May 7, 1940.

G. A. OVERSTROM ET AL

2,199,596

SCREEN STRETCHING STRUCTURE

Filed Feb. 11, 1939

Fig. 1.
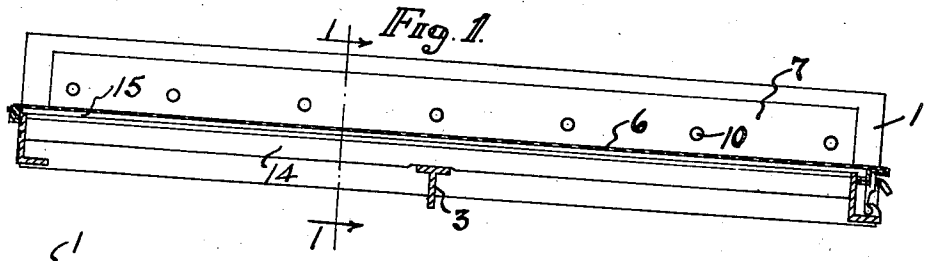


Fig. 2.

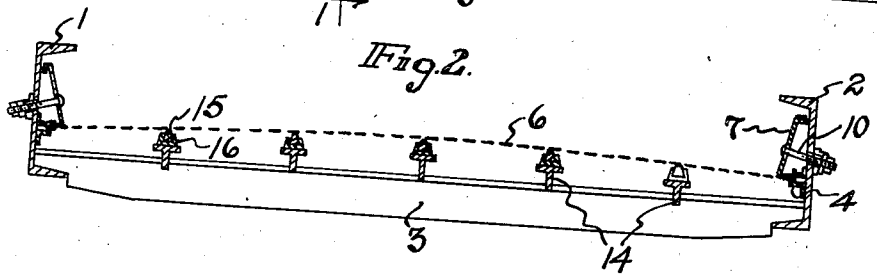


Fig. 3.

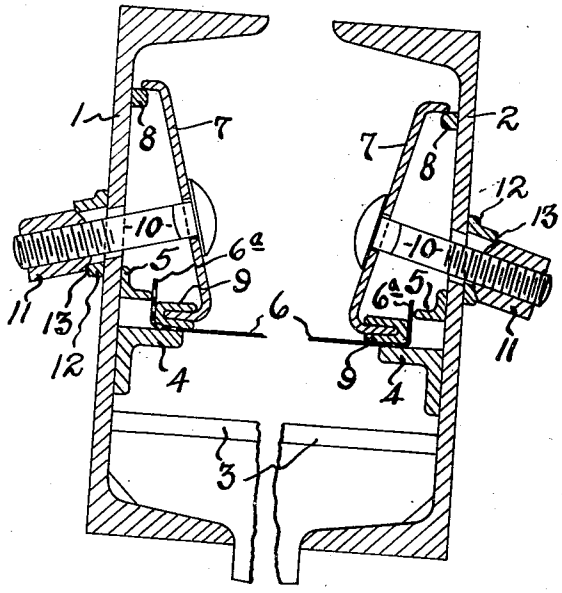
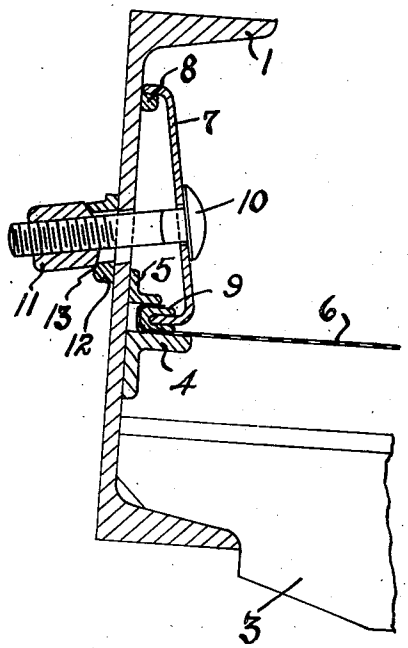


Fig. 4.



Gustave A. Overstrom
George Overstrom
Conrad Overstrom
INVENTORS.

BY Darby & Darby.

ATTORNEYS.

Patented May 7, 1940 2,199,596

UNITED STATES PATENT OFFICE

2,199,596

SCREEN STRETCHING STRUCTURE

Gustave A. Overstrom and George Overstrom, Eagle Rock, and Conrad Overstrom, Pasadena, Calif.

Application February 11, 1939, Serial No. 255,906

5 Claims. (Cl. 209—403)

This invention involves an improved form of structure by means of which a screen cloth or wire screen such as is mounted in the box of vibrating screens, sorting and grading devices and the like, may be secured therein and properly tensioned.

Another object of this invention is to provide a structure by means of which the screen cloth or wire screen may be uniformly tensioned by the uniform application of pressure along the side edges and in the plane thereof.

A still further object of the invention is the provision of a mechanism of this type so constructed and arranged for cooperation with the screen cloth as to minimize the wear thereon.

Another object of the invention is to provide a screen stretching and mounting device which may be used in connection with screens, whether of wire, cloth or the like, which have no binding along the side edges thereof.

Other objects of the invention will be apparent from the following detailed description and the embodiment thereof set forth in the drawing by way of illustration.

This invention resides substantially in the combination, construction, arrangement and relative location of parts, all in accordance with the following disclosure.

In the accompanying drawing,

Figure 1 is a vertical, longitudinal section of the screen box of a vibrating screen, omitting details not connected with the invention for the sake of simplicity.

Figure 2 is a vertical, transverse, cross-sectional view through the screen box of the vibrating screen and taken along lines 1—1 of Figure 1.

Figure 3 is an enlarged detail of the same cross-section of Figure 2 with some parts broken away showing the stretching apparatus in its initial position before transverse stretching of the cloth is effected.

Figure 4 is a cross-sectional view similar to Figure 3 of one side only of the screen box showing the position of the parts when the cloth is stretched.

The nature, scope and operation of the invention will be more readily understood by first describing the structural form employed in the drawing for the purpose of illustrating the invention.

The members 1 and 2 are side members for the screen box. In an actual vibrating screen they will form the longitudinal sides of the screen box and will be separated and spaced apart from each other a distance equal to the width thereof. Extending transversely across the screen box, between the side members, are cross braces or bars, which may be, for example, angle irons and T's. One of these cross braces, a T, 3, appears in the drawing. As those skilled in the art will readily appreciate, the number and arrangement of cross braces will be varied depending upon the requirements of the structure.

Extending longitudinally along the side members 1 and 2, on the inner faces thereof, are angle irons or bars 4 which are secured to the side members in any suitable way, as for example by bolting or welding in the case of metals.

Spaced above the angle irons 4 at a suitable distance are a pair of smaller angle irons 5 which extend parallel thereto and are secured also to the inner faces of the side members 1 and 2 in any suitable manner. At 6 is the screen cloth made of any materials commonly used for this purpose, which rests upon the rubber supports 15 in turn mounted on the longitudinally extending bars 14 which are T-shaped in cross-section and at its side edges on the angle irons 4.

Extending parallel to the inner faces of the side plates 1 and 2, are a pair of channel members 7 formed as shown with flanges along each side edge. The upper flange lies above a longitudinal ledge 8 or the like, which also extends along the inner faces of the side plates 1 and 2 and are secured thereto in any suitable manner.

The lower flanges of the channel members 7 are encased in a covering 9 of any suitable material such as, for example, strips of oak tanned leather. The leather strips are secured to the flanges in any suitable way such as by rivets, cementing, and the like.

At suitable intervals along the length of the channel members 7 are bolts 10 which extend through openings in the side plates defined by suitably shaped sleeves 12 having the seats 13 upon which the nuts 11 engage when threaded to the bolts. If preferred, these nuts may be provided with integral handles thereby eliminating the necessity of using wrenches.

The screen 6 is put in place in the box formed in part by the side members 1 and 2 in a position such as is shown, for example, in the drawing. The channel members 7 are then put in place so that the lower protected flange rests on the screen cloth adjacent the spaces between the pairs of angle irons 4 and 5. At this time the upper flanges of the channel members 7 rest on ledges 8. As the nuts 11 are screwed on, under these circumstances, the channel members swing towards the inner faces of the side plates 1 and 2.

This causes the leather protected flanges to move into the spaces between the angle irons 4 and 5. As this occurs the free side edges 6a of the screen element are folded down on top of the upper surfaces of the leather strips 9. These parts are all proportioned so that a relatively tight fit results as the leather protected flanges move into these spaces so that the screen cloth is gripped thereabout and is embedded therein so as to be drawn tight with little or no slippage.

Since the channel members 7 extend substantially throughout the length of the side edges of the screen, it is apparent that the cloth may be very uniformly tensioned in a transverse direction. Of course a series of tensioning bolts 10 may be distributed longitudinally along the said channels to give a greater degree of control over the tension supplied to the cloth and its distribution therein.

The members 12 through which the tensioning bolts 10 pass must be provided with ample clearances so that bolts 10 will not bind when tension is applied to the cloth. Sockets 13 provide an effective surface against which the nut 11 presses.

As the cloth is tensioned it rests firmly on the rubber supporting strips 15. These rubber strips are held in place by members 16 whose holding surface is preferably made dovetail to prevent the rubber from creeping out of place. The dovetail strips are fastened to T members 14, by welding for example. Members 14 also act as effective longitudinal ties or braces for the screen box.

It now becomes readily apparent that the details of this invention may be applied to all forms of structures wherein flexible screen members and the like are to be secured in place and/or tensioned. The exact construction of the various parts as illustrated by way of example may be readily varied by those skilled in the art without departing from the true and novel scope of the subject matter herein disclosed. We do not, therefore, desire to be strictly limited to the disclosure as given for purposes of illustration, but rather to the claims granted us.

What is claimed is:

1. In a screen mounting structure the combination comprising a screen box having side frame members, a pair of spaced bars secured to the inner faces of said members, a screen cloth extending between said bars, and means pivoting on said side frame member for forcing the free side edges of the screen cloth in planes parallel to the cloth between said bars to stretch the screen cloth.

2. In a device of the type described the combination including the side frame members of a screen box, a pair of vertically spaced bars secured to the inner faces of said members, and extending substantially throughout the length thereof, a screen cloth, channel members resting along the terminal edge of one channel leg against the inner faces of said side frame members, and movable into said spaces, and means for effecting such movement, the side edges of the screen cloth being squeezed between said pair of bars and said adjacent channel leg during movement of the cloth into the channel members.

3. A screen tensioning mechanism consisting of a pair of parallel side members provided with channels on their inner faces, said channels facing towards each other, a screen cloth extending between said channels, and means having cloth engaging portions which the side edges of the cloth overlap for wedging the cloth into said channels in contact with both channel walls whereby the cloth is tensioned.

4. A screen tensioning mechanism consisting of a pair of parallel side members having channels on their inner faces, said channels facing towards each other, a screen cloth extending between said channels and being folded back to engage both channel walls, and means for forcing the side edges of the cloth into said channels whereby the screen cloth is tensioned, said means including resilient strips engaging the cloth in the trough formed by folding and together forming a snug fit in said channels.

5. In a vibrating screen cloth tensioning mechanism, the combination including the side frame members of a screen box, pairs of parallel bars on the inner faces of said members and forming elongated channels facing each other, the lowermost bar of each pair being transversely wider than the uppermost bar, a screen cloth extending between said bars, and tensioning means including flanged members engageable with the side frame members along one side and with the side edges of said cloth for forcing them between the pairs of bars in contact with the opposed faces thereof to tension the cloth and lock it in that position.

GUSTAVE A. OVERSTROM.
GEORGE OVERSTROM.
CONRAD OVERSTROM.