

AN AUTOMOBILE SLED.

The Nuernberger Motorfahrzeuge-Fabrik "Union" is about to manufacture an automobile sled, of which we reproduce herewith a photographic illustration. By reason of the fact that the mechanism has not



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been as yet fully perfected by patents we have not been able to secure full details of the construction and operation of the sled.

So far as we have been able to learn the sled is driven by a benzine motor, water-cooled and equipped with electro-magnetic sparking devices. The cooling water circulates in the body of the sled, through pipes which are so disposed as to constitute a foot-warmer.

The steering gear includes a tiller, which is connected with the front runners. A single lever controls the direction of the motor shaft's revolution. Various speeds are obtained by operating a hand-wheel mounted on one side of the sled. So far as we have been able to learn the sled is driven by a spiked wheel, which bites the ground and which is geared up to the motor shaft.

A BICYCLE-DRIVEN CATAMARAN.

An American inventor has hit upon the idea of using his bicycle to drive an ordinary catamaran. The bicycle is suitably supported above the two connected boats, the rear wheel engaging two friction rollers. The shaft of one of these friction rollers carries a pinion meshing with a gear carried on a second shaft. A sprocket-wheel on the gear-shaft is connected by means of a chain with a sprocket on a paddle-wheel shaft. It is evident from the illustration that by propelling the bicycle in the usual way, the rear wheel, acting through the medium of the friction-rollers and the transmission gearing described, will turn the paddle-wheel and drive the catamaran forward.

The traveling radius of electric vehicles, even in large cities, being necessarily limited by the scarcity of charging stations, a Brooklyn (N. Y.) physician has perfected a scheme whereby he can replenish his batteries from the omnipresent trolley wires. As such action, without permission, would constitute larceny, he has attached an electrometer to his carriage, and is prepared, in the event of the officials' acquiescence, to pay for all electricity so "borrowed."



BICYCLE-DRIVEN CATAMARAN.

The Scope and Purpose of the Scientific American.

For the reason that the present number is a Special Issue, it will fall into the hands of many readers who may not be perfectly familiar with the SCIENTIFIC AMERICAN, that is to say, who do not have the opportunity to read it week by week, and who, therefore, have no clear idea of its contents, or the general aim and purposes of the paper. For their information we may say that the SCIENTIFIC AMERICAN claims, broadly speaking, to give a weekly record of every event of importance that occurs in the scientific world, while, as soon as the necessary data is obtainable, events of the first importance are to be found described in full detail, and, as far as possible, made clear by illustrations. Of course, there are some subjects which do not lend themselves to detailed description within the limits of the space at our disposal in the SCIENTIFIC AMERICAN, and in such cases, they will be found in the columns of the weekly SUPPLEMENT. It is unnecessary to attempt to enumerate the branches of science which are embraced in a programme as broad as that above described, nor do we claim that equal attention is paid to all branches of science and art. By way of reference to the work we have done in the past, we may mention the illustrated articles which have appeared under the head of "Transportation," whether by steamship, steam railroad, or on the enormous network of street railways with which our cities and much of our interurban districts are covered; and the series of industrial articles which has been running periodically for many years. The development of our navy and our

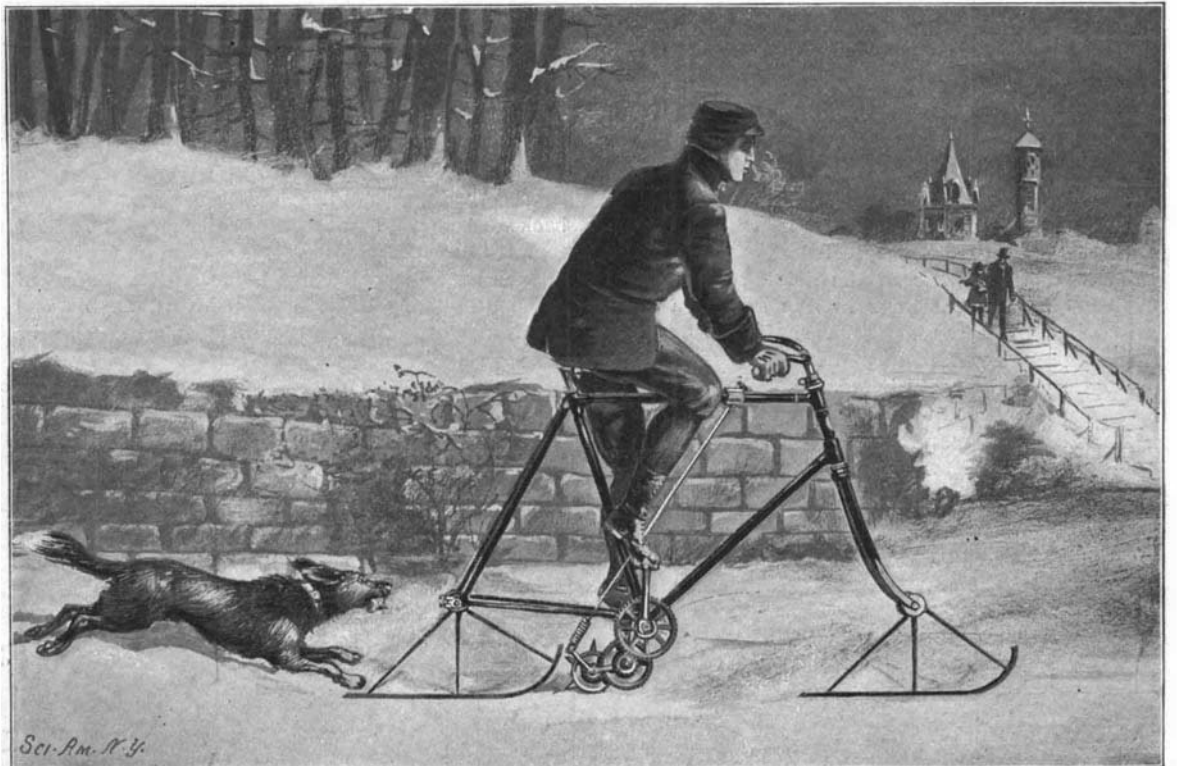
ment, in which a selection of the most promising current inventions is described and their salient features shown by illustrations. Under this head is a department of legal notes and a list of recently patented inventions. We think we may claim that the SCIENTIFIC AMERICAN is entirely unique among the scientific journals of the world in respect to the extent of the field covered and the success which it has achieved in interesting both the highly trained specialist and the layman who has not the time available for taking more than a cursory interest in current scientific events.

A SNOW BICYCLE.

On many of our country roads the safety bicycle has to some extent taken the place of a horse and carriage. But during the winter, when the ground is covered with snow, recourse must still be had to the horse. Benjamin C. Trudelle, of Bay City, Mich., evidently would like to use the bicycle in all kinds of weather; for he has invented what he calls a winter velocipede, with which he hopes to do what cannot be accomplished with an ordinary bicycle. As a matter of course, runners take the place of wheels.

The driving-gear of this curious machine consists of a spur-gear fixed to the crank-shaft of the bicycle, and a pinion meshing with the spur-gear, the shaft of which is rotatably mounted in a bearing carried by the lower end of a bracket secured to the bicycle frame. The opposite end of this shaft carries a gear meshing with a pinion rigidly attached to a spiked driving-wheel. Evidently, by rotating the main spur-gear through the medium of the pedals, the spiked wheel is turned forwardly.

In order to adjust the height of this driving-wheel



A BICYCLE ON RUNNERS.

sea-coast defenses has received most ample treatment, and every new battleship and cruiser and all new types of ordnance are illustrated as early as the official drawings and plans of the same are obtainable. Many of the special issues on naval matters are receiving semi-official recognition by the Navy Department. Each number of the SCIENTIFIC AMERICAN contains a front page made up entirely of illustrations, and upon this page may frequently be found those full-page diagrammatic comparisons of massive machinery, great industrial enterprises, etc., for which this journal has become famous. Then follow two pages of editorials which are mainly devoted to the discussion of scientific topics of the day. Of the following eight pages, five or six are richly illustrated, chiefly with photographic and wash-drawing reproductions, which are supplemented with line cuts, as far as the latter are necessary to describe the details and operation of the subject in hand. Each issue contains several columns of science, engineering and electrical notes. A new feature which has recently been added and has become extremely popular, is a special patent depart-

and to enable it to yield when overriding obstructions, the inventor resorts to a peculiar device. A vertically-movable arm is pivoted to the lower end of the bracket carrying the bearing previously referred to. An upwardly-extending adjusting-rod is fixed at its lower end to this vertically-movable arm and is secured at its upper end to the bicycle-frame. A collar secured to the lower part of the rod opposes the thrust of a spring, which resists the upward thrust, thus permitting the driving-wheel to override obstructions.

A portable automobile house has been recently put on the market, the design and manufacture of F. F. Hodgson, of Dover, Mass. This is designed to meet the wants of owners who may desire a temporary house at a country place or resort where they may be stopping for a short season, and also for others who do not care to go to the expense of erecting an expensive shelter for the carriage. This house is built of cypress, and is shipped painted and in sections which can be put together by anyone having the slightest knowledge of the use of tools. There are three sizes, but the most popular is 10 feet square and 9 feet high at the peak. The door is 6 feet wide and 6½ feet high. There are two large windows on each side of the stable and an outside incline.

Mrs. A. B. Cleveland, of Unionville, Ohio, is the owner of an automobile which she drives herself. It is her custom to do her shopping in Cleveland, which is forty-five miles away, and this trip she makes quite often. She leaves her home early in the morning, and is always back before nightfall. She says that the use of the automobile gives her a longer time in Cleveland than when she makes the trip by train.