

to nearly the diameter of the chamber. This coil is continued at the top so as to form a kind of dome under the cover of the combustion chamber. By the side of the boiler is a separator, into which the steam passes before it goes to the engine. The water from the feed pump is admitted at the top of the coil, and during its course to the bottom the greater portion of it becomes converted into steam. Having passed through the entire length of the coil, the steam and water are discharged together into the separator, in such a manner that the water is entirely separated from the steam, and can be blown off as required. The steam is taken from the top of the separator, and returns through a short coil placed inside the combustion chamber, where it becomes superheated, and is led thence to the engines. It is claimed for this boiler that it cannot explode destructively, inasmuch as there is but a very small quantity of water in it at any time, and that it is distributed along the entire length of the coil. A rupture at any point would only be attended by a moderate blowing off of steam. The rapid circulation of the water is found to prevent the deposit of salts, the surplus water not converted into steam carrying with it all impurities.

One condition of the contract was that the hull should be strong enough to be slung from a ship's davits without bending or "springing," and the larger engraving represents the vessel being lifted by the big crane at the Victualing Yard, Deptford, fully manned and equipped, her weight in that condition being about eight tons. The First Lord of the Admiralty was present, accompanied by Admirals Hood, Wellesley, and Sir Houston Stewart, the Controller of the Navy, and Mr. Barnaby, the Chief Constructor.

The vessel was then lowered into the water, and steam got up in five minutes after lighting the fire. The great handiness of the boat, and her powers of rapid stopping, starting, and turning, were next shown. She was stopped from full speed in a distance of one third her length, and immediately went astern at a rate nearly equal to her forward speed. She then, at full speed, turned in complete circles of a diameter of three times her length, and this either going ahead or astern. Her guaranteed speed is sixteen knots an hour, and this, it is stated, she attained, with two tons of coal on board, on the occasion of her official trial over the two knot course in Long Reach. Altogether the Herreshoff torpedo launch promises, from its powers of maneuvering and the great rapidity with which it can be got ready for sea, to form an important addition to our naval resources, while its numerous special features give it particular interest from a mechanical point of view.

## Health and Home.

**TO DO UP SHIRT BOSOMS.**—The following information has been given to a contemporary in reply to a correspondent. Many housekeepers feel interested in this matter:—We sympathize with our young correspondent in her domestic difficulties, and will endeavor to help her out of the dilemma in the particular case she asks about. For doing up shirt bosoms, we think that the following recipe will give our correspondent the appearance to her husband's shirts that she wishes to impart to them: Take two tablespoonfuls of the best starch, add a very little water to it, and rub and stir with a spoon into a thick paste, carefully breaking all the lumps and particles. Add a pint of boiling water, stirring at the same time; boil half an hour, stirring occasionally to keep it from burning. Add a piece of "enamel" the size of a pea; if this is not at hand, use a tablespoonful of gum arabic solution, (made by pouring boiling water upon gum arabic and letting it stand until clear and transparent), or a piece of clean mutton tallow half the size of a nutmeg; a teaspoonful of salt will do, but it is not as good. Strain the starch through a strainer or a piece of thin muslin. Have the shirt turned wrong side out, dip the bosoms carefully in the starch and squeeze out, repeating the operation until the bosoms are thoroughly and evenly saturated with the starch, then proceed to dry them. Three hours before ironing, dip the bosoms in clean water, wring out and roll up tightly. First iron the back by folding it lengthwise through the centre, next iron the wristbands and both sides of the sleeves, then the collar-band; now place the bosom-board under the bosom, and with a dampened napkin rub the bosom from the top toward the bottom, smoothing and arranging each plait neatly. With a smooth, moderately hot iron, begin at the top and iron downward, and continue the operation until the bosom is perfectly dry and shining. Remove the bosom-board and iron the front of the shirt. The bosom and cuffs of the shirt, and indeed all nice, fine work, will look

clearer and better if they are first ironed under a piece of thin old muslin. It takes off the first heat of the iron, and removes any lumps of starch.

**MORPHINE DRINKING.**—But I set out to speak of a habit which prevails to an alarming extent among women—the use of morphine, to quiet pain of one kind or another. I can easily imagine that the habit may grow from ignorance of danger. A fearful pain is lulled by seemingly simple means—an opiate in the shape of morphine. The suffering one rests easy, and pitying friends may believe that morphine was just the thing needed. But has the opiate cured the disease which caused the pain? Not a bit of it. It has only beaten down and silenced the faithful monitor, the nerves, which, in the shape of pain, told of injury and begged that help be given to the injured part. It is true that Nature, and not medicine, performs the cure, and that the blessed work of restoration to health usually goes on best during sleep, but it should be natural sleep. This will usually come of itself if you put the body into suitable condition—the pores of the skin open, by bathing or rubbing judiciously, the bowels properly relieved, the stomach nourished by simple food, easy of digestion, the lungs supplied with pure air, and cleanliness and quiet all about the patient. But when you give or take the dose of morphine, you make a deadly attack upon the nervous system, and leave the evil condition of things in the body to go on. The dose must soon be repeated, and as the habit of resorting to an anodyne strengthens, the dose must gradually increase, in order to produce the desired effect. Such a course finally breaks down the nervous system, and leaves the one who resorts to it a hopeless wreck—the worst kind of a drunkard.

**HEISCH'S TEST FOR SEWAGE CONTAMINATION.**—The delicacy of the sense of smell and of taste varies greatly in different individuals; one person may fail to detect the foul condition of a given water, which would be very evident to a person of a finer organization. But if the cause of a bad smell or taste exists in the water, the injurious effects on health will remain the same whether recognized or not. Moreover, some waters of very dangerous quality will fail to give any indication by smell or taste. Heisch's test for sewage contamination or the presence of putrescible organic matter is so simple that any one can use it. Fill a clean pint bottle three-fourths full with the water to be tested, and dissolve in water half a teaspoonful of the purest sugar—loaf or granulated sugar will answer—cork the bottle and place it in a warm place for two days. If in 24 to 48 hours the water becomes cloudy or milky, it is unfit for domestic use. It remains perfectly clear it is probably safe to use.—*Prof. Keldis.*

**HOW TO UTILIZE OLD FRUIT CANS.**—Perhaps one of the most appropriate uses of an old fruit can that can be devised is to make it contribute to the growth of new fruit to fill new cans. This is done in the following manner: The can is pierced with one or more pin holes, and then sunk in the earth near the roots of the strawberry or tomato or other plants. The pin holes are to be of such size that when the can is filled with water the fluid can only escape into the ground very slowly. Thus a quart can, properly arranged, will extend its irrigation to the plant through a period of several days; the can is then refilled. Practical trials of this method of irrigation leave no doubt of its success. Plants thus watered flourish and yield the most bounteous returns throughout the longest drouths. In all warm localities, where water is scarce, the planting of old fruit cans, as here indicated, will be found profitable as a regular gardening operation.

**WEAK EYES.**—Bathe in soft water that is sufficiently impregnated with spirits of camphor to be discernible to the smell.—teaspoonful of spirits of camphor to a tumbler of water. For inflamed eyes use milk and camphor, adding a little more of the camphor than above.—*Herald of Health.*

**FLINT BRICKS.**—Under the title of "Improvements in furnaces and other building blocks, retorts, crucibles, and other fire-resisting articles" a patent has recently been taken by Mr. D. Selwey, of Bridgend, Glamorganshire, for bricks composed of pure flint, without the admixture of alumina or any other substance to detract from the high refractory character of the material. The inventor treats the flints in such a manner as to produce from them, when in a pulverized condition, bricks or blocks of great structural strength and durability, superior in fire-resisting properties, it is said, to the best descriptions of fire-clay goods. His patent also extends to the manufacture of artificial stone for building purposes. The material when burned resembles a fine-grained freestone, and is sufficiently hard to resist the action of the weather. It is in furnace work and similar applications, however, that these bricks are expected to be most successful.