Sept. 6, 1932. G. R. FASSETT 1,876,138

SPRING ADJUSTMENT

Filed Dec. 5, 1929

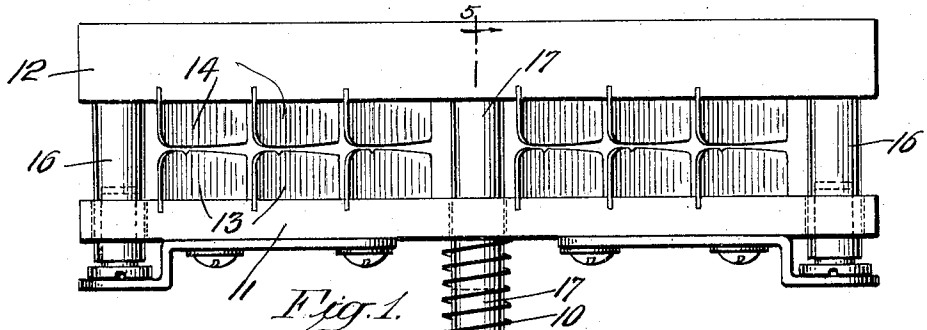

Fig. 1.

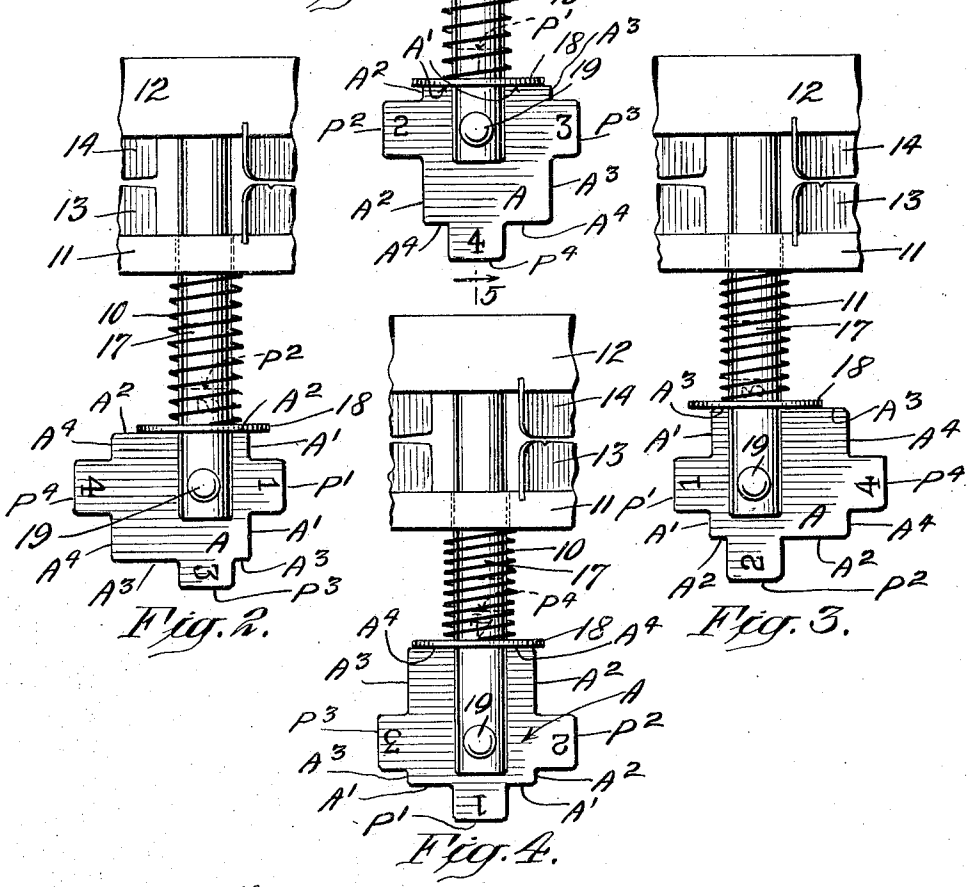

Fig. 2. Fig. 3.

Fig. 4.

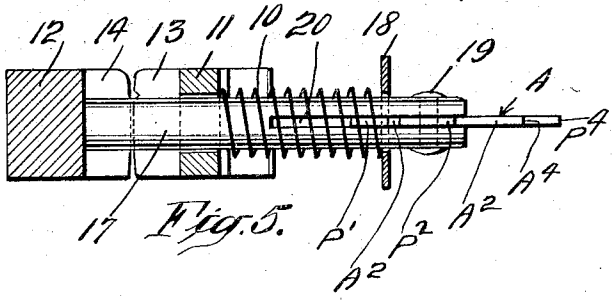

Fig. 5.

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UNITED STATES PATENT OFFICE

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SPRING ADJUSTMENT

Application filed December 5, 1929. Serial No. 411,804.

This invention relates to spring adjustments, and aims to provide a simple and convenient means for varying the force exerted by a spring.

The advantages of my new spring adjustment are that it is simple, can be made at small expense, can easily be used to vary the force of a spring by predetermined steps, and, while easily movable for the purpose of adjustment, it is rigidly held against accidental displacement in each position into which it may be adjusted.

While my new spring adjustment is adapted for use in numerous different connections, I have, for the sake of illustration, indicated in the accompanying drawing its application to a yarn cleaner. In the drawing:

Fig. 1 is a plan view of a yarn cleaner with my spring adjustment applied thereto;

Figs. 2, 3 and 4 are fragmentary plan views showing different adjustments of the spring shown in Fig. 1; and

Fig. 5 is a transverse section on the line 5—5 of Fig. 1.

This application has been divided and the subject matter not claimed herein is claimed in application Serial Number 513,493, filed September 5, 1931.

In the application of my invention shown in the drawing, a fine wire helical compression spring 10 is utilized to urge towards each other the side members 11, 12 of a yarn cleaner, so as to urge the cleaning blades 13, 14 carried by these side members towards each other and against a yarn which may be passed between them. In the form shown, the side member 11 is slidably mounted on two rods 16 projecting from the side member 12 near its ends. The side member 11 is also slidable on a tension rod 17, which projects from the middle of the side member 12 and carries the spring 10. One end of the spring abuts against the side member 11, while its other end has an abutment 18 slidably mounted on the tension rod 17. The abutment 18 may conveniently take the form of a perforated washer as shown.

An adjustment element A is provided for varying the position of the abutment 18, and thus varying the pressure exerted by the spring 10 against the movable side bar 11 of the yarn cleaner. The element A is pivotally mounted on the tension rod 17 by means of a pivot 19. In the form shown, the element A is a flat plate entering a transverse slot 20 in the outer part of the tension rod 17 across which the pivot 19 passes.

The adjustment element A is provided with a plurality of engaging surfaces or edges A1, A2, A3, A4, located at progressively increasing distances from its axis. Each of these engagement surfaces extends at both sides of the radius of the element A which is perpendicular to it. Projections P1, P2, P3, P4, project from intermediate parts of the engagement surfaces. Each projection is symmetrically located with respect to the radius of the element A which is perpendicular to the engagement surface from which that projection projects. The width of each projection is no greater than the diameter of the hole in the abutment 18 and is preferably equal to the diameter of the tension rod 17.

When the smallest pressure is required on the side member 11 of the yarn cleaner, the adjustment element A is turned as shown in Fig. 1 with its engagement surface A1 against the outer side of the abutment washer 18 and with its projection P1 extending through the hole in the washer. The adjustment element is, therefore, held firmly in this position. When a slightly greater spring pressure is required, the abutment washer 18 is pushed inward beyond the end of the projection P1 and the adjustment element is turned to direct its engagement edge A2 inward. The abutment washer 18 is then released, and is forced outwardly by the spring around the projection P2 and into engagement with the edge A2, as shown in Fig. 2. Further increases of the spring pressure may be obtained by turning the adjustment member into the positions shown in Figs. 3 and 4. In each case, the abutment washer must be pushed in against the spring before the adjustment element is turned, and, in each adjusted position, the adjustment element is securely held against accidental displacement by the engagement of one of its projections with the abutment washer.

I wish it clearly understood that my invention is by no means limited to the use of my spring adjustment in connection with a yarn cleaner. Furthermore, I make no claim to the yarn cleaner shown, per se, as it is the invention of Louis B. Hasbrouck and forms the subject-matter of copending patent applications which have been filed by him.

What I claim is:

1. A spring adjustment, comprising the combination of a spring and a movable abutment therefor, of an adjustment element pivoted on an axis transverse to the direction of movement of the abutment, and provided with a plurality of surfaces located at different distances from its axis and each adapted to engage said abutment.

2. A spring adjustment, comprising the combination with a spring and a movable abutment therefor, of an adjustment element pivoted on an axis transverse to the direction of movement of the abutment and provided with a plurality of surfaces located at different distances from its axis and each adapted to engage said abutment, the abutment and each of said engagement surfaces being provided with interlocking means to prevent accidental turning of the adjustment element when any one of its said surfaces is in engagement with the abutment.

3. A spring adjustment, comprising the combination with a spring and a perforated movable abutment therefor, of an adjustment element pivoted on an axis transverse to the direction of movement of the abutment and provided with a plurality of surfaces located at different distances from its axis and each adapted to engage said abutment, and with a projection from each of its said engagement surfaces adapted to enter the perforation in the abutment when said surface is in engagement with the abutment.

4. A spring adjustment, comprising the combination with a compression spring, a tension rod on which said spring is mounted and an abutment for one end of said spring containing a hole slidably engaging said rod of an adjustment element mounted on said rod by a pivot transverse to the axis of the rod and having a plurality of surfaces located at different distances from its axis and each adapted to engage said abutment, and a projection on each of said surfaces adapted to enter the hole in the abutment when that surface is in engagement with the abutment.

5. A spring adjustment, comprising the combination with a compression spring, of a slotted tension rod on which said spring is mounted, a movable abutment for one end of said spring slidably mounted on said tension rod and containing a hole, a pivot extending across the slot in the rod, an adjustment plate extending through the slot in the rod, mounted on said pivot, having a plurality of edges located at different distances from its axis and each adapted to engage the abutment, and having a projection from an intermediate part of each of said edges adapted to enter the hole in the abutment when that edge is in engagement with the abutment.

In testimony whereof I have hereunto set my hand.

GEORGE R. FASSETT.