

CHALLENGE CO.
BATAVIA ILL.
U. S. A.

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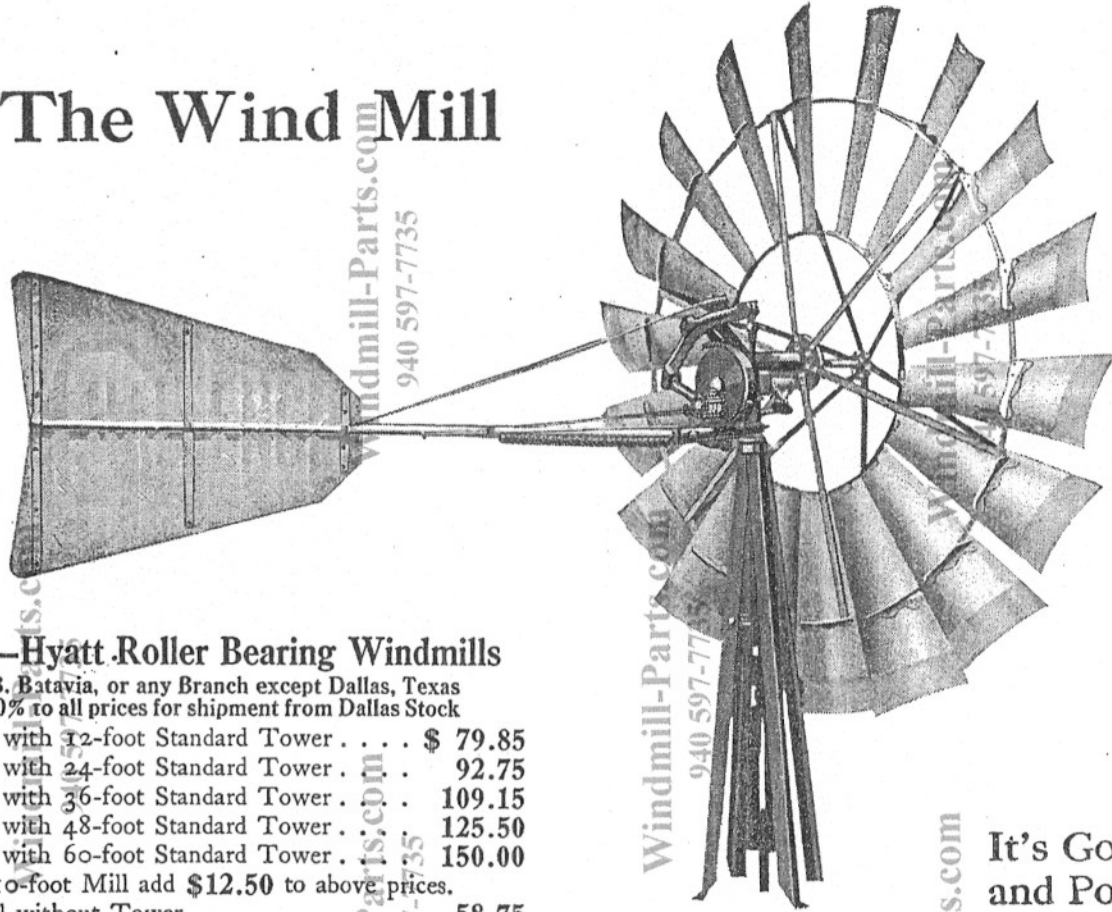
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The Wind Mill



Prices—Hyatt Roller Bearing Windmills

F. O. B. Batavia, or any Branch except Dallas, Texas
Add 10% to all prices for shipment from Dallas Stock

8-foot Mill with 12-foot Standard Tower	\$ 79.85
8-foot Mill with 24-foot Standard Tower	92.75
8-foot Mill with 36-foot Standard Tower	109.15
8-foot Mill with 48-foot Standard Tower	125.50
8-foot Mill with 60-foot Standard Tower	150.00

For 10-foot Mill add \$12.50 to above prices.

8-foot Mill without Tower	58.75
10-foot Mill without Tower	71.25

Deduct \$12.50 from the above prices if windmill is equipped with the wood self-oiling bearings in place of the Hyatt Roller Bearings.

WIND, that invisible current of air, is without doubt the cheapest power known for pumping water on the farm for stock and home. It is available everywhere, but to utilize it and get the best results a WIND MILL of suitable size is required. Unlike other machinery on the farm, however, a wind mill is erected on a tower away up out of observation and is generally neglected, therefore it is necessary to have one with as few working parts as possible; that will require oiling but once every one or two years, and automatically takes care of itself in the strong winds. In the construction of the CHALLENGE MILL described in this pamphlet these points have been taken into consideration and we have produced the lightest running, simplest and most durable wind mill that has ever been placed on the market.

**It's Got the Pep
and Power**

Challenge No. 2 Heavy Tower—For tower made with 2½-inch angle steel corner posts add 5% to the above prices.

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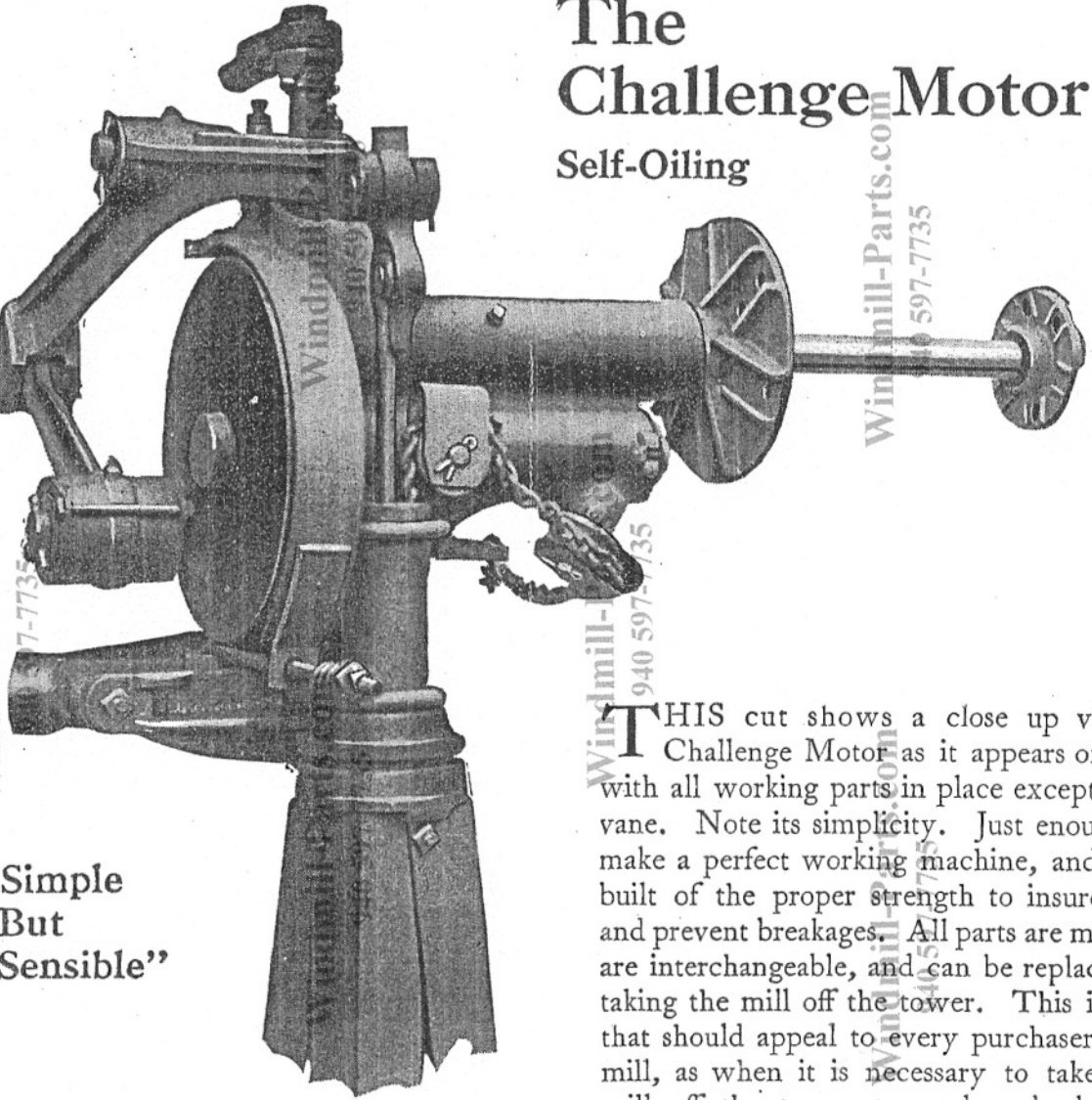
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The Challenge Motor

Self-Oiling

“Simple
But
Sensible”

THIS cut shows a close up view of the Challenge Motor as it appears on the tower with all working parts in place except wheel and vane. Note its simplicity. Just enough parts to make a perfect working machine, and each part built of the proper strength to insure durability and prevent breakages. All parts are made on jigs, are interchangeable, and can be replaced without taking the mill off the tower. This is a feature that should appeal to every purchaser of a wind mill, as when it is necessary to take the wind mill off the tower to replace broken parts it doubles the expense. Buy a CHALLENGE and save this extra money.

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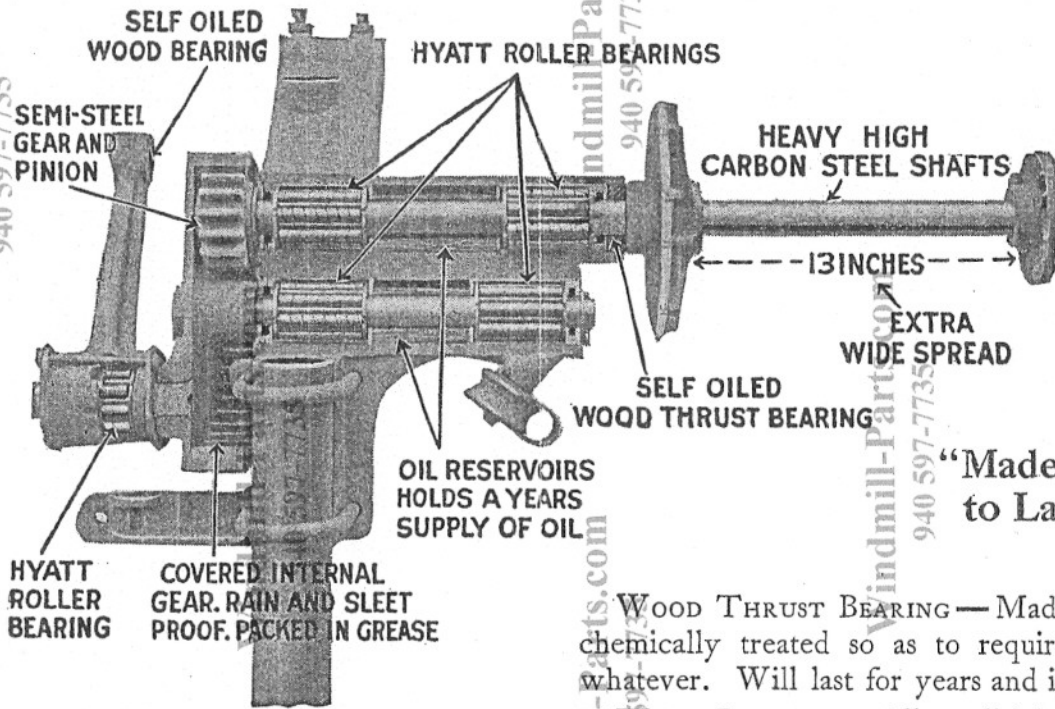
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“Challenge” Hyatt Roller Bearing Mill

Self-Oiling

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“Made Strong
to Last Long”

LIGHTEST running, simplest, and most durable wind mill on the market.

FIVE BIG HYATT ROLLER BEARING — Same as used on your tractor or automobile. These famous bearings run smoothly, never need adjusting or any attention whatever.

TWO LARGE OIL TIGHT RESERVOIRS—Will hold at least one year’s supply of oil. No danger in climbing towers every little while to oil your mill.

WOOD THRUST BEARING— Made of hard wood, chemically treated so as to require no lubrication whatever. Will last for years and is easily replaced.

WOOD BEARINGS—All small joints provided with wood self-oiling bearing. Made of hard wood, chemically treated and will never require oil or grease.

SHAFTS—Extra long. Supported by four substantial bearings. Made of best grade of high carbon cold rolled steel. Won’t wear or cut out.

INTERNAL GEAR AND PINION— Made of Semi-Steel—25 per cent stronger than cast iron. Two inches wide. Both gear and pinion covered to keep out dust, rain and snow. Packed in grease to prevent wear and enable the mill to run in light winds.

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Challenge Hyatt Roller Bearing Mill

Self-Oiling — Will Pump Water for Your Stock and Home — Night and Day — Winter and Summer — Rain or Shine

NO WAITING



NO ATTENTION



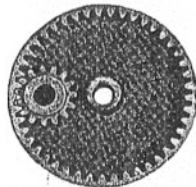
NO EXPENSE

IN THE Challenge Hyatt Roller Bearing Mill the highest achievement in wind mill construction has been realized. These famous bearings are the same as used by large tractor, binder, thresher, automobile, and other farm machinery manufacturers. They are non-adjustable, eliminate the need of constant attention, and will never bind or squeak. Other features which make the CHALLENGE the ideal mill for the suburban home or farm are:

THE MOTOR

The CHALLENGE Motor is shown and fully described on pages 6 and 7. It consists of but SIX working parts, viz: two shafts, one internal gear, one pinion, one rocker arm, and one plunger. Look again at the picture of the motor. A back geared mill could not be made more efficient and simple. All of these parts are made to withstand all the strain and work can place on them without breaking. The base of the motor rests on a turn table bolted over the top of a steel tower and is so perfectly balanced as to turn as easily as the weather vane on your barn that shows which way the wind blows. Special tower caps can be furnished for wood towers or fit any other make of tower if you have an old mill that needs replacing.

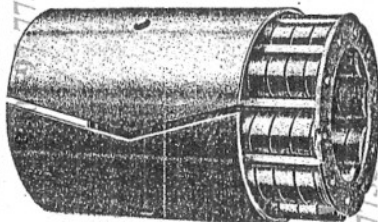
THE INTERNAL GEAR—On the CHALLENGE we use the internal gear. The pinion on the end of the wheel shaft runs in cogs on the inside of the big gear instead of on the outside. On this style gear there are two cogs in mesh at all times, against one on the external gear—dividing the load, therefore there is less liability of breakage. The gear and pinion are entirely covered which makes them noiseless and exclusive and snow. This is another good point of the Challenge Mill—more and better service with none of the noise that makes other mills a constant source of annoyance. The mill is back geared three to one, that is the wind wheel makes three revolutions to one revolution of the gear, or one stroke of the pump. This back gear has been found to give the best results and enables the mill to operate in the light winds.



STRONG, LASTING, NOISELESS

THE GOVERNOR—A good governor on a wind mill is absolutely necessary, otherwise it would be blown to pieces in the strong winds that frequently pass over the country. The Multiplying Spring Governor, same as used on the CHALLENGE for the last 15 years and gave it the reputation of "the most perfectly governed mill made", is used on this mill. It will automatically take care of the mill in the strongest winds that blow and allow the mill to do the maximum amount of work in ordinary winds. You won't have to worry about your mill blowing to pieces if it is a CHALLENGE.

FRICITION BAND BRAKE—A flexible steel band brake, same as used on your automobile, is applied automatically to the rim of the internal gear when the mill is pulled out of wind. It acts effectively and with a certainty when it is needed but never interferes with the smooth operation of the mill at other times.



HYATT ROLLER BEARING AS USED IN WIND MILLS—SHOWN WITH ROLLER ASSEMBLY PULLED PARTLY OUT OF THE RACEWAY SO ROLLER CONSTRUCTION MAY BE SEEN.

LUBRICATION
HYATT ROLLER BEARINGS—All main bearings of the mill are fitted with the famous Hyatt Roller Bearings (same as used on your tractor or automobile) and oil reservoirs that will hold at least one year's supply of oil, which assures complete lubrication, easy running and perfect operation under all conditions. Actual tests have demonstrated that wind mills fitted with these bearings will pump 25 per cent more water in the same breeze than those fitted with the ordinary bearings.

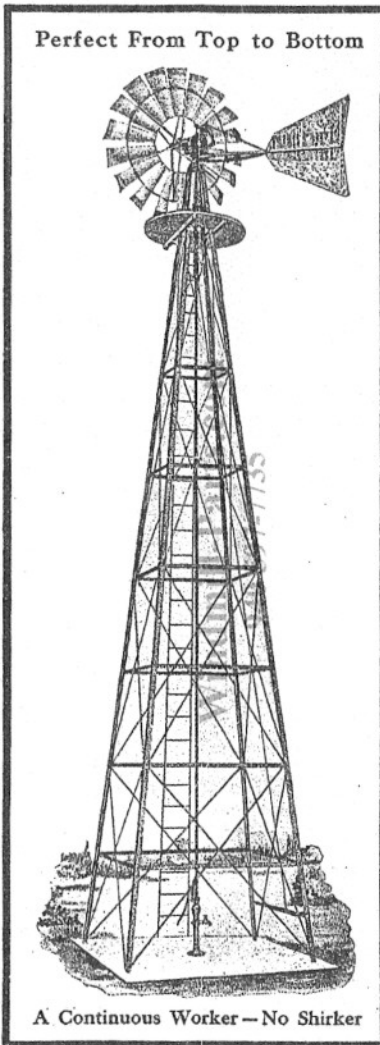
HARD WOOD SELF-OILING BEARINGS—This mill can also be furnished with Self-Oiling Wood Bearings. They are made of wood that has been chemically treated so as to require no lubrication whatever. They cost less than the Roller Bearings, but the mill will not run as easily. These wood bearings are interchangeable with the Hyatt Roller Bearings, that is, if you order a mill with the wood bearings and later on want it fitted with the Hyatt Roller Bearings the change can be made by simply removing the wood bearings and putting the roller bearings in their place. All the smaller bearings on both style mills are fitted with these wood self-oiling bearings.

THE WHEEL

The wheel of a wind mill, like the propeller of a ship, must be fashioned for strength and power and this is where the Challenge wheel excels all others. Strength is secured by using more arms with wide spread at the hub. In an eight-foot wheel there are six arms with thirteen-inch spread. Other sizes of wheels in the same proportion. The sails are made in size and shape to utilize the varied wind forces to the best advantage; and are secured to the rims by means of brackets, which maintain the angle and curvature in correct position.

CHALLENGE SAIL BRACKETS are pressed galvanized steel. The depth of flange against the sail and rim is great enough to secure permanently the union of these parts. The bracket is placed behind the sail in a

Perfect From Top to Bottom



A Continuous Worker—No Shirker

way to reinforce its own strength, and maintain both its angle and curvature. Further to strengthen the sails they are woven or "boarded" near the wide ends, as shown in this cut. This adds much to the resisting power of the sail, as anyone will understand who has examined a piece of sheet metal so treated.

STRONG steel arms each firmly braced carry the rims to which the sails are fastened. In an 8-foot mill, six arms are used, with a spread at the hub of 13 inches. The spread is the distance between the ends of the wheel-arms at the wheel-shaft.

THE RIMS—Both inner and outer rims lie between the sail arms and INSIDE the bridges, the arrangement being such that the OUTWARD PRESSURE OF THE WHEEL IN MOTION ONLY LOCKS THEM THE MORE SECURELY. This makes it impossible for a section to blow out of a Challenge wheel, even should the arm bolts fall out. The wheel is practically self-contained and STORM PROOF.

The whole mill head—the motor and wheel—swings freely so that the wheel can turn fairly into the teeth of the wind, no matter from what direction it may blow.

THE VANE

THE VANE is the device by which the wheel is brought up to, and kept "in the wind". It also has an important part in the control of the mill. The Challenge Vane represents a large wind surface. The blade is reinforced by a HEAVY WIRE around its inner and outer margin, and steel bars cross-wise, three upon each side riveted together; then bolted to a steel tube which connects with vane hinge.



VANE

A brace rod on top supports the vane and prevents it from sagging. It is BRACED FROM THE SIDE by the governing spring itself, also a ROD BRACE in addition to the governor spring, making it impossible for the vane and wheel ever to get together. Withal it is a very staunch rudder to steer and hold the wheel to the wind and protect it from calamity in destructive wind storms.

GALVANIZING—The entire wheel and vane are thoroughly galvanized after the parts have been formed and punched so as to leave no uncovered edges or rust. In addition to this the tips of the slats are painted a hard-boiled green, making the prettiest and most attractive mill that has ever been placed on the market.

"STANDARD" STEEL TOWERS

The Challenge "Standard" Four Post Galvanized Steel Tower is another advance in modern wind mill building. It will stand the most severe strains that a wind mill is subjected to without buckling, one of the troubles most feared in towers. It is made in 12-foot sections with girts every six feet, which makes it very convenient and easy to build up from the ground, one section at a time.

The corner posts are two inch by one-eighth inch galvanized angle steel, diagonally braced with heavy round braces and angle steel cross girts. The braces are made of heavy round steel rods with loop on each end and end twisted around the rod itself. They are fastened to the cross girts by a lightener which makes it possible to always keep the braces drawn up perfectly tight. Braces and cross girts are thus bound together, making the tower rigid and strong and overcoming the usual vibration and rattling. The material used in its construction is the best and of the proper size and weight to make a tower that is as near indestructible as possible.

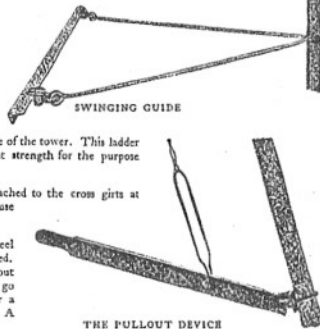
All parts of the tower, (except the platform) are thoroly GALVANIZED which prevents rust and makes it finish that will last a life-time.

ANCHOR POSTS—A Steel Tower must be securely anchored at the bottom in order to prevent it from being blown over by the strong winds that frequently pass over the country. Challenge Towers are furnished with 6-foot galvanized anchor posts with heavy galvanized angle steel cross pieces which can be securely anchored in the ground so that it will be impossible to pull them out.

LADDER—A regular ladder is placed on one side of the tower. This ladder is made of angle steel sides and cross bars of sufficient strength for the purpose it is intended.

SWING GUIDES for the pumping rod are attached to the cross girts at one side of the tower, one set in each section. The use of this style guide overcomes vibration and friction.

THE PULLOUT is the device by which the wheel is thrown out of the wind when pumping is not desired. There is no windlass to wind up or ratchet to wear out and slip, but a single lever to pull by, a casting to go on a corner post of tower (either steel or wood) for a hinge to the lever and a link to attach the wire to. A child can operate it.



THE PULLOUT DEVICE

STEEL BRACKET

END OF SLAT