

April 9, 1940.

A. J. BERNDT

2,196,891

SUPPORT

Filed June 29, 1937

2 Sheets-Sheet 1

Fig. 1.

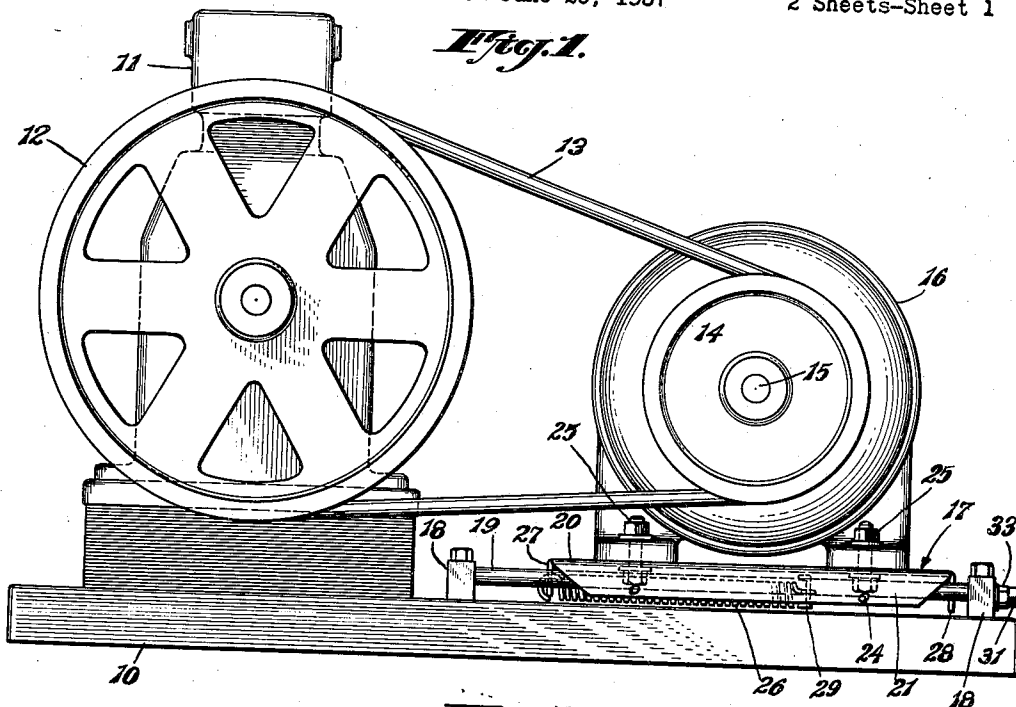
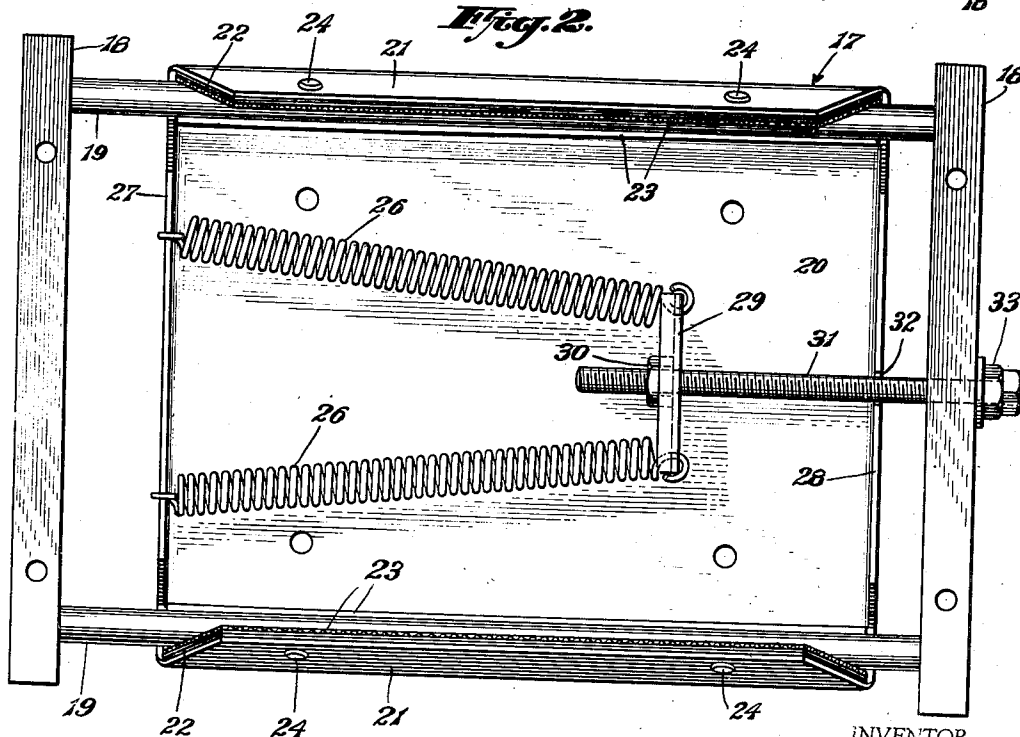


Fig. 2.



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Fig. 3.

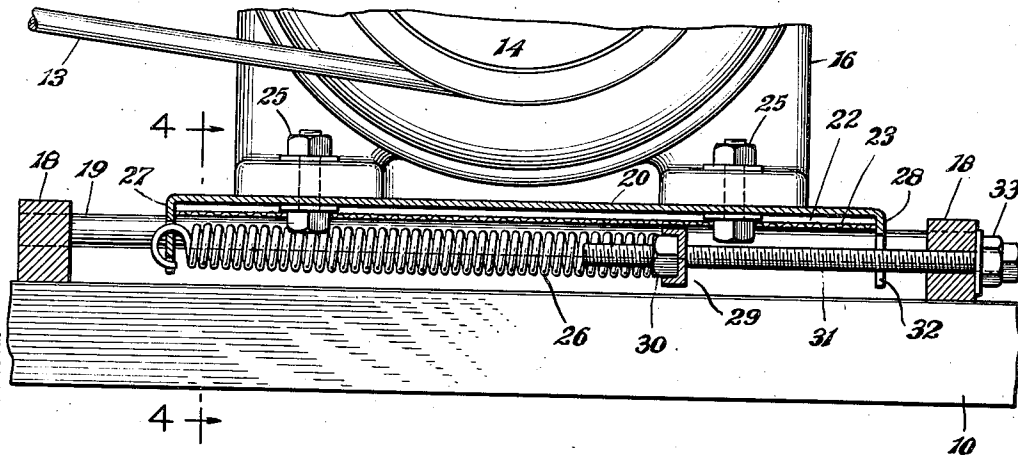


Fig. 4.

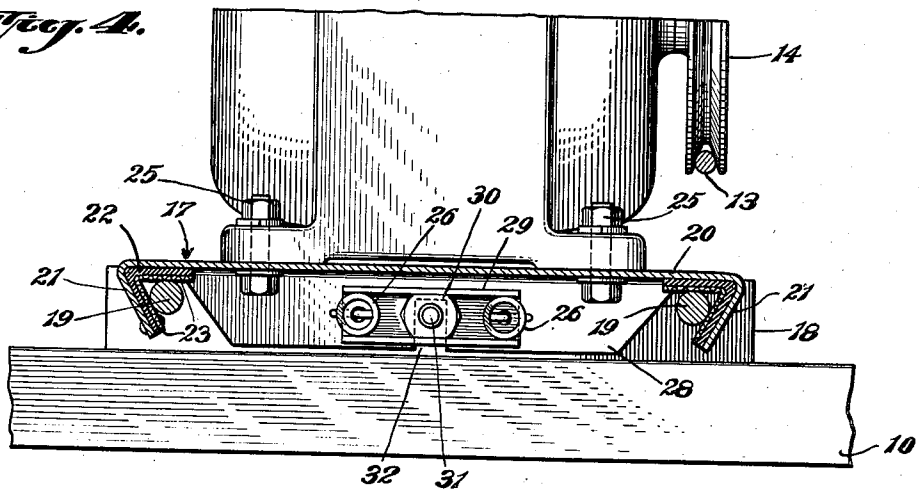
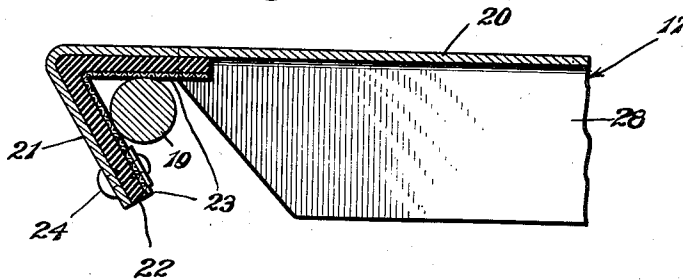


Fig. 5.



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UNITED STATES PATENT OFFICE

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SUPPORT

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Application June 29, 1937, Serial No. 151,051

6 Claims. (Cl. 248—23)

This invention relates to supports and more particularly to supports for movably mounting a mechanism, such as a motor, to render said mechanism automatically adjustable with respect to another instrumentality.

For purposes of illustration, an electric motor has been chosen to represent the movably mounted mechanism and a pump to illustrate the relatively fixed instrumentality, and, merely for clarity of description, will be referred to specifically by those designations, but without restricting the invention thereto.

The objects of the invention are to provide an improved support for a motor or other mechanism in its relation to a relatively fixed pump or other instrumentality; to maintain precision of parallelism or alignment of the motor and pump; to overcome detrimental twisting, canting and torsional moments transmitted to said support; to render the support freely slidable; to minimize contact of the support with its rails; to reduce friction of such contact; to obtain rigidity of the support; to insure rigidity of the support next the rails; to enable the support to be spring tensioned with correct adjustment; to allow ready adjustment with the motor and pump in operation; to secure simplicity of construction and operation; and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings in which like numerals of reference indicate similar parts throughout the several views;

Figure 1 is an elevation, for convenience referred to as of the front, of a motor mounted on the support of the present invention, in operative association with a pump;

Figure 2 is an underneath view of the support;

Figure 3 is a central longitudinal section of the support, and showing a part of the bed and motor associated therewith;

Figure 4 is a cross section on line 4—4 of Fig. 3; and

Figure 5 is an enlargement of the cross-sectional showing of Figure 4 of one rail and associated portion of the support.

In the specific embodiment of the invention illustrated in said drawings, the reference numeral 10 designates any suitable base on which is fixedly carried an instrumentality, such as pump 11, having a driver pulley 12 for a belt 13 extending to a driving pulley 14 on the armature shaft 15 of a motor 16 constituting the specific showing of instrumentality for which my improved support 17 is provided.

The support 17 provides a pair of parallel cleats 18 which are bolted or otherwise secured in fixed position upon the base 10 transverse to the length thereof or, in other words, parallel to the armature shaft of the motor. Between these cleats, and with their opposite ends secured in said cleats, are a pair of rails 19, 19. These rails are illustrated as parallel rods or bars which thus provide outside cylindrical bearing surfaces. Upon the pair of rails rests a carriage 20 which is preferably of sheet metal of sufficient gauge for the purpose. The marginal edges of this plate parallel to the rails are bent downward and somewhat inward, thus providing side flanges 21, 21 making acute included angles between each flange and the body or flat portion of the plate. Within this included angle is preferably secured a cushioning element 22, such as rubber, cork or other material on the face of which remote from the metal of plate and flange, is an antifriction surfacing element 23. Both the cushioning element 22 and antifriction element 23 extend, by preference, substantially the length of the flange and plate and are sufficiently wide to enable the antifriction element to be fully supported by the cushioning element and to have a tangential line engagement on the top of the rail and at the side of the rail. Rivets 24 or other suitable means through the said elements and flange will hold the elements in place.

The proportion of parts is such that the flanges will slope to a position at least partially under the rails, and line engagement of the antifriction element on the flange will thus prevent the plate from lifting from the rail as well as preventing the plate from canting up at either end or from twisting laterally. The line contact of the flange and the line contact of the body of the plate with the rod (effected through the antifriction element) thus gives desired engagements throughout the length of flange and plate body with the rail but with minimum engagement circumferentially of the rail. Very free sliding is thus secured. The antifriction element may be of appropriate material, such as one containing a lubricant of which graphite is an example, and with such means as asbestos and wire mesh for effecting body, strength and lasting characteristics. The element may therefore be relatively permanent and the support enabled to slide freely without need of extraneous oiling substantially as long as the machine is used. While I have shown a cushioning element 22 included between the metal of the plate and the antifriction element, for absorbing vi-

bration and aiding to some extent in the free sliding by preventing wedging of the rail in the included angle, said cushioning element may be omitted entirely if desired and the antifriction element secured directly to the metal of the plate.

The tension of belt 13 tends to slide the motor toward the pump, and as the motor is secured, as by bolts 25, to the plate, the said plate will be normally drawn in the same direction. This sliding impetus is counteracted by a pair of springs 26, 26 beneath the plate. In this connection it is pointed out that said plate has stiffening flanges 27, 28 depending at its forward and rearward edges respectively, and said springs hook into appropriate holes in the forward flange 27, preferably quite near the ends of that flange. Said springs slope toward each other rearwardly and hook at their rear ends in the ends of a yoke 29. This yoke is shown of channel formation with the flanges of the channel projecting rearwardly and receiving non-rotatively a nut 30 in which is the threaded portion of a bolt or other adjusting means 31. Said adjusting bolt extends rearwardly and without screw engagement through the rear flange 28 of the plate (which is cut-out at 32 for that purpose) and through the rear one of the cleats, with its head beyond the cleat and a lock nut 33 interposed if desired between said head and cleat upon the threaded shank of the bolt. Said bolt head and lock nut are therefore exposed in position for ready access while the motor and pump are running, enabling proper tension to be applied to the springs under operating conditions. It may be observed at this time that, by the divergence of the springs to the forward end of the plate and convergence toward the adjusting screw head, a maximum stability is secured and minimum adverse forces are introduced.

Obviously detail changes and modifications may be made in the construction and use of my improved support, and I do not wish it understood that I restrict myself to the details shown or described or the specific use and instrumentalities and mechanisms referred to except as set forth in the following claims when construed in the light of the prior art.

I claim:

1. A support comprising in combination, a slidable carriage, a pair of springs secured at one end of each to one end of the carriage a distance from each other, a floating yoke of less length than said distance, the opposite end of each spring being attached to one end of said yoke, whereby the springs converge, and an adjustable mounting for said yoke extending in the general direction of the convergence of said springs for obtaining a stabilized resilient actuation of said carriage.

2. A support comprising in combination, a fixed member, a slidable carriage, a pair of springs secured at one end of each to one end of the carriage a distance from each other, a screw extending in the same general direction as and from beyond the said springs and from beyond the other end of the carriage from that to which the springs are attached and passing through said fixed member in operative retaining engagement therewith, and means receiving and holding the springs next the ends thereof opposite from the

ends secured to the carriage, said means being mounted on said screw and threaded with respect thereto so as to be advanced and retracted as the screw is rotated.

3. A support comprising in combination, a fixed member, a slidable carriage, a pair of springs secured at one end of each to one end of the carriage a distance from each other, a screw extending in the same general direction as and from beyond the said springs and from beyond the other end of the carriage from that to which the springs are attached and passing through said fixed member in operative retaining engagement therewith, and means receiving and holding the springs next the ends thereof opposite from the ends secured to the carriage, said means being mounted on said screw and threaded with respect thereto so as to be advanced and retracted as the screw is rotated, and said springs being attached to said means and substantially diametrically opposed on opposite sides of the screw.

4. A support comprising in combination, a fixed member, a slidable carriage, a pair of springs secured at one end of each to one end of the carriage a distance from each other, a screw extending in the same general direction as and from beyond the said springs and from beyond the other end of the carriage from that to which the springs are attached and passing through said fixed member in operative retaining engagement therewith, and means receiving and holding the springs next the ends thereof opposite from the ends secured to the carriage, said means being mounted on said screw and threaded with respect thereto so as to be advanced and retracted as the screw is rotated, and said springs being attached to said means and substantially diametrically opposed on opposite sides of the screw, and said springs diverging from each other in a direction from the said means to their ends attached to the carriage.

5. A support comprising in combination with parallel cleats and rails, a slidable carriage on said rails, a screw parallel to said rails midway between the same and passing rotatably through at least one of the cleats and with a head therebeyond for preventing longitudinal displacement of the screw during rotation thereof, and a pair of springs on opposite sides of the screw each mounted at one end to advance and retract under influence of rotation of the screw and each attached at the opposite end to the said carriage for applying tension to move the carriage in a direction toward the head of the screw.

6. A support comprising in combination a fixed member, a slidable carriage, a rotatable screw operatively retained by said fixed member and extending in a direction parallel to the slidable movement of the slidable carriage, a yoke on said screw movable longitudinally of the direction of movement of the carrier by rotation of said screw, and a pair of springs diverging from the yoke with one end of each spring carried by the yoke and the other end of each spring secured to the carriage, whereby the springs retain the yoke from rotating, stabilize the carriage and exert a pull upon the carriage back to normal position when said carriage is slid from normal position.

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