cockpit aft. Into this the rudder head enters, so that the boat can be steered from this cockpit if the conning tower has to be deserted. Forward of the cockpit comes the engine room, with a quadruple expansion engine, which of course will be of the last refinement of design. Forward of the engine comes the boiler room arranged for forced draft by the closed fire room system. The boilers are the Mosher tubulous boiler. Next to the boiler room comes another open cockpit, forward of which is the conning tower, which contains a steering wheel mounted on a half bulkhead. In the bows is placed the torpedo tube for discharging a Whitehead torpedo. In the extreme bow and also under the stern cockpit are trimming tanks. On deck aft is to be mounted a one-pounder rapid-firing gun, whose ammunition is carried in a magazine just aft of the engine room.

Along each side of the boat are coal bunkers, which, as far as their diminutive size permits, may be considered protective. Four heavy eves are riveted to the sides along the waist by which the boat is to be hoisted bodily out of the water. The mast of the Maine carries a large steel boom, from whose end the tackle for hoisting the torpedo boats will be worked, the boats being taken in on deck by a steam winch. Cradles are to be provided for them to rest in.

The torpedoes will be carried by the Maine, the torpedo boat being able to carry only a single one at a time, which will rest in her tube. The role of action will simply be to get under way with the torpedo ready, then to approach the enemy as close as possible, to discharge the torpedo and run. Her side plates in places are but $\frac{3}{32}$ of an inch thick, so that she will be seen practically unprotected.

The crew includes the commander, engineer, firemen and two sailors. The Whitehead torpedo, which is used, weighs rather more than 2100 pounds, so that stability as well as a measure of protection to the machinery is secured by placing the weights as low as possible. Thus the engine cranks in their stroke work down between the frames almost to the bottom of the

The boiler consists of two upper and two lower horizontal cylinders, connected by 440 one inch drawn steel tubes. To prevent corrosion, blocks of zinc are contained in the cylinders connected with each other and by means of a copper wire with the steel of the boiler. On a forced draft the boiler will develop from 200 to 250 horse power with a pressure of 250 pounds. It is covered with a sectional nonconducting jacket; a valve damper in the ash pan cover allows air to enter, but in case of anv outrush of flame caused by a steam leak or by the bursting of a tube, would instantly close. The boiler gives 513 square feet of heating surface and 13 square feet of grate surface. The engine is rated at 200 horse power when making 675 revolutions at the steam pressure cited. It has piston valves except for the low pressure cylinder. Great care is taken to balance the reciprocating parts so as to prevent vibration. The propeller shaft of forged steel is hollow; 3 inches external diameter with 21/4 inches bore. Thus the metal is only % inch thick.

The propeller is 3 feet in diameter and of 39 inches pitch, with an area on the screw faces of 4.1 square feet. There are two feed pumps for the boiler, and these can be connected so as to pump out the bilge. In conjunction with a steam ejector, which is connected to the bilge, a capacity of delivering 11 tons of water

per hour is given, so that the little vessel may stand considerable injury and still be kept afloat.

As regards speed, it is hoped to get about 18 knots an hour at 200 horse power, and it is believed that this can be obtained upon the consumption of 1\frac{2}{3} lb. this can be obtained upon the consumption of $1\frac{2}{3}$ lb. of coal per horse power. At this rate a ton of coal would last for six hours: so that if the little vessel was fully coaled she would have a high speed radius was fully coaled she would have a high speed radius of over 100 miles, and at lower speed a considerably greater one. Her work throughout is in the best style and unexcelled by any steam yacht. The greater part of the vessel is filled with the boilers and engines and torpode tubes. He trial trip will be watched with the vestel and torpode tubes. He trial trip will be watched with the seal at the part of the vessel is filled with the boilers and engines. The present a cash value to-day of \$7,000,000. During the vessel is seals represent a cash value to-day of \$7,000,000. During the vessel is greater a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to-day of \$7,000,000. During the vessel is represent a cash value to day of \$7,000,000. During the vessel is represent a cash value to day of \$7,000,000. During the vessel is represent a cash value to day of \$7,000,000. During the vessel is represent a cash value to day of \$7,000,000. During the vessel is represent a cash value to day of \$7,000,000. During the vessel i and torpedo tubes. He trial trip will be watched with VII. GEOLOGY.—Fossilized Big Trees California.—By Prof. A.

LAKE.—The famous petrified wood of the Western State and great interest as showing what results can be obtain ed with so small a vessel. In peace the boats will be used as dispatch boats, and will be undoubtedly very serviceable.

The First Anesthetic.

The fiftieth anniversary of the first use of anesthesia for the purpose of relieving pain was commemorated recently in a fitting manner by the Connecticut
State Dental Society, at Hartford, Conn. A memorial
tablet had been provided by small subscriptions from
dentists in every State in the Union, as a tribute to
the discoverer. Dr. Horace Wells; and this was placed
upon the building which at present stands on the old
site of Dr. Wells' office. The work was performed before a large and notable gathering of dentists and other

1885
XIII. METALLURGY. Treatment of Auriferous Pres with Bromine.—The extraction of gold as bromide from roasted or green
ores.

1885
XIII. NAVAL ENGINEERING.—An Improved Sail Rig for Vessels.
A simple and effective suggestion from a seaman.—I illustration
1885
XIII. NAVAL ENGINEERING.—An Improved Sail Rig for Vessels.
XIV. MISCELLANEOUS.—Moscow.—The great city of Russia described.—I illustration.
Railway Mileage of the World.—Graphic representation of this
figure.—I illustration.

1886
XIV. MISCELLANEOUS.—Moscow.—The great city of Russia described.—I illustration.
Railway Mileage of the World.—Graphic representation of this
figure.—I illustration.

1887
XIV. MOSCELLANEOUS.—Moscow.—The great city of Russia described.—I illustration.
Railway Mileage of the World.—Graphic representation of this
figure.—I illustration.
SAIL METALLURGY.—Treatment of Auriferous Pres with Bromine.—The extraction of gold as bromide from roasted or green
of es.

XIII. NAVAL ENGINEERING.—An Improved Sail Rig for Vessels.
A simple and effective suggestion from a seaman.—I illustration rese.

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NEW YORK, SATURDAY, JANUARY 5, 1895.

(Illustrated articles are marked with an asterisk.)

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Tire, pneumatic.
Torpedo loats for the Maine*.
Tramways, electric.
Typboid from oysters. oid from oysters.....noes, African.....

TABLE OF CONTENTS OF

SCIENTIFIC AMERICAN SUPPLEMENT

No. 992.

For the Week Ending January 5, 1895.

Price 10 cents. For sale by all newsdealers.

III. BUILDING.—Cart and Load Lifted.—A new system in the erection of tall buildings.—1 illustration......

tion of tall buildings.—I illustration.

IV. CHEMISTRY.--Atomic Volumes.—By C. T. BLANCHARD, M.A.

—An exhaustive table of atomic factors based on different authori-

its geological history.

VIII. HOROLOGY.-Manufacture of Cheap Watches.-The Water-bury watch.-Its construction and making described.-1 illustra-tion. IX. HORTICULTURE.—Imagination in Gardening.—The work of the landscape architect and gardener 15861

X. MEUTANICAL ENGINEERING.—The Measurement of Power Brakes and Dynamometers.—By G. D. HISCOX, M.E.—A practical article of this important engineering topic.—I'llustrations.....

Practical Measurement of the Velocity or the Wind.—I illustration The Theisen Moist Air Condenser.—An effective and economical surface condenser.—I illustration

XI. MEDICAL.—A New Apparatus for Administering Apasthetics.

—An apparatus for forcing the vapor by a tube into the laryux.—
1 illustration.

DELAYED CASES IN THE PATENT OFFICE.

The United States Circuit Court, in the case of the Bell telephone patent of Berliner, filed 1877, and issued in 1891, fourteen years after the application was filed, held in effect that the applicant had purposely allowed the case to be delayed in the Patent Office until the original Bell patent had nearly expired; the object being to enable the Bell Company to have a continuance of its telephone monopoly for seventeen additional years. The court held the Berliner patent to be invalid for lack of diligence in prosecuting the application.

We notice that Edison has lately obtained several patents which have for years been pending in the Patent Office. One is for the manufacture of carbons, filed in 1880, fourteen years ago. Another for dynamo regulator, filed in 1881, thirteen years ago. Another for plating metals, filed in 1884, ten years ago. Another for carbon filaments, another for electric distribution, both filed in 1886, eight years ago. In 1892 Edison also received four patents for telephones, the applications for which were filed in 1877, fifteen years before the issue of the patents. These telephone patents, it is understood, are controlled by the Bell Telephone Company.

It is evident there is something wrong in the law which thus facilitates and apparently encourages these unconscionable delays. Preliminary litigations, it appears, may be carried on for half a generation before the Patent Office, prior to the grant of a patent. And, then, after the issue of the patent, battles in the courts are begun to settle the validity of the grant.

The remedy is plain. The duties of the Patent Office should be more strictly confined to the sphere specially provided for it by the constitution, namely, the grant of patents, not the determination of judicial questions. These latter should be relegated to the courts where they belong. Interference proceedings and questions of priority should have no place before the Patent Office. Its functions should be the issue of patents promptly to every applicant whose drawings and papers are properly prepared. A radical reform like this would put an end to the troubles, expense, and lingering delays to which inventors are now subjected, and would shut off all attempts at monopoly extension such as the Bell-Berliner trick.

The Seal Industry.

An official report has been published by the Treasury Department recently, confirming the stories of the outrages of pelagic sealing as permitted by the Paris regulations. It appears that the pelagic fleet of the past year has comprised some sixty vessels, which is four less than the fleet of last year. On the other hand, however, some 50,000 skins have been secured in 1894, mostly by Canadian hunters, against about 36,000 in 1893 and 25,000 in 1892. It will be seen that in two years, therefore, the Paris legislation has about doubled the very destruction it was designed to pre vent.

It has also been found that pelagic sealing is in large measure directed against the mother seals. which, under our laws, were carefully protected. If this destruction continues, it is estimated that the value of the Pribylov Islands will be practically destroyed within the next five years. The estimated surviving population of the herd is 60,000 or 80,000 small males and 600,000 females.

The revenue of the Canadian government from this source is rapidly increasing, while that of the United States is diminishing. The United States is moreover at a great expense to provide a large patrol fleet, and the British government, on the other hand, although owning the majority of the sealing vessels, expends very little for police patrol. This may be clearly seen from the following significant figures. The surviving seals represent a cash value to-day of \$7,000,000. Durunjust share in the years to come, until the seal fisheries are exhausted. The United States, meanwhile, is compelled to pay a large sum annually out of the Treasury to guard and protect the seal fisheries.

Lobster Laws.

The game laws of Massachusetts provide a heavy fine 15854 for any one who either catches or sells lobsters measuring less than 10½ inches. Quite recently a large consignment of lobsters to a New York firm were seized in Boston, and the entire lot, consisting of 17 barrels or some 3,323 lobsters, were dumped in Boston Harbor. This is the largest seizure of its kind on record. The fine for each lobster is \$5 and the shipper, if prosecuted, will be liable to a fine of over \$16,000.

IT has been found that four hundred tops of top weight must be taken from the new French battle ship Brennus before she can be rendered seaworthy. It will be necessary to remove at least one of her fighting masts, and her upper deck will be almost completely dismantled.