T. J. STURTEVANT.

SCREEN.

APPLICATION FILED DEC. 9, 1912

1,087,994.

Patented Feb. 24, 1914.

2 SHEETS—SHEET 1.

Fig. 1

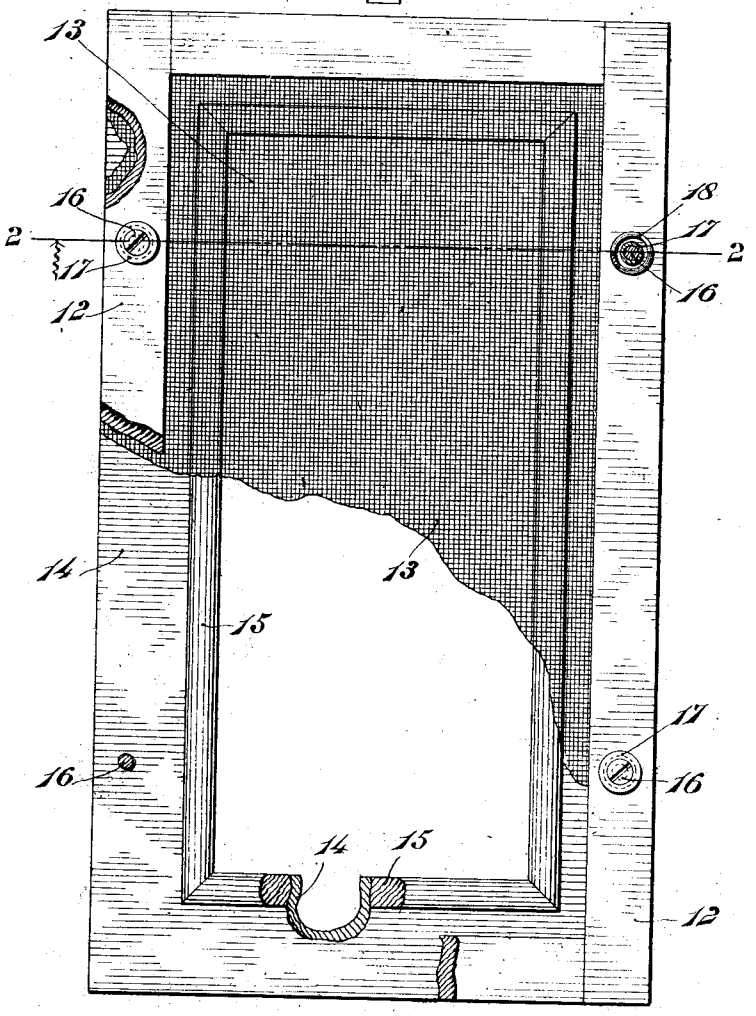
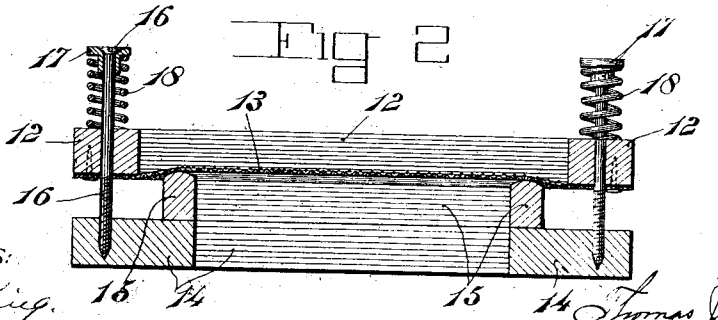


Fig 2



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2 SHEETS—SHEET 2.

Fig. 3

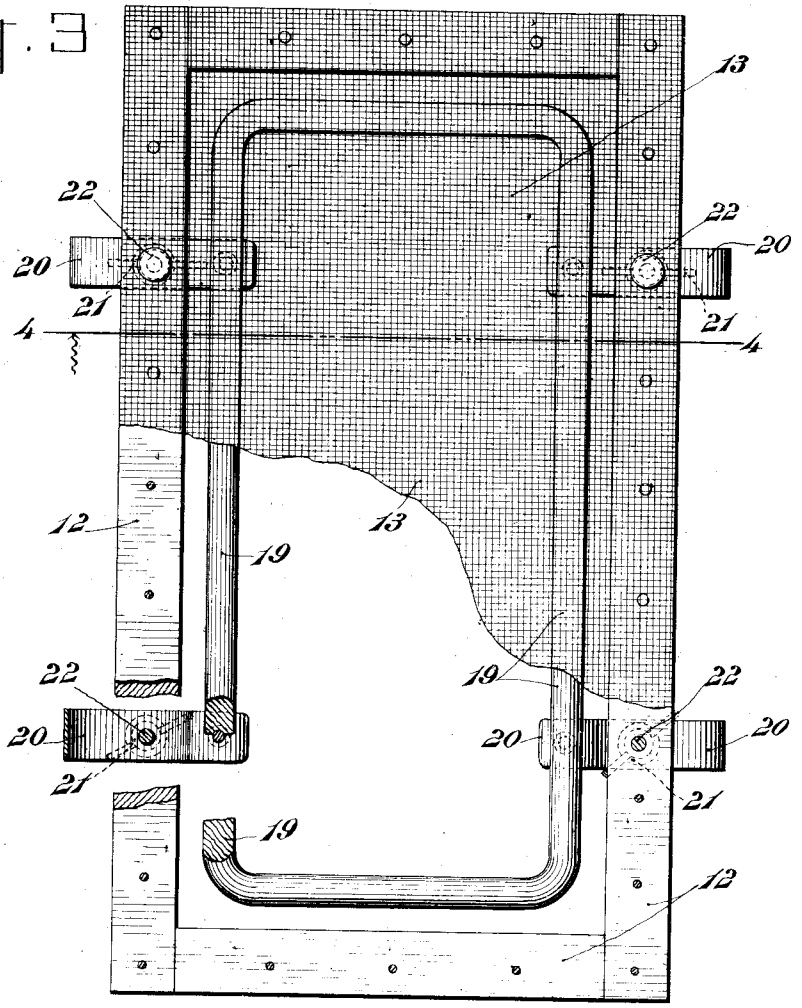


Fig. 4

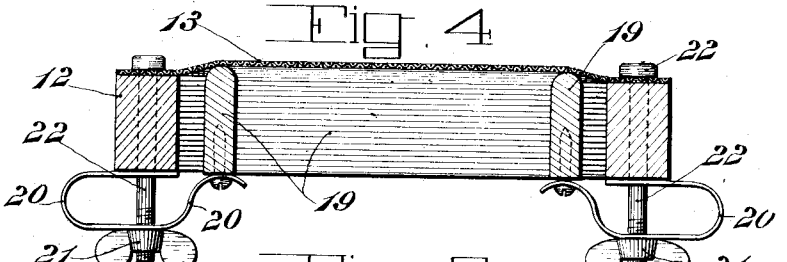
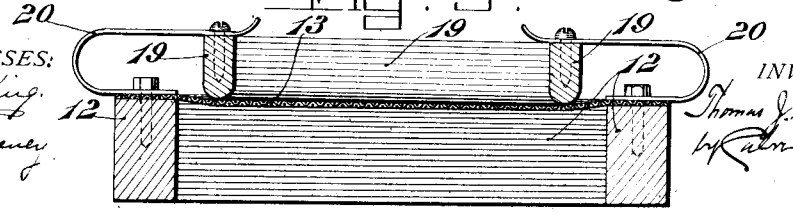


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SCREEN.

1,087,994. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed December 9, 1912. Serial No. 735,760.

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 Screens, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide an improved screen for use in separators, and more particularly separators of that class intended for screening finely pulverized material such as Portland cement and the like, and in which the screen or screens are jarred by percussive action.

The invention has for its object to provide convenient means for elastically holding the wire mesh screen clothing of a screen under proper tension, and the present improvements preferably comprise means whereby the tension of the screen clothing may be adjusted so as to compensate for any stretching which may result from use.

In carrying the invention into effect the wire mesh screen clothing is secured in any suitable manner to a rigid frame, preferably of wood, and the said wire mesh clothing is held taut by a stretching frame which bears against the said wire mesh clothing inside of the boundaries of the inner walls of the screen frame, and which stretching frame is elastically and preferably adjustably mounted on or supported from the screen frame. The stretching frame is preferably of such size as to bear against the wire cloth clothing at the parts thereof adjacent to the screen frame, and the said screen frame and stretching frame are both preferably of rectangular form so that the stretching pressure may be applied to the wire mesh clothing in such a manner as to serve to stretch the latter in two directions at right angles to each other.

In the accompanying drawings Figure 1 is a partly broken out plan view of a screen embodying the present invention, and Fig. 2 is a section thereof on line 2—2 of Fig. 1. Fig. 3 is a partly broken out plan view of a somewhat different form of the invention from that shown in Figs. 1 and 2, and Fig. 4 is a section on line 4—4, Fig. 3. Fig. 5 is a section similar to Fig. 4 but illustrating a slightly different form of the invention from that shown in the other views.

Referring to Figs. 1 and 2, 12 denotes a rigid screen frame which is preferably of rectangular form and to which is attached, in any suitable manner, as by tacks or otherwise, wire mesh screen clothing 13. The stretching frame 14 is also preferably of rectangular form, and is provided with a raised edge part or rib 15 somewhat smaller in size than the interior of the stretching frame 12 so as to be adapted to bear on the wire mesh screen clothing within the planes or boundaries of the inner walls of said screen frame and near the said walls. The stretching frame 14 is a separate or independent frame and is attached to the screen frame by means of screws 16 which are provided with collars 17 between which and the screen frame 13 are interposed coil springs 18 so that by the action of said screws and coil springs the rib 15 or stretching portion of the stretching frame may be elastically forced against the wire mesh screen clothing 13 to hold the latter taut and under proper tension. By adjusting the screw 16 and thereby increasing or diminishing the stress of the coil springs 18 the wire mesh screen clothing may be elastically held under any desired degree of tension.

Owing to the fact that the ribbed portion of the stretching frame is of rectangular form and bears upon the wire mesh screen clothing both near the sides and the ends of the screen frame, the stretching pressure of the stretching frame will be applied to the screen clothing at a right angle to the latter, and will also be so applied to said screen clothing as to stretch the screen clothing both sidewise and lengthwise of the screen frame or screen.

In the form of the invention shown in Figs. 3 and 4, the stretching frame 19 is mounted on spring brackets 20 interposed between the screen frame 12 and winged nuts 21 on the threaded portions of bolts 22 passing through the screen frame 12; so that by turning the said nuts on the said bolts the said stretching frame may be forced with any desired pressure against the wire mesh screen clothing 13.

In the construction shown in Fig. 5 the spring brackets 20 to which the stretching frame 19 is attached, are bolted to the screen frame 12, the said stretching frame thus bearing elastically against the screen clothing 13.

From the foregoing it will be apparent that the invention provides means for automatically or elastically holding the wire mesh clothing of a screen under proper tension by means of a stretching frame the pressure of which is applied to the said screen clothing at a right angle to the latter; and it will also be apparent that the said pressure is exerted against the screen clothing in two directions at right angles to each other so as to hold the same taut both sidewise and endwise of the screen. It will also be understood that by adjusting the elastically-applied stretching pressure of the stretching frame either by means of the screws 16 shown in Figs. 1 and 2, or the winged nuts 21, shown in Figs. 3 and 4, the stretching pressure may be varied or regulated as may be desired; so that any looseness or slackness of the wire mesh screen clothing occasioned by wear may be readily taken up or compensated for.

The invention is particularly applicable to separators in which the screens are jarred by percussive action, in that the yieldingly or elastically supported stretching frame will tend to absorb percussive shocks, more or less, in such a manner as to avoid or lessen any tendency of injury to the screen clothing.

The stretching frame, or the ribbed or stretching portion 15 thereof, as shown in Figs. 1 and 2, will be adapted to telescope more or less within the screen frame 12, when stretching pressure is applied; and the same is true of the stretching frame shown in Fig. 5.

The invention is not to be understood as limited to the details herein shown, as the same may be varied widely within the province of mechanical skill without departing from the essence of the invention.

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

1. A screen comprising a rigid screen frame and screen clothing attached thereto, combined with a yieldingly-supported stretching frame independent of said screen frame and arranged to bear against said screen clothing within and closely adjacent to the inner walls of the said screen frame, and means for varying the stretching pressure of said stretching frame.

2. A screen comprising a rigid screen frame and screen clothing attached thereto, combined with an independent, yieldingly-supported stretching frame arranged to bear against said screen clothing within and closely adjacent to all the inner walls of the said screen frame, said stretching frame being so constructed as to apply its stretching pressure to the said screen clothing in two directions at right angles to each other so as to hold said screen clothing under tension both lengthwise and sidewise of the screen.

3. The combination with a rectangular screen frame and screen clothing attached thereto, of an independent, rectangular, yieldingly-supported stretching frame arranged to bear against said screen clothing closely adjacent to and within all of the inner walls of said screen frame.

4. The combination with a rectangular screen frame and screen clothing attached thereto, of an independent, rectangular, yieldingly-supported stretching frame arranged to press against said screen clothing adjacent to and within the inner walls of said screen frame, and means for varying the stretching pressure of said stretching frame.

5. The combination with a screen frame provided with screen clothing, of an independent stretching frame elastically connected with said screen frame and having a stretching portion bearing against said screen clothing within and adjacent to the inner walls of said screen frame and serving to force said clothing inward within the said inner walls.

6. In a screen, the combination with a screen frame provided with screen clothing securely attached thereto, of an independent stretching frame yieldingly supported on and adapted to telescope more or less within said screen frame and to bear against the said screen clothing within and adjacent to the inner walls of said screen frame, and means for forcing said stretching frame against said screen clothing.

7. In a screen, the combination with a screen frame provided with screen clothing securely attached thereto, of an independent stretching frame yieldingly supported on and adapted to telescope more or less within said screen frame and to bear against the said screen clothing within and adjacent to the inner walls of said screen frame, means for forcing said stretching frame against said screen clothing, and means for regulating or adjusting the pressure of the said stretching frame against said screen clothing.

In testimony whereof I affix my signature, in presence of two witnesses.

THOMAS JOSEPH STURTEVANT.

Witnesses:
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H. A. TOMLINSON.