Nov. 7, 1944. D. E. SARGENT 2,362,099

SIEVE FRAME

Filed Nov. 12, 1942

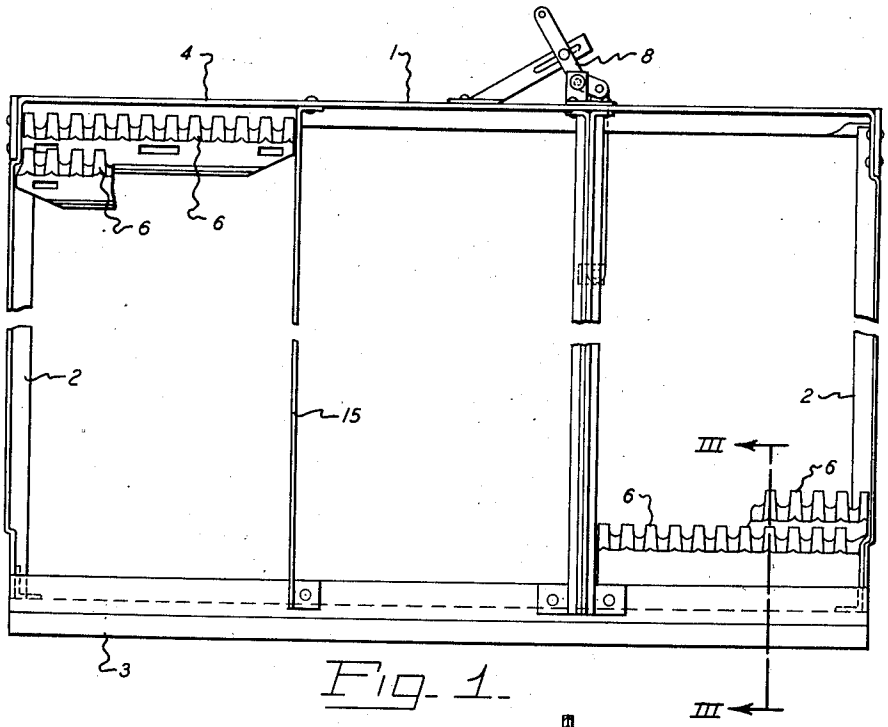


Fig. 1.

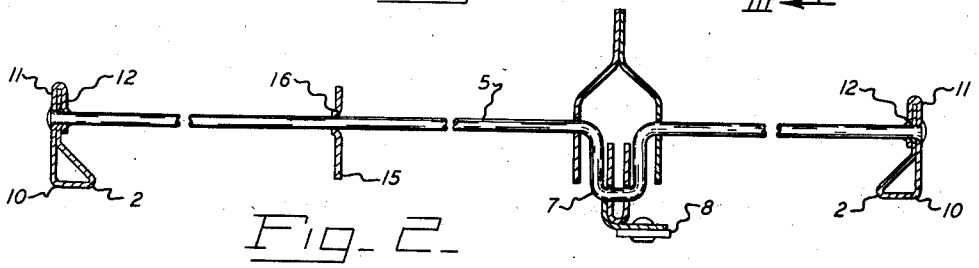


Fig. 2.

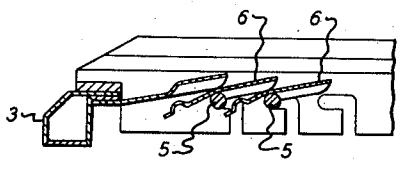


Fig. 3.

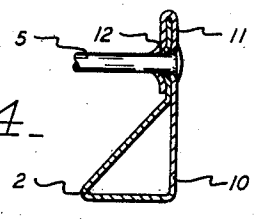


Fig. 4.

Inventor

DONALD E. SARGENT

By Beaman & Langlord

Attorneys

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SIEVE FRAME

Donald E. Sargent, Jackson, Mich., assignor to Reynolds Spring Company, Jackson, Mich., a corporation of Delaware

Application November 12, 1942, Serial No. 465,327

2 Claims. (Cl. 209—394)

The present invention relates to improvements in frame construction for sheet metal sieves, screens, chaffers and the like, and more particularly is an improvement upon the frame construction disclosed in the co-pending applications of D. E. Sargent, Serial No. 366,956, filed November 25, 1940, and Serial No. 429,720 filed February 6, 1942.

Frames of the character described are frequently constructed of sheet metal, but as heretofore constructed, the effective usable width of the frame has been diminished by the thickness of the frame side members. According to the present invention, the effective width of the frame is increased by providing the side members with thin risers projecting upwardly from the outer edges thereof, on which are mounted the rods supporting the sifting elements of the sieves, screens, chaffers and the like.

An object of the present invention is to increase the usable width of frames for sieves, screens, chaffers and the like, by mounting the sifting element supporting rods on risers projecting upwardly from the outer edges of the side members of the frames.

Another object of the invention is to provide side frame members for frames of the character described having relatively thin risers projecting upwardly from the outer sides thereof.

Another object of the invention is to provide a bearing for rods in sheet metal by providing a hole in the sheet metal and laterally displacing the metal around the hole to enlarge the hole and at the same time to provide a bearing of greater width than the thickness of the sheet metal in which the bearing is provided.

These and other objects resisting in the arrangement, combination and construction of parts will be apparent from the following specification when taken with the accompanying drawing, in which

Fig. 1 is a plan view of a sieve, screen, chaffer or the like, according to the present invention, having the details of the sifting elements and their supporting rods omitted for the purpose of clarity,

Fig. 2 is a section corresponding to a vertical crosswise section of Fig. 1 showing frame side members and a sifting element supporting rod,

Fig. 3 is a section on the line III—III of Fig. 1, and

Fig. 4 is an enlarged drawing showing the mounting of the sifting elements supporting rods on the side frame member risers,

Referring particularly to the drawing, the reference character 1 indicates the frame of a sieve, screen, chaffer, or the like, frame having side frame members 2, a front frame 3 and a rear frame 4. The frame 1 is provided with a plurality of transverse rods 5 having disposed thereon sifting elements 6 as shown particularly in Figs. 1 to 3. The sifting elements are adjustable by means of cranks 7 in the rods 5 and an adjustable mechanism 8. The details of construction and the operative characteristics of the frame 1 and its associated structure will be clear from the aforesaid application Serial No. 366,956, filed November 25, 1940.

One of the features of the present invention is the construction of the side frame members 2. As shown particularly in Figs. 2 and 4, the side frame members 2 are of sheet metal and have base portions 10 tubular in configuration and encompassing a material cross-sectional area for purposes of strength. Each side frame member 2 has projecting upwardly from the outer side thereof a riser 11. Each riser 11 is formed integrally from the sheet metal employed to form the base portion 10.

Each riser 11 is provided with a plurality of transverse bearings 12. The bearings 12 are for the rods 5 and are provided by first providing each riser 11 with holes of less diameter than the rods 5 and are enlarged by a punch or the like or in any suitable manner to force a portion of the material of each riser laterally so that the finished bearing support 12 is of greater width than the thickness of the riser 11.

A particular object of the present invention is to increase the effective width of the frame 1. It will be observed particularly with reference to Fig. 2 that the clear span of the rods 5, and thus of the sifting elements fixed thereon, is greater than it would be if the widths of the side frame members 2 at the point at which the rods 5 are mounted thereon were the same as the widths of the base portions 10. Thus, since in operation air is blown upwardly through the sifting elements 6 to separate the grain from the undesirable material therewith, the air, after passing the innermost portions of the side frame members 2, will expand laterally and be effective throughout the entire width of the sifting elements 6, including those directly above the base portions 10. The result is that the effective useful area of the frame 1 is increased without increasing the overall width of the frame 1.

Another feature of the invention is the bearing supports provided for supporting the rods 5. As shown particularly in Figs. 1 and 2, there is pro-

vided an intermediate member 15 normal to the frame portions 3 and 4 and parallel to the side frame portions 2. The rods 5 extend through the member 15 and are supported therefrom by bearing surfaces 16. Bearing surfaces are provided in the manner similar to the provision of the bearing surfaces 12 except that in the case of the bearing surfaces 16, after the initial undersized openings are made, the oversized plungers or the like which provide the bearing surfaces, are arranged and manipulated to roll the metal adjacent the undersized openings laterally so that the edges of the openings are moved into position parallel to the plane of the member 15, and a portion of a side surface of the member 15 is deflected into an annular surface defining each bearing surface. When the bearing surface is completed each bearing surface is bordered by the deflected edges of the original undersized openings.

While the herein described features are particularly applicable to sieves, screens or chaffers, it is understood that they are equally well adaptable to other uses. Accordingly, I do not wish to be limited except by the scope of the following claims.

Having described my invention, what I desire to secure by Letters Patent and claim is:

1. A sieve, chaffer or the like, used for separating grains and chaff which in use is so supported that air may be blown upwardly through the separating elements and the grain separated from the chaff may fall downwardly by gravity, characterized by its improved ratio of capacity to over all dimension, comprising the border frame consisting of side and end portions, said side portions of said frame being relatively narrow along the top of the frame to present a narrow upright flange located at the upper extreme width of the frame, rods for supporting separating elements having their end portions supported adjacent the upper edge of said upright flanges, the lower part of said side portions being of a structural and relatively rigid cross section below said upright flanges, said structural section of said side portions including a grain deflecting portion located on the inner side of the frame and inclined downwardly and inwardly from said upright flange, and separating elements supported on said rods and substantially filling the area within said frame.

2. A sieve, chaffer or the like of the type when in use is supported substantially horizontally and air is blown upwardly through the separating elements whereby grain falls downwardly through the sieve by gravity, comprising a framework including side portions, said side portions having narrow upright portions located at the extreme outer limit of the side frame and presenting a narrow attachment flange at the top of the side portions, the lower portions of said side portions being triangular in cross section and constituting an integral part of said upright portions, one side of said triangular section constituting a grain deflector located on the inside of the side portions and extending downwardly and inwardly from a point adjacent said narrow upright portions, rods for supporting separating means supported at their opposite ends in said narrow upright portions, and separating means supported on said rods and filling the area between said side portions.

DONALD E. SARGENT.