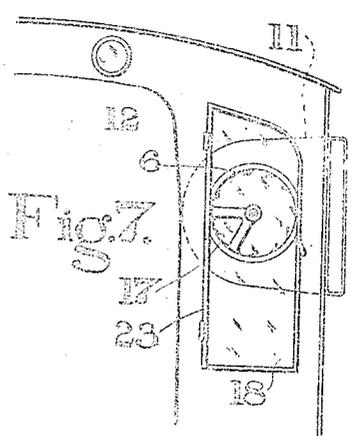
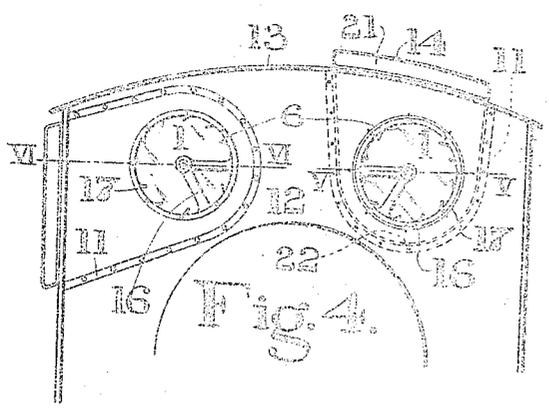
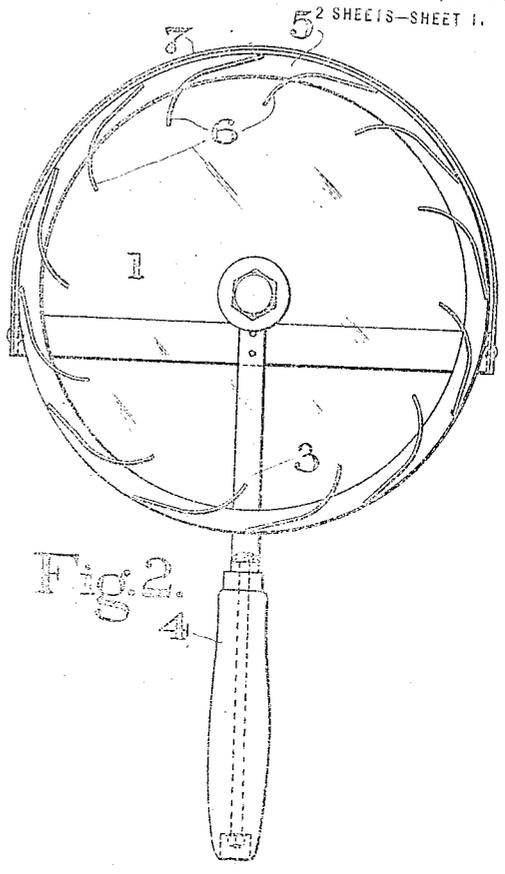
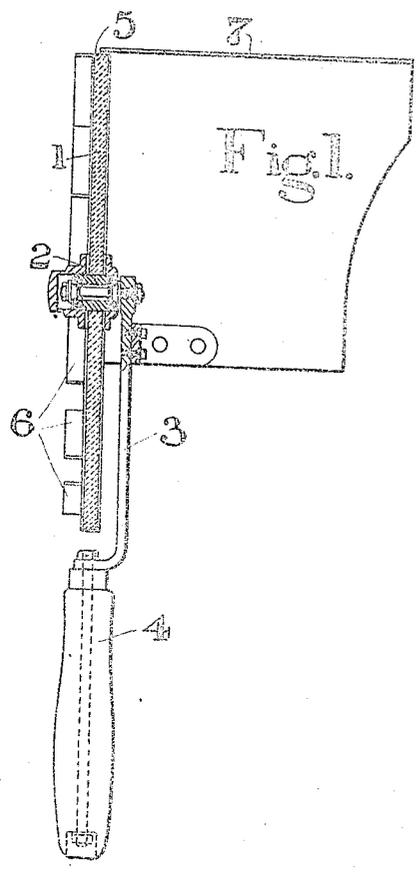


1,379,750.

S. A. DE NORMANVILLE.
VISUAL WEATHER SCREEN.
APPLICATION FILED JUNE 28, 1920.

Patented May 31, 1921.
2 SHEETS—SHEET 1.



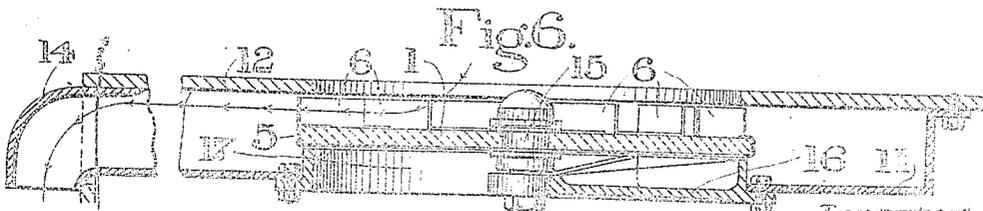
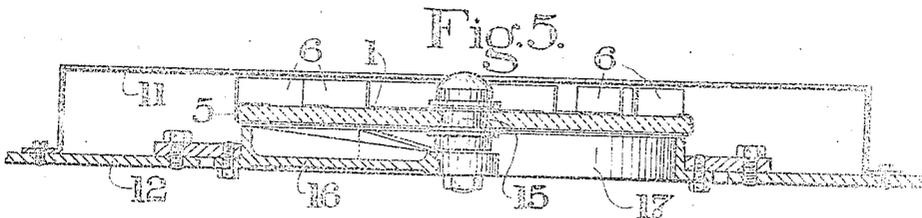
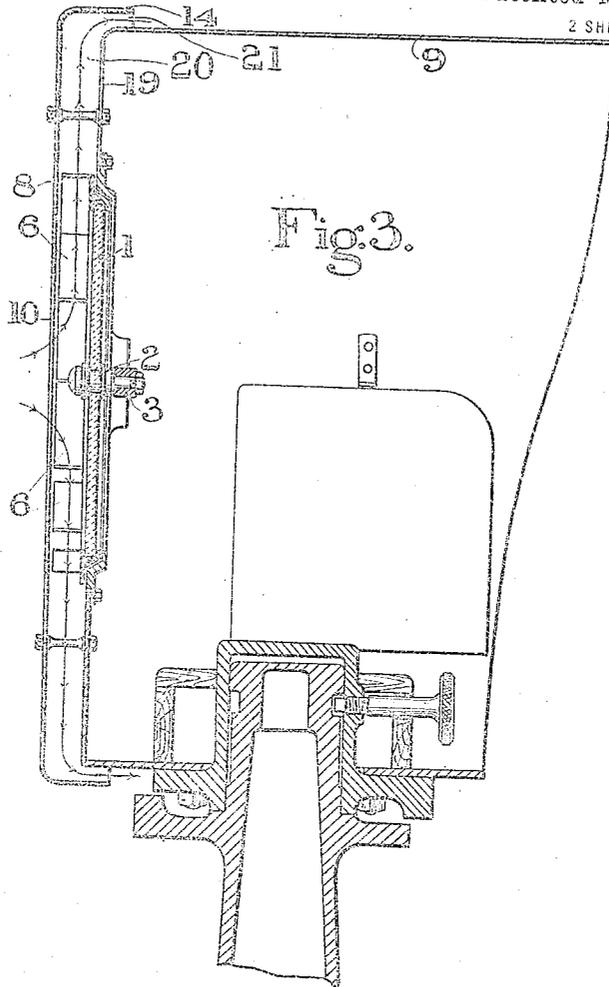
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UNITED STATES PATENT OFFICE.

SAMUEL AUGUSTINE DE NORMANVILLE, OF LONDON, ENGLAND.

VISUAL WEATHER-SCREEN.

1,379,750.

Specification of Letters Patent. Patented May 31, 1921.

Application filed June 23, 1920. Serial No. 392,342.

To all whom it may concern:

Be it known that I, SAMUEL AUGUSTINE DE NORMANVILLE, a subject of the King of Great Britain and Ireland, residing at London, England, have invented certain new and useful Improvements in and Connected with Visual Weather-Screens, of which the following is a specification.

This invention relates to improvements in centrifugal visual weather screens, usually called clear view screens, for instance of the type described in specification to Letters Patent No. 1297805.

The object of the invention is to render a screen of this type particularly useful in exposed positions, for example in a locomotive, aeroplane, boat, or other fast moving vehicle, or on a light house or coast signal station, where a sufficiently strong current of air is available to provide the energy necessary to drive the disk.

According to the invention the disk is provided with vanes on or adjacent to the circumference, adapted to be driven by the air currents so as to rotate the disk, the air discharged from the vanes being led or deflected by suitable means away from the face of the observer behind the disk.

The planes of the vanes are preferably perpendicular to the face of the disk, and the vanes are so inclined or curved that the air striking the disk and deflected radially on to the vanes escapes substantially tangentially, that is, the vanes are of the radial flow type as distinguished from vanes set on the periphery of a disk and driven by air flowing parallel to the axis of rotation and known as vanes of the parallel flow type. A front plate or wind shield having a suitable aperture for the disk, is preferably arranged to guard the front of the vanes and to assist in the deflection of the air discharged by them outward.

When such a disk is set in a flat surface, say a window or screen, or immediately in front of it to guard it or a portion of it, the air discharged escapes along the face of such surface without the necessity of passing through it to get away.

The arrangement of vanes described works well with the wind at a considerable angle to the normal. Any current of air striking inside the ring of vanes is "favorable".

Several forms of the invention are illustrated by the accompanying drawings.

Figures 1 and 2 are respectively a side sectional elevation and a front elevation of a face guard adapted to be held in the hand.

Fig. 3 is a side sectional elevation of a clear view screen fitted in a revolving hood.

Fig. 4 is a rear elevation of part of a locomotive cab with two look-out screens fitted one inside and the other outside of the cab.

Figs. 5 and 6 are sectional plans on V—V and VI—VI Fig. 4 on a larger scale.

Fig. 7 is a rear elevation illustrating a screen fitted to a different type of locomotive cab look-out window.

In the simple form of the invention illustrated by Figs. 1 and 2 which is suitable for use for example by a look-out man in a crow's nest, on the top gallery of a light-house or in any similar other exposed position a glass disk 1 is adapted to rotate freely on a ball bearing 2 or other bearing carried by a bar 3 fitted with a handle 4. A thin brass rim 5 is spun over the edge of the disk 1 and a number of vanes 6 are brazed to the rim. The vanes 6 extend over the face of the disk. When the guard is held in the wind the disk 1 is rapidly rotated and as the planes of the vanes are parallel to the line of sight they interfere hardly at all with the transparency of the disk where they cross it.

A shield or hood 7 carried by the bar 3 shields the observer's face or binoculars from rain.

When the disk rotates, the air is discharged sidewise by the vanes and not onto the observer's face as would be the case if radially projecting vanes, namely vanes of the parallel flow type, were fitted on the periphery of the disk.

Fig. 3 illustrates the provision of a front plate or wind shield 8 to guard the front of the vanes 6, and to assist in the deflection of the air discharged by them outwardly. In the particular form shown the disk 1 is mounted in a revoluble hood 9 of the type described in the specification of the before mentioned patent. The front plate 8 has a suitable aperture 10 in front of the clear part of the disk and is in spaced relation to the front 19 of the hood so as to form therewith a conduit 20. The front plate 8 also is rearwardly extended as at 14 beyond the outer edges of the hood 9 so as

to leave adequate clearance or an outlet 21 for the discharge of the air which enters the aperture 10, and which is deflected by the disk 1 onto the vanes 6.

5 The provision of a front plate as above described avoids any difficulty which might otherwise arise due to the formation of a cone of compressed and somewhat inert air in front of the hood, which might extend
10 beyond the disk, the area of which is much less than that of the face of the hood. At and behind the forward edge of the hood, on the other hand, there is if anything a reduction of pressure due to the velocity
15 and deflection of air currents escaping past this edge, so that by connecting this low pressure zone to the high pressure zone of compressed air in front of the disk by a conduit such as 20 in which the vanes 6
20 are situated a more active air current is obtained and a more efficient action on the vanes is insured. The course of the air is indicated by arrows in Fig. 3. It is understood that the device is only available with
25 a wind more or less ahead, which however, is the condition under which a clear view screen is required.

In the form of the invention suitable for the ordinary look-out windows of a locomotive, for example as illustrated by Figs. 4
30 and 5, the usual window is removed and replaced by a disk 1 fitted with vanes 6 as aforesaid. The wind guard or front plate for the vanes may be in the form of a casing 11 secured to the front of the usual
35 hood or cab 12 and passing to the roof 13 where it has a rearward extension 14 having a discharge aperture 21 all as shown to the right of Fig. 4 and in Fig. 5; or the front of the hood or cab may be used as the wind guard in which instance, the casing 11 may be fitted inside the hood or cab
40 12 and extend to and pass through one side thereof all as shown in the left hand of Fig. 4 and in Fig. 6. In the former instance the disk 1 rotates on a spindle 15 supported by a bracket 16 cast in one with a ring 17 screwed to the hood or cab 12,
45 whereas in the latter instance the ring 17 is bolted to the casing 11.

The casing 11 Figs. 4 and 5 may be provided with a hole 22 in the lowermost part to drain off any water which may accumulate therein.

55 Fig. 7 illustrates a form of the invention suitable for a particular type of look-out adopted on certain types of locomotive, the existing window 18 having a circular aperture formed in it corresponding to the ring
60 17 which is screwed to the window frame 23 or otherwise suitably supported. A front plate or casing 11 similar in construction to that shown in Fig. 5 is fitted in front of the cab, but extends to and discharges at one
65 side of the hood or cab 12.

In the three forms last described the casings 11 discharge near the roof or sides of the hoods or cabs into zones of relatively low pressure when the cab is exposed to a high wind or traveling at high speed. 70

The invention is capable of many applications in positions where there is an adequate air current to operate the vanes.

I claim:

1. A centrifugal visual weather screen 75 comprising a rotary transparent disk, radial flow vanes on said disk, adjacent to the circumference thereof adapted to be driven by the air impinging on the face of said disk and deflected by said vanes tangentially out- 80 ward.

2. A centrifugal visual weather screen comprising a rotary transparent disk, vanes on said disk adjacent to the circumference thereof, and means for deflecting the air, 85 discharged from said vanes, away from the face of the observer behind said disk.

3. A centrifugal visual weather screen comprising a rotary transparent disk, radial flow vanes on said disk adjacent to the circumference thereof adapted to be driven by the air impinging on the face of said disk and deflected by said vanes tangentially outward, and a plate located in front of and spaced from said disk and formed with a 95 central air inlet opening, there being an air exit opening formed between the plate and the disk and extending beyond the circumference of the latter.

4. A centrifugal visual weather screen 100 comprising a rotary transparent disk, radial flow vanes on said disk adjacent to the circumference thereof adapted to be driven by the air impinging on the face of said disk, and deflected by said vanes outward, and a shield beyond the circumference of said disk, 105 substantially as and for the purpose hereinbefore set forth.

5. A centrifugal visual weather screen comprising a rotary transparent disk, radial 110 flow vanes on said disk adjacent to the circumference thereof adapted to be driven by the air impinging on the face of said disk and deflected by said vanes outward, and a shield beyond the circumference of said disk 115 in the form of a hood having an aperture in the front thereof for the reception of said disk, and means for conducting away the air discharged by said vanes to a position outside said hood, substantially as and for 120 the purpose hereinbefore set forth.

6. A centrifugal visual weather screen comprising a rotary transparent disk, radial flow vanes on said disk adjacent to the circumference thereof adapted to be driven by 125 the air impinging on the face of said disk and deflected by said vanes tangentially outward, and a shield beyond the circumference of said disk in the form of a hood having an aperture in the front thereof for the recep- 130

tion of said disk, and means for conducting away the air discharged by said vanes to a position outside said hood comprising a plate in spaced relation to the front of said hood, the space between said plate and the front of said hood forming a conduit for the air discharged by said vanes.

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7. A centrifugal visual weather screen comprising a rotary transparent disk, radial flow vanes on said disk adjacent to the circumference thereof adapted to be driven by the air impinging on the front of said disk

and deflected tangentially outward, a conduit for the air discharged from said vanes, said vanes being situated in said conduit, and said conduit having a rearward outlet, whereby said conduit forms a connection between the zone of compressed air in front of said disk and a zone of air of relatively lower pressure, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have signed my name to this specification.

SAMUEL AUGUSTINE de NORMANVILLE.