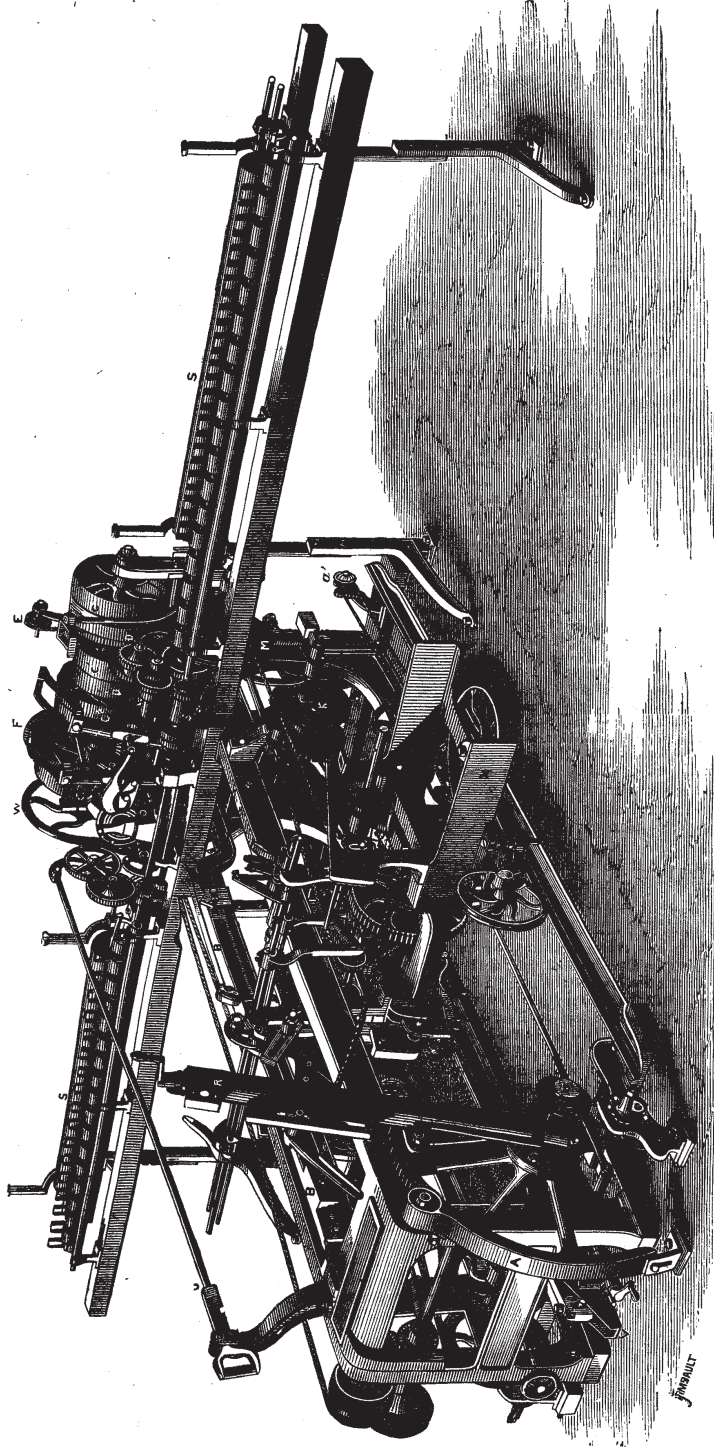


SELF-ACTING WOOLLEN MULE.

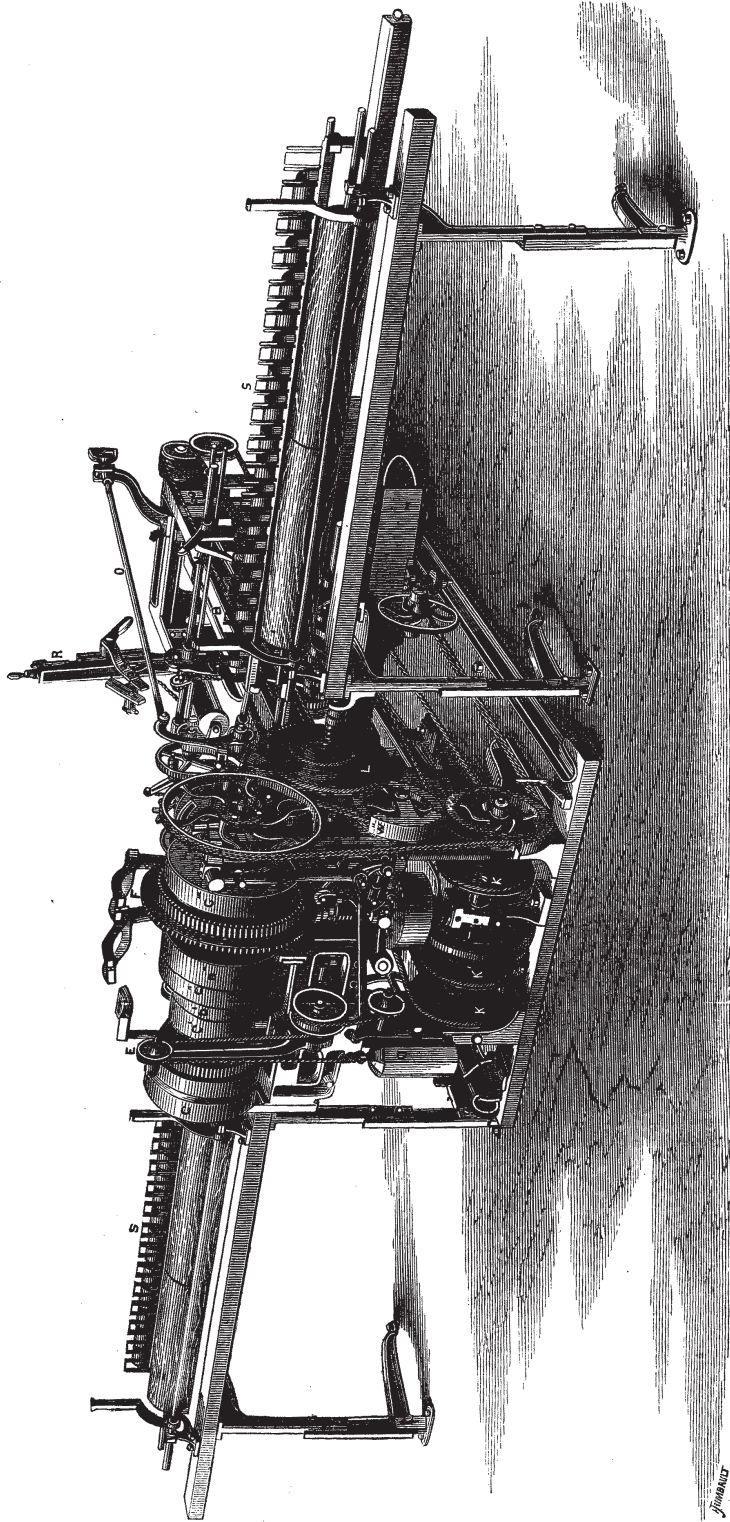
CONSTRUCTED BY THE SÄCHSISCHE MASCHINEN-FABRIK (FORMERLY R. HARTMANN), CHEMNITZ.

(For Description, see opposite Page.)



SELF-ACTING WOOLLEN MULE.

CONSTRUCTED BY THE SÄCHSISCHE MASCHINEN-FABRIK (FORMERLY R. HARTMANN), CHEMNITZ.



SELF-ACTORS.

By DR. H. GHORNIK.

(Continued from page 10.)

We have already stated that the twisting of the yarn is completed with the maximum speed of spindle, and that after the twisting is completed the backing-off takes place. In manufacturing rovings the three speeds previously alluded to are not employed, two only being sufficient. In other arrangements, for double spinning, it is necessary to be able to control and change the three speeds at will, as well as in spinning cotton yarn mixed with wool. The first movement of the carriage is gradual, and is adopted for stretching the thread evenly. The counter which plays so important a part in all the performances of the machine, is disposed in several different ways, and we have taken for illustration the arrangement by Mr. R. Hartmann, of Chemnitz. In this machine the counting apparatus is at rest while the operation of backing-off and the return of the carriage take place, and it is not affected in any way by these motions, while the torsion is maintained uniform. The arrangement for regulating the backing-off is the subject of a special patent in the Hartmann self-actor, and it prevents the backing-off cone from being brought into gear too suddenly. The carriage is supported in the middle by four wheels, and the arrangement for returning it is fixed in the centre, and works very efficiently. The self-actor may be stopped at any point without throwing off the strap. It is also possible to stop the carriage when the machine is in motion.

The number of spindles in these self-actors varies from 240 to 510, with $\frac{1}{2}$ in. pitch, the length ranging from 36 ft. to 80 ft., and the weight from 3.3 to 5.5 tons. Above as well as on the opposite page and on page 93 we publish perspective views of this machine, and will proceed to explain its arrangement by their help. We propose to describe only the improved details of the machine, assuming that our readers are acquainted with the general principles of the self-actor. The motion of the roving rollers is regulated by the counter. The carriage starts at a higher speed than the roller, but the velocity gradually decreases, more rapidly diminishing towards the end of the travel. The spindles are driven at a low velocity, until the roving roller has completed its movement. The main shaft, with the pulleys C' C' is driven at about 130 revolutions per minute. As soon as the roller stops, the speed of the main shaft is increased until the carriage approaches the end of its travel, when the maximum spindle velocity is attained. These three different speeds, which are changeable at pleasure in their succession, are produced by fingers attached to the counting wheel, which move the forks at the right moment, shifting the strap from D to C, from D' to C', from D'' to C''. The speeds thus given to the shaft are 130, 250, and 380 revolutions per minute. When the supplementary twisting takes place the carriage either stands still or is slightly backed. To effect this the machine is provided with a regulator, consisting of a spur wheel provided with a groove, in which slides a pin at

one end of a lever, and which, when it arrives at the end of the groove, actuates a second lever, that sniffs the strap from the pulley C'', which is bored out conically, upon the body of an inner pulley, to which is attached a toothed wheel. According to the distance through which the regulating lever has to travel, the operation takes place earlier or later. The return motion of the carriage for the purpose of effecting the supplementary twisting is produced by means of the mechanism attached to the carriage, as is shown in the illustration. It consists of a hollow shaft, closed at both ends, and through which passes a screw spindle revolving in nuts at the ends of the shaft. A toothed wheel and a drum are keyed upon the hollow shaft, the former gearing into a second, which is driven by means of an endless band from the spindle drum—at the moment when the hollow shaft is moved in the direction of the smaller towards the larger headstock, and the pulley for winding up is connected with a rope passing over the roller E to the front end of the large headstock, and is loaded with a weight G. The action of this apparatus is as follows: When the carriage has advanced to the end of its travel, the screw spindle strikes a fixed stud on the rear part of the frame, and by this means the hollow shaft is thrown back, the toothed wheels are brought into gear, and the rope is wound upon the drum. As soon as the operation of supplementary twisting is completed, the screw spindle is withdrawn from the frame, the pulley is unconnected, and the weight turning it sends the screw spindle into its former position. When the carriage returns, the action is, of

course, reversed, on account of the strap being shifted on to the pulley C. The pulleys C and D are both loose on the shaft, but D is connected on the inner side to a ratchet wheel, which causes the main shaft and the twisting roller W also to revolve, and drives the spindles with the first speed. The small toothed wheel visible on one side of the pulley D imparts motion to the feeding cylinder, and also to the shaft for drawing out the carriage; on the shaft, a scroll and counter scroll are fixed. The Schlimmberger system is adopted for actuating the quadrant R. At K' K'' are shown the advancing scrolls for the forward movement of the carriage. A is the quadrant guard, and a is a hand-wheel for adjusting the quadrant screw, B is the governor, and X is the framing of the carriage, Y is the copping plate, and W¹ W² are the twist cord pulleys. The stopping lever is shown at O. This self-actor is largely employed on the Continent, and is regarded as a reliable machine.

WELSH RAILWAY TRAFFIC.—As a result of the strike at present pending in South Wales, the traffic receipts of several local railways have largely decreased. The receipts of the Taff Vale Company for the week ending the 15th inst. amounted to 5928*l.*, which, as compared with the receipts for the corresponding week of last year shows a decline of 2151*l.* The receipts of the Rhymney Railway for the same week, amounted to 1054*l.*, the decrease as compared with the corresponding period of last year being 1164*l.* The Penarth Harbour, Dock, and Railway shows a still greater decline, the amount of its traffic receipts for the week ending January 16 being 439*l.*, leaving a falling off as compared with 1874 of 1237*l.*

SELF-ACTING WOOLLEN MULE.

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(For Description, see Page 85.)

