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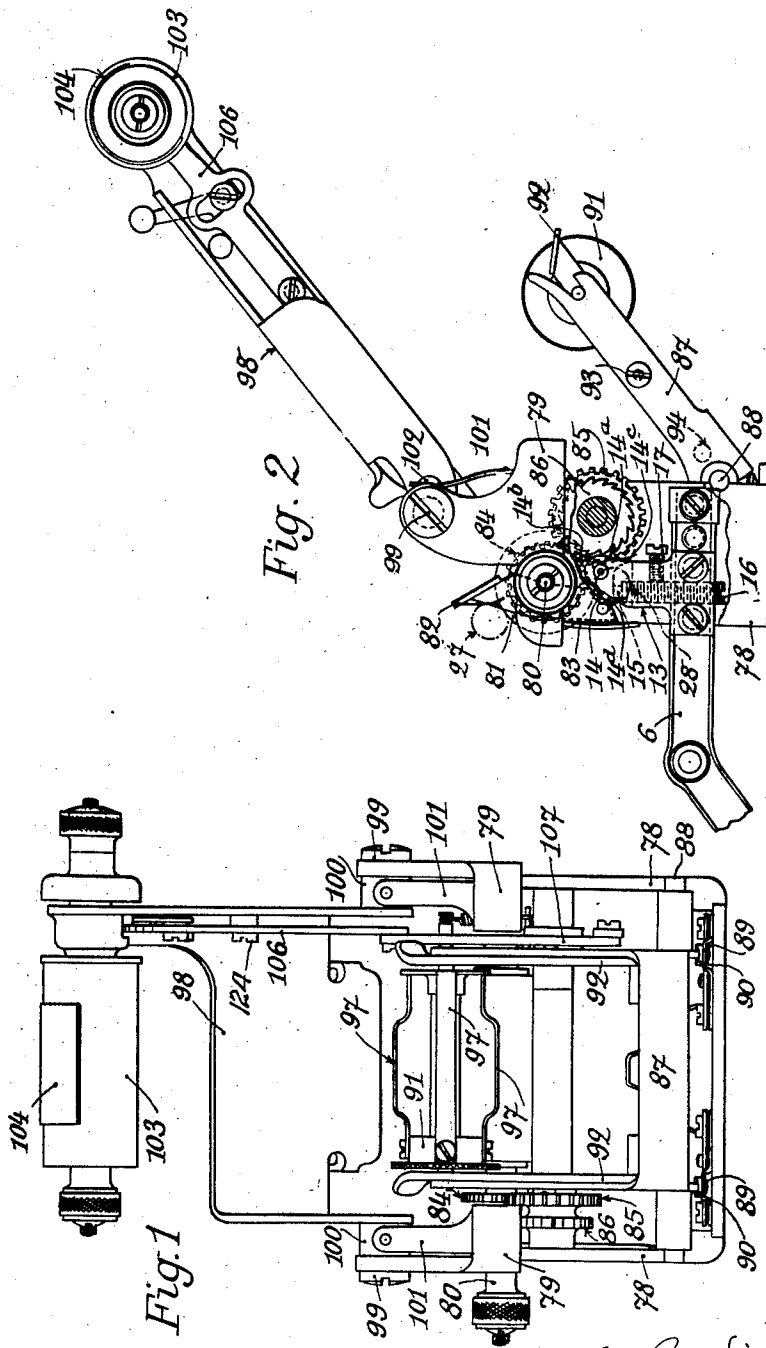
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PAPER FEED DRIVING GEAR FOR STENOGRAPHIC MACHINES

Filed Sept. 11, 1928

2 Sheets-Sheet 1



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INVENTOR

By: Marks & Clark
Attys.

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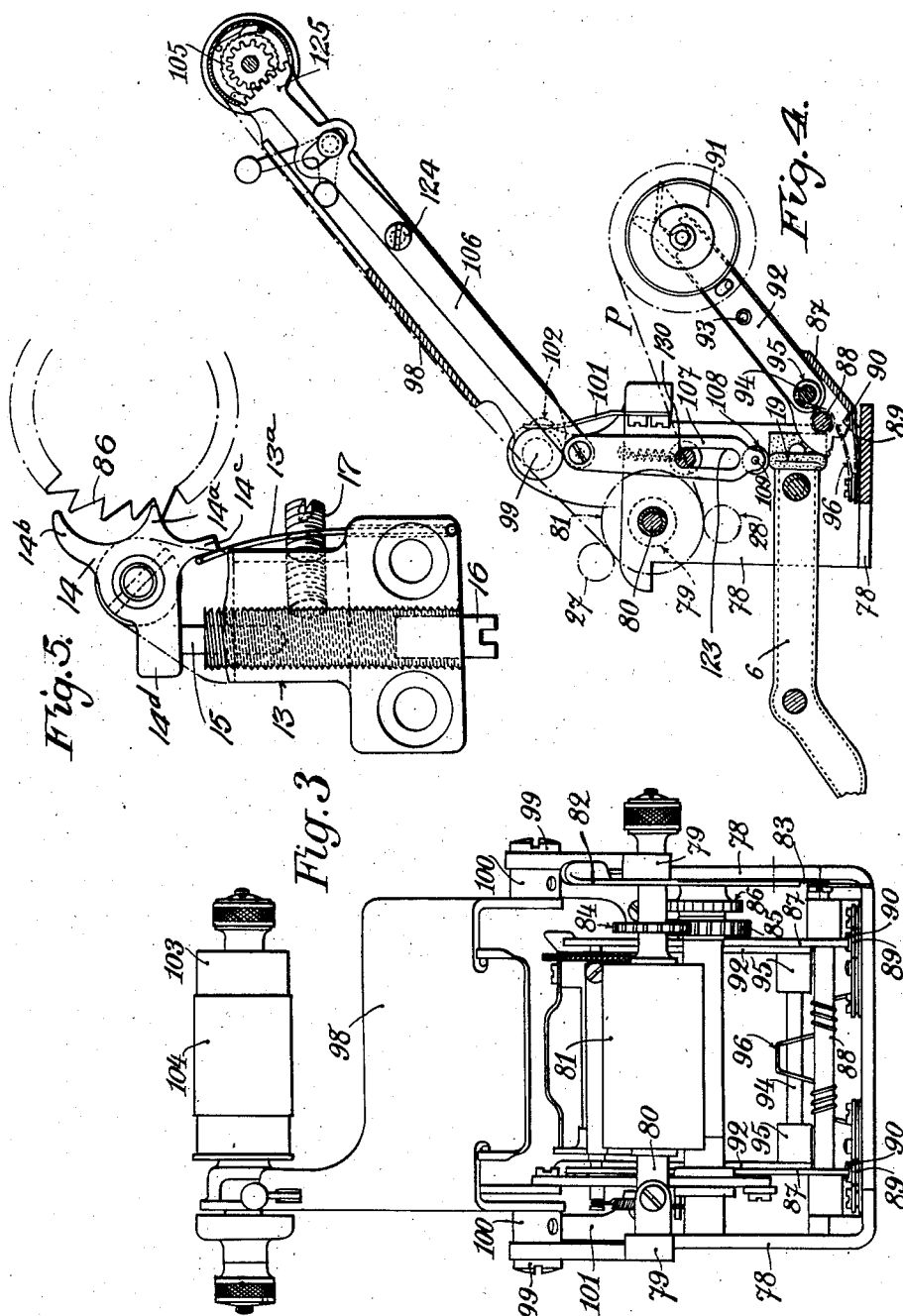
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UNITED STATES PATENT OFFICE

MARC GRANDJEAN, OF PARIS, FRANCE

PAPER-FEED-DRIVING GEAR FOR STENOGRAPHIC MACHINES

Application filed September 11, 1928, Serial No. 305,297, and in France October 4, 1928.

The present invention relates to stenographic machines, typewriting machines and the like, in which the paper is pressed against the platen by means of rollers and the platen is caused to rotate by a pawl controlled by the key bars or by the line space bar or lever.

According to the invention, in machines of the above type, the pawl is formed with four projections, one projection forming the tip of the pawl to advance the ratchet controlling the platen, a second projection acting as a safety catch to engage the ratchet after the first projection has cleared the tooth on which it acts to rotate the ratchet, so as to prevent the paper over-running, a third projection upon which a restoring spring acts to return the pawl to its initial position, and a fourth projection which contacts against an adjustable resilient buffer or stop to maintain the pawl in its initial position against the action of the restoring spring.

The result obtained with the above device is that the over-running of the paper beyond an amount corresponding to the pitch of the teeth of the platen controlling ratchet is effectively prevented. This guarantees a strictly constant spacing between any two lines of writing, which cannot be achieved with machines comprising a pawl of the usual type.

Furthermore the pawl according to the invention produces a silent operation which is essential in the case of a stenographic machine intended primarily for the taking down of speeches.

The accompanying drawings show by way of example one method of carrying the invention into practice.

In the drawings:—

Figure 1 is a rear view of the arrangement in question,

Figure 2 is a side view,

Figure 3 is a front elevation,

Figure 4 shows the driving gear for the paper wind up reel, and Figure 5 shows on a larger scale a detail of the pawl made according to the invention together with associated parts viewed from the inside of the machine.

The arrangement comprises a frame or

yoke machined to fit in a slide provided in the frame or pedestal 78 of the machine. Said yoke comprises a head 79 in which there is pivoted a shaft 80 carrying the cylindrical platen 81.

When a print is being made the platen is locked by a locking member 82 which is pressed on shaft 80 by a spring 83.

The rotation of the platen 81 is obtained by means of a pinion 84 driven by an intermediate gear 85 integral with a ratchet wheel 86.

Said ratchet is actuated by a pawl 14 mounted on a block 13 integral with one arm of the line space bar or lever 6.

According to the invention the pawl 14 is provided with four projections. Of these, 14^a is the tip which meshes with the teeth of the ratchet wheel and causes it to rotate to the extent of the pitch of a tooth each time the line space bar descends; 14^b is the safety catch which prevents any overrunning of the paper due to its momentum when the tip 14^a clears the ratchet; 14^c is a projection upon which the restoring spring 13^a acts to return the pawl 14 to the inoperative position after each advance of the platen (see Figure 5); and 14^d is a projection which comes in contact with the adjustable resilient buffer or stop 15, to arrest the return movement of the pawl and maintain it in position against the action of spring 13^a.

The stop 15 is made out of a compressible substance guided in a duct provided in block 13 and the depth of which may be adjusted by means of a screw 16 adapted to be clamped by a set screw 17.

The ratchet 86 not being able to return to the rear with the pawl, this latter ascends and the teeth of the ratchet compel the pawl to oscillate round its axis. The restoring spring 13^a is now compressed.

As soon as the projection 14^a clears the top of the ratchet tooth which it engages, the restoring spring 13^a, which acts upon the projection 14^c, pushes back the pawl until the projection 14^d, comes to rest upon the buffer or stop 15.

When the impulse given to the ratchet 86 due to the movement of the tip 14^a is such

that the ratchet tends to rotate by two teeth instead of one tooth only the back of the second tooth tending to pass the tip engages the tip and causes the oscillation of this latter in spite of the pressure of the recoil spring 13^a.

Due to this movement the safety catch 14^b engages with the teeth of the ratchet, and as the position of the projections or clutches 14^a and 14^b is determined so as not to permit of the release of the clutch 14^a, when the projection 14^b is engaged with the teeth, the clutch 14^b blocks the ratchet and thereby limits its rotation to the extent of the pitch of one tooth only under the action for each movement of the pawl 14.

The paper to be typed is carried by a yoke 87 pivoted about a shaft 88 fixed on frame 78. Yoke 87 is maintained in open or closed position by means of two leaf springs 89 provided with lugs 90 which project through notches in the arms of yoke 87; said arms terminate into a fork provided for the reception of the paper-carrying reel 91.

Said yoke 87 carries two metal jaws 92 pivoted separately about two pivot screws 93.

Said two jaws are made partly solid with one another through shaft 94 loose in two sockets 95 riveted on the two jaws 92. By means of this arrangement said two jaws 92 are independent in the case of slight displacements, integral in that of considerable displacements such, for instance, as necessary for taking away reel 91.

The free ends of both jaws are pressed in known manner against the shaft of reel 91 projecting through both forks provided on yoke 87 as a result of the action of a spring 96, according to a preceding French Patent No. 546,067. Reel 91 is provided with four lead springs 97 provided for maintaining the paper reel which is provided with a cardboard hub. The provision of the four springs allows for the centering of the reel mass even if the hub were not exactly circular.

The paper from reel 91 runs under cylinder 81 by the action of the platen turning device previously described and is maintained against the cylinder by the two pressure cylinders 27 and 28 of the printing block.

The paper then runs on the upper side of a bracket 98 pivoted about two pins 99 through two sockets 100 extending from the bracket. The bracket is thus supported by the yoke which carries two leaf springs 101 provided with two stop lugs 102 which project into recesses provided in sockets 100 so as to fix the position of the bracket in view either of operation or of the transportation of the machine.

The paper is wound up on a reel 103 on which it is attached by means of a spring clip 104.

The reel receives its rotational motion in the suitable direction through the action of a ratchet wheel 105 or any other free wheel gear receiving the motion of a sector 125 provided on one end of a swingable rod 106 pivoted on a pin 124 fixed to support 98 and fulcrumed at its other end by a rod 107 provided with a slot 123 through which projects a pin 130 fixed to support 98 and provided with a roller 108 rotatable on a pin 109. Said roller derives its thrust from the rubber faced cushion 19 on the line space bar or lever.

It is to be noted that with the device just described the printed matter becomes visible immediately it has been printed; and moreover the setting of the paper and the replacement of the same can be effected very rapidly.

Claims:

1. In a stenographic, typewriting or similar machine, in which the platen is rotated by means of a ratchet wheel, a pawl and a pawl restoring spring; a pawl having four projections, one projection forming the tip of the pawl to advance the ratchet controlling the platen, a second projection acting as a safety catch to engage the ratchet after the first projection has cleared the tooth on which it acts to rotate the ratchet, so as to prevent the paper over-running, a third projection upon which said restoring spring acts to return the pawl to its initial position and a fourth projection which engages a stop to maintain the pawl in its initial position against the action of said restoring spring.

2. In a stenographic, typewriting or similar machine, in which the platen is rotated by means of a ratchet wheel, a pawl and a pawl restoring spring; a pawl having four projections, one projection forming the tip of the pawl to advance the ratchet controlling the platen, a second projection acting as a safety catch to engage the ratchet after the first projection has cleared the tooth on which it acts to rotate the ratchet, so as to prevent the paper over-running, a third projection upon which said restoring spring acts to return the pawl to its initial position and a fourth projection which engages an adjustable resilient buffer to maintain the pawl in its initial position against the action of said restoring spring.

3. In a stenographic, typewriting or similar machine, in which the platen is rotated by means of a ratchet wheel, a pawl controlled by the key bars and a pawl restoring spring; a pawl having four projections, one projection forming the tip of the pawl to advance the ratchet controlling the platen, a second projection acting as a safety catch to engage the ratchet after the first projection has cleared the tooth on which it acts to rotate the ratchet, so as to prevent the paper over-running, a third projection upon

which said restoring spring acts to return the pawl to its initial position and a fourth projection which engages a stop to maintain the pawl in its initial position against the action of said restoring spring.

5 4. In a stenographic, typewriting or similar machine, the combination of a line space bar; a cushion at the rear for said bar; a roller following the movements of said cushion; a first rod carrying said roller at the
10 lower end thereof; a swingable rod fulcrumed at the other end of said first rod; a toothed sector at the opposed end of said swingable rod; a ratchet wheel actuated by said sector;
15 and a wind-up reel carrying said wheel.

In testimony whereof I have hereunto affixed my signature.

MARC GRANDJEAN.

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