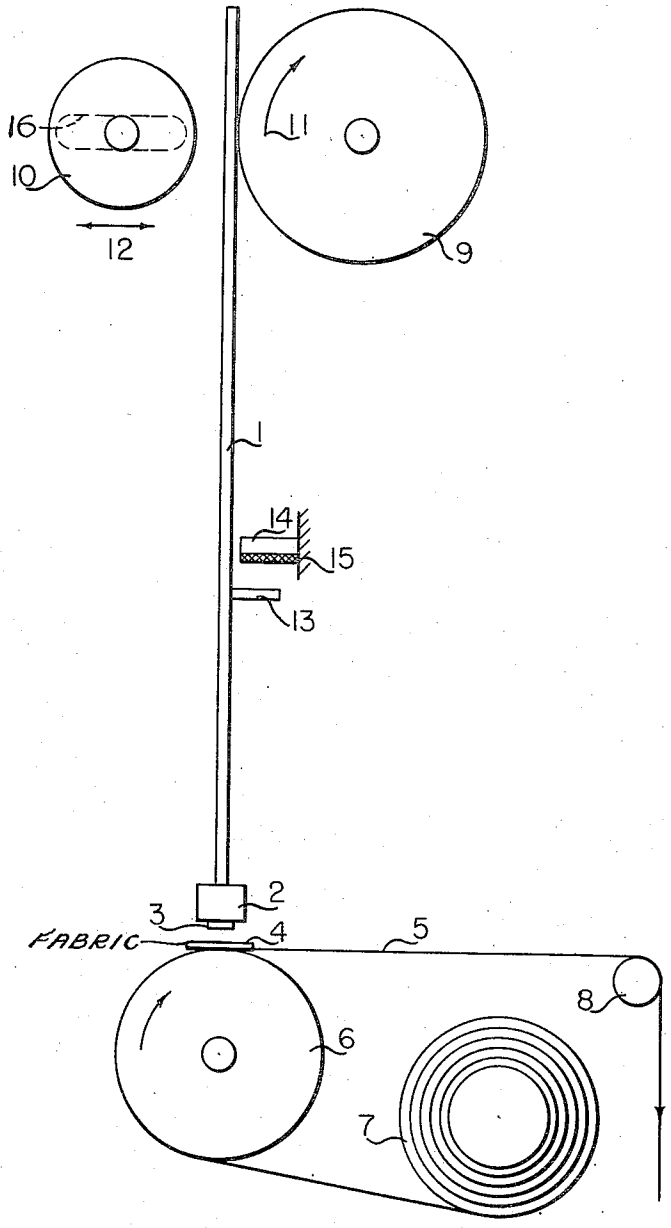
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MACHINE FOR TESTING THE QUALITY OF CARBON PAPER, INKING RIBBONS AND THE LIKE

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MACHINE FOR TESTING THE QUALITY OF CARBON PAPER, INKING RIBBONS, AND THE LIKE

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This invention relates to devices for testing typewriter ribbons, carbon paper and similar material.

There are already known devices in which the ribbon or other material to be tested is subjected to repeated blows by a member bearing a type. These devices comprise a two-arm lever, one arm of which is intermittently forced downwardly by engagement with a rotating cam roller. As a result, the other lever arm which supports the type is intermittently lifted and dropped so that the type will repeatedly strike the ribbon. The ribbon is mounted over a paper strip which is guided over a roller and moved line by line when the arm with the type is lifted.

The number of blows necessary for perforating the ribbon is counted and serves as a measure of the strength of the ribbon. The color intensity of the prints on the paper strip indicates how many letters can be typed with one ribbon which is a measure for the durability of the ribbon.

Obviously, a reliable comparison between several ribbons presupposes that the force with which the type strikes the ribbon is always of similar intensity.

With devices of this type, the force applied to the ribbon depends upon the speed and the mass of the cam roller. When the device is electrically driven, it is difficult to maintain a constant speed due to variations in the current supply, and when the device is manually operated, it is obviously also difficult to maintain a constant speed of the roller.

There are also devices known in which the blows on the ribbons are effected by means of spring operated levers. The difficulty with this arrangement is that the springs tend to develop a force greater than the one which is applied to the ribbon when it is normally used. Furthermore, the elasticity of the springs will decline after sometime and may not decline uniformly for all the springs. Also, the construction of a spring operated machine is rather complicated and expensive.

One of the objects of the present invention is to provide a device in which the intensity with which the testing types strike upon the ribbon or other material to be tested is always uniform so that accurate comparative tests can be made.

According to the invention, this object and other objects which will be pointed out hereinafter are attained by lifting the testing types always for a predetermined definite distance. At the top of this distance, the types are caused to drop freely by the weight of the components of

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the device supporting the types so that they will always strike the ribbon or other material to be tested with the same force of impact.

In the single figure of the accompanying drawing a now preferred embodiment of the invention is shown by way of illustration and not by way of limitation. A rod 1 which is vertically guided and mounted for a free drop supports on one end a block 2 having thereon a type 3. When the rod drops, the type strikes against an inking ribbon 4 which is stationarily disposed above a paper strip 5. This strip is guided over a roller 6 and stretched by any suitable means for instance by weighting the free end of the strip. The paper strip is supplied from a reel 7 and guided over a roll 8. Roller 6 is rotated by any suitable means so that the paper strip is moved step by step after each drop of rod 1. The driving mechanism for roller 6 which is conventional may be coupled with the driving means for a roller 9 which in turn serves to lift rod 1. For this purpose rod 1 is extended with its upper end between the said roller 9 and a second roller 10. Roller 9 is driven continuously and rotates in the direction of the arrow 11, roller 10 being an idler and can be displaced in a horizontal direction by means of an elongated slot 16 in the roller. The surface of the rollers 9 and 10 is made of a rough material such as rubber. If roller 10 is moved toward the right and into engagement with rod 1, the rod is frictionally held between the two rollers. Consequently, rod 1 is lifted by the frictional engagement with the rollers when roller 9 is rotated. As will be apparent, the two rollers rotate in opposite directions, this being made possible by roller 10 being an idler. As soon as rod 1 is lifted a predetermined distance, a dog 13 extending from rod 1 engages a stationary stop 14 which on the side facing the dog is covered with elastic material 15 such as a layer of rubber. As a result of this arrangement, the distance by which the rod and with it the type 3 can be lifted is fixed and when the rod is released for a free drop, the type is bound to strike the ribbon always with the same force. In order to enable rod 1 to drop freely at the end of an upward stroke, roller 10 is moved toward the left. The arrangement for movement of the roller 10 toward the left is conventional and not shown.

In order to further improve the constancy of the impact between type 2 and ribbon 4, it is essential that any initial downward speed which the rod may have due to the impact of dog 13 against the elastic surface 15 is eliminated. This is accomplished by the rough surface of the

rollers 9 and 10 which serves to continue the frictional engagement between the rod and the rollers 9 and 10 for a short period after dog 13 has engaged the elastic layer 15. It will now be apparent that the type strikes the ribbon always with the same force of impact independently whether the rod is lifted many times or only a few times during a unit of time. Hence, it is possible to operate a device according to the invention either manually or by drive means.

What is claimed is:

1. A device for testing typewriter ribbons and carbon paper material, comprising a gravity drop rod mounted for a drop in axial direction, a type letter secured to said rod, pick up means engageable with said rod and arranged to alternately elevate and release the same for a drop, a dog laterally extending from said rod, a stationarily mounted stop member disposed above said dog and arranged to be engaged by said dog in an elevated position of the rod for limiting the drop stroke of the rod, a resilient layer covering the side of the stop member facing said dog for absorbing any residual energy of movement of the rod remaining after engagement between the dog and the stop member, support means stationarily supporting the material to be tested in a position to be struck by said type letter upon a drop of the rod, and means supporting a control strip in contact with the material to be tested on the active side thereof and moving the said strip step by step, said strip moving means being coupled with said pick up means so as to move the strip by one step subsequent to each drop of the rod.

2. A device for testing typewriter ribbons and carbon paper material comprising a gravity drop rod mounted for a drop in axial direction, a type letter secured to said rod, pick up means for alternately elevating the rod and releasing the same for a drop, said pick up means comprising a pair of rollers for gripping the rod therebetween, one of said rollers being a driving roller, the other being a driven roller, said latter roller mounted for displacement transversely to its axis for moving the said roller into and out of gripping engagement with the rod thereby causing elevating and dropping of the rod, limit means arranged to be engaged by said rod in an elevated position for limiting the drop stroke of the rod, said limit means comprising a dog laterally extending from the rod and a stationarily mounted stop member disposed above said dog and engageable therewith when the rod is in said elevated position, a resilient layer covering the stop member on the side thereof facing the dog for absorbing any residual energy of movement of the rod remaining after engagement thereof with the limit means, support means stationarily supporting the material to be tested in a position to be struck by said type letter upon a drop of the rod, and means supporting a control strip in contact with the material to be tested on the active side thereof and moving the said strip step by step, said strip moving means being coupled with said pick up means so as to move the strip by one step subsequently to each drop of the rod.

3. A device for testing typewriter ribbons and carbon paper material comprising a gravity drop rod mounted for a drop in axial direction, a type letter secured to said rod, pick up means for alternately elevating the rod and releasing the same for a drop, said pick up means comprising a pair of rollers for gripping the rod therebetween, one of said rollers being a driving roller, the other being a driven roller, said latter roller mounted for displacement transversely to its axis for moving the said roller into and out of gripping engagement with the rod thereby causing elevating and dropping of the rod, a coat of resilient material having a comparatively rough surface covering each of said rollers for suppressing inertia movements of the rod after reaching its uppermost position, limit means arranged to be engaged by said rod in an elevated position for limiting the drop stroke of the rod, said limit means comprising a dog laterally extending from the rod and a stationarily mounted stop member disposed above said dog and engageable therewith when the rod is in said elevated position, a resilient layer covering the stop member on the side thereof facing the dog for absorbing any residual energy of movement of the rod remaining after engagement thereof with the limit means, support means stationarily supporting the material to be tested in a position to be struck by said type letter upon a drop of the rod, and means supporting a control strip in contact with the material to be on the active side thereof and moving the said strip step by step, said strip moving means being coupled with said pick up means so as to move the strip by one step subsequent to each drop of the rod.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
914,560	Firth	Mar. 9, 1909
1,013,832	Allen	Jan. 2, 1912
1,498,659	Jackson	June 24, 1924
1,760,714	O'Connor	May 27, 1930