

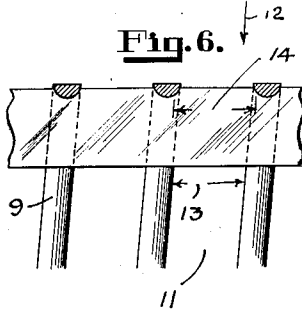
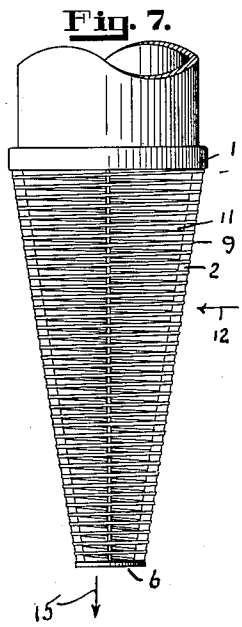
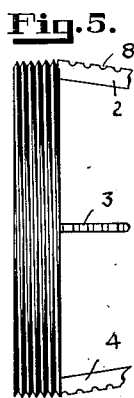
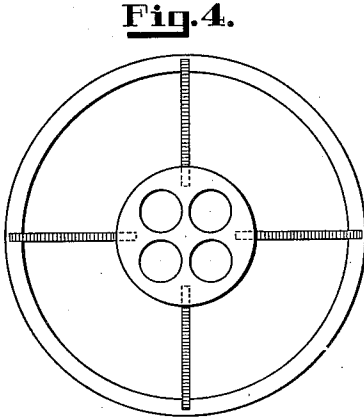
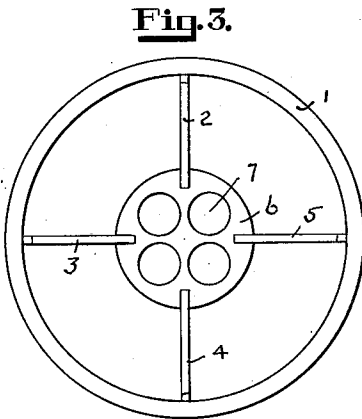
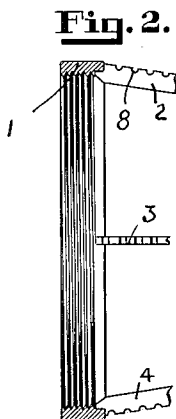
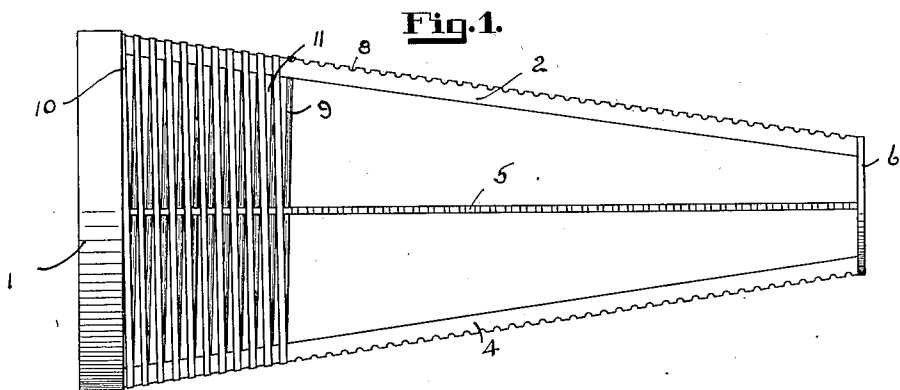
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SCREEN

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SCREEN.

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My invention has for its object a screen particularly adapted to cover and protect the suction inlet of a centrifugal pump or the like.

5 It is characterized by being formed of a skeleton structure on which is spirally wound a half round wire with the flat face of the wire exposed to the inflowing fluid. It is provided with an end member remote from 10 the suction inlet end of the screen and preferably having perforations in said end member somewhat larger than the spaces between the spiral windings and which, when the screen is positioned axially vertical auto- 15 matically clears or discharges debris or foreign matter which passes through the interstices of the screen and admits of the ready discharge downward through said larger openings.

20 Referring to the accompanying drawing and specifications my invention will be made clear.

In the drawing, Fig. 1 is a fragmentary side view of the screen, a portion of the wire 25 wound thereon and partly broken to show the interior construction.

Fig. 2 is a cross section through the end portion of Fig. 1 with the wire removed and is adapted to externally engage the suc- 30 tion inlet of any conventional centrifugal pump not shown but well known.

Fig. 3 is an end view looking into the screen frame from its outlet end with the spiral windings removed.

35 Fig. 4 is similar to Fig. 3 except that it is from the opposite end.

Fig. 5 is similar to Fig. 2 except that it is externally threaded to engage internal threads of a suction inlet.

40 Fig. 6 is a fragment of one of the frame ribs of Fig. 2, with the spiral windings thereon shown in section.

Fig. 7 is a showing of the screen set with its axis vertical on the end of a conventional 45 suction pipe.

Throughout the figures similar numerals refer to identical parts.

A connecting member is shown by the numeral 1 which in Fig. 1 is adapted to 50 externally engage the suction inlet of a pump or a pipe end and form the main support for a plurality of rib members four of which are indicated at 2, 3, 4 and 5.

55 An end plate 6 perforated with large openings as 7 engages the opposite end of the ribs 2, 3, 4, 5.

The member 1, end plate 6, and ribs 2, 3, 4, and 5 are preferably welded together to form a skeleton frame and the ribs are preferably notched on their outer edges as 60 shown at 8 to receive a spirally wound wire 9.

One end of this wire is welded at 10 to the member 1 and the wire is then wound continuously and spirally over the ribs 2, 3, 4, 5, and its other end finally welded to the 65 plate 6.

This spiral or helical winding forms in effect the screen surface and between the windings the spaces as 11, provide open- 70 ings for the entry of fluid which passing through the member 1, enters the pipe or suction inlet aforesaid, the windings straining out or rejecting debris and foreign mat- 75 ter.

The wire which I employ is of half round cross section and the notches 8 are made half round and the round portion of the wire fitted therein so that, to the fluid approach- 80 ing the screen the flat surfaces of the wire are first presented.

The narrowest part of the opening be- 85 tween the wires at any point is therefore first presented to the inflowing fluid which approaches in the direction of the arrow 12 (see Fig. 6) and this space is indicated by the dimension line 13.

Any twigs or debris which find their way 90 through the space 13 immediately after entering are prevented from wedging between the wires because of the clearance provided by the receding surfaces of the half round shape, the clearance space increasing rapidly from 13 to that indicated by the dimension 95 line 14 when any material has passed half way through the space between any two adjacent wrappings.

The screen therefore automatically clears 100 itself and the wedging or blocking of any debris in the interstices is prevented.

No material enters the screen larger than 105 the dimension line 13, and anything just equal to the dimension 13 passes freely without wedging.

When the screen is positioned with its 110 axis vertical with the member 1 engaged to the lower end of a suction pipe and the plate 6 vertically therebelow it will be noted that the velocity of fluid moving within the screen towards the member 1 will be a minimum at the center of the screen and there- 115 fore any large material entering through

the opening 13, such as stones or the like which might be transported by the high entering velocity will, on arriving at the point of minimum velocity within the screen, be acted on by gravity and fall through the opening 7 of the plate 6, the said openings being purposely made larger than the interstices between the wire wrappings. The plate 6 may be made of ring form with the rib welded about the periphery of the ring and with a large opening if preferred. The remoteness of the plate or ring 6 from the member 1, occasions such a substantially lower velocity of flow through the opening 7 that foreign material will not enter there-through and foreign matter entering between the wires discharges downward due to the lower velocities at the screen axis.

It is well known that the transporting power of a stream is substantially proportional to the fifth power of the velocity, and as the velocity through the interstices of the screen adjacent the member 1 is greatest and through those portions of screen remote from said member is the least, that such foreign material as may be transported by the velocity of entry will as it approaches the screen axis have its velocity retarded and therefore will fall and pass out through the opening 7, in the plate 6 in the direction of the arrow 15 as previously described.

I claim:

1. A strainer skeleton comprising an end member having means on one side to engage a pump suction or the like and ribs extending from the other side of said member and converging, a spacing and connecting element at the other end of said ribs, said ribs having their outer edges notched helically to receive a screen wire, a screen wire helically wound in said notches and said element having an opening greater than the space between any two adjacent notches.

2. A strainer comprising a circular collar, a plurality of ribs in spaced relation and fixed about the periphery of said collar and extending toward the apex as elements of the surface of a truncated cone, notches

in said ribs adapted to receive a wire helically wound thereon and an end member fixing the said apex ends of said ribs, and an opening in said end member greater than the space between any two notches.

3. A strainer comprising a circular collar, a plurality of ribs in spaced relation and fixed about the periphery of said collar and extending toward the apex as elements of the surface of a truncated cone, notches in said ribs adapted to receive a wire helically wound thereon and an end member fixing the said last named ends of said ribs, an opening in said end member greater than the space between any two notches and a half round wire wound helically about the ribs and in the notches from the collar to the end member and forming a screen surface.

4. A strainer comprising a threaded collar at one end and a perforated end plate at the other end, a frame work of ribs fixed to the collar and the plate and holding them in spaced relation, a plurality of spirally aligned notches in said ribs and wire wound in said notches about said ribs.

5. A strainer as set forth in claim 4 wherein said ribs converge toward said perforated plate and wherein the said wire has a half round cross section with the rounded portion lying in said notches.

6. A strainer comprising a circular collar, a plurality of ribs, each of said ribs having one end fixed about the periphery of said collar and converging towards their opposite ends forming in effect elements of the surface of a truncated cone, a perforated end member to which said converging ends are fixed, said ribs having notches in helical alignment adapted to receive a wire helically wound therein.

7. A strainer as set forth in claim 6 wherein a wire is wound in said notches and has a half round cross section with the flat portions thereof lying in the surface of a truncated cone.

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