

DIRECTIONS

Samson Model M Mills are fitted with Combination Base Plates and will go on the Stover Ideal No. 1 or No. 2 Steel Towers, either three or four posts, also on four post Wood Towers

Preserve this for Future Reference

DIRECTIONS FOR ERECTING

For Wood Tower

Dress off top of tower perfectly level, bolt 4 No. 1863 tower lugs to underside of base plate using $4 \frac{3}{8} \times 1 \frac{1}{4}$ inch carriage bolts.

Place base plate on top of tower with lugs between posts, bore holes through top of corner posts just below lugs, (See Fig. 1). Insert long bolts and washers and draw posts tight against lugs.

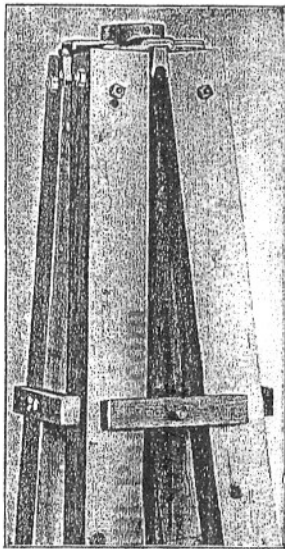


Fig. 1. Wood Tower

Truing spider or guide ring is held in place by $4 \frac{3}{8} \times 5 \frac{3}{8}$ inch machine bolts, with long threads to allow for adjustment in plumbing mill on tower. These bolts pass between corner posts, through wood bars on each side of tower above lower end of mast pipe. Do not nail wood bars fast until plunger guide is installed and clamped on mast pipe. Then drop guide ring until it just clears plunger guide and then nail wood blocks to tower, (See Fig. 1).

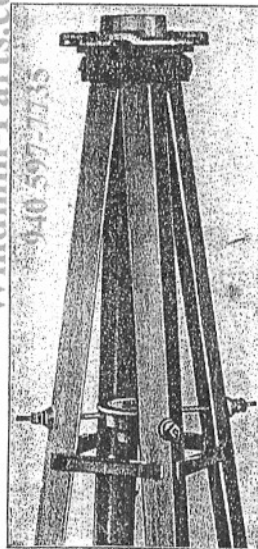


Fig. 2. Steel Tower

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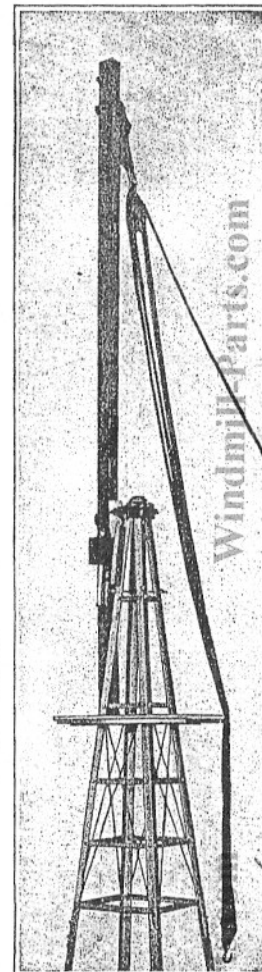


Fig. 3



Fig. 4

For Steel Towers — Three and Four Post

1st. Bolt self aligning combination base plate (71S8) to tower cap (bolts $\frac{3}{8} \times 1 \frac{1}{4}$ inches for 6, 8, 9, and 10-foot mills will be found in box of fixtures). The lugs, No. 1863, are not to be used with steel towers. The self aligning collar should be placed in the socket of Base Plate and turned until the lug engages in groove. The bronze ring goes between self aligning collar and top ring. The turn table should be filled with oil when mill is erected and the oil should be replenished when the oil is changed in the windmill head. A small oiler with a spring cover is provided in the Turn Table for replenishing oil. Use motor oil or windmill oil in turn table oil basin.

Place truing spider or guide ring in place using $4 \frac{3}{8} \times 5 \frac{3}{8}$ inch machine bolts with long threads. Bolts go through holes in corners of posts about 21 inches below top of tower, with cast corner washers on outside of posts under the nut, (See Fig. 2).

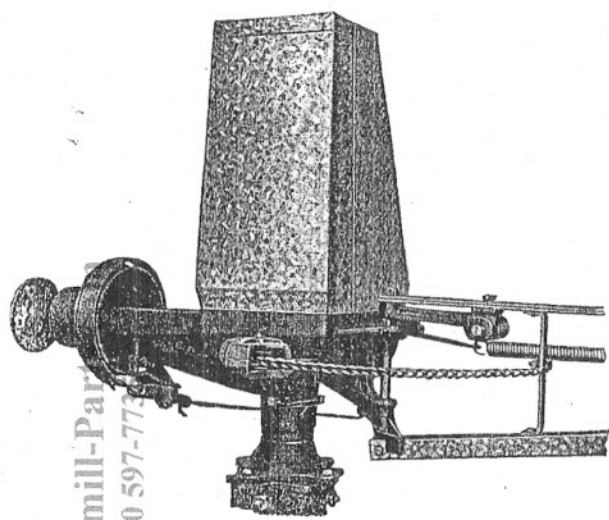


Fig. 5

To raise the mill and tower together, see directions for erecting, Ideal Steel Towers, and assemble mill the same as the following directions.

To Erect Mill on Tower when Tower is Already Installed

It is safer and easier to use a gin pole and tackle to raise mill to top of tower, (See Fig. 3). Use at least a 4 x 4 inch by 14 feet long, using good sound wood. A wagon tongue hounds down is sometimes used.

Fasten tackle to end of gin pole about 4 inches from top of pole, and raise pole to place. Lower end of gin pole should rest on platform with foot against tower, nail cleats on platform to hold pole in place. Set block of wood between tower and gin pole near top of tower to hold pole vertical and then lash pole securely to tower.

Remove screw from top of hood of windmill head, and remove hood, take out parts which are packed under hood, bolt pulley bracket to side of wheel head.

Turntable and guide ring must be installed before raising mill, (See Fig. 4). Mill can then be raised and mast pipe inserted through turntable and guide ring. Plumb the mast pipe by means of long threaded bolts on guide ring, then tighten lock nuts.

To Install Plunger and Swivel

Remove plunger and pullout parts from vane rail bundle, study Fig. 5 and note position of various parts before installing. Tie a small weight (a small nut will do) to end of a cord and pass weight over vertical pulley down through mast pipe, remove bolt from end of pullout chain, and tie cord to end of chain and draw chain up through mast pipe over pulley then around horizontal pulley and tie fast until vane rail and other parts are installed. Place male pullout swivel angle between tower posts with eye towards corner of tower in which pullout lever is to be installed. Hook female pullout swivel over male swivel casting. Place lower plunger guide between posts under other swivel parts at right angles to male pullout swivel angles, (See Fig. 6).

The angles which support lower plunger guide should be installed later. Remove pin from top of plunger rod and pass plunger up through lower plunger guide and swivels, through mast pipe into threaded hole in cross head clevis, screw up till cotter pin hole comes in line with hole in cross head clevis. Be sure and insert pin through hole in cross head clevis to prevent plunger rod turning in crosshead. Bolt plunger guides on lower end of mast pipe. Be sure and locate

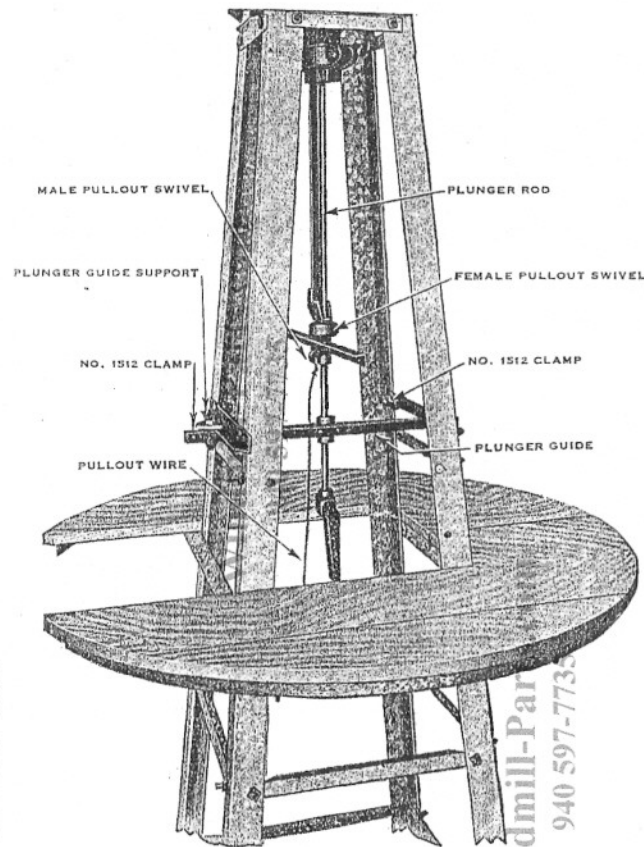


Fig. 6

these guides with steel strap attached to swivel on same side of pipe as the vertical pulley over which the chain passes.

To Install Vane

Bolt the vane blade to the vane rail, using two hook bolts which hook over upper rail then through vane, use $\frac{1}{8}$ x $\frac{3}{4}$ inch machine bolts for 6, 8 and 9 ft. and $\frac{1}{4}$ x 1 inch machine bolts for 10 ft. for bolting vane blade to lower rail, (see Fig. 5).

Bolt buffer case assembly under upper rail with large hole in line with hole in rail. Bolt is found in place in buffer block. Raise vane rail into place by tying rope to lower rail at a point which will allow rail and vane to balance, passing rope around upper rail before attaching to lower rail; this will cause vane to hang in proper position for fastening to mill head. Insert vane hinge rod through hole in upper rail, then through hole in buffer case and lugs on head, then through rear brake lever and then through lower rail fastening to upper rail with bolt found in place. Place governor spring hook in place and fasten loosely with bolt. Hook governor spring into eyebolt, insert eyebolt into vane rail bracket, then other end of spring over hookstrap and tighten strap. Proper tension can be given governor spring by screwing up nut on eye bolt. By turning up nut, tension is increased and holds the wheel stronger into the wind. If the nut be turned up too much the wheel working in high winds will operate the pump too fast. We recommend as light tension as possible according to the work the mill has to do.

To Attach Pullout and Adjust Brake

Bolt end of pullout chain to hole in first vane rail bracket.

Hook one end of brake rod in rear brake lever and other end in front brake lever, attaching brake lever to stud in front of head. Connect brake to brake lever with brake hook bolt, and turn nuts up just enough to hold bolt in place until pullout lever and wire are installed when brake should be adjusted.

Attach pullout lever to inside of corner post of tower at convenient height, by means of "U" bolt. Straighten long pullout wire and hook end on eye at pullout swivel down through eye on lower plunger guide. Turn mill out of gear and tie fast, (See Fig. 6). Turn pullout lever down with bail up and stretch wire and fasten lower end to bail. Untie vane rail and see if lever pulls mill completely out of gear, throw mill out of wind and set mill on top of stroke, set lower plunger guide half way between plunger swivel and pullout swivel. Place angle support on top of plunger guide against tower posts and clamp to tower posts with No. 1512 clamps also clamping lower plunger guides to angle supports with No. 1512 clamps, (See Fig. 6). If mill does not come full out of wind when lever is down the lever can be loosened and adjusted up or down on corner post until proper position is reached. This can also be done if wire should stretch.

Turn mill out of wind and adjust brake hook bolt until it requires considerable effort to turn spider wheel, then put lock nut on hook bolt. Brake guard should be turned around against brake band and fastened in place, this prevents brake slipping off. Pump rod can then be attached to plunger swivel. Oil plunger and pullout swivel parts when attaching pump rod.

To Erect Wheel

Bolt wheel arms in place on spider. Lock washers are used on all wheel bolts, see chart Fig. 7 for a proper size of bolts for all parts of wheel. Place wheel in position one section at a time, convex sides of sails go toward tower. Fasten each section temporary until all sections are in place, observing the rule to lap rims one way. Bolts used for outside rim project towards outside and inside rim bolts project toward inside of wheel. Outside rims have three round holes on one end and three oblong holes on other end, center holes are for arm bolts and outside holes for splicing rims. The round holes go to outside with lock washers next to round holes. After all sections are in place tighten nuts on all bolts. Turn each nut up slightly one after another continuing around the wheel until all bolts are drawn up tight against the lock washer. Be sure all bolts are tight. Wheel bolts should be inspected and again tightened after mill is up one month. If this is done a wrenched wheel will seldom occur.

LUBRICATION

After mill has been erected and all adjustments made, the oil furnished with mill should be poured into head. Raise and lower the oil pump plunger a few times to be sure the pump is working properly. Six or eight strokes should be sufficient to raise oil to top of crosshead. Pump enough oil to flood top of crosshead and to run down trough and oil the front bearing. If pump fails to work, squirt a little oil in pump slot to prime pump.

Once a year drain old oil out of head and replace with clean oil. In replacing oil use light Zero or Polar Windmill Oil. Do not use heavy oil as it gets too stiff in winter. Use one quart for 6, 8 or 9 ft. mills and two quarts for 10 ft. mills. When replacing oil in head, oil turntable and squirt oil on pullout and plunger swivel. When re-oiling mill inspect all bolts and see that they are tight.

OIL CHART

SIZE MILL	U. S.	IMPERIAL	METRIC
6M— 6 Foot	1 Quart	1½ Pints	1 Liter
8M— 8 Foot	1 Quart	1½ Pints	1 Liter
9M— 9 Foot	1 Quart	1½ Pints	1 Liter
10M—10 Foot	2 Quarts	1½ Quarts	2 Liters

Size of Mill	A		B		C		D		E		F		G	
	Dia.	L'gth	Dia.	L'gth	Dia.	L'gth	Dia.	L'gth	Dia.	L'gth	Dia.	L'gth	Dia.	L'gth
6-foot	15 1/2	1	25 3/4	1	24 11/16	1	5/16	1	5/16	1	5/16	1	5/16	3/4
8-foot	18 5/8	1 1/4	36 3/8	1 1/4	35 3/16	1 1/4	3/8	1 1/4	3/8	1	3/8	1	3/8	3/4
9-foot	18 5/8	1 1/4	41 7/8	1 1/4	41 1/8	1 1/4	3/8	1 1/4	3/8	1	3/8	1	3/8	3/4
10-foot	21 5/8	1 1/4	47 13/16	1 1/4	46 3/4	1 1/4	3/8	1 1/4	3/8	1 1/4	3/8	1 1/4	3/8	3/4

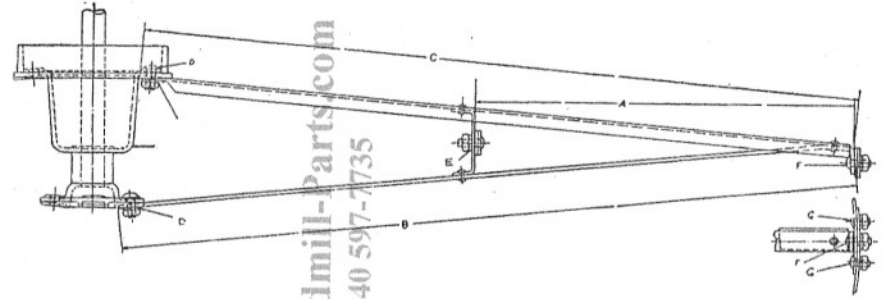


Fig. 7. Detail showing Spider, Wheel Arms, etc.

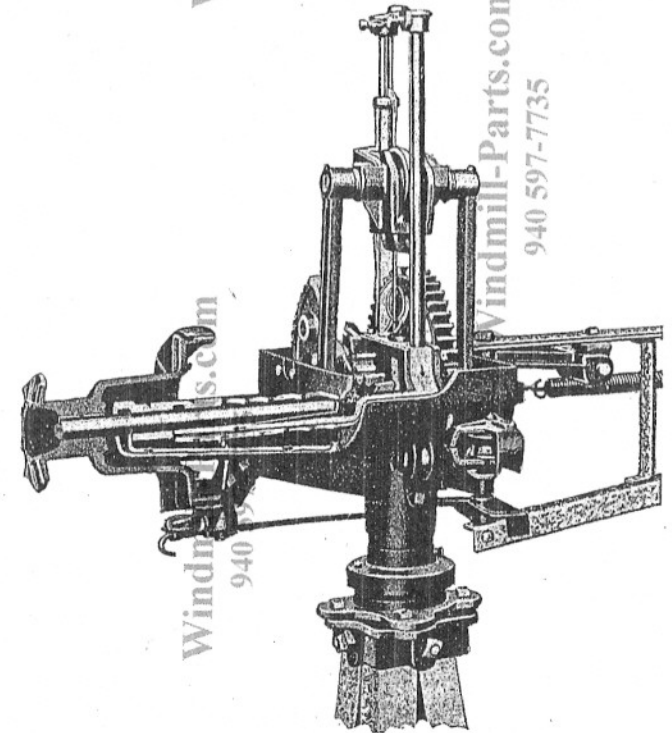


Fig. 8

To Put Mill and Tower Together on the Ground Before Raising. To put mill and tower together for raising both at once, proceed as follows: Put tower together according to directions for erecting tower, and then put mill on tower while laying on the ground, always proceeding with the work in detail by following the directions for erecting the Samson Model M mill. Place tower in position for raising. It is better and more convenient to place tower in proper position for raising and then block up top enough so that the platform does not touch the ground, then begin and put mill together on tower.

Important. In all cases where mill and tower are raised together be careful to loosen the nuts on bolt that connects brake lever (10M) with flexible brake band (262M) to avoid breaking the brake lever. This must be done before beginning to raise the mill and tower.

Plan Showing Knocked Down Wheel and Vane for Export Shipment

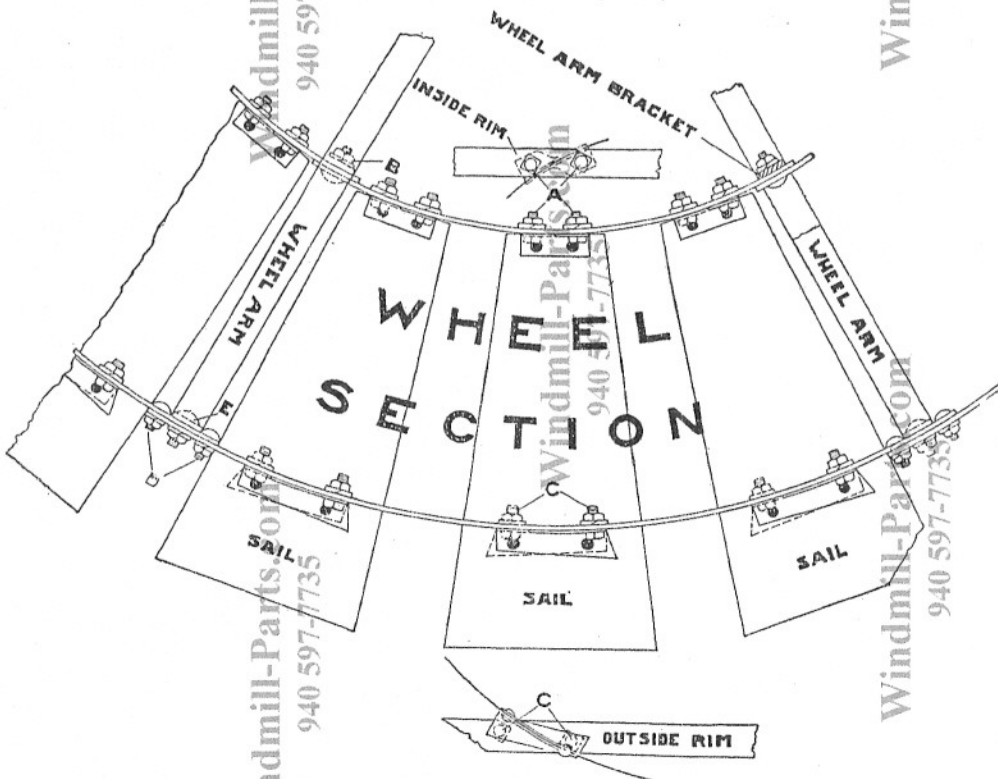


Fig. 11

Section of wheel showing manner of fastening sails to rims with bolts A and C. Also section at rims to wheels, arms and rims, together with bolts B, D and E.

Directions for Raising Mill and Tower Together or for Raising Tower Only

To Raise the Tower. The following appliances are required: Tackle block, ropes, a gin pole or shears, and a good, steady team or windlass, and if a windlass is to be used, a snatch block will be required. Ropes—One main rope 1 inch or more in diameter, 100 feet long, to connect shears to tower; two short ropes, same size as above, 25 feet long, one to connect tackle block to pull post and the other to connect windlass to its anchor post; one tackle rope, $\frac{3}{4}$ inch in diameter and 350 feet long; two $\frac{1}{2}$ -inch guy ropes, each 125 feet long. Tackle Block—One with two and the other three, or one with three, and the other four, pulleys. Shears—Made of two pieces of 4x4 or 4x6-inch timber, 2 feet longer than half the height of tower, and fasten together by a bolt 1 foot from end. Windlass—Use the Stover Ideal or any other good make.

How to Proceed. The tower (and the mill, if both are to be raised together) having been put together according to the printed instructions, place the foot of the tower in position so as to have the ends of the two corner posts lying on the ground at the identical place where the corner posts of tower are to stand when tower is up, then place a strong plank under the ends of these two corner posts, and another plank on top of the first one and against the ends of corner posts, and drive two or more strong stakes against and in front of this plank, to prevent the tower from sliding forward while being raised. Fasten long main rope around top of shears at the bolt, leaving 3 to 5 feet of rope for fastening to the upper tackle block (the one with largest number of pulleys). Next fasten upper tackle block to short end of main rope close to shears, with tackle rope in the blocks; then stand the shears in position (as illustrated in tower instructions) with the feet just in front of and close to the end of tower posts; lean top of shears towards top of tower and about 5 feet out of plumb, and tie the other end of main rope around top of the tower at or near platform. Be careful in arranging the rope so that platform will not interfere with it. Then spread the blocks as far apart as the tackle rope will permit, reserving enough rope to hitch team to or to fasten it to the windlass. If a windlass is to be used then draw heavily by hand on the lower tackle block to find location for setting the anchor or pull post. There should be a space of 3 or 4 feet left between tackle block and pull post. Be careful to set pull post in a straight line from the top of tower and over top of shears, so that the ropes will pull straight with the center of tower to prevent the tower from swinging around while being raised. The pull post must be most strongly fixed, so as to stand the strain put against it. Use one of the short main ropes to fasten lower tackle block to pull post; next fasten one end of each of the two guy ropes to tower just below the platform. To use the windlass, place it in position just to one side of the pull post and set another good pull post 5 or 6 feet to the rear of it (this post will also answer for snubbing post) and fasten windlass to this post with the remaining short main rope by threading the end of the rope up through one hole and down through the other of the plank, upon which the windlass is mounted, thence back to the post. Be sure this post is substantially set. Now fasten tackle rope to the windlass by passing the free end around the drum three or four times and bring it back to the pull or snubbing post and pass it around it two or three times, which completes the preparation for raising the outfit.