

Sept. 16, 1941.

G. A. OVERSTROM ET AL

2,255,939

SCREEN

Filed Feb. 25, 1939

Fig. 1

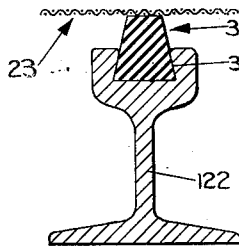
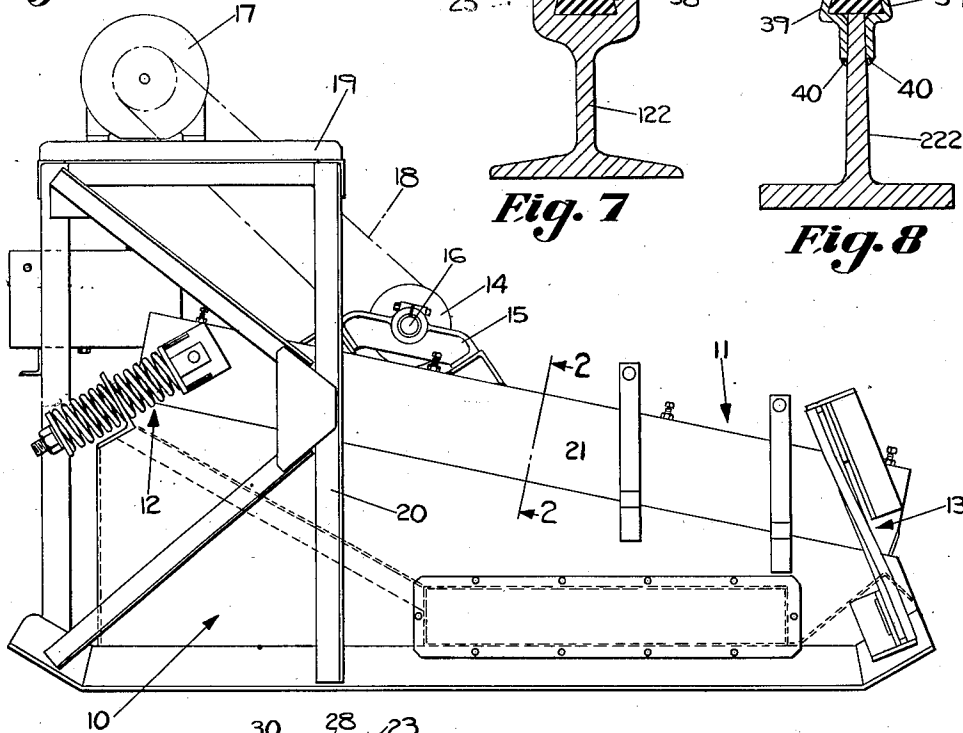


Fig. 7

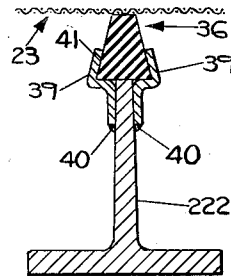


Fig. 8

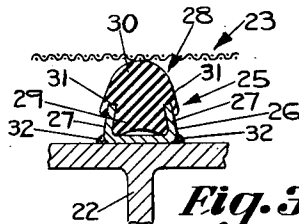


Fig. 3

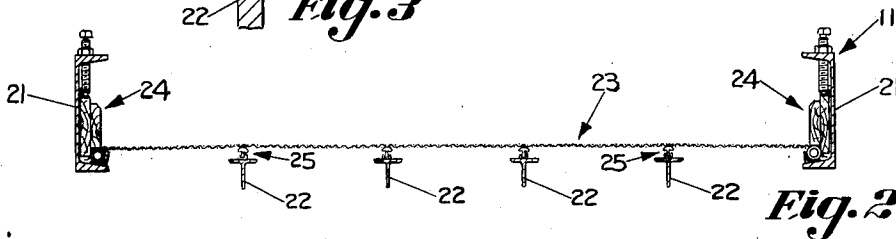


Fig. 2

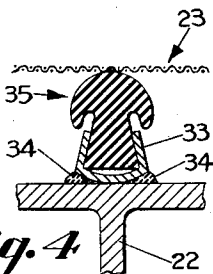


Fig. 4

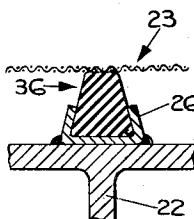


Fig. 5

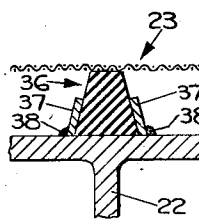


Fig. 6

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SCREEN

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Application February 25, 1939, Serial No. 258,538

2 Claims. (Cl. 209—403)

This invention relates to a screen and more particularly to a simple and improved mechanism in a screen for resiliently supporting the screen cloth.

An object of the invention therefore is to provide an improved screen having resilient supporting means to support the screen cloth from the deck struts.

Another object of the invention is to provide an improved strut construction for carrying a resilient strip adapted to support a screen cloth.

Still a further object of the invention is to provide a simple but improved form of resilient rubber strip support particularly adapted for screens.

Still a further object of the invention is to provide an improved form of resilient rubber strip for resiliently supporting a screen cloth from struts of the screen deck.

Other objects of the invention will appear hereinafter, the novel features and combinations being set forth in the appended claims.

In the accompanying drawing,

Fig. 1 is a side elevational view of a screen incorporating the novel features of our invention;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1 looking in the direction of the arrows, with parts omitted in the interest of clearness;

Fig. 3 is an enlarged detail view showing the resilient mounting means of our invention; and

Figs. 4, 5, 6, 7 and 8 are views similar to Fig. 3 showing modified forms of the resilient supporting means comprising our invention.

Referring particularly to Figs. 1 and 2 of the drawing, it will be seen that the screen of our invention comprises a main supporting frame 10 upon which is mounted a deck 11 which is resiliently supported from the main frame 10 at its rear end by a pair of composite coil spring resilient supports one of which is seen at 12 and at its forward end by a pair of leaf spring cantilever supports one of which is seen at 13. It will be evident that there will be one of each of the supports 12 and 13 on each side of the deck 11.

Vibratory motion may be imparted to the deck 11 by any desired means such as an unbalanced revolving pulley 14 which is mounted upon the deck 11 by appropriate supporting bracket means 15 which provides a journal bearing for the shaft 16 of said unbalanced pulley 14. The pulley 14 is driven from an electric motor 17 by means of a belt 18, said motor 17 being supported upon platform 19 carried by stand 20 forming a part of the main frame 10.

The deck 11 is formed of a pair of spaced side channels 21, 21 which are connected together by appropriate end cross-pieces.

As illustrated in Fig. 2 of the drawing, the deck 11 also includes a plurality of longitudinally extending supporting struts 22 which are supported on the above mentioned end cross-pieces. It is

to be distinctly understood that the struts 22 may run transversely between the side channels 21 instead of running longitudinally or struts may be provided running both longitudinally and transversely. This provides for both longitudinal and transverse support for a screen cloth 23 carried by said deck, the lateral edges of which are attached to the channels 21, 21 as by attaching end tensioning means 24, 24 which may take the form disclosed and claimed in the patent to Gustave A. Overstrom for Stretching apparatus for screen cloth, No. 2,136,950, granted November 15, 1938.

Also if desired the deck 11 may be provided with means to attach and stretch the screen cloth 23 adjacent the feed and discharge edges thereof.

To provide a very effective resilient support for the screen cloth 23 which is of simple construction and is particularly adapted to remain in place during renewal, removal or tensioning of the screen cloth, we provide resilient supporting means 25 which, in its preferred form, is illustrated in detail in Fig. 3 of the drawing. Mounted upon the top of each strut 22, which is in the form of a T-bar, there is welded as at 32, 32 a channel 26 which extends longitudinally along the top of said T-bar 22. The channel 26 is formed by bending the sides thereof to form upwardly extending side walls 27, 27, the interior surfaces of which slope upwardly and inwardly, that is, said inner walls 27, 27 converge from the bottom upwardly so that they form a groove having a width which increases from the top downwardly or, as otherwise expressed, is dovetailed, as viewed in cross-section. The channel 26 therefore forms an elongated groove which receives a strip 28 of resilient material which is preferably of preformed configuration corresponding to that illustrated in Fig. 3 of the drawing. That is, the strip 28, as viewed in cross-section, has a dovetailed bottom portion 29 having longitudinally extending side surfaces which are in intimate contact with the interior surfaces 27 of the channel 26. The top portion 30 of the strip 28 is preferably rounded where it contacts the screen cloth 23.

As clearly illustrated in Fig. 3 of the drawing, the upper edges of the side walls 27 may be completely covered by the rubber strip 28 in that grooves 31, 31 are formed on opposite sides of said strip 28 to receive said top edges of the side walls 27.

It has also been found in practice that the strip 28 need not be exactly preformed but if made of soft rubber, as it preferably is, the bottom portion 29 will, of course, be required to assume the dovetailed shape by making it larger than the groove formed by the channel 26. It is of particular importance to have this interlocking dovetailed relation between the groove forming channel 26 and the strip 28 because this

prevents their separation even though the screen cloth 23 is removed or is adjusted as to tension. In this connection it has been found in practice that where a rubber tube is merely placed freely in a slot there is a great tendency for the strips to become lost during transportation of the apparatus and to come out of the slots during tension of the screen cloth due to the tendency of the screen cloth to roll the strip out of the slot when the tensioning is effected. Both of these objectionable features have been overcome by the structure of our invention.

As was previously pointed out, the resilient supporting means above defined may be employed to support the screen cloth 23 by being applied to longitudinally extending supporting members or struts 22 only, or to transversely extending supporting members or struts only, or to both longitudinally extending and transversely extending struts or supports.

In Fig. 4 of the drawing, there is illustrated a supporting structure which is a slight modification of that of Fig. 3. The differences are obvious and lie principally in that the channel 33 does not have a flat bottom but a curved bottom and there is more welding seen at 34, 34 employed in attaching said channel 33 to the strut 22. The rubber strip 35 is preformed and may be of slightly heavier construction than the strip 28.

In Fig. 5 of the drawing we have illustrated a different form of rubber strip 36 applied to the supporting structure of Fig. 3. In this form the strip 36 is trapezoidal in cross-section and has a substantially flat top contacting area in direct contact with the screen cloth 23. This form of the strip 36 is, of course, simpler than the other forms and therefore less expensive.

In Fig. 6 of the drawing we have shown another form of support for the strip 36. In this form a very simple channel is made by merely welding upwardly extending and inwardly sloping side plates 37, 37 to the top of the T-strut 22 by welds 38, 38 along the bottom edges thereof.

In Fig. 7 of the drawing we have provided a different form of strut or support 122 which, it will be understood, is the substitute for the struts or supports 22. This strut 122 is essentially in the form of a rail having a groove 38' formed in the top thereof which is dovetailed or, in other words, formed substantially the same shape as groove as above described in connection with the support of Fig. 3. It is, of course, evident that this strut or support 122 is a one-piece unitary structure and has the advantages of extreme rigidity realized from this type of construction.

In Fig. 8 of the drawing we have illustrated still another form of strut or support 222 which is in the form of an inverted T-member to the upper end of the central web of which there is welded a pair of longitudinally extending Z-shaped strips 39, 39 welded thereto at 40, 40 which strips cooperate with said central web of the strut 222 to form a groove 41 similar in shape to that above described in connection with Fig. 3 of the drawing. This construction is a simple method of using an inverted T-strut and providing the desired dovetailed groove to receive the rubber strip 36.

It is to be understood that any form of the

strut and groove forming mechanism associated therewith, such as illustrated in Figs. 3 to 8, inclusive, may be employed with any of the various forms of the resilient rubber strips. As an illustration the rubber strip 30 disclosed in Fig. 3 may be employed with the supporting struts and channels disclosed in Figs. 4 to 8, inclusive. The strips may be slid into the grooves endwise but we prefer to make them of rubber sufficiently soft that they may be squeezed by hand laterally into the grooves and also readily pulled laterally out of the grooves manually.

It is evident that any of the rubber strips when received by the groove formed supports will provide a dovetailed interlocking connection therewith thus insuring that the rubber strip will remain in place even though the screen cloth 23 is removed, or even though it is slid over the supporting surface of the rubber strip with appreciable friction. This, of course, insures against loss of the resilient supporting strips and further insures against their being displaced during adjustment or tensioning of the screen cloth 23. It is therefore evident that a very efficient but simple means has been provided to resiliently support the screen cloth 23 preferably at a plurality of spaced intervals either longitudinally, transversely, or both, with respect to the screen deck.

Obviously those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended, and we therefore wish not to be restricted to the precise construction herein disclosed.

Having thus described and shown an embodiment of our invention, what we desire to secure by Letters Patent of the United States is:

1. A resilient support for a screen cloth comprising a screen frame including a strut having an elongated dovetailed groove formed by spaced apart upwardly and inwardly sloping substantially continuously flat side walls which extend substantially continuously from the bottom of said groove to the top thereof, and a resilient strip having a preformed bottom formed by sloping side walls which when in said groove have intimate contact with said side walls thereof, the top of said strip extending above the side walls and being formed curved to provide an extended area adapted to bear against and support a screen cloth.

2. A resilient support for a screen cloth comprising a screen frame including a strut having an elongated dovetailed groove formed by spaced apart upwardly and inwardly sloping substantially continuously flat side walls which extend substantially continuously from the bottom of said groove to the top thereof, and a resilient strip having a preformed bottom formed by sloping side walls which when in said groove have intimate contact with said side walls thereof the top of said strip extending above the side walls and being formed to provide an extended area adapted to bear against and support a screen cloth.

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