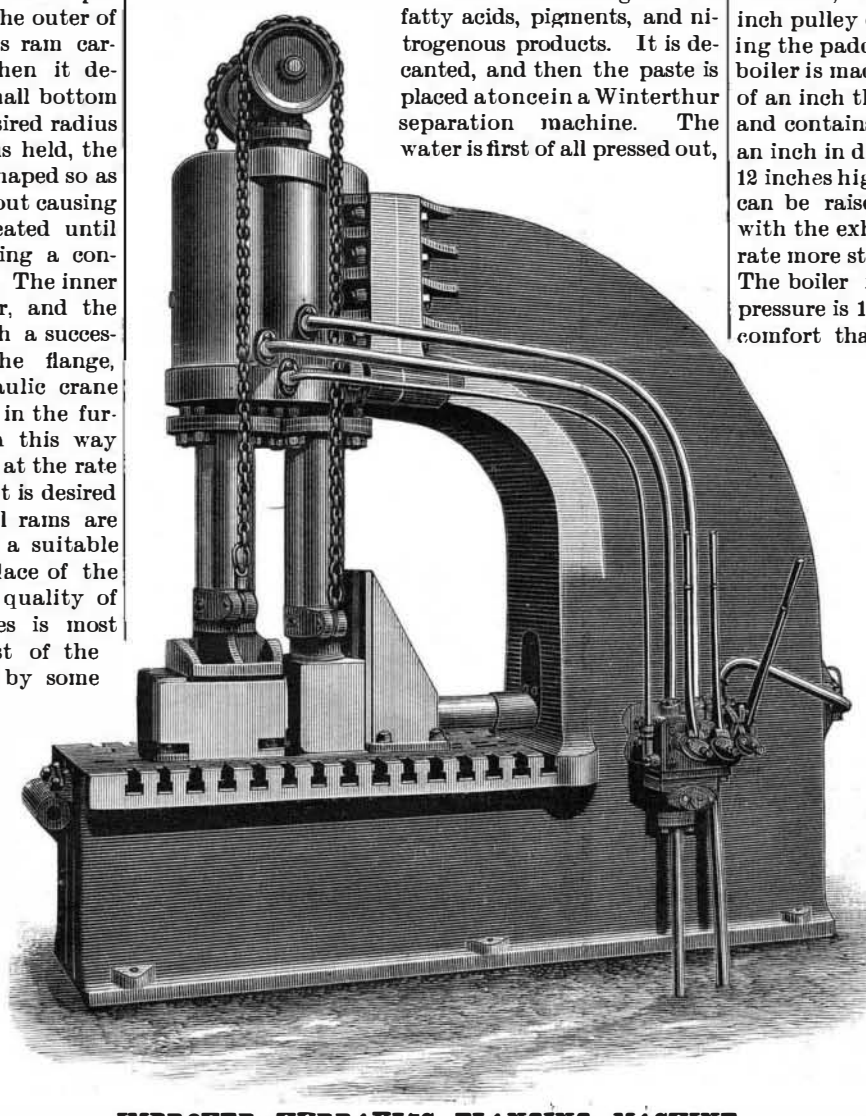
HYDRAULIC FLANGING MACHINE.

In this machine, instead of the whole plate being flanged in one operation, a progressive action is adopted; in fact, by the combined action of three hydraulic cylinders, the action of hand flanging is very closely imitated. The mode of working is extremely simple. When flanging the outer edges of circular boiler fronts, the plate is centered on a pin so as to bring the edge under the ram of the outer of the two vertical hydraulic cylinders. This ram carries a closing or nipping block, which when it descends holds the plate firmly against the small bottom block or die, which is formed to suit the desired radius or curve of flange. While the plate is thus held, the inner ram descends, the tool on it being shaped so as to turn over the edge of the plate without causing undue stress, these operations being repeated until about 8 feet or 9 feet of flanging—this being a convenient length to heat at one time—is done. The inner ram is then withdrawn into its cylinder, and the horizontal ram brought forward. This, with a succession of short rapid strokes, squares up the flange, and the plate is then lifted by a hydraulic crane placed above the machine, and deposited in the furnace for another length to be heated. In this way flanges 8 inches to 9 inches deep are finished at the rate of 90 feet to 100 feet in nine hours. When it is desired to flange furnace mouths, the two vertical rams are coupled together by a block or die, and a suitable mould substituted in the bed plate in place of the blocks used in flanging the edges. The quality of the work turned out by these machines is most excellent, and they are now used by most of the leading marine boiler makers, as well as by some of the large steel companies. In general terms, it has been stated by a large user that such work as steel boiler fronts with flanges 7 inches to 8 inches deep is flanged at four times the speed and at one-sixth the cost of hand work. When it comes to 9 inch or 10 inch flanges, hand work is, of course, out of the question. In flanging dome ends and similar work, the machine will do five times as much work in the same time at one-seventh the cost. All the flanges for from sixty to seventy large boilers per annum can be made with one machine, assisted with three ordinary fires for odd flanging. It should be added, however, that this is not the only saving, since the putting together of the boiler is much facilitated by the accuracy of the various parts when flanged in dies by hydraulic pressure. This machine is made by Fielding and Platt, Gloucester, Eng., and is, says the *Engineer*, one of the exhibits at the London Inventions Exhibition.



IMPROVED HYDRAULIC FLANGING MACHINE.

Extraction of Soap.

According to Professor Lunge, about 55 to 60 per cent of the fatty acid originally contained in the soap are now recovered in the Swiss works out of the waste soap liquors, which, in former time, were allowed to run away without utilization. The waste soap baths are treated with sulphuric acid, when a pasty precipitate is formed consisting of the fatty acids, pigments, and nitrogenous products. It is decanted, and then the paste is placed at once in a Winterthur separation machine. The water is first of all pressed out, then the pressure is increased while heat is applied at the same time, finally the remaining mass is extracted with bisulphide of carbon or petroleum spirit. The fatty acids obtained are of good appearance, and, of course, can be used again in the manufacture of soap.

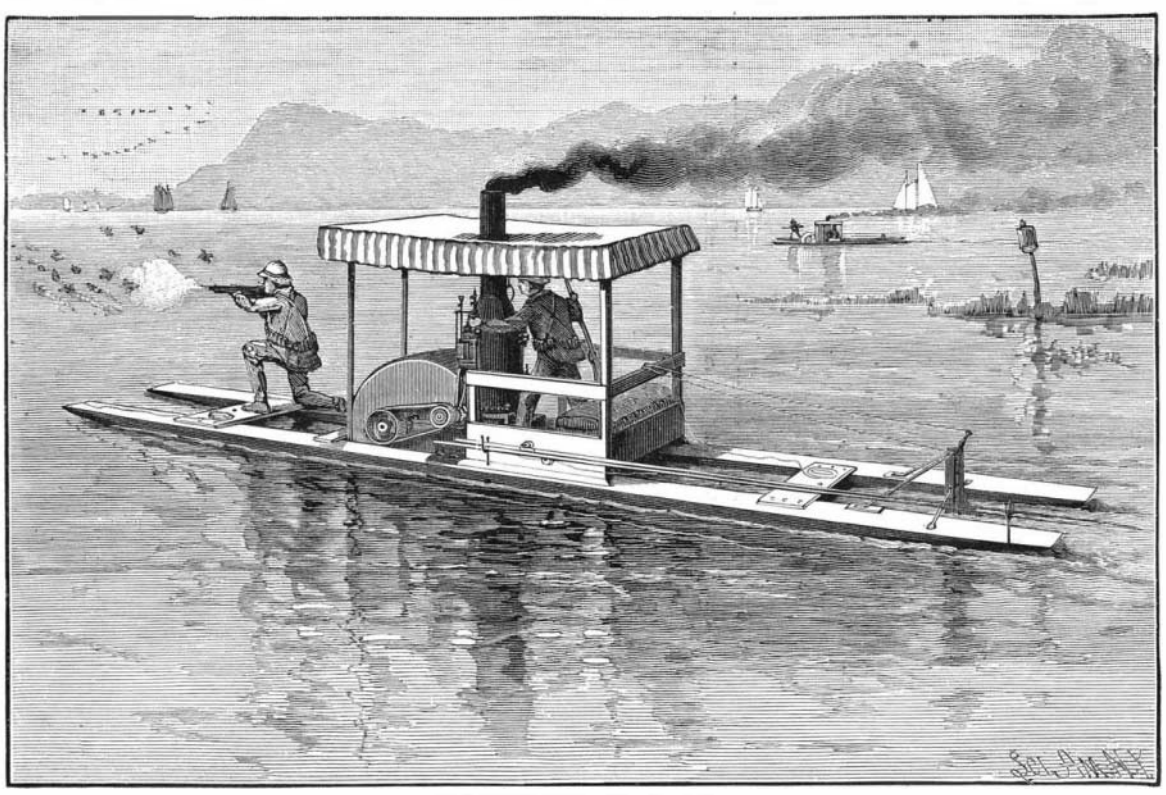
A Life Saving Canal Horse.

A correspondent of the New York *Sun*, writing from Creek Lock, N. Y., October 16, says: Barney Dugan's canal horse Old Joe has saved two persons from drowning within the past three weeks. The first rescue was that of a girl named Annie Ginley. She was playing on her father's boat at Big Basin. As Dugan's boat and Old Joe came along, the girl fell into the canal. Before any other aid could be given to her the horse plunged into the water, seized the girl's dress in his teeth, swam with her clear across the basin, where the bank was low, and clambered out with her. He refused to swim back, and had to be taken from the tow line and driven a mile back to a bridge.

The second rescue was that of the boy who drives him on the canal. The boy was wrestling yesterday with another boat boy on the tow path, and was thrown into the canal. He couldn't swim, and there was no one near him who could. While a boatman was looking for a pike pole, Old Joe jumped into the canal and brought the boy safely back to the tow path.

STEAM CATAMARAN.

The steam catamaran shown in the accompanying engraving is designed to be used in shoal water where propeller boats could not run; it is 26 feet long by 4 feet wide over all. Each hull is 10 inches wide by 8 inches deep, and has five watertight compartments, or ten in all. The hulls are put together entirely with screws and bolts, thus making a strong and safe life-preserver that will hold weight according to capacity, whether right side or bottom side up. Another important advantage gained by this method of construction is the stiffness—a person stepping from one side to the other hardly changes the position of the hulls. The paddle wheel, placed near the center, is 24 inches in diameter, and has four buckets, each 3 by 24 inches. The wheel shaft is hung in bearings, which can be raised or lowered so as to take more or less water against the buckets, or can be raised clear of the water when it is desired to use a sail. The steam cylinder is 2 by 3 inches. The pulley on the engine shaft is 5 inches in diameter, and carries a 3 inch belt, passing over a 14 inch pulley on the paddle wheel shaft. A box inclosing the paddle wheel keeps all the machinery dry. The boiler is made of the best steel, and is three-sixteenths of an inch thick, 14 inches in diameter, 24 inches high, and contains 80 seamless brass tubes, three-fourths of an inch in diameter by 12 inches long. The firebox is 12 inches high, with one-half inch water space. Steam can be raised from cold water in nine minutes, and with the exhaust entering the stack the boiler will generate more steam than can get through the cylinder. The boiler is tested to 200 pounds, and the working pressure is 100 pounds. This craft is shaped more for comfort than high speed, but the manufacturer, Mr. Geo. F. Shedd, of Waltham, Mass., proposes to construct the next one so as to combine both.



STEAM CATAMARAN.

Naphthalene as a Wood Preservative.

One of the exhibits in the Mining Exhibition at Glasgow is the naphthalene process for preserving timber, as patented by Mr. Henry Aitken, of Falkirk. The *Journal of Gas Lighting* says: The process is not only ingenious and apparently effective, but is noteworthy as offering a useful application for one of the most embarrassing residuals of gas manufacture. Even as purchasable from tar distillers, naphthalene is cheap for this purpose. The inventor claims many advantages for his process as compared with any other device for the protection of timber from decay. Among others, it is stated that wood to be preserved in this way may be treated while green and unseasoned, and may afterward be painted and varnished, neither of which observations applies to the creosote process. Of course, the test of a wood preserving process is time; and in this case only four years have elapsed since the process has been placed upon trial. During this period, however, not the slightest sign of decay has shown itself, either in the poorest description of white wood fencing treated by this system or in timbers placed below ground, where dry rot attacks the best seasoned timber, and renders it worthless in from three to four years. As an experiment, three years ago, timber from the wet log has been naphthalened, and made up into three railway wagons for the North British Railway, and these wagons have been running ever since without the slightest change. The plant required is said to be inexpensive, and the process is easily worked. The naphthalene is melted in a vessel capable of being tightly sealed, and the wood is laid in it, remaining until experience shows that the saturation is complete. The temperature at which timber is treated is kept as low as possible, so as not to injure the fiber. For firs and pines the naphthalene may be heated to 190° or 200° Fah.; but for oak and hard woods in general a temperature of 180° to 190° Fah. is sufficient. Vacuum and pressure may be employed in naphthalening as in creosoting; but so far as experience goes, neither is necessary. Seasoned wood may be naphthalened without losing its hardness or color by placing it in a solution of naphthalene in spirit under pressure. When withdrawn, the spirit evaporates, leaving the naphthalene in the wood. Wood may, if desired, be partially treated by exposure to naphthalene vapor. The action of the naphthalene is to destroy all albuminoid compounds in the wood, leaving it dry and clean to handle, and with only a faint aromatic smell.

FANCY baskets are made of the pulp of wood which are superior in every respect to those made of any of the ordinary materials now used. They are light, strong, and handsome. And they are bound to become the ladies' favorite work baskets. What next? Trunks, we suppose, will next take the field. And why not?

TO REMOVE DANDRUFF.—Take of borax one drachm, rose water one-half pint, tincture of cantharides one-half drachm, cologne water one-half pint. Mix, and apply night and morning.