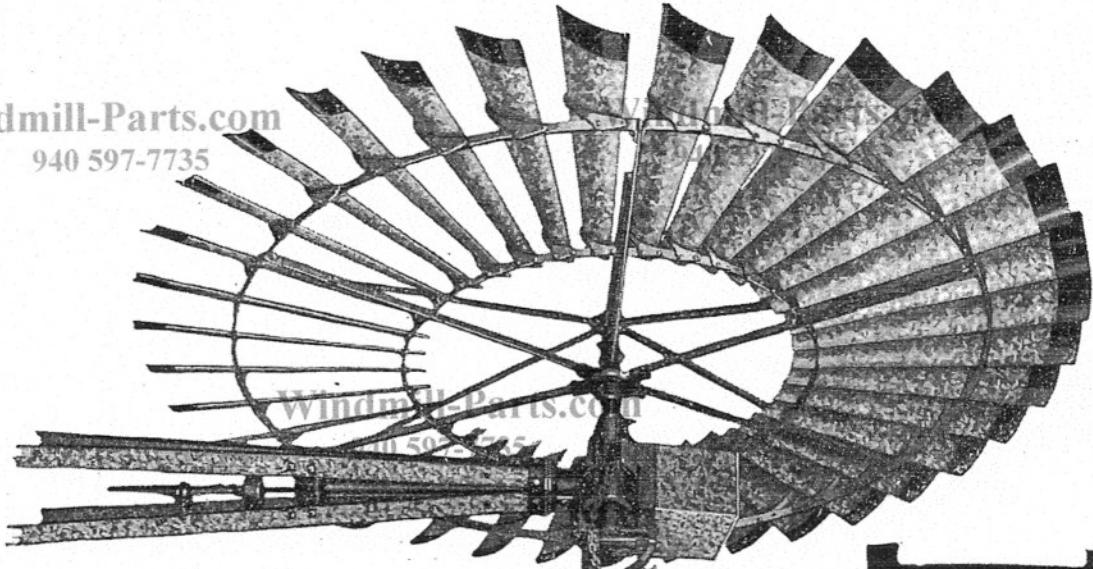
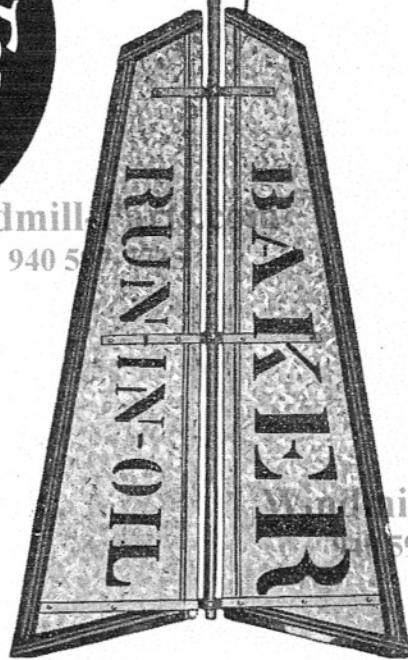


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For
40 Years
We Have Built
Wind
Mills

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BAKIER

Run-In-Oil
Windmills

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Baker Run-In-Oil Windmills

In designing the Baker "Run-In-Oil" Windmill we have had the user constantly in mind. We have eliminated the necessity of having to climb the tower every few weeks to oil the Windmill. The only attention that the Baker now requires is oiling once a year with one-half gallon of Baker Zero Oil.

Our engineers have worked out the most simple construction for a windmill that is possible. We have done away with all unnecessary parts which in time would only become troublesome. The Baker has no complicated "oiling system" but rather all parts are constantly running in a bath of oil. This feature reduces friction to a minimum.

Baker "Run-In-Oil" Windmills will pump water in the lightest breeze. For many years the Baker has been known as the "mill that runs when others are standing still." Our run-in-oil feature makes it even more easy running. The Baker Wheel has more wind surface than any other wheel on the market. This advantage together with the scientific curvature and pitch of the sails enables the Baker to collect the maximum power from the winds. The small and numerous fans make a stiff and sturdy job, capable of withstanding the most severe wind storm.

The Baker "Run-In-Oil" Engine was made to fit the old style wheel and vane. A practically new job may be had by replacing the old open style engine with a "Run-In-Oil," using the old wheel and vane. The Baker complete mill is also easily fitted on other make towers.

TRADE MARK

BAKER

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All windmills manufactured by us bear the trade mark, "Baker." Registered in the United States Patent Office and in Canada.

Broad patents cover all of our goods and are held exclusively for our use.

Back Geared

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**RUN-IN-OIL
WINDMILLS**

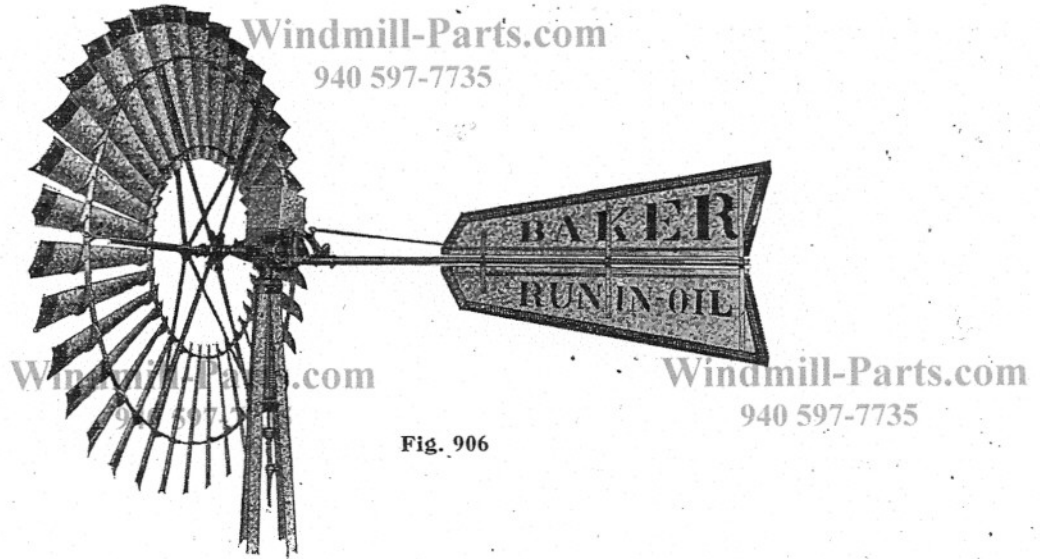


Fig. 906

Back Geared Baker Mills

We can highly recommend our Back Geared Baker type mill for use on any depth well. It is a strong and powerful pumper with smooth easy running qualities. The wheel makes three revolutions to give one complete stroke of the pump rod. All mechanism is thoroughly bathed in oil at each stroke.

The Baker Back Geared wheel differs from the Direct Stroke wheel in that the sails are set more into the face of the wind to give it greater speed, the power being taken care of by the engine gearing. The scientific pitch and curvature of the Baker Wheel combined with our correct engine design give us a windmill which cannot be surpassed.

Double gears and pinions equally distribute the load and save wear and tear on the engine. The Rocker Arm principle gives added leverage and more power. Each working part runs on a film of oil at all times assuring a life time of economical water pumping service.

The experience of our nearly half century of windmill building is incorporated in our "Run-In-Oil" Engines. Every detail has gone to make this the easiest running mill on the market and by far the best for complete satisfaction for all concerned.

Distinctive Features of the

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1. **WORKING PARTS ACTUALLY RUN IN OIL.** There is no complicated oil pump or mechanism used to elevate the lubricant. The Baker has **positive oiling**. With each turn of the wheel every working part is **bathed in oil**. There is no machinery overhead, all mechanism is within the oil bowl. It is only through such positive, thorough oiling as the Baker has that you can be assured of long life of the mill.

2. **LEVERAGE ADVANTAGE.** We use the Rocker Arm principle which gives our Baker Windmill a leverage advantage. This directly aids the mill in easily lifting the pump rod load with less power. If you had a load to lift you would use a crowbar; the Baker Mill uses this principle.

3. **GREATEST NUMBER OF WHEEL FANS.** After long and thorough tests we have produced a wheel which collects the maximum of power from the winds. Material was not sacrificed for price in the making of the Baker wheel, for the prices of the Baker are determined from actual costs and are not competitive. Our 8-foot wheel has an average of 350 square inches more sail surface than other wheels on the market. The Baker's small and numerous fans add to the efficiency and sturdiness of the wheel. In short, we have sacrificed nothing to make our wheels the best that can be offered.

4. **EASILY ERECTED.** It takes but one handyman to erect the Baker. The hub can be easily removed from the shaft. This makes possible the assembly of the wheel on the ground. Thus we save the erector, as far as possible, the unpleasantness of working at an altitude. The tension of our towers is taken care of at the factory.

5. **CENTER LIFT PUMP ROD,** equally distributing the load eliminates side twists.

6. **TWO GEARS AND TWO PINIONS,** thus giving longer life and smoother action.

7. **BALL-BEARING TURN TABLE,** enables the mill to hold itself in the face of the lightest winds.

8. **SIMPLICITY OF DESIGN,** few working parts—nothing to get out of order.

9. **SELF GOVERNING, AUTOMATICALLY** throwing itself out of gear when the wind reaches a high velocity, thus protecting itself from destruction.

10. **OIL-ONLY ONCE A YEAR.** Absolutely noiseless.

11. **STURDY AND RIGID.** The best of materials and workmanship are used.

12. **WILL FIT ANY MAKE TOWER.** Many Baker heads are now running on other make towers.

13. **WILL NOT LEAK OIL.**

14. **A PERFECTED PRODUCT** of over forty years experience.

15. **BEARINGS.** Cold Rolled Steel Shaft running on cast iron is recognized as being the most durable and trouble free bearing in use. This is especially true if the bearings are constantly flooded with oil. This forms a thin film of oil between working parts. All bearings on the Baker Wind Engine are bathed in oil at all times.

Phantom View

BACK GEARED ENGINE

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Construction of this mill is the simplest of any on the market. Note that there is no mechanism above the oil-bowl. This is a distinctive feature of all Baker "Run-In-Oil" Mills. The Baker has positive oiling. All working parts are actually bathed in oil. All bearings are cored and die cast to insure perfect castings. Also drilled and reamed to make them positively smooth. Since all bearings are at all times flooded with oil there will be practically no wear at these points. Each part is thoroughly inspected before leaving our factory. Note extreme sturdiness of hub, bowl and vane casting. Every little detail enhances the simplicity and ruggedness of design. The working mechanism is entirely enclosed by means of a tight fitting galvanized hood, which positively keeps all rain, dust, sleet and snow out of oil bowl.

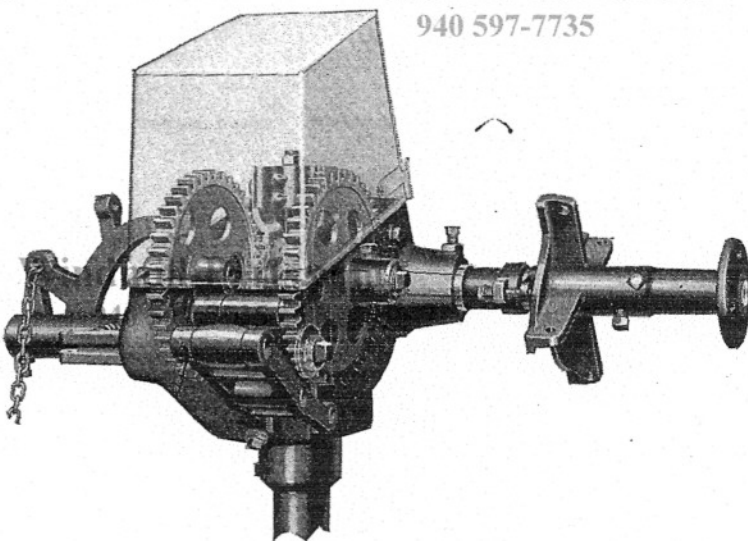


Fig. 6.5A

Entire Mechanism

BACK GEARED ENGINE

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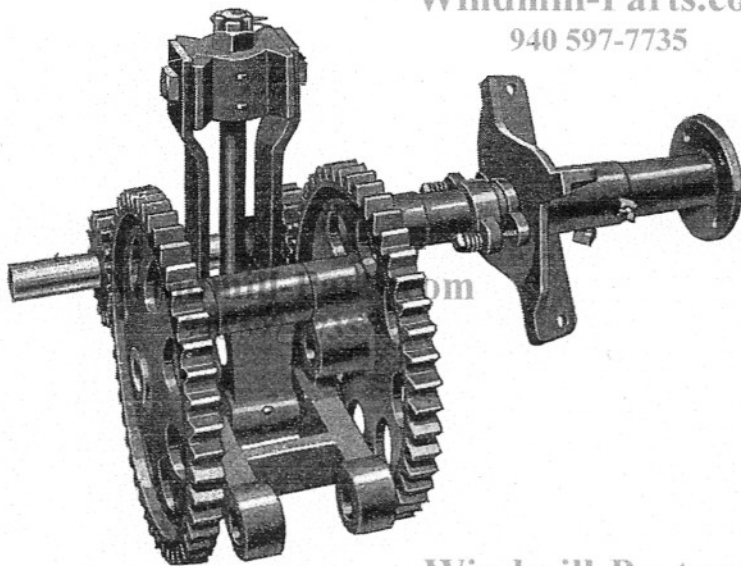


Fig. 6.5B

SIMPLICITY—The keynote of any successful engine is easily perceivable in the Baker. The only working parts are two drive gears, two pinions, rocker arm and pitman. The small pinions are keyed fast to the heavy polished shaft. These pinions drive the large gears each independently of the other. The use of double gears and pinions equally distribute the load so as to do away with undue stress and strain at any one concentrated point. Use of the rocker arm gives added leverage, which means more power. One end of rocker arm is made fast to oil-bowl, the

other end to the pump rod. Note the heavy construction throughout, and the Baker's ruggedness.

Specifications for Baker Back Geared

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Complete row ball bearing Turntable and Truing Center, together with bolts for same, are always furnished with the Mill. Steel Pump Rod and Swivel also oil always supplied with the Mill. The Wood Pump Rod, Pull Out Lever and Platform are shipped with the Tower.

Model of Mill	Size of Mill Feet	Gear Ratio	Wheel Sections	Stroke Inches	Weight Lbs.	List Price	Code Word
6.5	6½	3 to 1	4	5	325	\$ 51.43	ALTON
8	8	3 to 1	6	6	360	56.57	ATLUS
10	10	3 to 1	6	7	475	76.37	ALUM
12	12	3 to 1	8	8	800	135.00	ALWAY

For oil requirement see Page 24.

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Warranty

Baker Wind Engines and Towers are constructed of good material in first-class manner and warranted not to blow down in any wind that does not damage substantial structures in the immediate vicinity (if properly cared for); to run in less wind and to do more work in the same wind than any other mill made. Should any Baker Windmill competently erected blow down within one year from time of erection, without the derrick or tower going down with it, we will furnish a mill or repairs free of charge. A defect of any one article to affect the purchase of that one article only.

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Advertising Aid

We will supply free of charge to any dealer, electrotypes or cuts of our products for use in newspaper advertising. We also will gladly furnish upon request descriptive folders, wall hangers, motion picture slides, etc.

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Replacement Jobs

WINDMILL PARTS.COM "RUN-IN-OIL" ENGINES FIT OLD BAKER WHEELS AND VANES

Any Baker Wheel and Vane no matter how long they have been in use may be fitted to the Run-In-Oil Engine. In building the Run-In-Oil Baker Mill we made no change in the wheel and vane connections.

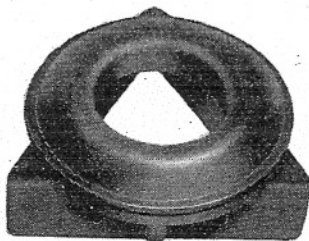
The Baker Mill has been on the market for more than forty years and in some cases the old open style engine is badly worn but the wheel and vane are in good condition. Instead of repairing the old engine replace it with a new Run-In-Oil engine. This makes practically a new mill job and at a very reasonable cost.

For complete satisfaction we recommend that on these replacement jobs, an old Direct Stroke Engine be replaced with a Run-In-Oil Direct Stroke, and a Back Geared with a Run-In-Oil Back Geared Engine.

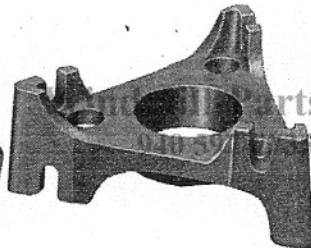
REQUIRED FOR INSTALLING THE "RUN-IN-OIL" ENGINE ON THE OLD WHEEL AND VANE (EITHER DIRECT STROKE OR BACK GEARED)

Article	List Price
1—8 Foot Run-In-Oil Engine complete.....	\$23.50
1—Steel Pump Rod and Swivel.....	4.50
For 8 Foot Replacement Job complete.....	\$28.00
1—10 Foot Run-In-Oil Engine complete.....	\$27.00
1—Steel Pump Rod and Swivel.....	4.50
6—Angle Wheel Braces.....	3.60
For 10 Foot Replacement Job complete.....	\$35.10

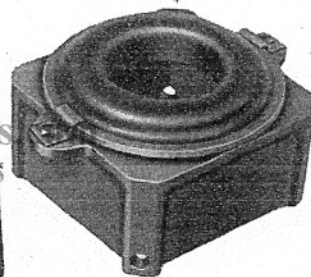
Baker Mills Fit Other Towers



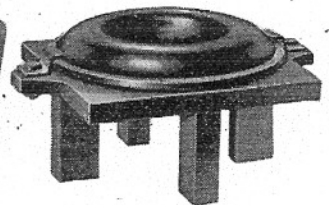
TT3P



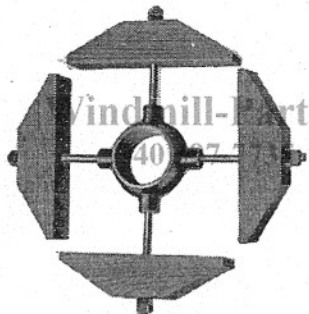
TC3P



TTS

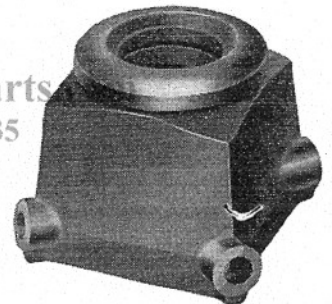


TTW



TCW

We here illustrate our special complete row Ball Bearing Turntables and special Truing Centers. These have been especially designed to enable our erectors to fit the Baker Windmill easily on other make Towers. We regularly supply the Baker Turntable (Fig. 565 page 17) with our Mills but will furnish without extra charge any of the above turntables when so ordered.



TTP

Article	List Price
Turntables, TT3P, TTW, TTP, TTS.....	\$2.25
Truing Centers, TC3P, TCW.....	1.25

NOTE—TCW and TTW are used in placing Baker Mill on wood Tower.

Baker Wheels

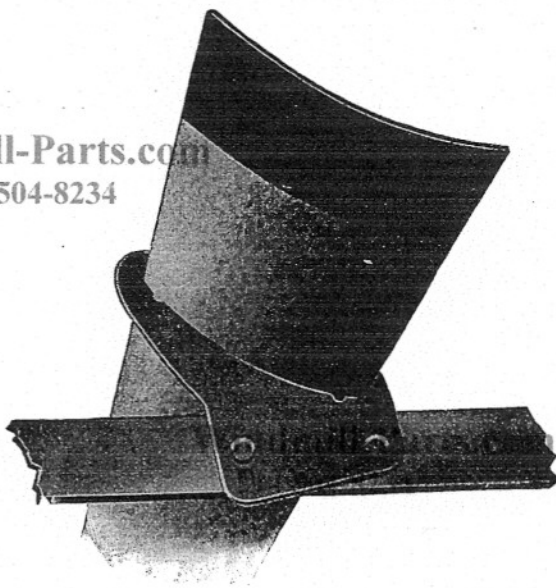


This illustration shows section of our eight foot wheel which contains six sections of six sails each. Our ten foot wheel contains six sections of five sails each. The sails are made of heavy, stiff galvanized sheet steel, slightly concaved to give them great strength and endurance against high winds. Our wheels are safest in heavy storms, as the narrow sails, when the mill is not in action and the wheel is edgewise to the winds, presents less surface to the storm than wide sails.

We claim superiority in the number of sails used, as it is evident that the more sails used the stronger will be the structure and more evenly will the wind pressure be distributed over the wheel, causing the wheel to run with easy, steady motion. No unsteady, jerky motion as in wheels of larger sails. The chairs,

or brackets used, are stamped out of soft steel, all uniform in size. The arms are set edgewise to the wind and wheel braces are of heavy angle steel, galvanized. All bolts used in wheel are **double nutted**.

This cut shows method of fastening the sails by means of steel chairs. The chair is slipped over the sail to the required position and then by pressure, is securely fastened by special machinery. There are no rivets or other fastenings employed that will work loose and break through the sheet steel. By this construction the sails can in no way get loose. This method is superior to the common way of riveting the sails to the brackets.



Direct Stroke vs. Back Geared Wheels

There is a difference in the pitch of the sails on the Back Geared and the Direct Stroke Wheel. The sails of the Back Geared wheel are set more into the face of the wind. In replacing "Run-In-Oil" Engines on old wheels and vanes we always recommend replacement with the same style engine as the old. Direct Stroke wheels are especially adapted to the Direct Stroke Engine. Back Geared Engines should be equipped with Back Geared Wheels.

The above cuts are of a Back Geared wheel. On a Direct Stroke wheel the sail chair is set up into the lower rivet hole, thus decreasing its speed but giving it more power.

Baker Ball Bearing Turntable and Tower Cap

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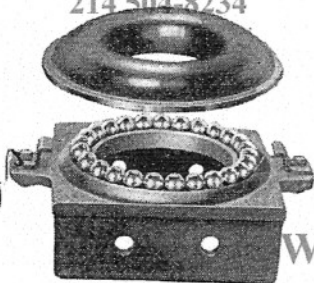


Fig. 565

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A Ball Bearing Turntable as shown in cut is furnished with all our Baker Windmills. The ball race is thoroughly chilled and hardened to give many years of service. Complete row of highest grade ball bearings are used. Balls are 1/2 inch in size and twenty-six are used in each Turntable. The cover entirely covers the balls and ball race. Balls are packed in grease before leaving our factory.

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Removable Bearings

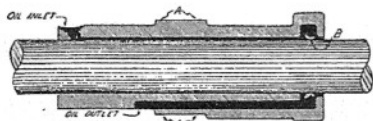


Fig. 566

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Fig. 566 is revealed section illustrating the type bearing as used on Baker Wind Engines. The bearing consists of high grade cold rolled steel shaft running on pure cast grey iron. It has been proven and is today universally accepted that this is the most durable and trouble-free bearing to be had.

The bearing is removable, allowing easy replacement. Figure A denotes bearing surface on oil bowl. Notice the "oil inlet" at upper left end of bearing. The black space denotes oil travel. Figure B is brass ring oil-stop beyond which the oil cannot pass. The oil then flows down and back into the oil bowl through "oil outlet."

There is a constant flow of oil around the bearing. Friction and wear are entirely eliminated as all weight is carried by the thin film of oil which is always between the shaft and the bearing wall.

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Steel Vane

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Fig. 560

Baker Windmill Vanes are oversize which is assurance that the mill will stay in the face of the wind or completely out of the wind as desired. Made extra heavy throughout, it has proven itself capable of giving a lifetime of service.

Steel Pump Rod and Swivel

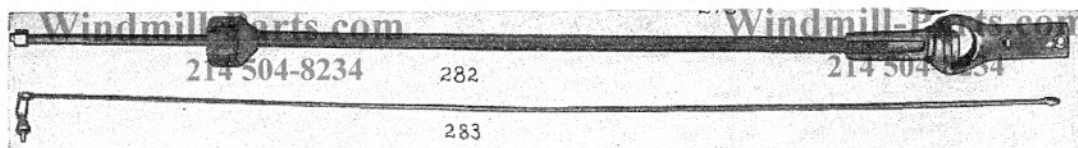


Fig. 282 shows the Heller-Aller Steel Pump Rod and Swivel which has been used on the Baker Mill for a quarter of a century. The improved swivel has a cast umbrella which completely protects it from sleet and ice. It is utterly impossible for our swivel to stick, bind or rattle. It allows the mill to revolve freely on the tower without straining the wood pump rod.

We are proud to say that we have one of the best swivels on the market. All bearings are cast chilled which means a lifetime of service. Snap spring covered oiling device allows easy re-oiling of swivel.

Each swivel is thoroughly packed in grease before leaving our factory. However as this grease might work out in shipping or in storage we ask every erector to be certain each swivel is greased and lubricated at the time of erection. Also please note that there is a flat and a round side to the lower part of the pump rod. The round side goes toward the windmill wheel.

Fig. 283 is our steel pull out rod which is connected at one end to the Mill's pull-out chain; the opposite end being attached to the pullout wire. You will find that this entirely does away with the common annoyance of breaking pullout wires.

Governor Spring



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Fig. 564
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One of the most valuable special features of the Baker Mill is its governor spring. It is so contrived that it insures almost perfect immunity of the mill from injuries in destructive storms. It consists of a steel spring of great resiliency, located at the center of the vane frame. Its strength is of such a character as to hold the wheel in the teeth of the wind under all ordinary conditions and yet yield gracefully under great pressure. Regulation to be effective, must be: easy, quiet, involve no working parts and be absolutely instantaneous.

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214 504-8234 Spring Buffers

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Fig. 561

The vane casting is equipped with two spring buffers. One to cushion the stopping of the vane into the wind and the other out of the wind. This relieves the parts of severe strain when coming to their limits when mill is governing or thrown in and out of gear.