

pensive gate or saw frame hitherto required in all saw mills, and diminishes by one half the power required to cut lumber, and, consequently, the cost of producing the same. In some other modes of saw straining the tension comes, to a certain extent, upon the pitman, and thus increases the power required to drive the mill, adds danger of breakage, &c. The above invention possesses no such disadvantages. Any desired amount of strain may be put upon the saw without affecting the pitman or increasing the power, for the tension all falls upon the saw itself. The stroke of the saw may also be increased or diminished without affecting the strain.

This improvement is exceedingly simple in construction and operation. It is well adapted to portable saw mills, and permits their manufacture for \$30 and upwards, according to size. Address the inventor for further information.

Improvements in Harvesters—By W. H. Hovey, Springfield, Mass.—The cutting teeth in mowers are usually rivetted fast to the sickle bar. When they become broken or damaged it requires time to replace them. It is vexatious, when cutting grass in the middle of a ten acre lot, to have to knock off and drag the machine to a blacksmith's shop.

The object of the present improvement is to afford a simple, quick, but strong means of putting on and taking off the teeth. This is done by means of pins which pass through the sickle bar and the ends of the teeth. A clamp bar or cover rests on the heads of the pins and keeps them in place. Remove the bar, and any of the teeth can be removed, new ones substituted, &c.

Pen and Pencil Case—By Edward Baptis, of Hoboken, N. J., (assigned to G. S. Clark,) of New York City.—Turn the case in one direction, and a pencil projects; turn it the other way, and the pencil withdraws into the case, and a pen slides out ready for use. These movements are effected by the employment of double tubes or cases placed one within the other, and having screw threads upon them. It forms a very convenient and useful article.

Improved Shingle Machine—By John B. Evans, of Green Castle, Ind.—The shingles are cut from blocks of wood, previously prepared, by means of a knife which rises and falls in a frame or gate, somewhat like the old-fashioned straw cutters. The improvement consists in a novel application of levers, which impart a drawing cut motion to the knife.

Recent Foreign Inventions.

Dehairing Hides—C. Claus, England, has obtained a patent for a certain liquor for unhairing hides, as a substitute for lime. Carbonate of lime is first fluxed with sulphur in a furnace, and gypsum is also burned at a red heat in contact with coal in a furnace. These are lixivated with hot water, and the liquor employed for dehairing the hides. They are steeped in it in vats, and examined from time to time. Such a liquor may be better than milk of lime for the purpose stated; it is only by experiment this can be determined.

Printing Ink—T. De La Rue, of London, has obtained a patent for an improvement in printers' ink, consisting of the use of a small quantity of the borate of magnesia added to the ink to improve its drying qualities.

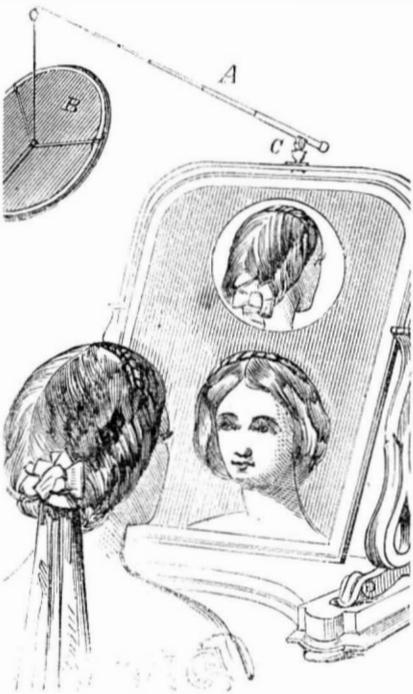
Railway Wheels—S. Sudbrook, of London, has obtained a patent for an invention which consists in forming the periphery or outside edge of railway wheels with wood forced and pressed into and between suitable plates and chambers in such a manner as to form a very hard and compact surface, with the end of the wood so placed as to run on the rail; it is the same application of wood to the tread of railway wheels that has been applied to the bearing boxes of shafts.

To Prevent Local Attraction in Compasses—I. Moore, of Glasgow, has obtained a patent for the above named object, in order that the compass may be made to indicate correctly on iron steamers. The needle is enclosed (except at the point of suspension) in pure shellac or resinous composition. It is them imbedded in cork of considerable thickness, which is covered with shellac. In this condition the needle is suspended in the usual way. It is stated

that this method of treating the needle prevents local attraction in both ships and surveyors compasses.

Paper from Refuse Tanned Leather—Lazare Ochs, of Belgium, has obtained a patent for making paper from the cuttings, waste leather, and scraps of tanned leather. The manufacture of paper from leather is an old story, as an American patent was obtained for such paper many years since; but M. Ochs' method of treating his leather to take out the tanning is worthy of attention for its simplicity. The scraps of tanned leather are placed in sieves on the ends of arms or spokes on a wheel, and are made to revolve in a stream of water, which operation, when continued long enough, washes out the tannin from the leather. After this about 20 per cent. of old hemp rope is mixed with the scraps, and the whole is cut up and reduced to pulp, from which the paper is made. A very strong coarse wrapping paper is made in this manner.

Improved Toilet Glass—This improvement presents the peculiarity of reflecting the back of the head as perfectly as it does the face, on one surface at the same time, thereby enabling a lady to arrange her back hair with the greatest ease and precision. A brass telescopic rod, A, with a circular mirror, B, suspended from it, is attached to the top of an ordi-



nary toilet glass by means of a thumb screw, C, and when the rod is drawn out in the position shown in the drawing, the back of the head is at once reflected in the glass; when not required for use the circular mirror can easily be placed back at the top of the glass out of the way, so as not in the least to interfere with the ordinary use of the glass. This is an ingenious contrivance. Exhibited at the late exhibition of the Society of Arts and Manufactures, London, by Messrs. Heal & Son.

Charcoal in Biscuits—A patent has been obtained by J. Bird, of London, for an application of purified wood charcoal in fine powder mixed with flour for biscuits. It is stated that this is "an agreeable form of using the charcoal medicinally." Charcoal powder is used by dyspeptics, and those troubled with sourness or acid and gases in their stomachs, and the foregoing biscuit is especially provided for such. As starch and fat flesh meat contain a great amount of carbon or charcoal, the biscuit may also be designed to answer the purpose of food.

Experiments with Metals.

In the two preceding numbers of the SCIENTIFIC AMERICAN we have briefly presented some new and useful information derived from the reports of the U. S. Officers of Ordnance, and we will conclude all that we intend to say on the subject in our next.

It will be remembered by many of our readers that on the 28th of February, 1844, while President John Tyler, with a number of the members of his cabinet and other distinguished personages, were on board the steam frigate *Princeton*, a huge wrought-iron cannon, named the "Peacemaker" burst, while firing a salute,

killing the accomplished Legare, Upsher, and others. This sad accident, which created great sensation throughout our country, resulted in condemning, at the time, the use of wrought-iron as a material for cannon, but no satisfactory cause for the bursting of that gun has been made public until now. Under the direction of Major Wade three bars were cut from the exploded cannon, and submitted to a breaking test. They were each two feet long and nearly two inches deep and broad, and were set on supports twenty inches apart, and the breaking force was applied at the middle. With a weight of 10,800 lbs. applied, the bar was deflected .35 of an inch, and received a permanent set of .30 of an inch. The tensile strength of these bars was also tested in comparison with similar bars of "Russia" iron, and English "Low Moor" iron, and "American Bridgewater" hammered iron. The Russian iron yielded with a force of 62,644 lbs. to the square inch; the Low Moor yielded with a force of 56,103 lbs.; the Bridgewater with a force of 53,913 lbs., while the bar from the Peacemaker only stood the strain of 38,495 lbs. The strength of the metal had been impaired by forging as 5 is to 6; but it is very evident that it was very inferior metal. The strength of it ought to have been tested before it was made into a gun; if this had been done a better quality might have been selected, and the unfortunate accident described might not have taken place. Great care should be exercised in the selection of the kind of iron for the particular purpose designed. But how often is this precaution neglected; nay, it is never thought of in too many cases. There is just as much difference in the quality of cast and wrought iron as there is in that of timber—as much difference between the strength of the highest and lowest qualities of iron as between bass-wood and hickory. With regard to the selection of the materials and the necessity of looking to their quality, Major Wade makes some very judicious remarks. He says:—

"What most demands attention at present is the ascertaining and prescribing the conditions to be exacted of the raw material, and of its treatment up to, and exclusive of the casting; for if we do not make sure of obtaining a good quality of iron at the time of its casting into the mold all else is useless, and worse than useless."

Will our engineers and mechanics give heed to these suggestions? The safety of many lives are oftentimes dependent on the strength of a shaft, a beam, or a plate of iron, the quality of which may never have been tested; and yet we are assured, in the work referred to, that different kinds of cast-iron, when submitted to the test of the hydrostatic pump, varied in strength from 1 to 3; that is, one kind of cast-iron possessed three times the strength of another kind; and yet all of these irons had a respectable reputation in the market, and this great difference in their strength never was suspected.

Notes on Ancient and Curious Inventions.—No. 6.

Medicines—The last article—No. 5, page 269—on this subject, concluded with the diaphoretic sweating powder of Horton Howard, of Columbia, O., patented August 25, 1832. His other four patents granted at the same time were, 1st, a bitter tonic; 2d, an astringent tonic; 3d, a compound tincture of myrrh, 4th, an anti-spasmodic tincture. All of these patented medicines are as good as the most of the puffed up kind sold at the present day, and the drugs of which they are composed are very generally used. We will describe two of the receipts, as the medicines are good if administered at the right time, and if not, they must be bad.

The Bitter Tonic consists of bark of poplar, 1 lb., root of golden seal, 1 lb., bark of bayberry root, 1 lb., root of American columbo, (*Fracera Verticillata*), 1 lb., cloves and capsicum each 6 oz., and 4 lbs. of good sugar.—These are all pulverized and mixed together and given in water, a teaspoonful to a dose. To render this compound powder laxative, a pound of bitter root (*Apocynum Androsaemifolium*) and some more cloves, sugar, and capsicum are added. The anti-spasmodic tincture consists of tincture of lobelia seeds, 1 pint, tincture of capsicum, 1 pint, nervine tincture, 3 gills. These are mixed, and half a tea-

spoonful is given at a dose. It is only used in cases of fits and spasms, and of apparent death from drowning, &c. The tincture of lobelia seeds is prepared by steeping half an ounce of the seeds in a pint of alcohol for ten days; and the tincture of capsicum in the same way, using the same proportions. The nervine tincture is made by taking 4 ounces of lady's slipper, 2 oz. of ginseng, and 2 ounces of nutmeg, and steeping them for ten days in alcohol. It is then strained, and an ounce of anise added to every pint. We do not advise persons to use this medicine.

Cholera Medicine—In October 1832, Jacob Houck, of Baltimore, Md., obtained a patent for a cholera medicine, consisting of gum guac, juniper oil, and rye whiskey in equal parts. A table-spoonful of this mixture in an equal quantity of water was to be taken whenever any premonitory symptoms were felt, and if the first dose was not successful it was to be repeated in half an hour. If the pain was very severe, the dose was to be doubled, and repeated in two hours. After the pain was relieved, fifteen grains of calomel was to be taken, and after this had operated a dose of castor oil was given. This was certainly a cholera medicine; we do not say "preventive or curative."

Another cholera medicine patent was granted to Anthony Hun, Sen., of Lancaster, Ky., on 12th of Aug. 1833—the year of the first visitation of this terrible disease. As soon as the symptoms appeared blisters were to be applied to the pit of the stomach, the crown of the head, on the arms above the wrists, and on the ankles, to draw out the cholera, we suppose. Thirty drops of the following were then to be administered every hour: Paragoric, elixer, and sulphuric ether, in equal parts, and to every dram of this 4 drops each of cajuput and anise seed oil were added. This patent for curing cholera embraces a very afflicting dispensation.

Worm Medicine—J. Oellig, of Pennsylvania, whose patent pill was noticed last week, obtained a patent at the same time with his pill for medicine to destroy worms in the human body. It consisted of an ounce of castor oil 2 drops of oil of tansy, 12 of tincture of foxglove, 10 of the oil of anise seed, 15 of male fern, and 1 scruple of the oil of wormwood seed. A teaspoonful of this medicine was to be given to a child every two hours until it operated. An ounce was a dose for an adult. This medicine appears as if it would effect the object designed, but the dose is too large by one half, at least.

Cancer Ointment—On the 31st of March, 1836, a patent was granted to E. Gilman, of Ohio, for an ointment to cure cancers, composed of finely pulverized sulphate of iron (copperas) made into an ointment with mutton suet. This was spread upon a piece of linen cloth and renewed when necessary—about every ten hours. The cancer was to be washed every time before the ointment was applied with a decoction of spikenard and a little soda dissolved in the water. This, at least, is a safe ointment, if it may not be an effectual one.

Ointment for the Cure of Piles—Wm. W. Riley, of Mansfield, Ohio, obtained a patent for this ointment on January 31, 1844. It is composed of 2 ounces of flour of sulphur, 1 ounce of powdered nut galls, 1 grain of powdered opium, all intimately mixed with lard, until the ointment is of the proper consistency. It is applied to the parts affected twice every 24 hours until a cure results. This ointment has the appearance of being pretty good for the purpose designed.

Great Fire in Philadelphia.

Philadelphia was visited on the 1st of May with one of the most destructive fires that has ever taken place in that city. We regret to state that 44 buildings were destroyed, which, with the merchandize consumed, were valued at \$600,000. On this there were \$386,000 insurance.

Monster Mortar.

Messrs. Forrester, of Liverpool, Eng., have recently cast a mortar from Nova Scotia charcoal pig iron. It weighs 14 1-2 tons; is 7 1-2 feet long, 3 feet 9 inches in diameter, and has a bore of 18 inches.