

abutment for the lip and relieves the rivets holding it of a large portion of the shear that would otherwise come upon them. The cutting lips are of forged steel with a hammer-dressed edge, and are fastened to the bucket and link with large rivets closely placed. A good idea of the size and general proportion of one of these chains may be obtained from Fig. 3, which is from a photograph of a portion of a chain which has recently been shipped to British Columbia.

The screen, which is also reproduced from a photograph in Fig. 4, is built with the same idea of quick and thorough repair; all parts subject to the wearing action of the gravel are of easy access and may be taken out and replaced without disturbing the balance of the screen. The bearings of the rollers on which it turns are of the dirt-protected type and the machine as a whole is strong and durable. It is built with a heavy steel frame to which two heavy turned-steel tires and the driving sprocket are rivetted. The screening sur-

gether in courses like a boiler shell, when a portion becomes worn it is necessary to cut out the rivets and renew a whole course. A further interesting feature of the screen illustrated is the fact that a special grade of wire cloth is used for the screening surface in place of the perforated plate commonly used for gravel screens; this cloth, which is for fine screening, is made of 5-16 inch wire and is 3-8 inch mesh; it is very heavy and substantial, and is the largest diameter of wire that may be woven to this mesh.

Other sizes of wire cloth, up to 1½-inch mesh woven from 1-inch wire may be substituted if desired, or perforated plate up to 5⁄8-inch or ¾-inch in thickness with such perforations as may be deemed necessary.

The outline drawing cut No. 1, shows an electrically driven machine, but steam dredges are supplies which possess the same general characteristics.

The half-tone cut No. 5, shows one of the Link-Belt Company's dredges working through the ice, excavat-



A BELT CONVEYOR ON DREDGE IN OPERATION.

face, which may be of perforated plate or wire cloth, as desired, is made in panels of convenient size, bolted on; all bolt heads are flush with the inside of the screen and all parts that are not covered with the clamp plates holding the panels are provided with protecting plates so as to prevent the contact of the gravel with the main frame. The object of the designer was to construct the screen so that there would be a permanent frame which was not subject to extreme wear and which could always remain in place upon its trunnions, and to which the screening surface could be attached in such a manner that any portion could easily be removed when worn or when it was deemed desirable to change the mesh, with the least possible expense and delay. Of course it is impossible to screen large quantities of gravel without considerable wear upon the screening surface, and in the ordinary revolving screen, which is commonly made of perforated plates rolled up and rivetted to-

ing marl for the manufacture of Portland cement. While this is a much lighter class of work than placer mining, yet in some respects it is fully as difficult; and the fact that a machine has been constructed which has worked through the entire winter season without serious expense for repairs speaks volumes for the workmanship of the machinery.

#### BELT CONVEYORS ON GOLD DREDGES.

AN opportunity of reducing the cost and, at the same time, increasing the efficiency of a dredge is now to be found in the application of the perfected belt conveyor to the work of stacking tailings. The Robins Conveying Belt Company had never followed the common practice of making their experiments vicar-