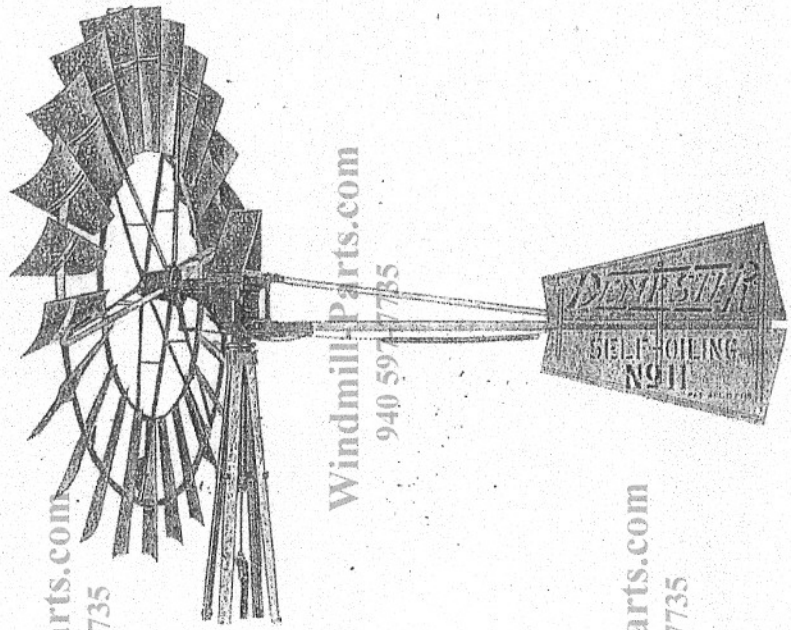
DEMPSTER No. 11 SELF-OILING STEEL WINDMILL



The Dempster Steel Wheel comes in standard sizes. All parts are heavily galvanized after machine work is done so that when assembled they are rust-proof. There are no unprotected raw edges where water can get in and start rust. The Engine and other parts not protected by galvanizing are painted with weather-proof paint.

Note the heavy trussed arms which give the wheel its great strength.

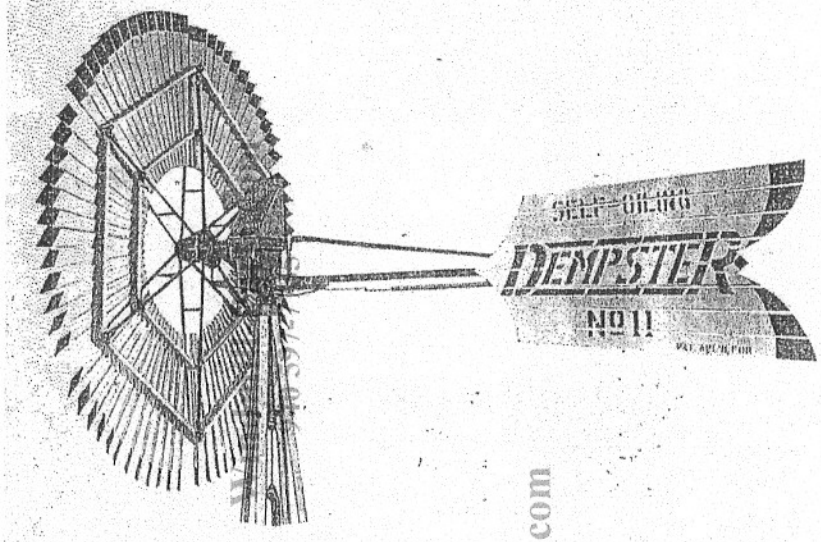
The engine and all parts except the wind wheel and vane are exactly the same as used with our Wood Wheel.

Dempster No. 11 steel mill is made in the following sizes.

Size	Length of Stroke	No Sections	Weight
8 feet	5½ inch.	6	325 lbs.
10 feet	5½ and 7½ inch	6	490 lbs.
12 feet	5½ and 7½ inch	8	692 lbs.
14 feet	7½ and 10 inch	8	940 lbs.

Licensed under Brett patent granted July 31st 1906.

DEMPSTER NO. 11 SELF-OILING WOOD WINDMILL



The Dempster Wood Wheel is made in standard sizes, of clear grain selected material. It is very strong and substantial and is braced with steel arms, which are kept absolutely tight by lock washers. The wheel slats are set in deep slots in the wheel rib. They are nailed securely and will not come loose, even during severe storms. The wheel arms are made of steel, strongly trussed and braced. The wheel is painted two coats of best white lead. Arms and other metal parts are painted with black, weather-proof paint. The ends of the slats are tipped with a broad band of red. The vane stem is steel angle and the vane proper is built up of clear grained material, bolted to the steel angle. The vane is finished in white, with a red tip. The wood wheel and vane can be removed and the steel wheel and vane substituted without any other change.

Dempster No. 11 wood mill is made in the following sizes:

Size	Length of Stroke	No Sections	Weight
10 feet	5½ and 7½ inch	6	495
12 feet	5½ and 7½ inch	8	694
14 feet	7½ and 10 inch	8	820

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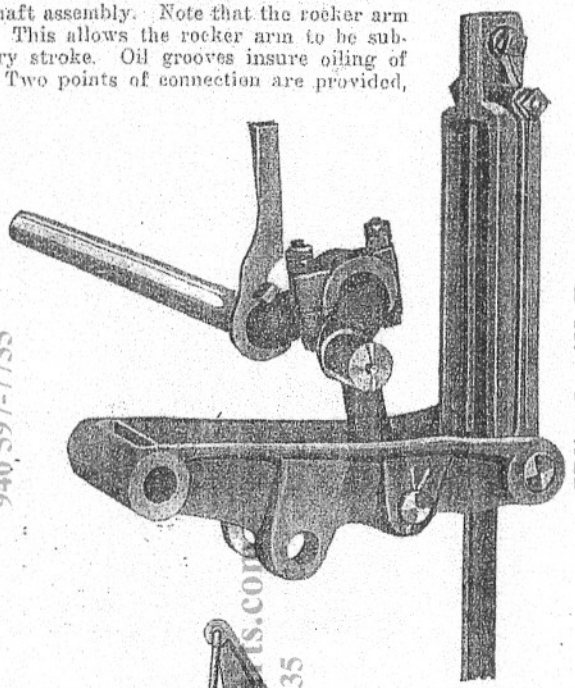
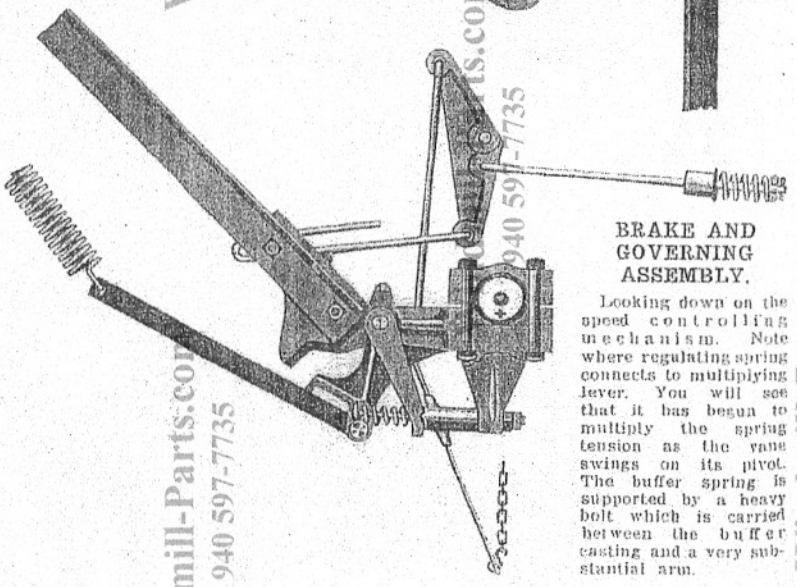
Here is the crank shaft assembly. Note that the rocker arm is below the pitman. This allows the rocker arm to be submerged in oil at every stroke. Oil grooves insure oiling of rocker arm bearing. Two points of connection are provided, which give two strokes. The oil dipper is shown in vertical position in the center of the cut. It goes down into the oil reservoir and carries oil up, depositing it in a receptacle on the main bearing cap. This provides positive lubrication for the crank shaft. The pump rod is securely clamped between the lifter bars which operate in perfect alignment.





BRAKE AND GOVERNING ASSEMBLY.

Looking down on the speed controlling mechanism. Note where regulating spring connects to multiplying lever. You will see that it has begun to multiply the spring tension as the vane swings on its pivot. The buffer spring is supported by a heavy bolt which is carried between the buffer casting and a very substantial arm.

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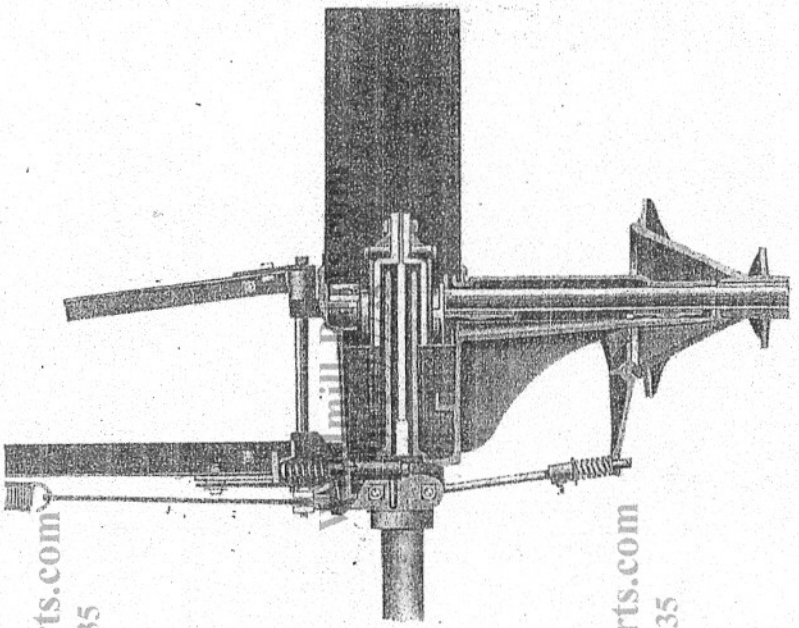

This cut shows how the wheel spider extends over the outer bearing excluding any possibility of water entering the oil reservoir from this opening.

This view of the mill shows part of the main frame cut away, showing the oil channels above and below the wheel shaft, also the self-aligning main bearings. The spring on the brake rod allows the brake to be applied gently, but firmly and compensates for any wear of the shoe or the spider. Note the construction of the vane hinges and method of attaching to main frame.

You will also note the pipe stem is clamped to main frame, as shown in cut, with a heavy clamp and two large double nutted bolts.

CROSS SECTION VIEW

This cross sectional view of the main frame taken through the middle main bearing, shows channel above the shaft through which the oil flows to the bearings, and the channel below, through which it returns to the main oil reservoir.

Also note the heavy ribs which make the main casting very strong.

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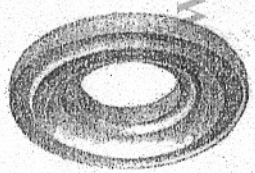
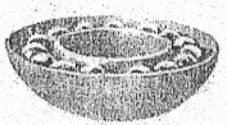
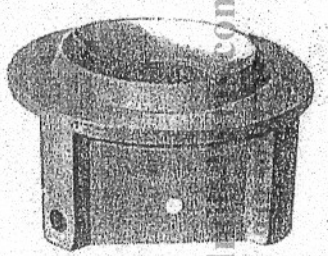
The brake on the Dempster No. 11 acts effectively and with certainty when it is needed but causes no friction or interference with the smooth operation of the mill. This brake is the shoe type and when properly adjusted never needs any further attention. The brake on this mill is only applied by means of the pull out lever at the bottom of the tower and is not applied by the changing positions of the wheel or vane as the windmill continues its work. In this way, there is absolutely no chance for the brake dragging, thereby decreasing the power of the mill.

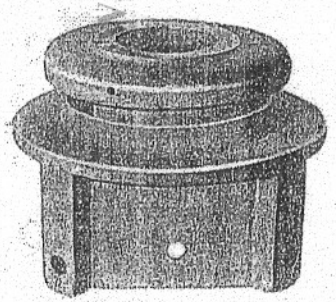
SELF-ALIGNING BALL BEARING TURNTABLE

The cuts on this page show the Dempster Self-Aligning Ball-Bearing Turntable. It is shown assembled at the right, while at the left the two races and balls are separated from the tower cap proper. The races are made of special cast iron, ground to a perfect surface. The lower race has a spherical surface, which fits into a similar one on the tower cap. This insures the even distribution of weight on all the balls. The lips of the top race extend down inside and outside the lower race, forming a weather-proof shield.









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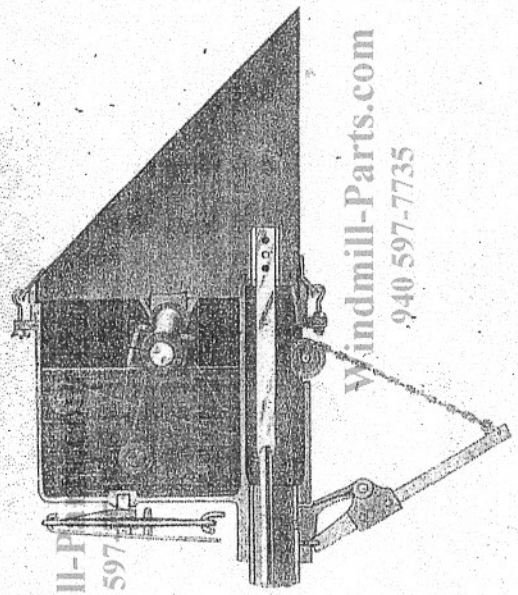

PHANTOM CUT OF ENGINE

End view showing oil reservoir with rocker arm and pitman immersed in oil.

Cut shows just how the mill is oiled. The dipper revolves with the crank shaft, collects the oil on the upward movement and pours it into the oil cup at the inner end of the main bearing cap. This cap has a channel which feeds the oil to the bearings, in this channel is an oil spreader which collects the oil on top of the shaft producing a constant flow of oil to the main bearings.

SELF-ALIGNING BEARINGS

Here are the three self-aligning removable crank shaft bearings. These bearings are of babbitt metal poured into cast iron backs which conforms to approved engineering practice and will be found in high class automobiles. Note the "V" notches that strip the oil from the shaft after is has been used. It then returns to the reservoir. No possibility of oil escaping out along the main shaft.