

INDUSTRY AND MECHANICS

STONE SHIPS.

Made by an Italian Engineer for Barge Service.

Eleven years ago an Italian engineer made a boat of artificial stone, or cement, which excited much interest.

It was an excellent boat, and is yet in use. The framework, of light iron rods, was covered with a metallic reticula, and then coats of cement applied, inside and out, to form the hull.

It proved surprisingly resistant to shocks. Since then the same engineer, Gabelini, has made many more "stone" boats, of various forms, and among them a barge, about 54 feet long and between 17 and 18 feet broad, which for several years has been employed for carrying coal in the harbor of Genoa.

THE IMPROVED BRIDGE.

Little Tricks Which Can Be Played with Matches.

Construct two squares, one within the other, by laying matches upon the

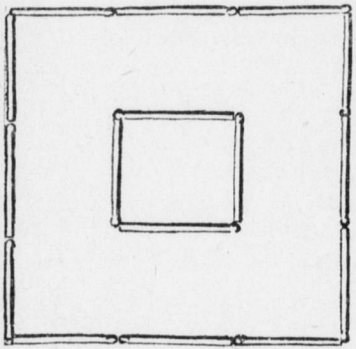


Fig. 1.

table as in Fig. 1, the inner square being composed of four matches and the outer of 12. The plan should be accurately laid out, so that the space between inner and outer squares on every side is just equal to a match-length.

Two other matches form the subject of the puzzle.

The smaller square is supposed to represent an island in the center of a lake, of which the outer square forms the border. The two separate matches represent two planks with which it is desired to cross from the shore of the lake to the island. The planks are of a length exactly corresponding to the distance from shore to shore, and therefore insufficiently long to rest upon the banks, and there is no

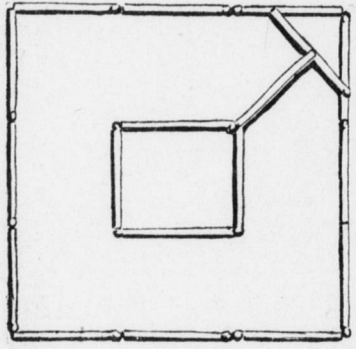


Fig. 2.

means of joining them. How can they be used to form a bridge?

The answer will be found in Fig. 2.

HYDRAULIC TEST FOR BOILER.

How an Engineer Did the Trick With Apparatus.

Some time ago my boiler engine was frozen up in a cold snap, and I wished to give my boiler a hydraulic test before steaming up again, to see if it was fit for business, writes A. C. Lawrence, in Scientific American.

I had no force pump or apparatus of any kind, yet I tested the boiler to the desired pressure, 100 pounds. I have had conversations with engineers since then, and not one of them could tell me how to make such a test without any apparatus, so I believe the idea may be useful for Handy Man's Workshop. I filled the boiler completely with water leaving no air space whatever, then built a small fire under the boiler, and as the cold water warmed up and expanded, I watched the pressure gage rise until it reached the desired pressure, when I opened one of the try cocks, allowing a small quantity of water to escape and relieve the pressure.

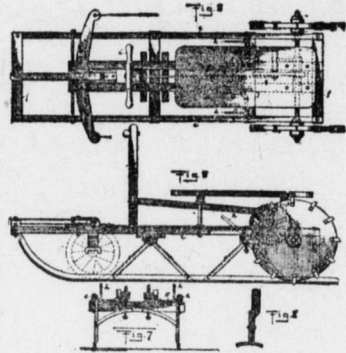
Sugar Free Milk.

J. Bouma and S. Herend produce a sugar-free milk preparation according to a German patent by precipitating the casein with carbon dioxide in the presence of monosodium phosphate. This salt has an acid reaction, and the product is amphoteric in reaction. Hitherto by precipitation with carbon dioxide it was impossible to produce a neutral preparation; the product was invariably alkaline.

THE HAND MOTOR SLED.

How a Boy Can Transform His Flexible Flyer.

The motor sled, which should appeal to almost any boy, is made by combining a flexible sled with an ordinary hand car, such as sold by toy dealers. The rear wheels are taken off and substituted for a pair of traction wheels, which may be thrown in or out of commission by a suitable



The Hand-Motor Sled.

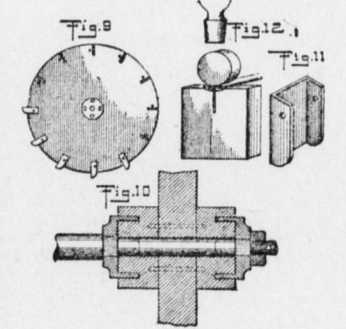
lever within the reach of the operator, explains Scientific American.

The runners are made for an ordinary size sled, from one-half-inch by five-eighths-inch T iron or steel, or they may be made from two angle irons riveted together. The base of the T should be bent or curved downward, so as to make it slightly dished out in the center. This can be done as described. See Fig. 12.

The runners are now ready to be bent to suit the height of the sled.

To these standards are fastened, one on each side, and directly on top of each respective runner, wooden rails e. These rails are fastened together with transverse bars f, at the front and rear ends. Directly over the rear standard, and journaled into the outside rails e, is a crankshaft g, provided with suitable handles h. At the front end, and directly over the front axle, the steering lever is fulcrumed, and two extending arms fastened thereto, which are connected with the front bar f by a bolt passing through slots in the arms.

The sled is now ready to receive the hand car, which is placed in the center of same. The front end is fastened to the outside rails e with a



Details of the Motor Sled.

long bolt, forming a hinge for the car.

Long bolts with nuts at their lower ends are now passed through the frame of the car into the rear transverse bar, also into the rear standard. Two pieces of wood may be nailed or screwed to the rear standard, forming a guide for the up-and-down movement of the car.

It will now be seen that by moving the handle h to the rear, the crank g will lift the rear end of the hand car relatively to the sled, thereby elevating the traction-wheels from contact with the ice or snow. It will also be seen that the handle h will rest on top of the standard, and that the crank g has passed the center of the shaft, and is consequently locked in this position.

The traction wheels are made of hard wood. First cut out a disk (see Fig. 9) about the same size as the wheels of the car. Then cut a number of radial slits in the periphery of same, into which are inserted small galvanized iron buckets, shown in Fig. 11, and riveted thereto. Small round disks are now fastened to either side of the large disk, so to make the proper length of the hub. Into these small disks are made four elongated recesses, to fit the four outward-extending prongs of the fixed collars on the shaft; and when screwed together with the nut on the outer end thereof, will keep the large disk fast on the shaft, and will rotate with same. See Fig. 10.

To Bore Iron.

The following method is said to be effective when one has not the proper tools for making a hole in an iron plate: Shape a stick of sulphur to the required dimensions of the hole, then heat the iron white-hot at the place where it is to be bored, and press the sulphur against it. Sulphur of iron is formed, and the stick passes through the metal.

Jupiter's Eighth Moon.

The eighth moon of Jupiter, discovered only within the last two years, has been photographed at the Greenwich observatory. The satellite has been photographed but few times since its discovery and the determination of its position now accords with previous computation of its position by astronomical methods.

Weather Resistant Plaster Mortar.

Mix six parts of freshly-burned plaster, three parts of brick dust, and four parts of blast-furnace slag sand with sufficient water, into a mortar and immediately before use add two parts of iron filings.

A NURSE'S EXPERIENCE.

Backache, Pains in the Kidneys, Bloating, Etc., Overcome.

A nurse is expected to know what to do for common ailments, and women who suffer backache, constant languor, and other common symptoms of kidney complaint, should be grateful to Mrs. Minnie Turner, of E. B. St., Anadarko, Okla., for pointing out the way to find quick relief.

Mrs. Turner used Doan's Kidney Pills for a run-down condition, backache, pains in the sides and kidneys, bloated limbs, etc. "The way they have built me up is simply marvelous," says Mrs. Turner, who is a nurse. "My health improved rapidly. Five boxes did so much for me I am telling everybody about it."

Sold by all dealers. 50 cents a box. Foster-Milburn Co., Buffalo, N. Y.



Miss Charity—If I were to give you a quarter, what would you say? Wandering Jim—I should tell every gent that you were the prettiest lady in all this town.

ARTFUL BEGGAR.

Colonists' one-way tickets Chicago to the Pacific coast, via the Chicago, Union Pacific and Northwestern Lines, are on sale daily during March and April at the rate of \$33.00. Correspondingly low rates from all points. Double berth in tourist sleeping car only \$7.00, through without change to San Francisco, Los Angeles and Portland. No extra charge on our personally conducted tours. Write for itinerary and full particulars to S. A. Hutchison, Manager Tourist Department, 212 Clark Street, Chicago, Ill.

Thanks to the Burglar. The dark lantern flashed through the flat. Then came the gleam of a revolver.

"Hands up!" hissed the head of the family. "You're a burglar." "Y-yes," gasped the intruder, as he faced the cold steel. "What have you stolen?" "Your wife's pug dog." "H'm. Er—if that's all you may sneak out quietly." "And your mother-in-law's parrot." "You don't say. Well, here is some loose change." "And your daughter's phonograph." "Good! Here's some more loose change." "Also your son's punching bag." "What! Great Scot, man, come out to the library and I'll open a special bottle."—Tit-Bits.

Lese Majeste. A teacher in one of the schools of Berlin has given to the papers of that city a composition written by one of the pupils in his school on the subject, "The Kaiser," in the course of which the young author says: "Prince Wilhelm was born on the kaiser's birthday. From the dome of the castle 101 salute shots were fired. The old grandfather and old Wrangel hopped into a cab and went to the schloss, and old Wrangel said: 'The boy is all right,' and the father made a bow from the balcony, and it was awful cold. And when the boy was baptized his father held his watch in front of the little fellow's nose, and he grabbed it and never let go again, because he is a Hohenzollern."

CONGENIAL WORK And Strength to Perform It.

A person in good health is likely to have a genial disposition, ambition, and enjoy work. On the other hand, if the digestive organs have been upset by wrong food, work becomes drudgery. "Until recently," writes a Washington girl, "I was a railroad stenographer, which means full work every day. 'Like many other girls alone in a large city, I lived at a boarding house. For breakfast it was mush, greasy meat, soggy cakes, black coffee, etc. 'After a few months of this diet I used to feel sleepy and heavy in the mornings. My work seemed a terrible effort, and I thought the work was to blame—too arduous. 'At home I had heard my father speak of a young fellow who went long distances in the cold on Grape-Nuts and cream and nothing more for breakfast. 'I concluded if it would tide him over a morning's heavy work, it might help me, so on my way home one night I bought a package and next morning I had Grape-Nuts and milk for breakfast. 'I stuck to Grape-Nuts, and in less than two weeks I noticed improvement. I can't just tell how well I felt, but I remember I used to walk the 12 blocks to business and knew how good it was simply to live. 'As to my work—well, did you ever feel the delight of having congenial work and the strength to perform it? That's how I felt. I truly believe there's life and vigor in every grain of Grape-Nuts."

Name given by Postum Co., Battle Creek, Mich. Read "The Road to Wellville," in pkgs. "There's a Reason."

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

TROUBLES OF JUNGLE DENTIST.



Dentist—I wonder does he really want that tooth pulled, or is he scheming for a breakfast?

Breaking Up Colds. A cold may be stopped at the start by a couple of Lane's Pleasant Tablets. Even in cases where a cold has seemed to gain so strong a hold that nothing could break it, these tablets have done it in an hour or two. All druggists and dealers sell them at 25 cents a box. If you cannot get them send to the proprietor, Orator F. Woodward, Le Roy, N. Y. Sample free.

Nautical Error. "I am sorry to hear, captain, that your wife left you so unceremoniously." "My mistake, sir; I took her for a mate and she proved to be a skipper."—Tit-Bits.

This Will Interest Mothers. Mother Gray's Sweet Powders for Children, used by Mother Gray, a nurse in Children's Home, New York, cure Constipation, Feverishness, Teething Disorders, Stomach Troubles and Destroy Worms; 30,000 testimonials of cures. All druggists, 25c. Sample FREE. Address Allen S. Olmsted, Le Roy, N. Y.

Soaked In. "I don't see how you get such a cake in your pipe; you never buy any tobacco." "Oh, it's sponge cake."

Try Murine Eye Remedy For Red, Weak, Watery, Watery Eyes. Compounded by Experienced Physicians. Conforms to the Pure Food and Drug Law. Murine Doesn't Smart. Soothes Eye Pain. Try Murine for Your Eyes.

She Named It. She (casually)—What do you think is the best fruit of courtship? He (tenderly)—The date.

Pneumonia and Consumption are always preceded by an ordinary cold. Hamlin's Wizard Oil rubbed into the chest draws out the inflammation, breaks up the cold and prevents all serious trouble.

No life can be pure in its purpose and strong in its strife, and all life not be purer and stronger thereby.

Throat Trouble may follow a Cough, or Hoarseness. "Brown's Bronchial Troches" give relief. 25 cents a box. Samples free. John I. Brown & Son, Boston, Mass.

The most certain sign of wisdom is a continual cheerfulness.—Montaigne.

FILES CURED IN 6 TO 14 DAYS. PAZO OINTMENT is guaranteed to cure any case of Itching, Blind, Bleeding or Protruding Piles in 1 to 14 days or money refunded. 60c.

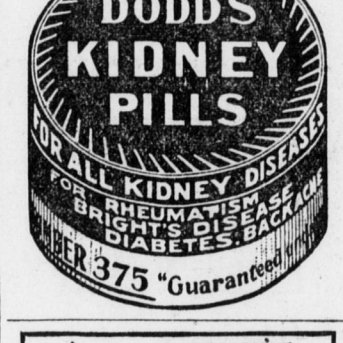
A man who needs advice is apt to get the kind he doesn't want.

Mrs. Winslow's Soothing Syrup. For children teething, softens the gums, reduces inflammation, allays pain, cures wind colic. 25c a bottle.

And sometimes a poet fools people by wearing his hair short.

It Cures While You Walk Allen's Foot-Ease cures corns, bunions, hot, sweaty callous aching feet. 25c All Druggists.

Things past may be repeated but not recalled.—Livy.



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Color more goods brighter and faster colors than any other dye. One 10c package colors all fibers. They dye in cold water better than any other dye. You can dye any garment without ripping apart. Write for free booklet—How to Dye, Bleach and Mix Colors. MORROE DRUG CO., Quincy, Illinois.



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