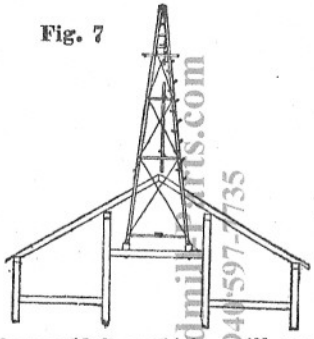
Fig. 7



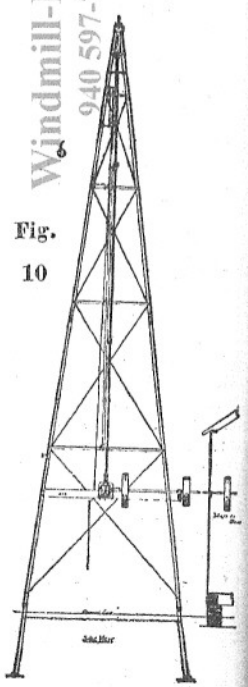
well as if it were erected over your well, or if your well is near where you wish your machines placed you can erect the mill near the well, or at some convenient point between the well and where machines are to be located, and the machines can be operated by pulleys and line shafting extending from mill to barn, or wherever machines may be. The power windmill is never erected directly over the pump, the pump never being nearer than just outside the tower.

In figure 1, page 73, we show how a 13-ft. or 14-ft. mill may be erected on a mast on top of building. The top of the mast should be at least 15 feet above the top of the building, and as much higher as is necessary to place the wheel at least 15 to 20 ft. above any trees, hills, buildings, or anything else within several hundred feet. Figure 7 shows a 30-ft. steel tower for 13-ft. or 14-ft. power windmill erected on top of building. Heavy iron timber plates are bolted to the four corner angles and are set on solid timbers. The tower or mast can be placed in the most convenient position to the machines which are to be driven.

Figure 10 shows side view of a 40-ft. steel tower for 13-ft. or 14-ft. steel power windmill, erected at the side of building, with line shafting extending into the building, which admits of the pulleys being placed in the position required or desired to operate the various machines. The pulley for operating wood saw is usually placed on the line shaft outside the building. We never recommend less than a 40-ft. tower when erected from the ground, and a higher tower will be better because of the greater steadiness and force of the wind at the higher altitudes. In any event the wheel should be at least 15 to 25 ft. above all surroundings within several hundred feet. The only safe exception to this rule is when 13-ft. or 14-ft. mills are erected on small buildings in level countries. List prices, etc., of our towers for these power windmills will be found on pages 75 to 80.

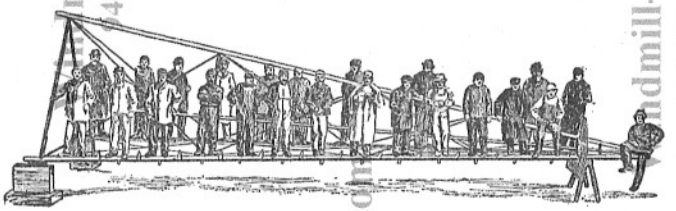
Of course the location of the mill and the machinery which it operates depends largely on the size and kind of building in which the machinery is to be used and the requirements of the user. If the user has plenty of barn room all the machines to be driven are usually placed inside the building.

Fig. 10



THE APPLETON-GOODHUE GALVANIZED STEEL WIND MILL TOWERS.

20-ft. to 80-ft.—3-post or 4-post.



A TEST OF STRENGTH. This drawing was made from a photograph of an Appleton-Goodhue 40-ft. 3-post tower which was supported at the two ends and loaded with 24 men, as shown in the illustration. The weight of these men is certainly a greater strain than can be brought on the tower by any storm.

LIST PRICES, ETC.

Regular Towers for Supporting 6-ft., 8-ft. or 10-ft. Mill.

3-post.			4-post.		
Height.	Weight.	List Price.	Height.	Weight.	List Price.
20-ft.	290 lbs.	$ 30.00	20-ft.	350 lbs.	$ 34.00
30-ft.	410 "	40.00	30-ft.	490 "	44.00
40-ft.	530 "	54.00	40-ft.	660 "	58.00
50-ft.	690 "	66.00	50-ft.	860 "	77.00
60-ft.	870 "	84.00	60-ft.	1110 "	100.00
70-ft.	1135 "	108.00	70-ft.	1585 "	125.00
80-ft.	1390 "	130.00	80-ft	1950 "	150.00

Extra Heavy 4-post Galvanized Steel Towers for Supporting 13-ft. or 14-ft. Mill.

For Pumping Mills.			For Power Mills.		
Height.	Weight.	List Price.	Height.	Weight.	List Price.
20-ft.	465 lbs.	$44.00	20-ft.	450 lbs.	$ 44.00
30-ft.	660 "	58.00	30-ft.	700 "	66.00
40-ft.	870 "	75.00	40-ft.	1110 "	84.00
50-ft.	1125 "	96.00	50-ft.	1460 "	104.00
60-ft.	1415 "	125.00	60-ft.	1800 "	130.00
70-ft.	1730 "	166.00	70-ft.	2215 "	175.00
80-ft.	2075 "	208.00	80-ft.	2675 "	216.00

With the towers for power windmills we furnish timbers for supporting the gears and shafting. The 20-ft. and 30-ft. power windmill towers are for use on top of buildings only and have timber plates for securing them to timbers in top of the building. We also make a 40-ft. power mill tower for use on top of building, which weighs 950 lbs., and is listed at $76.00. All other towers, both for pumping and power windmills, are fur-

nished complete with galvanized steel anchor posts, heavy cast iron anchor plates, and underground steel bands.

Special Extra Heavy 4-post Galvanized Steel Towers for Supporting 8-ft. or 10-ft. Pumping Mill, and 19, 20, 40, 54 or 60 bbl. tank.

For	Height of tower,	30-ft.	40-ft.	50-ft.	60-ft.	70-ft.	80-ft.
19 or	" to base of tank	10-ft.	20-ft.	30.ft.	40-ft.	50-ft.	60-ft.
20 bbl.	Weight in lbs.	650	900	1200	1525	1890	2275
Tank.	List price.	$66.00	$80.00	$116.00	$150.00	$192.00	$216.00
For	Height of tower	40-ft.	50-ft.	60-ft.	70-ft.	80-ft.	
40	" to base of tank	10-ft.	20-ft.	30-ft.	40-ft.	50-ft.	
bbl	Weight in lbs.	1050	1375	1770	2150	2590	
Tank	List Price.	$91.00	$132.00	$184.00	$216.00	$234.00	
For	Height of tower	40-ft.	50-ft.	60-ft.	70-ft.	80-ft.	
54 or	" to base of tank	10-ft.	20-ft.	30-ft.	40-ft.	50-ft.	
60 bbl	Weight in lbs.	1200	1650	2125	2640	3200	
Tank	List Price.	$108.00	$155.00	$222.00	$262.00	$280.00	

These prices do not include the tanks but do include heavy channel steel beams for supporting the cross timbers on which the tank sets, heavy cast iron anchor plates, galvanized anchor posts, and underground steel bands.

List Prices of Taper Tower Tanks, Complete with Center Tube and Cross Timbers, but Without Cover.

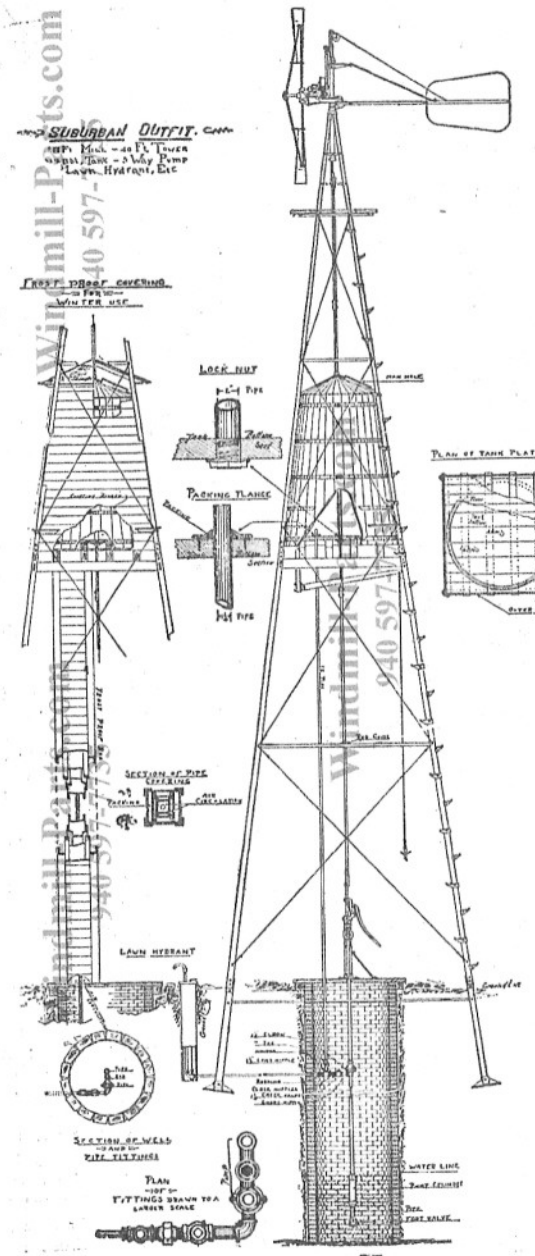
	Approximate Weight.	List Price.
19-bbl. Tank made of 2-in. Pine or 1½-in. Cypress..	915 lbs.	$ 38.00
19-bbl Tank made of 2-in. Cypress	1023 "	51.00
20-bbl. Galv. Steel Tank	377 "	45.00
40-bbl. Tank made of 2-in. Pine or 1½-in. Cypress....	1510 "	57.00
40-bbl. Tank made of 2-in. Cypress	1650 "	73.00
40-bbl. Galv. Steel Tank	757 "	65.00
54-bbl. Tank made of 2-in. Pine or 1½-in. Cypress....	1900 "	69.00
54-bbl. Tank made of 2-in Cypress	2085 "	91.00
60-bbl. Galv. Steel Tank	970 "	102.00

The diagram on page 77 shows one of our 8-ft. steel mills on a 40-ft. 4-post tower with a 19-bbl. tank 20-ft. high in tower.

THE STRONGEST TOWER MADE. The trouble with most steel towers is that some parts are heavier than is necessary, and others much lighter than they should be, with the natural result that the complete structure is as weak as the weakest part. The Appleton-Goodhue steel tower is made of the best material and is constructed on scientific principles, the proper size and weight of material to give the maximum strength to all parts being carefully calculated. There are absolutely no weak parts, every part being of ample strength and proper design to stand whatever strain may be brought to bear on it by any winds, and for this reason we positively guarantee the Appleton-Goodhue 3-post and 4-post towers against any winds, cyclones and tornadoes not excepted, and will replace free of charge any towers or parts of towers which may be injured in any winds for one year from date of erection. They are simple in construction and easily erected, but, to quote Mr. O. G. Hamilton, of Partridge, Kan., who has had car-loads of them: "They are hard for the wind to down."

GENERAL CONSTRUCTION. The material used in the construction of the Appleton-Goodhue tower is the best available for the purpose, but it should be borne in mind that strength and durability depend more upon

(*Continued on page 78.*)



The pipe to tank is enclosed in two or three air-tight casings, and the space in the outside casing is closely packed with suitable material to prevent freezing. The inside case is left open so that the warm air from the well can circulate clear up to the tank.

This diagram shows outline of 8-ft. steel mill on 40-ft. 4-Post Steel Tower, with 19-bbl. tank, 20-ft. high. 40 bbl. tanks are just 10 feet lower. See page 76. These tanks are generally used during the summer months only. If used in winter, the section of tower in which the tank is placed is enclosed as indicated in side diagram.

design than material. In designing these towers careful consideration was given to every detail, the size and weight of every part as accurately determined as for steel bridges and similar structures, and no single feature tending to increase strength and durability was overlooked. The material used for the corners is the same as is used on nearly all steel towers, but the bands and girders are much heavier and stiffer than is generally used, and each brace is guaranteed to hold a ton. The anchor posts are made of angle steel, and with each tower we furnish heavy cast iron anchor plates for the bottom ends of the anchor posts which preclude any possibility of the anchor posts pulling out. We furnish a set of underground bands also which keep the anchor posts permanently in their proper places. There is no possibility of the posts getting out of place and allowing the braces to become loose. The spread of the tower is one foot in every four of height, which guarantees a broad and secure found ation. It is essential that the bands or girders should have sufficient strength and rigidity to resist any end pressure brought to bear on them by the braces, and this is not overlooked in the construction of the Appleton-Goodhue tower, the end pressure on each set of bands being the same as the pull on the first set of braces above them. The braces are made of the best quality of steel adapted to this class of structure, are double at the ends where the greatest strength is required, are forged while hot, and are gauged perfectly. They are bolted to the corner posts with steel bolts, and when these bolts are tightened the braces are drawn perfectly tight, and the tower is stiffer than any wood tower.

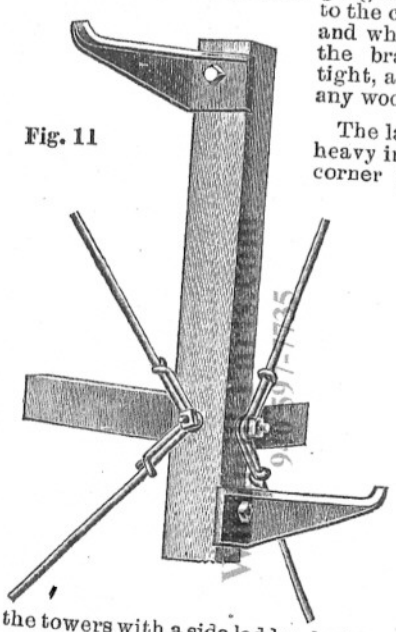


Fig. 11

The ladder consists of a series of heavy iron steps bolted to one of the corner posts with steel bolts, and each step is capable of holding 800 lbs. without giving in the least. It is far easier to climb than any side ladder we know of, because, the steps being bolted to one of the corner posts, there is more of an incline than is possible with a side ladder, the steps being almost directly under the climber on alternate sides of the corner post, leaving a clear space to swing the knees past the corner, and making it almost as easy to climb the tower as to walk up stairs. If preferred we will equip the towers with a side ladder, but we strongly advise our standard corner steps, because we know from experience that a man can climb our corner step ladder, using only one hand, almost as easily as he could climb a side ladder, or a corner ladder with

rods and hooks projecting on both sides of the corner post, using both hands. The platform which is furnished with these towers is of ample size and strength to hold as many people as wish to get on it.

Fig. 11 on page 78, shows a section of a corner of our tower, illustrating where the bands and braces meet, the way the ends of the bands are made and bolted to the corners, a section of one of the angle steel bands, and the manner in which the heavy iron steps are fastened to the corners.

3 OR 4 POST? The general construction of both our 3-post and 4-post galvanized steel towers is identical, and either style is sold subject to the same strong official warranty, a copy of which is printed on page 1 of this catalogue. The triangle is the strongest form of mechanical structure known, and our 3-post tower is triangular. We always recommend it in connection with our 6-ft., 8-ft. and 10-ft. mills. For 13-ft, and 14-ft. mills an extra heavy 4-post tower is required; and we make special extra heavy 4-post towers for supporting mill and tank.

IMPORTANT: The wind furnishes the power. Therefore, in order to obtain the best results, the windmill must be high enough above all surroundings to admit of the wind getting a full clean sweep at it. Do not make the mistake of spoiling the outfit by economizing on the tower. See that the tower is plenty high enough to bring the center of the pumping windmill 10 to 15 ft. above all trees, hills, buildings, or anything else within several hundred feet which is liable to interfere with a free passage of the wind to the wheel. In flat countries 30-ft. towers are used with satisfactory results, and even 20-ft. towers in exceptional situations, but it should be borne in mind that the winds near the ground are not so steady nor so powerful as the winds at the higher altitudes. It is advisable to have the power windmill placed on a tower high enough to bring the center of the wheel 15 to 25 ft. above all surroundings within several hundred feet.

WOOD TOWERS.

LIST PRICES.

For 8-ft., 10-ft. or 12-ft. mill.....$1.00 per foot of Height.
For 14-ft. mill..... 1.25 " " " "

We always recommend the steel tower, believing it to be superior in strength and durability. When windmill only is ordered, we send tower irons for wood tower, unless otherwise specified, accompanied by directions which will enable any ordinary workman to build the best wood tower that can be made. Generally our customers find it more economical to buy the material for wood towers locally, on account of the saving in freight, etc. On page 64 of this catalogue we show an illustration of the working parts of our H 10-ft. Wood Windmill, in which is shown the top of one of our wood towers. The four posts of this tower come together at the top in one solid piece firmly bolted together; all braces and girts are cut to exact lengths; they are neatly painted; and it is certainly the

(*Continued on page 81.*)