Jan. 18, 1966 R. F. HENLEY 3,229,787

OILER FOR ROTARY DRUMS

Filed Nov. 27, 1963

FIG. 1

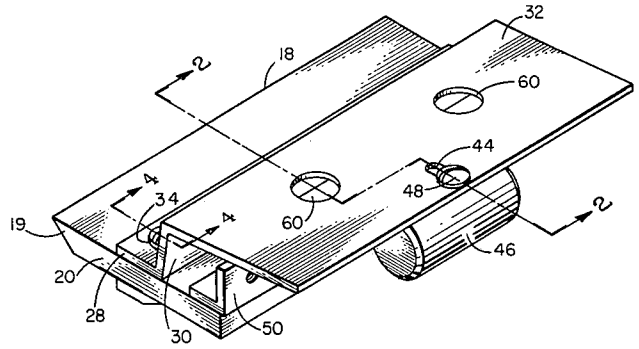


FIG. 2

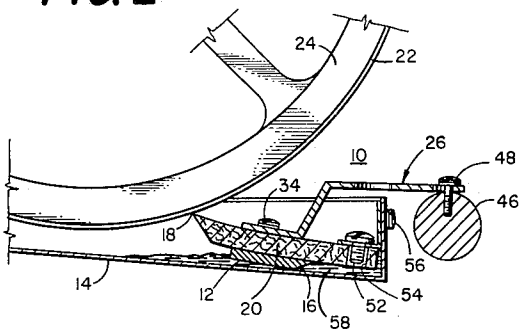


FIG. 3

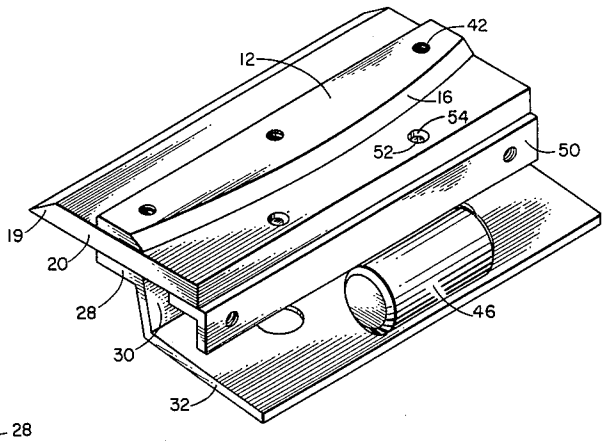
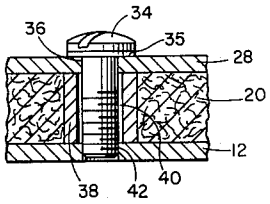


FIG. 4



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OILER FOR ROTARY DRUMS

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(Granted under Title 35, U.S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

This invention relates to oilers for rotary drums and more particularly to continuous oilers for applying a thin coat of oil to magnetic recording drums.

In the art of magnetic drum recording it has been found desirable to apply a very thin coat of light lubricating oil to the molded synthetic rubber recording bands. This thin oil coating significantly reduces the reproduced noise level caused by the recording head contacting the rotating band, which in those instances where molded bands are employed, is aggravated by the comparatively uneven recording surface. The application of oil further greatly extends the life of recording heads and bands by substantially eliminating the wear of these elements.

Various methods of applying oil to the recording bands have been employed in the past. Several of these methods such as periodically applying oil to the bands with a paint brush, periodically squirting oil on the bands through a pre-positioned tube or positioning the drum so that during rotation its bottom portion runs through an oil reservoir have particular drawbacks. The first two of these apply too much oil to the drum initially and too little between applications. The major drawback of the first two as well as the reservoir system is the application of too much oil which causes oil to be sprayed throughout the equipment clogging portions of the recorder and requiring frequent shutdown for cleaning. Even when oil is applied through a wick excessive contact between the wick and recording bands will cause an excess of oil to be applied and spraying and clogging will consequently ensue. Further, when more than line contact exists between the applicator wick and drum and the recording drum is run in reverse costly jamming can occur.

The oil applicator of the present invention overcomes the foregoing inadequacies of the prior art by providing a rockable wick retaining structure which loosely yet securely holds a tapered felt wick in line contact with the rotating recording band while applying a light adjustably controllable pressure to the wick. This light line contact provides for equal lubrication of the comparatively irregular surface of molded recording bands.

It is an object of the present invention to provide a device for applying a light coating of oil to the recording bands of a magnetic sound recorder.

Another object of this invention is the provision of an oiling system for magnetic drum recorders where the recording bands are not of uniform thickness.

A further object of the present invention is to provide a holding mechanism for a tapered felt wick which will maintain the edge of said felt wick in line contact with a rotating drum under adjustably controllable pressure.

These and other objects as well as many of the attendant advantages and features of this invention will be readily appreciated as they become better understood by reference to the following detailed description when the same is considered in conjunction with the accompanying drawings in which:

FIG. 1 is a plan view of the present invention,

FIG. 2 is a sectional view taken along the line 2—2 of FIG. 1, and including a recording drum and band, in section,

FIG. 3, is a bottom view of the device illustrating the tapered arcuate rocker plate of the present invention, and

FIG. 4 is an enlarged sectional view taken along the line 4—4 of FIG. 1.

Referring now in detail to the drawings, wherein like reference characters represent like parts throughout the several views, and more particularly to FIG. 1 there is shown the novel oil applicator of the present invention generally designated **10** resting on rocker plate **12** in an oil reservoir at pan **14**. Rocker plate **12** (FIG. 3) is provided with a tapering arcuate surface **16** which permits backward, forward and lateral rocking of the oil applicator **10** in conformity with any recording band irregularities or variations in band thickness encountered by the edge **18** on tapered end **19** of wick **20** when said edge is in contact with recording band **22** mounted on rotating drum **24**.

As best shown in FIG. 4, wick **20** is mounted loosely but securely between rocker plate **12** and an upper lever plate **26** which includes a fastening flange **28**, upright **30** and lever arm **32**. A plurality of bolts **34** extend through complementary openings **36** in flange **28**, metallic spacers **38** positioned in openings **40** in wick **20** and are threaded into openings **42** in rocker plate **12**. The bolts **34** do not extend through rocker plate **12** so that the leading ends of bolts **34** do not interfere with the rocking motion of the oil applicator on tapering arcuate surface **16**. The metallic spacers **38** maintain a set distance between flange **28** and rocker plate **12** thus preventing bolt **34** from being tightened to the extent that it will project beyond the bottom of rocker plate **12** and also prevents felt wick **20** from being squeezed between flange **28** and plate **12** and hence impede the flow of oil through the wick **20**. The spacers **38** also allow the wick **20** to move slightly between the flange **28** and rocker plate **12** thus further permitting freedom of the wick to follow the contour of the recording band. Lock washers **35** are employed with bolts **34** to prevent the bolts from unthreading from openings **42** in rocker plate **12**.

The lever arm **32** of upper lever plate **26** has an elongated slot **44** which facilitates the mounting and adjustable positioning of a weight **46** on lever arm **32** by means of a bolt **48** which passes through the slot **44** and is threaded into weight **46**. Of course in addition to adjusting the distance between rocker plate **12** and weight **46** by moving bolt **48** in slot **44** to vary the pressure of the wick on the recording bands, different size weights can be easily interchanged to also vary the wick pressure.

A retaining plate **50** which is L-shaped in cross section is secured to the back wall of reservoir **14** by bolts **56** and carries a pair of bolts **52** which are loosely inserted into complementary openings **54** in wick **20**. The retaining plate **50** and bolts **52** serve to maintain the rear edge of wick **20** emersed in the oil **58** and prevent wick curling or forward rocking of the wick carrying structure from causing the rearward end of the wick to be raised out of the oil supply. However, it will be apparent that this configuration does permit sufficient movement of that end of the wick so as not in interfere with or restrict normal rocking movement of the wick. Apertures **60** are provided in lever arm **32** to provide ready access to bolt **52**. This facilitates the removal of the entire oil applicator from the reservoir when desired while permitting retaining plate **50** to remain secured to the reservoir **14**.

As can be seen from the foregoing the novel oil applicator of the present invention provides a simple and efficient method of applying a thin coat of oil to rotating recording drums by rockably positioning a wick in

line contact with the rotating drum under a selectively variable amount of pressure.

Obviously many modifications and variations of the present invention are possible in light of the foregoing teachings without departing from the spirit and scope of the invention. It is therefore to be understood that this invention is to be limited only by the appended claims, and not otherwise.

What is claimed is:

1. An oil applicator for continuously applying a thin coating of oil to a rotating surface comprising:
wick means having a tapered end portion,
wick mounting means having a lower rocker portion and an upper lever portion, and
movable weight means secured to said upper lever portion, said rocker portion adapted to support said oil applicator for rockable movement thereabout in response to the force supplied by said weight means whereby light line contact is maintained at all times between the edge of said wick and said rotating surface.

2. An oil applicator arrangement for continuously applying a thin coating of oil to a rotating drum comprising:
an oil containing reservoir,
a wick having one end thereof disposed in the said oil and the other end providing line contact with said rotating drum,
a rocker plate and an upper lever plate having a lever arm extending therefrom, said wick being loosely secured between said rocker plate and said upper lever plate, and
a movable weight mounted on said lever arm, said weight causing said applicator to pivot about said rocker plate lightly forcing the edge of said wick against said rotating drum.

3. An oil applicator arrangement for continuously applying a thin coating of oil to a rotating drum comprising:
an oil containing reservoir,
a wick having one end thereof disposed in the said oil and the other end being tapered to provide line contact with said rotating drum,
a rocker plate and an upper lever plate including an extended lever arm, said wick being loosely secured between said rocker plate and said upper lever plate,
a movable weight mounted on said lever arm, said weight causing said applicator to pivot about said rocker plate lightly forcing the edge of said wick against said rotating drum, and

an L-shaped retaining bar secured to said reservoir and partially overlying said one end of said wick for maintaining said wick emersed in said oil.

4. An oil applicator for continuously applying a thin coating of oil to a rotating drum comprising:
a rocker plate having a tapered arcuate rocker edge supporting said applicator,
an upper lever plate having an extended lever arm portion,
a wick secured between said rocker plate and said lever plate, said wick having a tapered end portion providing a drum engaging edge, and
a weight secured to the end of said lever arm remote from the wick securing area of said lever plate, whereby the edge of said wick will be maintained in contact with said drum through the rocking of said applicator on said rocker plate in response to the force supplied by said weight.

5. An oil applicator arrangement for continuously applying a thin coating of oil to a rotating drum comprising:
an oil containing reservoir,
a rocker plate having a tapered arcuate rocker edge supported by said reservoir,
an upper lever plate having an extended lever arm portion, a wick loosely secured between said rocker plate and said lever plate, said wick having a tapered end portion providing a drum engaging edge,
a moveable weight secured to the end of said lever arm remote from the wick securing area of said lever plate, and
means secured to said reservoir for maintaining the end of said wick remote from said edge submerged in said oil whereby the edge of said wick will be maintained in contact with said drum through the rocking of said applicator on said rocker plate in response to the force supplied by said weight.

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