

other mechanism, when not lifting. In other looms again, the shafts are lifted and depressed by positive motion. In the former looms there are three ways of depressing the shafts. 1st. By springs or weights—a very unsatisfactory method. 2nd. By means of a simple lever, the position of the fulcrum being changed according to the relative amount of work each end of the lever has to do. 3rd. By means of a patent lever and a spring. Space will not permit of me going further into details, but what I have said will probably prove of interest to some, who have not thought much about the evolution of the power loom.

Compare the timing of the motions in the power loom with those of the hand loom. In the power loom the motions are determined by the position of the crank shaft. 1st. The shed begins to form as the crank is receding from the piece. 2nd. The loom picks as the crank reaches the bottom position. 3rd. The filling is driven home as the crank approaches the cloth. 4th. The piece is set up and the warp let off as the crank points directly towards the cloth, or just as the filling is beaten home. The shuttle boxes should either operate with the shedding or just immediately behind it in time. In the hand loom the shed should be formed while the going part touches the cloth; as it reaches the back position the picking should take place and the setting up occur as the filling is being driven home.—L. R. B. in Wool and Cotton Reporter.

AN ENGINEERING FEAT IN A SPINNING MILL.

The Yankees claim to be bosses of creation in the smart execution of work, says the Kidderminster Shuttle, but it would take them all their time to beat what was accomplished during the Easter holidays at the Castle Spinning Mills, belonging to the present high sheriff of Worcestershire. These are days when spinners and manufacturers find it necessary to have machinery combining the very latest improvements with the greatest economy in working to enable them to successfully compete in the markets of the world. The Castle Spinning Mills were erected in 1878. During the 24 years great engineering improvements have been made, and as increased power was needed Mr. Broome some time ago decided to put in new boilers and engines. It was at first intended to complete the work within ten days, and this would have been done but for the strike which broke out among the bricklayers. They were called together and the importance of completing the work at the mills explained to them. Mutual concessions were made and they resumed work. There was, however, a loss of two days. The machinery ceased running the night before Good Friday, and was restarted on Wednesday week. During that interval three Galloway boilers were removed and replaced by two huge steel boilers, declared to be the largest in the Midlands, the old mechanical stokers were replaced by new ones of the latest type, the economizers taken out and reconstructed to suit the new boilers, the auxiliary steam pumps and fire pumps replaced by new and larger ones, thousands of yards of new steam and water pipes of various sizes, for various purposes, fitted up, and the motive power for the whole mill renewed, the engine, which had done duty for 24 years, having been replaced by a more powerful one on a new bed and framework.

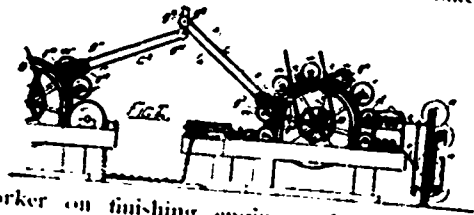
A CHANCE FOR INVENTORS.

The numerous accidents to workmen in establishments where belts are used has recently brought about the stringent application of a French law, forbidding the removing or replacing of a belt by hand while the machinery is in motion.

In order to obviate the waste of time consequent upon the stopping of the machinery, an association of French manufacturers has announced an open international competition for the best fixed belt mounter. The invention should be designed for simple and not for conical pulleys, and must comply with the following conditions: It must be simple, strong and occupy little space, easy to fix and use, not dangerous in working, convenient for any speed, width or position of belt, able to throw the belt off and on, and sufficiently low in price to allow of its wide use. Competitors are invited to send a full description of their invention, accompanied, if possible, by a model or at least by satisfactory illustrations, to the president de l'Association des Industries de France contre les Accidents du Travail, No. 3 rue Lutece, Paris, prior to October 1, 1902. This information may be of interest to Canadian inventors.

THE PERFECT WASTE END SAVER.

Though there have been many so-called waste-end savers used by woolen mills throughout Canada, none of them have been a complete success, and the summit of perfection was never reached till the Perfect Waste-End Saver came into the market—perfect not only in name and working, but also in the simplicity of its mechanism. The principle is right, as the waste never comes to the front of the finisher. By means of card-clothing the waste end is taken from the



first worker on finishing engine, and delivered to the last worker on second scribbler. The machine is durability itself. It is being used in many mills throughout England and the United States, notably the mills of the American Woolen Co., where in one of their mills (the Assabet Mill at Maynard), there will soon be one hundred machines in operation. In Canada the Excelsior Woolen Mills have discarded the old forced draught machine for this new one.

CEMENT FOR CLOTH ON METAL.

An exchange gives the following recipe: A new cement for fastening cloth to metal is compounded by soaking 12 pounds of hide glue in cold water until swelled. Then one-half of a gallon of crude turpentine, one-half of a gallon of pine tar, and 8 pounds of resin are taken, placed in an earthen vessel and heated over a slow fire until thoroughly melted and run together. The glue is then placed in a large pot over a fire sufficient to boil water, and boiling water added until the glue is thoroughly melted. The mixture of turpentine, tar and resin is gradually added to the glue and steadily stirred until thoroughly mixed. The cement can then be removed from the fire. It will congeal in about twelve hours, when it can be cut into cakes or slices convenient for handling. In using this cement for securing canvas or like material to pulleys, boiling water is first added to the cement until it is about the consistency of milk; it is then applied to the pulley, which should be previously cleaned with cal soda or a like substance. The pulley is then allowed to dry. Additional cement should be placed in the pot until the cement is of the consistency of thick molasses, when it is applied to the canvas as it is secured to the previously prepared pulley.