

**Feb. 26, 1929.**

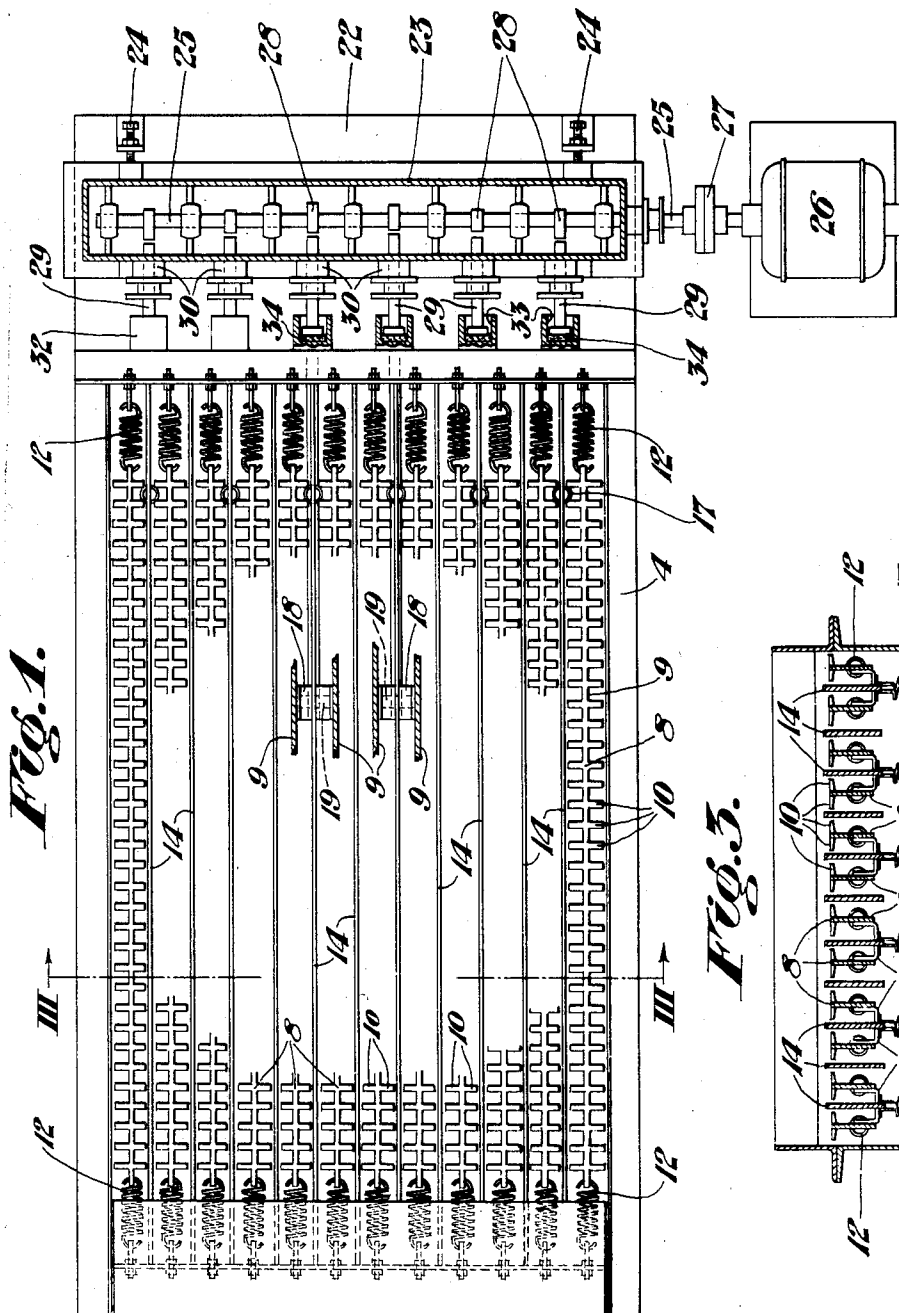
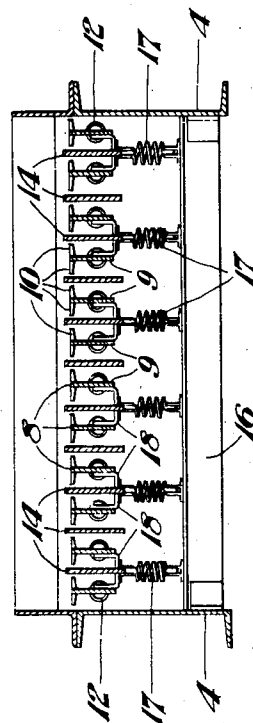
**1,703,726**

**T. J. DAVIS**

**SCREEN**

Filed Dec. 14, 1927

3 Sheets-Sheet 1



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T. J. DAVIS

SCREEN

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3 Sheets-Sheet 2

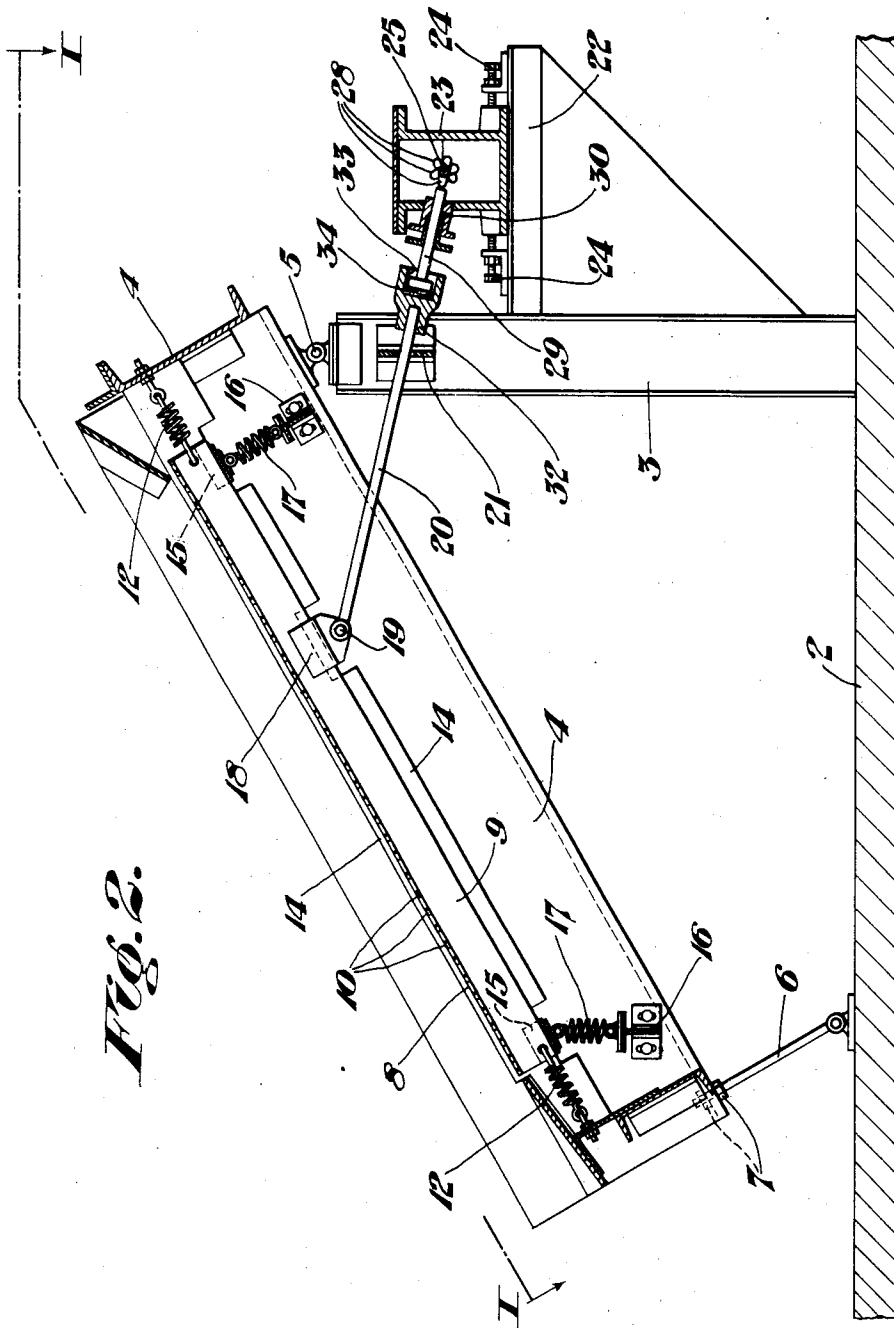


Fig. 2.

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*Fig. 4.*

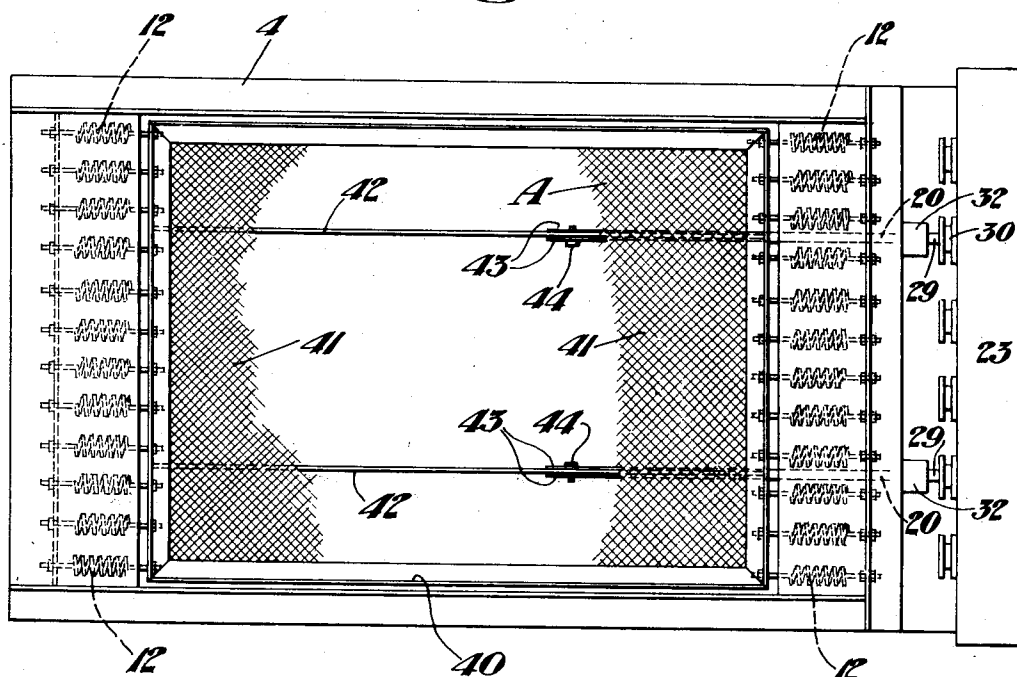
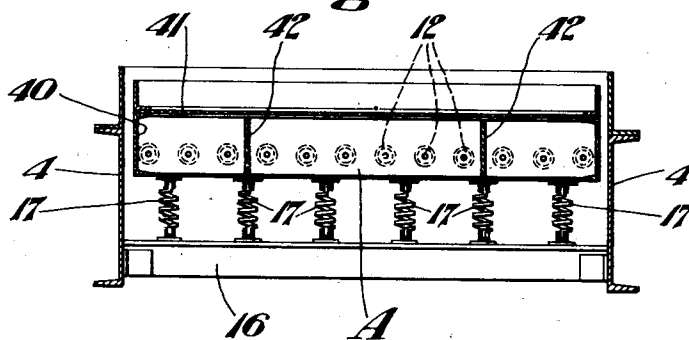


*Fig. 5.*



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## UNITED STATES PATENT OFFICE.

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## SCREEN.

Application filed December 14, 1927. Serial No. 239,958.

This invention relates to screens and more particularly to vibrating screens, and has for one of its objects the provision of a novel screen construction in which the screening elements will have a combined vertical and horizontal vibrating movement.

Another object is to provide a screen having a novel supporting structure which may be adjusted to vary the inclination of the screen.

A further object is to provide a screen having the novel combination, construction and design of parts hereinafter described and illustrated in the accompanying drawings.

In the drawings—

Figure 1 is a plan view of a screen constructed in accordance with the invention, taken on the line I—I of Figure 2.

Figure 2 is a longitudinal sectional elevation through the screen of Figure 1.

Figure 3 is a transverse sectional view taken on the line III—III of Figure 1.

Figure 4 is a plan of a modified form of screen.

Figure 5 is a transverse sectional elevation through the screen of Figure 4.

Referring more particularly to the drawings, the numeral 2 designates a base on which a vertical support 3 is mounted. The upper or rear end of a screen frame 4 is hingedly secured to the support as at 5. The frame 3 is built up of rolled metal shapes and plates so as to form a rigid structure of rectangular shape or outline. The forward or lower end of the frame 4 is adapted to be adjustably supported by supporting bolts 6, which are hingedly mounted on the base 2 and have their upper ends projected through apertures in the frame 4. Nuts 7 are threaded on the bolts 6 to adjustably position the frame 4 on the bolts 6.

A plurality of screening bars 8 are assembled in the frame 4 to form a grid-like screening surface. The bars 8 are each composed of a central rib 9 and transversely projecting fingers 10. The bars 8 are supported horizontally at each end by coil springs 12 which are connected to the ends of the bars and to the ends of the frame. Separating plates 14 extend longitudinally of the frame between each of the bars 8 and are secured to the end walls of the frame.

The bars 8 are connected in pairs adjacent each end by U-shaped connecting brackets

15. Transverse members 16 are provided adjacent each end of the frame 4 below the bars 8 and coiled springs 17 are mounted on said members and engaged with the under side of the brackets 15 to form a resilient vertical support for the bars 8.

A bracket-plate 18 is secured intermediate the ends of each of the bars 8 and the bracket-plates of each pair of bars are connected by a pivot pin 19 to which one end of a connecting rod 20 is pivotally connected. The connecting rods 20 extend rearwardly through apertures in a guide-plate 21 on the vertical support 3.

A bracket 22 is secured to the rear side of the support 3 and serves to support a housing 23 which is adjustably clamped in position relative to the screen frame 4 by clamping bolts 24. A cam-shaft 25 is journaled in the housing 23 and is connected to a driving motor 26 by means of a coupling 27. The cam-shaft 25 is provided with a number of cams 28, equal in number to the number of connecting rods 20, and each of said cams is positioned slightly in advance of the other on the shaft 25.

A plurality of push-rods 29, equal in number to the number of connecting rods 20 and cams 28, are mounted in guides 30 projecting through the forward side of the housing 23, and said push-rods are in line with and adapted to be operated by said cams. The connecting rods 20 are each provided at its rear end with a guide nut 32 having a cupped or recessed rear end 33 to receive the headed forward end of one of the push-rods 29. A cushion member 34 is mounted in each of the recessed rear ends 33 of the guide nuts 32 to cushion the blow delivered by the push-rods.

In operation, the driving motor will rotate the cam-shaft 25 which will cause the cams 28 to engage the push-rods 29. The push-rods 29 will force the connecting rods 20 forwardly and upwardly when the high point of the cam is against the push-rods, thus moving the screen bars forwardly and upwardly against the tension of the springs 12 and 17, and as the high points of the cams 28 pass over the push-rods 29 the springs 12 and 17 will compel the screen bars to move rearwardly and downwardly. The above actions are very rapid and cause a vibrating action of the screen bars in combined vertical and horizontal directions.

Due to the cams 28 being positioned one in advance of the other, the bars will be successively moved across the screen.

In Figures 4 and 5 is shown the novel screening mechanism with a one-piece cloth screen A substituted for the bars 8 and separating plate 14. The cloth screen of this construction is composed of a rigid frame 40 on which the screen cloth 41 is stretched.

The screen A is adapted to be mounted in the frame 4 and to be supported horizontally by the springs 12 which are secured to the ends of the frame 40. The screen A is supported vertically by the vertical springs 17 which have their upper ends connected to the under sides of the end members of the frame 40.

A pair of longitudinal bars 42 are extended from end to end of the frame 40 under the screen cloth 41, and suitable bracket-plates 43 are secured thereto to support pivot pins 44 to which two of the connecting rods 20 are connected. The remaining connecting rods and push-rods 29 are removed when the screen A is used.

In operation, the screen A will be vibrated by the operation of the connecting rods 20 and will have a rapid combined vertical and horizontal vibrating motion similar to that described for the bars 8.

While certain specific embodiments of the invention have been shown and described, it will be understood that it is not wished to be limited thereto since various modifications may be made without departing from the scope of the invention, as defined in the appended claims.

What is claimed is—

1. In a screening mechanism a base, a vertical support on said base, a rigid screen frame having its rear end hingedly connected

to said support, a plurality of screening bars having resilient connections at their opposite ends to the ends of said screen frame, other resilient means for supporting said screening bars vertically in said frame, and means for alternately moving said bars against the tension of said resilient means and releasing said bars to cause a combined horizontal and vertical vibrating motion of said bars.

2. In a screening mechanism a base, a vertical support on said base, a rigid screen frame having its rear end hingedly connected to said support, a plurality of screening bars having resilient connections at their opposite ends to the ends of said screen frame, means for connecting said bars in pairs, other resilient means for supporting said pairs of bars vertically in said frame, and means for alternately moving said bars against the tension of said resilient means and releasing said bars to cause a combined horizontal and vertical vibrating motion of said bars.

3. In a screening mechanism an inclined rigid frame, a rigid support for the rear end of said frame, at least one screening element mounted in said frame, springs connecting the opposite ends of said screening element to the ends of said rigid frame, other springs for supporting said screening element vertically in said frame, and means for moving said screening element against the tension of at least some of said springs and then releasing said screening element to cause a combined horizontal and vertical vibrating motion of said screening element.

In testimony whereof, I have hereunto set my hand.

CLARA J. DAVIS,

*Executrix of the Estate of Thomas J. Davis.*  
Deceased.