

otherwise fitted up with extremt care. The head blocks mounted upon their upper surfaces are furnished with an automatic, eccentric releasing device to release the augmenting end thrust which occurs during the process of bending. This is an office that cannot be properly performed by any other than automatic means; the cable chain which operates the bending arms or levers being fastened to their outer ends, passing over the sheaves at the top of the frame downward to a drum on which the chain is wound. The chain drum is driven by a powerful worm screw and gear. To the outer end of the screw shaft two frictional clutch pulleys are fitted, one used for running the bending levers up, driven with a six inch belt, the other with a four inch belt for backing the arms down, and they should revolve in opposite directions. The vertical lever shown is used to control the frictions, and start, stop or back down the bender arms. The forms for the bending of felloes are of cast iron turned true, and with a collapsible section at each end of the arc to secure the

easy removal of the stock after bending, and enabling the use of stock about nine inches shorter than can be bent with an ordinary form, which effects a large saving in material. A wooden cap is used on top of the form, which is of the same length as the diameter of the form, and it is always taken off with the bent wood, requiring one cap for each batch of timber bent, and it must be left in until the batch of timber is cold and thoroughly set, so as not to spring when the shackle is taken off. The forms are held on a sliding head stock, having a vertical movement, by means of which the timber can be firmly held at the initial point of bending, thus securing it against fracture on the outer arc, and preventing it from retreating from the form at that point. After the operation of bending is completed the machine can be set to run down to the position for the succeeding operation and automatically arrested. The capacity of this machine is sufficient to bend about 2,500 felloes 1½ inches, or about 1,200 wagon hounds in ten hours, and other classes of work in proportion. Timber to

the amount of twelve inches in width, either in one piece or in pieces aggregating that amount, can be bent at one operation. The friction pulleys are as follows: one for running the arms up twenty-four inches by six inches face; pulley for running down eighteen inches by six inches face. Speed of pulleys, 180 to 200 turns a minute. Where heavy timber predominates the lower rate of speed should be used.

For further particulars regarding the machine address The Defiance Machine Works, Defiance, Ohio, or Estate of T. T. Coleman, Seaforth, Ont., general agents for Canada.

The American Ball Nozzle Company, Toronto, has been incorporated with a capital stock of \$12,500, to manufacture ball nozzles and all kinds of appliances for extinguishing fires and sprinkling lawns.

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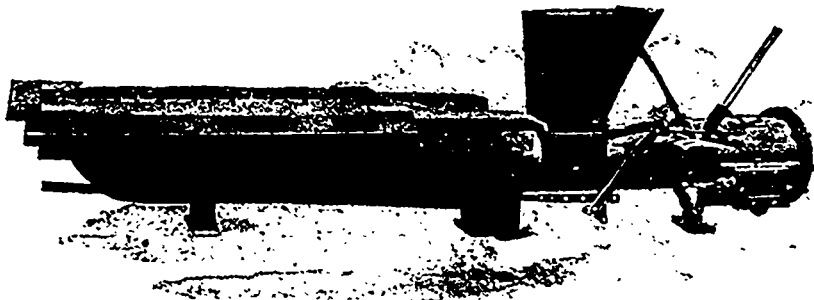
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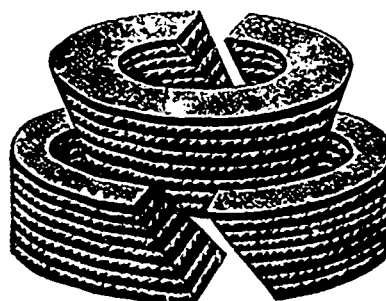
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