July 11, 1939. M. GARBELL 2,165,923

RECTIFYING MEANS FOR PRINTING MECHANISM

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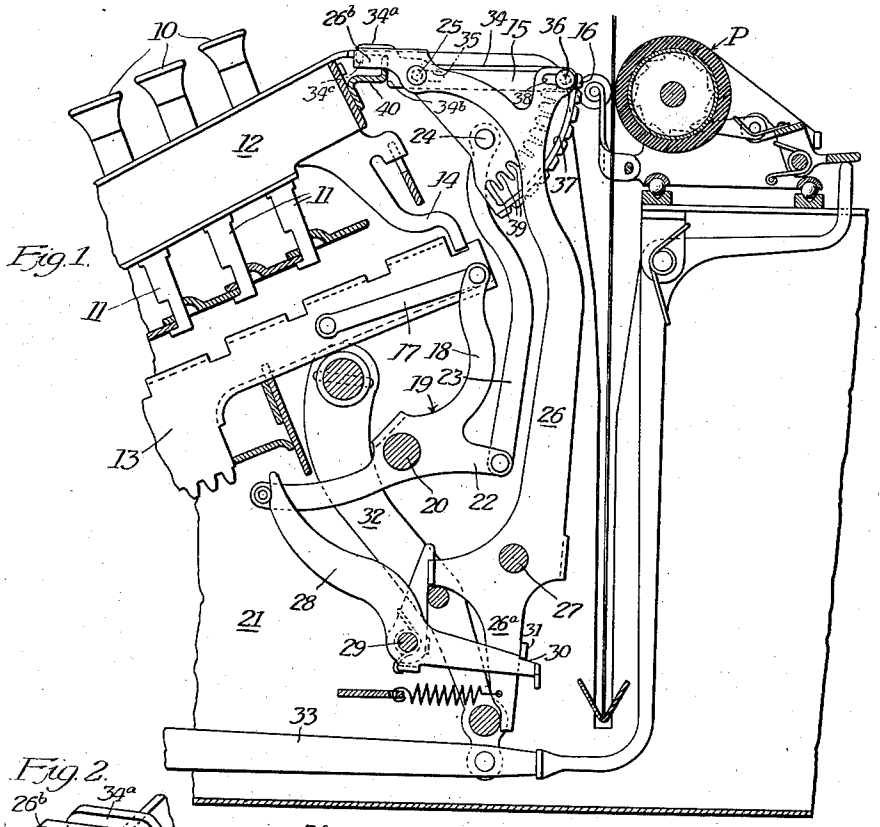


Fig. 1.

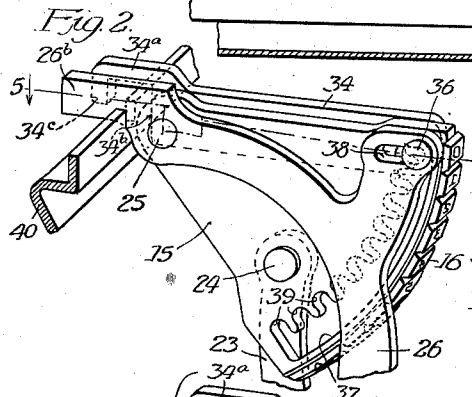


Fig. 2.

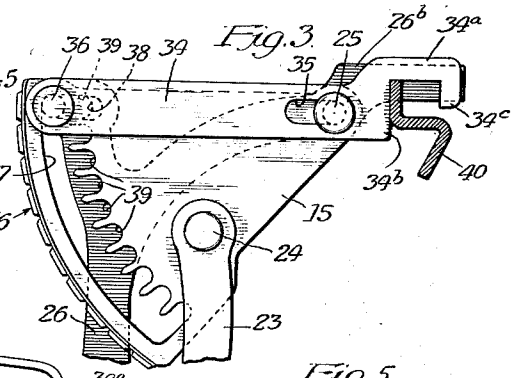


Fig. 3.

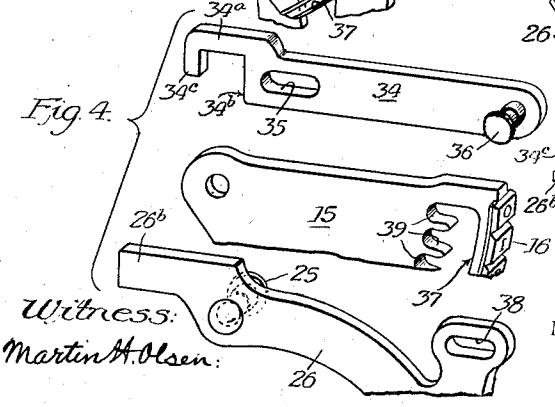


Fig. 4.

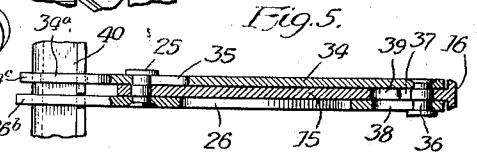


Fig. 5.

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RECTIFYING MEANS FOR PRINTING MECHANISM

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Application April 2, 1936, Serial No. 72,286

7 Claims. (Cl. 101—93)

This invention relates to improvements in printing mechanism and is more particularly directed to means coacting with the individual printing members to rectify the same when actuated to coact with a platen.

Heretofore, various types of rectifying means for printing units have been employed, which have been actuated by the operating mechanism of the machine to be positioned to simultaneously guide all of the printing units at the same time. With this method, the rectifying means is actuated for all of the printing units including those which are not to be operated, and should a misalignment of one of the units with the rectifying means occur, it would disable the function of the rectifying means to effect the proper guiding of the remaining printing units to be actuated.

The present invention consists of individual elements arranged to be bodily carried with each of the printing units for effecting an individual guide therefor or rectifying means as the units are actuated. The individual elements are arranged to be carried with the printing units and to coact with a guide means therefor, which serves to position the elements as the printing units are moved preparatory to an impact with the platen.

It is an object of the present invention to provide individual rectifying means arranged to be bodily carried with each of the printing units and adapted to be actuated to align and guide the unit when the same is moved for an impact against the platen.

Another object is the provision of rectifying means carried on and arranged for movement with and independently of a printing unit thereby, upon the movement of said printing unit, the rectifying means will be carried therewith until arrested by a guide means, and at which time the printing unit will move in advance thereof to be engaged thereby and guide the unit for an impact against the platen.

In the present invention, I have shown and described so much of the mechanism as will, in connection with the application for printing mechanism, filed December 28, 1935, Serial No. 56,465, afford a thorough understanding of the application thereto, and operation, of the present invention.

In the accompanying drawing:

Figure 1 is a vertical partial sectional view of a printing mechanism, showing my improved rectifying means attached thereto.

Figure 2 is a detail perspective view illustrating one of the printing units and the rectifying means.

Figure 3 is a side elevation of Figure 2, as viewed from the other side.

Figure 4 shows an exploded view in perspective of the rectifying means, printing unit and support therefor; and

Figure 5 is a detail cross-sectional view taken on the line 5—5 of Figure 2.

The printing mechanism and rectifying means is illustrated as attached to an adding machine employing depressible keys 10 arranged in banks and having stems 11 that extend through the keyboard 12 and adapted to control a reciprocating rack 13 below each bank of keys.

The racks 13 are normally locked in position by means of a locking member 14 under the control of the keys in each bank, and when released, each of the racks operates to position a printing sector 15, having a series of type characters 16 thereon in printing relation with a platen P. Each rack has a link 17 pivotally connected thereto, which has its free end connected to an arm 18 of a spider 19, pivotally carried for rocking movements on a shaft 20, carried in the side walls 21 of the machine. The spider 19 has an arm 22 to which a link 23 is pivotally connected, and which extends upwardly and is pivotally connected at 24 to the sector 15, so that, upon a movement of the rack 13, the spider 19 will be rocked by means of tht link 17 and carry the link 23 therewith to position the sector 15 in accordance with the distance of movement of the rack 13 and position the type corresponding with the key depressed in printing position with platen. The sector 15 is bodily carried for pivotal movements at 25 on a supporting arm 26 that is pivotally carried for rocking movements on a shaft 27, carried in the side walls 21 of the machine.

The printing units are positioned in the printing line and actuated in the same manner as shown and described in my pending application Serial No. 56,465, filed December 28, 1935.

The spider 19 controls a rocker arm 28 that is pivotally carried on a shaft 29, supported in the side walls 21 and is provided with a notched-out portion 30 adapted to engage an ear 31 on an extension 26a of the supporting arm 26. The arms 32 and the connecting links 33, (only one of which is shown), control the movements of the printing units for an impact against the platen P, under the control of the actuating mechanism (not shown).

A member 34 is adapted to be carried adjacent each of the sectors 15 and constitutes the rectifying means for the printing units and is the subject matter of this invention.

The member 34 is provided with an elongated slot opening 35 through which the pivotal pin 25 of the sector 15 extends and is provided at its other end with a stud 36 that is adapted to extend through an arcuate slot opening 37 in the sector 15 and into an elongated slot opening 38 in the upper end of the supporting arm 26.

The arcuate slot opening 37 in the sector 15

permits of a free swinging movement of the sector and is provided with a plurality of recesses **39**, each of which is aligned radially with a type character **16** thereon, adapted to be selectively engaged by the stud **36** as the printing unit is moved for an impact against the platen P. As each of the members forming the rectifying means, are arranged and constructed in the same manner, it is thought that a description and operation of one will suffice for a description of all.

Adjacent the pivot pin **25**, the member **34** is provided with a projecting portion **34***a* that provides a heel portion **34***b* and a stop portion **34***c* thereon, adapted to be brought into engagement with a guide member **40**, which also serves to guide the free end **26***b* of the supporting arms **26** for movement toward and from the platen.

As thus far described, it will be noted that the member **34** is normally retained with the heel **34***b* thereof in engagement with the guide member **40**, while the printing units are in their normal positions. While in this position, the stud **36** of the member **34** is aligned with the arcuate slot opening **37** in the sector **15**, which permits of a free adjustment of the sector under control of the link **23** and spider **19**, upon movement of the rack **13** to selectively position the type corresponding to the key depressed in printing position with the platen. As the printing unit is released for an impact against the platen, the member **34** will be carried therewith until the stop portion **34***c* engages the guide **40**, which retains the same and permits the sector **15** and supporting arm **26** to move in advance thereof by means of the pivot pin **25** riding in the slot opening **35** and the slot opening **38** of the arm **26** riding over the stud **36**. The movement of the sector **15** and supporting arm **26** in advance of the movement of the member **34**, causes the recess **39**, aligned with the selected type character of the sector **15**, to straddle the stud **36** and guide the sector for an impact against the platen P. Upon the return movement of the supporting arm **26** and sector **15**, the member **34** will be bodily carried therewith until the heel **34***b* thereof, engages the guide **40** and retains the same from further movement and at which time, the sector and arm will move rearwardly, causing the piovtal pin **25** to slide in the slot opening **35** and the recess **39** to be carried away from the stud **36** until the return limit of movement has been reached and the pin **36** is again within the arcuate slot opening **37**, permitting the sector **15** to be restored to its normal at-rest position under the control of the link **23** and spider **19** by the restoring movement of the rack **13**.

It will be noted that the engagement of the heel **34***b* and the stop portion **34***c* of the member **34** controls the engagement and disengagement of the stud **36** thereon with one of the recesses **39** of the sector **15**, and it is the movement of the printing unit for an impact against the platen that controls the member **34** which forms rectifying means for the proper alignment of the selected type character thereon in printing position with the platen and the restoring movement of the printing unit controls the release of the member **34** with the recess **39** of the sector.

I claim:

1. In a printing mechanism, the combination with a type-carrying element pivotally carried on a support and adapted to coact with a platen, and a rectifying member carried on the support and adapted to move with and independently thereof to engage and disengage said type-carrying element, a guide for the support in the path of movement of said rectifying member controlling the engagement and disengagement of the rectifying member with the type carrying element upon the movement of said support toward and from the platen.

2. In a printing mechanism, the combination with a type carrier, and a rectifying member engageable with and movably mounted in relation thereto, a support on which the type carrier is pivotally mounted constituting an operative means for the type carrier and rectifying member, a combined support guide and engageable member, said rectifying member being carried by said support and engageable with the guide for engagement with the type carrier in one direction of movement of the support.

3. In a printing mechanism, the combination with a type carrier, a support on which the type carrier is pivotally carried, and a rectifying member movably mounted in relation thereto, of a combined guide and engageable member for guiding the support in its path of movement and for causing movement of said rectifying member with respect thereto.

4. In a printing mechanism, the combination with a type carrier, and a rectifying member movably mounted in relation thereto, a support on which the type carrier is pivotally mounted constituting an operative means for the type carrier and rectifying member, a combined support guide and engageable member, said rectifying member being carried by said support and engaged with the type carrier under the control of the guide.

5. In a printing mechanism, the combination with a type carried pivotally carried on a support, and a rectifying member engageable with the type carrier and movably mounted in relation to said type carrier and support, a support guide in the path of movement of said rectifying member limiting its movement in either direction of movement of said support for causing the engagement and disengagement of the rectifying member with the type carrier.

6. In a printing mechanism, the combination with a type carrier pivotally carried on a support, and a rectifying member engageable with the type carrier and movably mounted in relation to said support, and guide means for the support and arresting the movement of the rectifying member for engagement with the type carrier while said rectifying member and carrier are being advanced by the support.

7. A printing unit of the character described, comprising in combination, a platen, a support, a sector having type characters thereon pivotally carried on said support and adapted to be positioned into printing position with the platen, a rectifying member carried for movements with and independently of said support, a guide for the support, said rectifying member adapted to engage the guide to retain the sector with the selected type thereon in printing position with the platen upon movement of said support toward the platen and to engage the guide for effecting its disengagement with the sector upon movement of the support away from the platen.

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