



DEMPSTER

*"A Guarantee of Quality,
Service and
Fair Treatment"*

Combination Catalogue

B

1928

Dempster Mill Mfg. Co.

Factory and General Offices

Beatrice, Nebraska

BRANCH HOUSES

Kansas City, Missouri

Denver, Colorado

Omaha, Nebraska

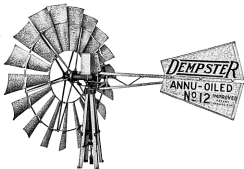
Oklahoma City, Oklahoma

Sioux Falls, South Dakota

Amarillo, Texas

DEMPSTER Annu-Oiled Windmills**Guarantee**

We guarantee Dempster windmills and towers to be of the best material and to be constructed in the best and most workmanlike manner. They are guaranteed against breakage from defective material or faulty workmanship for one year from date of purchase. If any part breaks from these causes we will replace it free of charge f.o.b. factory.

DEMPSTER**No. 12 Annu-Oiled Back-Geared Windmills**

The Dempster No. 12 windmill was designed and built after years of investigation and actual service tests and embodies all of the important features requisite to increased power and efficiency at a minimum cost, both in investment and upkeep.

The records of the United States Weather Bureau show that there are more hours in the year when the wind blows from 8 to 10 miles an hour than at any other rate. To be of the greatest service, a windmill must make use of the most general winds. The No. 12 does this.

The maximum pumping power of any windmill is reached in a wind of about 30 miles an hour. The Dempster windmill with the ball-bearing turn-table,

offset wheel, proper position and size of the vane and the correct weight tension spring make a combination that regulates the speed and makes an efficient windmill in winds of any velocity. This combination keeps the wheel in the proper position to take advantage of the lighter winds and protects the mill, tower and pump from being torn to pieces in winds of higher velocity.

The working parts of the Dempster No. 12 are built to withstand wear with Timken roller bearings on the wheel shaft and with a positive oiling system, making a windmill which will give years of efficient and economical service.

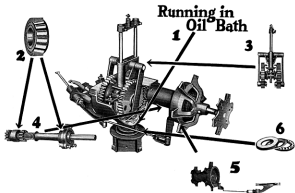
Made in the following sizes:

Size.....	feet	6	8	8 Special	10	12
Length of Stroke.....	inches	5	5½	5½, 7¼	5½, 7¼	8, 10, 12
Gear Ratio.....		4 to 1	3¼ to 1	3 to 1	3 to 1	3 to 1
Number of Sections.....		5	6	6	8	8
Oil Necessary.....	2½ Pints	3½ Pints	3½ Quarts	3½ Quarts	4 Quarts	4 Quarts
Weight.....	pounds.	290	395	450	525	885

Prices upon application.

DEMPSTER

No. 12 Main Gear Assembly



1.—The Dempster No. 12 is positively and completely self-lubricating. It is not necessary to climb the tower every week or two to keep this mill oiled. Oil it once a year. The gears run continuously in a bath of oil. The special step-up process keeps every moving part of the mill perfectly lubricated at all times.

2.—The main shaft is equipped with Timken roller bearings. These bearings are tapered (cone shaped) to take up all end pressure. Use of the Timken bearings adds durability to the mill, makes it more compact and easy running. This easy running feature means that the Dempster No. 12 will start and actually pump in the lighter winds. The shaft, protected from wear, as it is, should last the life of the mill and so will the bearings.

3.—This cut shows plainly how the crosshead is perpetually oiled. Oil from the oil carriers drips into the pan on the crosshead. Holes in the pan allow the oil to flow on the guide rods on each up stroke. The crosshead in turn strips oil from the guide rods which oils the wrist pin. Part of this oil flows across to the other guide rod. All gears are machine cut, which makes a smoother, easier running mill.

4.—The main shaft runs on Timken roller bearings. The bearings take all the thrust and wear from the shaft and the automatic take-up spring provides for any wear in the bearings. No adjustment will ever be necessary. You will never have to replace the Dempster No. 12 main shaft because of wear.

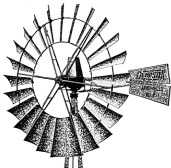
5.—This is the Dempster Internal Expanding Brake. A pull out lever at the bottom of the tower is used for braking instead of depending on any action of the wind. This brake will not drag. It will do the work right just as long as the mill lasts.

6.—This illustration shows the ball bearing turn table. This permits the windmill to follow the breeze with the least possible resistance, preventing squeaks and chattering in the ever changing winds.

7.—Although the self-regulating feature cannot be illustrated here, it deserves special attention. The Dempster No. 12 is so constructed that it automatically turns into the wind to take advantage of the slightest breeze and turns out of the wind when the velocity is so great as to cause damage to the mill, tower or pump. This feature gives proper regulated pumping speed.

DEMPSTER

No. 15 Annu-Oiled Direct Stroke Windmills



The Dempster No. 15 windmill is built for those who prefer a direct stroke mill. This mill was made with the same consideration for service and durability as the No. 12 mill. It is built right, with Timken roller bearings on the wheel shaft and with a positive and convenient oiling system. It is only necessary to change the oil in this mill once a year to insure proper lubrication.

Tests in the Dempster factory and years of service under actual working conditions have proven that the steel wheel on this No. 15 mill is scientifically correct. This wheel, with its properly pitched fans and strong steel arms, in combination with a vane of the proper size and shape, working with the right vane regulating spring and ball bearing turn table, make a mill that is efficient in any wind.

The principle of this direct stroke mill is to make

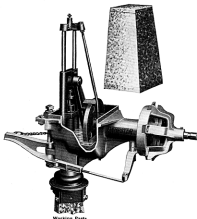
one revolution of the wheel to every stroke of the pump rod, eliminating all gearing or other parts found in a beak geared mill which makes several revolutions of the wheel to one stroke of the pump rod. The Dempster No. 15 windmill is most simple in construction having only 5 working parts when the mill is actually in operation.

The Dempster No. 15 windmill is equipped with two Timken roller bearings on the wheel shaft. These bearings absorb all end thrust and are held in place by the substantial engine frame. A special spiral spring on the main shaft works between the two Timken bearings, automatically adjusting the bearings to the slightest wear. This construction is properly lubricated and will give untold years of efficient service.

Made with steel wheel only in the following sizes:



Size.....	feet	10	12
Length of Stroke.....	inches	5½, 7½	5½, 7½, 9½
Number of Sections.....		6	8
Oil Necessary.....	quarts	3	4
Weight.....	pounds	515	790

DEMPSTER**No. 15 Annu-Oiled Direct Stroke Windmills**

1. SIMPLE POWER MECHANISM.—There are fewer working parts in the Dempster No. 15 direct stroke motor; fewer parts to get out of order. Extra heavy construction of each part, plus positive lubrication, insures years of service.

2. CROSS HEAD AND GUIDE RODS.—The cross head is substantial and carries the pumping load without strain. It operates on properly constructed babbitt bearings, made in a way that they may easily be repaired should that ever be necessary. The guide rods are made large and strong.

3. WELL BALANCED ON A BALL BEARING TURN TABLE.—The Dempster wheel responds to the slightest change in the direction of the wind because it is properly balanced on the Dempster self-aligning ball bearing turn table. Special cast iron races, ground to glassy smoothness, insure an even distribution of the weight of the mill.

4. LARGE HEAVY MAIN SHAFT.—The extra heavy main shaft is made of cold drawn steel, 1 5/8 inches in diameter, carefully machined and polished. The bearings take up all the thrust and wear so that the

shaft, the heart of the mill, will always run true. The automatic take-up spring on the shaft keeps the bearings adjusted. Years and years of service will not throw this shaft out of line. Spider securely locked on the shaft with castellated nut and cotter pin, eliminating any possibility of a loose wheel.

5. POSITIVE OILING SYSTEM.—A dipper on the face plate carries oil to the cross head where it is stepped up on the guide rods to the upper pitman pin. A second dipper oils the rear main bearing. A spiral carrier on the main shaft carries oil to the far bearing. A felt washer prevents dust or rain from blowing into the case. A simple but highly efficient device stops the oil at this point and it drains back through the main shaft housing to the oil reservoir.

6. BRAKE WORKS FOR YEARS.—The Dempster Internal Expanding Brake operates like the brake on an automobile. It is applied by the hand lever only and it is not affected by the action of the vase. It cannot drag. The action is positive; when the brake is applied the mill stops—no slipping, no squeaking. This brake will do the work right.

DEMPSTER

No. 14 Annu-Oiled Vaneless Windmills



Wheel Open



Wheel Closed

The Dempster No. 14 vaneless windmill, like the Dempster No. 15, is a direct stroke windmill. This mill will pump water and give complete satisfaction over a long period of time. It is regulated by the wind pressure. The pressure of the wind on the large surface of the outer part of the wheel, working in connection with the regulating spring, controls the speed of the wheel at varied wind velocities. The mill has

no gears and few working parts. All engine parts are completely and thoroughly lubricated.

The Dempster No. 14 is the only vaneless windmill with the Annu-Oiled feature. This mill is equipped with the ball-bearing turntable. These features, together with proper regulation, make it a most efficient and dependable wind motor.

Main Assembly



The illustration above shows the working parts. The oil dipper on the face plate is shown in position to pour oil into oil chute as the wheel revolves. The oil is forced into a U-shaped groove alongside the arm and is carried to the outer main bearing where it is stripped and returned to the oil reservoir. The cross head guide rods and upper pitman are oiled by stepping the oil up on the cross head. The large spring holds the pull-out mechanism in position. These parts move only when the mill is pulled out of the wind.



Wheel Section

Illustration above shows sections and arms with governing spring and folding rod in position. The 6-pointed spider that rotates on the shaft and the wheel sections are the only parts that move in the regulation of this mill.

Acme Windmill Regulators

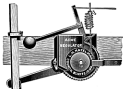
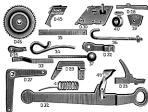


Fig. 400

This regulator keeps the tank full of water without care or attention. It pulls windmill out of wind when tank is full and throws it into the wind when the water in the tank leaves 5 inches. While the mill passes the regulator rests. There is no adjustment required. It can be attached by anyone in half an hour. There are no springs to weaken and nothing can get out of order. One in a crate with screws, fuses and directions. Wt. per box, 19 lbs.

Price.....each \$10.00

Repair Parts for Acme Windmill Regulators



No. of Part	Description	Price Each
D22	Lever Pivot Casting.....	\$4.00
D23	Trip Finger.....	.40
D24	Small Endhook Dog.....	.40
D27	Angle Lever.....	.40
D28	Slide.....	.40
D29	Guide Bracket.....	.40
D30	Back Plate.....	2.00
D32	Lever.....	1.50
D33	Shoave Guard.....	.40
D34	Three Out Trip.....	.85
D35	Pull Out Lever.....	.40
D36	Hook Bolt.....	.40
D37	Weight Lever.....	.80
D39	Clamp Plate.....	.40
D40	Cable Clamp.....	.80
D41	Spring.....	.40
D45	Feet Plate.....	.80
D46A	Hatchet Wheel.....	1.50
D46B	Shoave Cover.....	.40
D45	Complete Shoave, Made up of Part D46A, and D46B Listed above.....	2.00
D49	Lever Dog.....	.40
.....	Cable.....	.80

Triangles



Fig. 406

For operating pumps when the mill has to be erected at a distance.

Triangles should only be used when direct attachment cannot be made to pump.

Price.....each \$6.50

Iron Hoisting Crabs



Fig. 2074

For raising windmill towers, smokestacks, derricks, etc.

Spool can be quickly removed from frame. Graced back 2 to 1.

Shipping weight, 35 pounds.

Price.....each

Dempster Steel Anchor Posts



This is a Dempster Galvanized Steel Anchor Post that will not rot or rust and is so constructed that the tower will be safe in the strongest wind.

A bed of rubble stones or cement should be placed under the anchor plate to prevent tower from settling. Then the hole on the top of the plate is filled with cement, gravel, crushed stone or earth and tamped down.

Anchor posts and plates regularly furnished with steel towers as follows:

- 2-Inch Angle Tower—2x2³/₈ Feet
- 2¹/₂-Inch Angle Tower—2¹/₂x2¹/₂ Feet
- 3-Inch Angle Tower—3x3³/₈ Feet

Can be furnished at slight additional cost as follows:

- 2x2³/₈ Feet
- 2¹/₂x2¹/₂ Feet
- 2¹/₂x2¹/₂ Feet

Anchor posts and plates for wood tower as follows:

- 2x2³/₈ Feet

In ordering specify for wood tower as special holes are required.

DEMPSTER Steel Towers "Stand the Storm"**Rigid Corner Posts**

The corner posts of Dempster towers are made of high quality, heavy angle steel. These corner posts are made of 2x2, 2½x2½ and 3x3-inch angle steel, depending upon the height of the tower and the size and weight of the mill to be used. All corner posts and steel girts are cut to the proper length and punched before being galvanized. This insures a thorough coat of galvanizing, not only on the angle iron, but the bolt holes are also galvanized, preventing any part of the tower from rusting.

Sprung Construction

Dempster towers are built of what is termed sprung construction. This adds considerable strength to the tower. It gives a wider spread at the bottom, that is, the distance between the corner posts at the bottom of Dempster towers is $\frac{1}{4}$ of the height of the tower, while in practically all other towers, the distance is only $\frac{1}{2}$ of the height. This wider spread gives greater strength and more resistance in destructive winds.

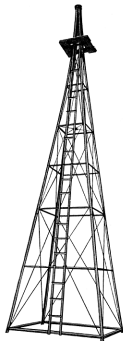
Bracing

Dempster towers are well braced with strong steel girts every 5 feet. The triangular corner plate in each corner, riveted to the steel girts, adds materially to the rigid construction of Dempster towers. The girt bracing is reinforced with heavy twisted galvanized brace wires, adjusted with a galvanized eccentric washer at the end of each brace and further tightened, as desired, by brace tighteners attached to the intermediate steel girts.

The corner posts of Dempster towers are made in 10-foot sections, which makes it easy and convenient, where necessary, to build the tower up from the ground. This construction also makes it just as convenient to construct the tower on the ground and raise it with

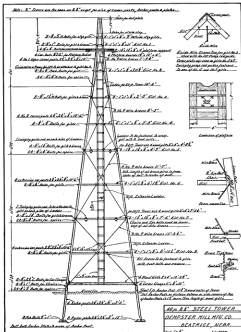
block and tackle. Complete instructions for building and adjusting Dempster towers are furnished in the fitting box of each tower.

Dempster windmill towers and radio towers have earned for themselves an enviable reputation for strength, beauty and durability.



DENPSTER

4-Post Galvanized Steel Towers



Detailed Drawing of 40-Foot 2 1/2-Inch Steel Tower Showing Dimensions and Position of Parts

Height Tower Feet	Weight, Pounds		
	14 and 18 in. Stud	20 in. Stud, Four Post Mass, Feet	14 and 18 in. Stud
20	400	455	530
25	465	not made	not made
30	580	650	755
40	770	860	1065
50	1040	1130	1390

All towers are shipped complete with anchor posts. Be sure to specify when a 14-foot mill is to be used

Height Tower Feet	Weight, Pounds		
	14 and 18 in. Stud	20 in. Stud, Four Post Mass, Feet	14 and 18 in. Stud
60	1350	1440	1685
70	not made	1970	2320
80	not made	2530	3085
90	not made	3190	4155
100	not made	4440	5325

on any Dempster tower, as the holes for storm stay and platform are specially punched.

WELL DRILLING MACHINES

THERE'S MONEY DRILLING

The profitable operation of a well drilling outfit depends first of all upon the machine used. It must stand rough-and-ready usage, giving the utmost in service and needing but the bare minimum of repair. The first cost must present a machine which will call for the least upkeep.

The best recommendation for Dempster Cable Well Drilling Machines comes from the oil fields, where water wells must go down before the oil wells are drilled. There the Dempster machines are pushed fast, 24 hours of the day, and are moved immediately to the next job. It is a tribute to any machine to have a recommendation from this rough-and-ready work.

The standard and accepted friction principle is used in building the Dempster Cable Well Drilling Machines. While the friction drive is positive and certain in action, it eliminates jar and strain which is so destructive where gear-to-gear action is used. The Dempster Cable Drilling Machine can be loaded heavily and worked rapidly with a bare minimum of wear and tear resulting. The Dempster Friction Drive is one of the smoothest and simplest made.

The Dempster is compact, heavily built and effectively braced. The control levers extend out of the rear end of the machine where they are instantly handy for the operator.

Dempster Cable Drilling Machines are built with extra heavy frames strongly braced, with cast iron bridgewashers used on every bolt.

Dempster Gasoline Engines equipped with adjustable sub base can be furnished to mount on these machines. A special adjustable jack shaft with ring oil type bearing for operation with separate engine power can be furnished.

The illustration shows that an idler pulley is not necessary.

Dempster Cable Drilling Machines can be furnished in 3 sizes: Fig. 100 No. 15A for 500-foot work; Fig. 302 No. 18 for 1200-foot work and Fig. 400 No. 20 for 1000-foot work.

Write for the Cable Drilling Well Machine Catalogue. It tells how to make money drilling wells the Dempster way with Dempster Cable Drilling Machines.

The following pages illustrate tool equipment which can be furnished with Dempster Cable Drilling Machines.

The Fig. 100 No. 15A is popular where wells are 500 feet or less in depth. It is a friction drive machine furnished with Dempster Gasoline Engine or jack shaft for operation with separate engine power.

All operating levers are to be found within reach of the operator and so arranged as to make it possible for one man to operate the Dempster Fig. 100 No. 15A.

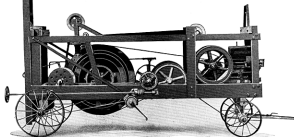


Fig. 100, No. 15A

WELL DRILLING MACHINES

WELLS THE **DEMPSTER** WAY

In certain sections of the country a hydraulic well machine is best suited.

Where soil conditions can be penetrated by either rotating the tools or by jetting the tools, greater speed can be made with this type of a machine. The deepest oil well in the world was drilled with a rotary machine in 1925 in record breaking time. This fact is evidence that the principle of rotating and jetting tools is best when conditions are right.

Dempster has been building this type of machine for 30 years and in that time, 5 types of machines, designed to operate on these principles, have been developed.

The heaviest machine is designed for making wells 700 feet or less in depth.

In certain sections of the country the mounted well auger is used for making wells or for making test holes for foundations, etc.

The Dempster Mounted Well Auger is a rotary h.p. machine, constructed almost entirely of steel and iron. Capable of boring an 18-inch hole 100 feet through clay in 10 hours, if properly operated.

Write for the Dempster Hydraulic Well Machine Catalogue. It tells how to make money making wells the Dempster way.

The following pages illustrate tool equipment which can be furnished with Dempster Hydraulic Machines.

Fig. 300 No. 10 was designed to meet the demand for a hollow rod machine that would rotate or jet the tools.

In many sections of the country where the hydraulic rotating machine is used, light streaks of

hard formations are found, which sometimes cannot be drilled at all without using expensive roller bits.

On this machine, a spudler can be set in motion, and tools dropped approximately 50 drops per minute on an 8-inch drop. An all-tool-steel jetting bit should be used if the tools are dropped. Regular ball-bearing, steel-body, rotating swivel and standard pipe in most cases is strong enough for ordinary work. If the work is too severe, a jetting water swivel with extra heavy pipe, with tool rod couplings and regular jetting bits must be used.

Fig. 300 No. 10 is a hand wheel type, friction-driven machine, which insures long life and low operating expense. Operator can raise and lower derrick by power of machine.

A 4-cylinder pump furnishes a steady, powerful supply of water. Two cylinders can be disconnected if operator desires.

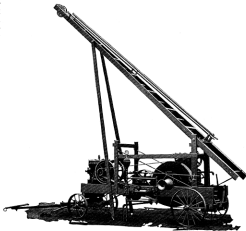


Fig. 300, No. 10