HINGED MOTOR HANGER FOR CREAM SEPARATORS OR LIKE MACHINES

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4 Claims. (Cl. 74—242.15)

1. This invention relates to cream separators or like machines, and aims to provide certain new and useful improvements in the mounting of the motor hanger or platform of such a machine.

When starting up a cream separator it is necessary, because of the high starting inertia, to reduce the load on the motor below the full operating load in order to avoid damaging the motor or blowing a fuse when the motor circuit is closed. A simple and practical way of doing this consists in supporting the motor on a hinged support which is hinged to the body or frame of the separator to permit loosening or tightening of the belt drive connecting the motor with the driver pulley, thus allowing a degree of slippage between the driving pulley and the belt, depending upon the tautness of the belt.

An object of the invention is primarily the provision of a novel, practical, and simple means for lifting or lowering the motor about its support hinge by means of a simple lever, the raising or lowering of which readily loosens or tightens the belt, as desired, and of means for securely maintaining the motor in its new position. An additional feature of the invention is that it permits of adjustment for belts of different sizes.

The above as well as additional and more detailed objects will become apparent in the following description, wherein characters of reference refer to like-numbered parts in the accompanying drawing. It is to be noted that the drawing is intended for the purpose of illustration only and that it is neither desired nor intended to limit the invention to any or all of the specific details of construction shown, excepting so far as they may be deemed essential to the invention.

Referring briefly to the drawing, Fig. 1 is a front elevational view of a cream separator having the device of this invention applied thereto, showing the motor in normal operating position with the belt in taut condition.

Fig. 2 is a side elevational view of the same.

Fig. 3 is a fragmentary front elevational view showing the lever and motor in raised position and the belt in slack condition.

Referring in detail to the drawing, the numeral 15 indicates the frame body or body of a cream separator, the detailed structure of which is not shown. A pulley 14 is connected by means of a shaft 12 to the separator mechanism, not shown, and is mounted on one side of the frame intermediate its height. A substantially flat platform 13 is pivotally or hingedly secured by one edge thereof to the frame 15 intermediate the height of the frame. The platform 13 has an electric motor 14 of suitable type mounted thereon. An eyelet 15 is rigid with the frame 10 above the platform 13 and an eyelet 16 is rigid on the upper portion of the casing of the motor 14. A pulley 17 is mounted on the shaft 18 of the motor 14 in alignment with the pulley 14 and connected thereto by a belt 19.

A lever 20, having saw-tooth serrations or teeth 21 in its upper edge, is pivotally attached by one end to the eyelet 16, the free end of the lever being formed into a handle 22. A plurality of spaced longitudinal openings 23 are provided through the lever 20.

A rod 24 which may be of a uniform diameter substantially equal to the diameter of the openings 23, has its extremities bent at right angles thereto to form a pair of co-planar parallel extensions 25 and 26. The extension 25 has a transverse opening 27 therethrough, and an additional opening 28 having its axis parallel with the extensions 25 and 26, is provided through the rod 24 substantially adjacent but spaced from the extension 25. A normally substantially rectangular link 29, possessing a degree of resiliency, has its base registering slidably and pivotally in the opening 28.

The extension 25 registers slidably in any one of the openings 23 of the lever 20 as may be desired by the operator. The link 29 may be engaged between any pair of mutually adjacent teeth 21, thus restraining the rod 24 from angular movement with respect to the lever 20, that is, giving rigidity to the connection between the rod 24 and the lever 20. The lower extension 26 registers slidably and rotatably in the eyelet 16 on the motor 23.

A coiled tension spring 30, of a tension sufficient to overcome the weight of the motor and platform assembly, has one extremity anchored in the base of the eyelet 15, and the other end of the spring is looped through the opening 27 in the rod extension 26. Thus, the platform 13 and motor 14, and consequently the lever 20 will be normally urged upward by the force of the spring 30. Frictional engagement of the link 29 between adjacent teeth 21 adjacent the hole 23 in which the rod 24 is engaged, will limit the inward angular movement of the rod 24 with respect to the lever 20, thus limiting the upward travel of the platform 13 due to urging of the spring 30.

In using the device when starting up a cream separator or like machine, the operator allows the spring 30 to move the motor upward until the belt is at the desired slackness, thus pivoting the motor hanger or platform 13 upward; this
is illustrated in Fig. 3. When the desired position has been reached, the rod extension 25 is placed in one of the openings 23 which will give the approximate angle desired between the rod 24 and the lever 20. The link 29 is then snapped over one of the teeth 21 which is at a distance so that the link will be flexed, as shown in Fig. 2, the tension of the link thereby preventing the possibility of the link inadvertently slipping out of engagement with the tooth against which it lies. The angle between the rod 24 and lever 20 is therefore limited with a substantial degree of rigidity.

After the motor has been started up and the separator has gained sufficient speed to allow the motor to assume the full load, it becomes safe to tighten the drive belt 19. The operator depresses the lever 20 by means of the handle 22, thus allowing the link 23 to become disengaged from the tooth 21 and allowing the rod 24 to pivot freely with relation to the lever 20. When the desired degree of tension of the belt 19 has been reached, the operator slips the link over one of the teeth 21 in the same manner as previously described. The angle between the rod 24 and lever 20 is again limited and upward tension of the spring maintains constant tension of the link 23 and maintains the angle between the rod 24 and lever 20 at its limit as set by the link engagement previously described.

The adjustable feature of the invention makes it possible to use different sizes of belts, as in the case where a belt of greater or smaller size than the optimum must be used to connect the pulleys 11 and 17. In the case of a large degree of adjustment, the extremity 20 of the rod 24 may be placed in any one of the openings 23 in the lever 20 which will afford the desired amount of tension of the belt 19.

Obviously, modifications in form and structure may be made without departing from the spirit and scope of the invention.

I claim:

1. In a device of the class described comprising a frame, a platform pivoted along one edge to said frame, a driven pulley rotatably mounted on said frame, a motor mounted on said platform and having a driving pulley, a belt connecting said pulleys, said motor having an eyelet thereon, means for adjustably tightening and loosening said belt comprising a lever pivoted at one end to said frame above said platform, a rod pivotally connected at one end to said eyelet and at the other end to said lever, resilient means normally urging said motor and platform in an upward direction, means partly on said rod and partly on said lever for limiting the pivotal movement of said rod with respect to said lever.

2. The device set forth in claim 1, said means comprising a resilient link slidably and pivotally mounted in said rod, serrations on the upper edge of said lever, said link having an upwardly extending deformed extension adapted to register between said serrations, thereby restraining said other end of said rod from pivotal motion with respect to said lever due to tension of said resilient means.

3. The device set forth in claim 1, said means comprising a resilient link slidably and pivotally mounted in said rod, serrations on the upper edge of said lever, said link having an upwardly extending deformed extension adapted to register between said serrations, thereby restraining said other end of said rod from pivotal motion with respect to said lever due to tension of said resilient means, said lever having a plurality of spaced longitudinal openings therethrough, said rod having its upper end bent at substantially right angles thereto, said upper end of said rod being selectively registrable in any one of said openings, said link being substantially rectangular in outline and having said upwardly extending deformed extension forming part of the rectangle thereof, said link surrounding said lever and being selectively registrable between any mutually adjacent pair of said serrations, thereby restraining said other end of said rod from pivotal motion with respect to said lever due to tension of said resilient means.

4. The device set forth in claim 1, said means comprising a resilient link slidably and pivotally mounted in said rod, serrations on the upper edge of said lever, said link having an upwardly extending deformed extension adapted to register between said serrations, thereby restraining said other end of said rod from pivotal motion with respect to said lever due to tension of said resilient means, said lever having a plurality of spaced longitudinal openings therethrough, said rod having its upper end bent at substantially right angles thereto, said upper end of said rod being selectively registrable in any one of said openings, said link being substantially rectangular in outline and having said upwardly extending projection forming part of the rectangle thereof, said link surrounding said lever and being selectively registrable between any mutually adjacent pair of said serrations, thereby restraining said other end of said rod from pivotal motion with respect to said lever due to tension of said resilient means, said link comprising a coiled spring anchored at one end to said frame above said platform and at the other end to said motor.

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No references cited.