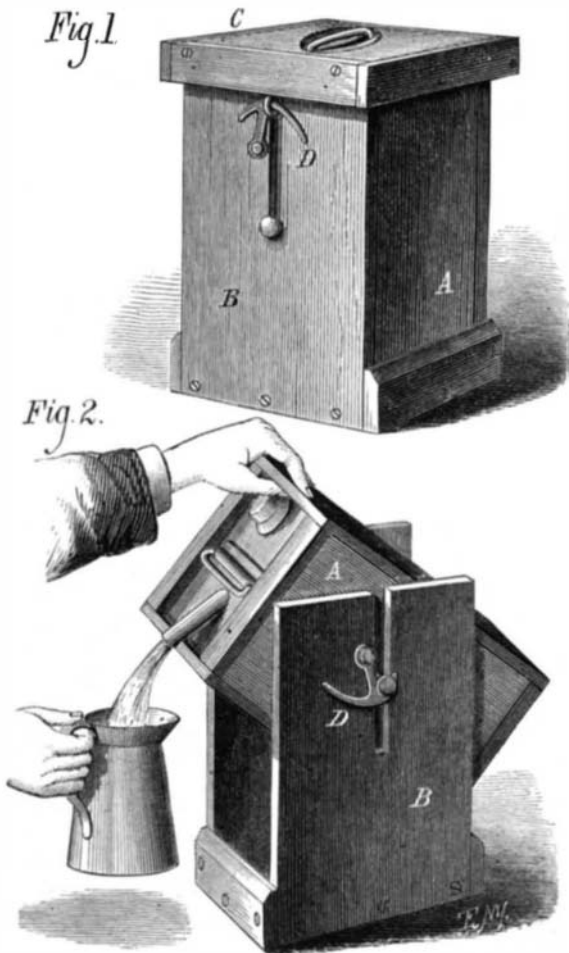


**GRAVES' IMPROVED OIL CAN.**

The invention herewith illustrated is an improved case for packing oil cans for transportation, the construction being such that the can is readily inserted, and when in place may be tilted in order to draw off its contents. Fig. 1 represents the case closed. Fig. 2 shows how the can is supported when the oil is being poured out. The case is made in two sections. The inner section, A, is attached by top cross pieces to two sides and the bottom of the can, while the outer section, B, covers the remaining sides and has a connecting second bottom. The lid, C, which has an aperture in it through which the can handle projects for convenience in carriage, and which also serves to hold the sides of the outer section firmly to the can, completes the device.



The lid is locked to the outer section, B, by means of double pivot hooks, D, passing through suitable staples, as shown in Fig. 1. Slots are made in said outer section into which enter trunnions or side pivots secured to the can. When the latter is lifted with the inner section after the lid has been removed, the hooks, D, drop, by their own weight, below the trunnions, and support the can at such a height above the bottom of the outer section that it may be easily tilted for drawing the oil from the spout.

Patented through the Scientific American Patent Agency, by John Graves, May 22, 1877. For further particulars address Frank Miller & Son, 349 and 351 West 26 street, New York city.

**HORSE DETACHER.**

The annexed engraving represents a novel and simple apparatus for the immediate freeing of horses from a vehicle by an occupant of the latter. Upon the ends of the whiffletree are formed lugs in which are pivoted at each end a double hook, A. The ends of this hook are at such a distance apart that the cockeye of the tug may easily be passed between them. B is a rod which works in staples along the rear side of the whiffletree. On its ends are formed heads, C, of such a size as to enter the space between the ends of the hooks, A, and so prevent the tug from slipping off. To the center of the rod is attached an arm, D, which is held down upon the whiffletree by a spring, E; to the arm a cord is attached. The cockeye of the tug is slipped over the outer arm of the hook, A, and the head of the rod, B, is turned into the space between the hooks. Should it become necessary to detach the horses, the driver pulls upon the cord, which turns the rod, and raises its head out of the space between the points of the double hook. The draught strain then turns the hook forward and pulls the tug therefrom, so detaching the horse.

Patented through the Scientific American Patent Agency August 8, 1876. For further particulars address the inventor, Mr. Amos M. Barker, Olin, Jones county, Iowa.

**Economical Paint.**

Skim milk, 2 quarts; fresh slacked lime, 8 ounces; linseed oil, 6 ounces; white Burgundy pitch, 2 ounces; Spanish white, 3 pounds. The lime to be slacked in water, exposed to the air, and mixed in one fourth the milk. Dissolve the pitch in the oil and add a little at a time. Then add the rest of the milk and the Spanish white.

**A Japanese Print Shop.**

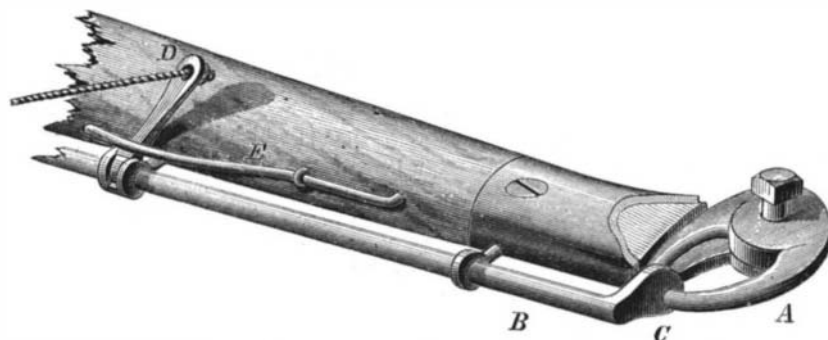
The shops scattered through Tokio, where cheap prints are sold, attract attention from the gay colors of the pictures, strung on the lines for public observation, and by the crowd of interested spectators generally clustered before them. The variety of these prints and their artistic merit astonish one. A prominent house, one of the largest in Tokio, has already issued one hundred and thirty sets of pictures, each comprising three engravings, on schemes suggested by the Kagoshima insurrection. The wood cutters, at the best, can earn by industry from seven to ten dollars a month; twenty-five cents a day is good average pay. To cut the more complicated plates requires from a week to ten days. The whole expense of preparing one of these prints, then, including designing, cutting the original plate and the color plates, of which latter there are sometimes upward of twenty required for one picture, inks, etc., is about seven dollars. They sell, on an average, for five cents a set of three pictures. While quite a novelty, however, they maintain a "fancy price," sometimes, where a great hit has been made, going for as much as fifteen cents a set; and, on the other hand, antiquated prints may be bought for a cent a sheet.—*Tokio Times.*

**Torpedo Trial at Cleveland.**

A series of experiments have been made in Cleveland, Ohio, with what is known as the "Lay Torpedo," an invention of Mr. Lay of Buffalo. The torpedo is cylindrical, with conical ends. The forward cone is calculated to contain one hundred pounds of any explosive substance. The forward section of main cylinder contains a liquid capable of powerful expansion into gas, which is used as the motive power, and is connected with the machinery by a valve operated by electricity, and a pipe. There is also a cable coiled in the same way that harpoon lines are arranged in whaling vessels, which may be any length desired, and which is connected with the shore or a vessel. The torpedo, when launched, is entirely under the control of the operator, who may be stationed on shore or aboard ship. He has a compact battery and key board on which are small switches with which he guides, controls, and explodes the craft by electricity. The secrecy with which the experiments have been made aroused general curiosity, and great crowds gathered on the dock to witness the public trial. The experiment was a splendid success in every particular. There were present a number of distinguished men, conspicuously among whom were the Assistant Chinese Minister, Yung Yuen Poo, and his secretary, a number of naval officers, and visitors from other cities. A stake boat was stationed a half mile from the shore, and when the battery was applied the torpedo started off at a rapid rate, going to the stake boat in three minutes and twenty seconds, and, gracefully rounding the boat, started on her return, which was made in the same time. It is claimed by the owners that this craft will travel twelve miles per hour. The rapidity and precision with which the machine obeyed the operator clearly demonstrated that it is one of the most formidable weapons of naval warfare ever invented.

**Iron Cement.**

Take four or five parts by weight of dried and finely powdered brick earth, and one part of peroxide of manganese, and mix them with two parts of fine iron filings, which must be free from rust, one half part common salt, and one half part borax. Grind all fine together and mix intimately, then make into a stiff mass with water. The cement must be applied as soon as made: it is first gently warmed, and then exposed to a heat just short of whiteness. It is stated to be thus converted into a slag-like material which stands boiling water and all common heats. Another recipe is: Equal parts of finely sifted peroxide of manganese and finely triturated zinc, which are rubbed up to a thickish fluid with

**BARKER'S HORSE DETACHER.**

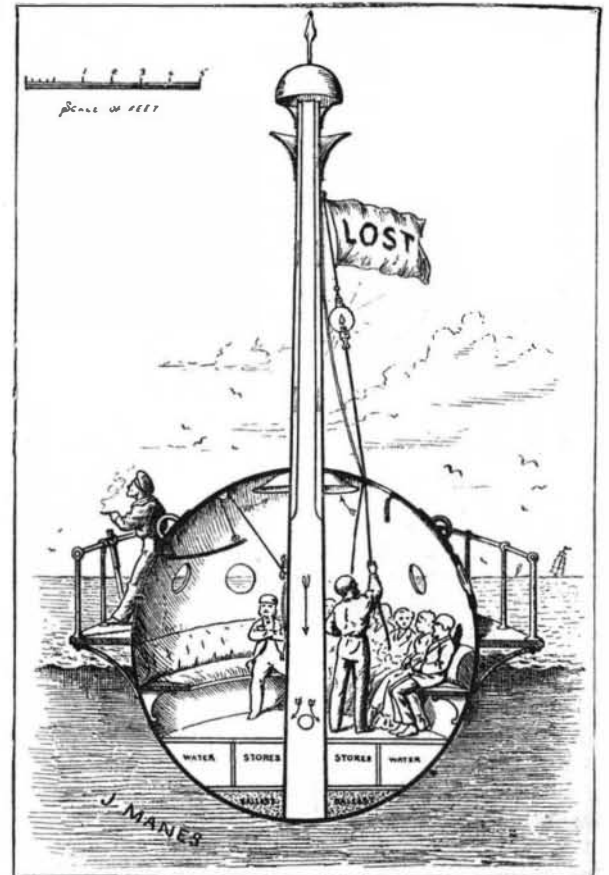
common water glass; this must be applied as soon as ready, and makes as hard a cement as the foregoing.—*Capital and Labor.*

**Egyptian Petroleum.**

It appears from the experiments of Dr. Weil that Egyptian petroleum has a specific gravity of 0.953. The Pennsylvania and Canadian oils have a specific gravity from 0.790 to 0.830. The Egyptian variety gives a very fine lubricating oil, free of all tarry matter; but as an illuminating oil it is inferior to American oils. It is better adapted, however, to serve as a fuel for steam generators, as it does not take fire until it attains a temperature of 135°.

**NOVEL LIFE BOAT.**

We are indebted to the *Daily Graphic* for the accompanying cut of Mr. J. Manes' life boat, which seems to meet nearly every want of shipwrecked people. His boat consists of a hollow globe of metal, or wood, ballasted at the bottom, so that it will always right itself immediately on touching the water, and can never capsize even in the roughest sea. This boat has compartments for water, medical stores and provisions, bull's-eyes to let in light, a door for ingress and egress, a port-hole for hoisting signals to the mast, comfortable seats all round the inside for the passengers, and a double hollow mast for supplying fresh air, and for carrying off that which has become vitiated. On the outside of the globe boat runs a gallery, for the use of sailors in rowing, hoisting sail, discharging rockets, or steering. Of course the cases would be very rare when rowing, sailing, or steer-



ing would be required, but in case of need all three could be easily managed. A glance at the illustration will show how completely the passengers would be protected from rain and wind, and consequently, to a great extent, from cold; this is a very important point in Mr. Manes' design, as we all know that very many persons, not merely women and children, but often hardy men, only escape drowning to perish from exposure to the weather. Mr. Manes suggests that a propeller might be attached to the boat to be worked by a crank turned by the passengers on the inside. It is calculated that a boat, such as is represented in our engraving, twelve feet in diameter, would carry about fifty passengers. This boat can be carried on deck or hung over the stern on davits, in either of which positions it may be used as a cabin during the voyage.

**A Vessel's Broken Shaft.**

I have been down into the hold of the City of Berlin to examine the broken shaft. It is about seventy-five feet long, nineteen inches in diameter, and made of malleable iron. It broke near the middle in a diagonal split, when it was revolving fifty-eight turns a minute, and the force at the time the fracture occurred not only broke the shaft, but the journals by which the sections are attached by twelve rivets, each as thick as your arm, which were all broken short off. When I read of a steamer that has broken her shaft in the newspapers I have not paid much attention to it, but I shall hereafter.

The accident occurred under circumstances that no human foresight could prevent. It seems that the shaft in the center, where it refused to anneal, had a cavity about the size of your hand, and it was in this spot that the fracture occurred where no examination externally could detect it. This enormous shaft, after it was broken, kept whirling round, knocking to pieces such things as it hit, and had it not been for one of the engineers, who rushed into the engine room and shut off the steam, many lives would have been lost. The man has been rewarded by a handsome subscription among the passengers.—*Letter in Boston Advertiser.*

Two French astronomers, M. Andre and M. Angot, will visit California next year to observe the transit of Mercury, which occurs on May 6.

No less than five new varieties of sponges were discovered by Dr. Meyer, at the Philippine Islands and New Guinea, during his recent travels in the Eastern Archipelago.