

again thrown on the ironclad's decks. She rolled in a peculiar manner, quite different to that of other vessels. Her oscillations described angles of $7\frac{1}{2}$ and even 8 degrees. Notwithstanding this she steamed ahead quite well, and her engines continued to work in the most satisfactory manner. The vessels entered Routhesalm to await the subsidence of the gale, and on the 14th steam was again got up and they crossed the reefs, meeting a heavy sea, which the monitor encountered as well as possible. Anchor was cast at Transund, whence the route was continued to Cronstadt, which was reached on the 17th at 6 in the morning."

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Ejector for Oil Wells, &c.—This invention consists in procuring oil, water or other fluids from artesian and other wells by a new and peculiar mode of forcing air up the usual tubing by means of a forcing pump through an inner pipe to which is attached a nozzle of peculiar construction, which is termed an "ejector," and which is so applied as to direct the compressed air upwards within the well tubing in a thin continuous stream, which thereby induces or causes a current of the contents of the well to ascend in a continuous stream to the top, where it is discharged into a proper receptacle. G. M. Mowbray, of Titusville, Pa., is the inventor.

Improvement in Horse Covers.—This invention consists in providing ventilating louvers in a horse cover, by which the excessive heat and perspiration that now attend the use of horse covers when the animal is at work are avoided, and a perfect ventilation is maintained about the back and loins of the animal, whilst he is perfectly protected from rain, snow, and inclement winds. E. L. Perry, of New York city, is the inventor.

Shade Fixture.—This invention relates to an improvement in that class of shade fixtures in which the shade roller is provided with a spiral spring for the purpose of automatically winding up the shade. The invention consists in providing the shade roller with a stop or fastening composed of a pawl which engages with notches in a hub attached to one of the end plates of the roller, all being arranged in such a manner that the shade may be retained or held at different points or heights in the length or scope of its movement, and the shade adjusted by a simple manipulation of the same, the usual cord for operating or turning, the shade roller being dispensed with entirely as well as counterpoises, which have, in some instances, been employed in connection with spring rollers for holding the shade at any desired point. S. Hartshorn, corner 4th avenue and 10th street, New York city, is the inventor.

Propeller and Steering Apparatus.—The inventor of this propeller, Mr. Henry Ressel, is the son of Joseph Ressel, who took out a patent in Austria on a screw propeller in 1827, and had the same practically tried in 1829 on the steamer *La Civetta*, in the harbor of Trieste—the first trial of a screw propeller on record. The object of this invention is to render the use of a propeller as a steering apparatus practicable on vessels of any kind and size, and particularly on war vessels. Heretofore it has been considered impracticable to use a propeller as a steering apparatus on sea-going vessels, and the attempts made to effect this purpose have been confined to small vessels running on inland waters, particularly on account of the great difficulty to produce a strong and durable joint between the main driving shaft and the propeller shaft. The joint which forms the subject matter of this present invention is composed of a socket attached to the main driving shaft, and provided with two or more studs which project in segmental grooves in the ball or globe attached to the propeller shaft in such a manner that the propeller can be moved to an angle of 37° degrees (more or less), to either side of its normal position, without interfering with its connection with the main driving shaft, and that it can be rotated when in an angular position with comparatively little friction. The globe is protected by a hemispherical cap and semicircular rings placed in circular grooves cut in the journals and journal boxes

of the propeller shaft, relieving the studs in the ball and socket joint from all strain in the direction of the shaft. This invention has been assigned in full to Dr. M. Priester, of 451 Grand street, New York.

Device for Transmitting Motion.—The object of this invention is a simple and effective device to overcome the dead center in machines, in which reciprocating motion is to be converted into continuous rotary motion. The invention consists in the use of two shafts, which are connected by a belt or provided with a fly-wheel, each in combination with an eccentric, or one connecting with a crank on the other shaft, and with the main crank that connects by a pitman or other suitable means with the crosshead of a steam engine or other source of power, in such a manner that by the combined action of the cranks, eccentric, and flywheel or flywheels the dead centers are overcome, and the reciprocating motion of the piston of the engine or other prime motor is converted into continuous rotary motion. John W. Browning, of Mattoon, Ill., is the inventor.

Apparatus for Setting Off Blasts.—The principal object of this invention is to enable miners in setting off blasts at the bottom of a shaft to get away before the explosion takes place, or, in other words, to enable a man engaged in blasting rocks to set off a blast from such a distance that he is perfectly safe from injury.

The invention consists in a barrel, provided at one end with an opening to receive the end of the fuse, and with a spring catch or dog to hold the fuse in said opening, and furnished in its interior with a nipple and spring piston or hammer, said dog and hammer being provided, one with a prop and the other with a trigger, which are connected with each other by means of a chain or cord, in such a manner that when the barrel is secured to a fuse by the dog and the hammer is set or worked by pulling a cord or chain connecting with the trigger, the hammer is relieved and a percussion cap placed on the nipple in the barrel is exploded, thereby setting fire to the fuse, and at the same time the dog releases the fuse and the barrel can be hauled in or up out of harm's way before the explosion takes place. J. E. Hughes, of McCartyville, Cal., is the inventor.

MISCELLANEOUS SUMMARY.

THE Atlantic Cable, which is to be laid next summer between England and America, was recently tested to try its strength and ductility. A given length was taken, suspended, and gradually weighed until it broke, the elongations succeeding each additional weighting being duly registered. The cable selected bore the weight of six three-fifths tons. The case, the spiral wires involving it, the insulating body, the jute yarn, and each separate strand of the cable were similarly tested. It was found from those experiments that the more the fibers of wire were brought into a state of tension, the greater became its strength, and that as an insulator gutta percha, although not so perfect as India-rubber, is far more durable, and that the cable as now manufactured will be able to bear a strain four times its own weight when laid at the bottom of the Atlantic.

RECOVERING A SUNKEN ENGINE.—The *Mechanics' Magazine* says:—"The *Matilda*, a twin screw steamer, built for the blockade service, and fitted with costly engines, was wrecked last spring on her trial trip near Lundy Island. Mr. M'Duff, of Portsmouth, with Messrs. Palmer and Hicks in their vessel, the *War Hawk*, have recovered most of the valuable property on board. M'Duff, equipped in Mr. Siebe's diving apparatus, has taken her engines to pieces, and sent them up. He has worked six hours a day, unscrewing bolts, etc., as if he were in a factory on shore, instead of being 42 feet under water, and exposed to a ground swell setting in from the Channel."

A GLASS STEAM ENGINE.—The troupe of glass-blowers at Hope Chapel furnish a very interesting evening's entertainment for those who are fond of practical things. A steam engine, most beautifully constructed of different colored glass, is working by steam all the time. The nature of the material affords an opportunity to see all the several parts moving at once, and it is really a very curious sight, even to an engineer, and one that will well repay a visit.

An invention for the recovery of sulphur from the waste produced in the manufacture of soda has been provisionally specified by Mr. B. Jones, of Warrington, England. He allows hot water to flow over "blue waste" placed in a suitable vessel, and in a few hours he draws off the liquor. He precipitates the sulphur with hydrochloric acid, and then filters and evaporates to dryness. The precipitate is then treated in a furnace similar to that commonly used for producing sulphur from sulphur stone. He proposes to condense the sulphuric acid in a water tower and to collect the sulphur at the bottom.

ADULTERATED BEER.—The principal of the Inland Revenue Department of England has just examined twenty-six samples of beer, of which twenty were adulterated. In fourteen of these samples, he found the prohibited articles called grains of paradise—grains which, however, fit for Eden, are by law unfit for beer. In one of the fourteen he found, beside the prohibited grains, a portion of tobacco; in two others, cocculus indicus was present in large, and even dangerous quantities; two samples contained capsicum; and two others proto-sulphate of iron.

CURE FOR THE WHOOPING COUGH.—An effectual cure for the whooping cough, extensively practiced in France, Sweden, and England, is sending the patients to gas works to inhale the air from the purifying apparatus. A Mr. Backler, of London, says:—"It often occurs that as many as a dozen children are brought to the gas works at one time—and the managers have now come to regard this new custom as part of the daily routine of business."

A NEW BRUNSWICK PEARL.—There is now to be seen at the store of Mr. Hutchinson a very fine pearl of unusual size. It weighs 27 grains, is perfectly spherical, without a flaw or defect of any kind, and is valued at between \$130 and \$150. This fine pearl was taken from a common mussel, in Stone's Brook, near Penobscus Station, and has caused quite a search in the neighborhood, which has resulted in the discovery of smaller ones.

ANTI-INCORUSTATION POWDER.—Mr. H. N. Winans, of this city, has been for many years engaged in the sale of a powder to remove incrustations from steam boilers. Judging from the testimonials of its efficiency shown us, it is a valuable article, and one calculated to prevent the evil referred to. An advertisement can be found on another page.

PETROLEUM DISCOVERY NEAR ROCHESTER.—The City of Rochester, in this State, is excited by the discovery of petroleum in that vicinity. The lands have been leased, a company has been formed, and steps are being taken to sink a well without delay.

TUNS of cucumbers are annually sent to this city every fall to be made into pickles. For Westchester county alone the product this year is set down, by good authority, at \$1,300,000, cash value, or 130,000,000 cucumbers.

In the illustration of Dykeman and Bolton's Variable Exhaust, given in our last number, the address was erroneously given "Harlem Railroad." It should have been *Hudson River Railroad*.

Binding the "Scientific American."

It is important that all works of reference should be well bound. The SCIENTIFIC AMERICAN being the only publication in the country which records the doings of the United States Patent Office, it is preserved by a large class of its patrons, lawyers and others, for reference. Some complaints have been made that our past mode of binding in cloth is not serviceable, and a wish has been expressed that we would adopt the style of binding used on the old series, i. e., heavy board sides covered with marble paper, and morocco backs and corners.

Believing that the latter style of binding will better please a large portion of our readers, we commenced on the expiration of Volume VII., to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners.

The price of binding in the above style is 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, No. 37 Park Row, New York.

Back Numbers and Volumes of the "Scientific American."

VOLUMES III., IV., VII., AND X., (NEW SERIES) complete (bound) may be had at this office and from periodical dealers. Price, bound, \$2 25 per volume, by mail, \$3—which includes postage. Every mechanic, inventor or artisan in the United States should have a complete set of this publication for reference. Subscribers should not fail to preserve their numbers for binding. VOLS. I., II., V., VI. and VIII. are out of print and cannot be supplied.