April 28, 1925. 1,535,585

C. J. L. DYER

WINDMILL HEAD

Filed Dec. 22, 1923

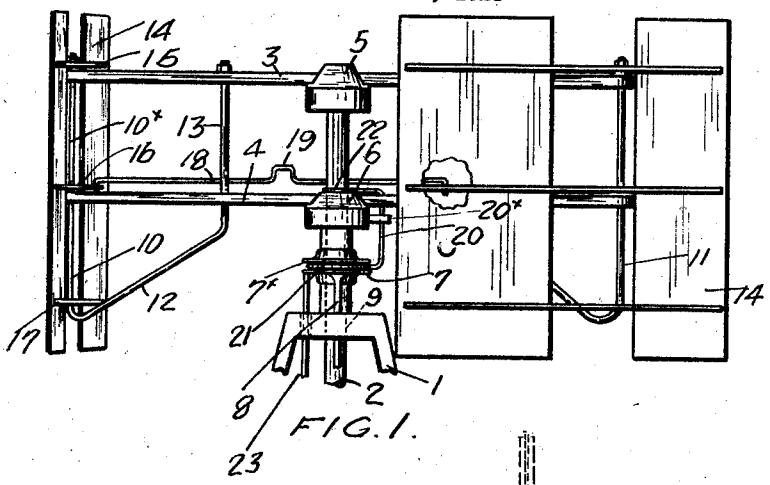


FIG. 1.

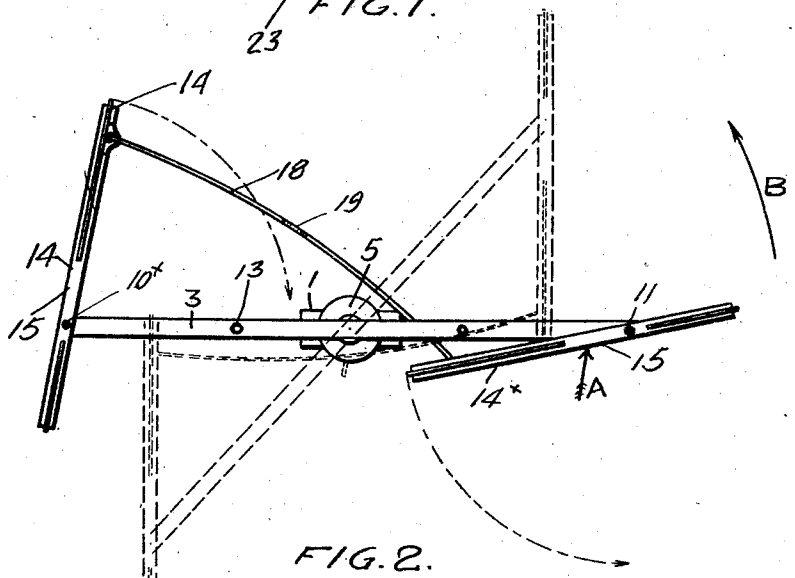


FIG. 2.

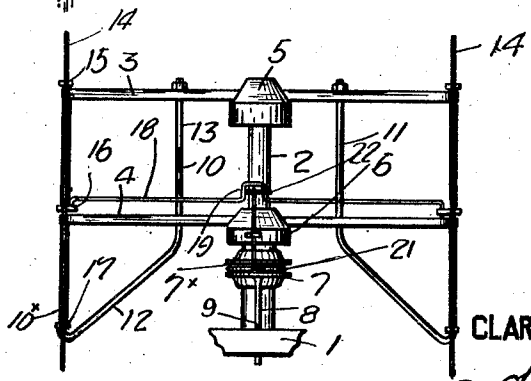


FIG. 3.

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UNITED STATES PATENT OFFICE.

CLARENCE JOHN LAWRENCE DYER, OF KISBEY, SASKATCHEWAN, CANADA.

WINDMILL HEAD.

Application filed December 22, 1923. Serial No. 683,209.

To all whom it may concern:

Be it known that I, CLARENCE JOHN LAWRENCE DYER, a subject of the King of Great Britain, and a resident of the village of Kisbey, in the Province of Saskatchewan, Canada, have invented certain new and useful Improvements in Windmill Heads, of which the following is the specification.

My invention relates to improvements in windmills, and the object of the invention is to devise a simple, easy running construction of windmill which will be simple and cheap to construct and it consists essentially of the arrangement and construction of parts as hereinafter more particularly explained.

Fig. 1 is a side elevation of my windmill head.

Fig. 2 is a plan view of my windmill head showing the vanes in the operative position in full lines, and in the inoperative position in dotted lines.

Fig. 3 is a side elevation showing the vanes in the position they assume when in the inoperative position, that is to say, edgewise in the wind.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 indicates the windmill head base upon which is mounted the main shaft 2 carrying the cross arms 3 and 4, such cross arms being secured to the shaft 2 by means of the enlargements 5 and 6.

7 is a collar slidable upon the shaft 2 and prevented from rotating thereon by means of a depending pin 8 extending through an orifice 9, formed in the base 1.

The collar 7 is provided with an annular groove 7^x.

10 and 11 are the vane supporting frames. Each of the frames 10 and 11 comprises a vertical portion 10^x, extending through the extremities of the arms 3 and 4 and depending from the lower arm and provided with an upturned inwardly inclined portion 12, terminating in a vertical portion 13 extending through the arms 3 and 4 intermediately of their length.

14 are windmill vanes provided with horizontal bars 15, 16 and 17, swung upon the vertical portion 10^x of the frames 10 and 11 intermediately of their length or at a point intermediate between the centre of the vane and the edge remote from the windward side of the vane.

18 is a link connecting the vanes together at a point adjacent to their windward edges. The link 18 is provided intermediately of its length with an upwardly off-set portion 19 forming a receiving recess, for a purpose which will hereinafter appear.

20 is a rod provided with a looped lower end 21 fitted within the annular groove 7^x. The rod 20 extends freely through a lug 20^x extending from the enlargement 6. The rod 20 extends upward and is provided at its upper end with an eye 22 through which the shaft 2 extends. The eye 22 is normally located directly above the enlargement 6, the collar 7 being located below such enlargement so as to slide freely vertically upward upon the shaft to and from the enlargement 6. When the vanes are set in the inoperative position or edgewise in the wind, the recess formed by the off-set portion 19 is directly above the horizontal portion of the rod 20 so that when the rod 20 is raised it enters such recess, and holds the vanes definitely in their inoperative position. In order to elevate the collar 7 and the rod 20 carried thereby, I provide a depending rod 23 extending downward through the base 1, to a suitable location to be manually operated.

When it is desired to operate the windmill, the rod 23 is pulled downward so as to carry the rod 20 out of the recess formed by the off-set portion 19. The vane 14^x then swings into the wind, that is to say, so that the wind pressure operates in the direction of arrow A.

The vane is operated upon by the wind pressure in the position shown in Fig. 2, rotating the windmill in the direction of arrow B, the vane 14 travelling edgewise against the wind until the wind pressure is exerted upon the face thereof as it approaches the position of the vane 14^x illustrated in Fig. 2.

When it is desired to render the windmill inoperative, the rod 20 is raised, and when the vanes come into an edgewise position with the wind, the recess formed by the off-set portion 19 assumes a position vertical over the horizontal portion of the rod 20 into which such rod enters, thereby locking the vanes in such position, or the position

illustrated by dotted lines in Fig. 2, so that no driving pressure can be exerted by the wind upon the faces of the vanes.

What I claim as my invention is:

1. In a windmill head, the combination with the main shaft and a journal support therefor, of an upper and lower cross arm set diametrically and mounted centrally upon the windmill shaft, a rectangular vane pivotally mounted at points adjacent its upper edge and centre upon the extremities of the aforesaid bars and at each end thereof and in such a position as to provide a short vane arm extending in one direction, and a long vane arm extending in the opposite direction, the vanes being also set oppositely in directions one to the other, a link connecting the long arms of the vanes together, and manually controlled means for adjusting the vanes into and out of the wind.

2. In a windmill head, the combination with the main shaft and journal support therefor, of an upper and lower cross arm set diametrically and mounted centrally upon the windmill shaft, a rectangular vane pivotally mounted at points adjacent its upper edge and centre upon the extremities of the aforesaid bars and at each end thereof and in such a position as to provide a short vane arm extending in one direction and a long vane arm extending in the opposite direction and spaced apart intermediately of the windmill vane to form an intervening opening between the arms, the vanes being also set oppositely in direction one to the other, a link connecting the long arms of the vanes together, and manually controlled means for adjusting the vanes into and out of the wind.

3. In a windmill head, the combination with the main shaft and a journal support therefor, of cross arms carried centrally of their length by the main shaft, rectangular vane members swung upon the ends of the cross arms at the side of the centre remote from the windward edge, a link connection extending between the vanes adjacent to their windward edge, an annular collar carried by the main shaft, a pin depending downwardly from the collar extending freely through an orifice in the journal support, a rod having an annular lower portion fitting the groove of the collar, an annular upper portion surrounding the main shaft and adapted to be moved vertically so as to engage the recess formed by the off-set of the link.

4. In a windmill head, the combination with the main shaft and journal support therefor, of an upper and lower cross arm set diametrically and mounted upon the windmill shaft, a rod bent into U shape having its base inclined upward and having its arms extending through the cross arms at each end at points adjacent their extremities and centre so that the long arm of the U depends below the lower cross arm, a rectangular vane pivotally mounted upon the long arm of the U at points adjacent to the extremities of the cross arms and the lower extremity of the long arm of the U, and in such a position as to provide a short vane arm extending in one direction and a long vane arm extending in the opposite direction, the vanes being also set oppositely in direction one to the other, a link connecting the long arms of the vanes together, and manually controlled means for adjusting the vanes into and out of the wind.

CLARENCE JOHN LAWRENCE DYER.