Feb. 9, 1932. W. KLAPPENECKER 1,844,224

DEVICE FOR REWINDING MAGNETIC RECORD CARRIERS AND THE LIKE

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Fig. 1.

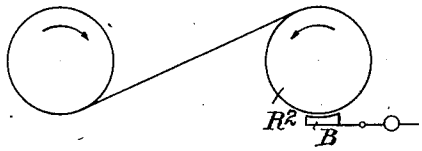


Fig. 2.

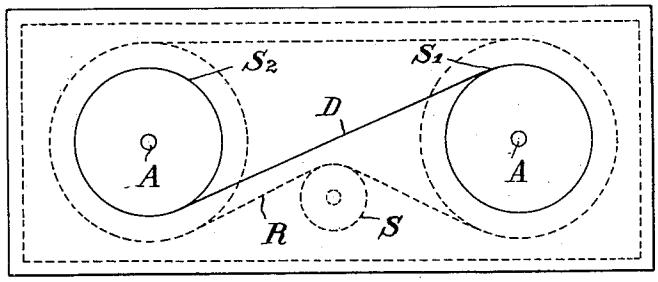
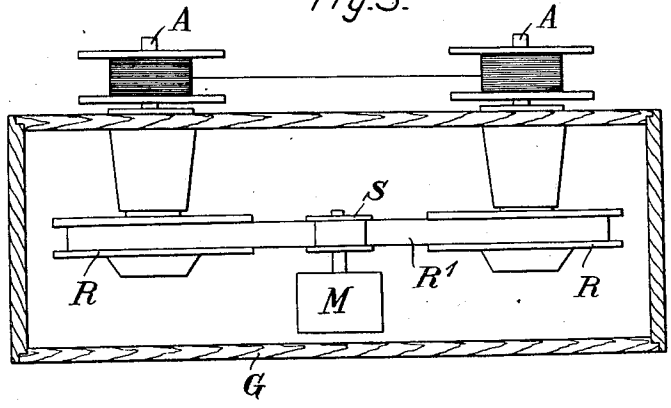


Fig. 3.



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Fig.4.

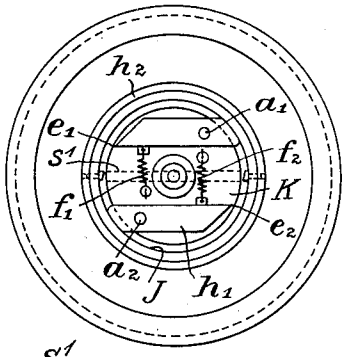


Fig.5.

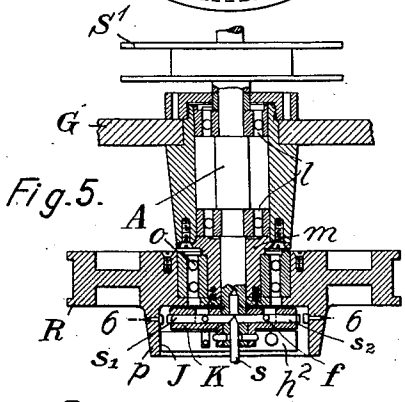
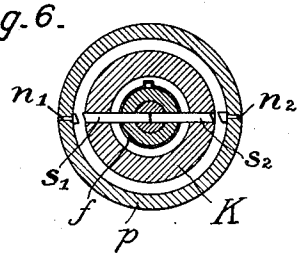


Fig.6.



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Patented Feb. 9, 1932 1,844,224

UNITED STATES PATENT OFFICE

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DEVICE FOR REWINDING MAGNETIC RECORD CARRIERS AND THE LIKE

Application filed May 1, 1930, Serial No. 448,917, and in Germany February 6, 1929.

The steel wires or bands used as sound record carriers in talking machines of the Poulsen type are wound from one spool to another and a brake is generally applied to the delivery spool. If the take-up spool rotates at uniform speed, the speed of the delivery spool will increase as the size of the wire bundle diminishes, and the braking friction will increase in proportion and subject the wire to a strain which may be sufficient to break it.

The object of the present invention is to remedy this defect, and the invention consists in providing the winding device with a brake adapted to reduce the braking action automatically in proportion as the speed of the delivery spool increases. This may be effected by the employment of spring-controlled braking elements adapted to reduce their braking action under the influence of centrifugal force.

Fig. 1 of the accompanying drawings represent a diagrammatic view of the ordinary brake arrangement,

Fig. 2 is a top view of a winding device according to the present invention,

Fig. 3 is a vertical section of the same,

Fig. 4 is a bottom view on an enlarged scale of the driving and braking device,

Fig. 5 is a vertical section of this device, and

Fig. 6 is a cross-section on the line 6—6 of Fig. 5.

The winding device comprises a casing G wherein two vertical shafts A are supported in ball-bearings *l*. The upper ends of the shafts project through the casing and are adapted to receive the spools S^1 and S^2 from and to which the sound record carrier B is to be wound. The bearing sleeve for the shaft A has a reduced lower portion *m* whereon a driving pulley R is mounted by means of a ball bearing *o* so that it can be freely rotated thereon. The pulley is formed with a brake drum *p* which surrounds a disc K keyed to the lower end of the shaft A. A diametral bore passing through the disc and the shaft contains two pins s^1 and s^2 which are controlled by an annular spring *f* tending to hold the pins retracted within the disc, the spring being accommodated in an annular recess *q* in the disc. The shaft has an axial bore which is traversed by the pins s^1 and s^2 and which contains a pin *s*. The latter is pointed and adapted, on being axially displaced, to enter between the abutting, bevelled ends of the pins s^1 and s^2 so as to force the pins apart and cause their outer ends to engage studs n^1 and n^2 projecting from the inside of the brake drum *p*, thereby coupling the shaft to the driving pulley.

The disc K also carries, on pivot pins a^1 and a^2, two double-armed brake levers h^2 and h^1. Springs f^1 and f^2 control the levers and press their short ends normally against the inner surface J of the brake drum. On the brake levers being rotated together with the shaft, the outer ends e^1 and e^2 of the levers will be influenced by centrifugal force and reduce the pressure of the levers against the brake drum more or less according to the speed.

The two pulleys R receive motion from a belt R^1 which for this purpose also runs on a pulley S connected to the shaft of a driving motor M. While the pulleys R are adapted to rotate in the same direction, the spools S^1 and S^2 are applied to the shafts with the wire or band D crossed over, as shown in Fig. 2, so that the spools will have to rotate in opposite directions. The shaft carrying the take-up spool is coupled to its driving pulley R so as to participate in the rotation of the latter; the other shaft is free to participate in the rotation of the spool, i. e., in opposite direction to its pulley. Thus the shaft and the spool will be braked by the engagement of the brake levers with the brake drum. Initially this braking action on the delivery spool will be strong, but as the diameter of the wire bundle decreases and its speed increases, the brake action will be gradually relieved by the centrifugal action on the brake levers. The strain on the carrier D will therefore remain substantially constant throughout the winding.

The device may be applied to the re-winding of other elements than those mentioned.

I claim:—

A device for re-winding magnetic sound record carriers and the like, comprising a

pair of parallel shafts, a pulley arranged loosely on each shaft, means for rotating the pulleys in unison, means for coupling either pulley to its shaft so as to impart rotation to the latter, a brake drum on each pulley, spring-controlled brake elements carried by each shaft, said brake elements being adapted to engage the brake drum by spring action and to be released therefrom by centrifugal force, and a pair of spools holding the sound record carrier and applied to said shafts, the spools being arranged so that the shaft which is uncoupled from its pulley will move in opposite direction to the latter.

WILHELM KLAPPENECKER.