

Wilton Windmill inside and out

Common sails

The **Fantail** is like a 'propeller' that rotates if the wind changes direction. It is connected to a set of gears which automatically rotate the cap and sails round on 24 metal rollers. In very strong winds the sails could easily be damaged. They are strongest when facing the wind and the fantail mechanism ensures they always do this.

The ideal speed for the sails to turn is 15 r.p.m. This can be achieved with a wind speed of 18 m.p.h. or more. The sails turn the **Windshaft** and **Brakewheel** round. The **Wallower** and **Vertical Shaft** would then rotate at about 45rpm and the **Millstones** at about 120 rpm.

Wind shaft

24 rollers on which the cap turns



The mill stones

The photo above shows a **Bedstone** that is stationary. Balanced on top, and turned from the gears below, would normally be a **runner stone** that rotates with a very small, adjustable gap between the two. The grain is milled in this gap. The flour feeds down via the **Spout** and is collected in sacks on the floor below.

Spout

Gallery

Sack collecting the meal (flour)

The **Gallery**, built round the outside of the mill, is used while setting and adjusting the common sails. It also gives access to the chain which controls the patent sails. A rope hangs down from the cap, just to one side of the chain, (and only set when we are milling) and this controls the brake. The brake is a huge band, lined with friction material, that goes all the way round the **Brakewheel** in the **Cap**.



Setting the common sails

First one sail is moved to the bottom and the brake is applied. The miller then has to climb the sail, untie the sailcloth, draw it across and tie it back. If the wind is strong they can unfurl less sailcloth and leave it as a diagonal cover. Both sails are set the same so they are balanced.

The **patent sails** have shutters that can be opened and closed just like a venetian blind. They are adjusted by the chain that hangs down the back of the mill and can be operated when the sails are turning.

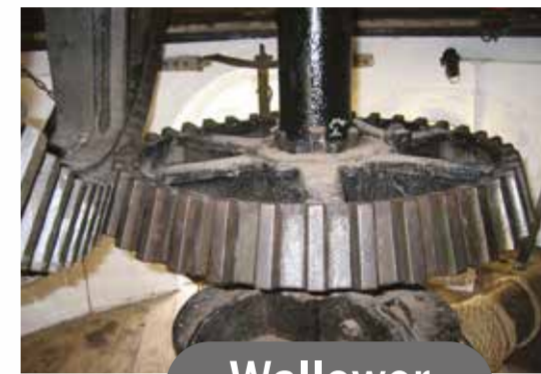
Patent sails

The gears inside the windmill have one metal toothed gearwheel meshing with another which has wooden teeth. No oil is required, no sparks will be generated and the wooden teeth are easy to replace in the event of an accident.

Fantail

Cap

Brakewheel



Wallower



Sackhoist

Dust floor

Vertical drive shaft

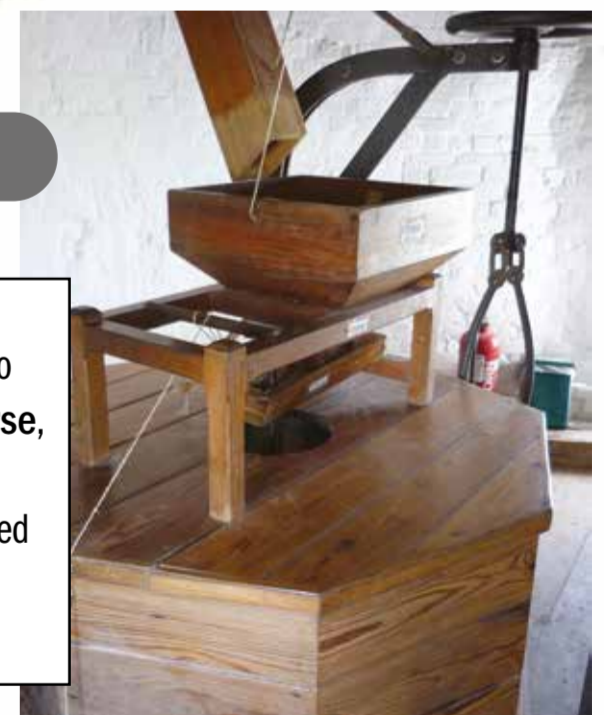
The **Vertical Drive Shaft** takes drive down from the **brakewheel**, via the **Wallower**, to the **Great Spur Wheel**. This in turn drives the **Stonenuets** and these are connected to the **Runner Stones** from below. The final section doesn't rotate and just supports the rotating shaft with a bearing from below.

Bin floor

Bins

Hopper

Shoe and damsel



Stone floor

Inside this hexagonal wooden box (or **Vat**) are two millstones. Above is the **Horse**, **Hopper** and **Grain chute**. Behind is a special crane used to lift the runner stone for cleaning and maintenance.

Great spur wheel

Spout floor

Trapdoors on each floor



A sack of grain is just disappearing up though one of the **Trapdoors**. It is being lifted by a rope that goes round the **Sackhoist** drum on the dust floor. It only takes a minute or so to lift a sack to the bin floor.

Ground floor