Nov. 22, 1966 LE ROY M. PENMAN ETAL 3,286,505

CARPET TESTING MACHINE

Filed April 17, 1964

FIG. 1

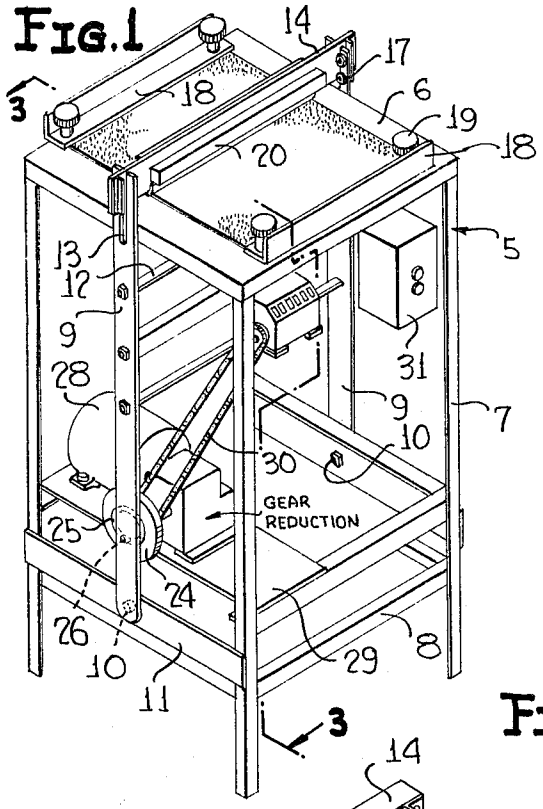


FIG. 2

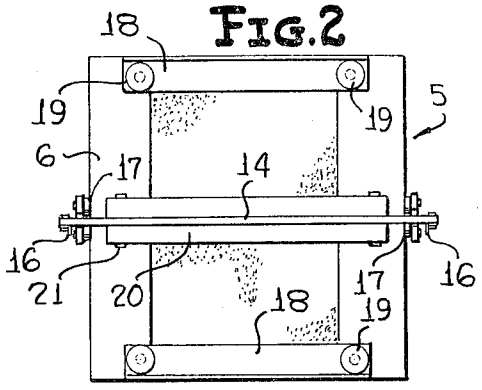


FIG. 3

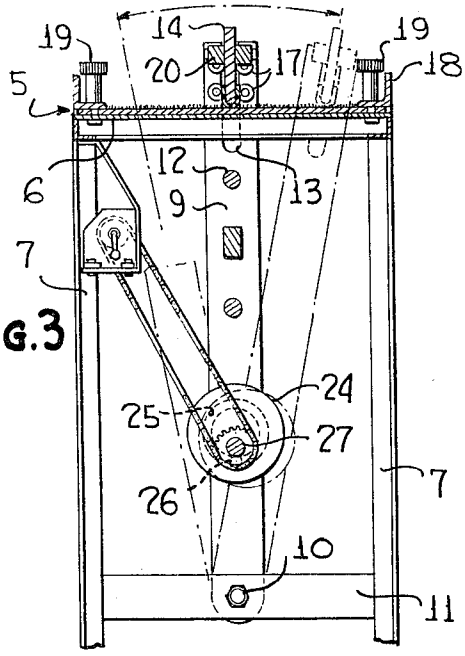


FIG. 4

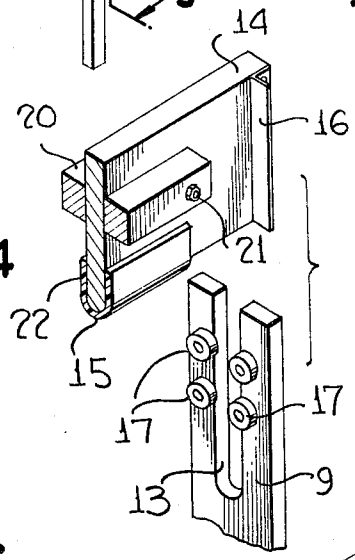


FIG. 5

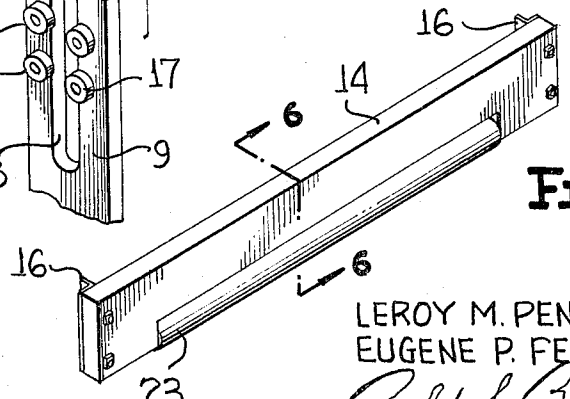
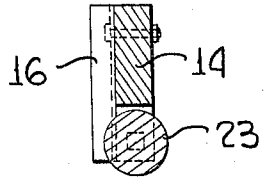


FIG. 6



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CARPET TESTING MACHINE

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10 Claims. (Cl. 73—7)

This invention relates to a carpet testing machine particularly designed for testing the snag, shedding and pilling of the pile of carpet.

It is an object of the invention to provide friction producing means in contact with the pile of the carpet to be tested under a uniform pressure while reciprocating the friction means over the pile of the carpet.

A further object of the invention resides in providing a testing machine having oscillating arms freely supporting a friction bar for reciprocating movement over the pile of a piece of carpet whereby the friction bar contacts the pile at a uniform pressure throughout its reciprocating movement.

Another object of the invention resides in providing a testing machine which is simple in construction, highly efficient in performing its function and inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and wherein like numerals are employed to designate like parts throughout the same,

FIG. 1 is a perspective view of the machine,

FIG. 2 is a top plan view of the same,

FIG. 3 is a section taken on line 3—3 of FIG. 1,

FIG. 4 is a fragmentary perspective view of the friction bar and supporting arm,

FIG. 5 is a perspective view of a modified form of the friction bar, and

FIG. 6 is a section taken on line 6—6 of FIG. 5.

In the drawing, wherein for the purpose of illustration, a preferred form of the invention is shown, the numeral 5 denotes a metal stand including a smooth metal top 6 supported at each corner by a vertical leg 7, the legs being braced near their lower ends by cross bars 8. A pair of rocker arms 9 are disposed on opposite sides of the stand having their lower ends pivotally mounted, as at 10, to a bar 11 extending between the legs. The rocker arms are connected together by a series of cross rods 12 so that the arms will move in unison. The upper ends of the rocker arms extend above the top 6 and are bifurcated, as at 13, to provide open ended slots to receive the ends of a friction bar 14 extending transversely of the top. The bar 14 is made of wood having a rounded lower edge 15 and at each end of the bar an angle bracket 16 is attached to the bar for limiting the longitudinal movement of the bar when inserted in the bifurcations of the rocker arms. Attached to the inner sides of the rocker arms along the sides of the bifurcations are rollers 17 having frictional contact with the sides of the friction bar to insure free vertical movement of the bar in the bifurcations. At each end of the top 6 is a clamping bar 18 for holding a piece of carpet to be tested, the bar being removably attached to the top by hand adjusting bolts and nuts 19. The pressure of the friction bar on the carpet is determined by weight bars 20 removably attached to the sides of the friction bar by bolts 21. In the testing of some fibers it is desirable to cover the lower edge of the friction bar with a plastic sheet material 22, such as "Tygon" or a round metal bar 23 may be fixedly mounted in a recess in the lower edge of the friction bar, as shown in FIGS. 5 and 6.

The rocker arms 9 are oscillated back and forth by a cam wheel 24 having a cam groove 25 which is engaged by a follower roller 26 carried by one of the rocker arms. The cam which is eccentrically mounted on the shaft 27 of an electric motor 28 imparts an oscillating movement to the rocker arms. The motor 28 is mounted on a platform 29 supported by the legs of the stand beneath the top 6. The shaft of the motor is connected by an endless chain 30 to a "Veeder Root" counter and control which controls the motor to shut it off after a pre-determined number of oscillations of the rocker arms. A main control switch 31 is mounted at the front of the stand beneath the top.

In operation, a piece of carpet to be tested, or when comparative tests are made two pieces of carpet, are clamped to the top 6 of the stand by the clamping bars 18. The friction bar 14 is then inserted in the slots formed by the bifurcations 13 of the rocker arms 9 with its lower edge in frictional engagement with the pile of the carpet. The friction bar is free to move vertically in the slots and the frictional pressure of the bar on the pile of the carpet is determined by the weight bars 20. Upon oscillation of the rocker arms 9 by the cam wheel 24, the friction bar is reciprocated over the pile of the carpet and owing to the free vertical movement of the bar in the slots of the rocker arms, the pressure of the friction bar on the pile remains uniform at all times. When it is desired to change the frictional contact between the friction bar and pile of the carpet, the lower edge of the friction bar may be covered by a plastic sheet such as "Tygon" or a metal rod may be mounted in the lower edge of the friction bar. The friction bar is reciprocated a predetermined number of times to test the resistance of the pile to shedding, pilling and snagging. The expelled fibers of the pile are collected and weighed for quantitative comparison.

It is to be understood that the invention herein shown and described is a preferred example of the same and changes in the shape, size and arrangement of the parts may be made without departing from the spirit of the invention or scope of the subjoined claims.

Having thus described our invention, we claim:

1. A pile fabric testing machine comprising a friction bar of rectangular shape in cross section extending transversely of the fabric having one of its longitudinal edges in frictional contact with the pile of the fabric, means supporting the ends of said bar for free vertical movement and means for rocking said first means to move said bar back and forth over the pile of the fabric.

2. A pile fabric testing machine comprising a stand having a flat top for supporting the fabric to be tested, rocker arms pivotally mounted on opposite sides of said stand having their upper ends bifurcated and extending above the top of said stand, a friction bar extending across the top of said stand in contact with the fabric having its ends mounted in the bifurcations of said rocker arms for free vertical movement, and means for oscillating said rocker arms.

3. A pile fabric testing machine comprising a stand having a flat top for supporting the fabric to be tested, rocker arms pivotally mounted on opposite sides of said stand having their upper ends extending above the top of said stand, a friction bar extending across the top of said stand in contact with the fabric having its ends mounted in the upper ends of said rocker arms for free vertical movement, and means for oscillating said rocker arms.

4. A pile fabric testing machine as described in claim 3 including means for clamping the fabric to the top of said stand.

5. A pile fabric testing machine as described in claim 3 including a sheet of plastic material covering the lower edge of said friction bar.

6. A pile fabric testing machine as described in claim

3 including a round rod fixedly mounted in the lower edge of said friction bar.

7. A pile fabric testing machine comprising a stand having a flat top for supporting the fabric to be tested, a pair of rocker arms pivotally mounted on opposite sides of said stand having their upper ends extending above the top of said stand, means connecting said rocker arms for movement in unison, a shaft, a motor for rotating said shaft, a cam wheel eccentrically mounted on said shaft having connection with one of said rocker arms for oscillating the rocker arms upon rotation of said shaft, and a friction bar extending across the top of said stand in contact with the fabric having its ends mounted in the upper ends of said rocker arms for free vertical movement.

8. A pile fabric testing machine as described in claim 7 including a sheet of plastic material covering the lower edge of said friction bar.

9. A pile fabric testing machine as described in claim 7 including a round rod fixedly mounted in the lower edge of said friction bar.

10. A pile fabric testing machine as described in claim 7 including a counter and control mechanism connected to said shaft and said motor.

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DAVID SCHONBERG, *Primary Examiner.*