CANADA PAPER CO.'S MILLS.

it simple cordwood. Now, cordwood is a stubborn material, and is usually humored with a saw, or soothed by a due regard for its grain; but it gets little petting in the paper mill. Strongly set upon a revolving shaft is a great 5-ton wheel, with projecting knives running on one side like a spoke from the centre to the circumference. The edge of this knife is parallel to the wheel. The log of wood, placed in an inclined trough, slides down and rests against the side of the revolving wheel until the projecting edge comes round and slashes right across the wood, taking off a clean slice in a moment. Just beneath the knife is a space through which the sliced wood falls into buckets arranged upon an inclined endless chain, the same in principle as

5 t

35)

1

THE BUCKET FRAME OF A LARGE DREDGE-

not dredges of the stamp at present working in Montreal harbor, but the improved deep-water dredges, used in Lake St. Peter. The buckets ascend filled with chips, and empty themselves into a room above as they come over the top, of the chain. This room is a long one, and under this floor are a number of gigantic upright boilers. These boilers, beneath which are furnaces, are twentyone feet in height. The chips from the cordwood are shovelled into these, and a blackish, caustic liquor, which will be afterwards referred to, is poured in on top of them, and fire kindled in the furnaces beneath, until the steam from the liquor causes a pressuse of 100 lbs. to the square inch, or thereabouts, on the boilers. This heat is maintained for a certain time, according to the nature of the wood, and reduces the wood to black, sponge-like, semi-fluid masses, which after being properly cooked, are conducted into large tins, and, after being washed there with weak caustic liquor and water, are finally thrown into an agitating stuff-chest, which completes

THE DISINTEGRATING PROCESS.

From the stuff-chest the pulp is pumped up on to a vibrating wire-cylinder, and thence goes through a series of "wet press cylinders," which it leaves in the form of fibrous brown sheets resembling paper, but without much consistence. This is then placed in a large bleaching engine from which it runs into the "drainers," referred to in the rag process, and afterwards receives the final washing. Such is the preparatory treatment ; from the choppers to the boilers and bins; then to the stuff chest and wet-press cylinders, and thence to the bleaching engine, and the wood is at last ready for combination with the rag pulp, to which all the above lengthy course has been only preparatory. Indeed, the pulp once ready, the making of the paper is a quick and clean process, and apparently the least important of the many steps taken in the manufacture. But the same rule holds good here as everywhere, that in all work which results in important ends there is a turning point at which the road, long, difficult and seemingly purposeless, suddenly becomes fair and direct and leads at once to the goal. But each previous and almost anness exertion must be as careful as though everything depended on it; a single mistake in the preparation of this paper pulp, a mis-tint, or want of proper bleaching or cleaning, discovers itself after this critical point and ruins the quality of the paper. It may be mentioned, before going on to describe the final manufacture, that the caustic liquor in which the wood is boiled, and which loses in the boiling much of its strength, is saved and used over again after being renovated in the "recovery house," which will be referred to later.