July 6, 1965 J. D. BINGHAM 3,193,098

FITTED SIEVE FRAMES

Filed May 18, 1962 2 Sheets-Sheet 1

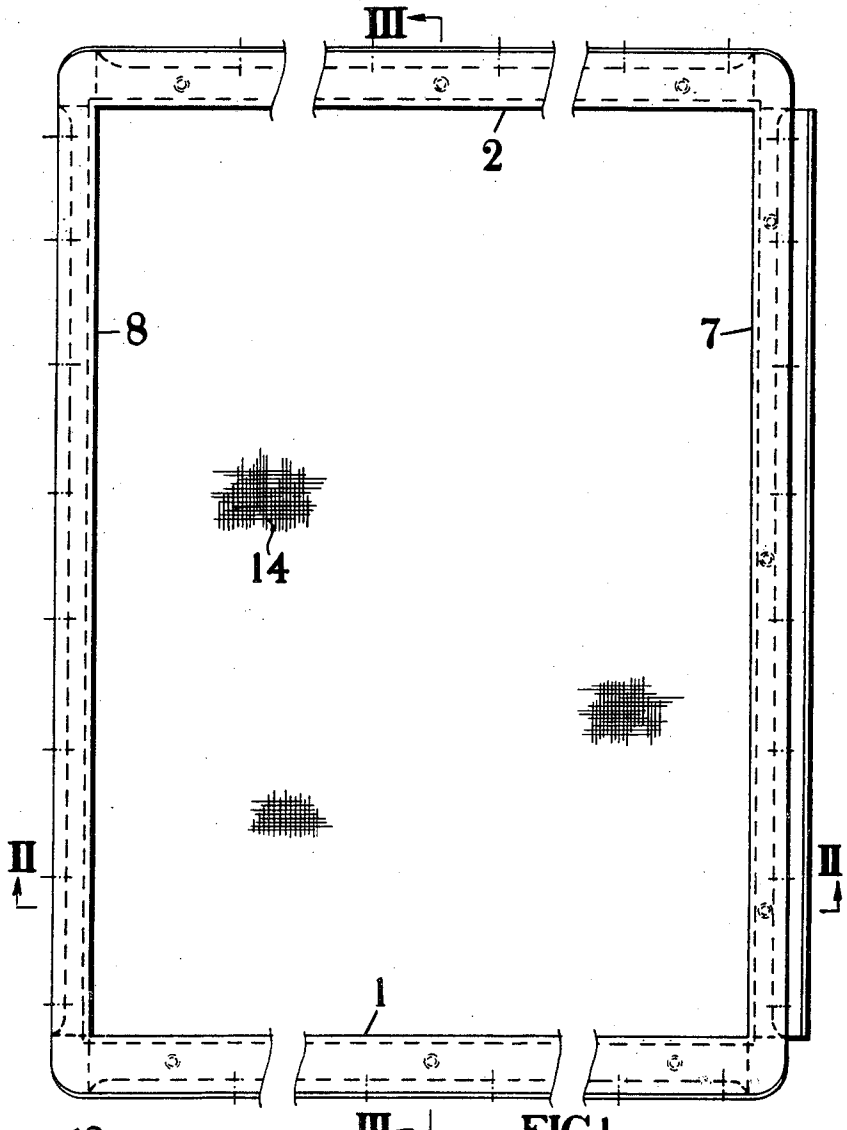


FIG.1.

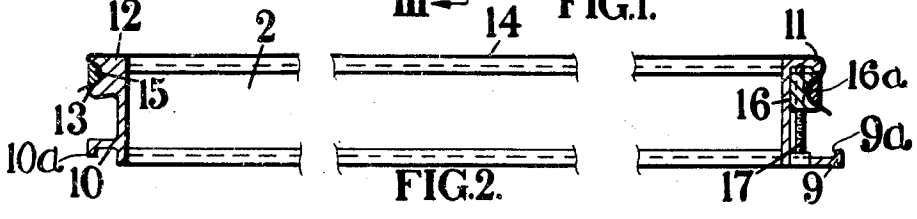


FIG.2.

July 6, 1965 J. D. BINGHAM 3,193,098

FITTED SIEVE FRAMES

Filed May 18, 1962 2 Sheets-Sheet 2

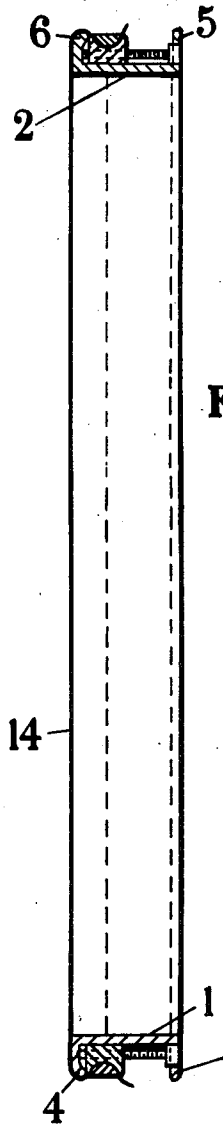


FIG.3.

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1

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FITTED SIEVE FRAMES

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Claims priority, application Great Britain, June 12, 1961, 21,093/61
1 Claim. (Cl. 209—404)

The invention relates to fitted sieve frames wherein a woven fabric or similar screen is fixed to a shallow square or rectangular framework arranged for mounting in retaining guides in a sieving machine, and particularly refers to metal sieve frames which are mounted in a series group in common retaining guides so that all the screen surfaces in the series lie on a common plane.

With such an arrangement, it is desirable that the frames in the series shall be interlocked so that they can all be withdrawn from one end of the retaining guides, and it is also desirable that the joints between the individual frames shall be guarded so that material in transit along the series of sieves cannot leak through the joints into the "throughs" fraction of material. Further, it is an important requirement of sieves employing woven fabric or similar screens that where the process of sieving necessitates the passing of particulate material along the sieve surface, the fabric or like comprising such surface shall be maintained in a taut sag-free condition.

The object of the present invention is to provide a rigid metal-framed fitted sieve having the above desirable features and incorporating novel means for achieving and maintaining a required condition of tautness in the screen fabric.

According to the invention, a sieve frame comprises end and side channel members with their parallel flanges extending outwards, at least one end and one side member having a yoke element, to which the sieve cover is attached, arranged in the channel to be adjustable transversely therein, and the end members having their lower parallel flanges arranged to interlock with those of the end members of adjacent sieve frames.

In accordance with further features of this invention, a fitted sieve frame of the type referred to and wherein the frame comprises a rigid comparatively shallow four-sided open metal framework having side members which are substantially channel-shaped in cross-section and arranged with their parallel flanges facing horizontally outwards, is characterized in that on at least two adjacent sides of the framework the clamping means whereby the woven fabric or similar screen is fixed in association with a related side of the sieve framework forms part of a vertically slidable yoke element housed within and extending along the full length of the associated framework member and arranged so that without any alteration of the screen clamping condition the said yoke element can be adjustably moved to alter the tension applied to the fabric of the screen, and also characterized in that on one of the sides of the frame the lower of the parallel flanges is extended outwardly and upwardly over its whole length whereas the side directly opposite has its lower parallel flanges extending outwardly and downwardly over its whole length, the respective upward and downward extensions being arranged so that when such frames are engaged in series hook couplings are formed which

2

extend over the full length of the abutment joints between the sieves to effectively prevent material that passes through the joint from mixing with material which has passed through a screen fabric. The hook couplings also provide means whereby a series of sieve frames can be manipulated from one end of the retaining guides in which they are supported.

Referring to the accompanying drawing:

FIGURE 1 is a plan view of a sieve frame according to the invention.

FIGURE 2 is a section on the line II—II of FIGURE 1 the view looking in the direction of the arrows.

FIGURE 3 is a section on the line III—III of FIGURE 1 the view looking in the direction of the arrows.

In the preferred embodiment of the invention shown in the drawing, the sieve frame has two longitudinal frame members **1**, **2** which when the frame is in use rest in the retaining guides of an associated sieving machine and are parallel to the direction of motion of the material being sieved. The members **1**, **2** have identical channel-shaped cross-sections with parallel flanges **3**, **4** and **5**, **6** which extend outwardly by the same amounts. These longitudinal members **1**, **2** are welded at their ends to two transverse frame members **7**, **8** which are also substantially channel-shaped in cross-section but in these members the lower outwardly extending parallel flanges **9**, **10** are extended beyond the upper flanges **11**, **12** and in the case of the member **7**, the flanges **9** is upwardly turned at its edge to form an upwards facing hook element **9***a* which extends continuously along the member **7**, whereas in the other transverse member **8** the extended lower parallel flange **10** is downwardly turned at its edge to form a downwards facing hook element **10***a* extending continuously along the member **8** and of a shape which is complementary to that of its opposite flange **9** so that when such frames are arranged in series, the hook elements **9***a* and **10***a* may be interlocked to hold the frames together and to provide a seal against leakage of material which may fall through the joint between the surfaces of the sieves.

The upper parallel flange **12** of the transverse frame member **8** which has the downwardly facing hook element, is sufficiently thick to include along its outer edge a substantially half-round groove **13** which runs along the full length of the member **8**. This groove forms a locking trap for one edge of the screen fabric **14** which is clamped in position by a matching half-round retaining bar **15** that is fixed in the groove **13** by a plurality of screws.

The screen fabric **14** is secured along its other three sides in a similar manner but in these instances the locking trap grooves are not in the webs of the frame but grooves **16***a* are formed in the outwardly directed face of vertically slidable yoke elements **16** which are housed within the span of the horizontal parallel flanges **4**, **6**, **11** of the associated frame members **1**, **2**, **7** and extend along the whole lengths thereof, the said yoke elements **16** being adjustably secured in position by a plurality of thrust screws **17** which are freely journalled in holes in the associated lower parallel flanges **3**, **5**, **9** and are in screw-thread engagement with the slidable yoke element **16**, with the ends of the screws **17** being arranged to thrust against the underside of the upper parallel flanges **4**, **6**, **11**.

In a fitted sieve frame as described, adjustment of the tension in the screen fabric **14** is effected by causing the yoke elements **16** on two adjacent sides of the frame to be moved vertically within the related frame members by manually rotating the thrust screws **17** associated therewith.

What is claimed is:

An all-metal sieve frame comprising a pair of parallel side members and a pair of parallel end members interconnected thereto to provide a rigid comparatively shallow rectangular open framework, said parallel side and end members being of substantially channel shape in cross section and having parallel upper and lower flanges projecting outwards, the upper flange of one of the end members having a groove therein extending the full length thereof, a vertically slidable yoke element located between the upper and lower flanges of the other end member and between the upper and lower flanges of each of the side members, each yoke element extending the entire length of its associated member and having an outwardly directed face provided with a groove therein, retaining bars of substantially the same length as said side and end members positioned in said grooves for clamping the edges of a screen fabric disposed over the upper flanges of the side and end members, means for moving each yoke element vertically so that without any alteration of the screen fabric clamping condition, each yoke element can be moved for changing the tension applied to the screen fabric, the lower flange of one of said end members being extended outwardly beyond the corresponding upper flange and terminating in an upwardly turned hook element, and the lower flange of the other end member being spaced above the bottom of said end member and extended outwardly beyond the corresponding upper flange and terminating in a downwardly turned hook element complementary to the first named hook element whereby a plurality of sieve frames can be positioned in end-to-end series with adjacent hook elements in engagement thereby preventing any material which may pass through the frame junctions from mixing with material which has passed through the screen fabric.

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