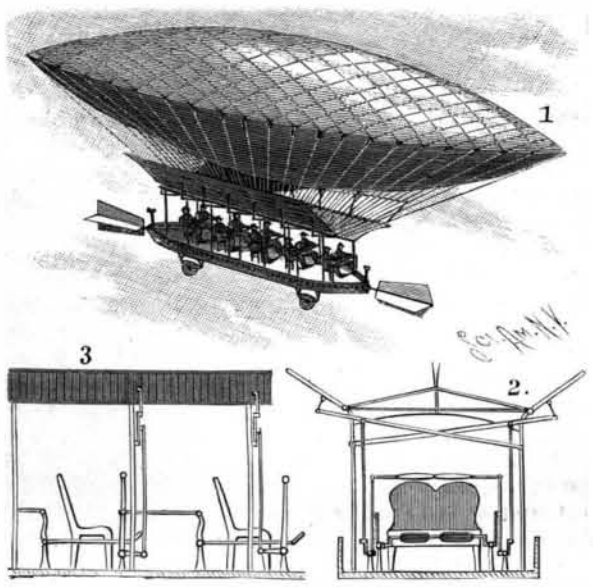
AN AERIAL VESSEL.

In addition to the lifting power of the balloon, it is designed that this vessel shall be partly upheld by oscillating wings, which are also made to propel the vessel, the wings being operated by the occupants of the vessel. The invention has been patented by Mr. Sigmund Spaeth, of Falls City, Neb. Figs. 2 and 3 are transverse and longitudinal sections, showing the connection of the lower side of the balloon with the car or basket, and the arrangement of the operating levers, the car preferably being formed as a truck supported on wheels. In front of each seat are pedals and rocking handle levers, connected by rods with levers fulcrumed on the frame above the seats, the latter levers being connected with the wings. The wings consist of a light framework covered by an air-tight fabric, and have openings which are closed by valves on the downward movement of the wings, there being an auxiliary wing having a spring movement pivoted at the rear end of each main wing. At the front and rear ends of the car are steering rudders. As the wings are operated by the movement of the handle levers and pedals by the occupants of the car, the valves open as the wings rise, making the resistance to their upward movement but slight, while on the downward movement the valves close automatically, so that the entire surface of the wings acts upon the air to assist in sustaining and lifting the vessel, the auxiliary wings exerting pressure obliquely upon the air to propel the vessel forward. In starting the vessel it may be propelled along the ground for some distance, on its wheels, before rising in the air.



SPAETH'S AIR SHIP.

MARVELOUSLY LOW-PRICED WATCHES.

The accompanying illustration shows a front view, a back view with the case open, and another representing the works removed from the case, of a remarkably cheap watch which has just been put on the market by Messrs. R. H. Ingersoll & Brother, of No. 65 Cortlandt Street, New York City. It sells for $1.50, with a handsome and suitable chain, is 2⅛ inches in diameter, and weighs 3⅝ ounces. It is a stemwinder and setter, American lever, 240 beats to a minute, steel pinions, patent escapement and regulator, and dust-proof case, handsomely finished in nickel or gilt. The watch is fully guaranteed for one year. The factory of this firm produced last year nearly half a million watches, but their new, 1894 style is a smaller and apparently a better watch. The manufacture is, of course, American throughout, and those who are incredulous as to the possibility of making a serviceable watch at so low a figure cannot fail to be surprised at the success the manufacturers of this watch have attained.

THE "PREMIER" WATCH OF R. H. INGERSOLL & BROTHER.

Bean Oil.

The following particulars of bean oil in Formosa are extracted from a special report on the resources and trade of that island prepared by Mr. Alex. Hosie, late Acting British Consul at Tamsui, and published by the Foreign Office.

Dolichos Soja.—More oil is extracted from this bean than from any one of the other oil-yielding plants of China. The two kinds of bean treated for oil are small in size and oval in shape, one having a whitish yellow epidermis and interior, the other being green throughout. They are probably sub-varieties of the *soja* bean. The process of extraction is worthy of description.

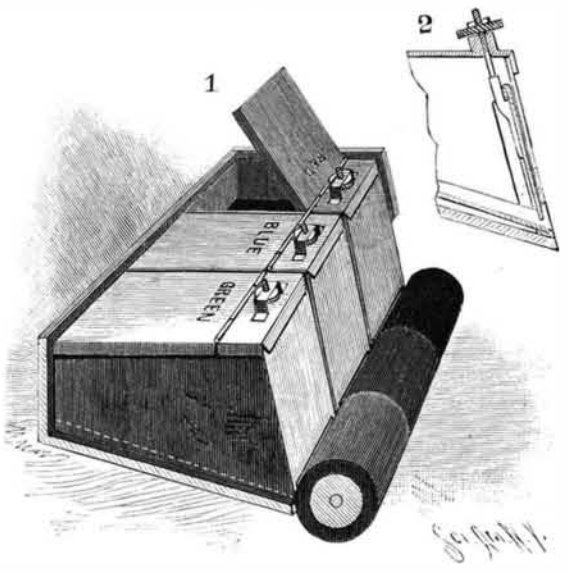
The first thing that strikes the eye of a visitor to a bean oil factory is the enormous stone wheel which is used to crush the beans. It is of dressed granite, about 10 feet in diameter and 2½ feet thick at the axis, gradually contracting to a foot at the rim. This wheel, which is of enormous weight, revolves in a well 30 to 36 inches broad, paved with stone, and bounded on each side by a low wall of concrete some 3 feet high. The massive wooden axle on which the wheel revolves has its opposite end firmly fixed in a huge beam, which rises vertically from the center of the circle formed by the inner wall of the well, and which revolves with the wheel. Behind the wheel, and supported by a plank fixed on and near the opposite end of the axle, is a wooden framework, which just sweeps the floor of the well. The front of the framework has a metal share like a plow, and affixed to the rear is a small square of wood inclined to the inner wall of the well, with a loop of rope or leather nailed to it. The beans to be crushed are heaped in the well against the inner wall. Two mules, blindfolded, are harnessed to the wheel, one in front, the other behind, and walk outside the outer wall. At the first revolution nothing is crushed, but the loop at the end of the framework drags the beans on to the floor of the well, and at the second revolution these are crushed and swept toward the outer wall by the share, making way for a fresh supply of beans dragged on by the loop arrangement at each revolution. The beans are flattened into thin round wafers, and are crushed a second time before they are ready for further manipulation. After the second crushing, bean wafers sufficient to make a cake 4 inches thick and 2 feet in diameter when compressed are put in a square piece of sacking, and placed on a wooden grating above a caldron of boiling water. In a few minutes they are rendered quite soft by the steam which passes up through the grating to the sacking and its contents. During the process of steaming, another workman has been arranging a series of soft straw brooms, which are also steamed, so as to form the bottom of a couple of narrow metal bands surmounted by a wooden casing, over which the long tips of the straw brooms project. Into this the steamed beans are poured and trampled down by foot till the mass is quite hard. The projecting straw tips are then brought over the top of the beans by foot, and trampled down so as to form a covering. The wooden casing is removed, and the metal bands arranged a short distance apart near the top and bottom of the cake respectively. The whole is then put into a primitive wooden press, and subjected to considerable pressure by the driving in of successive wedges. The oil is expressed and drains into an underground tank, the top of which is on a level with the stone-guttered slab on which the lowest cake rests, for half a dozen cakes, one above the other, may be undergoing pressure in the same press at the same time. When all the oil has exuded from the cakes they are taken from the press, the metal bands and straw casings are removed, and, after being left to dry for a time, they are ready to be shipped to other parts of China for manure. The beans yield about 10 per cent weight of oil, and the cakes, when removed from the press, weigh some 64 pounds, and are worth about 2s. 9d. each. They constitute a very valuable manure, and are carefully macerated before being applied to the soil.

To show the commercial value of this industry, I may mention that 60,000 tons of bean cakes were exported from Chefoo during 1890. Nor is Chefoo the principal exporter. Newchwang sent out over 156,000 tons in the same year. In Formosa these beans are grown, and the oil is extracted in the above manner, but only in quantities sufficient to meet local requirements. The refuse cakes are not exported. The oil is used for both cooking and lighting purposes.

THE first Japanese lady physician has recently been licensed to practice in Nagasaki, according to a Dutch journal cited by the *Deutsche Medizinal-Zeitung*. The lady's name is Marie Saganiana, and she is said to have obtained her medical education in Ohio.

SUPPLEMENTAL COLORED INK FOUNTAINS FOR PRINTING PRESSES.

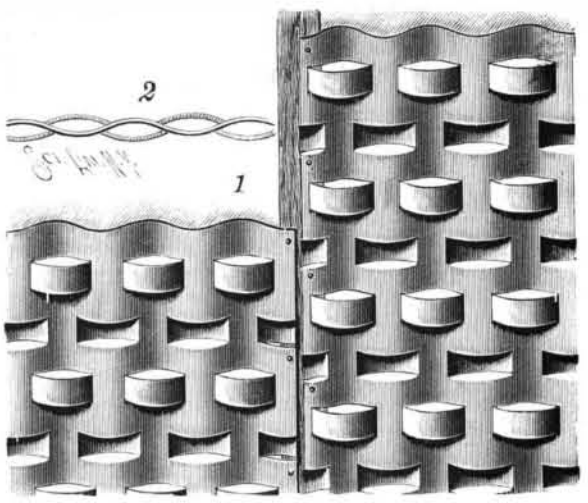
The illustration represents supplemental fountains, designed to be placed and used in the ordinary long fountain of any power printing press, to facilitate printing show bills, etc., in colors, in such a way that one color blends with another, where the work is done by one impression. The improvement has been patented by Mr. Otis M. Moore, Seattle, Wash. (box 1513). Fig. 1 shows three of these supplemental fountains placed in a main fountain, Fig. 2 being a sectional view of the gate-moving mechanism. The fountain is preferably a sheet metal box with inclined floor, and with bottom flanges highest at the back end, holding it above the floor and ink of the main fountain. Its front portion has a rigid top or cover, to which is hinged an upwardly swinging lid, and at the lower edge in front is a transverse slot extending the full width of the fountain, through which the ink is supplied directly to the roller. In the front corners are angle plates forming a slideway in which moves a gate the full width of the fountain, and by means of which the amount of ink permitted to pass through the slot is regulated. Centrally in the top of the gate is a block, from which a screw extends upward through a suitable bearing and keeper, there being on the screw a milled nut, by turning which the gate is moved up or down to adjust it so that just the right quantity of ink will flow to the roller. Any desired number of these fountains may be used, according to the number of colors the printer may wish to employ on a job, and the fountains are made of varying widths, to facilitate such distribution of the color as may be most effective.



MOORE'S CHROMATIC INK FOUNTAIN.

CORRUGATED PLATE METALLIC LATHING.

The sheet metal lathing shown in the illustration is made with a special form of keys or loops to engage and interlock with the plaster, Fig. 1 representing this lathing as applied and Fig. 2 being a sectional view. The improvement has been patented by Mr. William Eckstein, of Hayward Brothers & Eckstein, No. 187 Union Street, London, S. E., England. It is formed of thin sheet metal, with broad or large corrugations which give a regular undulating surface on both sides, and in each corrugation are transverse slits, the metal between each pair of slits being bulged to form loops, which bulge the reverse of the corrugation in which they are formed. The ends of one set of loops are not in alignment longitudinally of the corrugation with the ends of the adjacent series of loops, the loops thus "breaking joint," as it were, so that there are no continuous weak lines; but the rigidity of the plate is greatly increased, and sufficiently large openings are provided for the plaster to find its way in proper quantities to afford a firm interlocking engagement with the undulations and the loops.



ECKSTEIN'S METALLIC LATHING.

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