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PRINTING MECHANISM

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FIG.1.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	8	7	5	1	8	6	5	3	4	2	4	6	2	1	8	0	5	6	
1	2	0	0	7	9	3	2	8	7	6	9	0	0	3	2	1	1	4	

FIG.2.

3	8	7	5	1	8	6	5	3	4	2	4	6	2	1
1	2	0	0	7	9	3	2	8	7	6	9	0	0	3

FIG.3.

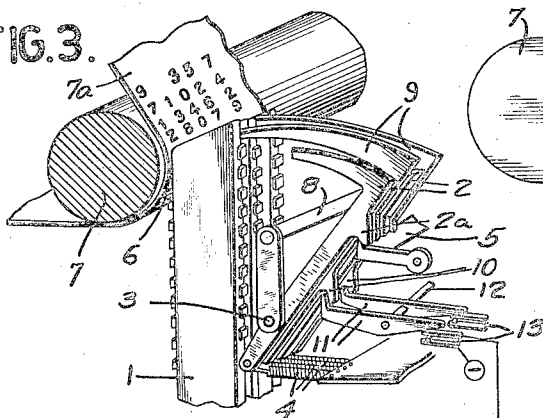


FIG.4.

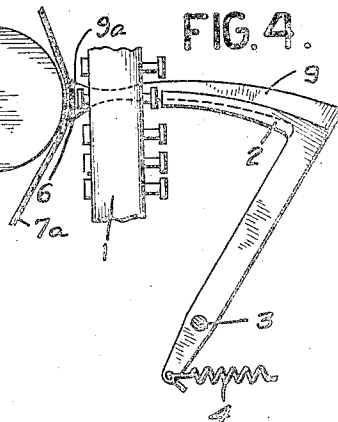
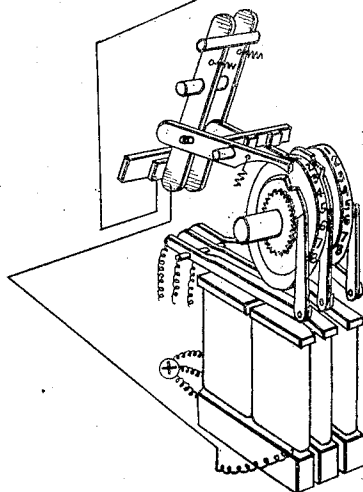


FIG.5.



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PRINTING MECHANISM

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Application July 30, 1929, Serial No. 382,215, and in Austria August 23, 1929

5 Claims. (Cl. 235—58)

My invention relates to printing mechanisms such as are used for tabulating machines, calculating machines and the like and has particular reference to the construction of the printing mechanism in such a manner, that the printed letters or numbers appear subdivided into columns by lines drawn to correspond to the character of the letters or numbers.

This result is obtained according to the invention by providing ruling members at the printing mechanism which cooperate with the other elements of the printing mechanism and which may selectively be actuated to draw lines for the purpose of subdividing the printed letters or numbers in columns.

The advantage of the invention is particularly obvious in connection with calculating machines and tabulating machines having a subdivided counting- and printing mechanism, as by means of the invention it is possible to provide a clearly arranged subdivision of the printed numbers in columns, without it being necessary to sacrifice printing digits of the printing mechanism at the points of subdivision.

In the accompanying drawing Figures 1 and 2 illustrate the result obtained by the use of the device, wherein it has been assumed that the machine is provided with a twenty-digit-printing mechanism and the numbers are to be printed in columns each containing four digits. As will be seen from Figure 1 a clearly arranged separation of the columns is obtained by means of the device according to the invention and yet all printing digits may be used, whereas, if the subdivisions of the columns are made clearly visible by separating the numbers from each other, four printing digits are lost as shown in Figure 2, so that in the same space only four instead of five columns may be provided. Figure 3 is a perspective of the device according to the invention; Figure 4 shows a side elevation of same and Figure 5 illustrates a detail.

Associated with each type carrier 1 is a hammer 2 pivotally arranged upon the shaft 3 and controlled by a spring 4. Each hammer 2 is provided with a nose or projection 2a cooperating with a rail 5 to hold the hammer in the position of rest. In the movement of printing the hammer is released, so that the type may be struck against the inking ribbon 6 and the platen 7 arranged behind the ribbon and serving to carry the paper web 7a. After striking the type, the hammers are returned to their original position by means of a tension rail 8. Associated with these usual elements of the printing mechanism are other ham-

mers 9 one for each digit of the printing mechanism. These hammers also are under the influence of the springs 4 and are pivotally arranged upon the shaft 3. The head 9a of each of these hammers 9 is enlarged and shaped to correspond to the curvature of the platen 7. The heads 9a are, as will be seen from Figure 5, serrated and extend between each two adjacent type carriers, so that they may be struck against the inking ribbon and the platen, to print dotted lines between the numbers printed by adjacent types.

In contradistinction to the hammers 2 each hammer 9 is provided with two noses. One of these noses is arranged in a manner analogous to the arrangement of the noses 2a of the hammers 2 and extends into the path of the holding rail 5, while the second nose 10 is arranged opposite to a pawl 11 provided with a handle 13. All the pawls 11 are pivotally arranged upon a shaft 12 and each pawl 11 may individually be moved in any manner, for instance, by hand. By selective engagement or disengagement of a pawl 11, the movement of the corresponding hammer 9 and therefore the ruling action of the same may be prevented or this hammer 9 may be released to print a subdivision line upon the paper web 7a.

The adjustment of the pawl 11 may, of course, also be effected in one operation with the adjustments necessary for the subdivision of the counting- and printing mechanism. For this purpose the pawl 11 may, for instance, be mechanically connected to the tens transfer elements of the corresponding digits of the counting mechanism in such a manner, that, simultaneously with a movement of the pawl 11 to release the nose 10, the tens transfer elements are made ineffective. In counting mechanisms having electrical tens transfer means a contact, interrupting the circuit of the tens transfer means, may be opened, for instance, by the shifting of the pawl 11.

One form of electrical transfer mechanism which may be combined with the present invention is illustrated in the British patent to Tauschek 289055, the details of which are shown in Fig. 3.

Of course, the printing effect of the ruling members may be obtained in another manner than by the striking of hammers against an inking ribbon. Instead of the hammers 9 any other ink supplying devices, for instance, ruling pens, pencil mines, ink blowing devices and the like, may be used.

What I claim is:

1. In a tabulating or like machine, electrical

- tens transfer devices between adjacent accumulator elements, line printing members between denominational printing elements, electrical contacts for controlling the related order of said transfer devices and a single means selectively shifted to operate said contacts to disable the related transfer device and to cause the selection of the related line printing member for a printing operation.
- 10 2. In combination, an electrical transfer mechanism for an accumulator including a series of electrical contacts, each for controlling a point of split, a series of line printing members, and a plurality of single means one for each denominational order and each for rendering a line printing member effective and concomitantly opening the related electrical contacts at the point of split.
- 15 3. In a computing machine, a pivoted line printing member arranged intermediate printing bars of a printing mechanism, a member having connections for restraining the pivotal movement of the line printing member, and a transfer mechanism having electric contacts for controlling
- 20 the transfer devices between successive denominational orders, said restraining member having means adapted when shifted to cause the opening of said contacts and the release of the line printing member.
- 25 4. In a computing machine, a transfer mechanism including electrical contacts comprising a transfer split device, a related line printing member normally restrained against movement, and a single member adapted, in one position, to cause the line printing member to be restrained and said contacts closed, and in an alternate position to cause the releasing of the line printing member and concomitantly the opening of said contacts.
- 30 5. In a computing machine, a transfer mechanism including electrical contacts comprising a transfer split device, a related line printing member, means comprising a hook engaging the line printing member to restrain it from operation, and a single means whereby in one position of said means said hook is shifted to release the line printing member and said contacts are opened and in another position of said means said hook engages the line printing member and causes the electrical contacts to be closed.
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