ROTARY WATER SCREENS

By L. N. Thompson
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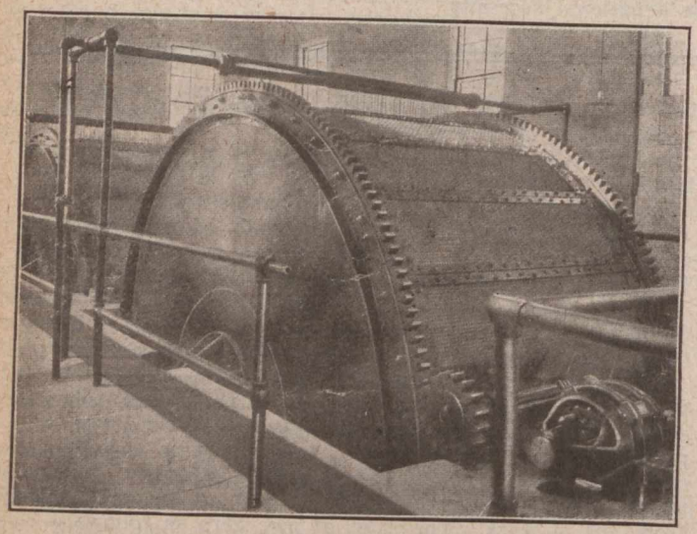
MOTOR-driven rotary screens are now being used very successfully by the city water department, St. Paul, Minn., for removing vegetation and solid particles from the drinking water. Prior to November, 1917, when the present system was put into operation, stationary screens were used which were cleaned with difficulty and required constant care, and were not very satisfactory. The rotary screens require practically no attention and have operated continuously since their installation.

The screens, as will be seen by the accompanying illustration, are cylindrical in shape, approximately 7 ft. long



Rotary Water Screens at St. Paul

and 14 ft. in diameter, with framework of structural steel, and have the appearance of large drums. One end is sealed tight by steel plates, the other end being left open for the entrance of water into the drum. The sides of the drum are covered with 24 sections 80-mesh Monel metal screens, which are also reinforced by ¾-in. mesh No. 8 copper wire.

The entire drum rotates about a hollow cast-iron shaft, or axle, 8 ins. inside diameter. By using two sets of roller bearings, very little power is required to operate them. A concrete wall, which is built at the open end of the drum, with an opening approximately the same radius as the drum, prevents the escape of water around the screens. Rubber belting is used between the concrete and metal frame to seal the joint.

Operation of the Screens

The unscreened water enters the open end of the drum and passes through the screens, leaving the dirt on the inside face. On the inside of the drum, near the top, extending the entire width, is a 4 by 6 ft. iron wash-water trough. Directly above the trough, on the outside of the screen, is a 4-in. pipe, the under side of which has a row of small holes, from which high-pressure streams wash through the screens and into the wash-water trough below. As the screens revolve past the trough, they are thus continually cleaned. The wash water is carried away through the hollow shaft, a very small amount of water being required to clean the screen thoroughly each revolution.

Drums Driven Independently

Either drum is driven independently of the other by a 7½-h.p. electric motor. A driving gear is connected at either end of the drum and any tortion is taken up by a differential. A speed regulator and two changes of speed in the gears give any desired rate of revolution and cleaning.

Two screens have been installed and provision made for a third. During the past year approximately 17,000,000 gallons passed the screens daily, which is far from their maximum capacity.

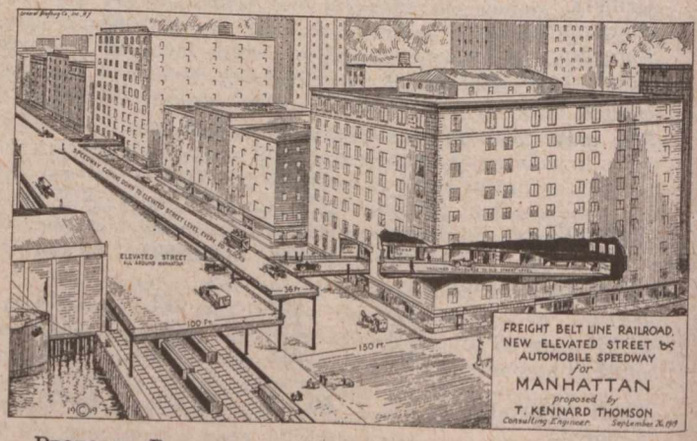
The screen chamber was built so that either or both screens can be shut off from service, and water passed around them without being screened. The screens were built by the St. Paul Foundry Co., and were designed under the direction of G. O. House, general superintendent, and W. N. Jones, engineer. The screen chamber was designed and constructed by J. W. Kelsey and L. N. Thompson, department engineers. All work was done by force account.—From "Fire and Water Engineering."

CANADIAN ENGINEER PROPOSES BIG RAILWAY SCHEME FOR NEW YORK CITY

DR. T. KENNARD THOMSON, a well-known engineering graduate of the University of Toronto, who has been in private engineering practice in New York City for many years, has designed a proposed belt line railroad to encircle Manhattan Island. The railroad is intended for freight service only. Above it, as shown in the accompanying sketch, is to be an elevated street 100 ft. wide, with a separate speedway 36 ft. wide. The speedway comes down to the level of the elevated street at every 20 blocks. Spaced only a few blocks apart, there are to be a number of inclined concourses from the elevated street to the old or lower street level. The elevated street and speedway, like the railroad, are to encircle the entire island.

Dr. Thomson declares that capitalists who are associated with him in the scheme are willing to build the railroad, streets and concourses entirely at their own expense, and donate the streets and concourses to the city without remuneration, provided that they are given a free franchise for the railroad.

The estimated cost of the whole scheme is about two hundred million dollars, but Dr. Thomson states that there are two hundred business men in New York who will finance it if the franchise is granted. When the scheme was sub-



Proposed Railway and Elevated Street, New York

mitted last month to the city's Board of Estimate and Apportionment, it was referred to the Committee on Franchises. Whether the franchise will be granted or not is a matter of considerable doubt; nevertheless the many Canadian engineers who know Dr. Thomson will, no doubt, be much interested in his ingenious scheme.

The American Association of Engineers received 902 applications for membership between October 1st and October 23rd, and the qualifications committee approved the admission of about 700 members.

The annual meeting of the American Road Builders' Association will be held November 7th at the Automobile Club of America, New York City. There will be two sessions for the purpose of receiving seven committee reports and annual reports of officers, electing new officers, etc.