

dead-ahead and dead-astern. The concentration of fire ahead from this arrangement of battery will be two 12-inch, four 7-inch and six 3-inch, while astern it will be possible to concentrate two 12-inch, four 7-inch and eight 3-inch guns. On each broadside there will be a concentration of four 12-inch, ten 7-inch and ten 3-inch guns.

The design marks a return to the "Alabama" and "Maine" type, than which we are inclined to think none better was ever thought out for our own or any other navy. It has the advantage of simplicity, of reduction of the number of different types of guns and of an excellent distribution of their emplacements. Having the 12-inch gun for the penetration of turrets, barbettes and belt armor, the 7-inch heavy enough to penetrate 6 and 7-inch casemate armor, which is something more than the 6-inch gun is capable of doing, and the 3-inch gun, which with its high velocity and great speed of fire will be used for smothering the gun ports and unprotected gun positions of the enemy with a storm of shells, and riddling smokestacks, superstructures and unprotected shell plating, the attacking power of the vessel will be both enormously powerful and well distributed. With the exception of the 12-inch guns, each piece has its own separate traversing and elevating gear, and although the protection is not, perhaps, quite so absolute as that afforded by turrets, this is more than offset by the fact that the gun crew can see where they are and what they are doing, a most important consideration as affecting the morale of the men in battle. There is, in a comparison with 8-inch guns carried in turrets, the inestimable advantage that each 7-inch gun, being separately mounted, is not disturbed by the discharge of adjoining pieces—this last defect being one of the chief objections to the mounting—as in the superposed turret—of four guns upon a single turntable.

The advocates of the minority design favor the double turret, we understand, more for the sake of the larger piece (8-inch) which it carries than for any particular regard for the turret itself. Might it not be possible to compromise on the two plans by adopting the disposition of guns shown in the majority report, and substituting, say, sixteen 8-inch for the twenty 7-inch rifles? To secure the all-around protection afforded by the turret it would only be necessary to place transverse screens of armor between every gun on the gun deck and work continuous longitudinal screens from forward to after bulkhead, thus placing each 8-inch gun in a separate, completely boxed-in, casemate.

In any case, whether the 7-inch or the 8-inch battery be used, it seems to us that in view of recent developments in high-explosive shells it would be wise to isolate entirely each gun by the addition of the transverse and longitudinal armor screens above suggested. We understand that the Board is likely to compromise on some such plan.

This fine battleship was not reserved for our special number on the "Development of the U. S. Navy Since the Spanish War," Dec. 14, 1901, for the reason that the issue will contain only the ships that have been either commissioned, commenced or authorized since the war. Although Congress has authorized the drawing up of the plans for these battleships, no money has yet been voted for their construction, and hence they must necessarily be shut out of any tabulation of our navy that is drawn up on the basis we have chosen. Rather than omit mention of these fine ships altogether we present the above description.

NEW AUTOMOBILE SPEED RECORDS

Twenty-five thousand persons lined Ocean Parkway, Brooklyn, for a distance of two and a half miles on Saturday, Nov. 16th, and saw the most sensational automobile one mile speed tests ever made on either side of the Atlantic. A mile a minute on the highway is no longer an automobile dream; for no less than three of the contestants finished within that time. Fournier, the winner of the Paris-Berlin race, twice broke the

world's record, and was closely followed by Foxhall P. Keene, A. C. Bostwick and A. L. Riker. The course was a specially prepared dirt strip of the old Coney Island Boulevard, having a slight down grade. The contestants went over the course singly, their times being taken at the start and at the finish by members of the Second Signal Corps, U. S. A. Over a mile was allowed to the chauffeurs to get under way, and about a quarter of a mile to slow up after passing the finish line. The race was a contest by some of the best chauffeurs in the world for the one-mile record.

At his first attempt Fournier, in his 40 horse power Mors racer, sped over the mile in the remarkable time of 52 seconds. Not content with this performance, he returned to the start for another trial, and succeeded in reducing the record made but a few minutes before by one-fifth of a second. Foxhall P. Keene, in a Mors carriage exactly similar to that of Fournier, covered the mile in 54 seconds. American-built vehicles were not much behindhand. A. C. Bostwick, in a 40 horse power Winton gasoline carriage, made the mile in 56 2-5 seconds at the first trial, and in 1 minute 3-5 seconds at the second trial.

Good as the road undoubtedly was, it was not altogether free from slight, almost unnoticeable depressions and projections. At a speed of twenty miles or even thirty miles an hour an automobile will ride over a slight elevation with no appreciable effect. But at the enormous velocity of nearly seventy miles an hour

the same time it is but just to the other vehicles to state that while they were all capable of long-distance touring, the electric machine was capable of maintaining its maximum effort apparently for only a single dash over the mile course. It was towed to the course, towed back to the starting point after its trial, and charged its batteries immediately before its trial run from an adjoining electric car. By a special rheostat with which he has fitted his racing machine, Mr. Riker is enabled to divert part of the current from the field coils to the armature, after speeding up, so that the rotary speed of the armature-shaft is considerably increased. Since the racing machines of Fournier and Keene have already been illustrated in these columns, we have pictured only the carriage used by Mr. Riker.

The arrangements for timing the contestants seem to have been somewhat unusual. The timers at the finish were informed by the click of a telegraph instrument that a machine had started. An instant later an "O. K." signal was given to confirm the start. The timers consequently started their watches with the first click and caught the machines as they whirled past the finish line. If no "O. K." signal were given the watches were turned back for the next signal. As a result of this arrangement some machines ran over the course without being timed, no additional signal having been given. Foxhall P. Keene was one of those who suffered. His first trial was credited with a speed of 1 minute and 21 2-5 seconds, which was clearly an error. S. T. Davis, who made the mile in 1 minute and 15 seconds in a steam carriage and thus broke the previous steam carriage record of 1 minute and 39 seconds, was also mistimed in one of his attempts.

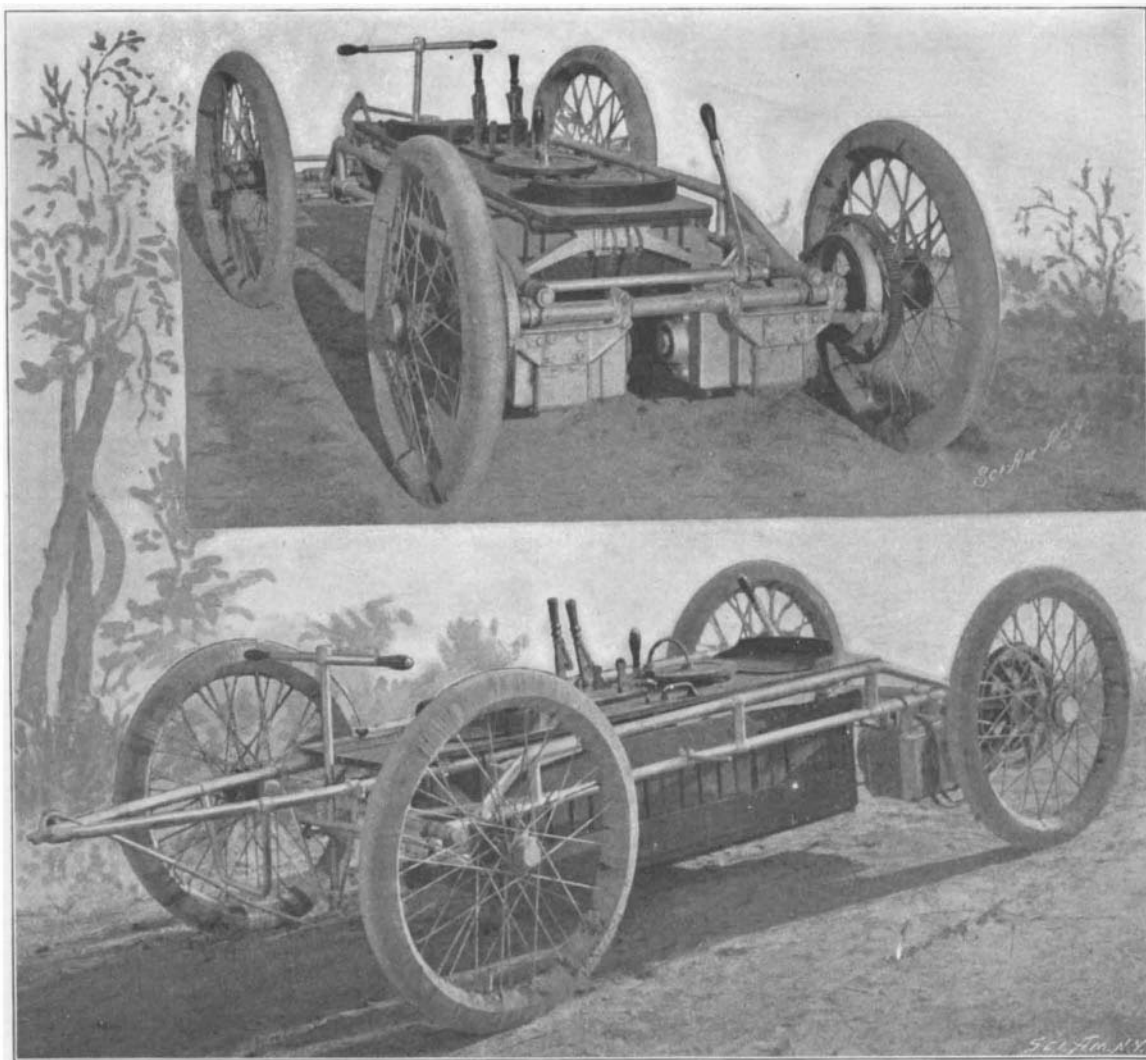
These are the most remarkable contests ever run on a public highway. They have shown that only a specially built locomotive engine running on steel rails can beat a modern racing automobile.

It is authoritatively stated that a concession has been granted by the government of Mexico to an American syndicate, to build a railroad from Monterey to Matamoros, which is situated in the State of Tamaulipas, near the mouth of the Rio Grande. The concession carries a governmental subvention of \$8,000 a kilometer (0.62137 mile), and there is a strong probability that the State of Tamaulipas will add \$2,000 a kilometer to this amount. The rich resources of northern Tamaulipas have remained undeveloped up to the present, on account of inadequate transportation facilities. Almost anything

suited to a subtropical climate will grow in this section, especially corn, cotton, fruits, vegetables, sugar cane, etc., and it has recently been demonstrated that rice can be successfully cultivated near the Rio Grande. The extent of land lying along the rivers and through which the proposed railroad will pass, which is susceptible of successful irrigation, is unlimited. Mexico, and especially the State of Tamaulipas, offers inducements to prospective investors and capitalists, and the policy of both the national and State governments is to judiciously protect whatever industries may be established.

The Current Supplement.

The current SUPPLEMENT, No. 1352, has a number of articles of more than usual interest. The front page and two succeeding pages are given up to "Wire Grass—A New Industry," in which all the steps in the process of wire grass cutting and utilization are outlined. This is a comparatively new material and is proving of great value. The fourth installment of the important series of "Enameling" is published in this issue. "A Comparison of the Merchant Fleets of the World" shows graphically the relative size of the merchant marine of the twelve leading nations. "Comparison of Recent Battleship Designs" occupies considerable space. "The Geographical Conquests of the Nineteenth Century," by Gilbert H. Grosvenor, is accompanied by maps of various continents.



RIKER ELECTRIC RACING AUTOMOBILE WHICH MADE THE PHENOMENAL RECORD OF ONE MILE IN 63 SECONDS ON SATURDAY, NOVEMBER 16TH.

the carriages could not yield to the slight, scarcely perceptible hollows, and at times every wheel would be clear of the road. And yet, despite this peculiar effect, they kept their course with remarkable precision and with no evident oscillation.

The vehicles driven by Fournier and Keene were both 40 horse power French gasoline carriages made by Mors. That a gasoline carriage would make the best record was inevitable. But no one foresaw that an electric car would also lower the previous world's record of 1 minute 6 2-5 seconds made by Winton. The carriage in question was designed and driven by Mr. A. L. Riker, and was a distinctly American type of machine. It was a racing machine pure and simple, an electromobile reduced to its lowest terms, a wheeled frame and a battery, with seats for two men arranged in tandem. Current is derived from 60 cells of the lead-zinc type, giving a maximum voltage of 130 and a discharge of 100 amperes. The battery weighs 900 pounds, and the entire carriage 1,850 pounds. With a start of only one-quarter of a mile, Mr. Riker covered the mile in 1 minute and 3 seconds, the armatures of his motors making about 3,300 revolutions per minute. The exact power of the vehicle has not been determined; but Mr. Riker informs us that the horse power is between 15 and 20. When it is considered that the French carriages of Fournier and Keene were equipped with motors rated at 40 horse power, Mr. Riker's performance is all the more remarkable. At