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THE COCHRANE SYSTEM OF DRIVING ROLLS.

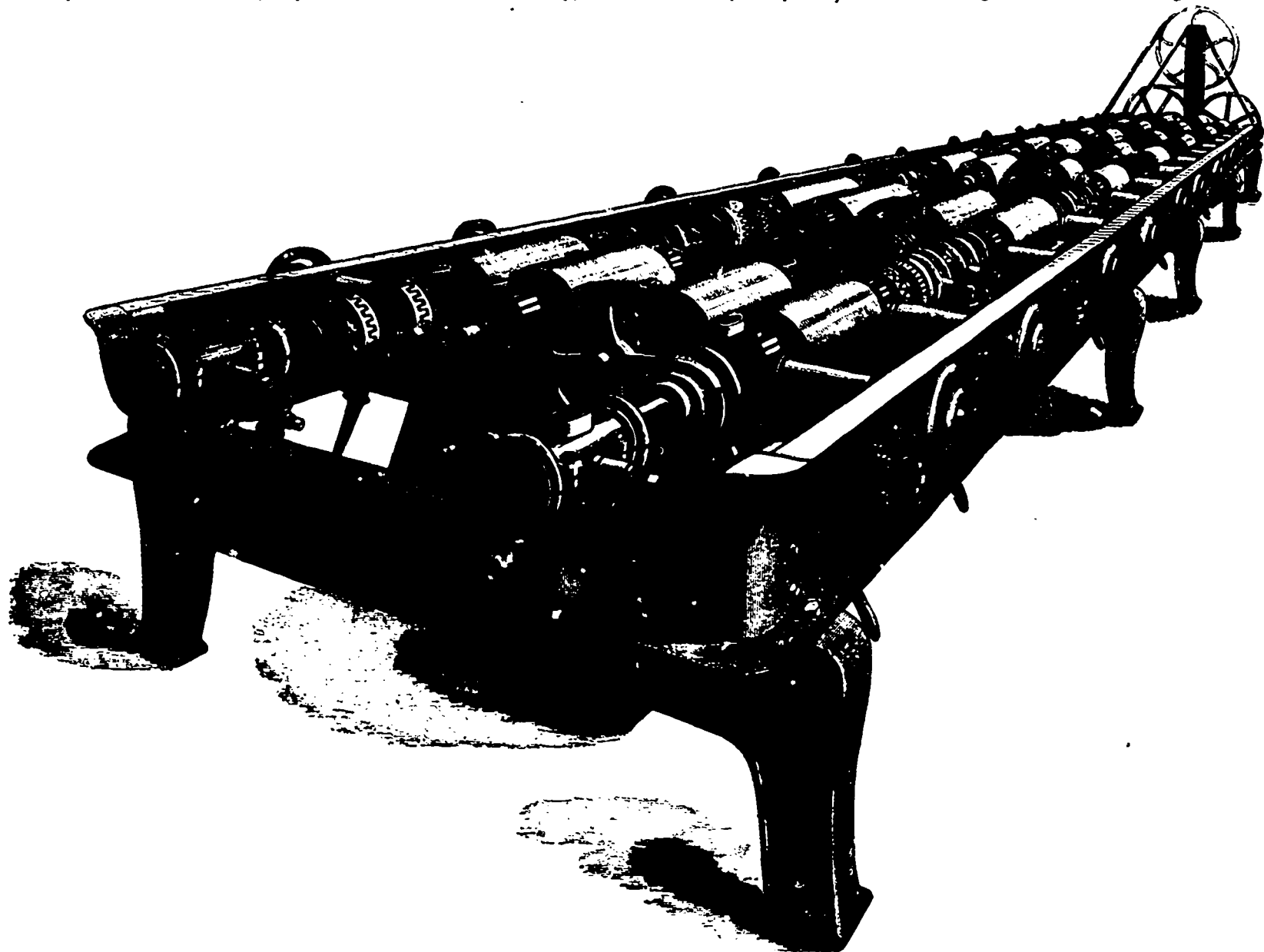
THE illustration appearing on this page represents the new Cochrane roller mill, the manufacture of which is about to be commenced by the Cochrane Roller Mill Supply Co., Dundas, Ont.

There are seven sets of double 9 x 24 rolls set in a solid iron frame 48 feet in length and 5 feet in width, each double pair of rolls occupying six feet of space in frame. Each double pair of rolls is carried by a pair of iron

The mill is a continuous or combined mill or a single mill at the will of the miller, as he can stop and start each pair of rolls independent of the others. Indeed these rolls are said to be even more independent than separate rolls.

The hoppers rise above the frame the same as on ordinary rolls built by leading manufacturers, with automatic feed, which is also driven by a continuous shaft, through hollow feed rolls, with clutches adjusted so that the feed can be stopped on each roll separately or by

or hammering. The iron has a tendency to rust from the moment it leaves the hammer or rolls, and the scale must come away. One way to preserve iron is to coat it with paint when hot at the mill; although this answers for a time, it is a very troublesome method, and the subsequent cutting process to which it is submitted leaves many parts bare. In addition it does not remove all the scale, and until that is done painting will be of little use. The only effectual way of preparing wrought iron is to cause a thorough and chemical cleaning of the surface



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bridgetrees or girders, the back rolls being set rigid on the bridgetrees. The front or adjustable rolls are made with hollow journals, through which passes the driving shaft which transmits the power by means of drum gear to each roll in continuation along the frame from driving point at end of frame, the power being transmitted to each of the two lines of rolls by two 30 inch pulleys driven by a single seven inch belt with tightener. The differential is given by a compound gear attached to the shaft and back or stationary roll, and practically independent of the front or movable roll, so that the gears are constantly running on their pitch lines, and therefore noiseless. Also, by means of clutches on both front and back rolls, they can be stopped or started at will with mill running at full speed, and without strain or jar to any mechanical part of the mill. The adjustment of the rolls is done by means of a hand wheel and screw with coil spring in the ordinary way, with tension rod so arranged as to prevent the possibility of the rolls running together and scouring off their surfaces in case of accidental stoppage of flow of material going to rolls.

means of lever and friction clutch. At end of shaft all the feed rolls can be stopped by one movement.

PAINTING IRONWORK.

CAST and wrought iron behave very differently under atmospheric influences and require different treatment. The decay of iron becomes very marked in certain situations, and weakens in direct proportion to the depth penetrated. This penetration becomes a serious matter when the metal is under one-quarter inch in thickness. The exterior surface of cast iron is very much harder than the interior, and affords an excellent natural protection, and when this is broken rust attacks the metal and soon destroys it. It is very desirable that the casting be protected as soon after leaving the mould as possible, for which purpose a priming coat of paint should be applied, the other requisite coats being given on at leisure. In painting wrought iron, when it is oxidised by contact with the atmosphere, two or three distinct layers of scale form on the surface, which unlike the skin on cast iron can be readily detached by brushing

of the metal upon which the paint is to be applied; to do this the iron must be immersed for three or four hours in water containing from 1 to 2 per cent. of sulphuric acid, and afterward rinsed in cold water, and, if necessary scoured with sand, put again into water and sulphuric acid, and then well rinsed. If, after cleansing, the painting is delayed for a short time, the iron should be preserved in a bath made alkaline by caustic lime, potash, soda, or their carbonates. Caustic lime is the cheapest and easiest used, and iron which has remained in it for some hours will not rust by a slight exposure to a damp atmosphere. When the surface of iron is clean, the question arises what paint should be used? Through the failure of bituminous paints, and those containing lead, resource has been had to iron oxide itself with satisfactory results. A pound of iron oxide paint when mixed ready for use in the proportions of two-thirds oxide to one-third linseed oil, with careful work, should cover twenty-one square yards of sheet iron. Oxide of iron paint endures very great heat without material alteration, and keeps both its color and preservative qualities well.