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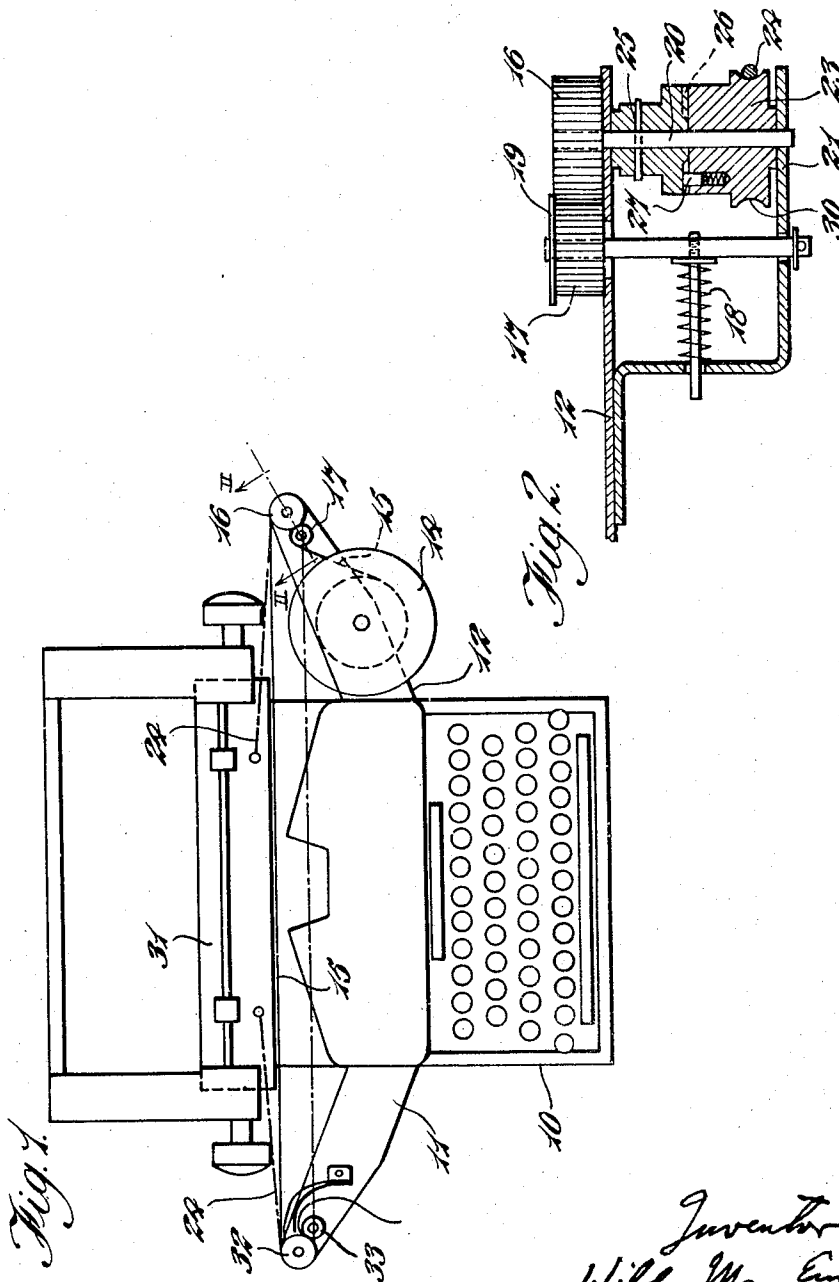
H. M. ENGLAND

2,900,067

ATTACHMENTS FOR TYPEWRITERS

Filed Dec. 10, 1957

2 Sheets-Sheet 1



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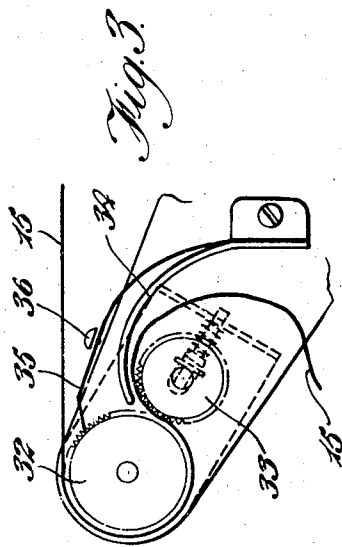
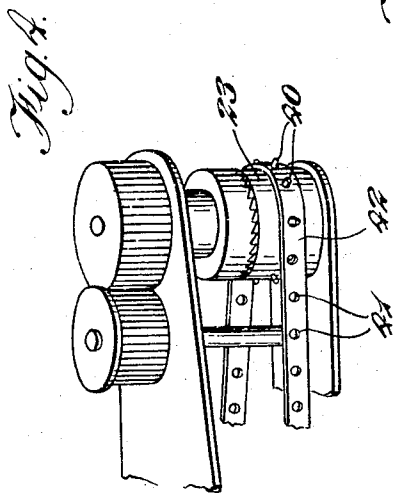
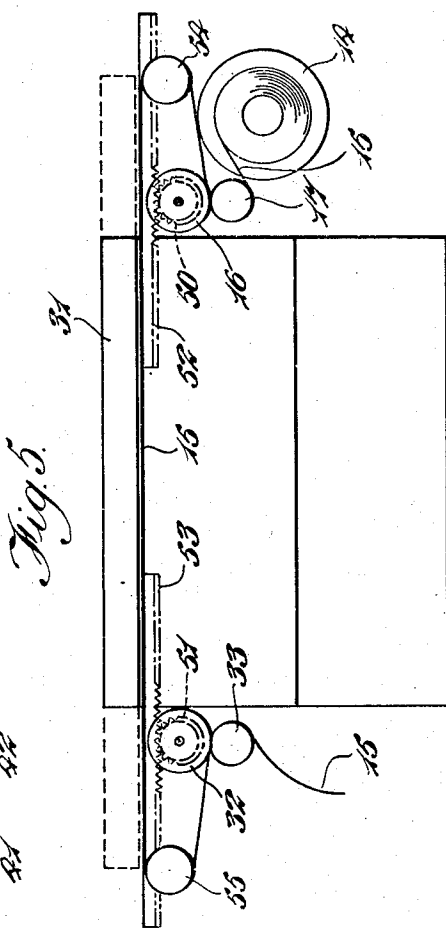
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ATTACHMENTS FOR TYPEWRITERS

Filed Dec. 10, 1957

2 Sheets-Sheet 2



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2,900,067

## ATTACHMENTS FOR TYPEWRITERS

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Application December 10, 1957; Serial No. 701,836

6 Claims. (Cl. 197—151)

This invention relates to an attachment for a typewriter for producing master sheets for use on a spirit duplicating machine.

Hectographic transfer material is used for forming "master" sheets for producing multiple copies of typescript on a spirit duplicator. The transfer sheet normally comprises a paper base with a coating of wax compound impregnated with an indelible dye. In order that the maximum number of copies may be taken from each "master" sheet a complete thickness of the wax coating is transferred from the transfer sheet to the "master" sheet with each impression of the typewriter keys and forms on the back of the "master" negative wax script corresponding to the mater typed.

Due to the removal of wax from the paper it is impossible to use the transfer sheet more than once and accordingly suggestions have been made to utilize a coated paper strip instead of a coated sheet in order to minimize wastage of material and to move the strip by a driving roller from a let-off spool whenever the typewriter carriage is moved during normal typing operation and to render the strip stationary when the carriage is moved in the return direction for starting a new line or the like.

In such prior constructions it is usual to provide a driving roller and a spring-biased pressure roll at the delivery end of the run of the strip and to exert a frictional drag on the strip adjacent its point of unwinding from the supply spool in order to maintain the strip sufficiently taut on its passage through the machine. Such strips have hitherto been of the order of one half-inch in width so as to provide the necessary strength to withstand the tensional stress to which the strip is subjected.

One object of this invention is to provide a device for moving the strip which avoids the tensional stress in the strip during its passage through the machine and thus prevents breakage of the coated strip which sometimes occurs due to the tensional stress.

Another object of the invention is to provide a typewriter or an attachment therefor which is immediately convertible from the production of a master sheet to normal use and vice versa without the necessity of cleaning the machine after production of said master sheet and moreover to provide such a machine or attachment which requires no additional power to operate the same when producing a master sheet than is required for a normal typing operation.

A further object of the invention is to provide a device for moving the strip which allows the use of a paper strip of considerably less width than those previously used which not only produces a considerable saving in coating strip material but avoids the risk of the strip moving upwardly with the paper on rotation of the platen.

According to the present invention a typewriter or typewriter attachment having means for moving a coated strip adjacent the platen of a typewriter during movement of the typewriter carriage in its letter spacing operative direction and for rendering said strip stationary during return movement in the opposite direction includes synchronized

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driving means acting on the coated strip at each end of its run to avoid tensional stresses in said strip.

This construction makes it possible to utilize a coated strip of substantially half the width normally used without risk of the strip breaking during its passage through the machine. It is also found that with a narrower strip there is less tendency of the coated strip to move upwardly with the paper when the platen is rotated than in the case of a strip approximately one half-inch in width.

The invention will be hereinafter more fully described with reference to the embodiments thereof shown by way of example in the accompanying diagrammatic drawings, in which:

Fig. 1 shows diagrammatically in plan view the general layout of the typewriter or typewriter attachment according to the invention.

Fig. 2 is a section on the line II—II of Fig. 1.

Fig. 3 shows on a larger scale the driving means for the strip at the left end or delivery end of the run of strip.

Fig. 4 shows a perspective view of a modification of the driving means.

Fig. 5 shows diagrammatically in plan view an alternative embodiment of the invention.

Referring to Figs. 1 to 3 a typewriter denoted generally by 10 is provided on its frame with laterally projecting brackets 11, 12 forming means for supporting the supply and feed mechanism for the coated strip. The brackets 11 and 12 may be formed integrally with the frame of the machine or may comprise attachments suitably mounted on said frame.

The right-hand bracket 12 supports a spool 14 adapted to carry a coated strip 15 of paper or the like. Mounted at the end of the bracket 12 is a driving roll 16 around which the paper strip 15 is intended to pass, the driving roll 16 preferably having a serrated peripheral edge as shown in Fig. 2 and co-operating with a pressure roll 17 between which and the roll 16 the paper strip 15 is intended to pass.

As shown more clearly in Fig. 2, the pressure roll 17 is biased towards the driving roll 16 by means of a spring 18 and carries on its upper face a guide 19 which prevents the coated strip from rising between the rolls 16 and 17. The roll 16 is rigidly secured to a spindle 20 supported at its upper and lower ends in the bracket 12 and a casing 21 respectively, on which spindle 20 is also freely mounted a driving pulley 23 adapted to be rotated by a belt 24 engaging in a groove 30 of the pulley. Fixedly secured to the spindle 20 is a bush 25 and between the end face of the bush 25 and the driving pulley 23 is a uni-directional coupling shown by way of example as ratchet teeth 26 on the underface of the bush engaging with a spring-loaded pawl 27 carried by the driving pulley 23. The coupling is such that in one direction of movement of the pulley 23 the spindle 20 and the driving roll 16 is rotated and in the opposite direction of rotation of the pulley 23 the driving roll 16 remains stationary.

The strip 15 after being withdrawn from the spool 14 passes between the rolls 17 and 16 and then across in front of the platen 31 of the typewriter 10 where it is supported by ribbon guides (not shown) around a further driving roll 32 and between the roll 32 and a co-operating pressure roll 33 mounted on the opposite bracket 11. In this way a straight run of strip is provided adjacent the platen 31. The construction and drive of the driving roll 32 and pressure roll 33 is the same as that described with reference to the driving roll 16 and the pressure roll 17. The belt 24 shown in chain-dotted lines in Fig. 1 is secured to one lateral end of the carriage, passes around the driving pulley 23, then around the corresponding driving pulley below the driving roll 32 and has its other end secured to the other lateral end of the carriage. Thus the two driving rolls 16 and 32 move in synchronism.

As shown in Fig. 3 the strip 15 on reaching the driving roll 32 passes between it and the pressure roll 33 and then between the latter and a strip guide 34 to waste, for example into a used strip container. The co-operating faces of the two rolls 32, 33 are also preferably serrated as shown in Fig. 3 and reverse rotation of the roll 32 is prevented by means of a non-return ratchet 35 engaging with the serrations of the roll 32. The degree of engagement of the ratchet 35 may be adjusted by means of a screw 36.

In operation, therefore, the strip passes from the spool 14 between the pressure and driving rolls 17, 16, passes immediately adjacent and parallel to the platen 31, around the driving roll 32 and between the rolls 32, 33 to waste. Due to the uni-directional connections between the driving rolls 16, 32 and the corresponding driving pulleys contacted by the belt 24 the strip is moved on movement of the typewriter carriage from right to left as shown in Fig. 1 and the strip is held stationary on return movement of said carriage from left to right.

While as shown in the drawing the coated strip is intended to be moved from right to left by the operative letter-spacing movement of the carriage it is obvious that by reversing the position of the spool 14 and by adjustment of the unidirectional drive the strip may be moved from left to right by said arrangement.

Fig. 4 shows a modification of the drive for the pulley 23 which in this case comprises a sprocket wheel having sprocket elements 40 which engage in spaced apertures 41 in a belt 42 of plastic or the like. Such a construction ensures the synchronism of rotation of the driving rolls 16 and 32 since any tendency to slip of the belt 24 relatively to the driving pulleys in the construction shown in Figs. 1 and 2 is avoided.

Fig. 5 shows a further alternative means for driving the driving pulley 23. In this construction the driving arrangement for the driving rolls 16 and 32 comprise toothed pinions 50 and 51 which engage with rack bars 52 and 53 mounted on the carriage of the typewriter and are connected with the driving rolls 16 and 32 by unidirectional coupling as previously described. With such a construction the paper strip 15 is withdrawn from the spool 14, passes around the pressure roll 17 between the rolls 17 and 16, around an idler roll 54 disposed to provide a straight run in front of the platen 31 to the other side of the machine where it passes around a corresponding idler roll 55, then between the rolls 32, 33 to waste.

In the construction described above it will be understood that the arrangement of the driving rolls or guide pulleys is such that the coated strip has a straight line run through the machine adjacent the platen. The synchronized drive for the strip at each end of the run avoids the provision of any friction brake and thus prevents the strip being subjected to tensional stress. In view of the lack of tensional stress the strip which is, as previously mentioned, normally of about one-half inch in width may be reduced to about one-quarter inch in width which is more economical due to the saving of coated strip and in practice avoids the risk of the ribbon moving upwardly with the paper on the rotation of the platen.

I claim:

1. In a typewriter having a frame, a carriage reciprocally movable on said frame in a letter-spacing direction

and in a reverse direction and a platen rotatably mounted on said carriage, the provision of means at each end of said frame to support a coated strip in such manner that said strip lies for at least part of its length adjacent said platen, driving means on said support means at one end of said frame operative in response to movement of said carriage in said letter-spacing direction to effect movement of said strip in one direction, a second driving means on said support means at the opposite end of said frame synchronized with said first-mentioned driving means and acting to produce movement of said strip in the same direction whereby tensional stress in said strip intermediate said two driving means is avoided and means to render both said driving means inoperative on movement of said carriage in said reverse direction.

2. A typewriter as claimed in claim 1 in which the driving means on the support means at each end of said frame includes a driving roll and a spring-biased pressure roll respectively engaging opposite faces of said strip.

3. A typewriter as claimed in claim 1 in which the driving means on the support means at each end of said frame includes a driving roll and a spring-biased pressure roll respectively engaging opposite faces of said strip, a pulley member, belt transmission means driving said pulley member and connected at each of its ends to said carriage and a unidirectional coupling between said pulley member and said driving roll.

4. A typewriter as claimed in claim 1 in which the driving means on the support means at each end of said frame includes a driving roll and a spring-biased pressure roll respectively engaging opposite faces of said strip, a sprocket wheel, a belt formed with spaced apertures engaging the teeth of said sprocket wheel, said belt being connected at each of its ends to said carriage and a unidirectional coupling between said driving roll and said sprocket wheel.

5. A typewriter as claimed in claim 1 in which the driving means on the support means at each end of said frame includes a driving roll and a spring-biased pressure roll respectively engaging opposite faces of said strip, a rack mounted on said carriage, a pinion engaging said rack and a unidirectional coupling between said pinion and said driving roll.

6. An attachment for a typewriter having a frame, a carriage reciprocally movable on said frame in a letter-spacing direction and in a reverse direction and a platen rotatably mounted on said carriage, which attachment includes support means mountable at each end of said frame and adapted in said mounted position to support a coated strip in such manner that said strip lies for at least part of its length adjacent said platen, driving means on the support means mountable at one end of said frame operative in response to movement of said carriage in said letter-spacing direction to move said strip in one direction, a second driving means located on the support mountable at the opposite end of said frame and adapted to act in synchronism with said first driving means to move said strip in the same direction and means to render both of said driving means inoperative on movement of said carriage in said reverse direction.

No references cited.