

T. J. STURTEVANT.
 SCREENING OR SEPARATING MACHINE.
 APPLICATION FILED JAN. 8, 1917.

Patented June 12, 1917.
 2 SHEETS—SHEET 1.

1,229,818.

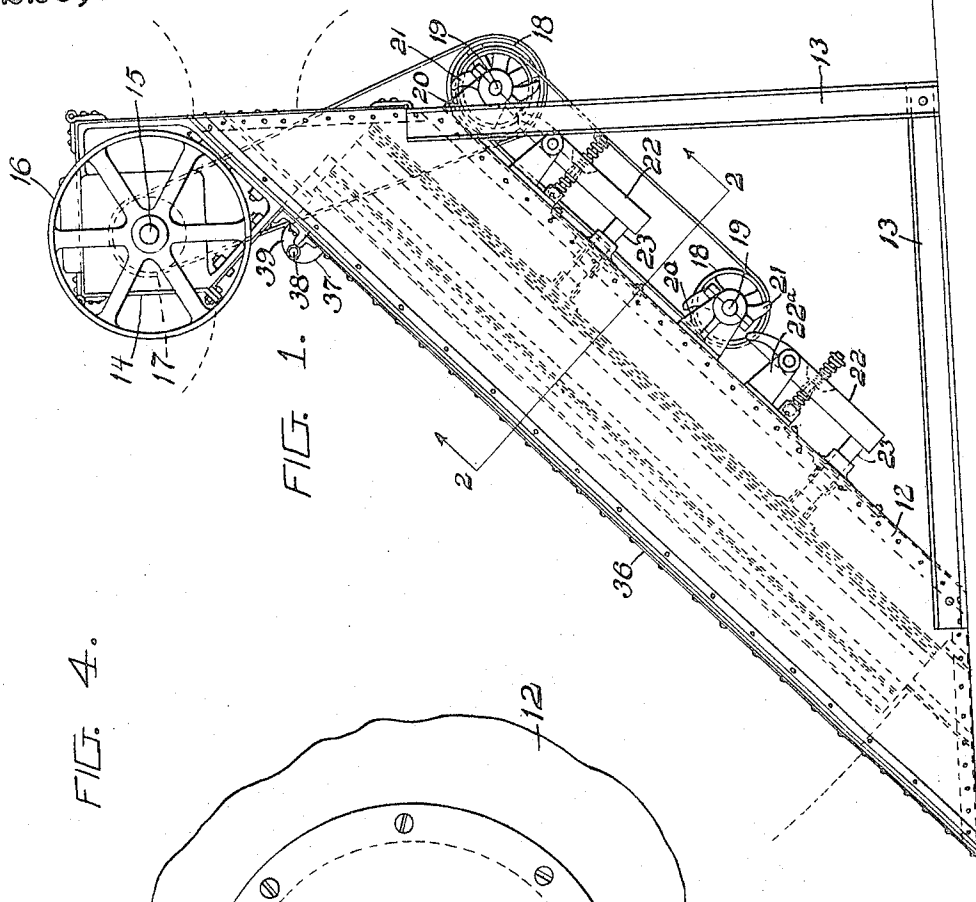
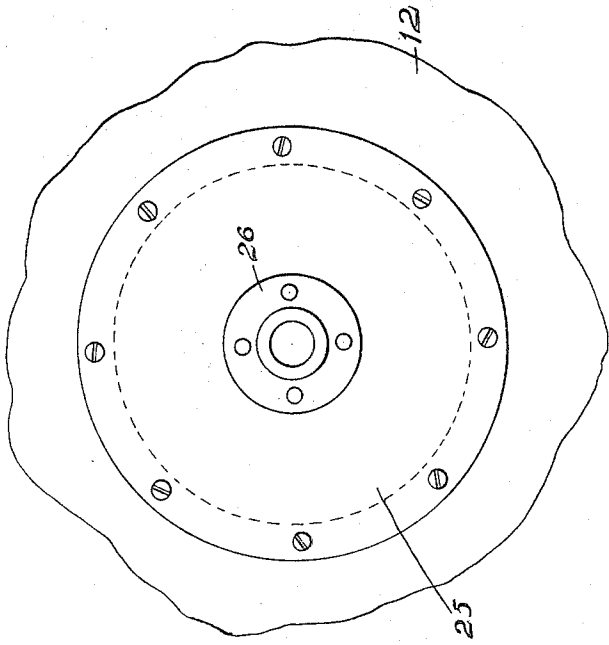


FIG. 4.



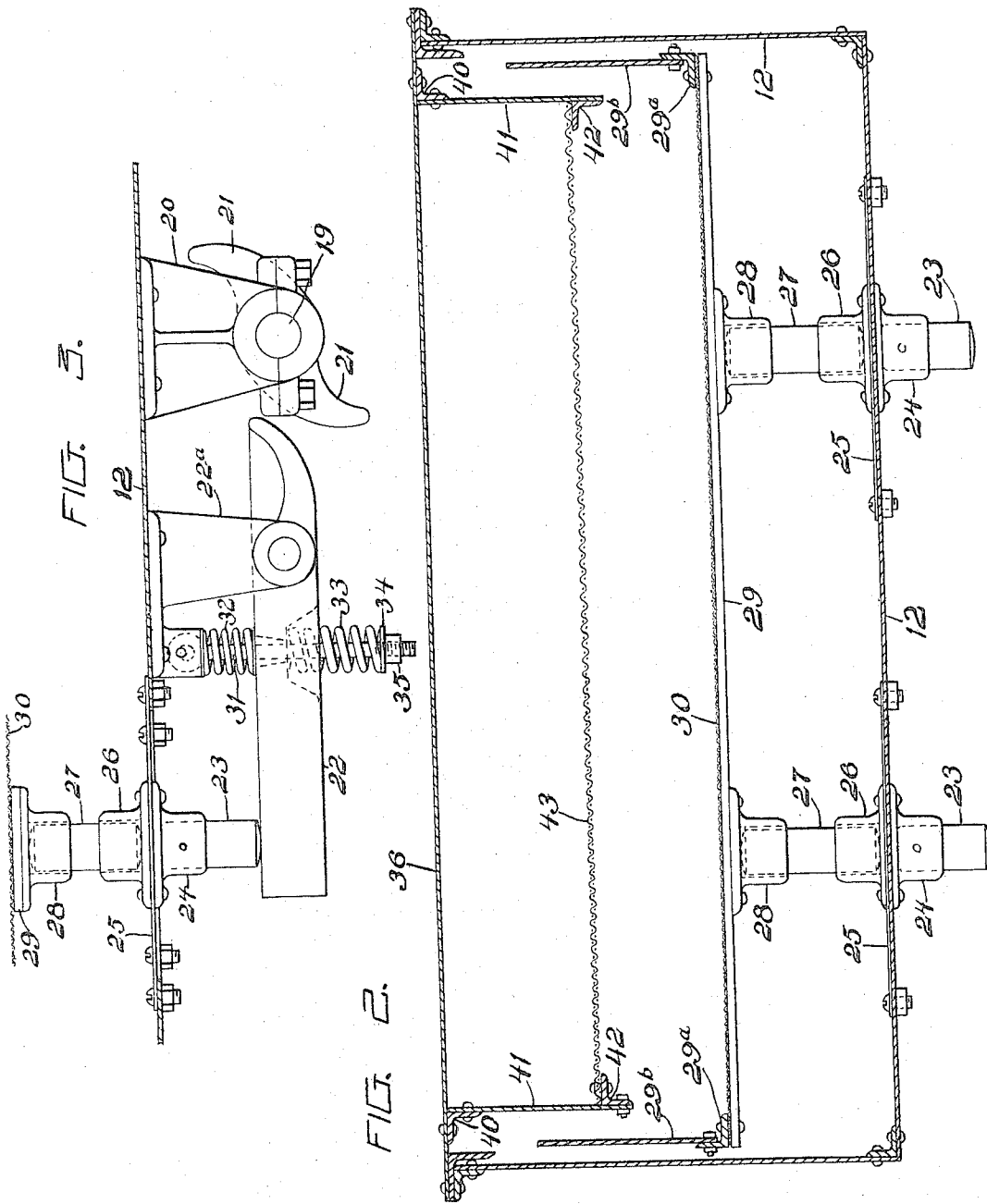
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UNITED STATES PATENT OFFICE.

THOMAS JOSEPH STURTEVANT, OF WELLESLEY, MASSACHUSETTS, ASSIGNOR TO
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SCREENING OR SEPARATING MACHINE.

1,229,818.

Specification of Letters Patent. Patented June 12, 1917.

Application filed January 8, 1917. Serial No. 141,183.

To all whom it may concern:

Be it known that I, THOMAS J. STURTEVANT, a citizen of the United States, residing at Wellesley, in the county of Norfolk and State of Massachusetts, have invented or discovered certain new and useful Improvements in Screening or Separating Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of inclined screening or separating machines in which the screens are percussively jarred or vibrated, and the invention relates more particularly to certain improvements in the machine of the Bell and Sturtevant Patent No. 923,108, dated May 25, 1909, in which the screens are jarred from hammers or strikers arranged below the screens, although certain features of the present invention might be used in connection with jarring mechanism arranged above the screens.

In the present improved machine the upper coarse or scalper screen is supported in the machine from a hinged cover of the machine casing, so that access to the upper screen may be had by lifting said hinged cover. The lower fine mesh screen, which is to be percussively jarred, is supported within the machine casing by the impact bars or pins through which it is percussively jarred, and ready access to this lower relatively fine screen is afforded when the said hinged cover and the relatively coarse scalper screen carried thereby are lifted. Also in the present invention the fine mesh screen is preferably percussively jarred by spring-impelled rebounding strikers or hammers which, as herein shown, are operated by mechanism arranged beneath the screen casing, although the present invention is not to be understood as being limited to this arrangement of such operating mechanism. Of course more than one relatively coarse screen might be supported from the cover of the casing, or more than one relatively fine screen might be supported within the casing by the impact bars or pins, but the invention in its simplest form will be hereinafter described.

In the accompanying drawings Figure 1 is a side view of the inclined separator embodying the present invention. Fig. 2 is a cross section through the screen casing on line 2—2, Fig. 1. Fig. 3 is a detail view

of a portion of the jarring mechanism, and Fig. 4 is a detail view showing the diaphragm from which the fine mesh screen is elastically supported.

Referring to the drawings, 12 denotes a screen box or casing supported in an inclined position by frame-work members 13. At the upper end of the screen box or casing is a feed box 14 within which is a rotary feed screw conveyer, as is common in machines of this class, said conveyer being carried by a shaft 15 provided with a pulley 16, which is belted to any suitable source of power. The shaft 15 is provided with a second pulley 17 belted to a pulley 18 on a shaft 19 mounted in hangers 20 depending from the screen box or casing 12, the pulley 18 being belted to a similar pulley 18 on a second shaft 19 also mounted in hangers 20.

The shafts 19 are provided with tappets 21 engaging the shorter arms of hammers or strikers 22 pivotally mounted in hangers 22^a, said hangers or strikers acting at intervals on impact bars or pins 23 fixed in sockets 24 attached to the under sides of thin sheet-metal elastic diaphragms 25 mounted on the bottom of the casing 12 and to the tops of which diaphragms are attached sockets 26. Resting in the sockets 26 are bars or pins 27 the upper ends of which are received in sockets 28 attached to the under sides of protection plates 29 extending crosswise of the relatively fine screen 30, so that said screen is elastically supported from the diaphragm 25 through said sockets 26 and 28 and the bars or pins 27 through which said screen is jarred or vibrated. This construction provides imperforate means by which the fine screen may be vibrated by mechanism acting from below, as will be understood. The protection plates 29 are attached at their ends to angle bars 29^a to which are secured side plates 29^b affording a trough for the screen 30.

Suspended from the bottom of the casing 12 are rods 31 passing loosely through the said hammers or strikers 22 and encircled above and below said hammers or strikers by springs 32 and 33, the springs 33 resting on washers 34 supported by nuts 35 on the lower threaded end of the rods 31. The springs 33 act in opposition to the movements of the hammers or strikers 22 when the acting ends of said hammers or strikers are depressed by the tappets 21, so that

when said hammers or strikers are released from said tappets their acting ends will be forced upward by said springs into jarring contact with the pins 23 to vibrate the diaphragms 25 and the fine mesh screen 30 supported from said diaphragms. As the said hammers or strikers are thus forced upward by the springs 33 they will compress the cushioning springs 32 above them, more or less; and the said springs 32 will cause the said hammers or strikers to rebound momentarily away from the bars or pins 23, so that the vibrations of the diaphragms 25 and the fine screen supported therefrom will not be checked.

The screen casing 12 is provided with a cover 36 provided at its upper end with lugs 37 jointed at 38 to similar lugs 39 mounted on the casing 12, this construction affording a hinge for the said cover 36 so that the latter may be conveniently lifted when desired. Attached to the cover 36 are angle bars 40 to which are connected side plates 41 provided at their lower ends with angle bars 42 to which the relatively coarse or scalper screen 43 is attached. From this it will be understood that the said coarse or scalper screen is suspended from the cover 36 and may be lifted with said cover, when desired; and when the said cover and scalper screen are thus lifted ready access is afforded to the relatively fine wire mesh screen 30 supported in the casing 12 on the jarring devices and independently of the said cover 36.

I do not claim broadly in this application the hammer mechanism herein shown and described, nor do I herein claim broadly a separator in which the coarse or scalper screen is supported from the cover of the separator casing and the fine screen elastically supported in the casing independently of the cover, as these features of my invention are claimed in my application No. 141,182, filed simultaneously herewith.

The present invention is, however, not to

be understood as being limited to the details herein shown and described, as such details may be varied widely, within the limits of mechanical skill, without departing from the spirit and scope of the invention as defined by the claims hereunto appended.

Having thus described my invention I claim and desire to secure by Letters Patent:

1. In a separator, the combination with a screen casing provided with a cover, of a screen supported in said casing from said cover, a second screen in said casing and supported independently of said first-named screen, and imperforate vibrating means, acting from below, for jarring said last-named screen.

2. In a separator, the combination with a casing provided with a cover, of a relatively coarse or scalper screen supported in said casing from said cover, vibrating means acting from below said casing, and a relatively fine screen supported by said vibrating means.

3. In a separator, the combination with a casing provided with a cover, of a relatively coarse or scalper screen supported in said casing from said cover, vibrating means acting from below said casing, elastic or resilient diaphragms connected with the bottom of said casing, and a relatively fine screen supported by said vibrating means.

4. In a separator, the combination with a casing provided with a cover, of a relatively coarse or scalper screen supported in said casing from said cover, elastic or resilient diaphragms connected with the bottom of said casing, pins below said diaphragms and connected therewith, pins above said diaphragms and serving to support said fine screen, and hammers or strikers acting from below on said first-named pins.

In testimony whereof I affix my signature.

THOMAS JOSEPH STURTEVANT.