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USEFUL RECEIPTS.

New Lubricating Materials.

Take some resin oil, and after having allowed it to settle for a short time, boil it in a copper kettle with a hundredth part of its weight of slacked lime, it is then to be poured out quite hot into vessels, when a separation of all extraneous matters takes place. Eight gallons of this oil are heated in a cast-iron boiler, to which are added fifty-five pounds of slacked lime that have been passed through a very fine wire, and to be stirred up the whole time of pouring it into the vessel. Oil and lime are added in the above proportions until the boiler is full. This is heated until the water of the lime has evaporated, which can be known from the appearance of the substance resembling that of liquid chocolate. When this is done, five gallons of resin oil and about four lbs., of this lime paste are poured into a copper basin with handles. The mixture is well shaken and poured off into vessels. By this means a good composition for oiling machinery is obtained. In an additional patent the inventor adds a little tar oil (naphtha), particularly when it is required to oil large machines.

Another receipt of the same inventor consists in adding 2½ gallons of oil to 1¼ lbs. of some oleaginous substance. Shake this up and add the same quantity of slacked lime, previously boiled with oil which has been made anhydrous. The mixture is well shaken and kept in vessels for use.

Artificial Flowers.

Me. Girardin, of Brussels, Europe, has patented a new manner of making gold and silver embroideries as well as artificial flowers, which she thus explains:—After having taken the drawing, it is punctured and rubbed over a piece of parchment covered with ink, and the outlines are traced with black lead; you then take a piece of gold wire formed with three twists, and follow with it the outlines of the drawing, fastening it down with linen thread. When all the outlines have been followed, another piece of wire, twisted in like manner and of the finest kind to be obtained, is passed through the eye of a needle, which is prepared so as not to cut the wire. The parts of the drawing to be copied are then followed by the needle, and attention must be paid to knot the beginning and end of each needleful, as well as when the wire happens to break. When the drawing has been followed all over the piece of parchment, it is turned back to cut the threads that held the wire forming the outlines. The work is then taken off and cleared of the shreds of thread by means of a small pair of pincers. For flowers the petals are then arranged one over another, and fastened with a wire of the same metal; a metal wire stronger than this last is placed in the calyx, and twisted to form the end. The work is then washed with soap and dried perfectly in box-wood saw-dust. It is afterwards taken out of the saw-dust, and the flower finished by fashioning it as required.

GWYNNE'S CENTRIFUGAL PUMP.

Figure 1.

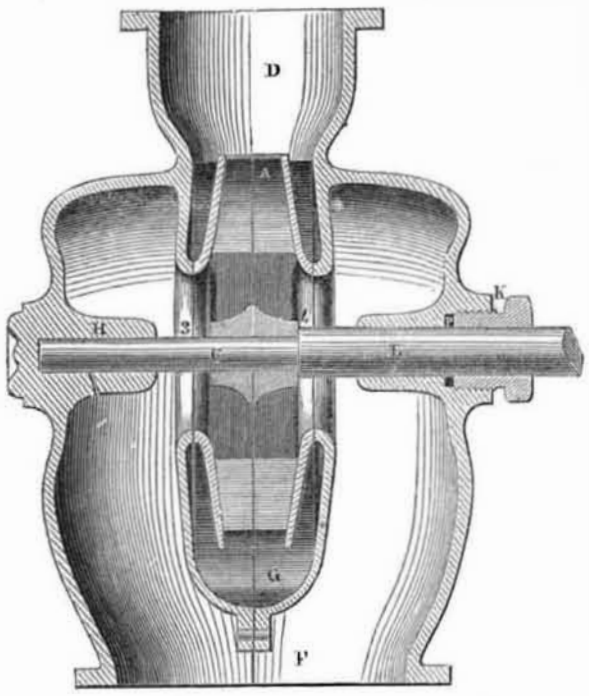
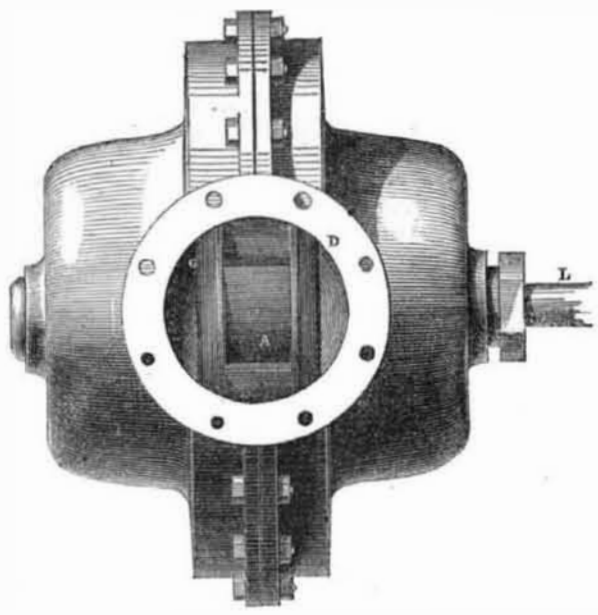


Figure 2.



The annexed engravings are views of "Gwynne's Centrifugal Balance Pump," patented last year. Figure 1 is a vertical transverse section. Figure 2 is an outside view of figure 1, showing the discharge-pipe, D.—Figure 3 is an inside view showing one disc with its radial arms. Figure 4 is an edge view of the two discs or rotary pistons which constitute the pump when placed inside of the fixed case, figure 2. The same letters refer to like parts.

The nature of a centrifugal pump consists in receiving water by an orifice or opening at the centre and discharging it at the periphery. It has no sliding pistons or rings like most rotary pumps, but simply consists in having two discs united together by an arm or arms, and placing these on a shaft in an air tight case, connected with a central suction orifice, and a circumferential discharge pipe. A, figure 4, is the rotary piston formed of the two discs, which are constructed with radial arms as shown in figure 3, and which constitute the water passages, through which the water flows from the central inlet openings in radial lines to the circumference where it is discharged at tangents into the pipe, D. The rotary piston is secured on the shaft, C; 3 and 4 are central openings into the inside of the two discs,

Fig. 3.

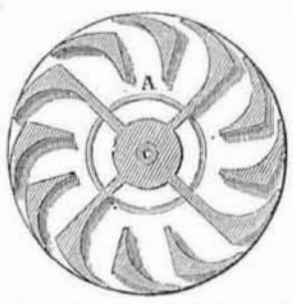


Fig. 4,

which are formed like two saucers united with their concave surfaces placed towards one another; K is a stuffing box, and P is the packing; L is the driving shaft, on which a pulley is secured to drive the rotary piston by a belt; G is the chamber in which the water is gathered previous to its discharge, and F is the base of the case for the pump to be secured to any proper bed, and at the same time it is the suction pipe which leads down into the cistern or whatever it may be. The water therefore enters up through the bottom of the outside case and passes into the inner case by the central openings, 3 and 4, and into the interior of the rotary piston—the two united discs—and is driven out of the pipe, D; H is a bearing for the journal of shaft, C. The engravings exhibit what is termed a drainage pump, one built for the discharge of large volumes of water to distances of from 6 to 20 feet. For great elevations, and for fire-engines, a smaller suction and discharge pipe, and smaller issues in the rotary piston are employed.

It will be observed that the construction of this pump is simplicity itself, and there is no part about it liable to wear out—no packing and repacking required. It is especially adapted to the pumping of saccharine matters in sugar houses; to the drainage of marshes, such as rice fields, &c., and for coffer dams, and such like purposes. It operates by centrifugal action, the water being drawn in at the centre suction openings, and discharged tangentially at the circumferenee. We have been informed that it has given out 85 per cent. of the applied power, and nearly that amount may be relied upon. Common plunger pumps do not average 50 per cent., one in the best order will give out 70 per cent. It was on exhibition at the last Fair of the American Institute, and discharged a quantity of water according to its size, which surprised all who witnessed its operations. A rotary piston, when so constructed as to require no packing, and not rubbing continually with its periphery on a stationary surface, which would soon wear it untrue, possesses numerous advantages; its operation is uniform and continuous; its price is one-third less than other pumps, and it is very durable. Different sizes of this kind of pump are manufactured at the works of the Union Power Co., No. 353 West 24th street, this city, Joseph E. Holmes, general agent, also agent of Dick's Press, business office, 49 Dey street.

The inventor of this pump offered to test it for one whole year for $5,000, with any one at the Great Exhibition. This offer was not taken up by the inventor of any pump there. One of these pumps, twelve inches in diameter, has been running at the extensive paper mills of Owen & Hurlbut, South Lee, Mass., for one year, day and night, constantly, and has not yet cost one cent for repairs; this is the best of testimony to its durability. This company, in a certificate, assert that it requires less power to operate this pump than any they have ever used. As such pumps are constructed for one-third less than others, the economy in price is a most important consideration. Every person wants a cheap and good article—these two conditions are not always united. In the large pumps gravel will pass freely through, and stones of 1½ inches diameter will flow in and out without any injury.

The Submarine Explorer.

In number 11, of last volume, Scientific American, we illustrated and described the apparatus of M. Alexandre, for submarine diving and exploration, and without any doubt we consider it an ingenious apparatus. Since that time we have heard little about it, excepting some experiments made at the Brooklyn Navy Yard and at the Battery during the last Fair of the American Institute. In France, where it was invented, it is more highly esteemed. In the harbor of Cherbourg, which is occupied with docks and arsenals, one of these machines, 40 feet long, is employed daily to remove some submarine rocks which obstruct the entrance to one of the basins. It is of a large capacity, for nine men can go down in it and work for eight hours under water, with the supply of air which they take down with them. There is no need of tubes and force pumps to supply pure air from above. In the description which we published on the page referred to, it is stated that lime water is employed to purify the atmosphere in the Explorer when it becomes impure by the carbonic acid gas expelled from the lungs of the operators. It has been found by experiment that when the apparatus is working in a current, there is not the least occasion for the lime water. The carbonic acid is heavier than the common atmosphere, and also combines more readily with water, therefore it drops down into the current, in which the men work, at the bottom of the machine, and is carried off; this is an important scientific fact well worth treasuring up, as it proves to us that a vessel of water placed upon a stove answers more than one beneficial purpose, viz., to send moisture through the atmosphere; it also absorbs impurities which may be in it. Running streams in cities and villages, upon the same principle, tend to promote health by absorbing impurities from the atmosphere, as well as carrying them off by mechanical contact.