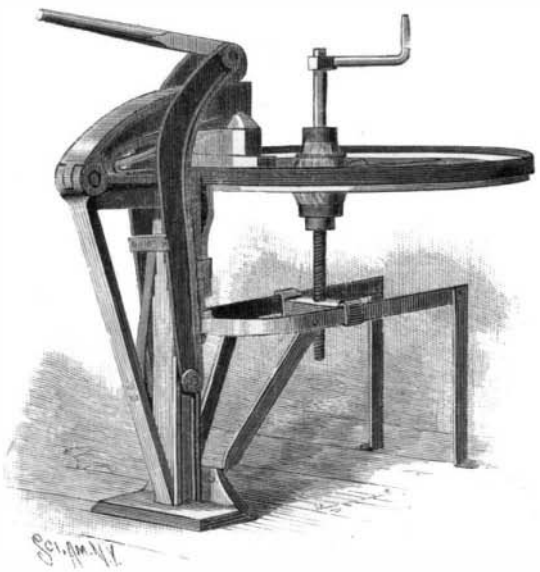
A TIRE REMOVING DEVICE.

To facilitate the removal of tires from vehicle wheels without injuring the felly, and also for use in truing tires, the device shown in the accompanying illustration has been invented and patented by D. D. Robinson, of Niles, Mich. On the inner side of a standard mounted on a suitable base is a bracket, from which are carried out diverging arms supported by legs and braces, a connecting piece on the arms supporting a

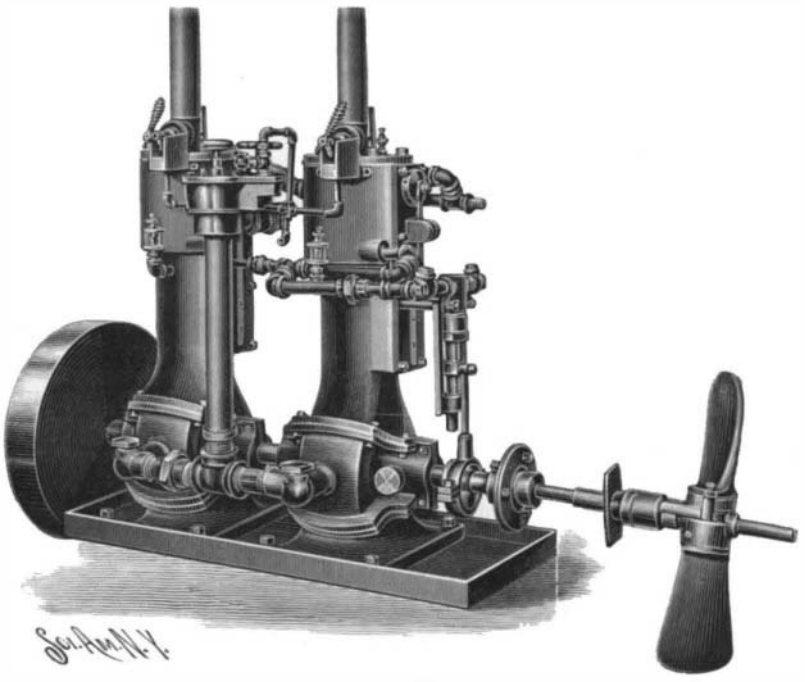


ROBINSON'S TIRE REMOVER.

block with threaded central opening, in which is received the screw-threaded lower end of a vertical shaft, provided above its threaded portion with a collar, on which rests a tapering sleeve adapted to fit into the box of the wheel hub, there being on the upper end of the vertical shaft a crank arm, by turning which the wheel may be raised and lowered by means of the screw on the lower end of the shaft. Extending rearward from the top of the standard is a horizontal arm connected by a brace bar with the bottom of the standard, and pivoted at the rear end of the horizontal arm, and extending beyond the front of the standard, is a curved pressure arm carrying a pressure foot adapted to bear upon the upper face of the felly of the wheel. A spring holds the pressure arm in normal position, with the pressure foot slightly away from the felly. A socket on the inner face of the upright receives the lower end of a dog, whose upper end is adapted to bear on the under side of the wheel tire, a set screw in the upper portion of the standard being adjusted to engage the outer face of the tire. On the sides of the standard are pivoted upwardly and forwardly curved lever arms normally pressed forward by a spring, and in the outer ends of the arms is pivoted a cam or eccentric having an attached handle, by pressing down upon which the cam is caused to engage and force downward the pressure arm with its pressure foot bearing upon the felly, the latter being thus forced downward while the tire is held from movement by the dog. The wheel is gradually turned until the felly has been partially forced from the tire all around, when a block is placed on the felly under the pressure foot and the wheel is lowered by turning the crank, when the operation is continued until the wheel entirely leaves the tire.

A NEW GASOLINE MOTOR.

The accompanying engraving represents a new double cylinder marine gasoline motor built by the Murray Iron Works Company, of Burlington, Iowa. The engine from which the photograph for this cut was taken is of six horse power, with cylinders 4½ inch bore by 5 inch stroke. These motors are built for both stationary and marine purposes; the weight of the marine motors being about 100 pounds to the horse power. The ignition is by incandescent tube. The motors are built on what is known as the two cycle plan, each cylinder giving one impulse at every revolution. The crank shafts are of large size, the throat collars are forged on to the crank shaft, the cranks in the double cylinder motors are set opposite to each other, and the reciprocating parts thoroughly balanced, in consequence of which the vibration is very slight. The propeller is reversible, very strongly made, and a reversing lever gives the operator thorough control of the boat, it not being necessary to stop the motor to stop or back the boat. There are very few reciprocating parts in this motor, in consequence of which it can be run at a high speed. An exhaust muffler is furnished with each engine, making the exhaust almost noiseless. There are a number of these motors in successful operation on the Mississippi and Illinois Rivers.



A NEW DOUBLE CYLINDER MARINE GASOLINE MOTOR.

Uses of Chinese Wood Oil in the Manufacture of Paints and Varnishes.

The Chinese wood oil, tung oil or varnish tree oil (not to be confounded with Gurjun balsam, which is also called wood oil), has of late become an article of commerce, there being two varieties, the Canton oil and the Hankow oil. Although the prices are still too high to admit of competition with linseed oil, the wood oil has gained an entrance into the manufacture of lacquers, varnishes and paints, on account of its particular and salient quality to dry throughout in a very short time under the action of light and air, and there can be no doubt that a large number of other uses will be found, as soon as closer experiments are made with it. Thus Chinese wood oil is already employed as floor oil owing to its hardness, and in the manufacture of waterproof materials it has been used for a product similar to oilcloth, which excels the latter by its extraordinary elasticity.

It cannot be very well employed in a raw state, for the reason that it dries opaque, probably in consequence of the presence of mucilage and albumen. In order to be employed in the same manner as linseed oil, the oil must be boiled with the addition of a few per centum of lead oxides (minium or litharge), for without this addition it always remains opaque. It is true this would be immaterial with the use for paints, but it is necessary even for the purpose of obtaining a greater drying capacity. In boiling the oil proper, whether with lead or manganic compounds, a temperature below 200° C. must be maintained, otherwise, especially in the case of manganic compounds (borate of manganese), a thickening ensues which is followed in a short time by complete gelatination, thus rendering the product unfit for further use. Therefore, the oil should be heated only to 160° or at most 180° C. Then the kettle is taken from the fire or the fuel removed and the siccatives stirred in. This is sufficient to impart to the oil the higher drying capacity desired and to obviate the above mentioned drawback. Pigments, ground in the oil thus prepared, furnish excellent paints, which harden quickly throughout. They do not dry superficially and do not remain soft and sticky below the surface for a longtime, like the pigments prepared with linseed oil. Coatings which dry throughout are very much in demand, and for these the higher cost will be no consideration.

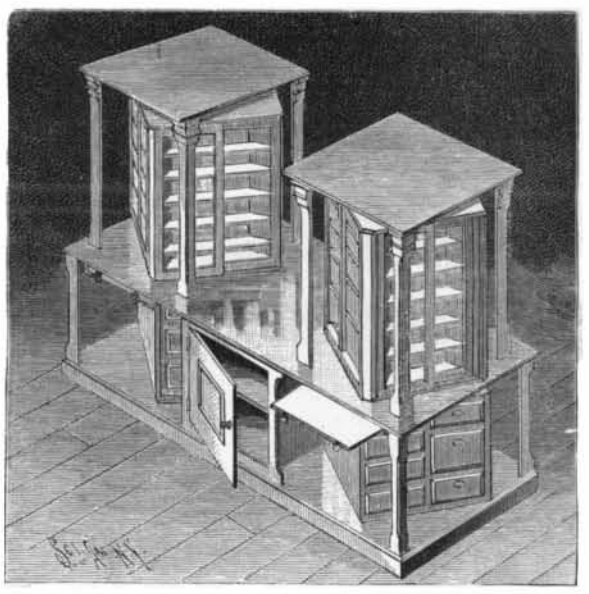
This most important property also renders the wood oil useful in the manufacture of fatty lacquers, while it cannot supplant the oils used for spirit lacquers, because it is absolutely insoluble in alcohol. But attention has to be paid, in using it for the manufacture of fat lacquers, to the fact that the oil will thicken and even gelatinate, together with lead or manganic oxides, at a temperature of 200° C. or close thereto, and that mode of manufacture must be employed with which the completely melted and cooled copal is dissolved in the hot oil, but at a temperature below 160° C. Then boiling with driers can also be done without fear of gelatination. A composition of wood oil and linseed oil will likewise furnish very good results, being especially adapted for the production of exterior varnishes, which receive hardness from the former and elasticity from the latter.

The odor of the Chinese wood oil is a very peculiar one and adheres to the dry coating made with it: it adheres so strongly that it is plainly noticeable even after oilcloth-like goods dried in hot air have been lying for months, the same as oilcloth will always, even after years, smell of linseed oil. Naturally, this peculiar lard-like odor also shows itself with the lacquers produced with the oil, and it therefore becomes necessary to remove it as far as possible or at least to reduce it to a minimum. Disguising the smell by a volatile oil would hardly answer the purpose, because it would reappear after evaporation of the latter. Therefore, other remedies must be resorted to. Among them are: Agitation with a diluted solution of permanganate of potassium; a filtered solution of chloride of lime; filtration through animal charcoal; mixing with flour, potato flour, and storing for a long time after filtration; according to the process of Bang and Ruffin, it is said to be possible to obtain a tolerable freedom from smell by dried amtospheric air. The oil is heated in a suitable kettle and air is passed through the same by means of a ventilator or a blower, at a temperature of 50° C., which must not be exceeded. This is done for 6 to 8 hours; after that the oil has lost perceptibly in odor and can be used for lacquers without hesitation.

We would not omit to observe that the wood oil must not be regarded as a substitute for linseed oil, but that varnishes, paints and lacquers with distinct characteristics can be prepared with it. For this reason it does not seem necessary to attach much value to the deodorization, as the peculiar odor, which is not unpleasant, might serve as a characteristic of the new products.—Translated from the Färben Zeitung.

PRESCRIPTION CABINET FOR DRUGGISTS, ETC.

The accompanying illustration represents an improved cabinet designed for use in drug stores, hospitals, dispensaries, chemical laboratories, etc., effecting economy in time, space, labor and material. It has been patented by Dr. J. M. Worthington, of Annapolis, Md. It is designed that the medicines shall be so arranged that those given in large doses will be held by large bottles in the bottom portion of the cabinet, while the powerful and dangerous medicines will occupy the smaller upper compartments. Owing to the simple arrangement of revolving drawers and



WORTHINGTON'S PRESCRIPTION CABINET.

shelves, different attendants may work at the same cabinet without inconveniencing each other.

The "Britannic's" Wonderful Record.

The White Star steamship "Britannic," which has just reached New York from Queenstown, completed on her last eastward trip her five hundredth voyage across the Atlantic. She is twenty-four years old and, without a renewal of engines and boilers, she has covered more than 1,500,000 nautical miles, consumed 513,000 tons of coal and has carried 57,400 cabin passengers and 165,500 steerage passengers. It is a curious thing that the "Britannic" is a faster ship to-day than she was in what might be called the prime of an ordinary single screw liner.

THE addition of sesame oil to margarine, which has been made obligatory in Germany, gives rise to expectations of a great increase of the consumption of sesame. The export of this not unimportant article from German East Africa had considerably decreased during the last years (1894, 192,000 marks; 1895, 163,000 marks; 1896, 89,000 marks). The Togo district is also said to be well suited for sesame culture, a small export having already taken place. The price of East African sesame in Hamburg is about 210 to 240 marks at the present time.—Chemische Revue.

WHEN a large number of crickets are chirping at night in a field, they do so synchronously, keeping time as if led by the wand of a conductor. Prof. A. E. Dolbear says, in The American Naturalist, that the rate of chirp seems to be entirely determined by the temperature, and this to such a degree that the temperature can be estimated when the number of chirps per minute is known. At a temperature of 60° F. the rate was found to be 80 per minute and at 70° F. it was 120 a minute; this gives a change of four chirps per minute for each change of one degree.