

(No Model.)

T. SNOW.
WINDMILL.

No. 472,557.

Patented Apr. 12, 1892.

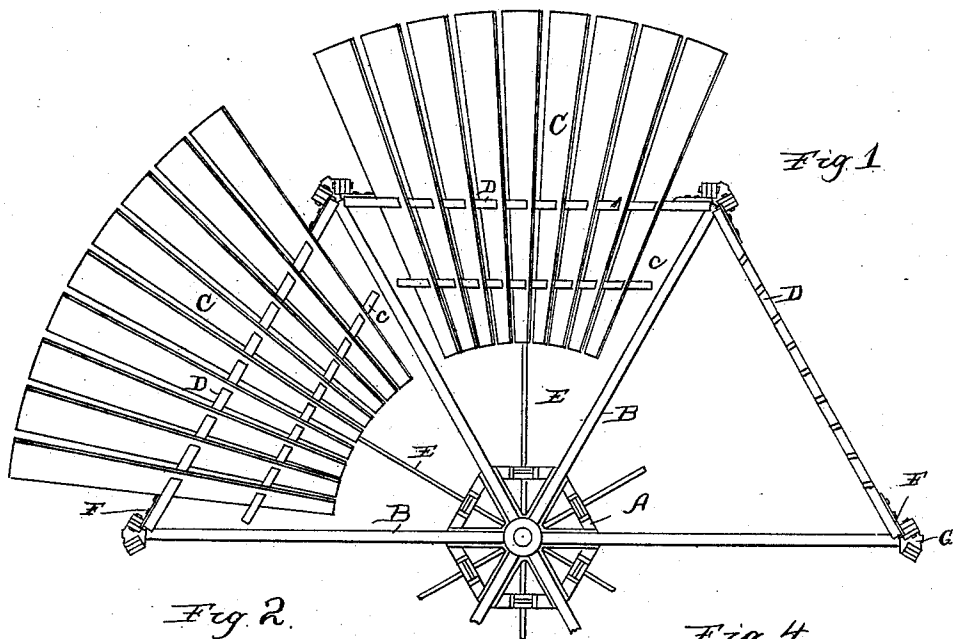


Fig. 2.

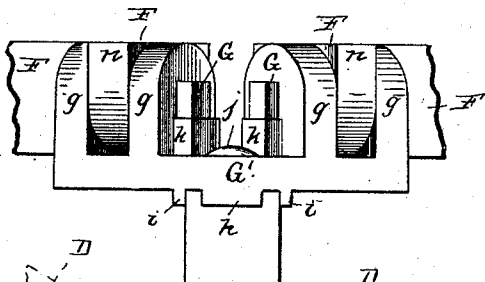


Fig. 4.

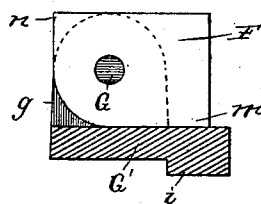
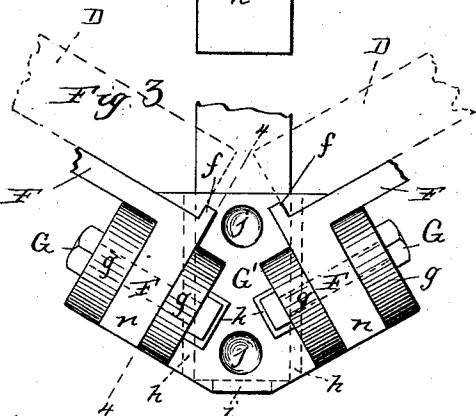
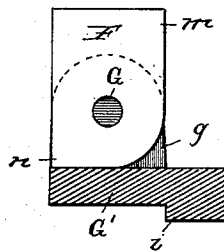


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS SNOW, OF BATAVIA, ILLINOIS.

WINDMILL.

SPECIFICATION forming part of Letters Patent No. 472,557, dated April 12, 1892.

Application filed July 31, 1891. Serial No. 401,275. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SNOW, a citizen of the United States, residing in Batavia, in the county of Kane and State of Illinois, have
5 invented a new and useful Improvement in Windmills, of which the following is a specification.

This invention relates to that class of windmills the wheels whereof are composed of a
10 permanently - vertical frame and vanes arranged in groups or sections and supported upon pivotal bars, so as to be swung into planes at angles to the plane of the wheel when the mill is to be thrown out of wind.

15 My object in the invention is to devise a construction which will prevent end-play of the pivoted bars, thereby obviating an annoying source of noise in the operation of the mill, and which will also facilitate and save
20 labor in the building of the mill.

The details of my invention are fully shown in the accompanying drawings, wherein—

Figure 1 is a partial elevation of a wheel constructed according to my invention. Fig.
25 2 is a plan view showing the pivotal devices employed for the pivot-bars. Fig. 3 is an elevation of the parts shown at Fig. 2. Figs. 4 and 5 are sections upon the line 4 4 of Fig. 3, Fig. 4 showing the position occupied when the
30 vanes are in wind, and Fig. 5 showing the position when the vanes are out of wind.

In said drawings A represents the spider of the windmill, and B the radial arms thereof.

35 C C indicate the vanes, which are arranged in groups, as shown, and are carried in the pivoted bars D and stayed by the stay-pieces c.

E may represent the levers or rods for turning the vanes into and out of wind. At each end the bars D carry castings having each an
40 ear F, through which are openings adapted to receive the pivot-bolts G. The ear-castings F have clips or projections *f*, adapted to be used in positioning the ears upon the bars, said projections *f* setting up against the end
45 of the bar. Upon the ends of each of the radial arms B is secured a casting G', upon which are formed at each side two recesses G², transverse to the casting and to the bars D. These recesses may be formed by up-
50 standing ears *g*, each pair of these ears having space enough between them to receive the ear

F of the pivoted bar and being also pierced to admit the pivotal bolt G. The two pairs of ears *g* are placed at the angles required to each other, so that each pair may form a bearing for the end of one of the bars D. The
55 casting G' is provided with end and side clips *h* and *i*, by means of which it may be accurately positioned upon the ends of the arms B without any measurement or laying out, 60
and it is bolted or riveted to the arms by bolts or rivets *j*. Upon the casting G' and immediately under the head of the pivot-bolt is a stop *k*, adapted to prevent any rotation of the
65 pivot-bolt.

The old form of mill was also provided with stops or devices for limiting the pivotal movements of the vanes; but my present invention enables me to so form the castings F and G' as to enable them to serve this purpose. 70
Thus in Fig. 4 the edge *m* of the ear-casting F rests solidly upon the casting G'. This forms a stop to limit the motion of the pivoted bar in one direction. The shoulder *n* of the ear-casting F is shown in Fig. 5 as resting upon the arm-casting G' and serving as a
75 stop to the movement of the pivoted bar in the other direction.

In putting my improved wheel together it is only necessary to cut the arms B and bars
80 D to accurate and uniform lengths. All the rest of the parts can be applied to the arms and bars without any special fitting and without making any measurements, and the metal parts are such as can be cast in form and put
85 together without special fitting.

The whole wheel may be assembled by unskilled labor, and if the arms and bars are of the proper length it cannot fail to go together properly, and when put together the vane-
90 sections will be uniform and perfectly balanced and all move upon their pivots with the same ease. It will be noticed, also, that while the wheel is braced instead of being tied or drawn together, as in the old construction, 95
there are no parts to become loose, and the end-thrust is guarded against in both directions, so that the noise made by the old mills after they become a little worn is wholly prevented.

I claim—

1. In a windmill, the combination of the

radial arms, castings G', carried thereby and having recesses extending transverse to the casting and formed between ears *g* thereon, vane-carrying bars D, castings F, supporting
5 the latter and having ears extending transversely to said bars, fitting said recesses and adapted to prevent longitudinal play of the vane-bars and loosening of the parts, and pivot-bolts G, passing through the ears, sub-
10 stantially as set forth.

2. In a windmill, the combination of the radial arms, castings G', carried thereby and having recesses extending transverse to the casting and formed between ears *g*, vane-car-
15 rying bars D, castings F, supporting the lat-

ter and having ears extending transversely to said bars and fitting said recesses, stops or shoulders *m n*, formed on the castings F and adapted to engage the plate G' to limit the movement of the vane-bars in each direction, 20 shoulders or stops *k*, formed on the plate G' at the side of the ears *g*, and pivot-bolts G, passing through the ears and having their heads locked by the latter stops, substantially as set forth.

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Witnesses:

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