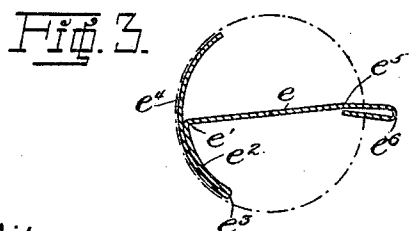
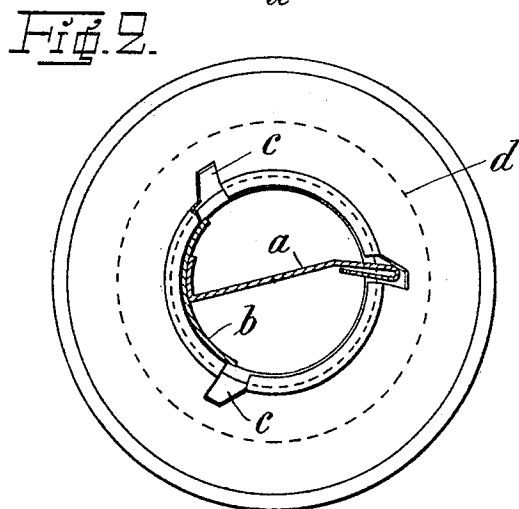
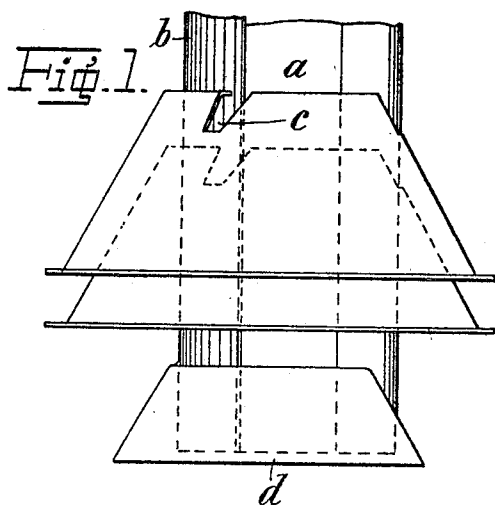


A. L. CHRISTENSON.
 DEVICE FOR FACILITATING REINSECTION OF DISKS FORMING LINERS OF CENTRIFUGAL DRUMS.
 APPLICATION FILED JAN. 29, 1908.

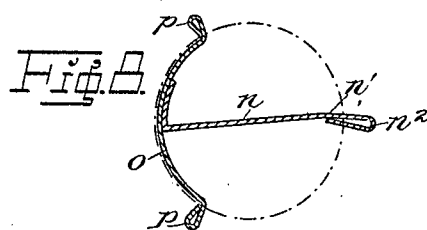
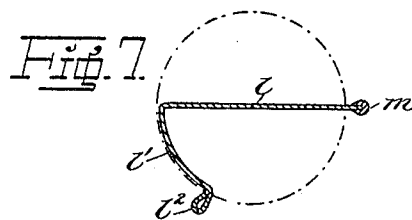
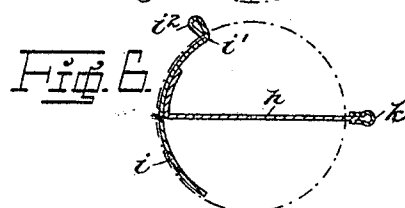
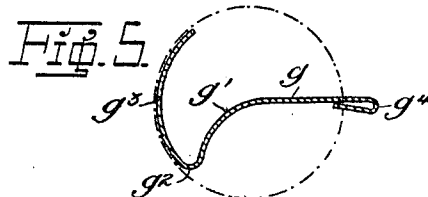
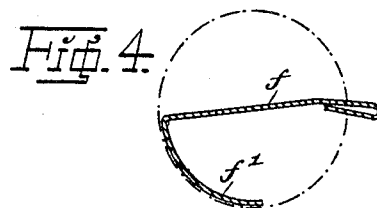
944,074.

Patented Dec. 21, 1909.



Witnesses

August Schuster
Emil Wahlberg



Inventor

Algot L. Christensen
by Oscar
Att'y

UNITED STATES PATENT OFFICE.

ALGOT LEVIN CHRISTENSON, OF STOCKHOLM, SWEDEN.

DEVICE FOR FACILITATING REINSERTION OF DISKS FORMING LINERS OF CENTRIFUGAL DRUMS.

944,074.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed January 29, 1908. Serial No. 413,201.

To all whom it may concern:

Be it known that I, ALGOT LEVIN CHRISTENSON, a subject of the King of Sweden, and resident of Stockholm, in the Kingdom of Sweden, have invented new and useful Improvements in Devices for Facilitating Reinsertion of Disks Forming a Liner of a Centrifugal Drum After Removal, of which the following is a specification, reference being had to the drawing accompanying and forming a part hereof.

This invention relates to devices for facilitating re-insertion of disks forming a liner of a centrifugal drum, after removal.

The object of the invention is to provide a support by means of which the sheet metal disks forming the liner may be held in position after removal, for instance during cleaning, and be re-inserted without the positions of the disks relatively to each other being disturbed.

The invention consists, chiefly, in the support being formed by a strip of sheet metal adapted to be inserted through the central openings of the sheet metal disks in such a manner as to project into the series of recesses or notches formed at the inner edges of the disks corresponding to one of the longitudinal flanges of the central tube of the drum, said strip having attached to it, or formed integral therewith, a part adapted to bear on the inner edges of the disks so as to form a guide for the same.

The invention further comprises the constructions hereinafter more specifically described and illustrated in the drawing.

In the drawing, Figure 1 is a side-elevation of one end of a support embodying my invention, said support being shown to have two sheet metal disks of a liner placed thereon. Fig. 2 is a top plan view of Fig. 1. Figs. 3 to 8 show cross-sections of different forms of supports embodying my invention. The dashed and dotted circles shown in Figs. 3 to 8 indicate the inner edge of a disk.

Referring to Figs. 1 and 2, the support is shown composed of two parts or strips *a* and *b* of sheet metal firmly connected together. The one part *a* extends across the central openings of the disks forming the liner, whereas the other part *b* is curved to correspond, in cross-section, to the shape of the inner edges of the disks, said part bearing, at its outer side, on the said edges of the

disks, as shown in Fig. 2, so as to form a support and guide for the said disks. In the embodiment illustrated in Figs. 1 and 2 the strip *b* projects at both sides of the strip *a* and is attached thereto by solder, as indicated in Fig. 2. The two parts *a* and *b* may, however, be connected together in any other suitable way or be made integral with each other, for instance by casting or bending a single plate, in which latter case the edge of the part *b* projecting at one side of the part *a* must be recurved, provided the supporting rod shall have the cross-sectional form shown in Fig. 2. It is, however, not necessary that the part *b* extends toward both sides of the part *a*, but it may be arranged to extend toward one side thereof, which is easily obtained by suitable bending of a sheet metal plate. The edge of the part *a* remote from the part *b* may be cut to form a straight edge adapted to be inserted into one series of notches *c* of the disks. It is, however, of importance that the disks can easily glide along the said edge of the support, and it is, therefore, preferred to have the edge rounded, by folding the outer part of the strip *a*, as shown in Fig. 2. Such a rounding of the edge may, however, be obtained otherwise, for instance by tinning the edge or shoeing it with a double-folded strip of sheet metal. In the embodiment of the invention illustrated in Figs. 1 and 2, the outer part of the strip *a* entering the notches *c* of the disks is bent at an angle to the part of the said strip extending from the said outer part thereof to the curved part *b* so as to correspond to the oblique direction of the said notches. If the notches extend in radial directions, the strips or parts *a* of the supporting rod may be flat. One or both of the edges of the supporting strip *b* may be extended and bent to such a shape as to be able to be inserted into a corresponding series of recesses or notches *c* by which a still better guiding of the disks will be obtained. Situated at one end of the support is a ring *d* of any suitable form adapted to retain the disks and prevent them from dropping.

The embodiment of the device shown in Fig. 3 consists of a single strip *e* of sheet metal which is bent at *e'*, so as to form an arc-shaped portion *e''*, and recurved at *e'''* so as to form an arc-shaped portion *e''''*, said latter portion extending along the outer side of the portion *e''* and projecting at the other

side of the portion of the strip *e* adapted to pass across the central openings of the disks of the liner. The portion of the strip *e* which is adapted to enter one of the series of
 5 recesses or notches of the disks corresponding to one of the flanges of the central inlet tube of the drum, is shown bent at *e*⁵ and recurved at *e*⁶ in substantially the same manner as in Fig. 2.

10 The embodiment of the device shown in Fig. 4 also consists of a single strip of sheet metal, one portion *f* of which extends across the central opening of the disks and enters into one of the series of recesses or notches
 15 therein, while another portion *f'* extends along the inner edges of the disks. The embodiment shown in Fig. 4 differs from that shown in Fig. 3 only in that the circumferential portion *f'* of the strip extends at only
 20 one side of the diametrical portion *f*, whereas in Fig. 3 the circumferential portion *e*⁴ extends at both sides of the diametrical portion *e*.

The embodiment of the device shown in
 25 Fig. 5 is similar to that shown in Fig. 3 in that the portion *g* of the strip entering one of the series of notches in the disks is curved at the portion *g'* remote from the edge and recurved at *g*² so as to form an arc-shaped
 30 portion *g*³ adapted to bear on the inner edges of the disks. The portion of the strip entering the notches in the disks is shown recurved at *g*⁴ so as to form a rounded edge.

The embodiment of the device shown in
 35 Fig. 6 is similar to that shown in Fig. 2. It consists of two parts *h* and *i* one *h* of which is plane and enters into one of the series of notches in the disks, while the other part *i* is formed to the shape of the segment of a
 40 cylinder and is attached to the former by solder or otherwise. The free edge of the part *h* is shown to be shoed with a double-folded strip *h* of sheet-metal forming a rounded edge. The curved part *i* is shown
 45 bent at *i*¹ and recurved at *i*² so as to form a rib adapted to enter a second series of notches in the disks.

The embodiment of the device shown in
 50 Fig. 7 is similar to that shown in Fig. 4 in that it consists of a single strip one portion *l* of which is plane and extends across the central openings of the disks while the other portion *l'* is curved to the shape of the seg-
 55 ment of a cylinder. The plane portion *l* is shown tinned at its edge, the coating *m* of tin forming a rounded edge enabling the disks to easily guide thereon. The free edge of the curved portion *l'* is shown formed with a rib *l*² adapted to enter a second series
 60 of notches of the disks.

The embodiment of the device shown in
 65 Fig. 8 is similar to that shown in Fig. 6. It consists of two parts *n* and *o* one *n* of which is plane and extends across the central openings of the disks, while the other part *o* at-

tached to the former by solder or otherwise is curved to the shape of the segment of a cylinder. The free edge of the part *n* is shown bent at *n*¹ and recurved at *n*² in the
 70 same manner as in Figs. 2, 3 and 4. The curved part *o* is formed with ribs *p* at both edges, each of said ribs being adapted to enter a corresponding series of notches in the disks.

The device is used in the following man-
 75 ner. The whole series of disks is removed by hand, from the centrifugal drum, in such a manner that the positions of the disks relatively to one another are not disturbed, the
 80 disks being then placed, as a whole, on the support, along which latter they may then be spread for facilitating the cleaning. When the disks are to be re-inserted, they are brought together on the support and re-
 85 moved therefrom, as a whole, after which they are placed, as a whole, onto the central tube of the centrifugal drum.

Having now described my invention, what I claim as new and desire to secure by Let-
 90 ters Patent is:

1. A device for facilitating re-insertion of disks forming the liner of a centrifugal drum, after removal, comprising a sheet-metal strip adapted to project, when the de-
 95 vice is inserted into the central openings of the disks, into the series of notches at the inner edges of the said disks corresponding to one of the longitudinal flanges of the central tube of the drum, and a second strip placed at an angle to the former and adapted
 100 to bear on the inner edges of the disks so as to form a guide therefor, substantially as and for the purpose set forth.

2. A device for facilitating re-insertion of disks forming the liner of a centrifugal
 105 drum, after removal, comprising a sheet metal strip adapted to be inserted through the central openings of the said disks in such a manner as to extend across the said openings and project into the series of notches at
 110 the inner edges of the disks corresponding to one of the longitudinal flanges of the central tube of the drum, said strip having, at its opposite side, a part curved to correspond to the curvature of the inner edges of the disks,
 115 substantially as and for the purpose set forth.

3. A device for facilitating re-insertion of disks forming the liner of a centrifugal
 120 drum, after removal, comprising a sheet metal strip adapted to be inserted through the central openings of the said disks in such a manner as to extend across the said openings and project into the series of notches at
 125 the inner edges of the disks corresponding to one of the longitudinal flanges of the central tube of the drum, said strip having, at its opposite side, a curved part adapted to bear on the inner edges of the disks, at both sides
 130 of the part of the strip extending across the

openings of the disks, substantially as and for the purpose set forth.

4. A device for facilitating re-insertion of disks forming the liner of a centrifugal drum, after removal, comprising a sheet metal strip folded at one edge, said strip being adapted to be inserted through the central openings of the said disks in such a manner as to extend across the said openings and project, with the folded edge, into the series of notches at the inner edges of the disks corresponding to one of the longitudinal flanges of the central tube of the drum, said strip having, at its opposite side, a curved part adapted to bear on the inner edges of the disks so as to form a guide therefor, substantially as and for the purpose set forth.

5. A device for facilitating re-insertion of disks forming the liner of a centrifugal drum, after removal, comprising a sheet metal strip adapted to be inserted through the central openings of the said disks in such a manner as to extend across the said openings and project into the series of notches at the inner edges of the disks corresponding to one of the longitudinal flanges of the central tube of the drum, said strip having, at its opposite side, a part adapted to bear on

the part of the inner edges of the disks remote from the said series of notches and to catch into a second series of notches of the disks, substantially as and for the purpose set forth.

6. A device for facilitating re-insertion of disks forming the liner of a centrifugal drum, after removal, comprising a sheet metal strip adapted to be inserted through the central openings of the said disks in such a manner as to extend across the said openings and project into the series of notches at the inner edges of the disks corresponding to one of the longitudinal flanges of the central tube of the drum, said strip having, at its opposite side, a part adapted to bear on the part of the inner edges of the disks remote from the said series of notches and to catch, with its edges, into two other series of notches of the disks, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALGOT LEVIN CHRISTENSON.

Witnesses:

HJALMAR ZETTERSTROM,
AUGUST SÖRENSEN.