

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME VIII.]

NEW-YORK, JANUARY 22, 1853.

[NUMBER 19.

THE
Scientific American,
CIRCULATION 17,000.

PUBLISHED WEEKLY
At 128 Fulton street, N. Y., (Sun Buildings),
BY MUNN & COMPANY.

Hutchkiss & Co., Boston.
Dexter & Bro., New York City
Stokes & Bro., Philadelphia.
J. J. LeCount and Wm. B. Cooke, San Francisco, Cal
G. S. Courtenay, Charleston, S. C.
John Carruthers, Savannah, Ga
M. Boulemet, Mobile, Ala.
E. W. Wiley, New Orleans, La
E. G. Fuller, Halifax, N. S.
M. M. Gardissal & Co., Paris.
Responsible Agents may also be found in all the principal cities and towns in the United States.
Terms—\$2 a year—\$1 in advance and the remainder in 6 months.

USEFUL RECEIPTS.

Collecting Vinegar from Wood.

Acetic acid is met with among the products from the distillation of wood, and is combined with steam, tar, and gases, such as the oxyde of carbon, hydrogen, and carbonic acid. If, in collecting the acetic acid, the smoke that contains it is conducted into refrigerators, the steam and the greater part of the tar are condensed at the same time, the consequence is, that the vinegar thus obtained is diluted with a large quantity of water and mixed with impurities. For most purposes this acid requires to be purified and concentrated; the following process, which is taken from the "Genie Industriel," is a French invention, and consists in exposing to the vapors of acetic acid during the carbonization, a substance that has an exclusive affinity for it, and which consequently concentrates it. The substances that comply with this condition are the bases whose acetates are not decomposable at the temperature employed, namely, potassium, soda, barytes, lime, magnesium, &c., and the carbonates of these bases or of any other salt whose acid can be displaced by vinegar. Of these bodies, preference should be given according to localities, to lime or the carbonates of lime, magnesium, and soda, the former on account of their cheapness, the latter because it would give directly the acetate of soda a product that is at least employed for the complete purifying of the vinegar. This process is applicable to any method of carbonizing.

There are but few places in our country where wood vinegar is made; we know of only one, (Berkshire, Mass.) there may be others, however. It is used as pyroligneous acid, and employed for the red and black liquids for calico print and cotton dyeworks; the black liquor derives its name from the iron in it, which gives it the said color, and it is used for printing and dyeing cotton blacks.

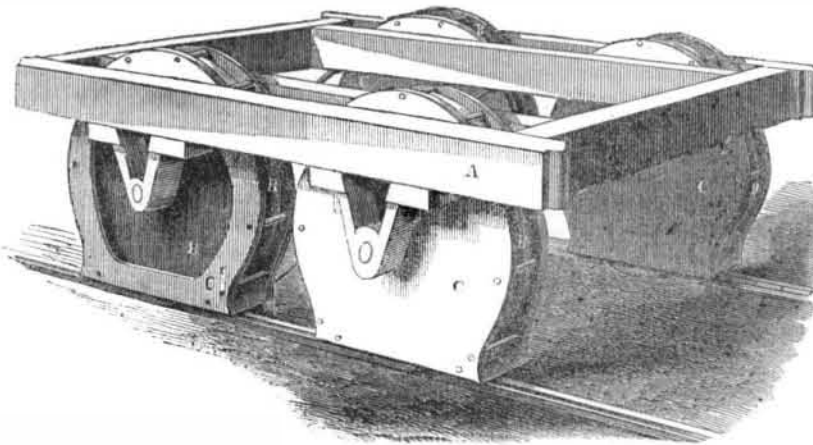
Looking Glasses.

Glass for mirrors is sometimes tinned instead of being silvered. M. Gulley, of France, has invented a process by which the tin is protected from injury by means of a coat of metal. It is done in the following manner:—Lay a coat of varnish on the tin, and over this another of plumbago, when dry place the glass immediately in a vessel containing a solution of sulphate of copper, a battery arranged in the usual manner is applied to this solution, and by this means a coat of copper is deposited on the tinned side of the glass.

The Sardine Fishery.

During the past year five hundred and seventy-six millions of sardines have been taken in nets on the coast of Brittany, France, which extends two hundred miles. Half of them are to be put down in oil. One hundred and sixty vessels, manned by five thousand five hundred sailors and fishermen, are engaged in the trade. The preparation, transport, and sale of the fish, employ ten thousand persons. Nine thousand of these are occupied all winter in the making and mending of nets.

SAFETY RAILWAY TRUCK.



The above engraving represents a truck for railway cars eminently adapted for the prevention of the dreadful accidents that generally happen when a wheel or axle breaks. No person, who only even glances at this contrivance, can fail to understand its efficiency for the purpose indicated, and a brief description will thoroughly explain its intention.

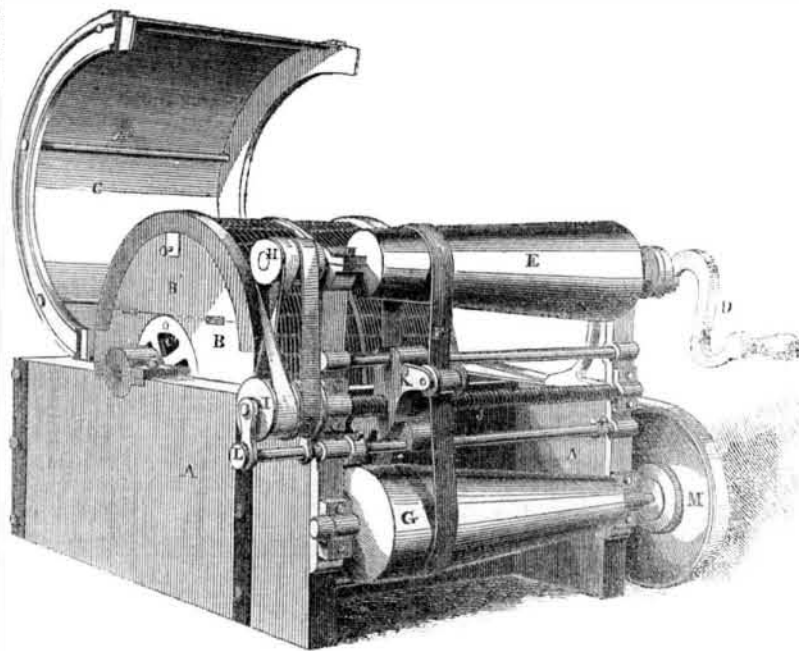
A represents the usual framing, which secures the different parts firmly together. B B are the wheels, which are four in number, two to each axle. So far the truck is identical with the one usually adopted on railroads but the peculiarity that makes it to differ from all others, consists in the employment of a metallic casing, which surrounds each pair of wheels, and also the axle, so effectually, that, should either the axle or the wheels (or even both) break, no untoward result will occur, but the car can continue its career with perfect impunity. This metallic casing for the

wheels may be either a complete or partial covering, as desired. In the one instance the wheels will be as represented, entirely covered by the casing, C, and in the other only partially so by the casing, C', when the wheel B, will be exposed to view as shown here.

Each axle is also surrounded by a metallic tube which is firmly attached to the wheel casing at its extremity. This arrangement allows of a separate axle to each wheel, if such a mode of construction should appear desirable. In case a wheel may happen to break, it is hardly possible for it to come in twain, but even if such a casualty occurs, the wheel casing, from being flat at the lower part, will find a bearing on the rail and thus support the car.

For further particulars respecting this invention which was patented last year, application to be made by letter or otherwise, to A. L. Finch, Britain, Ct.

CHAFFEE'S PATENT DRYING MACHINE.—Figure 1.



The annexed engravings are views of a machine for expelling the water from cloth, wool, and other fabrics by centrifugal action. The inventor is N. E. Chaffee, who received a patent for the same in 1848, and we published an engraving of his machine as then constructed, in No. 10, Vol. 4, Scientific American. Those of our readers who have that volume will perceive that the present engraving presents features in the machine which have made it operate in a superior manner, and have rendered it more valuable. Figure 1 is a perspective view, and figure 2 is a transverse vertical section of the revolving wheel, which contains the wool or wet goods.

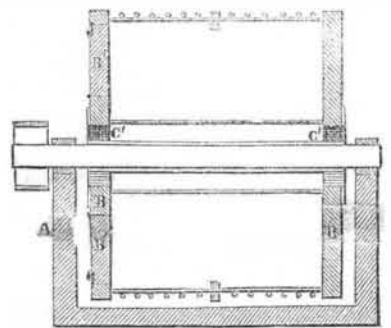
A is a frame or arc in which the wheel is

placed, and on the sides of which are the bearings of the shaft; B is the wheel. It is made like a dash wheel employed in calico and bleach works, only its periphery is made of wire rods as represented. It is divided in the middle by a partition or floor diametrically extending over the shaft. This separates the wheel inside into two chambers. Dyed cloth either woolen or cotton, or any kind of wet goods are placed in these chambers, and the wheel set in motion like a dash wheel. The particles of moisture, owing to their fluid nature, are thrown out of the goods by centrifugal action, and in a very short period they are rendered quite dry. There are a number of metal rods, figure 2, which extend from

side to side, across the machine, over the shaft; they are arranged in the form of a small arch. They keep the goods off the partition, and air is admitted under them from the outsides through the central openings, C' C. Figure 2 shows the said rods and the central openings. This arrangement is new and greatly facilitates the operation of drying. The goods, &c., are put in and taken out by doors in the sides, which are held fast by spring latches. The emptying and filling of these chambers are performed in the same way as those of the dash wheel; C is a cover to prevent the water from being thrown about outside.

The rest of the machinery is for driving the wheel by differential pulleys, to give a fast and slow motion as may be required; M is the pulley from which a belt runs over a pulley on the wheel shaft, and drives the wheel. The cone pulley, G, receives motion by a belt, F, from cone pulley, E, which is driven by a belt from a water wheel or steam engine.—The handle, D, is put on merely to show how motion is communicated; H, I are two pulleys, the top one driving the lower one, which is placed on the end of a screw-shaft J, on which is a travelling shipper K, that guides

FIG. 2.



and directs the belt, F, to vary the velocity of the wheel. It is best to commence with the slow motion when the wheel is heavily loaded and gradually increase the speed, the shipper, K, guides the belt F, from the large to the small end of the cone pulley, G, thus gradually increasing the speed from the minimum to the maximum. The shipper is guided on the rod, L. This is a very excellent machine, and the different parts are well arranged. The screw, J, moves the shipper, K, to one side or other according as the screw is moved. This is done by throwing either of the two small belts on the double pulleys, H I, in and out of gear, by drawing out and pushing in the pulley I, which slides on a feather.

More information may be obtained by letter addressed to Chaffee & Halladay, manufacturers, Ellington, Conn.

Powers on Cleaning Marble Statues.

Allow no one to touch them, for the oil on the skin will discolor the marble. In cleaning, be sure to use pure cold water only; and wash with a painter's small brush. To brush off dust, use a fly-flap made of peacock's feathers. Cover the marble in summer with gauze to keep off the flies. If any flies should get to it, use alcohol to remove the blemish, and on no account use soap or warm water. The light should fall on a statue or bust from such a height as to leave a hair's breadth between the shade of the nose and the upper outline of the upper lip.—[Courier & Enquirer.]

[By experience, we can say that cold, clean soap suds is the best,—then wash them off with cold water.]

A rich vein of lead has been discovered in Campville, Tioga Co., N. Y. The editor of the "Oswego Gazette" has been shown specimens of the ore, yielding 90 per cent.

The Canada "Land Company" (England) have declared a dividend of 6 per cent. on the half year.