

Aug. 12, 1924.

1,504,561

H. LANDSIEDEL

WORD PRINTING DEVICE

Filed Sept. 21, 1922

3 Sheets-Sheet 1

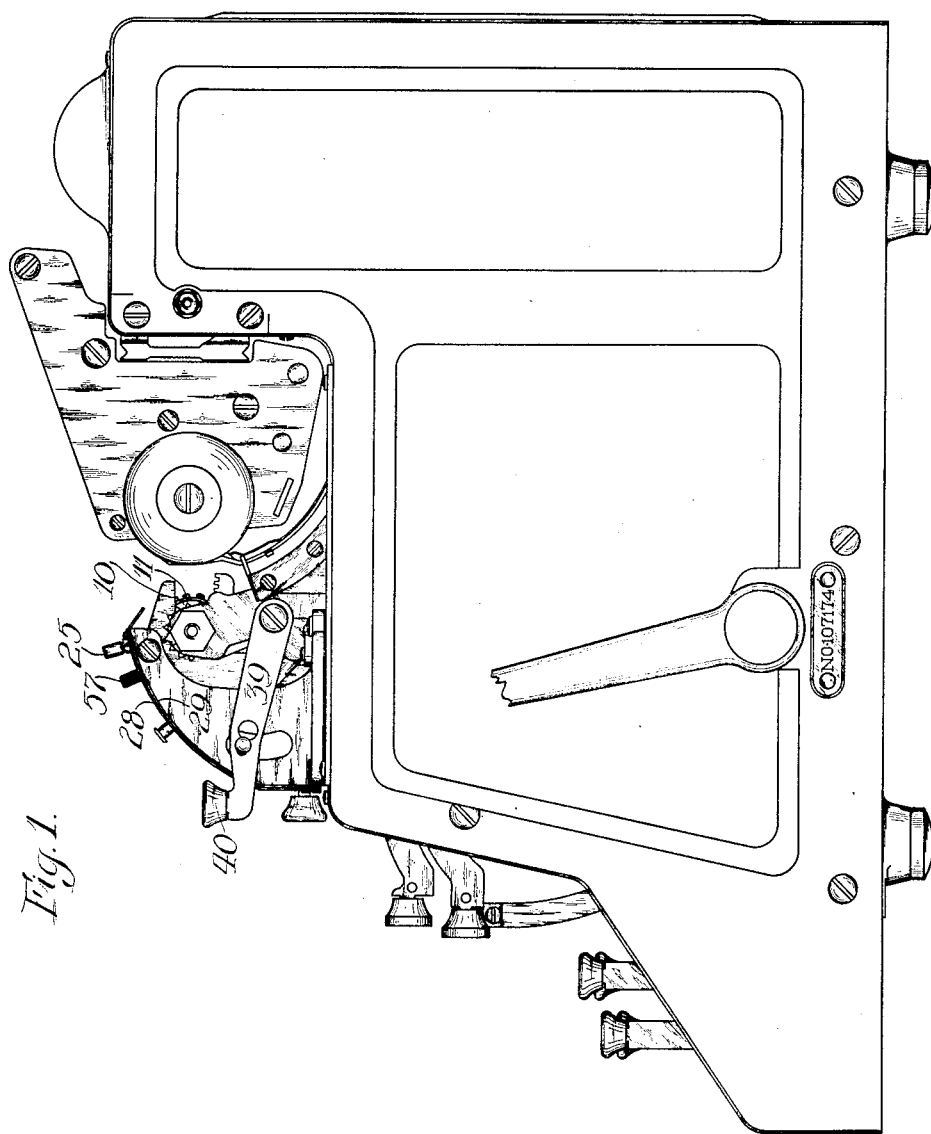


Fig. 1.

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3 Sheets-Sheet 2

Fig. 2.

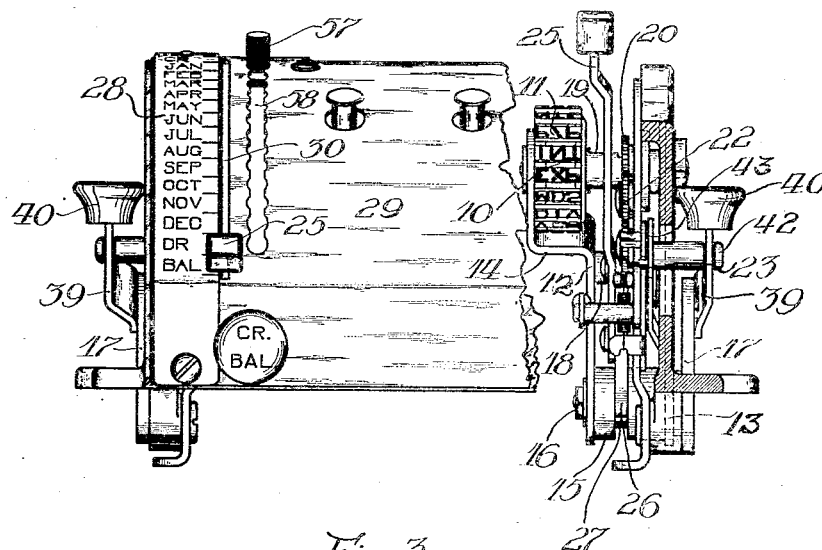
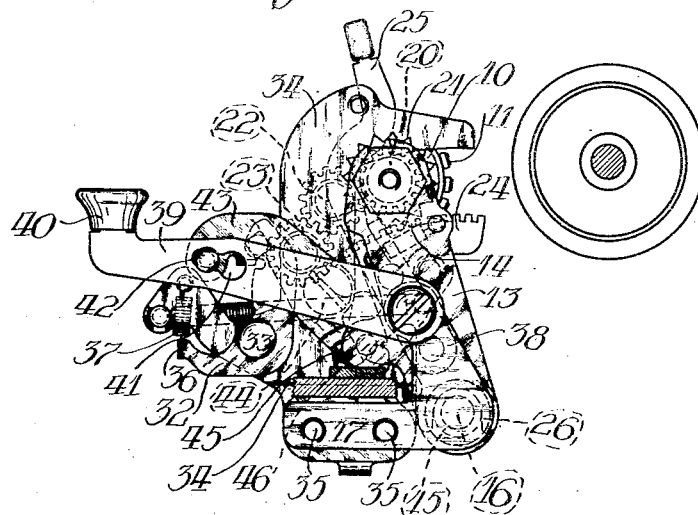


Fig. 3.



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3 Sheets-Sheet 3

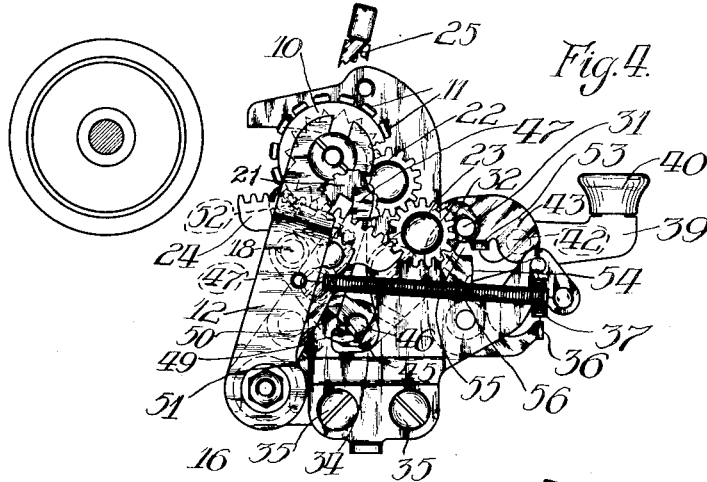


Fig. 5.

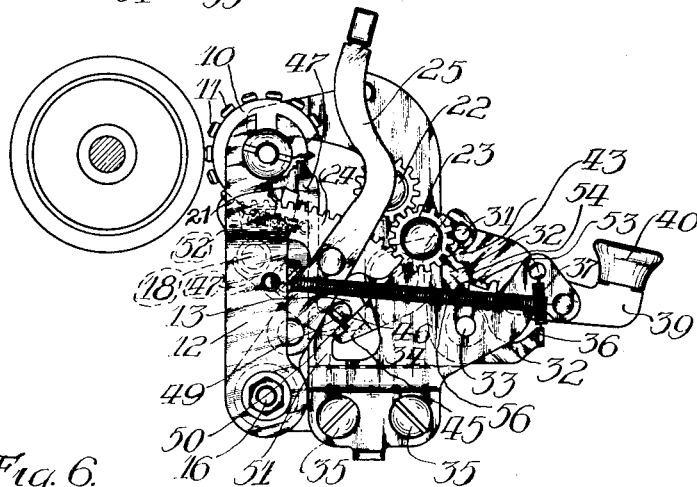
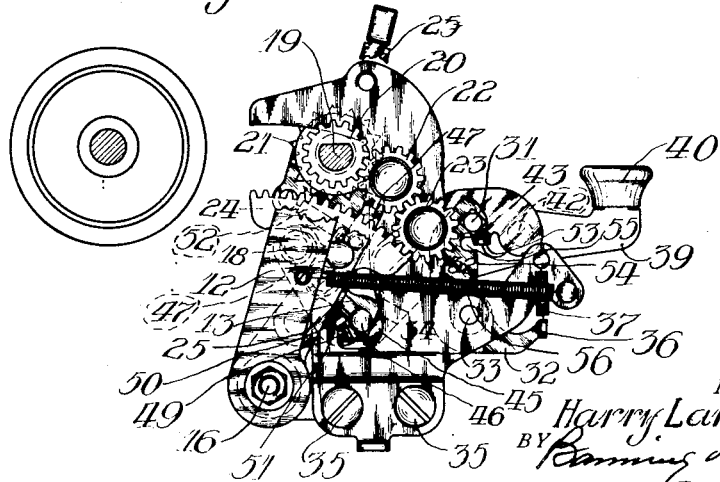


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY LANDSIEDEL, OF CINCINNATI, OHIO, ASSIGNOR TO DALTON ADDING MACHINE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

WORD-PRINTING DEVICE.

Application filed September 21, 1922. Serial No. 502,597.

To all whom it may concern:

Be it known that I, HARRY LANDSIEDEL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Word-Printing Devices, of which the following is a specification.

The device of this invention is designed primarily as an attachment for adding machines with a view of providing means for the printing of words or abbreviations there- of which are ordinarily used in making out statements, posting ledger sheets, or any work where designations are needed in addition to the numeral figures to make an intelligent record. For the printing of such designations, a type wheel is employed which is operated by first rotating the wheel to bring the desired designation to the proper position to approach the printing line, and thereafter actuating the mechanism provided for carrying the wheel to the printing position.

The present invention is directed to the mechanisms for controlling these operations, and for so interlocking the respective mechanisms that neither can be operated during the period of operation of the other, thereby ensuring correct manipulation of the device.

A further object is to provide means which will prevent the shifting of type from proper printing position or alignment during the manipulation of the operating mechanism; and a further object is to provide means for the rapid restoration of the setting devices to the current or most commonly used designation.

The parts comprising this device are arranged in front of the platen and inking ribbon, so that the type which are held in the printing cylinder may be selected by means of the setting mechanism, after which the printing cylinder or wheel will be swung to imprint the desired designation on the paper backed by the platen, the inking ribbon being interposed in the usual manner between the type and paper.

In the drawings, the device is shown as applied to a Dalton adding machine, although it is understood that the device is capable of general application and may even be used independently of an adding machine in cases where only a limited number of printed designations are required.

In the drawings:

Figure 1 is a side elevation of a Dalton adding machine showing the word printing device in its relation to the platen of the adding machine;

Fig. 2 is a front view of the word printing device with a portion of the cover plate broken away;

Fig. 3 is a side elevation of the word printing mechanism in its normal position with the type cylinder retracted from the platen;

Fig. 4 is a similar view taken from the opposite side of the mechanism and showing the setting lever partially broken away;

Fig. 5 is a similar view showing the operating lever depressed and the type cylinder advanced to printing position and illustrating the means for locking the type cylinder and the index lever during the printing operation; and

Fig. 6 is a view similar to Fig. 4 with the type cylinder removed to better illustrate the gear arrangement and with the setting mechanism in an intermediate position of adjustment, showing means for locking the operating lever during the setting-up operation.

The printing cylinder 10 is provided upon its periphery with logotype 11 which are preferably in number sufficient to indicate the months of the year, together with such designations as Cr., Dr., Bal., etc. The type cylinder is journaled at the upper end of a swinging frame comprising an inner arm 12 and an outer arm 13 in spaced relation to one another, the inner arm being provided with an offset or shoulder 14 to afford working space for the type cylinder. The arms 12 and 13 are carried by a hub 15 journaled upon a bearing pin 16 projecting inwardly from a fixed plate 17 forming part of the rigid frame of the device. The two arms of the swinging frame are further connected by means of a cross pin 18 which, together with the hub 15, serve to afford the necessary rigidity. The type cylinder is rigidly mounted upon a shaft 19 which carries a spur pinion 20 having teeth equal in number to the type on the periphery of the type cylinder. The shaft also carries a ratchet wheel 21 likewise having the same number of teeth. The type cylinder, spur pinion and ratchet wheel are in rigid relation to one another and rotate as a unit with the shaft upon which they are mounted.

The means for imparting rotative movements to the cylinder and the associated elements will now be described. The spur pinion 20 meshes with an intermediate idle pinion 22 which, in turn, meshes with a similar operating pinion 23, all of the said pinions having the same number of teeth. The pinion 23 meshes with a rack 24 secured to the inner face of a setting lever 25, which latter is bifurcated at its lower end 26 to engage a circumferential groove 27 in the periphery of the hub 15, which thus serves as a bearing for the setting lever and permits rocking thereof.

It will thus be seen that, as the setting lever is moved, it will rotate the type cylinder to a degree necessary to bring the selected type to the printing line, the degree of oscillation being indicated by the inscriptions on an indicator plate 28 secured to the front cover plate 29 which is provided with a slot 30 through which the setting lever projects.

In order to properly center the type during the setting operation, a square lug 31 is provided which stands in position to present one of its angles to the operating spur pinion 23, and said lug is mounted upon an L-shaped detent arm 32 which is pivoted upon a stud 33 inwardly extending from a side plate 34 which is connected with the outer side plate 17 by cross bolts 35, the inner and outer plates furnishing a rigid side frame for the housing of the operating mechanism.

The detent arm 32 is provided at its outer end with a tongue 36 which receives the end of a spring 37 secured to a portion of the inner side plate, the arrangement being one which causes the square stud 31 to normally engage the recesses between the teeth of the operating spur pinion 23, and thereby act as a centering device to hold the gear train and with it the type cylinder in proper positions of adjustment so long as the gear train is unbroken, it being understood that as the type cylinder is swung toward the platen, the gear train will be broken so that other means must be provided during this stage of the operation for preventing displacement of the type cylinder from its adjusted position.

The means for advancing the type cylinder to the printing line will now be described. As best shown in Fig. 3, the outer side plate 17 is provided with an upstanding arm 38, which has pivoted thereto an operating lever 39 provided with a finger button 40 within convenient reach of the operator. The lever 39 is provided with a slot 41 which receives a pin 42 carried by a rocking lever 43 which is fulcrumed on a pivot pin 44 secured to the outer fixed plate 34.

The lower end 45 of the rocking lever is positioned to engage a stud 46 on the arm 12 so that as the operating lever 39 is de-

pressed, the outer end of the rocking lever will be depressed and the inner end elevated, thereby imparting to the arms which support the type cylinder the rocking movement necessary to bring the selected type to the printing line for recording an impression upon paper supported by the platen.

During the period of advance of the type cylinder, the gears will be disentrained, and during this interval the following mechanism is provided to maintain the type wheel in its previously adjusted position. The ratchet wheel 21 co-operates with a detent 47 which is pivoted to the pin 18 connecting the swinging arms 12 and 13, which detent, at its lower end, is provided with a laterally extending ear 49 which is adapted to ride upon a cam surface 50 constituting the upper edge of a projection 51 upstanding from the side plate 34. The detent is held against the ratchet wheel by the action of a spring 52, and when the operating lever is depressed, the ear 49 will advance along the cam edge 50, which contact of parts serves to lock the detent within a selected notch in the ratchet wheel, so that any rotative movement of the type wheel will be prevented during the printing operation.

Upon the release of the operating lever, however, the ear 49 will be carried back sufficiently to clear the cam edge 50 so that during the setting operation, the detent may ride in and out of the notches in the ratchet wheel as the type wheel is being rotatively adjusted. During the course of such adjustments, however, as the upper end of the detent rides over a tooth in the ratchet wheel, its lower end will be depressed as indicated in Fig. 6, which depression will bring the ear 49 below the cam edge 50, so that during this intermediate stage of setting-up operation, any effort to depress the operating key and advance the type cylinder will be futile by reason of the fact that the engagement of the ear 49 with the forward edge of the projection 51 will lock the parts against printing operation. It must be seen that coaction of the setting-up and printing mechanisms is such that the two operations must, of necessity, be performed in proper sequence to one other.

In order to prevent idle movement of the setting-up gears during the printing movement of the type wheel, and while the gear train is disengaged, the following mechanism is provided: The rocking lever 43 has formed thereon an inturned ear 53 which coacts with the rear edge 54 of the detent 32, which latter is provided with a notch 55 at a point immediately adjacent the position of the ear 53. During the setting-up movements, when the square pin 31 rides out upon a tooth of pinion 23 (see Fig. 6), the ear 53 will lie sufficiently within the notch 55 to prevent a depression of the op-

erating key, irrespective of the co-action of the ear 49 with the projection 51. When, however, the square 31 rides down onto a notch on the gear wheel, the detent will
 5 move inwardly sufficiently to permit the ear 53 to clear the notch and ride upon the edge 54, so that with the parts thus positioned the operating key may be actuated. During the operating movement of the key, the
 10 engagement of the ear 53 with the edge 54 will positively lock the square pin 31 within the selected gear notch so that during the printing operation an effort to move the setting-up lever will be futile, and the gears
 15 will stand in proper relation to remesh with one another upon the return movement of the type cylinder with the gear carried thereby.

A spring 56 secured to one end to the arm
 20 12 and at its opposite end to the plate 34 serves to return the type cylinder and associated parts to normal position after each printing operation, and in order to facilitate a return of the setting-up lever to its
 25 current or usual position, a knurled thumb-screw 57 is adjustably mounted within a slot 58 adjacent the setting-up lever, so that the thumb-screw can be clamped opposite the indication of the current month or in
 30 any other convenient position, and the setting-up lever can be quickly brought back to position opposite the thumb-screw by merely placing the thumb and forefinger on the knurled thumb-screw and setting-up
 35 lever button respectively, and then pinching the thumb and finger together in an easy and convenient manner.

The operation of the device may be briefly summarized as follows: In order to
 40 print a selected designation, the setting-up lever will be first moved to the necessary degree to bring the setting-up lever into register with the item indicated on the indicating plate; thereafter the operating lever
 45 will be depressed to carry forward the adjusted type cylinder to the printing line. Intermediate adjustments of the setting-up mechanism are prevented by means of the detent mechanism, and any attempt to de-
 50 press the operating lever during intermediate stages in the setting-up operation will be prevented by the interlocking of the parts in the manner described. After an item has been properly set up, and during the ad-
 55 vance of the cylinder to the printing line, maladjustment thereof is prevented by the locking of the parts, and during the same interval any manipulation of the setting-up mechanism which would have the effect of interfering with a proper registry of the
 60 gears on the return movement is likewise prevented by the described interlock between the setting-up and operating mechanisms.

65 As indicated in Fig. 2, two type cylinders

may be provided for increasing the printing capacity of the machine, but each of these mechanisms is a duplication of the one described, so that it will be understood that
 70 either one or more of such mechanisms may be provided on an adding or other similar machine as occasion may require.

The device is one which may be readily attached to an adding machine of standard
 75 type in such position as to interfere in no way with the operation of the type sectors or other mechanisms which are employed for recording the numbers intended to correspond or register with the designations
 80 impressed by the printing mechanism here in described.

I claim:

1. In a printing mechanism of the class described, the combination of a type carrier provided with type, means for setting
 85 the type carrier to the selected position, means for advancing the type carrier to the printing line, interlocking devices for preventing operation of the setting-up mechanism during the printing movements of the
 90 type carrier, a stationary index plate provided with inscriptions corresponding to movements of the setting-up mechanism, and an adjustable stop in close relation to the index plate and to the manually controlled
 95 portion of the setting-up mechanism to facilitate stopping the latter in convenient relation to a selected inscription on the index plate, substantially as described.

2. In a printing mechanism of the class
 100 described, the combination of a rotatable type carrier provided with type, means for rotating the type carrier to the selected position, means for advancing the type carrier to the printing line, interlocking devices for
 105 preventing operation of the setting-up mechanism during the printing movements of the type carrier, a stationary index plate provided with inscriptions corresponding to movements of the setting-up mechanism,
 110 and an adjustable stop in close relation to the index plate and to the manually controlled portion of the setting-up mechanism to facilitate stopping the latter in convenient relation to a selected inscription on the
 115 index plate, substantially as described.

3. In a printing mechanism of the class described, the combination of a type carrier provided with type, manually controlled
 120 setting-up devices for moving the type carrier to a selected position, means for advancing the type carrier when adjusted to the printing line, an index plate in operative relation to the manually engaged portion of the setting-up mechanism, having
 125 designated inscriptions thereon corresponding to the adjustments of the setting-up mechanism, and an adjustable stop member in close relation to said portion of the setting-up mechanism and adapted to facili-
 130

tate movement thereof to a selected position, substantially as described.

4. In a printing mechanism of the class described, the combination of a type cylinder 5 provided with type, a swinging frame within which said type cylinder is journaled, a ratchet wheel and gear fixedly associated with said type cylinder, a detent carried by the swinging frame and yieldably engaging 10 the ratchet when the swinging frame is in setting up position, a fixed member with which a portion of the detent engages when the swinging frame is moved away from the setting up position to effect a locking of the 15 detent with the ratchet, a setting up gear train normally in engagement with the first mentioned gear, setting up mechanism for operating said gear train when in normal position and imparting setting up move- 20 ments to the type cylinder, operating means for swinging the frame to move the cylinder to the printing line, a locking device for the gear train, and a device carried by the frame operating means and adapted when 25 said frame operating means are actuated to engage the locking means and hold the same in locking relation with the gear train during the printing operation, substantially as described.

5. In a printing mechanism of the class described, the combination of a type cylinder 30 provided with type, a swinging frame within which said type cylinder is journaled, a ratchet wheel and gear fixedly associated with said type cylinder, a detent 35 carried by the swinging frame and yieldably engaging the ratchet when the swinging frame is in setting up position, a fixed member with which a portion of the detent 40 engages when the swinging frame is moved away from the setting up position to effect a locking of the detent with the ratchet, a setting up gear train normally in engagement with the first mentioned gear, setting 45 up mechanism for operating said gear train when in normal position and imparting setting up movements to the type cylinder, operating means for swinging the frame to move the cylinder to the printing line, a 50 locking device engaging one of the members of the gear train and adapted normally to yield to permit rotation of the gear train, and a member carried by the frame operating means and adapted when the frame operating 55 means are actuated to engage the locking means to prevent yielding thereof during the printing operation, substantially as described.

6. In a printing mechanism of the class 60 described, the combination of a type cylinder provided with type, a swinging frame within which said type cylinder is journaled, a ratchet wheel and gear fixedly associated with said type cylinder, a detent carried by 65 the swinging frame and yieldably engaging

the ratchet when the swinging frame is in normal or setting up position, a fixed member co-acting with said detent and adapted to prevent movement of the swinging frame 70 when the detent occupies an intermediate position with respect to the teeth of the ratchet, and adapted when the detent occupies a position between said teeth to permit swinging of the frame and to concurrently prevent disengagement of the detent, 75 a setting up gear train normally in engagement with the first mentioned gear, setting up mechanism for operating said gear train when in normal position and imparting setting up movements to the type cylinder, and 80 operating means for swinging the frame to bring the cylinder to the printing line, substantially as described.

7. In a printing mechanism of the class described, the combination of a type cylinder 85 provided with type, a swinging frame within which said type cylinder is journaled, a ratchet wheel and gear fixedly associated with said type cylinder, a detent carried by the swinging frame and yieldably engaging 90 the ratchet when the swinging frame is in normal or setting up position, a fixed member co-acting with said detent and adapted to prevent movement of the swinging 95 frame when the detent occupies an intermediate position with respect to the teeth of the ratchet, and adapted when the detent occupies a position between said teeth to permit swinging of the frame and to concurrently prevent disengagement of the 100 detent, a setting up gear train normally in engagement with the first mentioned gear, setting up mechanism for operating said gear train when in normal position and imparting setting up movements to the type 105 cylinder, operating means for swinging the frame to bring the cylinder to the printing line, and locking means for said gear train to prevent movement of the gears of said train during the printing operation, sub- 110 stantially as described.

8. In a printing mechanism of the class described, the combination of a type cylinder 115 provided with type, a swinging frame within which said type cylinder is journaled, a ratchet wheel and gear fixedly associated with said type cylinder, a detent carried by the swinging frame and yieldably engaging 120 the ratchet when the swinging frame is in normal or setting up position, a fixed member co-acting with said detent and adapted to prevent movement of the swinging frame when the detent occupies an intermediate 125 position with respect to the teeth of the ratchet, and adapted when the detent occupies a position between said teeth to permit swinging of the frame and to concurrently prevent disengagement of the detent, a setting up gear train normally in engagement with the first mentioned gear, setting 130

up mechanism for operating said gear train when in normal position and imparting setting up movements to the type cylinder, operating means for swinging the frame to 5 bring the cylinder to the printing line, and locking means for said gear train to prevent movement of the gears of said train during the printing operation, said locking means being held in locked relation by engagement with the operating means for 10 swinging the frame, substantially as described.

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