Nov. 23, 1954 R. M. FORD ET AL 2,695,091

RIBBON GUIDE MEANS FOR TYPEWRITING MACHINES

Filed Feb. 5, 1952 2 Sheets-Sheet 1

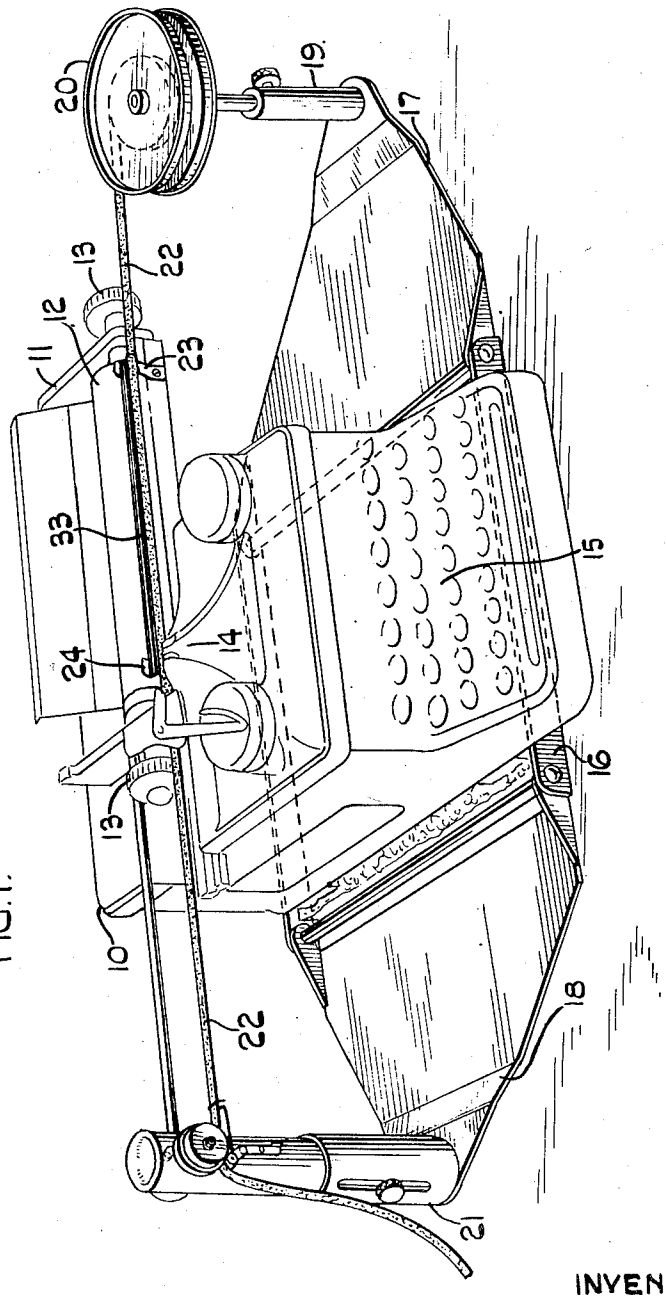


FIG. 1.

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FIG. 2.

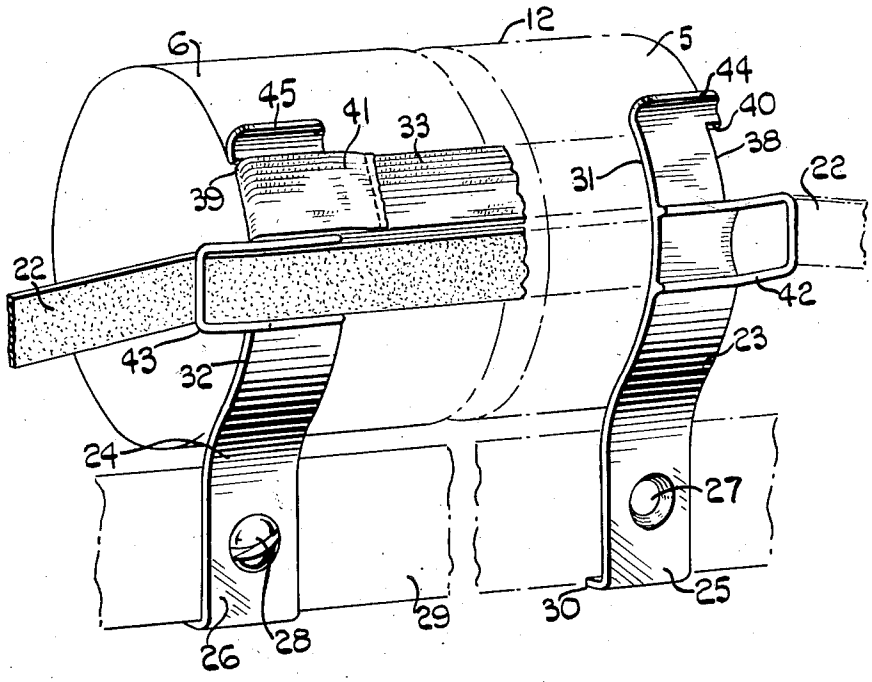
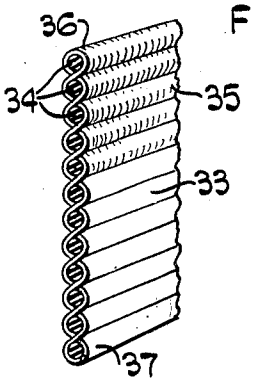


FIG. 3.



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United States Patent Office 2,695,091 Patented Nov. 23, 1954

2,695,091

RIBBON GUIDE MEANS FOR TYPEWRITING MACHINES

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Application February 5, 1952, Serial No. 269,996

Claims priority, application Great Britain February 14, 1951

2 Claims. (Cl. 197—170)

This invention relates to typewriting machines when used for producing master sheets which are subsequently to be used in a duplicating machine wherein the master sheet bearing the script in reversed type is brought into pressure contact with a suitably moistened copy sheet to reproduce the matter from the master on the copy sheet.

The master sheet is produced by using a special carbon paper known as hectograph carbon which causes considerable marking of the operator's hands and it is therefore advantageous to use a ribbon of carbon which requires the minimum of actual handling by the operator.

The object of the present invention is to provide in or for use with a typewriting machine, new or improved means for guiding the carbon ribbon so that it traverses the proper longitudinal zone of the platen roller and is not displaced laterally by rotation of this roller or is restored when so displaced.

A more specific object of the present invention is to provide improved means for guiding the carbon ribbon which whilst avoiding danger to the type heads should they inadvertently strike it, will allow the master sheet to slide freely thereover when the platen roller is rotated to effect line spacing, and accordingly there is provided in a typewriting machine of the kind having a body, a carriage slidably supported thereon, a platen roller journalled in said carriage, and type heads movable against the platen roller; guide means for the carbon ribbon comprising support members secured to said carriage at opposite ends of the platen roller, and a strip of flexible material including a plurality of elastic strands extending longitudinally of the strip and covered by threads of textile material interleaved transversely with said strands, said strip being supported in tension from said members and extending rectilinearly between same, and lying adjacent to said platen roller parallel to the axis thereof above the carbon ribbon zone.

One of the main advantages of such guide means is that the flexible material especially when in the form of a strip of elastic or rubber may be thin. The paper forming the master sheet may thus conform closely to the surface of the platen roller without great distortion in the carbon ribbon zone, this being important for the proper formation of the carbon lettering or legend in reverse or mirror image upon the face of the master sheet directed towards the platen roller.

Further, the use of a flexible material for the strip or band, such as rubber, avoids damage to the type heads should they inadvertently strike it since such material is generally resilient or absorbent as to impact.

Referring to the drawings:

Figure 1 is a perspective view of a typewriting machine ribbon feed device and guide means showing one construction of the last mentioned in accordance with the present invention.

Figure 2 is a fragmentary view of the arrangement shown in Figure 1 and on an enlarged scale showing the construction and arrangement of the guide means and

Figure 3 is a fragmentary view on a still further enlarged scale showing the detailed formation of the guide strip or band.

In the arrangement illustrated in Figure 1 the typewriting machine is of any suitable or usual construction and has a body **10** upon which is slidably supported a carriage **11** in which is journalled a platen roller **12** capable of being rotated intermittently by means of hand wheels **13** to feed a master sheet past the typing station **14** to which the type heads are brought to engage against the platen roller by depression of respective keys **15**.

The machine is supported upon a base member **16** having laterally extending side plates **17** and **18** which support respectively a post **19** carrying a dispenser or reel **20** for carbon ribbon of the type known as hectograph carbon and a post **21** housing a take-up mechanism to move the carbon ribbon **22** through the typing station intermittently in synchronism with movement of the carriage **11**.

This base member and associated dispenser and take-up device form the subject of our application for patent in the U. S. A. No. 211,927 filed on February 20, 1951, the specification of which contains a full disclosure of these parts, which disclosure will not therefore be repeated in the present specification.

Referring now to Figure 2 of the drawings, guide means for the carbon ribbon **22** comprises supporting members **23** and **24** spaced apart longitudinally of the platen roller **12** so as to lie opposite end zones thereof. These members are formed of strip metal and are in the form of brackets having attachment portions **25** and **26** provided with screw holes such as that seen at **27** through which fixing screws as indicated at **28**, may be passed to enter tapped holes in a forwardly located longitudinal strip member **29** of the carriage, the lower ends of the supporting members preferably being cranked as indicated at **30** to engage beneath the edge of the member **29**.

The supporting members are formed with strip holding portions **31** and **32** of arcuate form which have substantially the same curvature as the platen roller and lie closely adjacent thereto as shown.

Supported by these members or brackets is a guide strip or band **33** held in extended rectilinear formation parallel to the platen roller axis and lying against the surface of the platen roller immediately above the longitudinal zone traversed by the carbon ribbon **22**.

This strip or band is held in tension by means of the members **23** and **24** and this may be accomplished either by forming the strip or band of elastic material and spacing the members **23** and **24** apart by a distance greater than its natural length or by forming the strip or band of some relatively inelastic but flexible material such as webbing or tape or a plastic material and applying tensioning means thereto. For example, the members **23** and **24** might themselves be sufficiently resilient to impart the tension.

The preferred form of strip or band is illustrated in Figure 3 in which the strip or band comprises a plurality of strands such as indicated at **34** of rubber or the like elastic material covered by a woven structure or covering **35** consisting of a plurality of cotton or textile threads interwoven with the strands **34** transversely or at right angles thereto. The upper and lower edges **36** and **37** or at least the latter are also preferably of rounded cross section to reduce the tendency for the strip or band to be displaced laterally by the roller when this is rotated. The thread-like covering also tends to reduce such displacement since the threads extend in the direction of rotation and thus present a lower coefficient of friction between the platen roller and the strip or band in the direction of rotation than they present parallel to the axis of the roller.

For locating and positioning the strip or band positively in its own plane, the holding portions **31** and **32** of the brackets or members **23** and **24** are provided with recessed seatings **38**, **39**, presenting shoulders such as that shown at **40** affording positive resistance to displacement of the ends of the strip or band in its own plane. These ends may be of looped form as shown at **41** and embrace the holding portions of the support members or brackets.

The latter are further provided with guide passageways for the carbon ribbon **22**, such guide passageways being defined, for example, by the provision of loops **42** and **43** through which the carbon ribbon is threaded, these loops extending laterally of the brackets or supporting members beyond the ends of the platen roller.

The upper extremities of the support members or brackets may be flanged outwardly in a radial direction with respect to the platen roller as shown at **44**, **45**, to avoid possible scratching or damage on its end zones.

In operation, the lower edge **37** of the guide strip or band forms a shoulder resisting upward deflection of the carbon ribbon and ensures that this is maintained in register with the typing station without the application of excessive tension to the carbon ribbon and despite intermittent rotation of the platen roller. In cases where the strip or band is formed of elastic material, the guide means are automatically self-accommodating with respect to the typewriting machines having platen rollers of differing lengths, the strip or band being stretched to a variable extent depending upon the length of such roller.

What we claim then is:

1. In a typewriting machine of the kind having a body, a carriage slidably supported thereon, a platen roller journalled in said carriage, and type heads movable against said platen roller; the provision of guide means for carbon ribbon comprising, support members secured to said carriage at opposite ends of the platen roller, and a strip of flexible material including a plurality of elastic strands extending longitudinally of the strip and covered by threads of textile material interleaved transversely with said strands, said strip being supported in tension from said members and extending rectilinearly between same, and lying adjacent to said platen roller parallel to the axis thereof above the carbon ribbon zone.

2. In a typewriting machine of the kind having a body, a carriage slidably supported thereon, a platen roller journalled in said carriage, and type heads movable against said platen roller; the provision of guide means for carbon ribbon comprising, support members secured to said carriage at opposite ends of the platen roller, and a strip of flexible material including a plurality of elastic strands of substantially circular cross sectional shape, said strands extending longitudinally of the strip and having a covering of threads of textile material interleaved transversely with said strands, said strip being supported in tension from said members and extending rectilinearly between same and lying adjacent to said platen roller parallel to the axis thereof above the carbon ribbon zone.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
890,507	Gorin	June 9, 1908
2,058,859	Fried	Oct. 27, 1936
2,217,180	Noonan	Oct. 8, 1940

FOREIGN PATENTS

Number	Country	Date
516,964	Great Britain	of 1940