

"In the Pond reversing motor planer is offered an entirely new method of driving and reversing at variable speeds. This system is the result of years of experimenting in this line, and has proven itself absolutely reliable under the most severe and adverse working conditions. It overcomes all the undesirable features of belt and gear-box drives, and does away with clutches, either pneumatic or magnetic, and all shifting belts

"The reversing drive essentially consists of one motor, which acts as a generator at the instant of reversal. This result is accomplished automatically by a patent controller. On the controller are mounted two index scales or dials—one controls the range of cutting speeds and the other the return speeds. Each scale is provided with 13 graduations or divisions, by means of which an equivalent number of different motor speeds are obtainable by simply sliding the thumb piece on the scale. There are no dash-pots in the system.

"The cutting speeds obtainable on the standard type of planers vary from 25' to 40' per minute, and the return speeds from 60' to 100'. However, these speeds can be changed to suit individual requirements. The cutting and return speeds are entirely independent of each other, so that it is possible to use the slowest cutting speed and the highest return speed, or *vice versa*. The table is reversed by adjustable dogs, which throw the controller into the dynamic position, the current which is generated at this instant bringing the motor to a stop. The motor, being directly across the main circuit, has at all times full field strength to brake on, regardless of the speed at which it is running. These conditions account for the quick action of the planer at the instant of reversal, as well as for the perfect electrical action of the motor, there being absolutely no sparking or other electrical strain.

"At the instant of reversal, in which the motor is being brought to a stop, the controller automatically reverses the main circuit to motor, which gives the reverse direction of rotation. The dynamic feature of the controller is absolutely dependent upon speed of the motor, and automatically takes care of the various speeds of rotation. At the end of the stroke a table dog throws over the pilot switch. This is the only mechanical motion in the entire drive. The pilot switch is entirely enclosed, and is placed in the same position on the bed as the mechanical lever of an ordinary belt-driven machine. The pilot switch operates with such ease that it is not necessary to use a wrench to secure the reversing dogs, the latter being quickly adjusted to any desired stroke by means of hand clamps.

"The kinetic energy stored in the work, planer table, armature, and other moving parts of the machine is absorbed by the braking action of the operating torque of the fields on the rotation of the

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