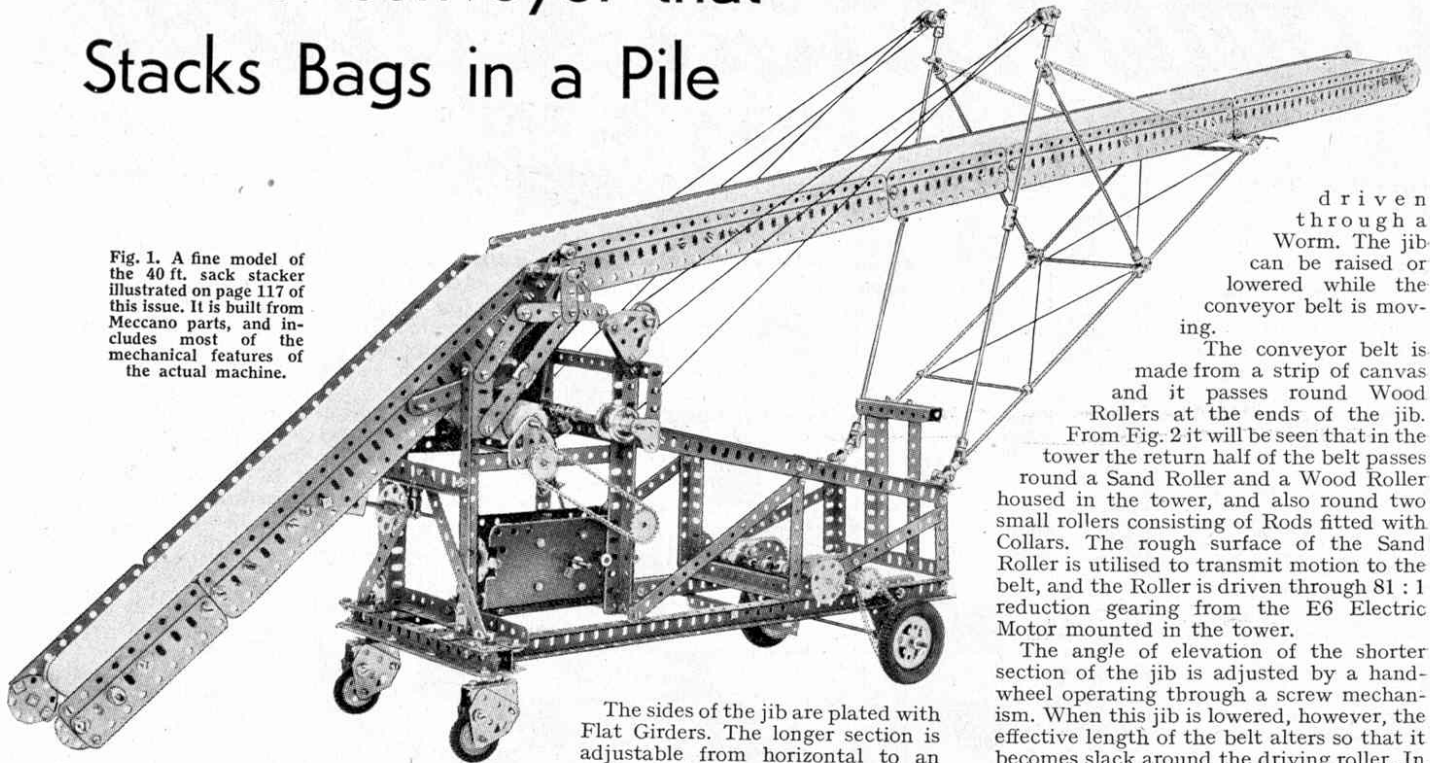


# Meccano Conveyor that Stacks Bags in a Pile

Fig. 1. A fine model of the 40 ft. sack stacker illustrated on page 117 of this issue. It is built from Meccano parts, and includes most of the mechanical features of the actual machine.



The sides of the jib are plated with Flat Girders. The longer section is adjustable from horizontal to an angle of 45 deg., and is supported at its outer end by two pivoted frames, one at each side, built up from Rods of various lengths joined by Couplings and small Fork Pieces. The frames are connected by Screwed Rods and braced with wire. A  $\frac{1}{2}$ " loose Pulley is carried in a small Fork Piece at the upper end of each frame, and these provide rollers on which the jib slides when it is being raised or lowered.

A Rod journalled in the tower forms the winding barrel for derricking the longer section of the jib, and the operating Cord, which is wound around the Rod, passes

through pulley blocks fixed in the frames and tower as shown. In order to render the hoisting mechanism self-sustaining when the Motor is not working the winding Rod is

driven through a Worm. The jib can be raised or lowered while the conveyor belt is moving.

The conveyor belt is made from a strip of canvas and it passes round Wood Rollers at the ends of the jib. From Fig. 2 it will be seen that in the tower the return half of the belt passes round a Sand Roller and a Wood Roller housed in the tower, and also round two small rollers consisting of Rods fitted with Collars. The rough surface of the Sand Roller is utilised to transmit motion to the belt, and the Roller is driven through 81 : 1 reduction gearing from the E6 Electric Motor mounted in the tower.

The angle of elevation of the shorter section of the jib is adjusted by a hand-wheel operating through a screw mechanism. When this jib is lowered, however, the effective length of the belt alters so that it becomes slack around the driving roller. In the actual machine there are compensating cams to take up this slack, but in the model the effect is obtained by means of a link that connects the tensioning roller to the small jib. This arrangement can be seen in Fig. 2.

When the stacker is not in use the larger section of the jib is lowered so that it rests on the support provided at the outer end of the travelling carriage.

The steering arrangement used in the model is similar to that of the actual machine. The wheels are driven by Sprocket Chains and Sprockets acting through Dog Clutches on the shafts.

IN modern warehouses many interesting machines are used for handling various kinds of goods quickly and easily. Among these machines are many different types of conveyors, some of which are specially designed for transporting and stacking bags of such materials as cement, sugar and flour. A fine Meccano model of one of these sack stackers is shown on this page. It is based on a machine manufactured by Spencer (Melksham) Ltd., an illustration of which appears on page 117 of this issue. This machine is capable of dealing with 400 sacks an hour, and it can stack them at heights up to 40 ft.

The Meccano model is built to a scale of approximately one inch to a foot, and it reproduces most of the principal mechanical features of the actual machine. This consists essentially of a travelling carriage mounted on four rubber-tired wheels. Two of the wheels are pivoted to form castors. The other pair can be rotated independently or together by turning crank handles fixed one on each side of the carriage, and one man can manoeuvre the machine easily to any part of a warehouse floor.

The travelling carriage is provided with a light steel framework that in turn carries a hinged jib along which travels a conveyor belt that carries the sacks. The conveyor is driven by an electric motor, and its angle of elevation can be altered as necessary to place the sacks in the required positions.

Referring now to the Meccano model, one end of the travelling carriage is built in the form of a small tower from  $7\frac{1}{2}$ " Angle Girders and Strips, and it forms a support for the hinged conveyor jib. The jib is built up in two lengths from Angle Girders connected by  $3" \times 1\frac{1}{2}"$  Double Angle Strips, and the two portions are pivoted on a Rod supported in the framework of the tower.

Fig. 2. A view of the mechanism of the Meccano model sack stacker.

