

March 10, 1931.

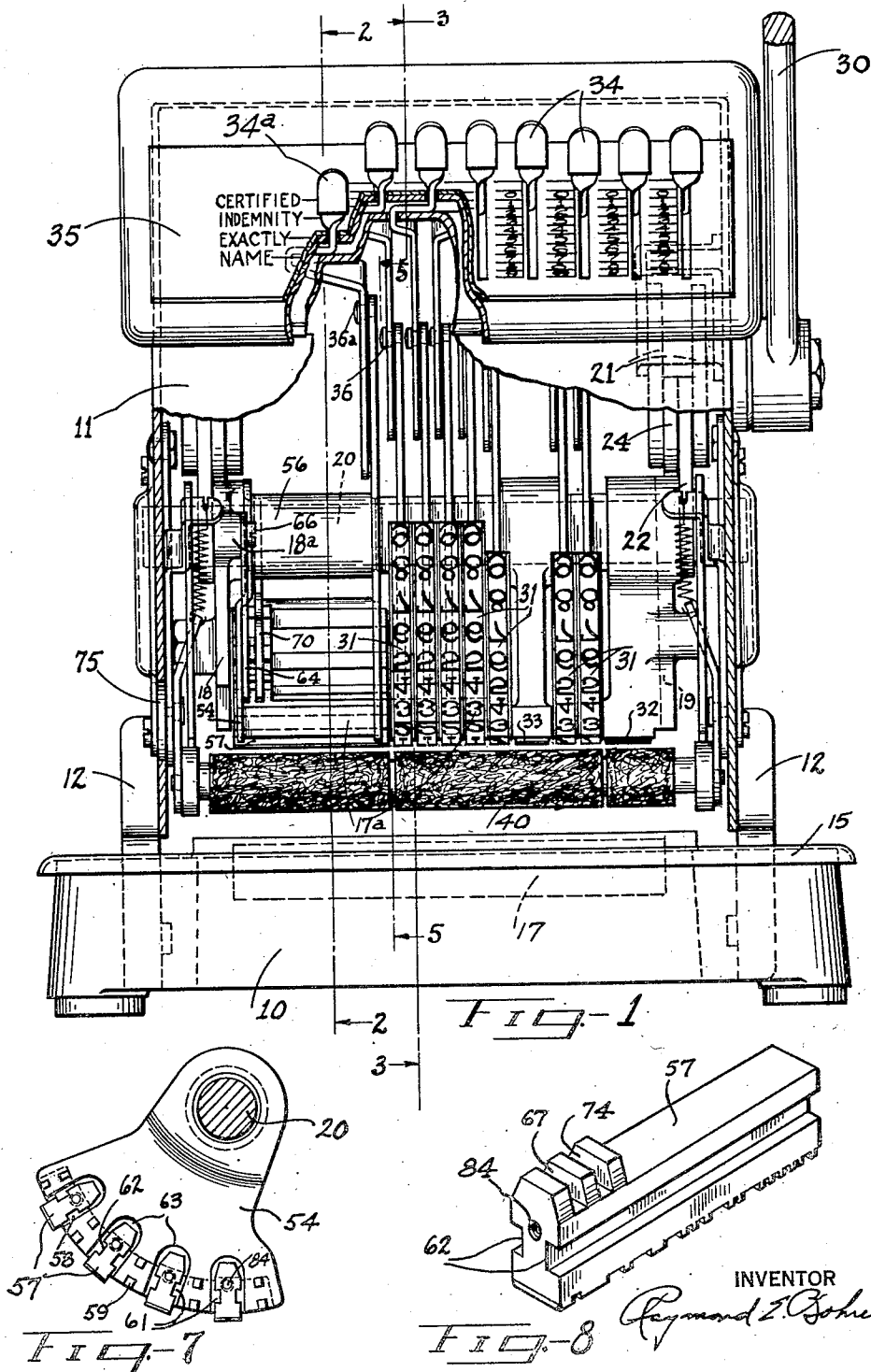
R. E. BOHRER

1,796,187

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Filed July 8, 1929

4 Sheets-Sheet 1



March 10, 1931.

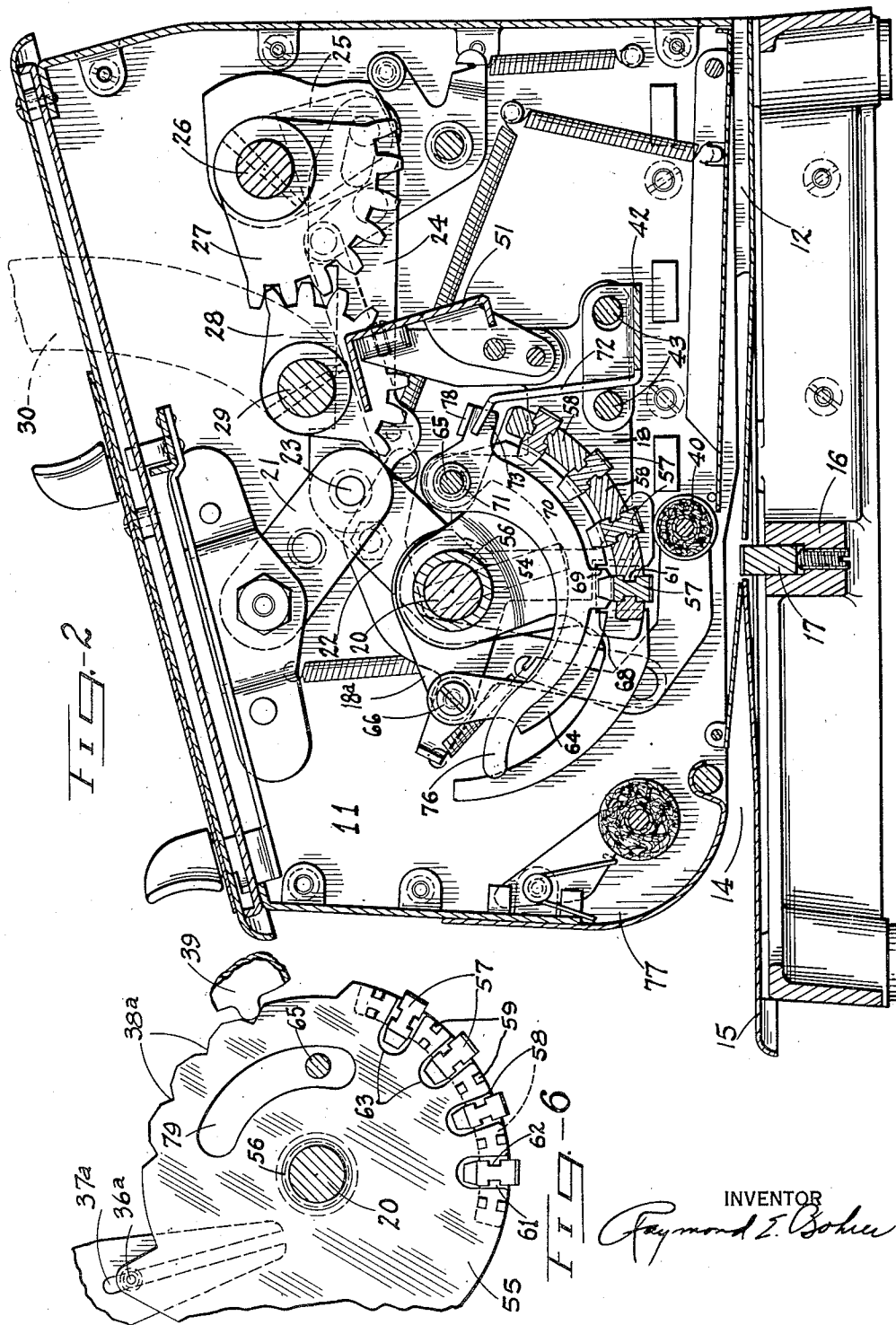
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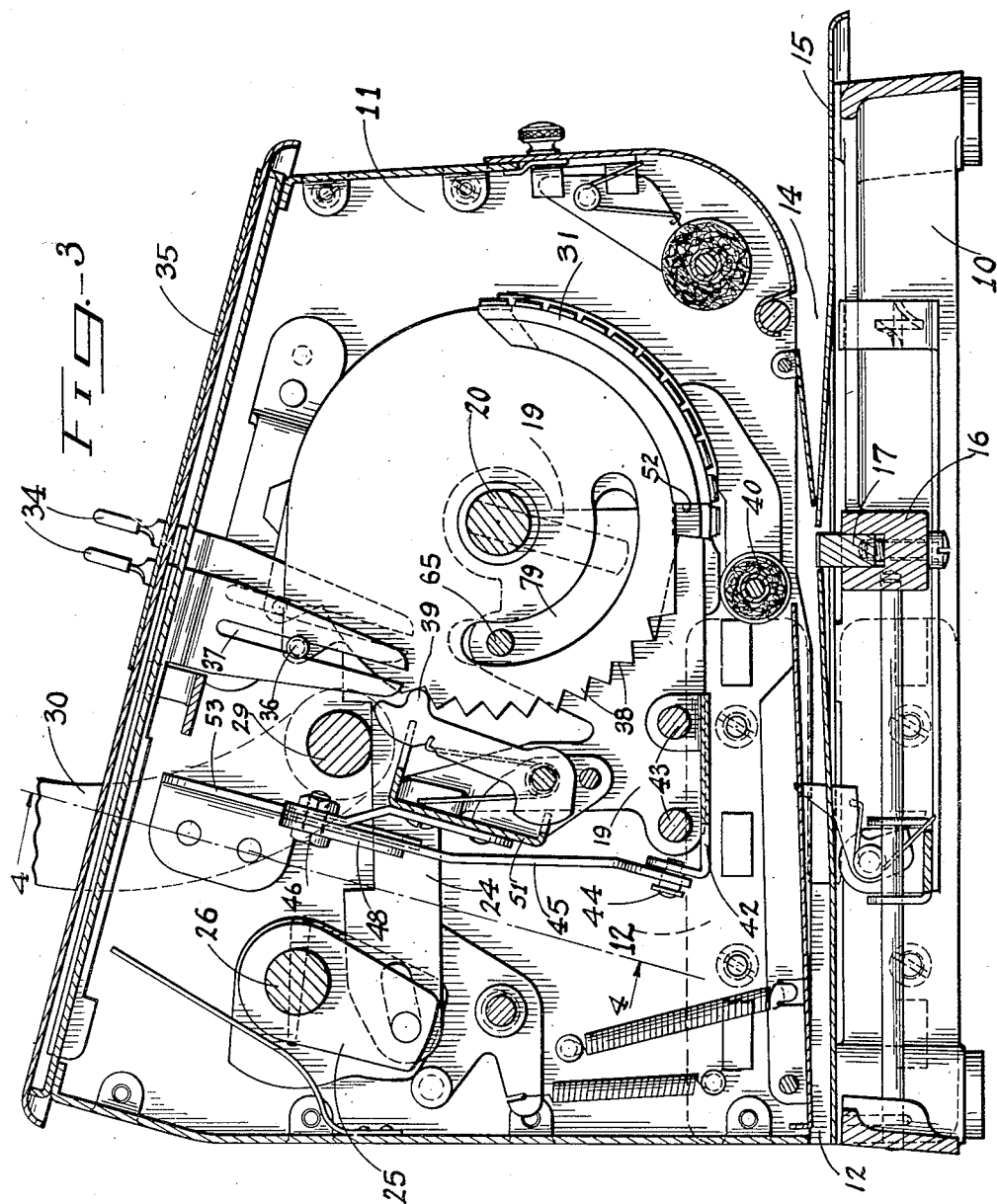
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INVENTOR

Raymond E. Bohrer

March 10, 1931.

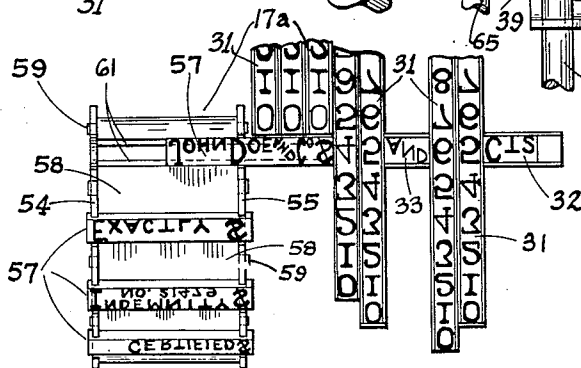
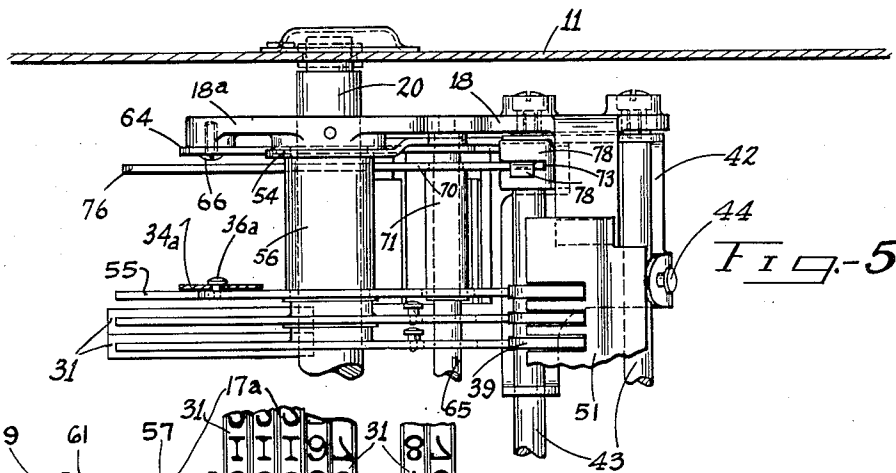
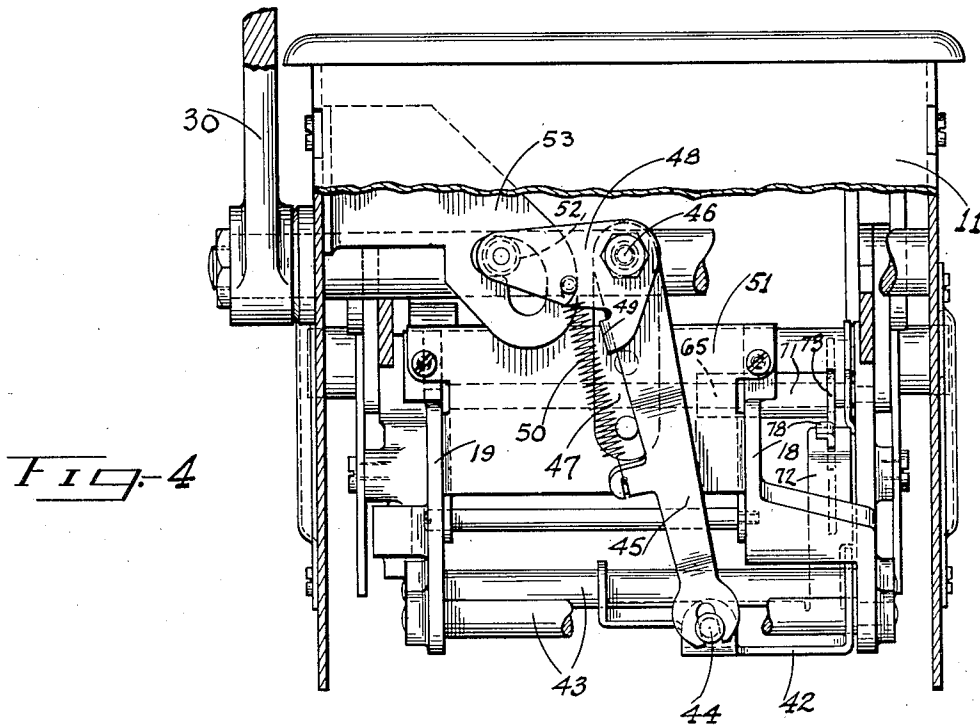
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4 Sheets-Sheet 4



INVENTOR
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UNITED STATES PATENT OFFICE

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CHECK WRITER

Application filed July 8, 1929. Serial No. 376,626.

This invention relates to printing apparatus and more particularly to apparatus of the character disclosed in the copending application of Raymond E. Bohrer et al, Serial No. 254,313 filed February 14, 1928.

One object of the invention is to provide an apparatus of the above character for printing a legend of variable length with simple and effective means for selectively printing any one of a plurality of initial or prefix words or characters in juxtaposed relation with the legend, regardless of the length or point of beginning of the latter.

Another object is to provide such a machine having a plurality of initial or prefix type characters with provision for selectively setting the same from the common setting means or keyboard employed in setting the types for the main legend to be printed.

Another object is to provide an improved mechanism of the character described above in which the initial or prefix characters may be individually removed from the machine for replacement or changed by the user, without disassembling the machine or returning it to the factory.

The invention is embodied, in the preferred form herein disclosed, by way of illustration, in conjunction with a printing machine of the known variety disclosed in the application for letter patent heretofore mentioned, so that but a brief description of the same is required for the present purposes.

In the drawings:

Fig. 1 is a front elevation of the machine with the casing partly broken away.

Fig. 2 is a side elevation taken approximately on the line 2—2 of Fig. 1.

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1.

Fig. 4 is a partial vertical section taken approximately on the line 4—4 of Fig. 3.

Fig. 5 is a plan view showing a portion of the type frame and parts thereof.

Fig. 6 is a side elevation of one side plate of the prefix type form carrier.

Fig. 7 is a side elevation of the other side plate of the prefix type form carrier.

Fig. 8 is a perspective view of one of the prefix type forms.

Fig. 9 is a view of the type as appearing when an amount has been set up and the selected prefix bar moved adjacent the digit type of the highest denomination to be printed.

The machine comprises a base 10 and an upper casing 11, connected by means of the side plates 12, Figs. 1 and 3. The opening 14 between the case and base provides for the insertion in the machine of checks or other commercial instruments which are placed on a suitable shelf 15. A platen bar 17 is adjustably mounted in the cross member 16 of the base 10.

The printing unit is generally shown at 17a, Figs. 1 and 9, and comprises a type unit carried between the side frames 18 and 19. These frames are suitably connected by means of shaft 20, tie rods 43 and the supporting plate 51. The shaft 20 upon which the type units are mounted, has flattened end portions which are guided in slots in the side plates of the casing, on either side thereof. This printing unit is adapted to be reciprocated to and from the platen in the printing operation of the machine. This action is imparted by means of the toggle links 21 and 22 connected at 23 and the link 24, extending to the rear of the machine and carried by a stud in the arm 25 which is pinned to the shaft 26, journaled in the casing. This shaft is actuated through the segments 27 and 28 by means of the rock shaft 29 upon which is mounted the operating handle 30. There is provided a similar toggle mechanism on each side of the printing unit.

The type unit comprises a plurality of digit type elements 31, each having on the periphery thereof digit type "0" to "9" inclusive. Provided at the extreme right of the type unit, referring to Fig. 1, is a word character form 32 for "cents", and another word character form 33 between the digit type elements for tens of cents and units of dollars, such as the word "and". These word characters 32 and 33 are fastened to the shaft and positioned at the printing line. The

type elements to the left of the units of dollars have a cut away portion 52 at a position which corresponds to a blank position on the dial plate 35.

5 The digit type elements 31 are carried on the shaft 20 and adapted to be rotated in the selection of the desired digit type to be positioned at the printing line. This movement of the type elements 31 is caused by the sliding of the selector 34, which is positioned opposite the desired corresponding digit on the dial plate 35, of the keyboard mounted on the top plate of the casing. The studs 36 carried by projecting portions of the type elements 31, engage the slots 37 provided in the sliders 34 and serve to give the adjustable connection with the type elements. Notches 38 are also provided on the periphery of the type elements 31. These notches are engaged by spring actuated pawls 39, which assist in properly centering and retaining the digit type elements in the proper position to which they are adjusted.

25 A prefix character form carrier is provided and included as part of the printing unit. Mounted in this carrier are a plurality of different prefix word or symbol forms 57, which are selectively adjustable from the common keyboard, in a manner similar to that of the digit type elements, so as to position a desired prefix form at the printing line of the machine. This selected prefix form is shifted to a position adjacent the digit type element of the highest order to be printed from, as will hereinafter be described.

35 A suitable ink roller 40 is actuated in the early part of the operation of the machine to sweep across the face of the type of the printing unit which is set at the printing line and to be printed from. The details of this mechanism are fully disclosed in the copending application heretofore mentioned.

The shifting means, Fig. 4, for the selected prefix form, which is positioned at the printing line and adapted to be shifted adjacent the digit type of the highest denomination to be printed from, comprises in part, a yoke 42, carried on the tie rods 43, connecting the frames 18 and 19. This yoke is suitably connected to the selected prefix form as will hereinafter be described in detail. The stud 44 on the yoke 42 engages in the forked end of the yielding arm 45, pivoted to a stud 46 carried by the extension 47, of the supporting plate 51. The arm 48, also pivoted on stud 46 is provided with a formed ear 49, cooperating with the side of the arm 45 and controls the relation of the two arms in one direction against the tension of the spring 50, connected there between. The arm 48 carries a roller 52 which engages the stationary cam 53 rigidly secured to one of the side plates of the casing. It will be seen that as the pivot 46 moves down with the printing unit the action of the roller 52 on the cam will tend to move the arm

45 through the spring 50, thereby shifting the yoke 42.

The prefix form carrier, Figs. 1, 2 and 5, is loosely mounted on the shaft 20, and comprises the plates 54 and 55 rigidly connected together by the collar 56. The plate 55 is provided with the stud 36a, engaging in the slot 37a of the slider 34a. The plate 55 is also provided with notches 38a, which perform the same function as the notches 38 of the elements 31. The carrier is adjusted through this plate 55 and the selecting slider 34a, to position one of the plurality of individual prefix forms 57, carried therein, at the printing line. There are corresponding indicia upon the dial plate 35, to which the slider 34a is positioned in the selecting of a desired prefix form.

The plates 54 and 55 as shown in Figs. 6 and 7, carry the prefix guide bars 58. These guide bars have projections 59, which are secured in suitable openings in the side plates. The guide bars 58, are provided with ribs 61, which engage in corresponding grooves 62 of the prefix forms 57, Fig. 8, and these prefix forms are adapted to slide freely in the guide bars 58. The plates 54 and 55 are also provided with recesses 63 to allow for the movement of the prefix form 57 in the carrier, or for entirely removing the same therefrom.

It is preferable to normally guide or retain the prefix forms in their proper position in the carrier, when the adjustment is made from one character to another, to position different characters at the printing line. The means provided for this purpose comprises the stationary guide plate 64, carried at one end by the cross rod 65 between the frames 18 and 19, and at 66 by an extending ear 18a of the frame 18. The arcuate surface of this plate engages in the groove 67 provided on the top of the prefix forms 57, Fig. 8, thereby retaining the forms in position as they are adjusted on either side of the printing line. At 68 the plate 64 is cut away so that the particular prefix form adjusted at the printing line of the machine is not engaged or under the control of this guide plate 64.

The prefix forms 57 are also provided with another groove 74, similar to the groove 67, and as a prefix form is adjusted to the printing position and passes out of control of the plate 64, it is normally engaged by the projection 69, of the shifting arm 70, entering in the groove 74. This arm is mounted on a tubular bearing 71, which is carried on the rod 65 and is adapted to be shifted on the rod by means of the shifting yoke 42. The arm 70 is provided with a portion 73 which engages in a slot provided in the upwardly extending portion 72 of the shifting yoke 42, thereby making a suitable connection between the shifting means and the prefix form positioned at the printing line.

It will now be seen that in the operation of the machine, as the printing unit is actuated toward the platen, the shifting mechanism, by the action of the stationary cam 53, will cause the yoke 42 and the prefix form, positioned at the printing line, to be shifted to a position adjacent the digit type element 31, of the highest order to be printed from.

Any one of the prefix forms 57 may be removed from the machine by adjusting the desired prefix form, to a position corresponding to that of the printing line in the machine. Each prefix form 57 is provided with a threaded portion 84, into which a suitable tool or instrument may be secured, to withdraw the prefix form from the carrier and out of the machine through an opening 75, provided in the side wall of the casing.

In order that the prefix form, positioned at the printing line of the machine, may be withdrawn it is necessary to withdraw the projection 69 of the arm 70 from the slot 74 of the prefix form. The arm 70 has a projecting portion 76, toward the front of the machine, which is easily accessible through the opening 77 in the front of the casing. The arm 70 and projection 69 are normally retained in position to engage the prefix form positioned at the printing line, by the action of gravity on the lever 70, or by a suitable spring not shown. The portion 73 of the arm 70 is provided with a formed ear 78 in order to limit the movement of the arm, when it is raised to withdraw the projection 69 from the prefix form, so as not to disconnect the arm from the sliding yoke 42.

The digit type elements 31 and the plate 55 are provided with elongated slots 79, to allow for clearance of the cross rod 65 and for the sliding movement of the tubular bearing 71, connected to the lever 70.

With the structure described in this specification, it is possible to make up a standard or uniform machine and subsequently insert the forms which may be desired by different purchasers. The machine provides for the forms being readily removed for cleaning or replacement, and for the insertion of additional forms by the user thereof, without disassembling the machine or returning it to the factory. The forms are selectively adjustable from a common keyboard and automatically shiftable adjacent the digit of the highest order selected for printing and set at the printing line.

I claim as my invention:

1. In a machine of the character described, the combination with a plurality of types movable, selectively, to a common printing position to form a type line of variable length, of a carrier having a plurality of type forms movably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing position, and means for moving a selected type form on said carrier toward

and from cooperative relation with said types.

2. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of guide means, a type form movable along each of said guide means, said carrier being movable to bring said type forms, selectively, to said printing line, and means for moving a selected type form along said guide means toward and from cooperative relation with said types.

3. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of type forms movably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing line, operating means for effecting a printing impression of said types, and mechanism actuated by said operating means for moving a selected type form on said carrier toward and from cooperative relation with said types.

4. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of guide means, a type form movable along each of said guide means, said carrier being movable to bring said type forms, selectively, to said printing line, operating means for effecting a printing impression of said types, and mechanism actuated by said operating means for moving a selected type form on said carrier toward and from cooperative relation with said types.

5. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of type forms movably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing line, operating means for effecting a printing impression of said types, a lever actuated by said operating means, a slide actuated by said lever, and a device associated with said slide for engaging each of said type forms brought to said printing line and moving the same toward and from cooperative relation with said types.

6. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of type forms movably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing line, retaining means for holding said type forms in position during movement of said carrier and arranged to release the selected type form brought to said printing line, operating means for effecting a

printing impression of said types, a member arranged for engagement with the selected type form by the movement of the latter to said printing line, and an actuating connection between said operating means and member for moving the latter and thereby moving said selected type form into cooperative relation with said types.

7. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of type forms movably and removably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing line, means for holding said type forms in position during movement of said carrier and having a release position to which any of said type forms may be brought for removal individually from the machine, and means for moving a selected type form on said carrier toward and from cooperative relation with said types.

8. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a carrier having a plurality of type forms movably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing line, a common setting mechanism for said types and type forms, operating means for effecting a printing impression of said types, and mechanism actuated by said operating means for moving a selected type form on said carrier toward and from juxtaposition to said selected type at the printing line.

9. In a machine of the character described, the combination with a plurality of types movable, selectively, to different locations along a common printing line, of a rotatable carrier having a plurality of type forms movably carried thereby for sliding axial adjustment thereon and for removal therefrom, said carrier being rotatable to bring said forms, selectively, to said printing line, a common setting mechanism for said types and type forms, operating means for effecting a printing impression of said types, means for holding said type forms in position during rotation of said carrier exclusive of the type form at said printing line, a member arranged for normal engagement with the selected type form by the movement of the latter to said printing line and having a release position permitting removal of said type form from the machine, and an actuating connection between said operating means and member for moving the selected type form to and from juxtaposition to said selected types at the printing line.

10. In a machine of the class described, the combination with a plurality of movable digit type members, of a carrier comprising

supporting plates and a plurality of spaced guide bars mounted therein, a plurality of type forms movably carried by the guide bars of the carrier; a common keyboard provided with mechanism for selectively positioning said digit type members and said type form carrier to bring the desired type to the printing line, and shifting means for moving the selected type form of the carrier adjacent the selected digit type elements of the highest order set at the printing line.

11. In a machine of the class described, the combination with a plurality of types movable, selectively, to a common printing position to form a type line of variable length, of a carrier having a plurality of type forms movably supported thereon, said carrier being movable to bring said type forms, selectively, to said printing position, guide means comprising a plate adapted to engage said type forms and guide them in the carrier, said plate being cut away to release the selected type form adjusted to the printing line, shifting means for moving a selected type form on the carrier toward and from the selected type of highest denomination set at the printing line, said shifting means normally engaging and controlling said selected type form at the printing line and adapted to be withdrawn to release and allow said form to be withdrawn from the carrier and the machine.

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