

March 17, 1936.

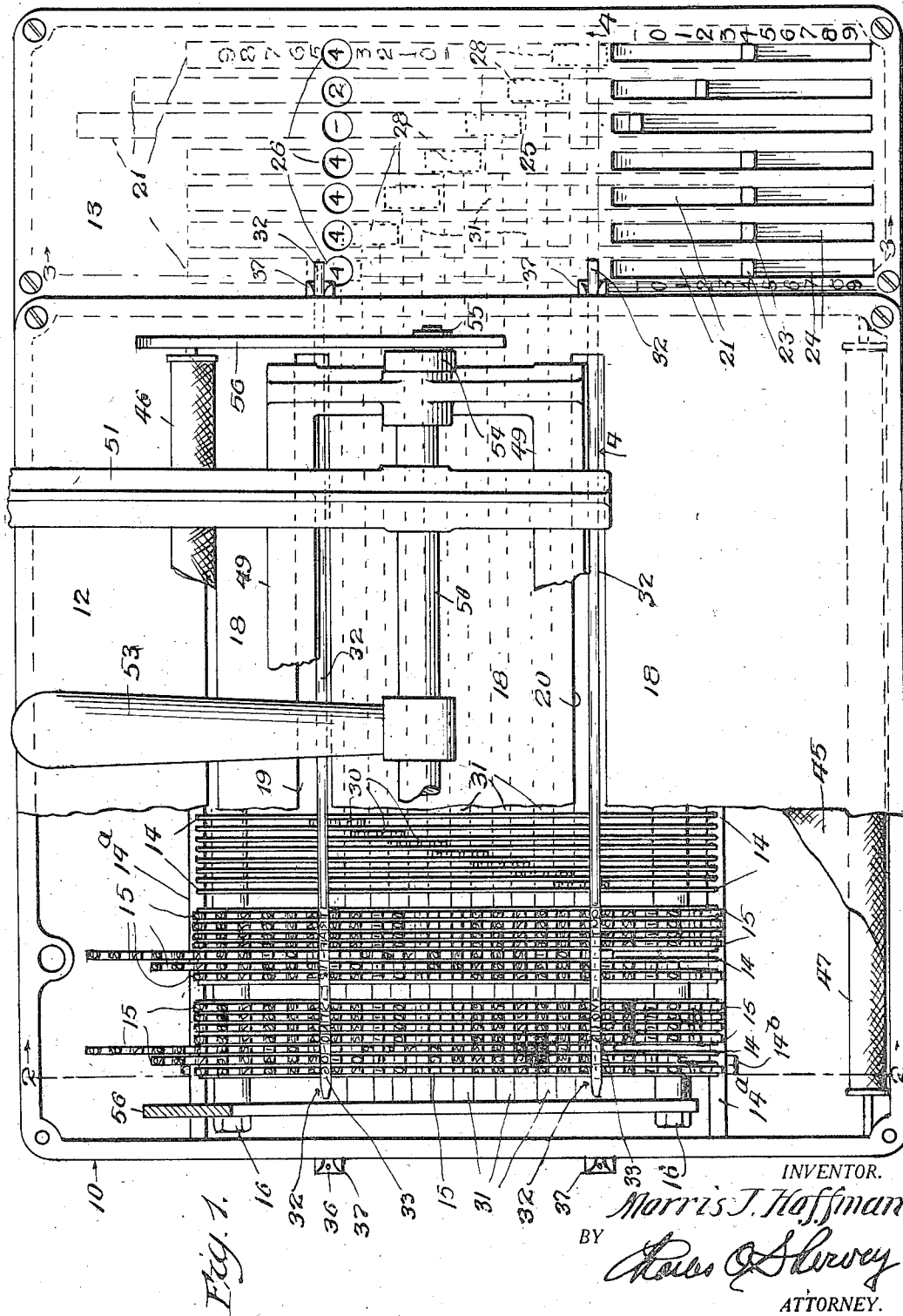
M. J. HOFFMAN

2,033,936

TICKET PRINTING MACHINE

Filed May 7, 1934

3 Sheets-Sheet 1



March 17, 1936.

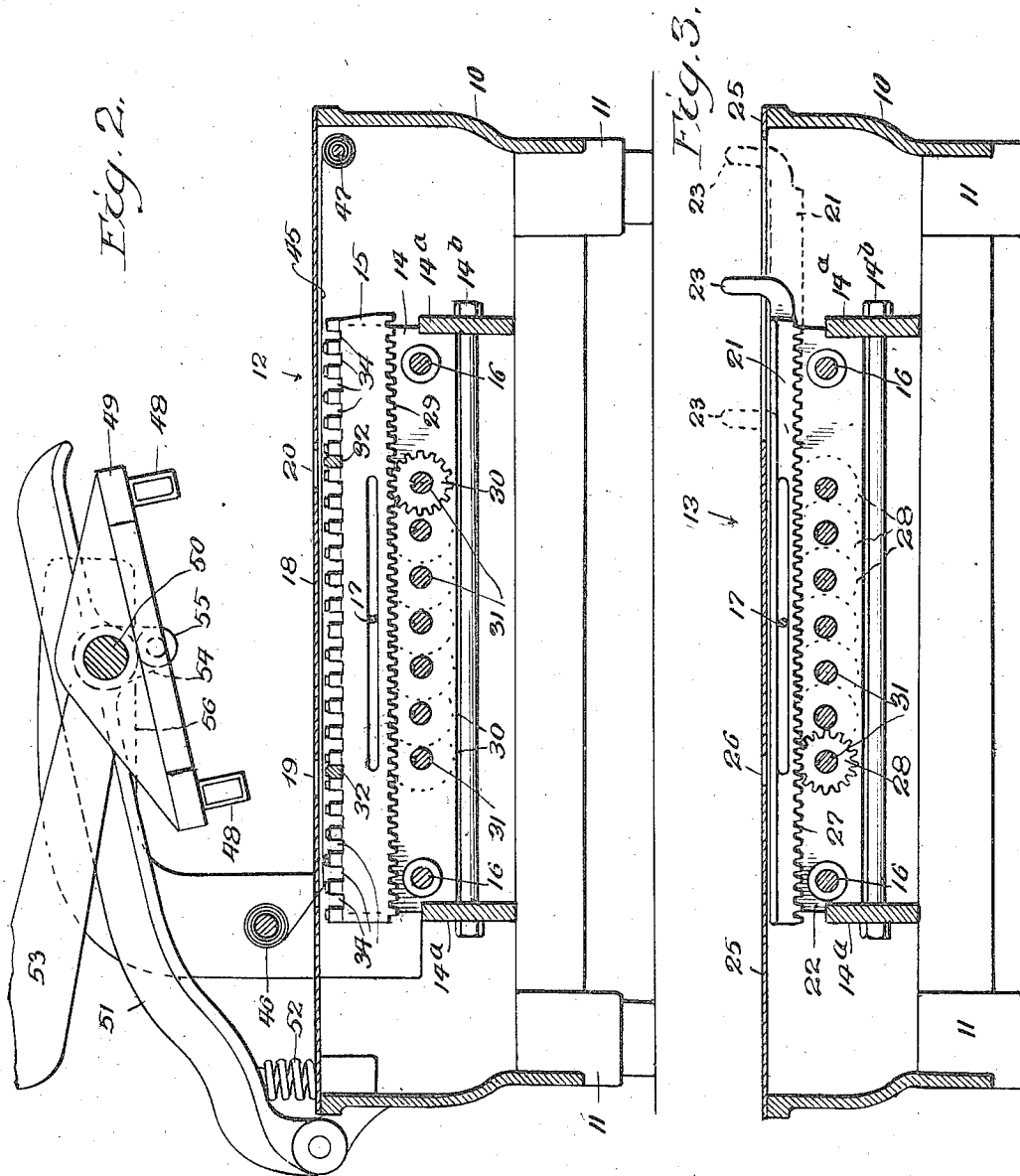
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TICKET PRINTING MACHINE

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3 Sheets-Sheet 2



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TICKET PRINTING MACHINE

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3 Sheets-Sheet 3

Fig. 5.

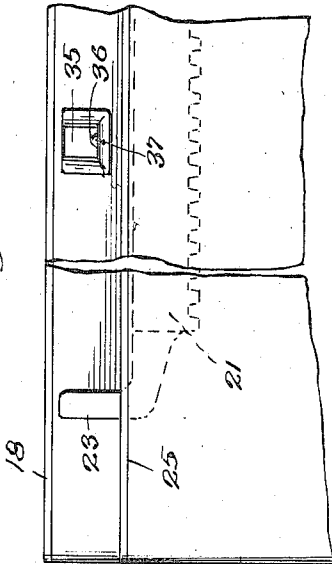


Fig. 10.

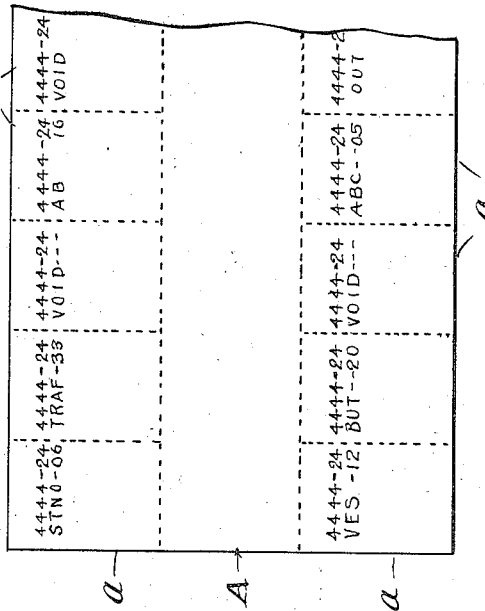


Fig. 4.

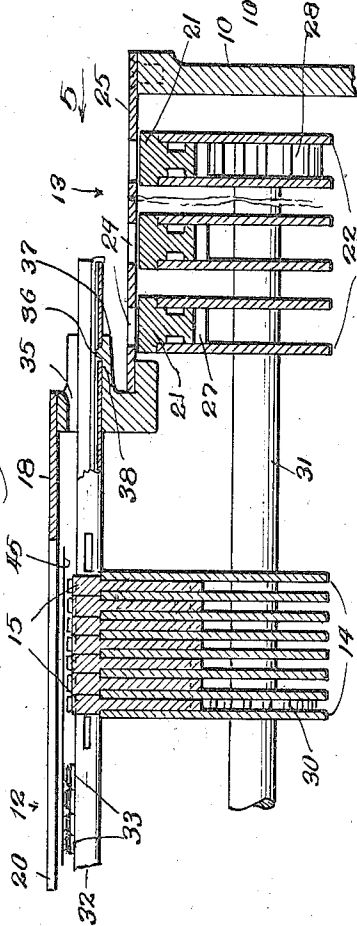


Fig. 6.

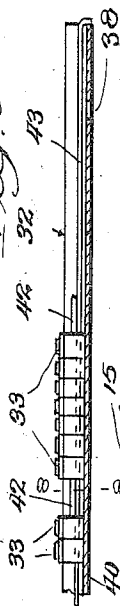


Fig. 7.

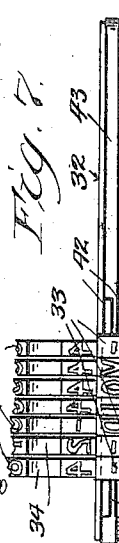


Fig. 8.

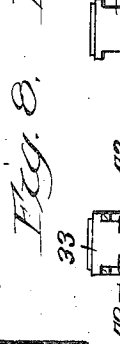
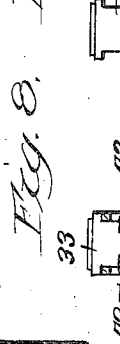


Fig. 9.



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TICKET PRINTING MACHINE

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Application May 7, 1934, Serial No. 724,233

11 Claims. (Cl. 101—96)

This invention relates to ticket printing machines and its principal object is to increase the efficiency of machines of this class. Another object is to provide auxiliary printing bars in which type, plates or slugs for printing desired information may be set, for use in connection with settable type bars, having series of type faces, any selected ones of which may be brought into printing position so as to print one or more lines, all being arranged so that the type bars and auxiliary printing bars print two closely spaced lines of information along one or more places on a coupon ticket or other card or sheet.

In printing machines where settable type bars are employed, setting mechanism is used for setting the type bars, such mechanism, including pinions and rack teeth. Inasmuch as there is always some play between the teeth of the pinions and racks, it was always likely that the type faces did not align perfectly, and one object of this invention is to provide notches in the type bars through which an auxiliary printing bar is inserted transversely of the type bars, whereby to align the type faces thereof perfectly, so that they print along a straight line.

This invention has particular reference to ticket printing machines, which are used to print information upon coupon tickets relative to workmen's wages in connection with articles upon which they perform labor—information such as the job number of a lot of articles; the number of articles in the lot; the names of the operations performed on the articles, and the prices paid for the work. The coupons are relatively small, often necessitating the printing of the information in two lines on each coupon, and usually two rows of coupons are provided on each ticket, which makes it necessary to print in two lines along each row of tickets, making four printed lines on a ticket. Ordinarily one line along each row of coupons is printed at one time, consequently two operations were required to print two lines in each row of coupons. In certain ticket printing machines, groups of type bars are employed which have type faces disposed along one edge of each bar, and the bars are adjusted to bring the desired type faces thereof into printing position, after which the impressions were made on the tickets. For printing additional information, the type bars had to be reset and a second impression made.

In accordance with the present invention, I employ groups of settable type bars for printing one line on both rows of coupons and I provide auxiliary type bars or printing bars for printing

a second line close to each line printed by the type bars, which auxiliary type bars or printing bars are received in notches or depressions located between the type faces of the settable type bars and supported with the type faces thereof in the same plane as the type faces of the settable type bars, whereby with one impression two adjacent lines of information are printed simultaneously on each row of coupons.

The invention consists therefore in a ticket printing machine having settable type bars provided with notches between the type faces adapted to receive auxiliary type bars, or printing bars, placed at right angles to the settable type bars and held in said notches with their type faces in the same plane as the type faces of the settable type bars, whereby two closely spaced lines of information may be simultaneously printed on each row of coupons of a ticket. The invention further consists in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the drawings accompanying specification in which:

Fig. 1 is a plan, partly broken out, of a ticket printing machine, embodying a simple form of the present invention;

Fig. 2 is a vertical cross-section taken on the line 2—2 of Fig. 1;

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

Fig. 4 is a detail fragmental longitudinal section taken on the line 4—4 of Fig. 1;

Fig. 5 is a detail fragmental side elevation looking in the direction of the arrow 5 in Fig. 4;

Fig. 6 is a detail fragmental longitudinal section through a fragment of one of the auxiliary printing bars;

Fig. 7 is a plan of fragments of a group of type bars with an auxiliary printing bar inserted into the notches thereof;

Fig. 8 is an enlarged detail vertical cross-section taken on the line 8—8 of Fig. 6;

Fig. 9 is a detail side elevation of one of the type used in the auxiliary printing bars, and

Fig. 10 is a fragmental face view of a coupon ticket illustrating data printed by the machine.

Referring to said drawings, which illustrate one embodiment of the invention, the reference character 10 designates a rectangular hollow base provided with legs 11 at its corners. The base comprises a main section 12 in which the printing members are housed, and an extension 13 at one end thereof, the top of which is desirably depressed or located at a slightly lower level than the top of the main section.

Rigidly supported in the main section of the base are a multiplicity of suitably spaced, parallel, transversely extending guide strips 14, arranged in groups, and forming the supports and guide-ways for a multiplicity of settable type bars 15 arranged in groups in the guideways. Two groups of type bars 15 are shown at the left hand of Fig. 1, a third group being omitted to show the guide strips 14. The type bars are formed with shouldered portions adjacent their upper edges (see Fig. 4) that rest upon and slide upon the upper edges of the guide strips. The guide strips are spaced apart by washers and tied together by tie bolts 16 which pass through the strips and washers and have nuts on their ends that clamp the assembled guide strips together. The guide strips rest upon and are clamped between supporting bars 14^a by tie rods 14^b. The supporting bars are fastened to the base in any suitable manner. Tie rods 17 extend through the assembly and through slots in the type bars and prevent them from becoming unseated.

The groups of type bars are spaced apart sufficiently to enable each group of type bars to print data upon each coupon.

Upon the upper edge of each type bar are two series of type faces of any desirable sequence, the one shown being a dash and the numerals 0 to 9 inclusive, but this is only suggested for the purpose of illustration. Seven type bars are shown in each group, but this is only suggested as any desired number of type bars may be employed in each group. Above the type bars a top plate 18 is fastened to the upper edge of the base, and in said top plate are two parallel spaced slots 19, 20, extending lengthwise of the machine through which type faces are exposed when in printing position.

Setting means are provided for setting the type bars into printing position, and the setting means illustrated comprises a series of setting bars 21 slidably mounted on guide strips 22 mounted in the extension 13 of the base. The setting bars 21 have upstanding fingers 23 at their forward ends which extend up through slots 24 that are formed in a top plate 25 fastened to the upper edge of the base extension. On the upper faces of the setting bars 21 are characters corresponding with and arranged in the same sequence as the characters on the type bars, and sight apertures 26 are formed in the top plate 25 through which said characters are visible. The character on each setting bar, which is visible through the sight aperture, indicates the type characters of the associated type bars which are in printing position below the slots in the top plate.

On the lower edges of each setting bar 21 are rack teeth 27 with which mesh pinions 28, and on the lower edges of the type bars are similar rack teeth 29 which mesh pinions 30. The pinions are rigidly mounted on shafts 31 which extend through the guide strips and are rotatively mounted therein. There is one shaft for each setting bar and they are arranged side by side below the setting bars and type bars. The several groups of type bars are intended to print the same selected data on each coupon in both rows of coupons *a* of a ticket A (see Fig. 10) and therefore the rack teeth on the correspondingly located type bars of all of the groups, mesh with pinions 30 on an associated shaft 31, and the pinion 28 on said particular shaft meshes with the rack teeth 27 of the setting bar 21 which is associated with the corresponding type bars in the groups, so that when a selected setting bar is

moved forwards or backwards, all of the corresponding type bars of all of the groups are correspondingly moved forwards or backwards as the case may be, and by observing the characters on the setting bars as they appear through the sight apertures, the attendant can readily adjust the corresponding type bars of each group to selected printing position. For convenience, characters similar to those on the setting bars and type bars are placed on the top plate 25 adjacent the slots as a guide to the attendant when setting the type bars to printing position. As an example, wishing to print the notation "4444—24" on all of the coupons, the attendant moves the several setting bars until "4444—24" appears through the sight openings 26.

In order to print additional information simultaneously with the printing of the selected data, I have provided auxiliary printing bars or type bars 32, which may be stored in a convenient place and which may be readily inserted into the machine in printing position to print lines of data close to the lines of data printed by the type bars. The printing bars 32 contain set type, plates or the like 33 (see Figs. 6 to 9 inclusive) located therein at definite places so as to print directly below or above the lines printed by the type bars. To enable the printing bars to be positioned in the machine with their type faces in the same plane as the type faces of the type bars, notches 34 are provided in the upper edges of the type bars between the type faces thereof, adapted to receive printing bars adjacent the type faces of the type bars that are in printing position. To facilitate the insertion of the printing bars into said notches, openings 35 are formed in the sides of the base in alignment with the aligned notches that are adjacent the type faces that are in printing position. It is to be understood that the data which it is desired to print in connection with the data printed by the type bars, is set up in the printing bars and locked therein, and said printing bars are then inserted through the openings 35 into the notches of the type bars. A lug 36 located on a lip 37 outside the opening 35 engages in an aperture 38 in the printing bar and holds the latter in its proper place when inserted.

From the above it will be understood that the type faces of the type bars which have been adjusted to printing position, print in two widely spaced lines, that is, in one line in each row of coupons, and when the printing bars are used, they print in two widely spaced lines, close to and below the two lines printed by the type bars, all of the printing being done while making one impression. Desirably the notches in the type bars are slightly deeper than the printing bars and the upper edges of the guide strips form the support for the printing bars.

The exact construction of the printing bars is immaterial to the invention, broadly considered, and the one shown has been taken for the purposes of illustration only. A channel bar 40 is used to hold the type 33 in line and desirably lugs 42 are struck inward from the sides of the channel bar at places to correspond with the spaces between the groups of type bars. The individual data, which is to be printed in connection with the data printed by the type bars, is set up in the spaces between the lugs 42 and is locked in the channel bar by a long pin or strip 43 which is inserted endwise into the channel bar and through notches 44 formed in the type directly below the lugs. Obviously any equivalent means may be

provided for locking the type or other printing plates or slugs in the channel bar.

An inked ribbon 45 wound on spools 46, 47, is held between the type bars and top plate 18 and two impression bars 48 carried above the top plate are provided for making the impression on the ticket or other card or sheet. Conveniently the impression bars are mounted on an impression plate 49 carried by a rod 50 which is mounted in arms 51, hinged at the rear of the base and spring pressed upwardly by springs 52. A handle 53 fast on the rod 50 and crank arms 54 on the ends of the rod, together with rollers 55 on the crank arms and tracks 56 stationarily mounted in the base provide means for depressing the impression bars and making the impression. By pulling the handle forward the rod is turned, the crank arms swung upward pressing the rollers against the lower edges of the rails, causing the rod and therewith the head and impression bars to move downward.

To print the data on a ticket the latter is laid upon the top plate 18 and the handle drawn forward until the impression bars force the ticket down upon the inked ribbon, and the ribbon upon the type faces of the type bars and printing bars.

In the operation of the machine the setting bars 21 are adjusted to bring the desired characters into view through the sight openings 26. Movement of a setting bar rotates the pinion 28, shaft 31 and pinions 30 associated therewith, and said pinions 30 move the associated type bars 15 bringing into printing position below the slots 19, 20 (see Fig. 2) the type faces thereof, that correspond with the character, which is visible through the sight aperture.

Auxiliary printing bars for printing the desired data in lines adjacent the lines printed by the type bars are then inserted through the openings 35 in the base and slid into the notches of the type bars, adjacent the type faces which have been brought into printing position.

In this position two rows of type faces of the type bars and the two rows of type faces of the auxiliary printing bars are located below the slots 19, 20 in printing position. In case the type faces are slightly out of alignment, the auxiliary printing bars align them when inserted into the notches. Tickets or other cards or sheets are then printed as above explained and when the desired number have been printed, the machine may again be set for printing other data upon another set of tickets and so on indefinitely.

More or less variation of the exact details of construction is possible without departing from the spirit of this invention; I desire, therefore, not to limit myself to the exact form of the construction shown and described, but intend, in the following claims to point out all of the invention disclosed herein.

I claim as new and desire to secure by Letters Patent:

1. In a printing machine, the combination with a group of settable type bars, each having a series of type faces thereon with notches therebetween, of an auxiliary printing bar having type faces thereon, said printing bar being adapted for insertion into aligned notches of the type bars so as to extend transversely thereof, with its type faces in the same plane as the type faces of the type bars.

2. In a printing machine, the combination with several groups of settable type bars, each bar having a series of type faces thereon with notches therebetween, and setting means for simultane-

ously setting the corresponding type bars of each group into similar printing position, of an auxiliary printing bar having groups of printing elements set therein for printing in association with the groups of type bars, said auxiliary printing bar being adapted for insertion into aligned notches of the type bars so as to extend transversely thereof with its type faces in the same plane as the type faces of the type bars.

3. In a printing machine, the combination with several groups of settable type bars, each having a series of type faces thereon with notches therebetween, and setting means for simultaneously setting the corresponding type bars of each group into similar printing position, of an auxiliary printing bar having groups of type set therein for printing items in association with those printed by the type bars, said auxiliary printing bar being adapted for insertion into the aligned notches of the type bars adjacent the type faces thereof which are in printing position, with the type faces of the printing bar in the same plane as the type faces of the type bars.

4. In a printing machine, the combination with several groups of similar settable type bars, each having a series of type faces thereon with notches therebetween, and setting means for simultaneously setting the corresponding type bars of each group into similar printing position, whereby to print several similar items in a straight line, of an auxiliary printing bar having groups of type set therein for printing items in association with those printed by the type bars, said auxiliary printing bar being adapted for insertion into the aligned notches of the type bars adjacent the type faces thereof which are in printing position, with the type faces of the printing bar in the same plane as the type faces of the type bars.

5. In a printing machine, the combination with groups of similar settable type bars having series of similar type faces thereon, with notches therebetween, and setting means for setting the corresponding type bars of the several groups to print several similar items in a straight line, of an auxiliary printing bar having changeable printing elements therein for printing data individual to the several items printed by the type bars, said auxiliary printing bar being adapted for insertion in aligned notches adjacent the type faces of the type bars that are in printing position, with the type faces of the auxiliary printing bar in the same plane as the type faces of the type bars.

6. In a printing machine, the combination with a base, groups of similar settable type bars, slidably mounted therein, said type bars having similar series of type faces thereon with notches therebetween, setting means for said type bars, and there being an opening in the base in alignment with the notches of the type bars adjacent the type faces thereof that are in printing position, of an auxiliary printing bar having printing elements therein for printing in association with the several items printed by the type bars, said auxiliary printing bar being insertable through said opening in the base into said aligned notches in the type bars with the type faces of the auxiliary bar in the same plane as the type faces of the type bars.

7. In a printing machine, the combination with groups of similar settable type bars, each type bar having two similar series of type faces with notches between the type faces, and setting means for said type bars, of two auxiliary printing bars having settable printing elements for

printing various data in connection with the data printed by the type bars, said auxiliary printing bars being insertable into two sets of aligned notches in the type bars with the type faces thereof in the same plane as the type faces of the type bars.

8. In a printing machine, the combination with similar settable type bars, arranged side by side in groups, and each having a series of type faces arranged along its length, with notches therebetween, of an auxiliary printing bar extending at right angles to the type bars and removably held in aligned notches in the type bars, said auxiliary printing bar having type set therein and adapted to print adjacent the items printed by the type bars.

9. In a printing machine, the combination with a group of parallel settable type bars having type faces on one edge spaced by notches, of an auxiliary printing bar having type faces thereon and

insertable into notches in the type bars whereby to align said notches and type faces of the type bars.

10. In a printing machine, the combination with guide strips, type bars slidably mounted thereon and having type faces spaced by notches along their upper edges, of auxiliary printing bars insertable into said notches and seated upon said guide bars, said auxiliary printing bars having type faces located in the same plane as the type faces of the type bars.

11. In a printing machine the combination with a group of settable type bars having type faces thereon with spaces therebetween, of an auxiliary printing bar having type faces thereon, said printing bar intersecting the type bars through any selected spaces, with the type faces of the type bars located in the same plane as the type faces of the printing bar.

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