June 30, 1936. J. Q. SHERMAN ET AL 2,045,618

ATTACHMENT FOR WRITING MACHINES

Filed July 29, 1932 4 Sheets-Sheet 1

Fig. 1

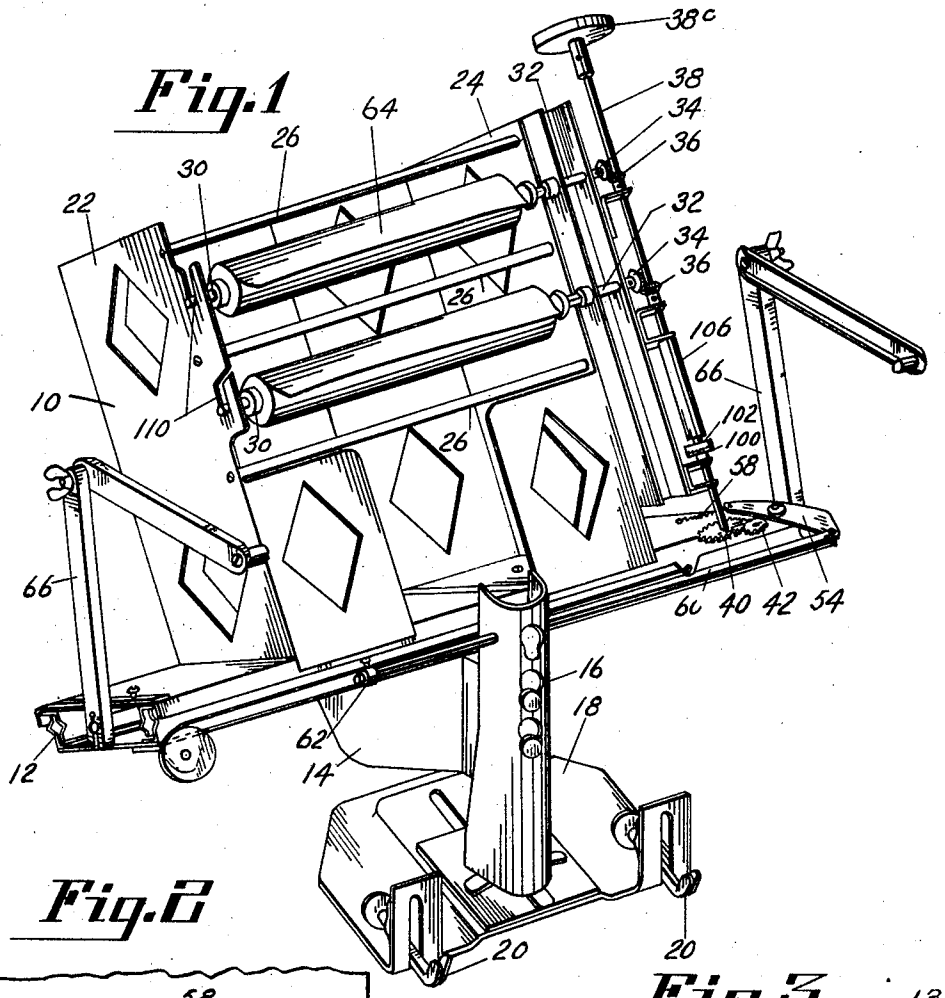


Fig. 2

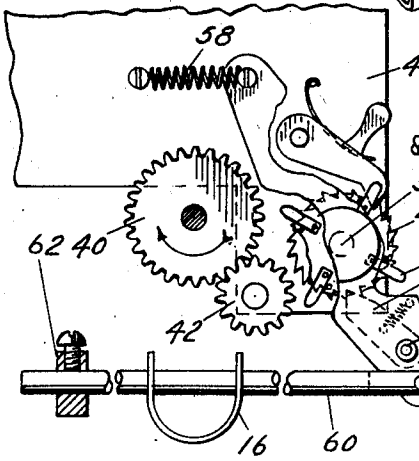
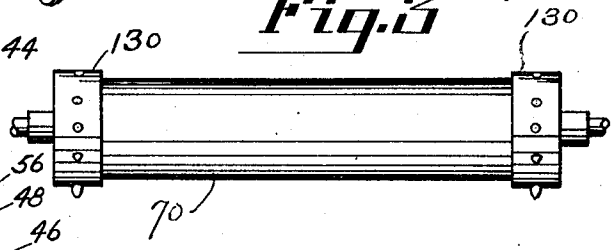


Fig. 3

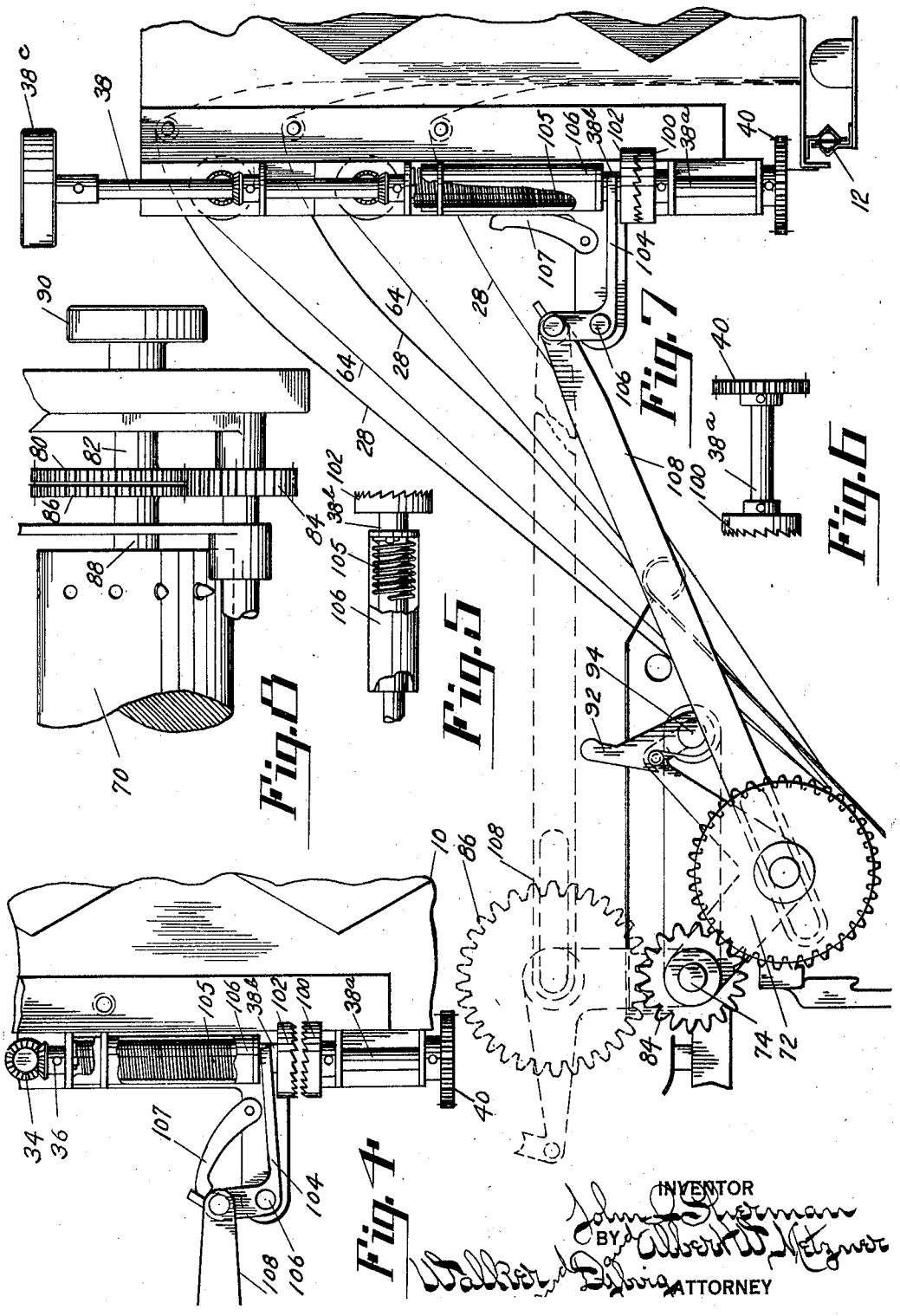


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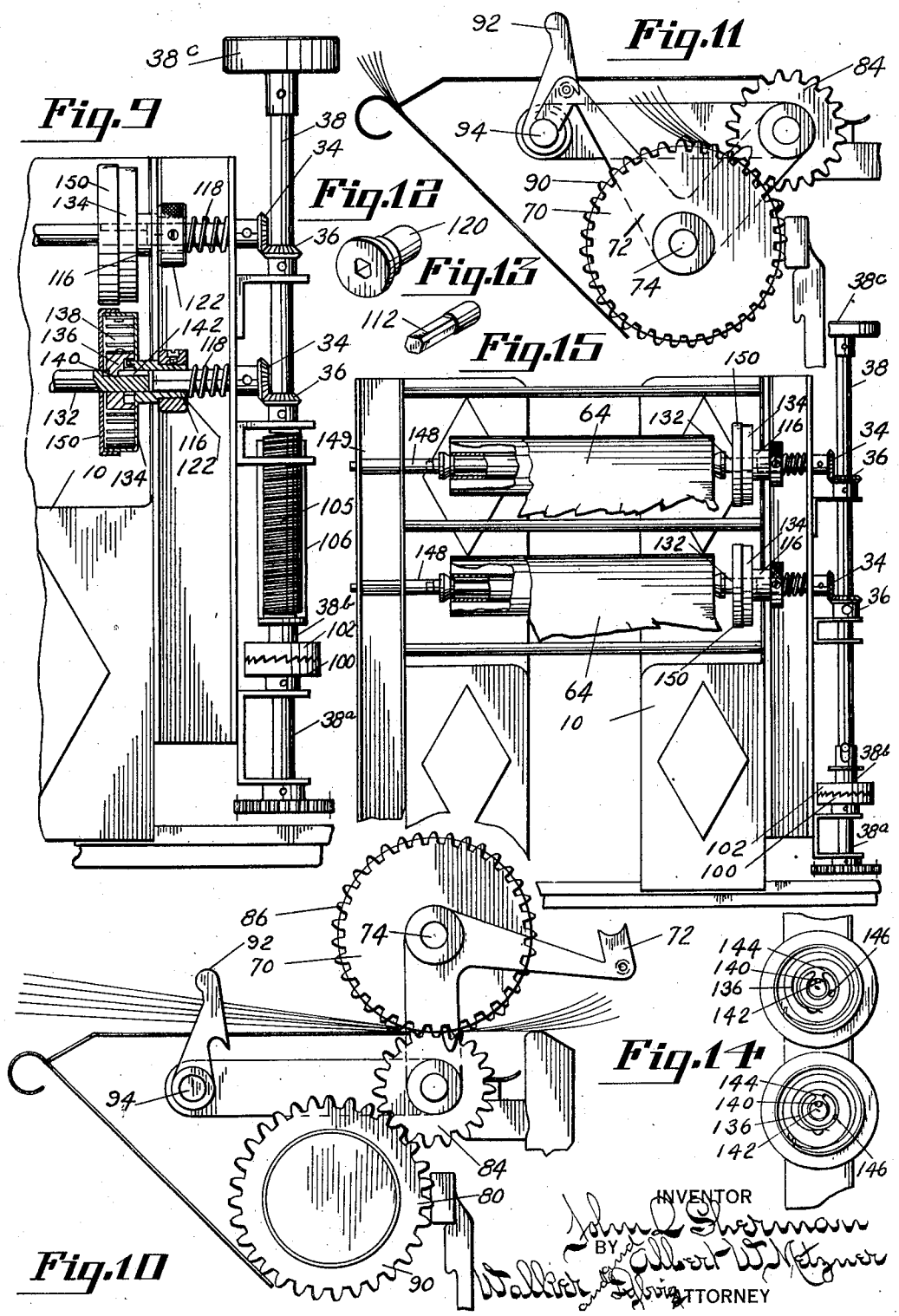
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Fig.16

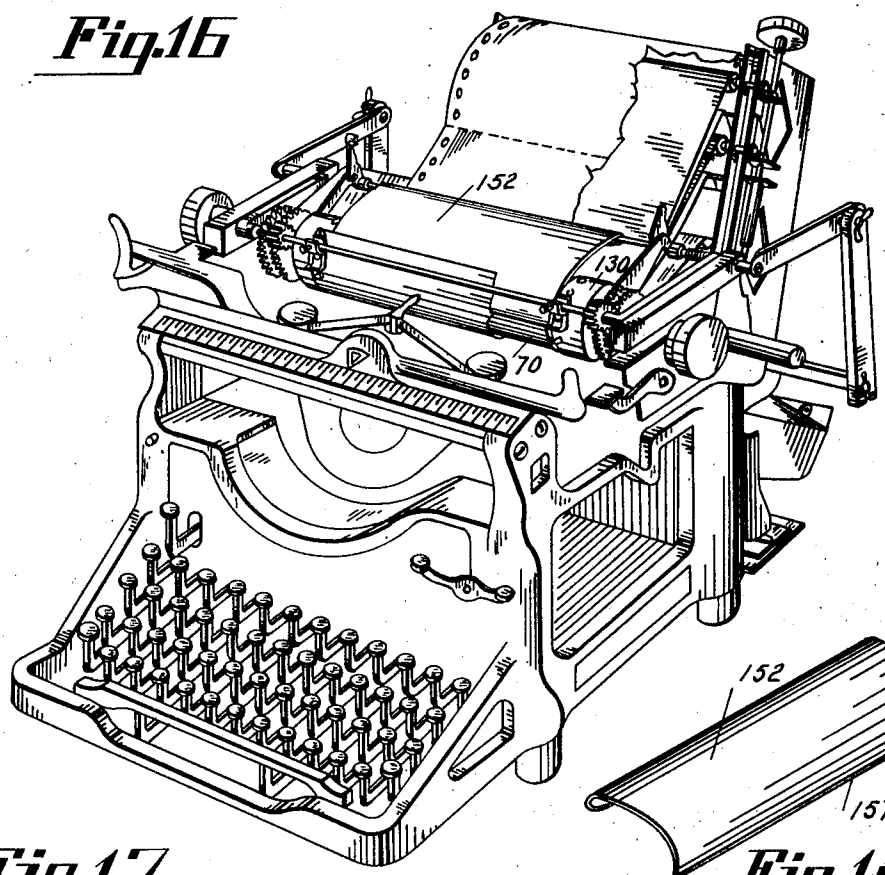


Fig.17

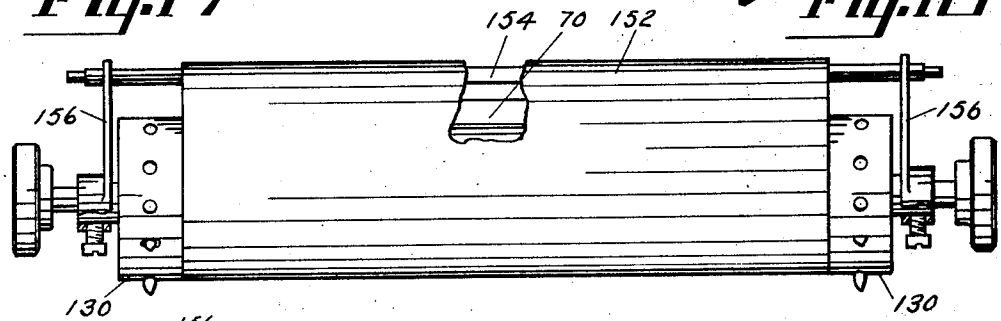


Fig.18

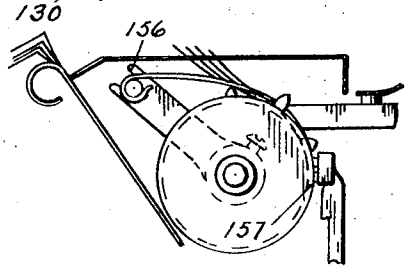


Fig.19

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UNITED STATES PATENT OFFICE

2,045,618

ATTACHMENT FOR WRITING MACHINES

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Application July 29, 1932, Serial No. 625,934

24 Claims. (Cl. 197—134)

This invention relates to an attachment for a typewriter or billing machine, and in more particular to a device for supplying transfer material such as carbon paper to the writing position. In the use of manifold material, it is the practice at times to use what is called a "one-time" carbon and after the carbon has been used once, throw the carbon away. This is expensive. Others use the same carbon numerous times by inserting the carbon between the manifold material. This is objectionable in that it requires the time of the operator and only a portion of the carbon paper is used as the blanks are filled in in certain portions, whereas other portions are never filled in. The above are expensive, causes delay and results in inefficiency.

An object of this invention is to supply transfer material at a rate slower than the rate that the writing material is supplied to the writing platen. This has been accomplished by providing a feeding mechanism that positively retards the advancement of the transfer material to the writing position, but at a rate of speed considerably slower than the advancement of the writing material.

Another object of the invention is to provide a device for supplying transfer material at a rate slower than the rate at which the writing material is supplied to the writing position and where the writing material is supplied to the writing position by means of positive feeding mechanism such as a pin wheel feeding mechanism. This has been accomplished by providing transfer material that is narrower in width than the distance between the pins on the pin feeding mechanism.

Another object of this invention is to provide a platen which permits the insertion of the manifold material and the transfer material, each of which are supplied from separate sources. This has been accomplished by providing a platen that is removably or pivotally mounted so that it may be removed from the writing position to permit the insertion of the manifold material.

Another object of this invention is to provide a feeding device for the transfer material that is responsive to the number of lines actually written. This has been accomplished by advancing the transfer material feeding mechanism in response to the lines actually written. This is very desirable, especially in cases where possibly only a small portion of a blank is used on a large blank. By this arrangement it can be readily seen that the use of the transfer material is a function of the number of lines written rather than the advancement of the writing material.

Another object of this invention is to release the transfer material feeding mechanism when the writing material is manually inserted into writing position. In the modification disclosed, this has been accomplished by providing a clutch in the transfer material feeding mechanism that is released when the writing material is inserted into writing position.

Another object of this invention is to provide a transfer material feeding mechanism that may be driven either in response to a function of the advancement of the writing material or it may be actuated manually.

Another object of this invention is to automatically lock the transfer material feeding mechanism in inoperative position.

Another object of this invention is to provide a floating platen roll driven from a drive shaft concentrically mounted with respect to the platen roll.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of one form of the present invention is clearly shown.

In the drawings, Fig. 1 shows an attachment for a writing machine. Fig. 2 is a fragmentary view drawn to a larger scale than Fig. 1 of the carbon feed driving mechanism. Fig. 3 is an enlarged detail view of the writing machine feeding platen. Figs. 4, 5 and 6 disclose fragmentary views of another portion of the transfer material feed driving mechanism. Fig. 7 shows a fragmentary side elevation of the transfer feeding mechanism and the writing platen. Fig. 8 shows an enlarged fragmentary view of the platen rotating mechanism. Fig. 9 is another view of the carbon feeding mechanism. Figs. 10 and 11 disclose end views of two positions of the writing platen and its mounting mechanism. Figs. 12, 13 and 14 disclose fragmentary views of parts of the mandrels for supporting the rolls of transfer material. Fig. 15 discloses a front view of the carbon supporting mechanism. Figures 16, 17, 18, and 19 disclose the use of a shield mounted intermediate the pin wheel feeding devices, associated with a depressed platen.

In the drawings, the reference character 10 indicates a paper supply carrier mounted on a track 12 supported on a bracket 14 removably attached to the standard 16 carried by a suitable base 18 that may be clamped to a writing machine fixed to the typewriter by a pair of lugs 20. The writing material carrier 10 includes a pair of end frames 22 and 24 supporting the guides 26

over which is fed the writing material that preferably consists of perforated paper strips 28 as best seen in Fig. 7.

The end frames 22 and 24 also support a pair of mandrels 30 each driven by a shaft 32 provided with a pinion 34 driven by a bevel pinion 36 carried by a shaft 38 and fixedly attached thereto. The shaft 38 is driven through a chain of gears including gear 40, meshing with a gear 42, pivoted on a base 44 and intermittently driven by adjustably mounted teeth 46 carried by a ratchet wheel 48. The ratchet wheel 48 is actuated by a pawl 50, pivoted at 52 to a rocker arm 54, pivoted at 56, spring urged in one direction by a spring 58 and driven in the other direction by a rod 60 that passes through a suitable aperture in the standard 16. A collar 62 is carried by the rod 60 and limits its movement so as to rotate the rocker arm 54 about the pivot 56 as the carriage on the typewriter is retracted, thereby causing the pawl 50 to advance the ratchet wheel 48 so as to intermittently drive the gear 42 and the gear 40 in response to the number of lines written. It can readily be seen from this construction that the rock arm 54 is oscillated at the completion of every line so as to rotate the mandrels 30 carrying the transfer material 64. The ratio of the gear mechanism including the gears 40, 42 and the spacing of the teeth 46 in the arrangement of the ratchet 48 with respect to the pawl 50 determines the rate of speed that the transfer material is advanced past the writing platen as will appear more fully later.

The carriage 10 is connected by the link mechanism 66 to the carriage of the writing machine that includes the platen 70 journaled in the bell crank lever 72, pivoted at 74. The platen roll 70 is driven by a suitable pawl; not shown as this forms part of the standard typewriter or writing mechanism. In order to facilitate the insertion of the writing material and the transfer material, the bell crank lever 72 may be rotated from the full line position, disclosed in Fig. 7 to the dot-dash line position, also disclosed in Fig. 7. In order to permit this rotation of the bell crank lever 72, a gear 80, carried by the shaft 82 journaled in the carriage, drives a pinion 84 journaled on the pivot 74 which in turn drives a gear 86 carried by the shaft 88, supporting the platen 70. This construction permits the gear 86 to raise, without disturbing the knob 90, the shaft 82 and the gear 80 carried by the typewriter carriage. A suitable lock including the latch 92, journaled at 94, locks the bell crank lever 72 in position so as to prevent the rotation of the platen after the writing material has been inserted in writing position.

When transfer material is being advanced into writing position it is necessary to provide a suitable release for the roll of transfer material 64 driven by the gear mechanism including the gears 40 and 42. This has been accomplished by providing in the shaft 38, a clutch that includes the driving member 100 connected to the shaft end 38a, and the driven member 102, connected to another shaft end 38b, said members having intermeshing ratchet teeth. One of said members may be moved axially so as to disengage the teeth, thereby permitting the shaft 38b to be rotated. When the clutch members are disengaged the shaft 38b may be rotated by a hand wheel 38c. In the present instance, the driven member 102 may be actuated in an upward direction as viewed in Fig. 7 by a bifurcated crank lever 104 pivoted at 106, carrying a link 108 having a slot 107 surrounding the shaft 88 so that as the platen 50 is moved from down position, the full line position disclosed in Fig. 7, to the up position, the dot-dash position disclosed in Fig. 7, the platen exerts a pull on the link 108 so as to rotate the bell crank lever 104 above the pivot 106, thereby raising the driven clutch member 102 against the pressure of the spring 105 carried by the shaft 38b and a cylindrical housing 106. The transfer material may, in some instances, be advanced in unison with the writing material by locking the bell crank lever 104 in the up position by a stop 107 suitably mounted. This permits the carbon paper to be supplied at the same rate of speed as the writing material.

As may best be seen in Fig. 9, the mandrels carrying the carbon supply rolls 64, may be slipped out of the notches 110 in the end walls 22 as seen in Fig. 1. The shaft 112 is provided with a square end 114 driven by the coupling member 116 biased to the left, as viewed in Fig. 9, by a spring 118 and driven by a stub shaft 120 through the pinions 34 and 36. When the shafts 112 are removed from their positions, a collar 122 keyed to the coupling member 116 prevents movement of the coupling member 116 as best seen in Fig. 9.

In the modification disclosed in Fig. 3, the platen 70 is provided with a pair of pin wheel paper feeding devices 130 that extend beyond the periphery of the platen 70, thereby permitting the writing material to be retracted towards the platen 70 intermediate the pin wheel feeding devices 120 so as to permit the transfer material to be advanced at a different rate of speed and independently of the advancement of the writing material.

When a depressed platen 70 is used as disclosed in Fig. 3, it is preferable to mount a shield 152 intermediate the pin wheels 130 so as to present a flat writing surface to the type impinging position. The shield 152, as may best be seen from Figs. 16 to 19, inclusive, is carried on a transverse rod 154 mounted in brackets 156, concentrically mounted with respect to the pin wheels 130 and the platen 70. The shield 152 is raised and lowered with the platen so as to present a smooth surface for both the capitals and small letters.

The width of the shield 152 is equal to the distance between the inner edges of the pin wheels 130. The thickness of the shield is equal to the difference between the outer radius of the pin wheel and that of the platen.

From the above it can be readily seen that the shield 152 cooperates with the platen 70, and the pin wheels 130 to present a flat surface to the writing material in writing position.

The lower edge 157 of the shield 152 is located immediately below the type impinging position. In case the transfer material tends to bind between the several layers of writing material, the innermost sheets of the writing material are permitted to move into the recess intermediate the pin wheels 130 and in advance of the lower edge 156 of the shield 152. By so doing the binding action upon the transfer material is partially relieved thereby permitting the transfer material to be gradually retracted by the feeding device therefor, which will appear more fully later.

When heavy transfer material is used, or a number of sheets of writing material are used, there is a tendency for the transfer material to bind intermediate the sheets of writing material so as to cause a tension to be exerted upon the transfer

material 64 that may tear the same. In the modification disclosed in Figs. 9, 14, and 15, this has been overcome by providing a resilient connection intermediate a coupling member 116 and mandrels 132 that includes a drum 134 either integral with or fixedly attached to the coupling member 116, and a collar 136 splined on the mandrel 132, driven by a spring 138 having one end connected to drum 134 and the other end connected to the collar 136. The shaft or mandrel 132 is rotatively mounted in the coupling member 116 and driven by a key 140 integral with the collar 136 and extending into a longitudinal slot 142 in the shaft 132.

From the foregoing description, it can be seen that the shaft 132 may rotate by changing the tension in the spring 138 independently of the coupling member 116 driven by the shaft 118 through the gear mechanism as described.

As may best be seen in Fig. 14, the collar 136 is provided with a groove 142 that is provided with a stop 144, the groove 142 receiving a pin 146 integral with or carried by the coupling member 116 that limits the movement of the collar 136 by the pin 146 engaging either side of the stop 144.

From the foregoing, it appears that the transfer material 64 may advance substantially one revolution in advance of the positive feeding mechanism.

In order to insert and remove the roll of transfer material 64 from the mandrel 132, the end of the shaft 132 is seated in a stub shaft 148 carried by the end frame 149. The shaft 132, together with the coupling member 116 and the parts mounted thereon, may be moved to the right as viewed in Fig. 15 so as to permit the end of the shaft 132 to slip out of the recess provided therefor in the stub shaft 148 so as to leave one end of the shaft 132 free to move laterally so as to permit the roll to clear the shaft 148, thereby permitting the shaft 132 to move to the left as shown in Fig. 15, slipping out of the coupling member 116 and the collar 136. The collar 136 is prevented from following the shaft 132 as the shaft is moved to the left, by a cap 150 that is carried by the drum 134. In addition to this, the cap 150 retains a spring 138 in an aligned position.

In operation, the tension exerted by the spring 138 upon the transfer material 64 tends to withdraw the transfer material 64 until the pin 146 engages the stop 144, especially when the type impinges upon the platen, which tends to loosen the gripping action of the writing material upon the transfer material. Under normal operation, for ordinary writing material and transfer material, the transfer material will be retracted upon the impingement of a few types upon the platen until the writing material is again advanced.

In the modification disclosed in Fig. 1, the transfer material is advanced at the end of the line immediately before the return of the carriage. Within the purview of this invention, the parts disclosed in Fig. 1 for advancing the transfer material could be reversed so as to have the transfer material advanced upon the return of the carriage.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

Having thus described our invention, we claim:

1. In a writing machine having a traveling carriage, means for supplying writing material to the writing position of said machine, and continuous length transfer material feeding means positively actuated for advancing the transfer material to the writing position in line with the writing material but at a predetermined rate of speed slower than the advancement of the writing material, said means including a support mounted in offset relation with respect to the traveling carriage of the writing machine for supporting rolls of continuous length transfer material.

2. In a writing machine having a traveling carriage, a feeding mechanism for supplying writing material longitudinally to the writing position in said machine, and means for supplying continuous length transfer material from rolls in the same direction as the writing material, means for supporting the rolls of continuous length record material, said means including a carriage mounted upon a base offset with respect to the traveling carriage of the writing machine, said means supplying the transfer material to the writing position in response to the return of the carriage of said machine.

3. In a writing machine having a traveling carriage, a feeding mechanism for supplying writing material longitudinally to the writing position in said machine, and supplemental means for supplying continuous length transfer material from rolls in the same direction as the advancement of the writing material, said means rotating the rolls for supplying the transfer material to the writing position in response to the transverse movement of the carriage of said machine and at a rate different from the advancement of the writing material, said supplemental means including a traveling carrier mounted for unison travel with the traveling carriage of the writing machine, said carrier being mounted upon a support offset with respect to the traveling carriage.

4. In a writing machine having a traveling carriage, spaced pin wheel feeding mechanisms for advancing the writing material to the writing position in said machine, and a transfer material feeding mechanism for supplying transfer material intermediate said pin wheel feeding mechanisms, said transfer feeding mechanism including means for supplying the transfer material to the writing position periodically in response to a predetermined number of transverse movements of the carriage of the writing machine.

5. In a writing machine, having a reciprocatory carriage, pin wheel feeding mechanisms for supplying material to the writing position in said machine, a mechanism for supplying transfer material to the writing posion in a path intermediate said pin feeding mechanisms, said transfer material feeding mechanism including means for periodically advancing the transfer material in response to a predetermined number of transverse movements of the carriage of said writing machine.

6. In a writing machine having a platen, a carriage for supporting said platen, and feeding mechanism for supplying the writing material to said platen characterized by transfer material feeding means for periodically supplying the transfer material to said platen in response to a predetermined number of transverse movements of said carriage.

7. In a writing machine having a pin wheel feeding mechanism associated with a platen, a reciprocatory carriage characterized by means for periodically supplying transfer material to the

platen actuated in response to predetermined number of return movements of said carriage.

8. In a writing machine having a pin wheel feeding mechanism associated with a platen and a reciprocatory carriage characterized by a transfer material supplying mechanism including a support for a roll of transfer material, and driving mechanism for periodically rotating said roll of transfer material so as to supply the transfer material to the writing position of the machine, said driving mechanism including a member actuated in response to a predetermined number of transverse movements of said carriage.

9. In a writing machine having a pin wheel feeding mechanism associated with a platen and a reciprocatory carriage characterized by a magazine for holding a supply of writing material and a supply of transfer material, feeding means for periodically supplying the transfer material to the platen in said writing machine in a direction in line with the advancement of the writing material but at a rate different from the rate of advancement of the writing material, and means responsive to a predetermined number of transverse movements of the carriage for positively actuating the feeding means.

10. In a writing machine having a pin wheel feeding mechanism associated with a platen and a reciprocatory carriage characterized by a magazine for supporting a supply of writing material and a supply of transfer material, a feeding mechanism for periodically supplying the transfer material to the platen at a rate slower than the advancement of the writing material, said feeding mechanism including a pawl and ratchet mechanism actuated in response to the transverse movement of said carriage, and means actuated in response to a predetermined number of ratchet actuations for periodically driving the feeding mechanism.

11. In a writing machine having a pin wheel feeding mechanism associated with a platen and a carriage having a transverse movement characterized by a magazine for supplying writing material and transfer material to said platen, and feeding mechanism for periodically supplying the transfer material to the writing platen, said feeding mechanism supplying the transfer material to the platen independently of the advancement of the writing material but in response to a predetermined number of transverse movements of the carriage.

12. In a writing machine having a pin wheel feeding mechanism associated with a platen, the combination of a magazine for supplying writing material and transfer material to said platen, a driven feeding mechanism responsive to a predetermined number of certain movements in the writing machine for supplying the transfer material to the writing platen independently of the movement of said writing material, and a release mechanism permitting the transfer material to be advanced to the platen at the same rate as the advancement of the writing material.

13. In a writing machine having a pin wheel feeding mechanism having a platen associated with a movable carriage, the combination of a magazine for supplying writing material and transfer material to the platen with a transfer material feeding mechanism including a plurality of supports for rolls of transfer material, a gear mechanism for rotating said rolls, and means for driving said mechanism in response to a predetermined number of transverse movements of said carriage.

14. In a writing machine having a pin wheel feeding mechanism associated with an oscillatingly mounted platen supported in a carriage, the combination of a magazine with a support for rolls of transfer material, driving mechanism for advancing the transfer material to the platen independently of the advancement of the writing material, and means responsive to the movement of the platen for making said driving means inoperative so as to permit the advancement of the transfer material with the writing material.

15. In a writing machine having feeding mechanism associated with a platen and a traveling carriage, said platen oscillatingly mounted so as to permit the advancement of the writing material and transfer material into writing position, the combination comprising a magazine, a support for rolls of transfer material, a driving mechanism for actuating said rolls in response to the transverse movement of said carriage, and means responsive to the oscillating movement of said platen for disconnecting said driving means so as to permit the free advancement of the transfer material.

16. In a writing machine, a rotary platen and a pin wheel feeding mechanism associated with said platen, said pin wheel feeding mechanism including a pair of wheels arranged in concentric relation with said platen, means for causing the feeding pins to have a rectilinear movement relative to the platen, the diameter of said wheels exceeding the diameter of the platen.

17. In a writing machine, a rotary platen and a pin wheel feeding mechanism associated with said platen, said pin wheel feeding mechanism including a wheel concentrically mounted with respect to said platen and rotating therewith, and a plurality of radially moving pins carried by said wheel, the diameter of the wheel exceeding the diameter of the platen so as to hold the writing material taut over the pin wheel feeding mechanism and loosely over the platen.

18. In a writing machine, a rotary platen, a pin wheel feeding mechanism associated with said platen, the pin wheel feeding mechanism including a wheel concentrically mounted with respect to the platen and having a diameter that exceeds the diameter of the platen, said pin wheel feeding mechanism supplying a plurality of superimposed strips of record material to said platen, a plurality of magazines for supplying transfer material intermediate said superimposed strips of record material, the width of the transfer material being less than the width of the superimposed strips of record material, and means for advancing the record material at a rate of speed slower than the rate of the advancement of the record material, the increased diameter of the pin wheel feeding mechanism permitting the interleaved transfer material to slip with respect to the record material.

19. An attachment for supplying transfer material to a writing machine having a platen and relatively movable parts at a rate of speed slower than the writing material advanced through the machine, said attachment including transfer material feeding means, a positive driving mechanism for actuating said means so as to advance the transfer material to the platen, driving mechanism responsive to a certain number of predetermined movements in the writing machine, and a yielding connection intermediate the transfer material and said feeding means.

20. An attachment for a writing machine including positive feeding means for advancing ma-

terial to the writing machine at a predetermined rate of speed, a second feeding means responding to a certain number of predetermined movements in the writing machine to intermittently advance the transfer material, and resilient means interposed intermediate said second feeding means and said material for permitting the material to advance at a rate of speed different from the rate of speed of said positive feeding means.

21. In a writing machine, a carriage having a relative to and fro movement with respect to a writing position, a feeding mechanism associated with said carriage for supplying writing material to the writing position, and adjustable means for supplying transfer material to the writing position in the same direction as the advancement of the writing material at a rate of speed determined by the adjustment of said means and in response to a predetermined number of return movements of the carriage.

22. In a writing machine, a carriage having a relative to and fro movement with respect to a writing position, a feeding mechanism for supplying writing material longitudinally to the writing position, and adjustable means for supplying transfer material in the same direction as the advancement of the writing material and in response to a predetermined number of movements of the carriage, said means being adjustable to feed different lengths of transfer material to accommodate various lengths of writing material.

23. In a writing machine including a pin wheel feeding mechanism associated with a platen and a carriage having a to and fro movement, characterized by means for supplying transfer material to the platen actuated in response to a predetermined number of return movements of said carriage, said means being adjustable for different lengths of feed.

24. In a writing machine, a rotary platen and a pin wheel feeding mechanism associated with said platen, said pin wheel feeding mechanism including a pair of wheels arranged in concentric relation with said platen, the diameter of the wheels exceeding the diameter of the platen, and means overlapping the platen along the writing position to present a writing surface flush with the outer surface of the wheels.

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