

[54] SNOW FENCE

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[22] Filed: Oct. 11, 1973

[21] Appl. No.: 405,410

[52] U.S. Cl. 256/12.5; 256/13; 256/32; 256/34

[51] Int. Cl.² E01F 7/02; E04H 17/04

[58] Field of Search 256/12.5, 32, 34, 13

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[57] ABSTRACT

This invention has to do with a lightweight inexpensive fence or barrier used primarily to control drifting sand, snow or particulate material. Synthetic plastic sheet which may or may not be re-enforced with mesh is supported by means of a cable or the like along both top and bottom longitudinal edges. Vertical slats of synthetic material may be secured at the desired lateral spacing, or slots of various configurations may be wholly or partially cut in a sheet of synthetic plastic to provide the desired reduction in wind velocity. The slats in one embodiment may be centrally pivoted with detachable fastenings at their outer extremities to facilitate rolling up and storing.

3 Claims, 29 Drawing Figures

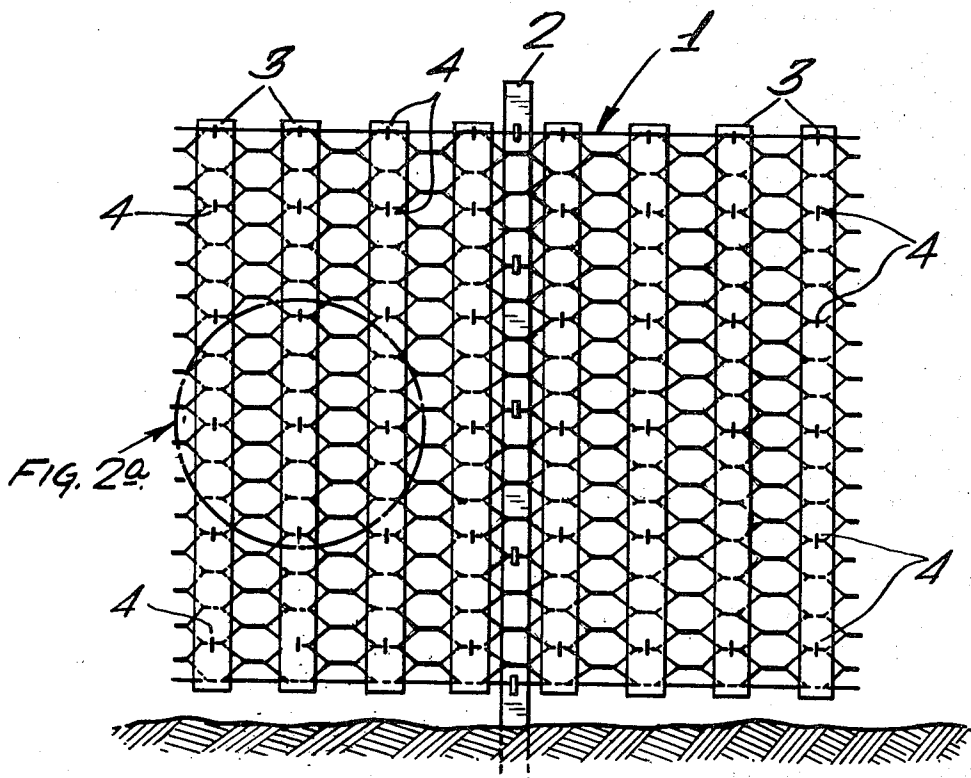


FIG. 1a

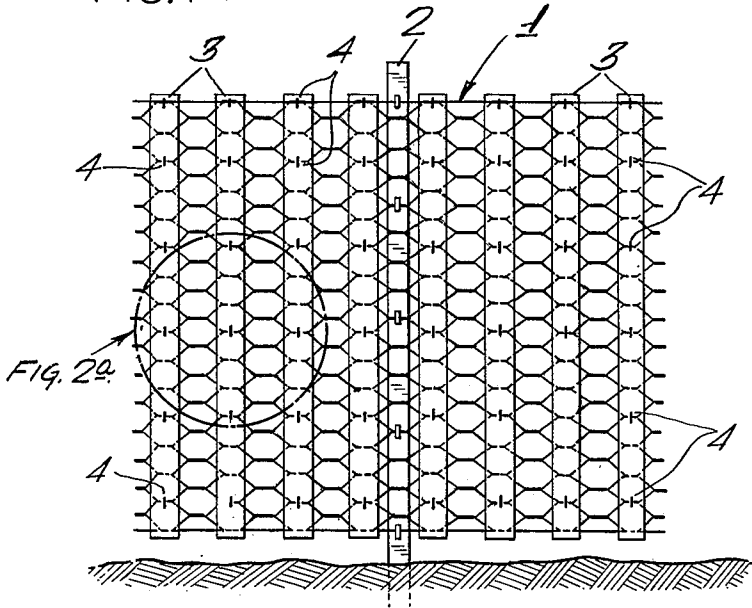


FIG. 4a

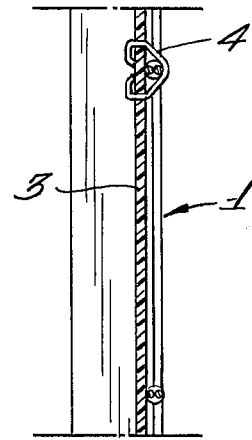


FIG. 2a

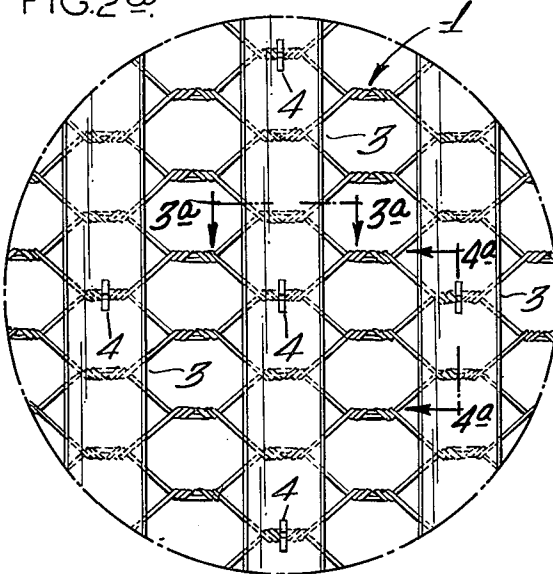


FIG. 5a

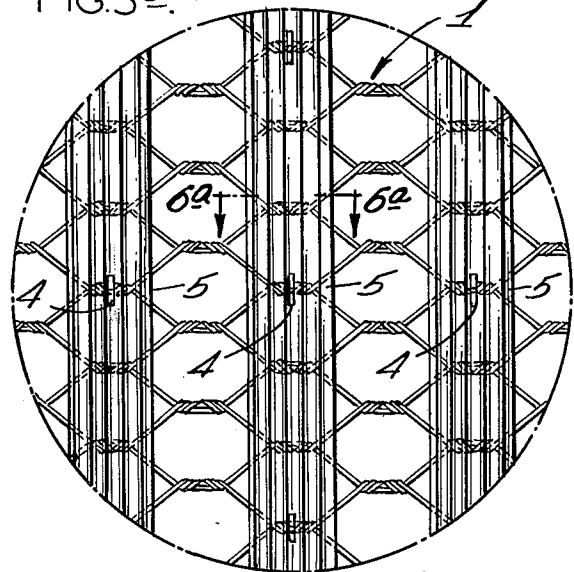


FIG. 3a

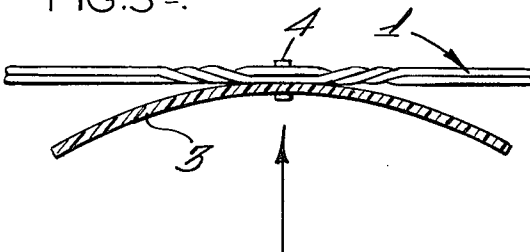
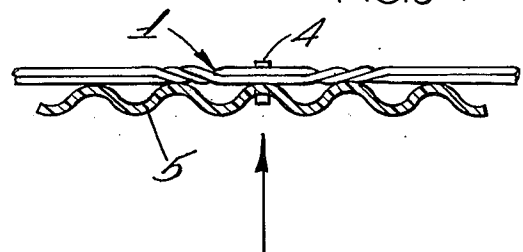


FIG. 6a



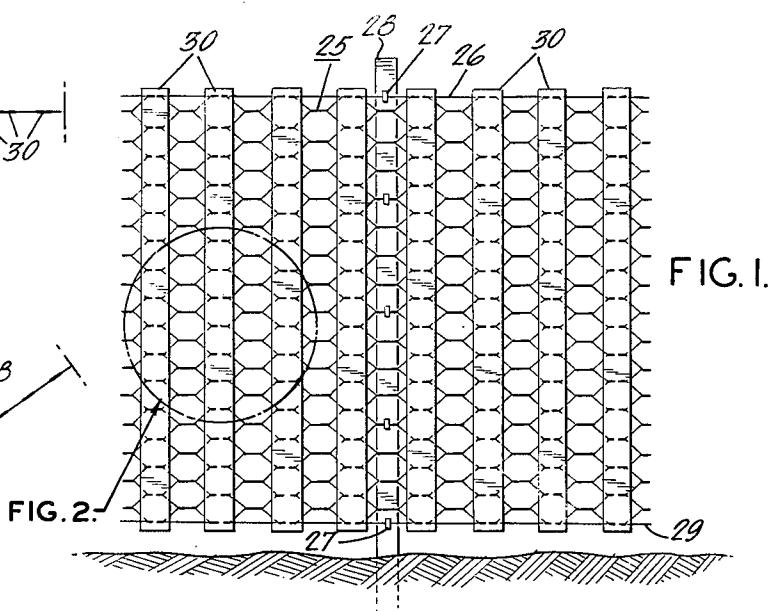
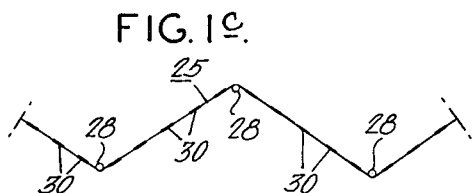
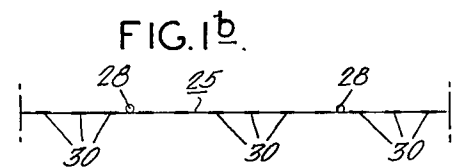


FIG. 2.

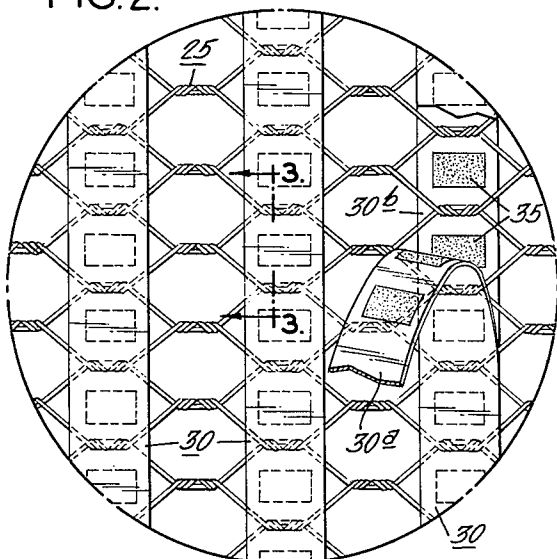


FIG. 6.

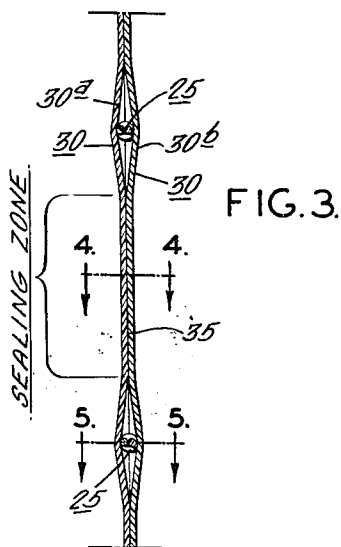
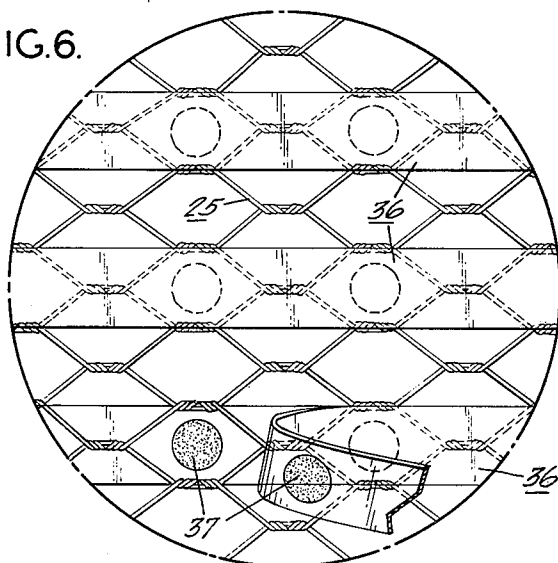


FIG. 4.

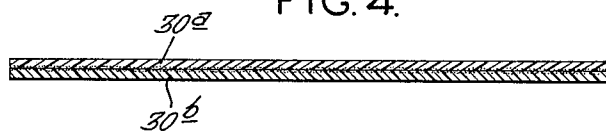


FIG. 5.

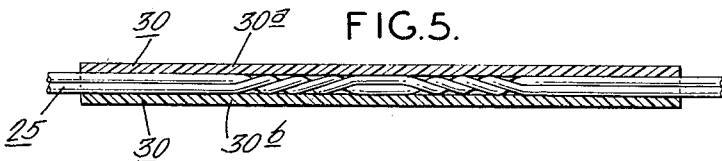


FIG. 7.

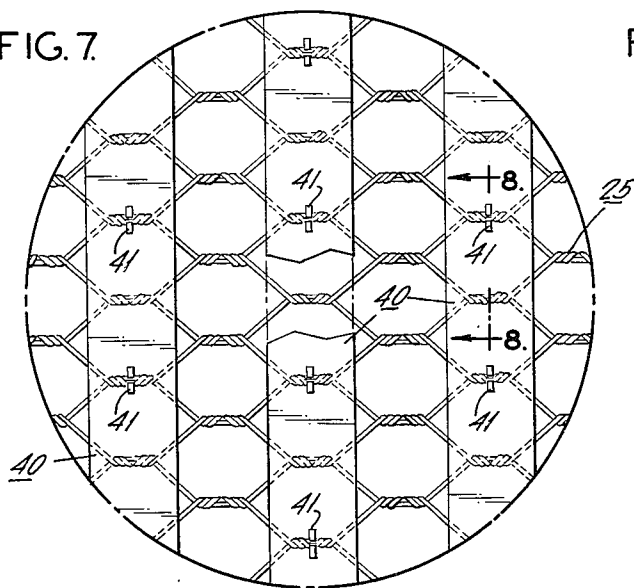


FIG. 8.

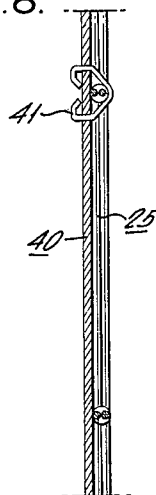


FIG. 10.

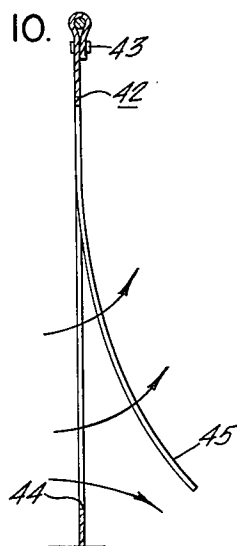


FIG. 9.

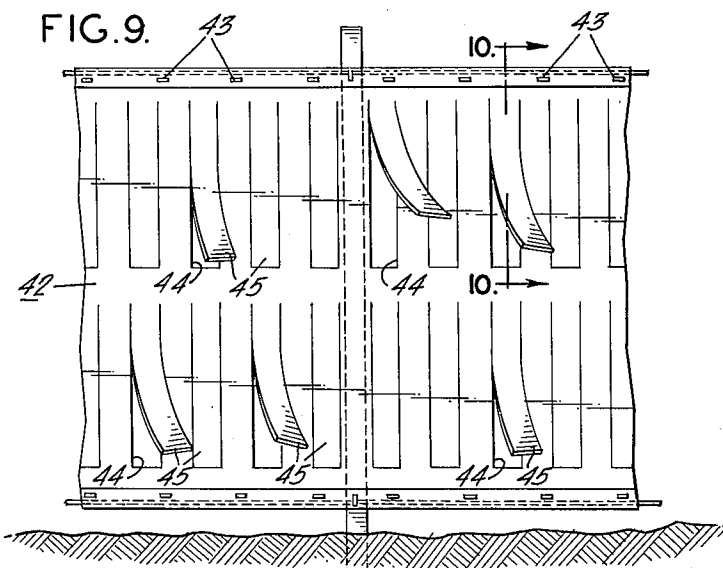


FIG. 11.

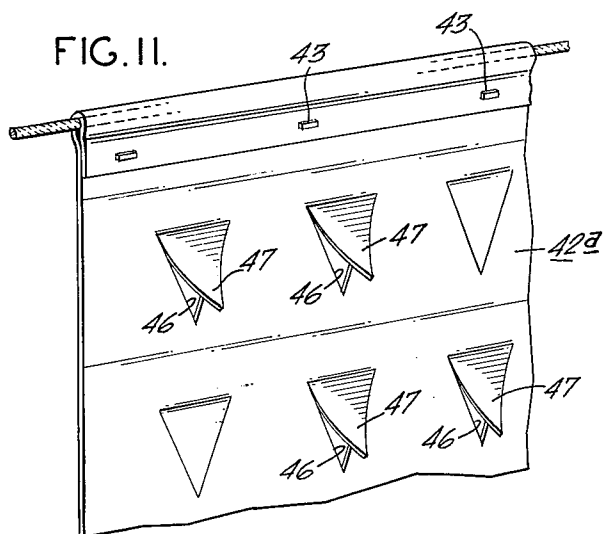


FIG. 12.

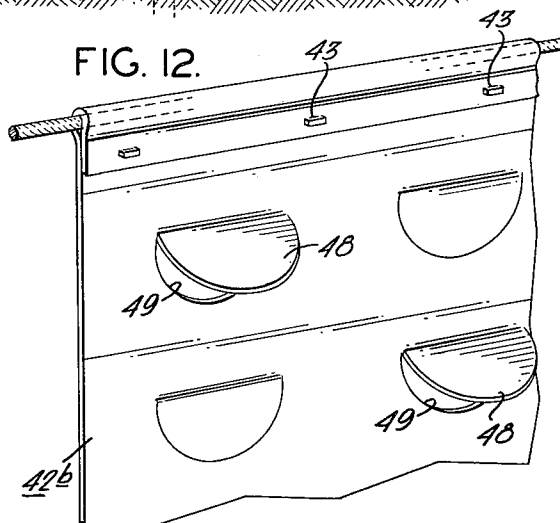


FIG. 14.

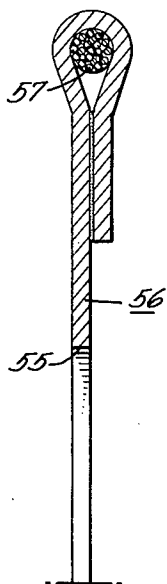


FIG. 13.

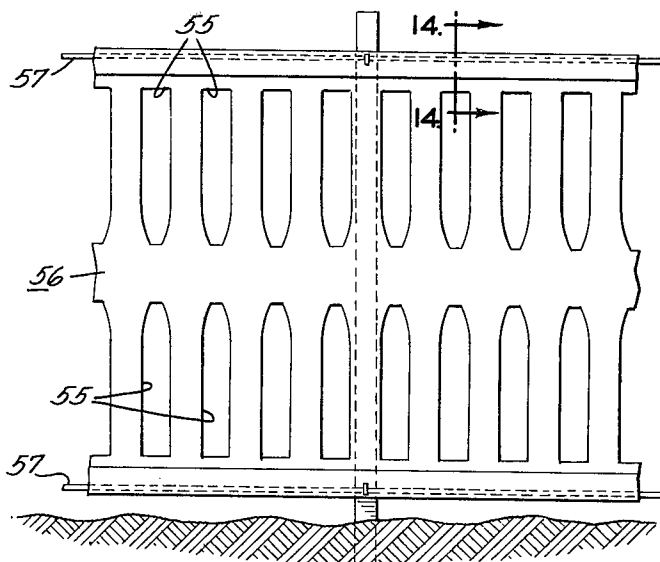


FIG. 15.

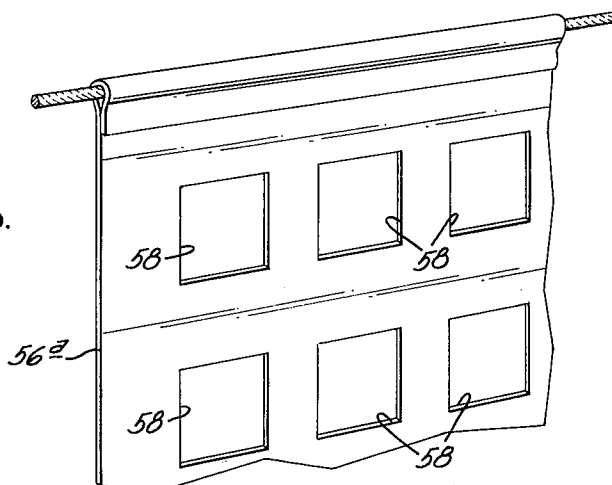
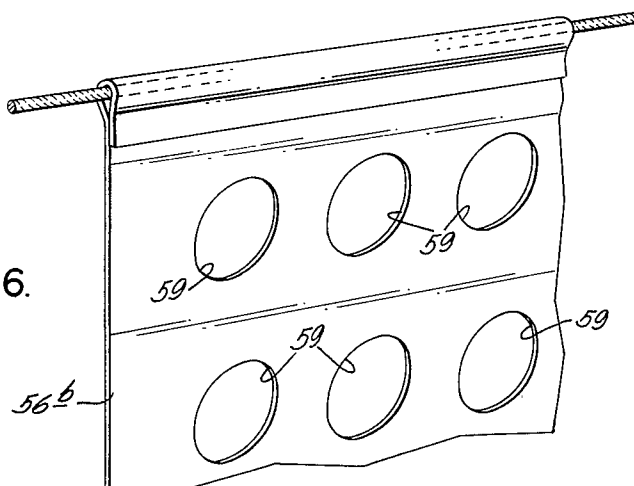
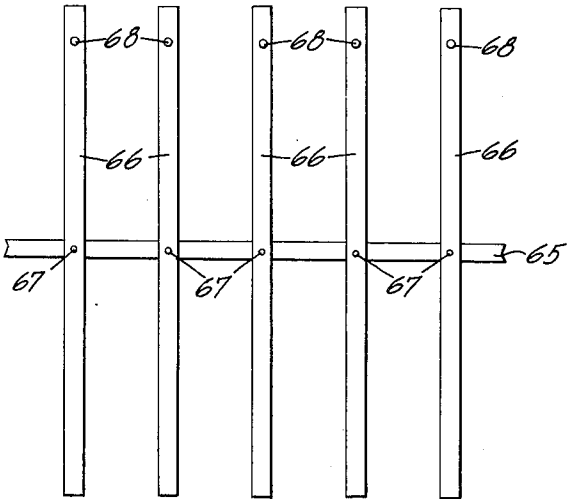
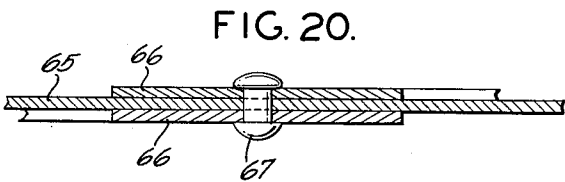
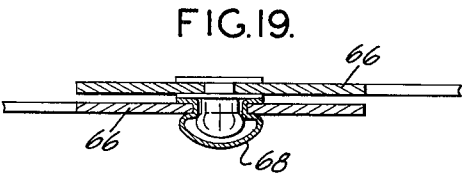
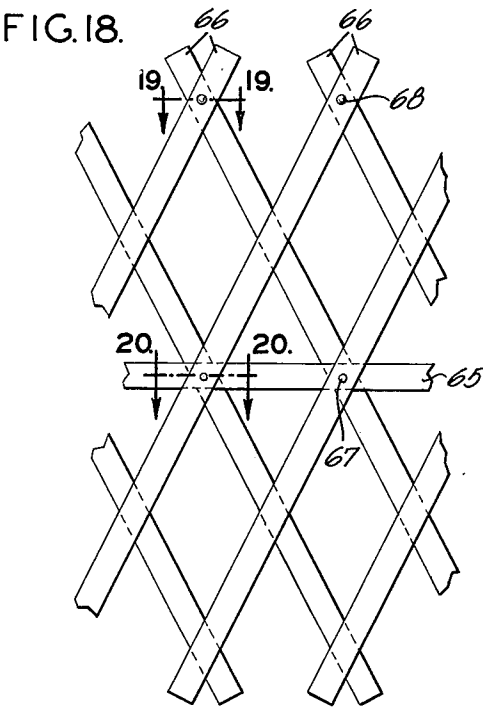
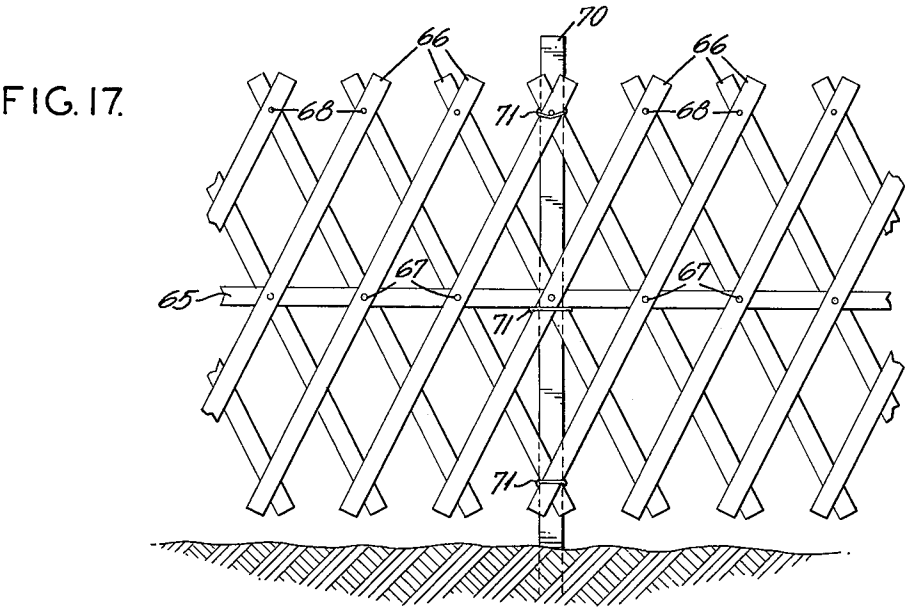


FIG. 16.





SNOW FENCE

PRIOR ART

According to present practices, snow fences for use in controlling drifting snow along highways and in other locations comprises vertical wooden slats held in place by a series of lateral twisted wires. These slats are customarily 1½ inches wide, ½ inch thick and 48 inches long. The lateral spacing is approximately 2 inches. This conventional fencing weighs about 170 lbs. per 100 feet in length and the sections when rolled, customarily have a diameter of 2 to 3 feet. Consequently, the semi-annual erection and dismantling of such snow fences presents several unsatisfactory problems. The rolls are heavy and require two men to load and unload and set up each section. The sections are wired to posts usually of steel and these wires, unless all collected, cause a menace in agricultural areas, particularly in meadows where they may inadvertently become mixed in a crop of hay, resulting in severe injury or death to cattle.

OBJECTS OF THE INVENTION

The fence for controlling drifting as described in the present invention eliminates the above disadvantages because it is much lighter in weight and requires no separate wiring for attachment to posts. Furthermore, it is extremely inexpensive to manufacture and cheaper to erect and dismantle, which must be done before or after specified dates usually set forth in township ordinances.

DESCRIPTION OF THE INVENTION

Referring now more particularly to the drawings,

FIG. 1a shows a vertical portion of an improved snow fence incorporating the preferred embodiment of the invention,

FIG. 2a is an enlarged detail as seen at 2a of FIG. 1, FIG. 3a is an enlarged section as seen at 3a, 3a of FIG. 2a,

FIG. 4 is an enlarged section as seen at 4a, 4a of FIG. 2a,

FIG. 5a is an enlarged detail of another embodiment of the invention,

FIG. 6a is an enlarged sectional detail as seen at 6a, 6a of FIG. 5a,

FIG. 1 shows a small section of one embodiment showing a form in which a wire mesh is used as a backing member to which vertical slats are secured,

FIG. 1b is a top view of the fence of FIG. 1 showing the fence erected in generally linear manner,

FIG. 1c shows the fence of FIG. 1 erected in a zigzag manner,

FIG. 2 is an enlarged detail of a portion of the fence of FIG. 1.

FIG. 3 is an enlarged section as seen at 3-3 of FIG. 2,

FIG. 4 is a section as seen at 4-4 of FIG. 3,

FIG. 5 is a section as seen at 5-5 of FIG. 3,

FIG. 6 is an enlarged view similar to FIG. 2 showing a modified method of adhering the plastic strips in a longitudinal rather than a vertical position,

FIG. 7 is a view similar to FIG. 6 showing an alternate method of securing the strips,

FIG. 8 is an enlarged sectional detail as seen at 8-8 of FIG. 7,

FIG. 9 illustrates a synthetic sheet having rectangular slots positioned vertically, but slitted on three sides

only so that the material is free to swing in either direction from its upper unslitted connection with the sheet,

FIG. 10 is an enlarged sectional detail as seen at 10-10 of FIG. 9,

FIGS. 11 and 12 are fragmentary details showing variations in the slot construction of FIG. 11 in which the slitted sides are V-shaped and FIG. 12 in which the slitted portion is arcuate,

FIG. 13 shows completely slotted portions of a fence similar to FIG. 9 in which the inward extremities of the slots are somewhat tapered,

FIG. 14 is an enlarged sectional detail as seen at 14-14 of FIG. 13,

FIGS. 15 and 16 are fragmentary details of a fence similar to that of FIG. 13 but with variations in the apertures, those in FIG. 15 being square and those in FIG. 16 being circular,

FIG. 17 shows a further embodiment in which a series of double slats are pivoted to a lateral member which forms the sole lateral support for the fence; the extremities of the slats are detachably secured to alternate slats by any convenient means such as snap fasteners,

FIG. 18 is an enlarged detail of the fence of FIG. 17,

FIG. 19 is an enlarged sectional detail as seen at 19-19 of FIG. 18,

FIG. 20 is an enlarged sectional detail as seen at 20-20 of FIG. 18, and

FIG. 21 shows the fence of FIG. 17 with the slats detached at their termini from each other and ready for rolling into a tight bundle.

Referring now more particularly to the drawings, an improved snow or sand barrier in accordance with the invention comprises a wire mesh backing 1 which is supported vertically on a series of posts 2 at appropriately spaced intervals. The backing 1 can be of any desired flexible material, but preferably an inexpensive common product such as ordinary chicken wire. A series of vertically positioned slats 3, 3 are secured to strands of backing 1 by means of staples 4, 4 as shown in FIG. 4a. The slats 3 may be flat as described herein-after, but to provide maximum efficiency, they are of an arcuate cross section as shown in FIG. 3a. For this purpose, the concave side of each slat should be placed on the windward side of the mesh so that the direction of the wind will be as shown in the arrow of FIG. 3a. Tests have indicated that the arcuate configuration provides substantially better arresting qualities for the snow or other material than flat slats.

A further improvement over flat slats is shown in FIG. 5a, in which these slats 4,4 are formed to provide a corrugated cross section as seen in FIG. 6a. It is desirable to secure the slats 4 to the backing 3 on the windward side to avoid being torn from the backing. However, the configuration of slats 4 is the same on each side thereof so that it is not critical whether the slats 4 are reversed on the backing or not. As described hereinafter, the material for the slats may be of any suitable, inexpensive product, preferably non-metallic.

Another embodiment of my improved snow fence comprises a wire mesh 25 which likewise acts as the general supporting member. When erected, the lateral top stand 26 of mesh 25 is hooked in a tongue 27 of a conventional post 28. Ordinarily, these posts have a series of tongues 27 and one or more of the strands of mesh 25 may be hooked in other tongues as shown in FIG. 1. Presumably, the bottom lateral strand 29

should at least be hooked in one of the tongues 27 near the surface of the ground. A series of vertical slats 30, 30 are secured to the backing mesh 25 in one of several manners as shown in FIGS. 2-8. In FIG. 2, the synthetic slats 30 are provided with pressure sensitive adhesive areas 35, 35 so that a single finished slat in effect is a double thickness of material with the two sections thereof 30a and 30b adhesively secured to each other through all or any desired number of the apertures in mesh 25.

In FIG. 6, the slats 36, 36 are positioned horizontally instead of vertically and the adhesive areas 37, 37 may be circular instead of rectangular as shown in FIG. 2. It will be seen in FIG. 3 that each double slat 30 has a sealed area between the twisted portions of wire mesh 25 and that they completely enclose each of the twisted portions as shown in FIG. 5. Where a thermoplastic material is used for slats 30 or 36, the sealed areas, whether rectangular, circular or of any other shape may be fused with the application of suitable heat. Such fusing is illustrated in FIG. 4.

FIGS. 7 and 8 show a purely mechanical means for securing a single slat 40 to one side of the mesh 25. In this event a thicker slat is desirable and each slat is attached to a plurality of the twisted portions of mesh 25 by means of a staple 41 (FIG. 8) as often as may be necessary to retain the slats securely attached to mesh 25. Instead of employing a wire mesh as described in the previous embodiments, a sheet or pellicle 42 of plastic material having its longitudinal edges folded over and secured to itself by means of fusing, an adhesive or staples 43, 43 as shown in FIGS. 9-12 may be used.

In the embodiment of FIG. 9 a plurality of incompletely cut rectangular slots 44, 44 is provided preferably in two rows with the unslitted portion at the top. This permits a swinging enclosure for each aperture which is displaced by the wind as shown in FIG. 10. The hinged flaps 45, 45 assist in directing the wind driven material such as snow or sand in a downwardly direction (FIG. 10).

Instead of substantially rectangular apertures as shown in the embodiment of FIG. 9, it may be desirable within the scope of the present invention to employ apertures of various configurations such as the V-shaped notches 46, 46 as shown in FIG. 11 which have correspondingly shaped flaps 47, 47 formed from the material of the sheet 42a. The flaps in FIG. 12 as illustrated in sheet 42b are semi-circular instead of V-shaped and comprise a series of flaps 48, 48 having a semi-circular lower edge forming arcuate apertures 49, 49.

A further modification of the invention is shown in FIG. 13 in which a plurality of slots 55, 55 are provided in a sheet of synthetic plastic material 56. The shape of these slots, however, is tapered at one extremity, the upper row being tapered at the bottom and the lower row being tapered at the top. In this embodiment, the plastic sheet material 56 is folded over the supporting cables 57, 57 and adhesively secured or fused as shown in FIG. 14.

Using the same suspension and securing procedure as described in connection with FIGS. 13 and 14, the shape of the apertures may be varied in size and location as shown in FIGS. 15 and 16. The desired con-

struction will depend upon the type of material, the location and the contemplated wind velocity. It will be understood that it may be desirable to use different shaped apertures for sand, dust or snow.

The apertures 58, 58 in the embodiment of FIG. 15 are square whereas the apertures 59, 59 in the embodiment of FIG. 16 are circular. The supporting construction for the synthetic sheets 56a and 56b may be the same as shown in FIG. 14 or they may be stapled or otherwise secured as shown in FIGS. 9-12.

Referring now to FIGS. 17-21, a still further embodiment of a protective fence primarily adapted for controlling snow drifts comprises a central member 65 to which a series of slats 66, 66 are pivoted 67, 67. When storing, the slats are arranged substantially at right angles to members 65 so that the fence can be tightly rolled. In use, the termini of the slats are secured to each other by a series of snap fasteners 68, 68 (FIG. 19) or any other suitable means. In the embodiment shown in FIG. 17, the bottom termini of slats 66, 66 are not secured to each other but similar detachable fasteners may be used at the bottom, if desired. This fence is secured to a plurality of posts 70, one of which is shown in FIG. 17, by means of a wire binding or cord 71 secured at the top, middle and bottom of the posts. Desirably, the center pin or rivet 72 at the post may be secured through the post or through a suitable aperture in the post. FIG. 21 shows the disassembled fence ready for rolling up with slats 66 arranged in a generally parallel position at right angles to the center member 65. The slats 66 may be made of any suitable material such as synthetic, but preferably wood or sheet metal, for example, aluminum. The member 65 can be of rubber or woven tape or some other material which is readily rollable.

In the various embodiments of the invention as described above, except those of FIGS. 17-21, the sheet or pellicle may be selected from a variety of materials and may be either plain or reinforced. For example: woven or non-woven glass fibers, nylon, rayon, cotton and polypropylene fabrics may be used. Pellicles such as polyethylene, polyvinyl chloride, polypropylene, polychloroprene, or natural rubber alone or reinforced may be used. There are also grades of weather resistant paper which may be used.

I have thus described an improved construction for drifting material barriers, such as snow or sand which is less expensive, easy to construct and far simpler to install and remove than heavy, more cumbersome devices.

I claim:

1. A barrier fence for controlling drifting particulate material which comprises an elongated wire mesh base forming the base of the fence and a plurality of formed synthetic plastic slats fixedly positioned at right angles to the long axis of the mesh base in horizontally spaced relationship therealong and each slat is secured at a plurality of vertically spaced points by staples to one side of said mesh base.

2. A barrier fence in accordance with claim 1 in which the plastic slats are of arcuate cross section.

3. A barrier fence in accordance with claim 1 in which the plastic slats are of corrugated cross section.

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