No. 683,051. Patented Sept. 24, 1901.

O. L. KLEBER.

PAPER CARRIAGE FEED DEVICE FOR PRINTING TELEGRAPH MECHANISM.

(Application filed Sept. 10, 1900.)

(No Model.)

Fig. 1.

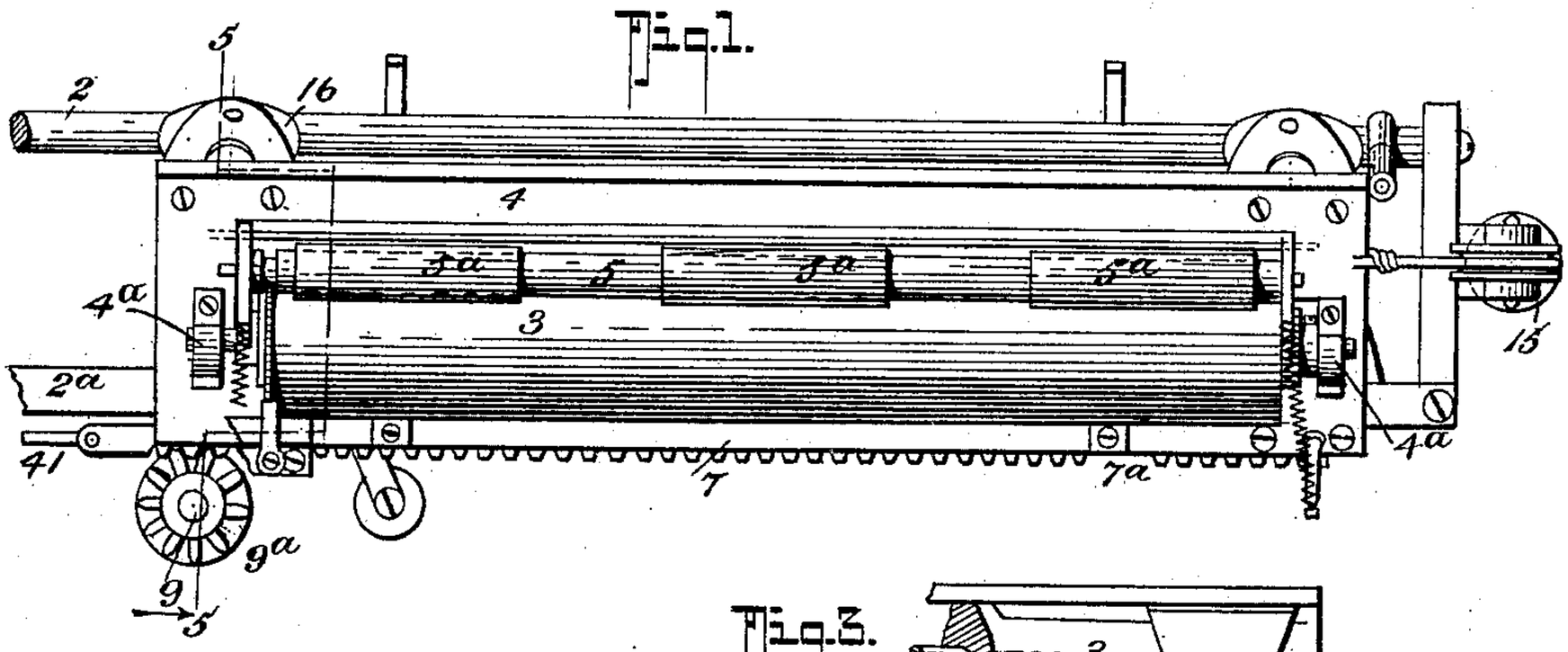


Fig. 2.

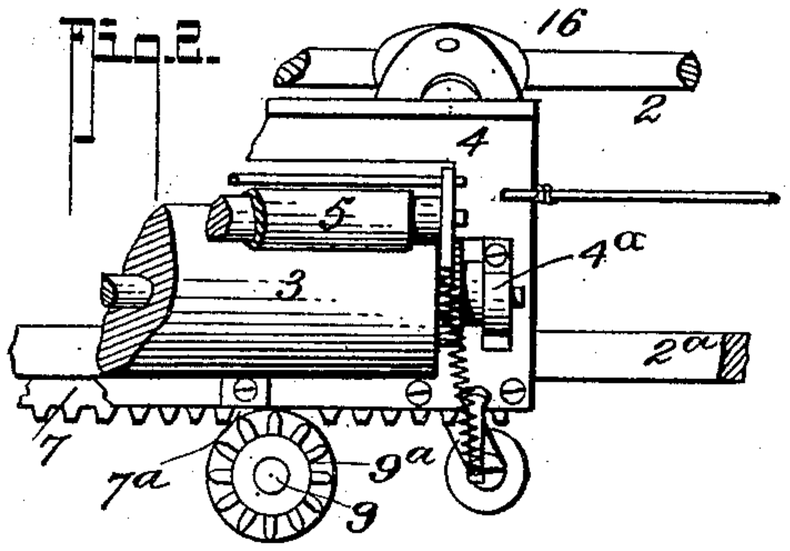


Fig. 3.

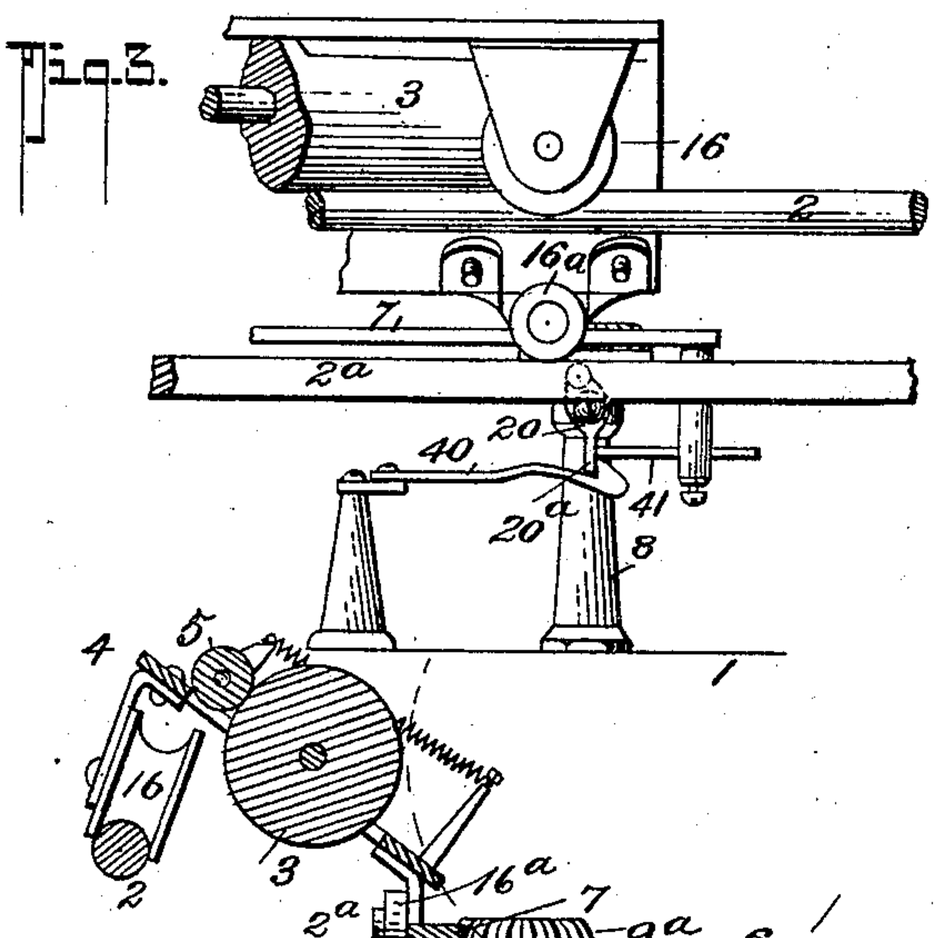


Fig. 4.

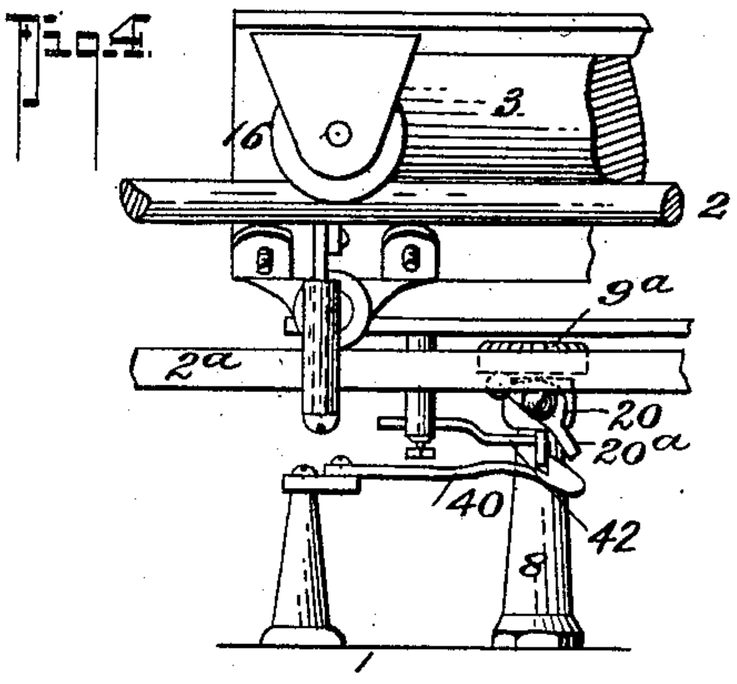


Fig. 5.

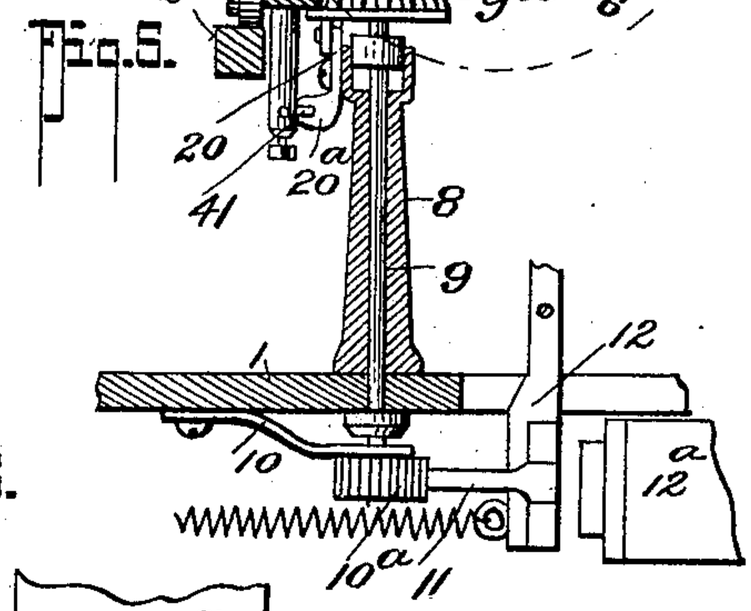
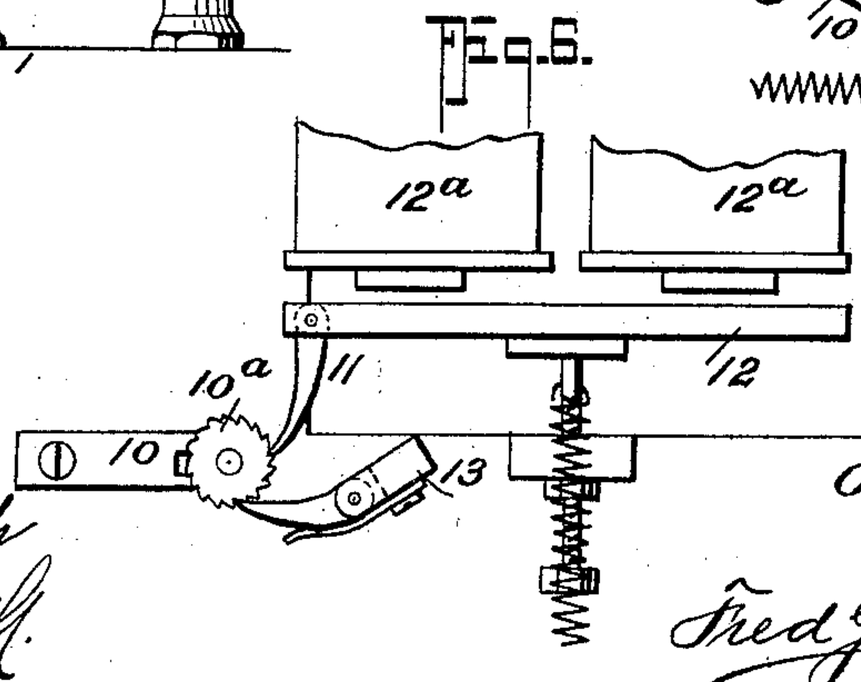


Fig. 6.



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PAPER-CARRIAGE FEED DEVICE FOR PRINTING-TELEGRAPH MECHANISM.

SPECIFICATION forming part of Letters Patent No. 683,051, dated September 24, 1901.

Application filed September 10, 1900. Serial No. 29,558. (No model.)

To all whom it may concern:

Be it known that I, OSCAR L. KLEBER, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Paper-Carriage Feed Device for Printing-Telegraph Mechanism, of which the following is a specification.

This invention is in the nature of an improved automatically-operating feed mechanism for paper-carriages, more particularly adapted for use in connection with type-wheel-controlling means such as is disclosed in my copending application for an improved printing-telegraph mechanism, filed on even date with this application, Serial No. 29,559.

My present invention comprehends generally a carriage-shifting pinion having connection with and adapted to be intermittently operated by the movement of the type-wheel-carrying means as it (the type-wheel) is shifted to its printing position, whereby to feed the carriage step by step to effect a proper letter or character spacing.

This invention in its complete make-up also includes means for automatically returning the carriage to its place of beginning, and trip devices adapted to alternately set the drive-pinion into an operative position when the carriage is moved to its place of beginning, and a second set of trip devices adapted to set the pinion to its inoperative position as the carriage reaches the limit of its forward movement.

Subordinately this invention consists in certain details of construction and peculiar combination of parts, all of which will hereinafter be fully described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view, parts being broken away, of my improvement, the carriage being shown at its place of beginning. Fig. 2 is a detail plan view of the rear end of the carriage, the same being in the position it assumes just prior to the tripping of the drive-pinion. Fig. 3 is a rear view of that part of the mechanism, showing the tripper devices for setting the pinion to its operative position. Fig. 4 is a similar view showing the tripper devices for releasing the pinion from engagement with the carriage-rack. Fig. 5 is a vertical section on the line 5 5 of Fig. 1. Fig. 6 is an inverted plan view illustrating the connections between the drive-pinion shaft and the type-wheel-swinging magnets hereinafter described.

Referring now to the accompanying drawings, in which like numerals indicate like parts in all the figures, 1 designates a suitable base, from which brackets project upwardly, which brackets form supports for the pair of longitudinally-extending parallel horizontally-disposed rods or track-bars 2 2ª, which are disposed in different horizontal planes, the rear bar 2 being higher than the front bar 2ª, whereby to bring the paper-platen, presently described, into position to be properly engaged by the type-wheel 6. The carriage proper, 4, consists of a rectangular frame, upon which is mounted to rotate a paper-roll 3, the journals of which are held in bearings 4ª, made fast on the frame 4, and the said roll 3 engages with the paper-presser roll 5, of any approved construction, said roll in the drawings being held in spring-drawn bearings to maintain it in a close frictional contact with the roll 3, it having also rubber collars or sleeves 5ª to facilitate the proper holding of the sheet upon the roll 3. The roll 3 has a ratchet-and-pawl mechanism at one end for turning it one line-space at the end of each line, said mechanism being of any approved construction and forming *per se* no part of my present invention. Upon the lower or front end of the frame 4 is fixedly held a horizontally-disposed tooth or rack bar 7, which extends the full length of the frame 4. The rack-face of the bar 7 near its outer end has a non-toothed portion 7ª, the reason for which will presently appear.

8 designates a standard projected upward from the base 1, in which is held a vertically-extending rotary shaft 9, carrying a drive-pinion 9ª upon the upper end, and the said shaft is slidable vertically within the standard 8, but is normally pulled to its down position by a spring-plate 10. (See Figs. 5 and 6.) When in its down position, the pinion 9ª

lies in a plane below the rack-bar 7; but when elevated in the manner presently described said pinion 9^a engages the said rack-bar, as clearly shown in Fig. 5. Any suitable means synchronously operated with the swinging of the printing-wheel or other impression member of a printing-machine of which my improved ratchet mechanism forms a part may be employed to effect a step-by-step rotation of the drive-pinion 9^a—that is to say, to move the said pinion one tooth immediately after the imprint of the letter, character, sign, &c., has been made upon the paper, so as to effect a proper letter-spacing.

In the drawings I have shown the lower end of the shaft provided with a ratchet-wheel 10, the teeth of which correspond in number with the teeth upon the drive-pinion 9^a, and with the said ratchet engages a pawl 11, connected with the armature-bar 12 of the magnet 12^a, said pawl 11 being so arranged as to impart motion to the ratchet 10 on the back or return movement of the armature-bar 12.

In the practical construction of my complete printing-telegraph mechanism (fully described in my copending application) the printing action of the type-wheel is effected by passing an electrical impulse through the magnet 12^a, which in attracting the armature 12 effects simultaneously a printing action of the type-wheel and a proper setting of the pawl 11 to effect a predetermined rotation of the carriage-operating pinion when it (the pawl 11) returns to its normal position.

13 indicates a holdback-pawl that engages the ratchet 10.

While I employ a spring to effect quick action of movement to bring the pinion 9^a to its down position, the said spring may be omitted and the pinion and shaft 9 9^a can be made to drop by gravity alone.

So far as described the operation of my improved mechanism is best explained as follows: Assuming the carriage to be about midway its forward travel, a continuance of its step-by-step movement will bring it to the position shown in Fig. 2, with the tooth just in advance of the non-toothed portion 7^a in mesh with the pinion 9^a. Now at the next shifting of the shaft 9 a trip member 42, hereinafter again referred to, will engage the pinion-holding latch 20, presently described, and place the pinion 9^a in such condition as to permit its dropping down out of engagement with the rack-bar, the tripping movement of the pinion being effected either by gravity or by spring force. The pinion 9^a being thus freed from the rack and dropped into a plane below the said rack releases the rack-bar and in consequence allows the carriage to automatically return to its place of beginning, such return movement being effected by the counterweight devices 15. The movement of the carriages in either direction is facilitated by the rollers 16 16^a, which are held to travel upon the trackways 2 2^a, and the cut-out part 7^a of the rack facilitates a quick disengagement of the rack and pinion when the pinion drops.

20 indicates a latch pivoted upon the standard 8 and having a pendent heel 20^a, adapted to engage with the spring-catch 40 for holding the latch when it is set to hold the pinion 9^a to its elevated or carriage-engaging position. The heel member 20^a when the pinion 9^a and its shaft are at the lower position lies in the path of a trip-finger 41, mounted upon the carriage and so arranged when the carriage is carried back to its place of beginning that it will engage the said heel 20^a and swing the latch into position to elevate the pinion 9^a and place it in mesh with the carriage rack-bar 7.

42 indicates a second trip member secured to the opposite end of the carriage and which operates on the limit of movement of the carriage in its forward direction and serves to trip the latch 20, (see Fig. 4,) whereby to release the pinion 9^a from the carriage-rack and in consequence permit the carriage to automatically return to its place of beginning, it being understood that as the pinion 9^a is spring-held to its depressed position it will be positively held down out of engagement with the carriage-rack until the said carriage reaches the limit of its return stroke, when the said latch will be engaged by the member 41, before referred to, and swung again in position to lift the pinion 9^a, so it will mesh with the carriage rack member 7.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a paper-carriage feed mechanism for printing-telegraph machines, the combination with an intermittently-operating movable member, said member including a pawl, a standard, a shaft held to rotate in the standard and having vertical movement therein, a single drive-pinion, and a ratchet mounted upon the shaft, the ratchet having an operative engagement with the aforesaid pawl, of a reciprocating carriage, said carriage having a longitudinally-extending rack-bar and means governed by the reverse movement of the carriage for alternately moving the drive-pinion into and out of an operative connection with the rack-bar as specified.

2. The combination with the vertically-adjustable drive-pinion and means for intermittently rotating the pinion to the degree of one tooth; of a reciprocating carriage having a rack-bar with which the pinion engages, a pivotal latch for elevating the pinion, a spring-catch for holding the latch in its elevated position, a tripper on one end of the carriage for depressing the spring to release the latch and a second tripper on the other end of the carriage for shifting the latch to its elevated position as specified.

3. The combination with the armature-bar 12, the magnet 12^a, the pawl 11, the standard 8, the shaft 9, rotatably mounted on the standard and having vertical movement therein, said shaft being normally forced to its lowermost position, the pinion, and the ratchet member 10, said ratchet member engaging the pawl 11 on the reciprocating carriage, said carriage having a toothed bar 7 having a non-toothed part 7^a, a lifting-latch operatively connected with the pinion 9^a, a tripper on one end of the carriage for engaging and setting the latch to a lifting position, and a second tripper on the opposite end of the carriage for engaging with and releasing the latch when the non-toothed part 7^a, of the rack-bar comes into register with the pinion 9^a, as hereinbefore described.

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