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FLEXIBLE SCREEN

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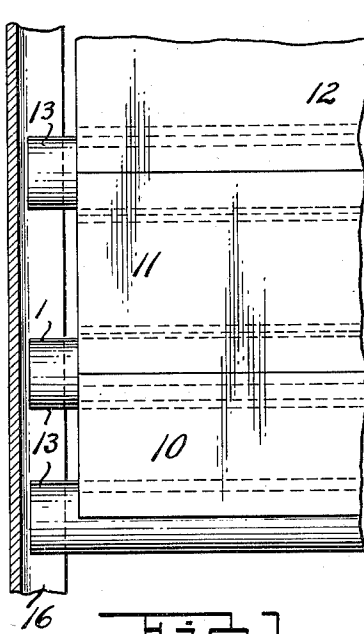


Fig. 1.

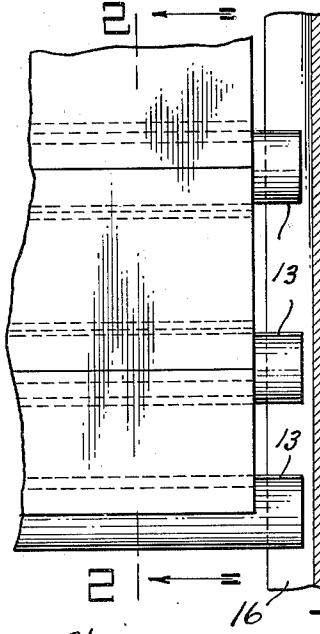


Fig. 2.

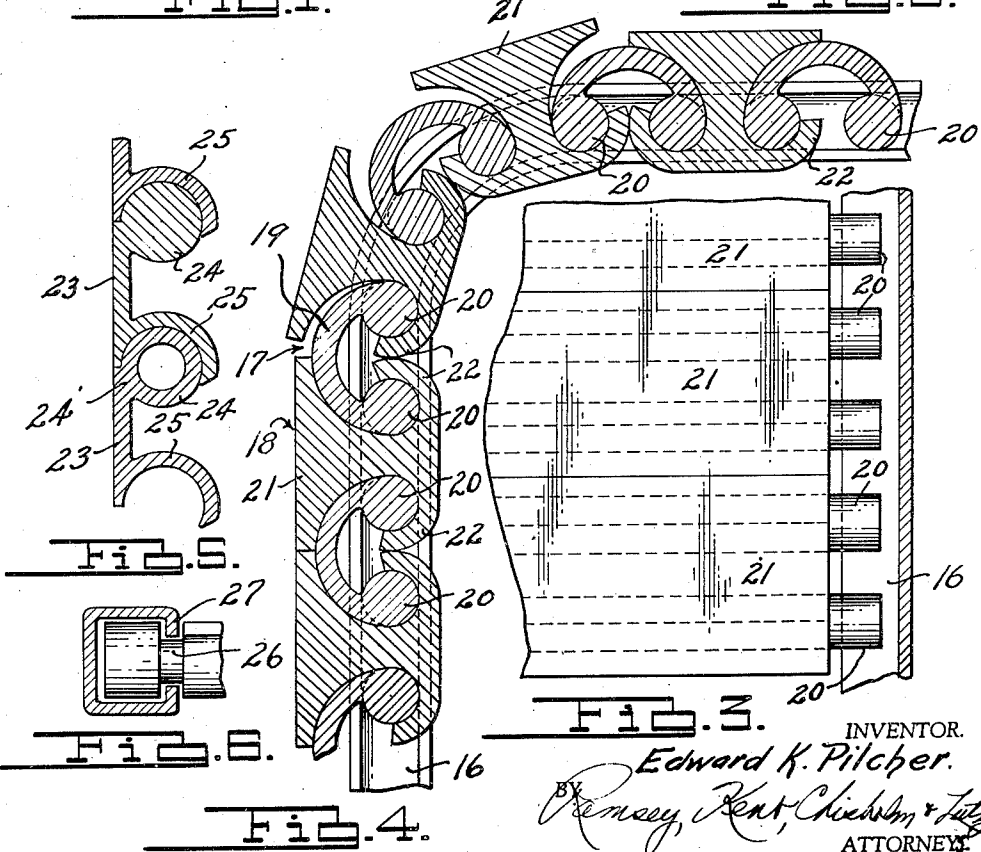
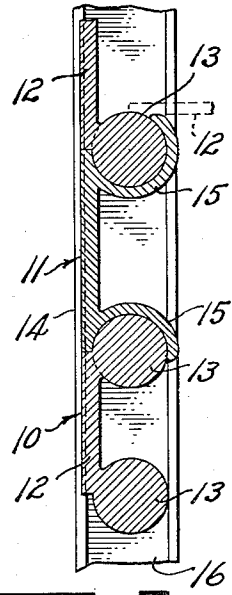


Fig. 5.

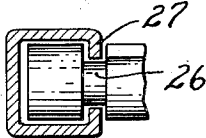


Fig. 6.

Fig. 4.

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FLEXIBLE SCREEN

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12 Claims. (Cl. 189—56)

This invention relates to a flexible screen formed of a plurality of separate sections hinged together. The separate sections may be formed from metal, plastics, or other suitable materials, and they may be conveniently and economically manufactured by extrusion.

A particular feature of the invention resides in the fact that certain of the hinged sections carry rod members which cooperate to form hinged joints, and which extend laterally beyond the edges of the screen sections and project into tracks which guide the movement of the screen.

In one form of the invention, the sections which carry the rod members are entirely concealed, forming a screen having relatively smooth and attractive faces on both sides.

While preferred forms of the invention are disclosed herein for purposes of illustration, it should be understood that various changes may be made without departing from the spirit of the invention as herein set forth and claimed.

In the drawing:

Fig. 1 is a plan partly broken away of a screen embodying the invention.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 1 showing a modified form of the invention.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a view corresponding to Fig. 2 showing another form of the invention.

Fig. 6 is a fragmentary cross section showing an additional modification.

Referring to the drawing more specifically, the screen illustrated in Figs. 1 and 2 consists of alternate male sections 10 and female sections 11. Each male section 10 has a body part 12 which, while illustrated as being flat, may be given any desired ornamental contour. The upper and lower edges of the body 12 are straight and carry rods 13 projecting from one side of the body.

Each of the female sections 11 has a body 14, the upper and lower edges of which are straight and carry semi-tubular members 15 projecting inwardly from the body 14. Each of the semi-tubular members 15 extends for more than 180 degrees around one of the rod members 13. The circumferential extent of each member 15 should be such as to secure a firm grip on the rod 13 that will prevent these parts from being easily separated. At the same time enough gap must be left in the semi-tubular member 15 to permit the desired angular movement of the hinge formed by cooperating members 13 and 15. The extent of opening illustrated permits

each hinge to make a 90 degree bend as shown by the dotted lines in Fig. 2.

The sections 11 and 12 can be conveniently extruded in a continuous length of material such as aluminum brass, plastics, etc. The extruded pieces are then cut into suitable lengths for the sections. After the sections 10 have been cut to length their bodies 12 are cut back at each end, leaving the rods 13 projecting as shown in Fig. 1. Alternate sections 10 and 11 are then assembled by sliding the semi-tubular members 15 over the rods 13.

The flexible screen thus formed can be assembled with suitable guide rails 16 engaging its opposite sides, each guide rail being provided with a U-shaped channel into which the ends of rods 13 project. Thus the ends of rods 13 moving in guides 16 hold the screen firmly against lateral movement, and due to their round shape as well as their spaced-part arrangement, present a minimum of frictional resistance as they move in the guideways.

In the modification shown in Figs. 3 and 4 the screen is made up of alternate sections 17 and 18. As clearly shown in Fig. 4 each of the sections 17 has a body 19 curved in the direction in which the screen is adapted to bend, and which carries at its upper and lower edges rods 20 which project toward the concave side of body 19 and which have their outer surfaces forming a continuation of the curve of the convex side of body 19.

Each of the sections 18 has a body 21 which carries along its upper and lower edges semi-tubular members 22 adapted to partially surround rods 20 carried by adjacent sections 17. The parts are so arranged that the edges of two sections 18 extend over and meet in front of a section 17 when the screen is in a straight position, thereby completely hiding the sections 17 when the screen is viewed from the left-hand of Fig. 4. Similarly, from the right-hand of Fig. 4 the members 17 are hidden by the meeting of semi-tubular members 22 carried by the adjacent sections 18. Advantages of this particular form of the invention are that the rod sections do not show as protuberances, and it is possible to make the sections 17 and 18 of different materials, for example, making the sections 18 of aluminum and the sections 17 of brass, thus reducing the friction while maintaining a uniform appearance from the exterior.

A further modification is illustrated in Fig. 5 in which all of the sections 23 are identical. Each of these sections carries along one edge a rod 24.

and along the other edge a semi-tubular member 25. The advantages of this construction are that only a single die is needed to produce a screen having sections of a particular size, and that since all of the sections are identical, they can be more economically handled and assembled. Fig. 5 also shows that the rod members can be given the form of a hollow tube, as illustrated at 24'.

- 10 As illustrated in Fig. 6, some or all of the rods may have their projecting ends formed with grooves 26 into which extend flanges 27 formed on the guide rails 16. With this arrangement the screen is fed into the end of the guideway, and 15 these parts are held positively against lateral displacement.

It will be readily understood by those skilled in the art that the flexible screen disclosed herein can be adapted to a large number of installations where it is desired to have a relatively strong and durable screen that can be rolled or pushed away. Quite obviously, the screen can be installed to roll either vertically or horizontally and it can be made to negotiate a fairly sharp turn. Any of the forms of the screen can be given a suitable ornamental conformation or decoration, and it can be fabricated in any size from any suitable material or combination of materials.

I claim:

- 30 1. A manufacture comprising a plurality of separate sections secured together by hinged joints, each of said hinged joints comprising a rod and a semi-tubular member, said rod being homogeneously united with one of said sections and extending laterally beyond the ends of said sections, 35 guide means engaging the projecting ends of said rod, said semi-tubular member being homogeneously united with another of said sections and partially surrounding said rod.
- 40 2. A manufacture as specified in claim 1 in which said semi-tubular member extends around more than 180 degrees of the circumference of said rod.
- 45 3. A manufacture as specified in claim 1 in which the projecting ends of the rods are formed with grooves, and in which the guide means comprises a pair of U-shaped tracks, each of said tracks carrying flanges which extend into the grooves of the rods.
- 50 4. A manufacture comprising a plurality of separate sections secured together by hinged joints along straight contiguous edges, each of said hinged joints comprising a rod homogeneously united with one of said sections and a semi-tubular member homogeneously united with another of said sections and partially surrounding said rod, a guide track on each side of the screen, said rod members extending laterally beyond the edges of the screen sections and projecting into 60 the guide tracks.
5. A manufacture as specified in claim 4 in which said guide tracks are of approximately U-shape.
- 65 6. A manufacture comprising a plurality of male sections alternating with a plurality of female sections each of said male sections having rods homogeneously united along two opposite edges, said rods extending beyond the sides of said sections, guide means engaging the projecting ends of said rod, each of said female members having semi-tubular members homogeneously 70

united along two opposite edges, each semi-tubular member partially surrounding one of said rods.

7. A manufacture as specified in claim 6 in which the male sections are formed of one material and the female sections are formed of a material different from, and having a low coefficient of friction with, said first material.

8. The process of forming a flexible screen which comprises extruding lengths having rods and semi-tubular members, cutting said lengths into sections with said rods projecting at the ends, and assembling the sections by sliding the semi-tubular members lengthwise over the rods.

9. A manufacture comprising a plurality of male sections alternating with a plurality of female sections, each of said male sections comprising a curved body having its outer surface formed on a continuous convex curve, said male section carrying along each edge a rod member projecting inwardly toward the concave side of the body, each of said female sections having semi-tubular members along opposite edges, each semi-tubular member surrounding one of said rods, each female member having parts extending over the outer convex surfaces of the two adjacent male members.

10. A manufacture comprising a plurality of male sections alternating with a plurality of female sections, each of said male sections comprising a curved body having its outer surface formed on a continuous convex curve, said male section carrying along each edge a rod member projecting inwardly toward the concave side of the body, each of said female sections having an inner face and an outer face, the edges between said inner and outer faces being formed with semi-tubular members which partially surround rods of adjacent male sections, the semi-tubular members of each female section contacting the corresponding members of adjacent female sections, the outer face of each female section extending part way over the outer convex surfaces of the two adjacent male members, the outer faces of adjacent female sections contacting with each other when the sections are in straight alignment.

11. A manufacture comprising a plurality of male sections alternating with a plurality of female sections, each of said male sections comprising a curved body having rods homogeneously united therewith along two opposite edges and projecting toward the concave side of said body, each of said female sections having semi-tubular members homogeneously united therewith along two opposite edges, each semi-tubular member partially surrounding one of said rods, the male and female sections being of the same width, said rods extending beyond the ends of said sections, and guide means engaging the extending ends of said rods.

12. A manufacture comprising a plurality of separate sections, each of said sections carrying a rod homogeneously united therewith along one edge, and a semi-tubular member homogeneously connected therewith along the other edge and partially surrounding a rod carried by another section, said rods projecting laterally beyond the ends of the sections, and guide means engaging the projecting ends of said rods.

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