

933,593.

Patented Sept. 7, 1909.
3 SHEETS—SHEET 1.

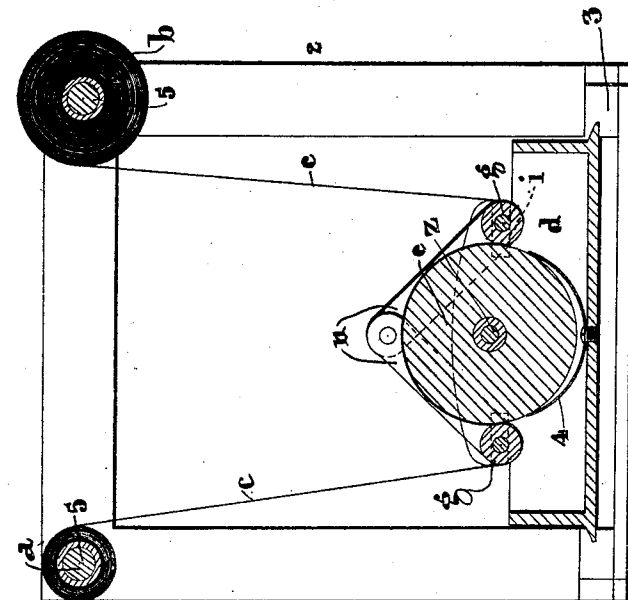


Fig. 1.

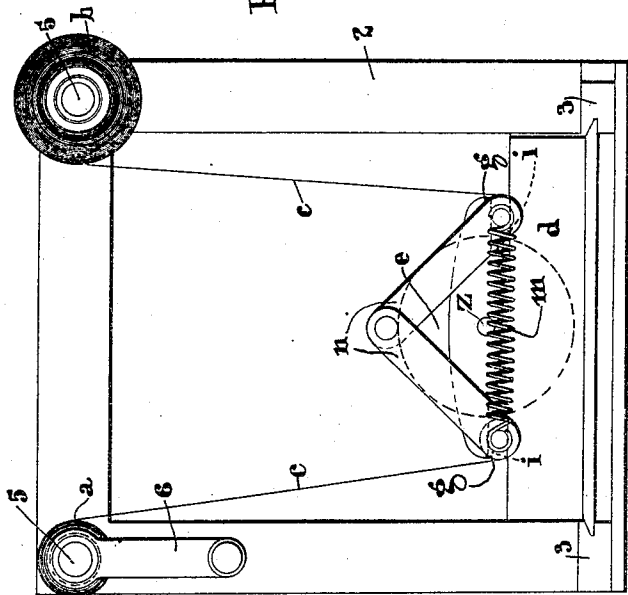


Fig. 2.

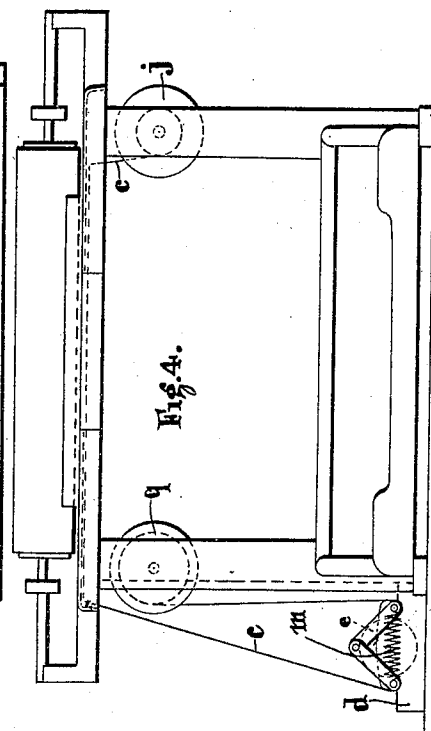


Fig. 3.

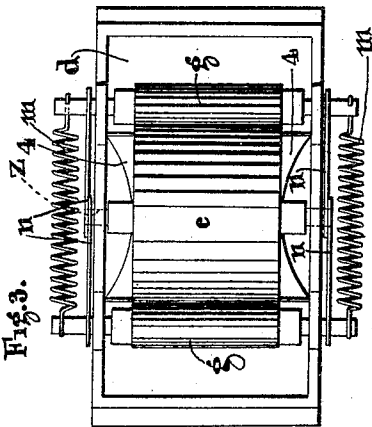


Fig. 4.

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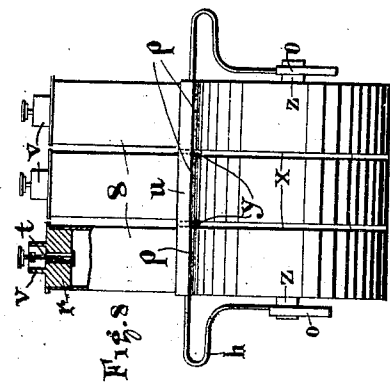
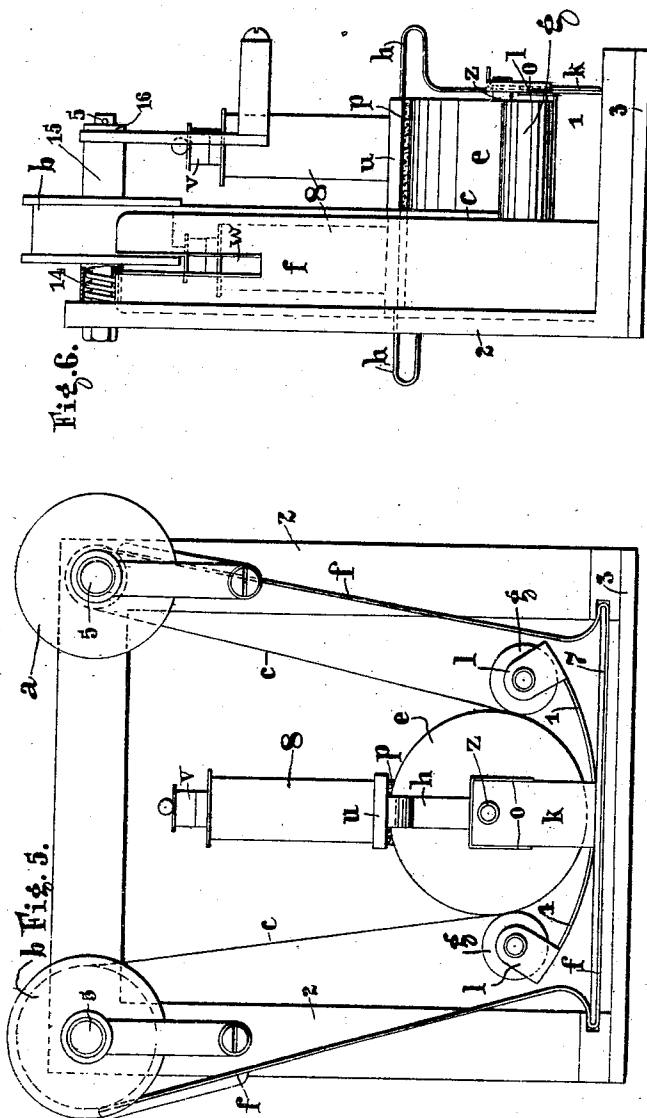
Inventor:

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Attys.

S. SNELL.
TYPE WRITER.
APPLICATION FILED DEC. 13, 1907.

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

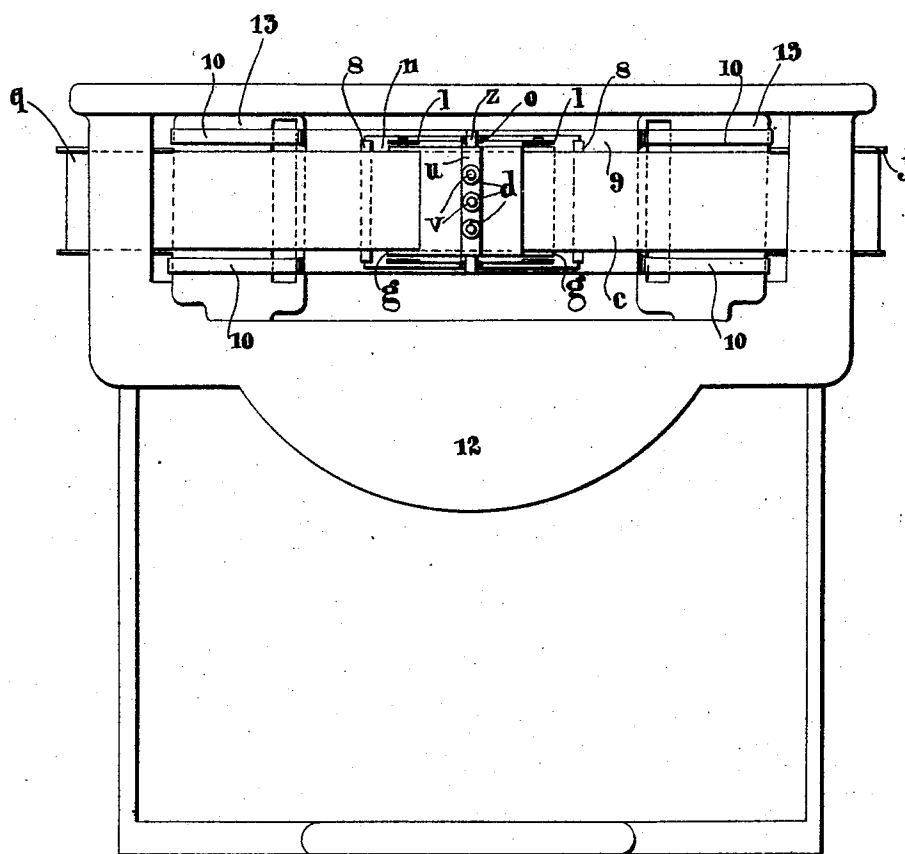


Fig. 9.

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UNITED STATES PATENT OFFICE.

SAXON SNELL, OF LONDON, ENGLAND.

TYPE-WRITER.

933,593.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed December 13, 1907. Serial No. 406,322.

To all whom it may concern:

Be it known that I, SAXON SNELL, a subject of the King of Great Britain and Ireland, and residing at 1 New Court, Lincoln's Inn, London, W. C., England, have invented certain new and useful Improvements in and Relating to Type-Writers, of which the following is a specification.

This invention relates to the making of new and the renovation of exhausted typewriter ribbons, and its object is to provide means whereby ribbons which have become dry or faint from use may be so treated as to enable them to again give a good impression.

A further object is to provide means whereby raw uninked ribbon may be inked.

The invention consists in a device for treating typewriter ribbon material comprising in combination a roller, means for applying liquid to such roller, means for passing the ribbon material in close contact with the roller.

According to the invention I provide a device for attachment to or for incorporation with typewriters or for independent use, through which raw ribbon or the ribbon of a typewriter is passed, the device having means for inking, moistening, re-inking or applying a solvent to the ribbon for the purpose of making a new ribbon or lengthening the period of usefulness of an exhausted ribbon.

The invention further consists in means for applying the ink or inks or solvents in a regular and regulable manner to the main roller of a device for separate use or for attachment to typewriters for making or renovating typewriter ribbons, and whereby preferably more than one kind of ink may be applied at the same time and a multi-colored ribbon made or renovated in a single operation.

The invention also consists in supporting means for the rollers such that the main roller may be easily and quickly removed and replaced to facilitate the adjustment of the ribbon to be treated.

The invention further consists in the improved typewriter ribbon renovating devices hereinafter described.

Referring now to the accompanying drawings which form part of the specification: Figure 1 shows a front elevation of one form of the device in which an ink or solvent

containing trough is used; Fig. 2 is a sectional elevation showing the "trough" or main roller, jockey rollers and doctor blades; Fig. 3 is a plan of the trough, *d*, removed from the base 3 of Fig. 1; Fig. 4 shows the device applied to a Remington typewriter, the typewriter being shown diagrammatically; Fig. 5 is a front elevation, showing a further modification of the device, in which ink containing reservoirs are used supplying ink to the main roller in a regulable manner instead of the trough shown in Fig. 1; Fig. 6 is a side elevation of the device shown in Fig. 5; Fig. 7 shows an alternative form of the element for supporting the main and jockey rollers shown in Fig. 5, Fig. 8 is a part sectional side view showing a further modification in the construction of the ink supplying means, this form being suitable for treating multi-colored ribbon, while Fig. 9 shows a modification of the device as applied to a Smith Premier typewriter, the typewriter being shown diagrammatically.

In carrying this invention into effect according to one construction I provide a suitable framework, 2, mounted upon a base, 3. This framework, 2, carries two spindles, 5, upon which are rotatably mounted the spindles, *a* and *b*. Upon these spools the ribbon, *c*, is respectively wound and unwound, *b*, being the winding off spool and, *a*, the winding-on spool in the drawings. From the winding off spool, *b*, the ribbon, *c*, passes under the first jockey roller, *g*, then over the inking or main roller, *e*, and under the second jockey roller, *g*, before reaching the winding on spool, *a*. The main roller, *e*, is provided with a spindle, *z*, which is mounted in holes in the walls of the trough, *d*, which trough is supplied with moistening, inking, re-inking or solvent solution in sufficient quantity to insure that the lower part of the inking roller, *e*, shall dip into it and shall thus be continually charged with the fluid. The spindles on which the two jockey rollers, *g*, revolve, pass through slots in the walls of the trough, *d*, and are also provided with links, *n*, *n*, to facilitate the manipulation of the spindles and placing them in position in the slots, *i*, *i*. The action of the jockey rollers is to maintain the ribbon, *c*, in close contact with the inking roller, *e*, and also to prevent the ribbon from retaining an excess of fluid when leaving the main roller and to

accomplish this they are yieldingly held against the said roller by means of the springs, *m, m*. The main or inking roller, *e*, is also preferably provided with a resilient periphery against which the jockey rollers are yieldingly held as beforementioned.

In some cases doctor blades, 4, may be provided to press against the roller, *e*, and so prevent it from carrying an excess of fluid on to the ribbon; they also assist the jockey rollers in insuring an even distribution of the fluid over the roller, *e*. These doctor blades, 4, must be cut away at the sides to allow the fluid to have access to the inking roller, *e*. The winding on spool, *a*, is provided with a handle, 6, although both the spools, *a* and *b*, may be so provided as shown in Fig. 5.

In the modification in which this device is attached to or incorporated with the typewriter, as shown by way of example in Fig. 4, as attached to a Remington typewriter, the above described spools, *a* and *b*, are unnecessary as their functions may be performed by the winding-on and winding-off spools, *q* and *j*, respectively already existing in the typewriter and forming elements thereof. It will be seen also that in this modification the upper part of the framework, 2, which, in the form adapted for hand manipulation, as shown in Figs. 1 and 2, carries the winding-on and winding-off spools, *a* and *b*, may be dispensed with.

The spindles, 5, 5, fixed in the upper part of the frame, 2, and upon which the winding-on and winding-off spools are mounted may be provided with removable bushes of different diameters in order to accommodate spools having various sized bores.

In the modifications shown in Figs. 5 to 9, and in which the trough, *d*, is dispensed with, the main and jockey rollers, *e*, and *g, g*, are supported by a metal supporting element, 1, 7, *l, k*. This supporting element consists of a sole plate, 7, slidably mounted in grooves formed either in the base plate, 3, or the lower part of the frame, 2. Attached to this sole plate, 7, is a crescent plate, 1, formed preferably of spring steel; portions of this crescent plate are bent up to form the roller supporting lugs, *l, l*, and *k*, for the spindles of the jockey and main rollers respectively. In some cases these lugs may be formed of separate pieces attached to the crescent plate, 1. In a further modification of this supporting element, 1, 7, *l, k*, as shown in Fig. 7, the supporting element is formed out of a single piece of metal doubled upon itself in parts to form the sole plate, 7, the portions *l, l*, and *k*, being bent up as before to provide the supporting lugs for the rollers.

The main roller, *e*, may be constructed of boxwood or any other suitable material or it may be provided with a resilient periphery.

The spindle, *z*, of the main roller, *e*, projects a short way on each side of the roller to engage in the bent up supports, *h*, of the crescent plate and also engages in holes in the legs, *h*, of the supporting means, *u*, of the ink applying means, 8 and *p*. The jockey rollers, *g, g*, are also preferably made of boxwood, but in some cases a covering of rubber or other suitable material may be used on a core of metal or wood. In any case the jockey rollers *g, g*, are provided with axles projecting a short way at each end to engage in holes in the bent up supports, *l, l*, of the crescent shaped plate, 1, 1.

The main and jockey rollers, *e* and *g, g*, and the crescent plate, 1, 1, are so disposed and the plate, 1, 1, so bent that when assembled in position the jockey rollers, *g, g*, are yieldingly pressed against the main roller, *e*, the springiness of the crescent plate, 1, 1, assisting to cause this effect.

The ink or solvent applying means may consist of one or more reservoirs, 8, for the ink moistening or solvent solutions (the number of these reservoirs 8, depending upon the number of colors of the ribbon to be treated) mounted upon a bridge piece, *u*, supported by spring like legs, *h*, mounted as above described upon the ends of the main roller spindle, *z*, and between the sides of the main roller, *e*, and the bent up supporting means, *h*, carrying the main roller spindle, *z*. The underside of the bridge piece, *u*, is provided with a pad, *p*, in the case of one ink or solvent or with as many pads, *p*, as there are reservoirs, 8, in the case of more than one ink or solvent being applied. When more than one pad is used, as shown in Figs. 6 and 8, they are separated from one another by partitions, *y*. These partitions, *y*, may in some cases be extended beyond the surface of the pads, *p*, to engage in grooves, *x*, provided in the periphery of the main drum, *e*, for the purpose of keeping the different colors or solvents distinct from one another. This modification is shown in Fig. 8. The reservoirs, 8, communicate with the pads, *p*, by means of the holes in the bridge piece. The pads, *p*, may be composed of felt or other suitable material. At their upper ends the reservoirs, 8, may be provided with stoppers, carrying regulable valves, *v*, each consisting of a body part, having a hole through it up which passes the screwed stem, *t*, of the puppet-headed valve; the screw threads on the stem, *t*, engaging in a screwed hole provided in the upper part of the body. It will be seen that by turning the stem, *t*, the puppet headed valve may be opened more or less, thus enabling the rate of flow of the ink to the pads, *p*, to be controlled by regulating the admission of air above the ink or solvent in the reservoirs, 8.

The legs, *h*, supporting the ink applying device are bent to provide sufficient spring-

ness to yieldingly press the pads, *p*, on to the periphery of the main roller, *e*. Those portions of the supporting legs, *h*, which are situated between the sides of the main roller, *e*, and its bent up supports, *k*, are provided with extended portions or ears, *o*, which are bent so as to engage the edges of the bent up supports, *k*, and so operate to keep the inking means upright.

10 The action of the device is as follows:—
The ribbon, *c*, is led from the winding-off spool, *a*, down between the main roller, *e*, and the jockey roller, *g*, on the side adjacent to the winding-off spool under the main roller, *e*, and up between the latter and the other jockey roller, *g*, to the winding-on spool, *e*. In passing under the main roller, *e*, and in contact therewith, the ribbon, *c*, takes up a quantity of the ink or inks or solvents which have been spread upon the roller by the pad or pads, *p*.

It will be seen that in placing the spools in position and in adjusting the ribbon to be treated, there is no necessity to handle the ribbon itself, as it may be adjusted into position by simply manipulating the main roller. Further, it is not necessary to completely unroll the ribbon off one of the spools when treating it, and any portion of the ribbon may be treated without affecting the remainder.

In some cases means may be provided for keeping the ribbon in the correct longitudinal position in respect of the main roller, and this is particularly necessary in the case of operating with more than one ink or solvent. Further, it is desirable to prevent the winding-off and winding-on spools from revolving too fast. These alining and retarding means may take the form shown in Figs. 5 and 6; they consist of a plate, *f*, *f*, *f*, bent so as to form two upright portions and a horizontal portion. That part of the horizontal portion where it joins the vertical portion is so bent as to embrace the ends of the sole plate, 7, situated within the grooves provided in the base 3 or in the lower part of the frame 2, the size of the grooves being suitably proportioned to take the extra thickness of materials when this form of retarding and guiding means is used. The upright side portions of the plate, *f*, *f*, *f*, may be provided with slots, *w*, the edges of which may be bent up. This slot engages with one of the flanges of the winding-off and winding-on spool, *a* and *b*. It will thus be seen that the longitudinal position of the spools, *a* and *b*, upon their spindles 5, 5, will be controlled by the slots, *w*, while the prongs formed by the portions of the plate at the sides of the slots, *w*, *w*, provide wipers or braking portions which bear upon the ribbon wound upon the spools thus retarding their motion.

65 An alternative form of retarding device

is shown in Fig. 6 and consists of a spring 14, which presses the bush, 15, which carries the winding-off spool, *a*, against the washer, 16, held upon the end of the fixed spindle, 5, thus providing the necessary retarding friction.

In the modification in which this device is attached to or incorporated with a typewriter, and as shown by way of example in Fig. 9, as attached to a Smith Premier typewriter, the above described winding-on or winding-off spools, *a* and *b*, respectively are unnecessary, as their functions may be performed by the winding-on and winding-off spools, *j* and *q*, already existing in the typewriter and forming elements thereof.

The attaching means may comprise grooves, 8, 8, provided on a separate element, 9, which is attached to the typewriter, the sole plate, *n*, described above sliding in these grooves, 8, 8. The element 9, is provided with arms 10, which rest upon a portion of the framework of the typewriter 13, and embrace between them the ribbon, *c*, passing from one roller to the other. It will be seen that the element 9, as it rests loosely upon the portions 13 of the framework of the typewriter, may move slightly sidewise to accommodate itself to the position of the winding-on and winding-off spools.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. The combination comprising a framework carrying two ribbon spools revolubly mounted and provided with rotating and retarding means, a liquid reservoir carried by said framework, a revolubly mounted roller connected to said reservoir, means carried by said reservoir for spreading liquid on the main roller, resiliently mounted auxiliary rollers connected to said framework and adapted to press the ribbon against the said main roller in its passage from one spool to the other.

2. The combination comprising a framework carrying two ribbon spools revolubly mounted and provided with rotating and retarding means, a liquid containing bath; a roller carried by and attached in the said bath, means carried by said bath for spreading liquid on said roller, and resiliently mounted auxiliary rollers carried by said bath and adapted to press the ribbon against the roller in its passage from one spool to the other.

3. The combination comprising a framework carrying two ribbon spools revolubly mounted and provided with rotating and retarding means, a liquid reservoir, means carried by said reservoir for spreading liquid; a main roller resiliently carried by said reservoir and in contact with said spreading means, and auxiliary rollers resiliently

mounted and adapted to press the ribbon against said main roller in its passage from one spool to the other.

4. A device for treating typewriter ribbon material comprising in combination two
5 typewriter ribbon material carrying spools revolubly mounted and provided with rotating and retarding means, a revolubly mounted roller, means for spreading liquid
10 on the roller, auxiliary rollers pressing the typewriter ribbon material against said

roller in its passage from one spool to the other, means for regulating the quantity of liquids spread on the roller, projections on the spreading means and grooves in the
15 roller into which these projections enter.

In testimony whereof, I affix my signature in presence of two witnesses.

SAXON SNELL.

Witnesses:

P. A. OUTHWAITE,
H. D. JAMESON.