TABLE OF VESSELS COMMISSIONED, COMPLETED, BUILDING, OR AUTHORIZED SINCE THE SPANISH WAR.

*Twenty-one of this type of Gunboat captured or purchased from Spain, varying from 42 to 560 tons displacement and from 8 to 19 + Contract not awarded.

| Name. | Type. | destroyers and torpedo boats. |  |  |  |  | $\xrightarrow{\text { Armament. }}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
|  |  | Displacein Tons. in Tons. | Speed in | Torped |  | o Tubes. |  |
|  | Torpedo-boat Destroyers. | 420 | 29.0 | 2 18-inch |  | Whitehead. | 23 -inch and 56 -pounders R. F. G. |
|  |  |  |  |  |  |  |  |
| Dale ${ }_{\text {Dacatur }} \ldots$ |  |  |  |  |  |  |  |
| Paul Jones.......... |  |  |  |  |  |  |  |
| ${ }_{\text {Perry }}$ Preble .............. |  |  |  |  |  |  |  |
| Srewart..............$~$ | Torpedo-boat Destroyers. |  |  | 218 -inch |  | Whitehead. |  |
| Lawrence. ${ }_{\text {Macdonough........ }}{ }^{\prime}$ |  | 402 | 30.0 |  |  | 23 -inch and 56 -pounders R. F. G. |  |
| Whuxton ............ | Torpedo-boat Destroyers. | 433 | 30.0 | 2 18-inch |  |  | Whitehead. | 23 -inch and 56 -pounders R. F. G. |
| worden............. |  |  |  |  |  |  |  |  |
| Hopkins ............ Hull....... | Torpedo-boat Destroyers. | 408 | 29.0 | 218 -inch |  | Whitehead. | 23 -inch and 56 -pounders R. F. G. |  |
| Mapley .............. | Torpedo-boat. | 175 280 | 29.2 30.2 |  | 18-inch | Whitehead. |  |  |
| Barney ................ | .. | 175 | 29.1 | 3 | .. | .. |  |  |
| Biddle ................ | .. | 175 200 | ${ }_{26.0}^{28.0}$ |  | $\cdots$ | $\because$ | " " |  |
| Davis................. | .. | 154 | 23.4 | 3 | .. | $\because$ | 31 -pounders R. F. |  |
| Dahlgren........... | ". | 146 200 | 30.5 86.0 |  | $\because$ | .. | 41 -pounders R. F . |  |
| Perragut.............. | , | 279. | 30.1 |  | $\because$ | \% | 3 3-pounders R. ${ }^{\text {a }}$ - - |  |
| Fox ${ }_{\text {Goldsbor }}$............. | ". | ${ }_{247}^{154}$ | 23.1 30.0 | ${ }_{2}^{3}$ | " | $\because$ | ${ }_{4}^{3} 1$ 1-pounders ${ }^{\text {d }}$ R. . F . |  |
| Mackenzie........... | $\because$ | 65 | 20.1 |  | $\because$ | . | ${ }^{4} 1$-pounder R . F . . |  |
| Nicholson............ | $\cdots$ | 174 | 26.0 |  | $\because$ | . | 3 3-pounders R. F. |  |
| O'Brien ............... | $\because$ | 174 189 | 26.0 27.0 |  | ". | $\because$ | ${ }_{3}^{3} 3$ 3-pounders R. F - F . |  |
| Shubrick.............. | $\because$ | 200 | 25.0 |  | .' | $\because$ | 3 3-pounders R.F. |  |
| Stockton . . . . . ${ }^{\text {a }}$. | .. | 200 | 24.7 |  | $\stackrel{.}{ }$ | $\cdots$ | 3 3-pounders R. F . |  |
| $\xrightarrow[\text { T. A. M. Craven.... }]{\text { Stringham..... }}$ | ". | 346 | 30.5 |  |  | .. |  |  |
| Thornton............ | " | 200 | 26.0 |  | "̈ | .. | 3 3-pounders R... ${ }^{\text {F }}$. |  |
| Tingey ................ | $\cdots$ | 165 | ${ }^{26.0}$ | $\stackrel{3}{3}$ | " | " | .. |  |
| Holland ............ | Submarine. |  |  |  | Torped | o Tube. | 1 Dynamite Gun. |  |
| Adder............. .. |  | 120 | $8{ }^{-1} 7$ |  |  |  | ( 58 -cm. Whiteheads. |  |
| Moccasin ............... | $\stackrel{\square}{\square}$ | ". | $\cdots$ |  | . | $\stackrel{.}{ }$ | $\because$. |  |
| Pike ${ }_{\text {Phark }}$ Sha......... | " | $\because$ | .. |  | ". | .. | ". |  |
| Porpoise ............ | . | * | .. |  | . | " | .. .. |  |
| Plunger ..............1 | - | $\ldots$ | $\cdots$ |  |  |  | . ............. |  |

6 inches. They are capable of carrying 139 tons of coal closely stowed in their bunkers, and the complement consists of four officers and sixty men. One excellent feature, which will give them consider able advantage over some of the latest boats that have been constructed for foreign navies, is that, in addition to their relatively large size, they are provided with a long forecastle deck, which gives them an extreme free board forward of 14 feet, the freeboard amidships be
ing about 9 feet. This will considerably improve their speed in steaming to windward in heavy weather Three of these vessels have been constructed by Neafie \& Levy, Philadelphia; two by William R. Trigg \& Company, Richmond, Va.; three, as mentioned, by the Union Iron Works, of San Francisco; and one by the Gas Engine and Power Company, Morris Heights, N. Y The "Hopkins" and the "Hull," which are being built by the Harlan \& Hollingsworth Company, Wil

mington, Del., are somewhat smaller vessels. They have about the same length, a foot more beam, and 6 inches less draught with a displacement of 408 tons They were designed to achieve 29 knots with 7,200 in dicated horse power, and the bunker capacity will b 150 tons, the armament and the complement of officer and crew being the same as for the "Bainbridge." Th "Lawrence" and the "Macdonough," which are being built by the Fore River Engine Company, Weymouth Mass., are the smallest vessels of the fleet. They are of 400 tons displacement and they were designed to achieve a speed of 30 knots with 8,400 indicated horse power. The coal capacity is less, namely, 115 tons particulars of the armament and the complement ar the same as for the other vessels. The largest of th leet are the "Truxton," "Whipple," and "Worden," building by the Maryland Steel Company, at Sparrows Point, Md. They are 248 feet in length, 23 feet 3 inches beam, and on a draught of 6 feet they have a displacement of 433 tons. They have the large bunke capacity of 232 tons-a very valuable feature-and they are to make a speed of 30 knots with a development of 8,300 horse power
These destroyers cannot fail to produce a favorable impression. Their size, roominess, coal capacity, and powerful armament, and, above all, their good seagoing qualities and high speed, will place them in the very front rank of this type of vessel

## OUR RELATIVE STANDING AMONG THE NAVAL <br> <br> POWERS

 <br> <br> POWERS}In the accompanying table it will be observed we have placed the United States navy in the fourth position in rank, with England first, France second, position in rank, with England first, France second, the navies by the total number of ships they possess, it would seem as though Germany, with her total of 77, should take precedence over the United States with 62. It must be borne in mind, however, that the truest test of naval strength lies in a comparison of the total displacement and a consideration of the distribution of that displacement among the various types of warships which it represents. Judged by these two tests we hold a remarkable lead over Germany. Thus the 77 German ships represent a total displacement of 395,858 tons, whereas the 62 ships of the United States Navy total up 474,179 tons, an excess of 78,321 tons. The fighting strength of a navy lies in its line of battle; that is in the first-class battleships and armored cruisers that can match armor with armor, heavy gun with heavy gun. Here our superiority is overwhelming, for we can put in line 28 armored ships of 339,444 tons total displacement against Germany's 20 first class armored ships of 215 ,254 tons total. Not only so, but ship for ship our 15.000 -ton "Georgias" entirely outclass the 12,000 -ton Ger man "Wittelsbachs," and our 14,000-ton armored cruis ers of the "Pennsylvania" class have an equal superiority to the 9,000 -ton "Prinz Heinrich" class.
COMPARATIVE TABLE OF OUR OWN AND FOREIGN navies.
Total Number of Ships Built or Building as per Brassey's


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Brief Notes Concerning Patents.
John H: Lincoln, the inventor of the railway hay fork which bears his name, died on November 14 at Utica, N. Y. where he was tisiting his daughter

Aecording tó a recent bulletin of the Census Office; there was one patent taken out in Connecticut in 1900 for each 100 persons. In $189 \theta$ the figures were one for each $79 \ddot{6}$ persons.
Thé Sharòn Steel Cómpany has been sued at Pittsburg for infringement. The suit is brought by J. J. Pearson \& Company, of Maine, and it involves the man ufacture of cement-coated nails, the ob ject of which is to increase the tenacity of the drịyen nail and to preserve the substance into which the nail is driven
C. E. Havens, foreman of the Balti more and Ohio shops at Zanesville, Ohio, has invented an adjustable side bearing to be used on railway cars, and by the use of this improvement a car has a greater clearance in rounding curves and less friction between the bolsters. It is therefore possible to place from six to eight more cars on a train. The value of this device has been demonstrated by practical tests.
Oscar Hedstrom, who invented a motor bicycle, recently built a machine after his own design at the works of the Worcester Cycle Manufacturing Company at Middletown, Conn., of which city Hedstrom is a resident, and has shipped the machine to London, where it will be placed on exhibition. The machine was built for speed, and the inventor had been making arrangements to race it with a locomotive, but this interesting event will be interfered with by the builder's determination to send the whee abroad.

A dispatch from St. Thomas, D. W. I. reports that an explosion of refriger ating chemicals took place on November 21 on the Royal mail steamer "Para" which did so much damage to the steamer that she was unable to proceed. The boat had just been equipped with the Lawton fruit-preserving process to en able her to compete in the fruit-carrying trade, and the inventor was making the trip personally to observe the working of the installation. He and three of his workmen were killed by the explosion and several others were injured.
N. S. Amstutz, of Cleveland, the in ventor of a process for sending pictures over wires to distant points, has recent ly brought out an improved process for the making of half-tone pictures for newspaper use. Its chief value is the rapidity with which a picture of this character can be made, although it has another merit, and that is that the whites are pure and solid and not broken up by dots, as is generally the case. This makes the picture crisp and sparkling because of the sharp contrasts secured in the print.

Herbert Hoyle, an Englishman, who i the inventor of a process for making artificial silk from China grass, has been brought to this country by some cap italists of Boston and vicinity with the object of exploiting his invention, and a mill will soon be in operation at Fall River or Boston. One of the advantage of Mr. Hoyle's process is that the artificial silk can be spun on ordinary cotton and woolen machines. There are a few factories in Europe for the utilization of China grass, but this is the firs venture of this kind in the United States

A patent has recently been filed in the Patent Office for a device which applies power to an automobile motor only when the driver's seat is occupied. The instan the operator rises from his seat or is thrown therefrom, the cushion is raised by means of a spring, and this carries with it a plunger which shuts off the power, and the vehicle comes to a standstill. This invention will prevent run away accidents from automobiles. When the application for this patent was filed in the Patent Office it was found that there were twenty-six other applications covering like ideas.

## 

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## Automobile News.

It is intended to supplant native car riers for the transport of goods in the Congo Free State by motor cars. Sev eral experiments have been carried ou in Brussels with heavy steam lorrie which would prove suitable to the coun try. Each vehicle was loaded with 36 hundredweight of iron and tested over rough country, typical as far as possibl of that indigenous to the African state The trials were eminently satisfactory Each lorry will displace 65 native car riers, and the inauguration of such service will both decrease the cost of and expedite the transit of goods into the interior.
A dispatch from Odessa to The Times says that Prince Khilkoff, Russian Min ister of Ways and Communications, and a party have just made a successful auto mobile trip from Vladikavkaz, Caucasia to Tiflis (nearly 100 miles). The jour ney was the first of its kind in Russia Prince Khilkoff is known to have a high opinion of the utility of the automobile and, says the correspondent, he perhap contemplates introducing it on the im perial post roads. In view of the inade quacy of the railway facilities between many important towns and the general flatness of European Russia, the automo bile, the dispatch says, should prove a invaluable means of communication.

It is proposed to inaugurate a system of automobile transportation at Brussels, and an application has been made to the authorities for a concession. A serie of large delivery wagons will be run ove an extensive route between the city and suburbs and insure the rapid delivery of packages and merchandise. The main station will be situated at the Old Grain Market, and a number of other station will be placed at the principal centers of traffic. The projected route is to pass by he three main railroad stations of th city. The price of transport will be fixed acording to weight, with a min mum of 5 cents and a mimum 24 inu ents of weight being 220 pounds. The wagons will run throughout the day (except Sundays and holidays) beginning at 7:30 A. M.

The Anniversary Run is the annual promenade which is made by the English chauffeurs to celebrate the abolition of the famous Red Flag Act, by which auto mobiles in England, up to November 16, 1896, could go no faster than a walk and had to be preceded by a man with a bell and a red fiag. This was happily abolished by the Light Locomotives Act on that date. Last year the promenade was made from London to Southsea, and his year the chauffeurs will run to the same destination, passing by Putney Bridge, Richmond Park, Winchester, where lunch will be taken, then Waltham and Southsea. The run will be preceded by the annual dinner of the English Club which is open to all the members, these at present numbering 1,038 . At a subsequent meeting the club is to discuss the question of organizing a special contest for electric automobiles.

The programme for the "Grande Semaine" at Nice, which is one of the great events of the year, has lately been published. It will commence on the 6th of April next with a parade of flowerdecorated automobiles. On the 8th are two races, the Nice-Aix-Salon-Nice, a speed race of 280 miles, and the Nice-Dra-guignan-Nice touring race of 62 miles. On the 9th and 10 th will be held an automobile show at Nice, as well as three of the principal events-the mile race and the kilometer ( 0.6 mile ) dash for the Henri de Rothschild Cup, on the Promenade des Anglais. Then follows the famous hill-climb from Nice to La Turbie, a distance of 9.1 miles. The week finishes with a concourse of the most handsome automobiles, which will be held at Monte Carlo. Engagements are made ior the whole series of races, and will be received at the Nice Automobile Club up to the 20th of March, inclusive.

