

pulleys for maintaining a uniform tension of the driving belt, and is drawn inward by spiral springs, but is drawn outward, when the saw is to cut, by means of a rope or chain attached to the swinging gate and to a lever pivoted to the end of the frame and acted upon by a pivoted bent lever.

An improved machine for stirring and discharging mash has been patented by Mr. Stillman E. Chubbuck, of Boston, Mass. This invention relates to that class of machines for stirring and discharging mash in which vertically and horizontally revolving agitators and scrapers are used, and the improvement consists in certain peculiarities of construction and arrangement which cannot be clearly described without engravings.

An improved windmill has been patented by Mr. Homer B. Sprague, of Grantville, Mass. The object of this invention is to furnish self-regulating windmills so constructed that the sails or vanes will adjust themselves to the varying force of the wind, so that the driving wheel will rotate at a nearly uniform velocity and with more or less power up to the limit permitted by the wind, and according to the gravity of the weight or force of the pulling power applied to the cord that draws the sails or vanes into position to catch the wind.

An improved device for operating the doors of elevator wells has been patented by Mr. John P. Wykoff, of Rochester, N. Y. The invention consists in projecting plates or tracks which are attached to the inner side of the doors, and are inclined from the ends of the outer edges toward the middle of the inner edges of the door, against which plates or tracks a roller mounted on a stud on the car presses, thus opening or closing the door accordingly as it presses against the upper or lower surface of the inclined tracks, the ends of which are hinged to swing inward toward the middle of the door to let the projecting roller pass after having opened or closed the door.

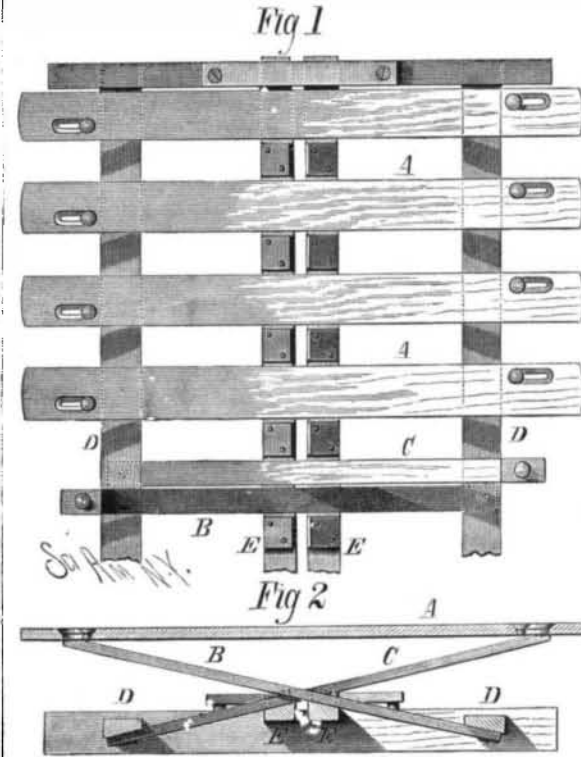
TEMPORARY STEERING APPARATUS OF H.M.S. BACCHANTE.

While the Prince and Princess of Wales, with their younger children, have enjoyed an hour's pleasure trip on Virginia Water, Prince Albert Victor and Prince George of Wales, serving their Queen and country on board H.M.S. Bacchante, have had to look out for squalls. We are favored by a correspondent from that ship with the accompanying sketch. The Bacchante was caught in a heavy squall in the South Indian Ocean, two hundred miles west of St. Paul's Island, nearly half way between the Cape of Good Hope and West Australia. She had her sails split, several sheets carried away, the fore topgallant mast sprung, and the topmast studding sail carried clean out of the bolt ropes, as the wind shifted suddenly to the starboard beam. Again, when the Bacchante approached Cape Leeuwin, the southwest point of Australia, while running before the wind, three hundred miles south of that point, she met with another disaster. The wind suddenly shifted about two points, and the ship "broached to," and was struck by a heavy sea. One life boat was carried away from her quarter, while the other life-boat was forced in-board, breaking the davits, and striking the rudder head. It gave such a violent wrench to this, that the rudder was disabled, and it became necessary to rig up a temporary steering apparatus, which is shown in our illustration. It consisted of two spars lashed together, and towed directly under the stern, to the aft ends of which two hawsers were

affixed, one leading on each side of the ship, through a block on the end of the spars. The Bacchante was enabled, by these means, safely to be steered into the port of Albany, West Australia, where she was laid up for brief repairs. The two young princes went on to Adelaide and Melbourne.—*London Illustrated News.*

IMPROVED SPRING BED.

The spring bed shown in the engraving is formed of a series of horizontal slats, A, resting on crossed inclined



HEBERT'S SPRING BED.

spring slats, B C, the latter having their lower ends fastened to the longitudinal side bars, D, of the base frame. The middle of the spring bars rest upon the adjustable longitudinal bars, E.

The slats, A, have short longitudinal slots in the ends for receiving screws which pass into the ends of the crossed slats, B C. The longitudinal rails, E, are made movable to adjust the tension of the spring slats, B C. When the rails are moved outward the elasticity of the springs is diminished; when they are moved toward each other the elasticity of the springs is increased.

Fig. 1 is a partial plan view of the improved spring bed, and Fig. 2 is a vertical transverse section.

This improvement was lately patented by Mr. Hubert Hebert, of Lake Linden, Mich.

A Rocket Torpedo.

The Providence (Rhode Island) *Evening Bulletin* says: Some exceedingly interesting experiments lately took place at the Torpedo Station with the Weeks rocket torpedo. This torpedo is a most peculiar structure. It consists of a float made of tin and sheet iron, being braced

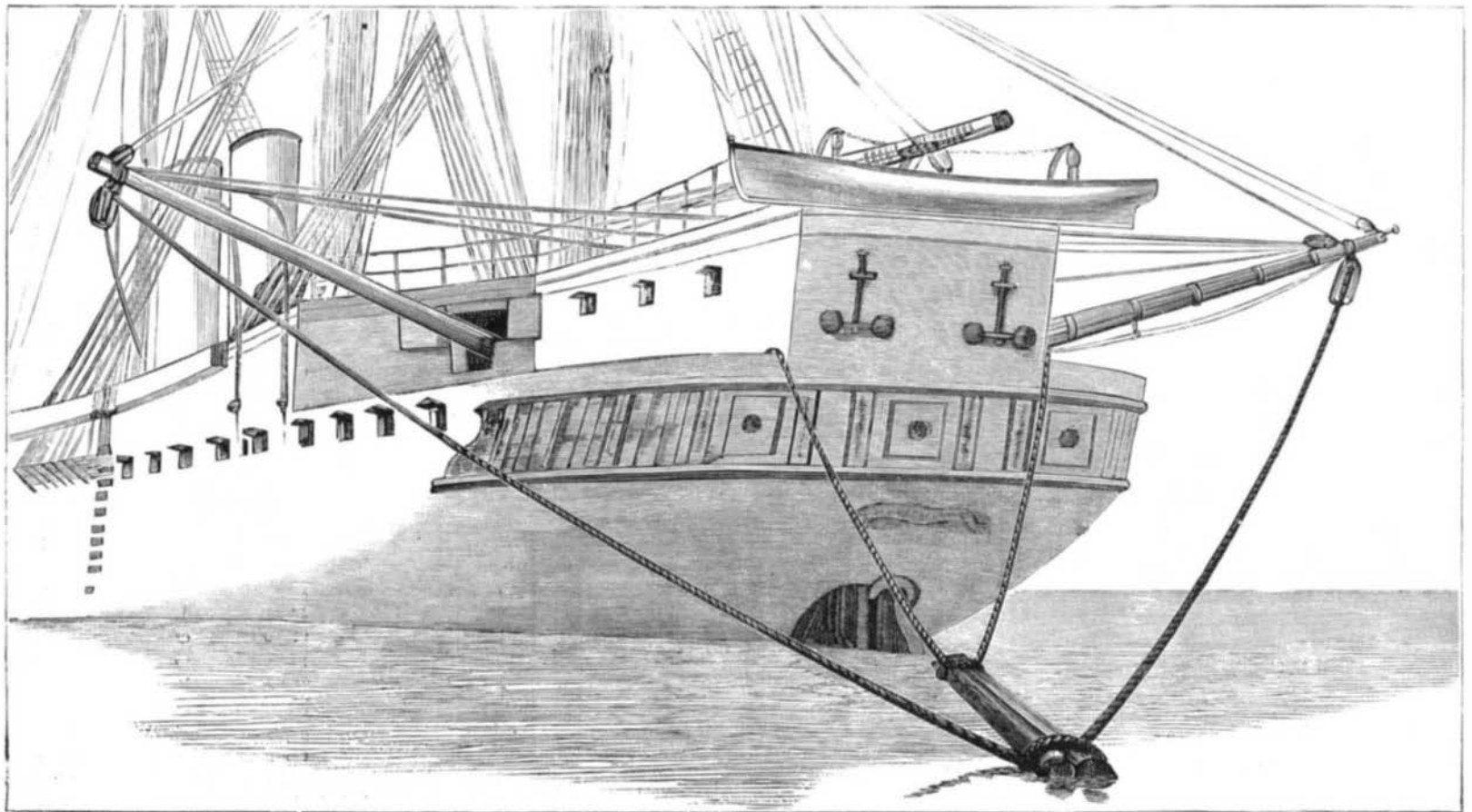
internally with wood. It has two rudders similar to the tails of a sky rocket. The float portion is some eleven feet long, with the rudders of the same length. In the forward part or head is placed some fifty pounds of dynamite, and this, coming in contact with the object, explodes by concussion. The whole structure is propelled by a rocket, some six inches in diameter, three and a half feet in length, and weighing 100 pounds. It moves on the surface of the water, and has attained the wonderful speed of about 150 feet a second, which is kept up for four or six hundred yards. It is aimed at an object, and moves in a straight line guided by the rudders. It is placed in the water from a wharf, a raft, or a ship. It is operated either by electricity or a percussion. The rocket portion is protected from the wet by a tin stopper, through which the wicks for igniting pass.

The principal object in testing the torpedo here is to discover how it will behave in rough weather. The board consists of Lieutenant-Commander R. B. Bradford, Lieutenant-Commander Benjamin L. Edes, Lieutenant J. F. Meigs, and Master A. L. Case. The inventor was busily engaged yesterday morning preparing for the experiment. The board was called together for half past 1 o'clock, but it was nearly an hour later when the experiment was made. Captain T. O. Selfridge, the Commandant; Captain Johnson and Lieutenant-Commander Chadwick witnessed the trial; Lieutenant Meigs was in a small boat to time, Lieutenant-Commander Bradford looking out for the distance. Suddenly a whizzing noise was heard, and the extraordinary torpedo went on its way. The velocity was something frightful, as may be judged when it is stated that the torpedo passed along and over (for it jumped occasionally) a distance of water not less than 1,375 feet in about nine seconds. One gentleman present thought it was not more than eight. It was impossible to time it correctly, for the smoke behind was very dense. Captain Selfridge said that this trial was a success. The torpedo kept on an almost perfectly straight course, notwithstanding the fact that there was considerable wind which bore on the port side. The roar of the rocket as it drove the torpedo along was something dreadful, quite sufficient, had it been sent off at night, to "drive people crazy," as some one remarked. The torpedo was directed in a course toward the extreme west point of Coaster's Harbor Island. The visiting officers present were very much pleased with the successful exhibition.

Fired by Electricity.

An interesting illustration of the danger attending the manufacture of some kinds of rubber goods was shown in the origin of the recent fire which occurred in the *Ætna Rubber Mills*, at Jamaica Plains, Mass. The cement which fastens the seams of rubber coats is largely made of naphtha. The mere act of lifting a piece of rubber cloth from a pile of half a dozen similar ones, cut for garments, developed so much electricity that a spark was observed to escape. It came in contact with the naphtha cement, or with gases arising from it, and instantly the whole room was in a blaze. Fortunately the fire was extinguished without destroying the mill, the loss being only about a thousand dollars.

It is not known that anything can be done to prevent the occurrence of another accident of precisely the same kind, whenever all the atmospheric conditions are favorable. One would suppose, however, that a certain degree of dampness would remove all danger from that source.—*Commercial Bulletin.*



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