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LOCK JOINT FOR CENTRIFUGAL SCREENS AND METHOD OF FORMING THE SAME.

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1,428,010.

Patented Sept. 5, 1922.

Fig. 1.

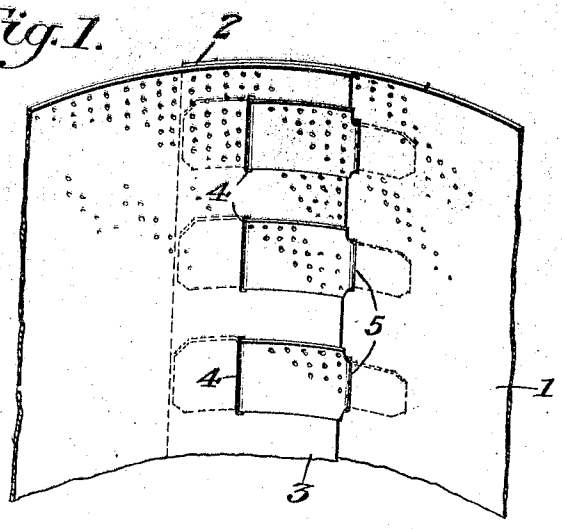


Fig. 2.

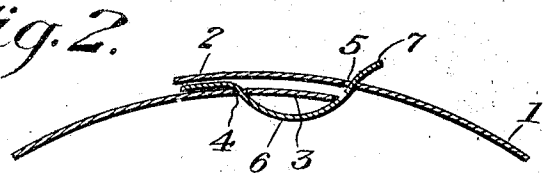


Fig. 3.

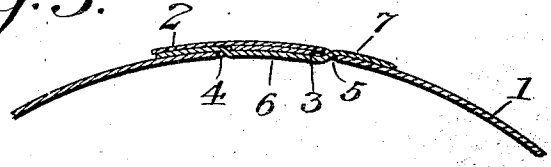
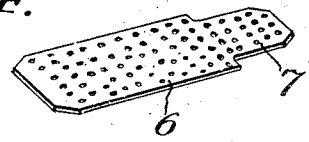


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDMUND DANIELS, OF LAHAINA, TERRITORY OF HAWAII.

LOCK JOINT FOR CENTRIFUGAL SCREENS AND METHOD OF FORMING THE SAME.

Application filed July 14, 1921. Serial No. 484,799.

To all whom it may concern:

Be it known that I, EDMUND DANIELS, a citizen of the United States, residing at Lahaina, Maui, Territory of Hawaii, have invented certain new and useful Improvements in Lock Joints for Centrifugal Screens and Methods of Forming the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an improved form of joint for the screen ends of centrifugal machines, and the method of forming such joint to effect a strong and durable interlock between the overlapping edges of the cylindrical screen that will, nevertheless, present a substantially smooth inner surface of the screen, to obviate the presentation of sharp edges or angles, to be engaged by the scrapers or other instruments used for cleaning the screen and for breaking down or removing the dried sugar. A further object and advantage of the invention is to provide separate strips, preferably of perforated metal, to engage slots in the respective edges of the screen sheet, in such manner that the ends of the strips will pass through said slots and overlie the outer surfaces of the ends of the screen sheet, and the main body portion of the strips closely engage the inner surface of one end of the sheet, so that the bending, necessary to effect the interlock between the strips and the slots in the edges of the screen, is confined to the strips and not to the sheet, so that any breakage due to bending or deformation is limited to the strips and not to the expensive perforated sheets forming the basket.

The invention is illustrated in the accompanying drawings, in which:—

Fig. 1 is a fragmentary perspective of a section of a centrifugal screen at the joint;

Fig. 2 is a horizontal section showing the mode of applying the interlocking strips to the respective ends of the screen;

Fig. 3 is a similar view showing the completed joint; and

Fig. 4 is a perspective view of one of the interlocking strips.

Referring to the drawings, 1 indicates the body of the screen, which is formed of a continuous sheet of perforated metal, rolled into cylindrical form and overlapped at its ends or edges 2 and 3. Inasmuch as the screens have to be removed at frequent intervals for purposes of adjustment, repair, and cleaning, it is highly desirable that the overlapping edges, such as 2 and 3, be capable of being separated, and to permit this to be done it has been the custom heretofore to provide special forms of interlocking tongues and slots formed in the respective edges or ends of the sheet forming the screen. These previous modes of effecting the joint between the ends of the cylindrical sheet are objectionable, first, because they require the ends or edges of the sheets to be cut to form the tongues, so that damage to any of the tongues will seriously impair the entire sheet and, in most cases, will require the latter to be discarded; and, second, the integral tongues and the edges of the slots cooperating therewith produce sharp edges or corners on the interior of the screen which are liable to be engaged by the cutters, scrapers, and cleaning tools employed in conjunction with screens of this character, with the attendant danger of rupturing, tearing, or cutting the screen and rendering the same useless.

According to the present invention, the respective ends or edges of the perforated sheet 1, forming the cylindrical screen, are provided with longitudinal rows of slots 4 and 5, the slots 4 adjacent the edge of end 3 preferably being somewhat longer than the corresponding slots 5 formed adjacent the edge of the overlapping end 2.

Cooperating with the respective pairs of slots formed in the overlapping ends of the screen sheet are metallic strips 6, provided with perforations, preferably registering with the perforations in the screen proper, each of said strips having formed on one end thereof a tongue 7 of somewhat less width than the body of strip 6. The respective ends of each strip 6 are passed outwardly through the slots 4 and 5 respectively, in the manner shown in Fig. 2, so that the tongue 7 overlies the outer surface of the screen adjacent the end 2, and the opposite end of the strip 6 overlies the outer surface adjacent the end 3 and underlies the edge 2. This operation is readily effected by bending the individual strips, as shown in Fig. 2, to effect the insertion of the ends of the strips through the slots 4 and 5. When this has been accomplished the centrifugal is revolved so as to lay the screen, by means of centrifugal force, close to the basket wall,

after which the joint is gently hammered down, perfectly with a wooden mallet, which has the effect of bending the ends of the strips 6 where the latter pass through the slots 4 and 5 and causing the outer ends of the strips to hug or closely conform to the exterior surface of the screen ends and the inner portions of the strips, lying on the inner surface of the screen, to closely conform to the latter, as illustrated in Fig. 3. These operations effect not only a rigid interlock between the overlapping ends of the screen, but also reduce any sharp edges or angles which would otherwise exist in the joint and which would be liable to be engaged by the scrapers or knives usually employed for cutting away the sugar from the surface of the screen, and any instruments commonly employed for cleaning the screen, so that the interlocking joint will not only hold the ends of the sheet in perfect adjustment and prevent accidental displacement of the screen, but will also offer no obstacle or obstruction to implements used in conjunction with the screen, as described.

While the interlocking strip 6 has been described as including reduced end sections 7 forming tongues, it will be apparent that while these tongues are preferred as affording a ready means for properly positioning the strips, they are not essential, and strips of uniform width may be employed with satisfactory results, in which case the slots in both edges of the screen sheet will be made of uniform length. It will be particularly noted that the only bending or deformation at the joint is imposed on the interlocking strips 6 and little or no deformation of the screen sheet proper takes place, so that the danger of damaging the screen sheet is minimized. When it is found necessary to break the joint for any purpose, it is necessary only to withdraw the interlocking strips 6 from the slots in the ends of the screen sheet by means of a flat tool, and this may be readily effected without damaging the strips. Should any of the latter be damaged, however, so as to render them ineffective, they may be readily replaced by new strips without interfering with the other interlocking strips.

What I claim is:

1. The method of connecting the longitudinal edges of screens of centrifugal separators, which comprises forming slots near the respective edges of the screen, inserting the ends of separate locking strips through aligning pairs of slots from the inside of the screen, overlapping the edges of the screen, and bending the strips to conform to the engaging surfaces of the screen.

2. A joint for screens of centrifugal machines, comprising overlapping edges of the screen having slots formed in each edge section, and separate metal strips having their ends passed through aligning pairs of slots from the inside of the screen, the strips having bends therein where they engage the slots, whereby the strips interlock with the slots and conform to the interior and exterior surfaces of the screen.

3. The combination of a cylindrical screen having overlapping edges provided with a series of slots in each edge, and separate strips with their ends passing through aligning pairs of slots from the inside of the screen, and having bends therein where they engage the slots, the strips as a whole conforming to the contiguous surfaces of the screen.

4. The combination of a cylindrical screen having overlapping edges provided with a series of slots along one edge and a series of shorter slots along the other edge, and separate metallic strips having reduced tongues on one end, the respective ends of the strips passing through aligning pairs of slots from the inside of the screen, and having bends therein where they engage the slots, the strips as a whole conforming to the contiguous surfaces of the screen.

In testimony whereof I affix my signature.

EDMUND DANIELS.