided with a pair of rear guides, which are slid upon the usual carriage-way-rod to a central position, and then the front of the base-plate or bracket is clamped in place by thumb-
40 screws. At its front the bracket is slotted, so that the bracket, together with its type-clamping device, may be adjusted sideways and fastened. A second or angular bracket is mounted on the main bracket, and carries
45 the clamping device. The angle bracket is adjustable backward and forward to bring the type-clamping device to proper position. A plate is then mounted upon one member of said angle bracket, and, by turning a screw,
50 said plate, upon which the type-clamping jaws are directly mounted, may be tilted forward to proper position. A bottom type-gage is adjustably mounted on said plate. An adjustable block acts as a side type-gage.
55 This block is also fixed upon said plate.

The type is first positioned against the bottom gage, and then moved sideways against the side gage or stationary block. Then a cam-lever moves a sliding jaw against
60 said type to clamp it in position against said stationary block; said slidable member being under a spring tension.

Said master type, which is very accurate, after being mounted on the type-bar segment,
65 is swung against the segment-stop ring to typ-

ing position. The gage-blocks are positioned against said master type and clamped. If the block-carrying plates are found not to be in proper position, the base-plate, the angle plate, or the plate upon which the blocks are
70 directly mounted, may be adjusted and then locked fast. This adjusting need only be done once.

In some cases, especially foreign types, such as Russian, it is found necessary to have a
75 different adjustment and a top gage is provided, so that the top of the types are aligned instead of the bottom of said types. The top aligning bar is similar in construction to the bottom aligning bar.

Other features and advantages will hereinafter appear.

In the accompanying drawing,

Figure 1 is a sectional side elevation of a typewriting machine having a type-solder-
85 ing jig attached thereto, and embodying the present improvements.

Figure 2 is a sectional front perspective view of the same, showing a regular type-bar in position for soldering to a mechanically-
90 located type.

The first view shows a master type-bar and master type in position in the machine, and the gages being set thereto.

Figure 3 is a sectional view, showing an
95 adjustable razor-edge-gage for the bottom edge of the type.

Figure 4 shows, at the right, the type being aligned by means of a bottom gage; this being the method used for all of the types
100 in the usual set. This figure shows, at the left, the type being aligned by a top gage; in a few cases in which it is impracticable to align the type with a bottom gage.

Figure 5 is a front elevation of the vertical
105 type-face gage-plate with the side gage and bottom and top gages mounted thereon; also the clamp which holds the type in gaged position.

Figure 6 is a part-sectional side elevation,
110 showing the master type in position and the type-face gage-plate adjusted thereto.

Upon the frame 10 of the typewriting machine is secured a cylindrical carriage-track or way-rod 11. The sides of the typewriter-
115 frame are connected by a tie-rod 12, upon which is secured a segment 13, in which type-bars 14 are hinged upon a fulcrum-rod 15 and work in radial slots 16. The types enter a center guide 17 which rises from a base 18
120 that is fastened to the segment 13; all as usual in the Underwood typewriting machine.

According to the present invention, a soldering jig is temporarily mounted upon the
125 frame of the typewriting machine. The jig comprises a floor portion or base 19, whose forward edge overlies the tie-rod 12 of the typewriter. At its rear portion the jig-frame is bent upwardly and rearwardly at 20 to 130

form a flange 21, upon whose under side are secured guide-blocks 22 by means of screws 23. These guide-blocks are dovetailed to the flange at 24 and have transverse bores 25 to fit upon the cylindrical carriage-track rod 11 for securing accuracy of location of the jig in the typewriting machine. The bores or openings 25 are cut away at 26 and the jig may be swung up until the openings 25 clear the ribs 27, whereby the way-rod or track is secured to the tops of posts 28 that rise from the frame 10. The jig may therefore be readily slipped upon the carriage way-rod 11 and slidden along to a central position in the machine.

For aid in locating the jig centrally of the machine, there is provided a master type-bar 29 having a master type 30 thereon and swinging up around the fulcrum-rod 15 and entering the center type-guide 17. When the master type is in its elevated position, Figure 1, the jig may be slidden toward the right along the way-rod 11, until a jig-centering gage 31 touches the side of the master type 30. The dimensions of the latter correspond exactly with those of the types which are to be soldered upon the type-bars of the machine. The position of the master type laterally of the machine is governed by the center guide 17, into which the master type-bar 29 fits without lateral play.

This jig-centering gage 31 is to be subsequently used as a gage against which to set the printing types one by one preparatory to receiving their respective type-bars for soldering. The gage at its working face is recessed at 32, between its top and bottom, so that each type is gaged by its top and bottom face portions, Figure 5, thus conducting to accuracy.

The jig should be not only centered but also provided with a firm support, so that it cannot rock or stir. In the front of the floor 19 are provided adjustable feet for the gage, in the form of screws 33 threaded down through the floor near its front edge and resting upon the cross-bar 12 of the typewriter-frame; these screws 33 being at opposite sides of the jig. By their adjustment up and down, the gage is made to rest levelly and solidly upon the cross-bar 12; whereupon the front portion of the gage is fastened down by screws 34, which extend down through open slots 35 in the sides of the floor 19 and are threaded at 36 into holes usually provided in the cross-bar 12.

Screws 37 may be threaded through the blocks 22 to engage the way-rod 11 on its under side, Figure 1, to draw the rear end of the gage-fixture accurately and firmly down upon the way-rod. By this device the gage is prevented from slipping rearwardly, and from yielding or springing at any point it is held firmly in central position, with its floor in level condition. This result is quick-

ly secured by simple means demanding but little skill or training.

Said top side gage 31 is fastened by a screw 38 upon a large vertical plate or flat platen 39 which is erected above the floor 19 of the jig; said plate 39 being supported on the floor by means of a base 40. This base 40 is movable for the purpose of adjusting the plate 39 forwardly and backwardly, since it is used as a face-gaging platen for all the types.

When the types one by one are placed on the gage, they are set towards the left, against the side gage 31, and rearwardly against the type-face-gage-plate 39; and it is therefore necessary for the gage 39 to be located with exactitude at the proper point, considered fore and aft of the machine. This adjustment of the type-face gage-plate 39 is permitted by moving the base 40 forwardly or backwardly, and securing it by means of a screw 41, whose head 42 is provided with a handle 43 for speedy operation, and bears down upon a washer 44 that is inserted between the head 42 and the base 40.

The floor 19 may be reinforced by adding thereto a nut 45, which may be soldered or brazed at 46 to the bottom of the floor, so as to give the screw 41 a longer bearing for efficiency.

The base 40 has a clearance slot 47 for the screw 41, and it also has corresponding guide-slots 48, 49, which guide dowel-pins 50 that are riveted to the base 40 and extend down into the slots.

By this means it is insured that the base 40, together with the type-face gage 39, shall be adjusted always at right angles to the way-rod 11, thus conducting to evenness of the type-impressions upon the work-sheet when placed upon the platen of the finished machine. The face-plate being parallel with the way-rod 11, and the platen being also parallel with 11, it is insured that any type which is gaged by means of said face-plate 39 and then soldered, must strike evenly upon the platen, thus avoiding liability of one side edge of the type printing more heavily than the other side edge.

The slots 47, 48, 49 permit forward and rearward adjustment of the type-face-gage 39. The position to which said gage can be adjusted is determined mechanically by the contact of the master type 30 with the type-bar anvil or stop-ring 51 formed upon the front of the member 13 to serve to arrest the type-bars at the conclusion of their printing strokes.

It will be seen at Figure 1 that when the master type-bar rests against the machine-stop 51 its master type 30 occupies exactly the right position in respect to the platen that is subsequently to be added to the typewriting machine; and it results that when the type-face-gage 39 is set up against the master

type 30, and there fastened, all types that are subsequently set against said type-face-gage will likewise be found exactly in correct relationship to the platen.

5 In order to compensate for slight inaccuracies arising from manufacture of the jig, or from accidental warping thereof, or from other causes, the type-face-gage 39 is provided with means whereby it may be canted a
10 little forwardly or backwardly, so that the dummy or master type 30 shall rest squarely against said face. This tilting adjustment is controlled by means of a pair of screws 52, Figures 5 and 6, threaded forwardly through
15 a vertical flange 53 that is bent up from the adjustable base 40 and a screw 54 threaded through the bottom of said flange 53. When the screw 54 is rotated, its end bears against the rear side of said flange 53 and rocks the
20 bottom of the type-face-gage-plate 39 rearwardly, and the top thereof forwardly. Said gage-plate may be held against the rear face of the flange 53 by means of said screws 52, Figure 6, which may be loose during the ad-
25 justment, and may then be tightened, so as to hold the tilted plate 39 at its proper adjustment upon the supporting flange 53.

From the foregoing, it will be seen that said plate 39 may be carried bodily forward or
30 backward upon its base 40, and that it may also be tilted forwardly or backwardly, with the result that the gage-plate may be brought perfectly against the master type 30, whose position is determined by means of the stop
35 51 in the typewriting machine. For further accuracy, the gage-plate 39 may be doweled at 55, 56 to the supporting flange 53, Figure 5; and the side type-gage 31 may be doweled at 57 to the type-face-gage-plate 39.

40 After thus adjusting the side gage and the face gage to the master type 30, it remains to adjust the bottom gage 58 to said master type. This is a thin razor-edge gage, which, because of its thinness, is mounted upon a carrier-
45 block 59 that is guided up and down in a vertical slot 60 formed in the stationary flange 53 of the main bracket or base 40; said slot 60 being central of the machine. The carrier-block 59 may be made of copper, and the gage
50 58 may be made of a thin film of steel, having side flanges 61 bent over said block and fastened thereto, Figure 3.

The bottom gage 58, which lies in contact with the type-face gage-plate 39, is slidden
55 up against the bottom edge 62 of the master type-block 30, and then secured by means of a thumb-screw 63, to serve as a bottom gage for types preparatory to soldering. The stem of the screw 63 plays up and down in a vertical slot 64 in the type-face gage-plate 39. The razor-edge gage 58 contacts with the type
60 only at the corner which occurs between the shoulder of the type and the face thereof, so that all types can be brought accurately to the
65 correct vertical position, notwithstanding

some variation in the bevels of the shoulders of the types.

After the jig has been introduced in the machine, and the various gages have been accurately adjusted and secured and every-
70 thing fastened, the master type-bar 29 may be detached from the typewriter; and, one by one, the printing types may be set up to the described gages, and each type may be held firmly in gaged position by means of a side
75 clamp 65, which is shown withdrawn at Figure 5, and in type-clamping position at Figure 2. The nose of the clamp may be held against the type by means of a spring 66. The type-clamp is in the form of a slide that is
80 mounted by means of shoulder-screws 67, 68 in horizontal guiding slots 69 in the type-face gage-plate 39.

Withdrawal of the clamp from the type may be effected by depressing a handle 70,
85 Figure 5, to rotate a cam 71, which is pivoted at 72 upon the slide, said cam having a flat portion or dwell 73 to detain the clamp in open position. After the type is inserted, the handle 70 is lifted, and the nose of the cam
90 passes down along the edge of the plate 39, and the spring 66 forces the type to the left against the side gage 31, and holds it during the soldering operation.

It will be perceived that after the removal
95 of the master type-bar 29, with its type 30 fast thereto, a printing type 74 may be set against the side gage 31, the bottom gage 58, and the type-face gage 39, and there held by the clamp 65 and spring 66, upon depressing the clamp-handle 70. While the type 74 is so
100 held, one of the type-bars 14 is swung up, and its tip is inserted into the usual slot 75 formed in the type; and while the type-bar is held back against the stop-ring 51, and the type is held against all the gages by the
105 clamp 65, solder is dropped into the slot 75 in the type, surrounding the tip of the type-bar and filling the slot, and permanently attaching the type to the type-bar.

The type-bars are apt to vary according to inequalities of manufacture, or to become slightly bent and twisted in handling, before
110 insertion in the typewriting machine; so that the tip of the type-bar is apt to stand in somewhat inaccurate position, inclined to one side or the other, or twisted a little. The type, however, does not partake of this fault in
115 the type-bar, because the slot in the type is made a little oversize, so that the type-bar can enter the slot even though the side faces of the type-bar are not parallel with the side faces of the slot. Whatever the fault of the type-bar, and however it stands in the type-
120 slot, the solder fills up all of the space between the type-bar and the type, so that the effect of the fault of the type-bar is nullified, and the type-bar is thereafter bound to swing the
125 type back to its original gaged position, notwithstanding the aforesaid slight faults of
130

the type-bar. Hence the alignment of the types is rendered permanently uniform and accurate, and the character of the type-impressions is rendered perfect.

5 In a few cases, where it is impracticable to use the bottom gage 58, there may be employed an inverted top gage 76, while the bottom gage 58 may be loosened and slidden down out of working position. The inverted
10 gage 76 may be similar to 58, and similarly mounted upon a slide-block 77, guided in a plate 78 that is fixed upon a front vertical surface of the type-face gage-plate 39. The upper block 77 has a fastening device in the
15 form of a thumb-screw 79 similar to 63. The master type-bar 29, 30 is first inserted and moved to the gaging position at Figure 1, and then upper gage 76 is dropped into engagement with the corner formed by the top
20 line of the type with the top bevel shoulder of the type, as shown at the left of Figure 4. The stem of the screw 79 plays up and down in a vertical slot 79^a in the type-face gage-plate 39.

25 It will be noted that the machine-frame being assembled for a complete typewriter has a carriage-rail and a type-bar segment permanently secured thereto; that the soldering appliance is secured to the carriage-rail and the segment which may or may not have a
30 complete series of type-bars assembled thereto; and that the soldering of the type-blocks upon their bars in exact printing position upon a platen-face indicating the platen-face
35 of a cylindrical platen to be subsequently assembled, is a final alignment of the type-faces and not an alignment that must be checked up and corrected, when the segment of soldered type-bars is assembled to the machine-
40 frame, as heretofore.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

45 Having thus described my invention, I claim:

1. For use as an appliance for soldering type-blocks separately to bars already assembled in a segment permanently mounted in the frame of a typewriting machine, a fixture having adjustable means for mounting
50 and locating it accurately upon the machine-frame, said fixture including a vertical universal flat platen for all the type-faces of the blocks to fit against, universal gages on said platen for locating each type-block at
55 a printing position preparatory to being soldered to its bar, and universal means for fastening the types individually to the platen while gaged by said gages.

60 2. For use as an appliance for locating type-blocks at a typing position relatively to their type-bars in a machine having assembled therein a carriage-rail and a type-bar segment, a type gaging and soldering
65 fixture having means for mounting it upon

the carriage-rail and also having means fixable to the segment, and also having a universal stationary flat platen for all the types to fit against, said flat platen carrying settable side and end universal gages for all the
70 type-blocks, and said fixture also having releasable universal clamping means to hold any type-block against the gages and against the flat platen while the type-block is being soldered to its type-bar.

3. For use as an appliance for locating type-blocks at a typing position relatively to their type-bars in a machine having assembled therein a carriage-rail and a type-bar
80 segment, a type gaging and soldering fixture having a frame for mounting it upon the carriage-rail and also having means for fixing the frame to the segment, said frame having a stationary flat universal platen for all
85 the types to fit against, said flat platen carrying universal settable side and end gages for all the type-blocks, and said platen also having releasable universal clamping means to hold any type-block against the gages and
90 against the flat platen while the type-block is being soldered to its type-bar, said flat platen having the form of a vertical plate adjustably mounted upon said frame to locate the exact printing point for a cylindrical
95 platen to be subsequently assembled to the machine.

4. For use as an appliance for soldering type-blocks separately to bars already assembled in a segment permanently mounted in the frame of a typewriting machine, a fixture mounted upon the machine-frame in accurate mechanically-located position and secured to the segment, including a universal
100 vertical flat platen for all the type-faces of the blocks to fit against, a universal gage on said platen for the bottom edges of the types, a universal gage on said platen for the sides of the type-blocks, and a universal clamp also on said platen, effective to retain all the
105 type-blocks in gaged position, while the bars are being individually soldered thereto.

5. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine
110 frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a flat platen for the type-faces of a type-block, having a surface adjustable forwardly and backwardly to the exact printing
115 plane for the machine and against which the faces of all the types to be soldered bear, a universal gage on the platen for the bottoms of the type-faces, a universal gage on the platen for the sides of the type-blocks, and a single clamp also on the platen to retain the
120 type-faces and blocks in gaged positions, while the type-bars are being soldered thereto.

6. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a flat platen for the faces of the types, having a surface adjustable to the printing plane of the machine and against which the type-faces of the block to be soldered bear, a gage on the platen for the bottom of a type-face, including a thin metal leaf effective to gage the type-block at its lower-type-face edge, means for holding said leaf flat against the face of said platen, a gage on the platen for the side of the type-block, and a tensioned clamp also on said platen to retain the type and block in gaged position, while a type-bar is being soldered thereto.

7. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a universal type-gaging and type-soldering fixture including a base-plate, a frame, means for securing said frame in adjusted position on the base-plate, and universal face, side and end gages adjustably and permanently mounted upon said frame and effective to locate all the types in exact printing position for a cylindrical platen subsequently assembled in the machine, after the types have been soldered to their bars.

8. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base-plate, a bracket having a backward and forward adjustment on the base-plate, means for securing the bracket in adjusted position on the base-plate, a plurality of universal gages permanently supported by said bracket and effective to locate all the type-faces facewise, sidewise and endwise in final printing position in the machine, while type-bars are being soldered thereto, and individual means for adjusting each of said gages.

9. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base-plate, means for adjustably attaching the same to the carriage-rail, means for adjustably fastening the base-plate to the segment in said machine, a bracket adjustably mounted on said base-plate, means for securing the bracket in adjusted position, a plurality of universal facewise, sidewise and endwise gages supported by said

bracket, including a type-face gaging flat platen mounted for forward and backward adjustment on said bracket, means to tilt said gaging platen to adjust the surface thereof for a platen-face plane, and means for securing the gaging platen in adjusted tilted position.

10. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base-plate having means for adjustably attaching the same to said carriage-rail and segment, a bracket on the base-plate, and a plurality of universal gages including a universal type-face gaging plate permanently and adjustably mounted on said bracket and a universal bottom-edge gage for said type-faces; permanently and adjustably mounted on the face of said gaging plate for up and down adjustment thereon, to locate all the types in final printing position in the machine, while the type-bars are being soldered thereto.

11. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base-plate, means for slidably securing the rear portion of the base-plate to the carriage-rail, means for adjustably mounting the front portion of the base-plate upon said segment, a universal type-face gaging platen supported by said base-plate, a universal side gage on said gaging platen, to locate laterally all the type-blocks to be soldered, and means for securing all the type-blocks individually in position against said side gage.

12. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base-plate, means for adjustably supporting the base-plate on said carriage-rail and segment of the machine, a flat-face platen on said base-plate, a side gage mounted on said platen, to locate laterally type-blocks to be soldered, and means for securing the type-blocks in adjusted position against said side gage, including a slidable jaw and a cam-lever on said platen to control the movements of said jaw.

13. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture in-

cluding a base-plate, means for adjustably supporting the base-plate on said carriage-rail and segment of the machine, a flat face type gaging platen on said base-plate, a permanent side gage mounted on said type gaging platen, to locate laterally type-blocks to be soldered, and means mounted upon the platen for securing the type-blocks in adjusted position thereon and against said side gage, including a slidable spring-actuated jaw and a cam-lever to release the jaw to the spring while the type-block is being soldered to its bar.

14. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a supporting base-plate extending from the front to the rear of the machine, the front portion of said plate having means adjustably secured to the segment, said plate at its rear portion bent upwardly and rearwardly to support a pair of guides slidably mounted on said carriage-rail, to locate the fixture at a type-soldering position.

15. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base attachable to said carriage-rail and to said segment, a plate supported on said base, having a type-face gaging surface adjustable to the printing plane of the machine, a master type-bar having means for attachment to said segment and swingable into typing position to locate a plane for said type-face gaging surface of the plate, and centering gages settable to engage a side and an end of the master type-block, and operable when set, to gage subsequent loose type-blocks for a printing position while being soldered upon their bars.

16. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base, means to secure the base to the carriage-rail and segment of the machine, an angle-plate member mounted on said base, including a bottom portion adjustably movable on the same, a vertical portion, and a type-face gaging platen tiltably mounted on said vertical portion, means for tilting the type-face gaging platen to adjust the same for the type-faces of the type-blocks, and means to retain the gaging platen in adjusted position on the angle-plate.

17. For use as an appliance for locating type-blocks at printing positions upon their

respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base, means to detachably and individually secure the base to the carriage-rail and segment of the machine, a perpendicularly-disposed slotted lug on said base, a tiltable plate secured to said lug to form a stopping gage for the faces of the types, and a bottom type-face gage adjustably mounted in the slot of said lug and detachably securable against said plate for a top type-face gage when required to locate and hold type-blocks by either gage during the time a block is being soldered.

18. For use as an appliance for locating type-blocks at printing positions upon their respective bars in a typewriting-machine frame having permanently assembled therein a carriage-rail and a type-bar segment; a type-gaging and type-soldering fixture including a base, means to detachably secure the base to the carriage-rail and to the segment of the machine, a perpendicularly-disposed slotted lug on said base, a tiltable plate secured to said lug to form a gage for the faces of the types to rest upon, and a bottom type-face gage adjustably mounted in the slot of said lug and detachably securable against said plate to locate and hold a type-face in position during the time a bar is being soldered thereto, said gage including a block made of copper and a thin leaf of steel, the latter to bear against the type-face being gaged, the leaf of steel having side flanges bent over the block and means to secure the block in adjusted position.

19. A type-soldering fixture including a frame provided with means for mounting and accurately locating the frame upon the carriage-guiding rail of a typewriter, and also having means for securing said frame to the type-bar segment of the typewriter, the fixture including a vertical universal flat platen for all the type-faces to gage against, means being provided for adjusting said platen forwardly and backwardly relatively to the carriage-guiding rail, means for raising and lowering said platen, a universal gage upon said platen for the side of every type-block, a universal gage upon said platen for the end of every type, and means for fastening a type-block that is set against said platen and against said gages.

20. In a type-soldering fixture, the combination of a base-plate having fitted collars for mechanically locating the soldering fixture upon the cylindrical carriage-rail of a typewriting machine, means upon the front of said base-plate for engaging the type-bar segment to swing the base-plate up and down about said carriage-rail, means for fastening the base-plate to said segment, a bracket mounted upon said segment for forward

and backward adjustment, means for securing said bracket, a universal upstanding type-face gaging platen mounted upon said bracket, means for tilting said platen forwardly and backwardly to bring its gaging surface into the required vertical position to compensate for its swinging about said carriage-rail, said platen being mounted to move forwardly and backwardly with said bracket but to tilt independently thereof, means for fastening the platen upon the bracket after tilting the platen, a universal gage upon the platen for the sides of the types, means being provided for effecting a lateral adjustment to vary the position of said side gage, an end gage upon said platen universal for the types, and universal means for individually fastening all the types in their gaged positions against the platen, the side gage and the end gage.

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