K. A. A. STAAHLGREN.

LATCH MECHANISM FOR BULLETIN PRINTING MACHINES.

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1,193,081. Patented Aug. 1, 1916.

Fig. 1

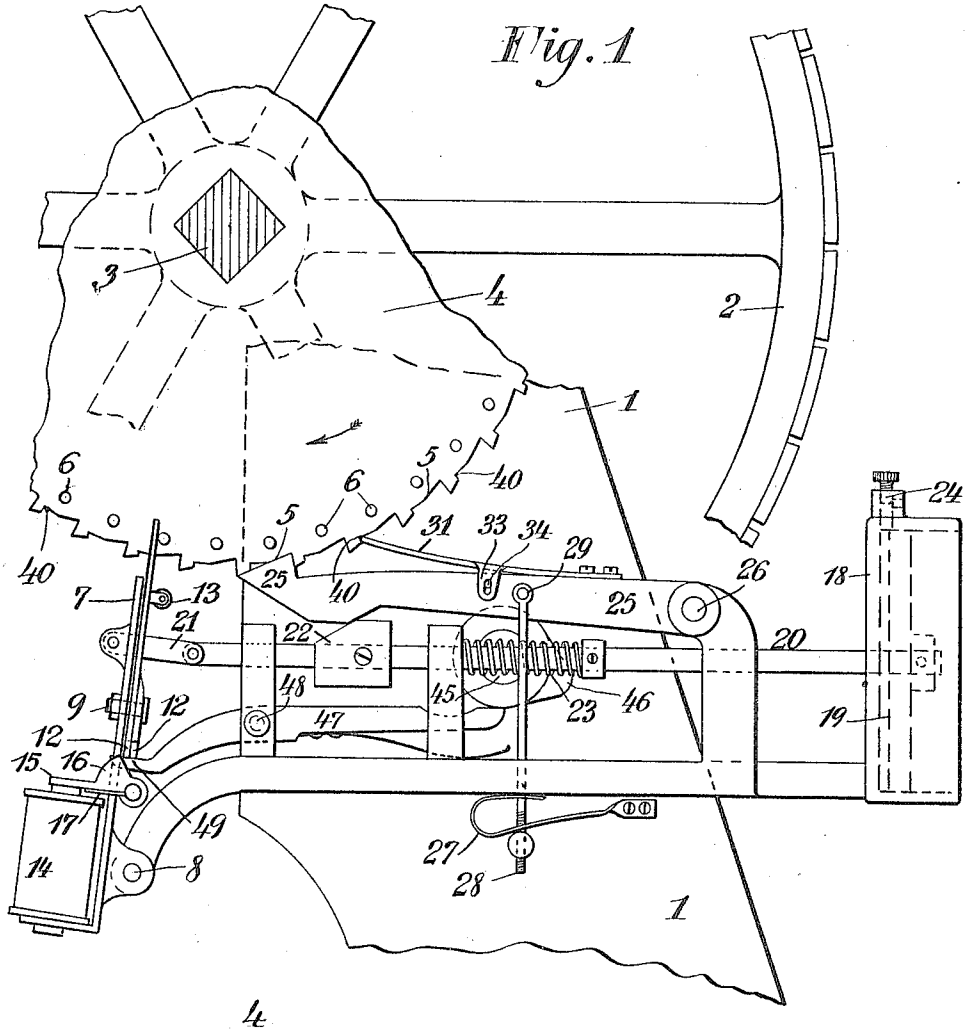
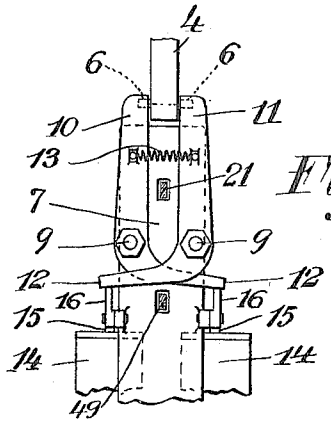


Fig. 2



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LATCH MECHANISM FOR BULLETIN-PRINTING MACHINES.

1,193,081. Specification of Letters Patent. Patented Aug. 1, 1916.

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To all whom it may concern:

Be it known that I, KARL A. A. STAAHLGREN, a citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Latch Mechanism for Bulletin-Printing Machines, of which the following is a specification.

This invention relates to improvements in telegraph printing machines of the type disclosed in the patent to Campbell and Davis No. 950,473 of March 1, 1910.

More particularly this invention relates to an improved stopping or latching device for use on such machines for stopping the index wheel which is carried on the shaft of the printing wheel and whereby the latter is definitely stopped in printing position.

The telegraph printing machine referred to is provided with a relatively large printing wheel on the periphery of which the types are placed. The wheel is mounted on a shaft which is rotated partially to bring a certain type character into position to print and the wheel is operated axially on the shaft so as to print in lateral lines for bulletins and the like. The stopping of the rotation of the printing wheel is preferably done by means of a so-called index wheel on the printing wheel shaft in coöperation with a suitable latching and stopping device, the improvement of which is the object of this invention. Inasmuch as the printing wheel is rotated rapidly from one position to another for each letter to be printed it is necessary to provide a latch or stopping device adapted to be operated immediately after the printing to release the wheel and also so constructed and operated that the wheel is stopped in the precise position to print.

With the above and other objects in view this invention therefore is embodied in a latch mechanism of simple and practical construction adapted to seize and stop the index wheel quickly and accurately for each impression of the printing wheel, and also adapted to instantly release the index wheel after each impression to permit subsequent rotation of the wheel for the next impression.

In the drawing illustrating the preferred form of the invention only so much of the telegraph printer is shown as is necessary for an understanding of the invention.

Figure 1 is a side view of the latching device and Fig. 2 a detail view of the latches.

The reference numeral 1 represents part of the frame of the machine.

2 is the printing wheel mounted to rotate with the shaft 3 which is preferably squared to facilitate axial movement of the wheel 2.

4 is the index wheel secured to the shaft 3 and provided with as many notches 5, 5 and stop pins 6, 6 as there are types or letters on the printing wheel. The shaft 3 is rotated and the printing wheel operated laterally by any suitable means not shown.

The stopping or latching device coöperating with the index wheel comprises a latch plate 7 pivoted at 8 to the frame of the machine. On the latch plate are pivoted at 9, 9 two latches 10 and 11 having tails 12, 12. The latches are urged toward each other by a spring 13.

14, 14 are two latch magnets carried by the latch plate and provided with pivoted armatures 15, 15 having lugs 16, 16 and normally held up in retracted position by suitable springs as 17, in which position the armature lugs 16 rest below the latch tails 12 of the latches to hold them in disengaged inoperative position. The latch plate is preferably connected to a cushioning device comprising the dash pot 18 in which moves a piston 19 the stem 20 of which is connected to the latch plate by link 21.

22 is a latch cam on the piston stem 20 and 23 is a spring for returning the piston in the dash pot as is obvious.

24 is the adjusting valve for the dash pot.

25 is a locking pawl pivoted at 26 and adapted to engage the notches 5 to stop the wheel 4.

27 is a spring for retracting the locking pawl by means of the rod 28 pivoted to the pawl at 29. The locking pawl is, however, not sufficient to bring the index wheel to a sudden stop which develops a back lash or kick and in order to definitely and suddenly stop the wheel 4 there is provided in addition to the locking pawl, a back lash pawl 31 in the form of a flat spring secured to the locking pawl, but adapted to yield or move with respect thereto. In order to properly guide the back lash pawl in its operation, it is preferably provided with depending

slotted ears 33, one on each side of the pawl 25 and guided by pins 34 in the latter.

The latch magnets 14, 14 are of course energized in synchronism with the movement of the printing wheel 2 so that the armatures 15 are attracted immediately after the impression or printing, when the wheel is rotated to bring another character to the printing point (not shown). The attraction by the armatures causes the lugs 16 to move out from under the latch tails 12 as shown and the latches under the influence of the spring 13 immediately swing inwardly into the path of the pins 6, which swing the latches and latch plate on the pivot 8 to the left in the drawing. The throw of the latch plate operates the piston stem 20 and forces the cam 22 forward to lift the locking pawl 25 into engagement with the notches 5 of the index wheel so that the printing wheel is quickly stopped in the desired position and as illustrated in the drawing showing the operation completed. If no other stopping means were provided the back lash of the index wheel would cause a slight jar when it stops and of course the printing would be blurred. But when the lock pawl engages a notch 5, the spring pawl 31 engages a notch 40 cut into the notch 5 and effectively prevents any back movement on the part of the wheel 4.

The auxiliary or back stopping pawl, as it may well be called is peculiarly well adapted for its function because of its yielding movement in direction of rotation of the index wheel, which permits the back stop pawl to glide into engagement with the notch 40 almost before, but never later than the engagement of the pawl 25 with its notch 5, thus insuring a simultaneous gripping of the index wheel at the two points to check the movement thereof and immediately thereafter the impression occurs.

Operated in synchronism with the printing mechanism so as to act immediately after the impression is a shaft 45 having a cam 46 which is rotated to engage the inner end of a releasing lever 47 pivoted at 48 to lift the lever end 49 up under the latch tails 12 at the same time the latch magnets are deënergized to permit the lugs 16 to be swung upward under the latch tails to force the latches apart and release them from the pins 6. After which of course the cycle of operation is repeated.

The release of the latches from the index wheel permits the spring 23 to exert its influence to withdraw the cam 22 from the pawl 25 which thereupon is disengaged from the index wheel together with the pawl 31 by the spring 27.

It has been proposed to use ordinary back stop pawls or dogs in coöperation with the pawl 25, but experience has proven them unsatisfactory and not sufficiently positive in their action.

I claim:

1. In telegraph printers the combination with a large type wheel, an index wheel operated in unison therewith, said index wheel being provided with notches in its periphery, a latch device coöperating with said index wheel, a first pawl in said latch device, a back stop pawl yieldingly mounted on said first named pawl, and means for operating both of said pawls into engagement with the notches aforesaid.

2. In telegraph printers the combination with a large type wheel, an index wheel operated in unison therewith, said index wheel being provided with two sets of notches in the periphery, a latch device coöperating with said index wheel, two relatively movable pawls in said latch device mounted to move together and means for operating said pawls to cause one of them to engage a notch in the one set of notches and to cause the other of said pawls to engage a notch in the other set of notches.

3. In telegraph printers the combination with a large type wheel, an index wheel operated in unison therewith, said index wheel being provided with relatively large notches in its periphery and relatively smaller notches cut into said larger notches, a pivoted rigid pawl, a back stop pawl mounted on said rigid pawl to move with respect thereto and means for operating a rigid pawl into engagement with one of the larger notches and simultaneously therewith moving the back stop pawl into engagement with one of the smaller notches.

Signed at New York in the county of New York and State of New York this 18th day of November A. D. 1915.

KARL A. A. STAAHLGREN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."