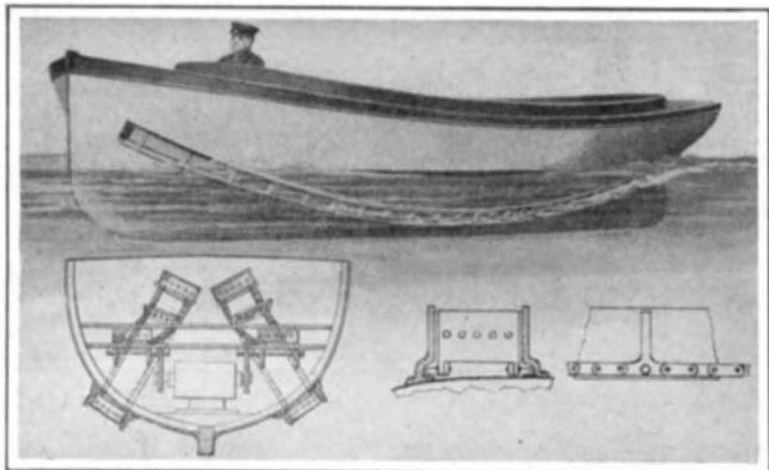


The animal held me tightly with one tentacle over my thumb, another through my fingers, and bracing itself by throwing out three anchors below, which caught the bottom and two sides of the tank, and three behind.

I now endeavored to complete my pseudo-victory by lifting the octopus, but I could not tear this small animal from the sides. The devil fish held on, pumping a stream of ink at me in its rage. By using my other hand I finally succeeded in prying it off; then I pretended to be caught and tried to release it. But the warlike chameleon of the sea would have none of it. It threw its tentacles about my hand, pulled it



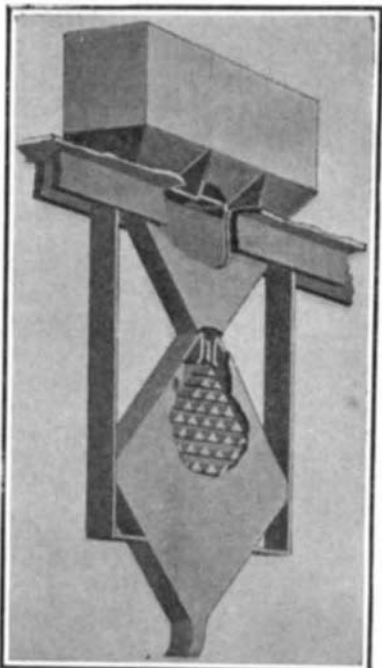
A BOAT DRIVEN BY PADDLE-CHAINS.

slowly down into the corner, covered it as well as it could, but did not bite me. If my hand had been a crab, fish, or other octopus, it would have been attacked and bitten, but for some reason it did not attempt it; in a word, the animal was perfectly harmless, which I knew; there was only a slight scratch on my hand to tell the story, and this was received when I wrenched it away.

This was a laughable conclusion to the threatening and warlike movements of the octopus. The animal, in point of fact, was a "bluffer," and well calculated to demoralize one not acquainted with its limitations. I know of no animal that has the power, by mere attitudinizing and the assumption of menacing gestures, to inspire the same degree of horror in the spectator not familiar with it. This was illustrated when I requested an attendant when displaying this octopus to explain to visitors that it was perfectly harmless, then to enrage it, and ask spectators to take it out of the tank and place it in another, a substantial inducement being offered in one instance. But among the many observers not one could be found who would touch the quivering, color-changing creature poised for its harmless spring; the terror inspired was complete and intense.

APPARATUS FOR MIXING DIFFERENT GRADES OF RICE.

Pictured in the accompanying engraving is an apparatus for blending different grades of rice or other cereals. The design of the apparatus is such that the blending is effectively accomplished in a very simple manner without the use of power-driven machinery. It comprises essentially a series of feed hoppers for the different grades of cereal, a large receiving hopper into which the feed hoppers empty, and a mixing chamber into which the receiving hopper discharges. The mixing chamber has the form of a lozenge, and the interior is provided with a grid or a series of transversely-extending bars of triangular cross-section,



APPARATUS FOR MIXING DIFFERENT GRADES OF RICE.

which are so spaced as to form passages for the rice to insure a thorough mixing. The series of bars also forms a lozenge-shaped figure, but its sides are not parallel with the chamber, so that tapered channels are provided between the grid and the chamber which, at the top, assist in crowding the rice through the grid and at the bottom flare open to accommodate the flow. The lower

end of the chamber is formed with a spout adapted to guide the cereal into a bag or other receptacle. A gate is provided in the lower end of the receiving hopper, whereby the operator can control the flow of the grain. It will be noted that the bars are not promiscuously distributed in the mixing chamber, but that there is a method in their arrangement. They are set in horizontal rows, the bars in one row alternating with those in the next row above or below, and each bar set with its lower face horizontal, so that the other two inclined faces serve as deflectors for the grain. The materials flow downward by their own gravity and, consequently, no power mechanism is required. A patent on this improved mixer has been granted to Mr. P. M. Lyons, of Gueydan, La.

A NEW METHOD OF PROPELLING A SHIP.

Instead of employing the conventional screw propeller or the paddle-wheel, Fénélon Péliissier, of Gonaives, Haiti, has hit upon an entirely different principle, which he has protected by a patent.

Mr. Péliissier uses two endless chains which pass around the hull from bow to stern, and which carry blades. The chains in question run in and out of openings in the hull, fore and aft, and are guided by sprocket wheels. In order to drive

the chains by the ship's engine, sprocket wheels are provided within the hull, which sprocket wheels are carried on a shaft connected with the engine shaft. Thus it is possible to drive the ship continuously.

In order to guide the chains effectively, special keelsons are employed, so formed as to constitute chain-runs, as shown in one of our sectional views.

The chains on opposite sides of the craft are driven independently from the engine. In order to turn quickly, one chain may be driven forward, and the other toward the stern. In order to move forward or astern, both chains are driven in the same direction.

A special arrangement has been devised for applying the invention to existing ships.

Fireproof Celluloid.

A process has recently been invented for rendering celluloid non-inflammable. In its broad principles the process may be said to consist of introducing into the mass of celluloid, when it has reached the highest degree of fluidity during its manufacture, a certain quantity of a salt, such as phosphate, bicarbonate of ammonia, or magnesium, or still others. These salts possess the property of giving off under the influence of heat a great quantity of gas, which stops the progress of the combustion. It is claimed that quantities of unflammable celluloid can be manufactured by the new process into any form and size desired.

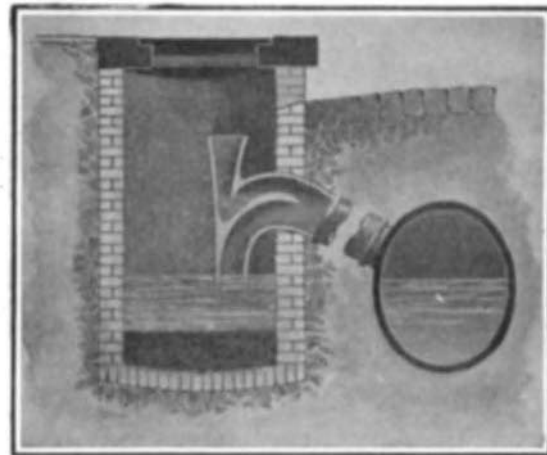
Feeding Cattle on Sugar.

Recent statistics show considerable progress in the employment of "doctored" sugar for the feeding of cattle. The consumption, which reached 50,000 pounds at the end of December, 1905, rose to 200,000 pounds in January, 1906. If this custom were general, 500,000 tons of sugar would be consumed annually, say half of the present production, giving every day 100 grammes (3.5 ounces) of sugar per head of black cattle. The sugar can be doctored only within the inclosure of the sugar-refinery and under the conditions determined by a regulation of the public administration. To 100 kilos (220 pounds) of sugar are added 2 kilos (4.4 pounds) of salt and 20 kilos (44 pounds) of oil-cake, or of any powder whatever approved by the administration. This mixture circulates freely and is sold at from 20 to 22 francs (\$4.00 to \$4.40) per 100 kilos, say about the price of the oats, with which, at the moment of serving, it is mixed in the proportion of 20 per cent. Thus 1,000 kilos of oats and 200 kilos of sugar will give 1,200 kilos of sugared oats, which will be distributed, for example, at the rate of 8 kilos instead of 10 kilos of pure oats. This fodder, therefore, is economical. For oxen the sugar is mixed with chaff. Doctored sugar is beginning to be used also for the disinfection of stables, for its combustion gives a plentiful release of formol.

MEANS FOR FACILITATING THE CLEANSING OF STREET CATCH BASINS.

In place of conducting the water of the streets directly into the sewer main, it is customary in large towns to provide catch basins at intervals into which the gutters drain. These basins are then connected by siphons with the sewer main, so that when the contents rise above a determinate level, they will be drawn off through the siphons. Heretofore the only means of cleaning catch basins has been to dip out

the contents in bucketfuls and convey them to some other basin, whence they are siphoned off into the sewer after the necessary level has been reached. This method of cleaning the basins is both laborious and expensive. However, a new form of siphon has recently been invented by Mr. William H. Engelbrecht, of Prince Bay, N. Y., which simplifies the cleaning process. This siphon is shown in the accompanying engraving. It will be observed that the shorter leg, or that portion of the siphon which enters the basin, is formed with a double channel or passage, one channel lying above the other. The upper channel is provided

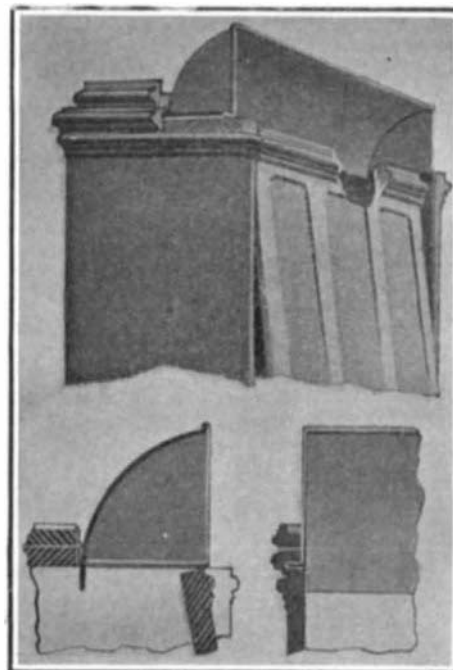


MEANS FOR FACILITATING THE CLEANSING OF STREET CATCH BASINS.

with a funnel mouth opening upward. In use the contents of the basin are dipped up and poured into this funnel, whence they flow down the longer leg of the siphon to the sewer main. The upper passage is so designed as to form a trap or water seal, so that after cleaning out the basin a quantity of clean water is emptied into the funnel, to clear the trap of foul liquid or sediment, and provide an effective seal against the escape of sewer gas through the siphon into the basin.

SOUND DEFLECTOR FOR PIANOS.

It does seem rather odd that the source of music in a piano should be completely boxed up in a case, so that the sound waves must first penetrate the case before they can reach our ears. To be sure, some pianos are provided with a swinging front, and a hinged lid at the top, which may be opened to prevent complete muffling of the sound; but the sound is deflected downward by the hinged front, or passes directly up to the ceiling when the top of the case is open. In the accompanying engraving we illustrate a device which may be placed over the open top of the piano to deflect the sound waves issuing therefrom, and direct them to the audience in the room or concert hall. The deflector is a very simple device of light construction, comprising two end boards connected by a curved back of such form as properly to direct the sound into the room. The end boards are formed with cushioned flanges adapted to rest on the side walls of the piano case, while the curved back is formed with cushioned extension, which fits between the side wall and thus prevents lateral displacement. In consequence, the deflector does not need to be fastened in place, but may be readily set in position or removed without operating any fastening means. By its use the full volume of sound passes in concentrated form into the room without being diffused. A patent on this sound deflector has recently been secured by Mr. T. W. Freeborne, of 228 Spring Street, Newport, R. I.



SOUND DEFLECTOR FOR PIANOS.