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IMPROVEMENT OF BOSTON HARBOR.

A movement is on foot to procure from Congress the necessary appropriations for the deepening of the channels at Boston, so as to admit vessels of the largest class. A depth of 30 feet is necessary, while at present only from 23 to 27 feet at mean low water are available.

THE UTILIZATION OF WIND AS A MOTIVE FORCE.

For many centuries wind has been used in the countries of the old world as a motive power. In some of the low lying lands of Central Europe the lumbering old windmill is still one of the characteristic features of the landscape.

In this country the windmill has of late years been greatly improved and brought extensively into use. It is estimated there are over half a million windmills now running, and the annual increase in sales is estimated to be upward of 50,000.

The chief drawback to the use of wind-driven motors is that the power is intermittent and uncertain. It has often been proposed to store up this power, so that the supply can be drawn upon in calm weather.

Water might be raised a certain height and stored in tanks prepared for the purpose. But on the basis that one horse power would require the lifting of 33,000 pounds one foot in one minute, it is evident that it would require large storage tanks and much time to lift enough water to provide a supply of any practical value.

To this must be added the cost and care of a water motor to utilize this stored-up energy. A simple calculation shows that to furnish a constant supply of one horse power for a day of ten hours would require the daily storage of 47,000 gallons of water at a height of 50 feet.

To accommodate this would require a tank 20 feet square and 16 feet high. To the expense of such a tank must be added the cost of the strong tower which would have to be built to carry at such a height this load of nearly 200 tons.

There would be a certain amount of drawback to the use of this system in the fact that the handling of a battery necessitates some technical knowledge and skill; a consideration that must necessarily limit the range of its application.

THE CHICAGO TIMES-HERALD MOTOR RACE.

It was extremely unfortunate that the weather should have interfered so seriously with the Chicago Times-Herald motorcycle contest, which came off at that city on Thanksgiving Day. The recent storm had left the roads heavy with snow and mud.

Two of the machines covered the distance fixed for the race; the first being the design of an American inventor, Charles E. Duryea, of Springfield, Mass. His vehicle, a gasoline motorcycle, covered the fifty-four miles in 10 hours and 23 minutes; a really creditable feat, when we consider the wretched state of the roads.

Sturges electrical machine made no effort to cover any great part of the course.

The R. H. Macy had to retire after covering half the distance on account of broken running gear.

Although it is to be regretted that the recent storm should have spoiled this most interesting contest as regards the number of contestants and the rapidity with which the course was covered, we must bear in mind that the great severity of the test speaks all the more favorably for the excellence of the vehicles which completed the journey.

The storm of a day or two previous had completely paralyzed vehicular transportation in the very district where the Duryea motorcycle completed a fifty-four mile journey at a five mile gait, and came in to the winning post none the worse for the trying ordeal.

It is, moreover, greatly to the credit of the manufacturers that all this strength should have been obtained without the sacrifice of general appearance. As shown in the illustration, the Duryea motorcycle is certainly an elegant "turnout," and for looks it could hold its own with the average horse carriage of today.

Undoubtedly the motorcycle has come to stay. For private use, as compared with the horse carriage, it has many points in its favor. The space required for stabling would be merely that occupied by its own bulk; and its running expenses would be limited to the fuel consumed and such repairs as might occasionally be required.

We think that this new means of transportation is destined to play an important part in the question of city traffic. In the main thoroughfares of the larger cities traffic is badly congested. The adoption of the motorcycle will largely relieve this, for the reason that it occupies only about one-half the space of the horse carriage; moreover, it turns in a much smaller circle, and is in every way more flexible in a crowded thoroughfare.

The metaphorical allusion to a flow of water in speaking of city traffic is well chosen. The "stream of traffic" is subject to the same laws as any fluid moving in a fixed channel. The more easily the particles adjust themselves to each other, the more rapid will be the flow, other things being equal.

The force of this statement will be realized by any one who has watched the ease with which the bicycle can thread its way through a crowded thoroughfare. Making allowance for its larger bulk, the motorcycle shows an equal facility of control.

The general adoption of this vehicle, and the consequent removal of many thousands of horses from the streets of our cities, would result in greatly improved sanitary conditions. The introduction of the trolley and the cable car removed the nuisance in part, it is true, but it still exists. A gusty wind will raise at any time in dry weather a cloud of dust, which is composed more than anything else of pulverized manure.

Wire Flywheel.

Among the most recent and novel applications of wire, attention is drawn in Hardware to the wire flywheel lately erected at the Mannesmann Tube Company's works, Germany, and especially notable, in view of the well known fact that heavy flywheels, driven at high velocities, present such dangers of breaking asunder from the great centrifugal force developed.

This huge flywheel is driven at a speed of about 240 revolutions per minute, or a peripheral velocity of 28 miles per minute, or approximately 250 feet per second, which is said to be nearly three times the average speed of any express train in the world.