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IMPROVEMENT OF BOSTON HARBOR.

A movement is on foot to procure from Congress the great part of the course. necessary appropriations for the deepening of the channels at Boston, so as to admit vessels of the larg- distance on account of broken running gear. est class. A depth of 30 feet is necessary, while at most liberal appropriations for a work at once so necessary and advantageous to the whole country.

THE UTILIZATION OF WIND AS A MOTIVE FORCE.

of the lowlying lands of Central Europe the lumbertures of the landscape.

now running, and the annual increase in sales is esti- combined obstacles of mud and snow. mated to be upward of 50,000. They are mainly used

lighter mechanical work of a farm. The success of the day. improved windmill in America has encouraged the Undoubtedly the motocycle has come to stay. For It has often been proposed to store up this power, so ally be required. that the supply can be drawn upon in calm weather. is open to question.

would require large storage tanks and much time to ed thoroughfare. lift enough water to provide a supply of any practical. The metaphorical allusion to a flow of water in mans & air would in like manner largely neutralize any appar-wort. 355 ent utility of such device. motors for the utilization and storage of compressed motocycle, its capacity would be largely increased.

a set of cells whose weight would be from 1,600 to 1,700 shows an equal facility of control. pounds. They would occupy some 20 cubic feet of \$500.

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

.... THE CHICAGO TIMES-HERALD MOTOR RACE.

It was extremely unfortunate that the weather should have interfered so seriously with the Chicago unbroken fields of snowbanks and slush." Six machines lined up for the start: The Durvea, of Springfield, Mass.; the Morris & Salom electrobat, of Philadelphia; the H. Mueller motocycle, of Decatur, Ill.; the R. H. Macy, of New York; the De la Vergne. of New York : and the Sturges electric motocycle, of Chicago. distance test, was started from New York to Chicago by road on November 15; but it was stalled by snow when it reached Schenectady. 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 miles in 10 hours and 23 minutes; a really creditable

Sturges electrical machine made no effort to cover any

The R. H. Macy had toretire after covering half the

Although it is to be regretted that the recent storm present only from 23 to 27 feet at mean low water are should have spoiled this most interesting contest as available. Boston is now one of our most important regards the number of contestants and the rapidity shipping ports and enjoys a great and growing com-¹ with which the course was covered, we must bear in merce. There should be no delay in granting the 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 For many centuries wind has been used in the where the Duryea motocycle completed a fifty four countries of the old world as a motive power. In some mile journey at a five mile gait, and came in to the winning post none the worse for the trying ordeal. ing old windmill is still one of the characteristic fea- No better proof could be given of the all round excellence of this vehicle. The greatest care must have In this country the windmill has of late years been been exercised in the proportioning of parts, and greatly improved and brought extensively into use, the general setting up, both of the motor and car-It is estimated there are over half a million windmills riage, to enable it to battle for ten hours against the

It is, moreover, greatly to the credit of the manufor pumping the domestic water supply; in many of facturers that all this strength should have been obthe Western States a farm is scarcely considered to tained without the sacrifice of general appearance. be complete unless it can boast of its windmill pump. As shown in the illustration, the Duryea motocycle is In some cases the mills are put to such work as certainly an elegant "turnout," and for looks it could cutting feed for stock, grinding corn, and the various hold its own with the average horse carriage of to-

manufacturers to push the trade in European countries private use, as compared with the horse carriage, it and there is to day a growing demand in the old has many points in its favor. The space required for world for these very useful and economical machines. stabling would be merely that occupied by its own The chief drawback to the use of wind-driven mo- bulk; and its running expenses would be limited to tors is that the power is intermittent and uncertain, the fuel consumed and such repairs as might occasion-

We think that this new means of transportation is This can undoubtedly be done; but whether such destined to play an important part in the question of storage can be accomplished with economical results city traffic. In the main thoroughfares of the larger cities traffic is badly congested. The adoption of the Water might be raised a certain height and stored in motocycle will largely relieve this, for the reason tanks prepared for the purpose. But on the basis that that it occupies only about one-half the space of the one horse power would require the lifting of 33,000 horse carriage; moreover, it turns in a much smaller pounds one foot in one minute, it is evident that it circle, and is in every way more flexible in a crowd-

value. To this must be added the cost and care of a speaking of city traffic is well chosen. The "stream of water motor to utilize this stored-up energy. A simple traffic" is subject to the same laws as any fluid moving calculation shows that to furnish a constant supply of in a fixed channel. The more easily the particles adone horse power for a day of ten hours would require just themselves to each other, the more rapid will be the daily storage of 47,000 gallons of water at a height the flow, other things being equal. Nothing hinders of 50 feet. To accommodate this would require a tank the flow of traffic so much as a line of vehicles mov-20 feet square and 16 feet high. 'To the expense of ing on a fixed track and having the right of way over such a tank must be added the cost of the strong tower other traffic. If such a thoroughfare as Broadway, in which would have to be built to carry at such a height New York City, were asphalted from end to end, and this load of nearly 200 tons. The cost of receivers and its vehicular traffic carried on by various forms of the

The force of this statement will be realized by any one who has watched the ease with which the bicycle To store up sufficient electrical energy to run a one can thread its way through a crowded thoroughfare. horse power motor for a day of ten hours would require Making allowance for its larger bulk, the motocycle

The general adoption of this vehicle, and the consespace; and with the motor, belting, shafting and quent removal of many thousands of horses from the general fittings complete, the plant would cost about 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 use of this system in the fact that the handling of a 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. range of its application. Of the three systems of The gravity of this nuisance, viewed from a sanitary storage, the last mentioned would seem to be the standpoint, is not generally appreciated. The adopbest; and with further improvements in the way of tion of any device, such as the motocycle, which will automatic devices for regulating the charging and abolish the horse from a city's streets, would be weldischarge of the batteries, we may look for a more comed by its sanitary officers as largely conducive to public health.

Wire Flywheel.

Among the most recent and novel applications of wire, attention is drawn in Hardware to the wire fly-Times-Herald motocycle contest, which came off at wheel lately erected at the Mannesmann Tube Comthat city on Thanksgiving Day. The recent storm had pany's works, Germany, and especially notable, in left the roads heavy with snow and mud. We are told view of the well known fact that heavy flywheels, that "for miles on the west side the boulevards were driven at high velocities, present such dangers of breaking asunder from the great centrifugal force developed. The wheel at the factory mentioned is described as a cast iron hub or boss, to which are attached two steel plate disks or cheeks, about 20 feet in diameter. The peripheral space between the disks is filled in with some seventy tons of No. 5 steel wire, The Roger motocycle, with a view to giving it a long completely wound around the hub, the tensile resistance thus obtained being found to be far superior to that of any casting. This huge flywheel is driven at a speed of about 240 revolutions per minute, or a peripheral velocity of 2.8 miles per minute, or approximately 250 feet per second, which is said to be nearly three times the average speed vehicle, a gasoline motocycle, covered the fifty-four of any express train in the world. For such a constructed flywheel the length of wire is estimated at feat, when we consider the wretched state of the roads, about 250 miles. The use of paper is also regarded with The H. Mueller, also an American machine, was second, | favor for large fly wheels, the tensile strength of paper making the journey in 1 hour 35 minutes longer time. being enormous, and it is quite possible that some of The De la Vergne, the Morris & Salom, and the the new big wheels will be built up with a paper rim.

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