Scientific American.

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

VOLUME VIII.] NEW-YORK, MARCH 12, 1853. [NUMBER 26.

THE
Scientific American,
CIRCULATION 17,000.
PUBLISHED WEEKLY
At 128 Fulton street, N. Y., Sun Buildings)
BY MUNN & COMPANY.

Hotchkiss & Co., Boston.
Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
G.J. LeCount & Strong, San Francisco, Cal.
Cooke, Kinney & Co. dito.
B. Dawson, Montreal, C. E.
M. Boullemet, 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.

Mastic Cement.

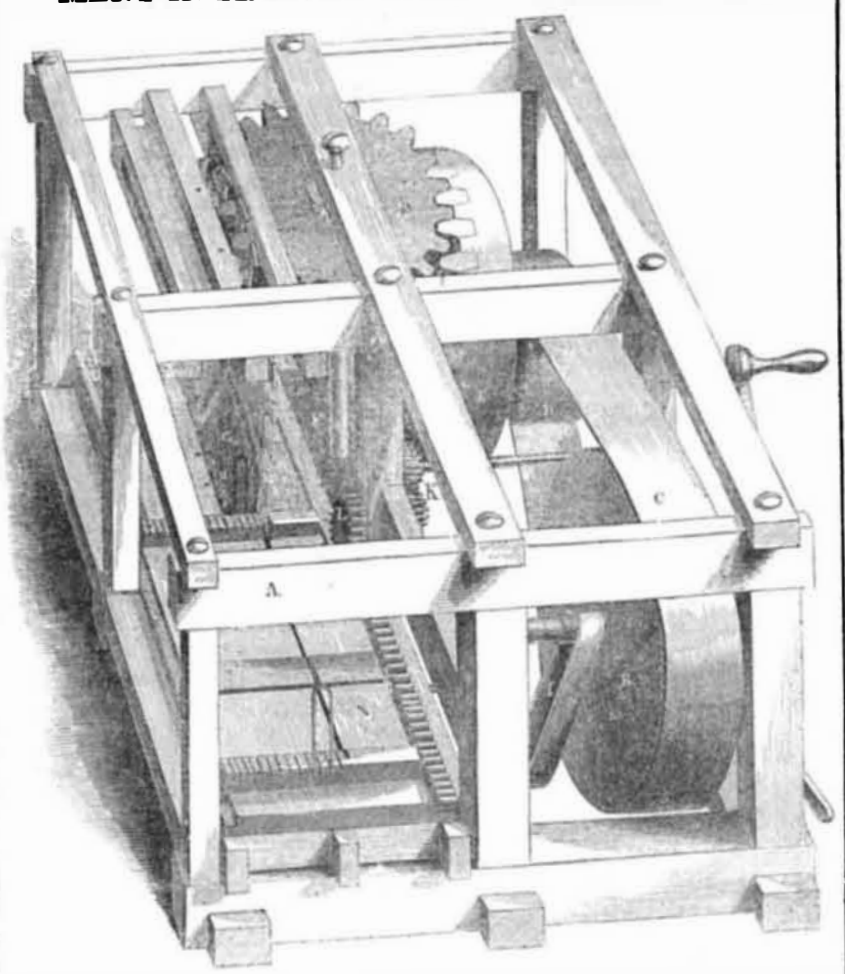
We have had many enquiries lately respecting the mastic cement for covering the fronts of houses and giving them the appearance of brown freestone. We have endeavored to find out its composition, and have at last, we believe, obtained reliable information respecting it. Red lead, oil, sand, and limestone dust, in some form, cover every compound of it. 50 parts by measure, of clean dry sand; 50 of limestone (not burned) reduced to grains like sand, or marble dust, and 10 parts of red lead, mixed with as much boiled linseed oil as will make it slightly moist, compose a mastic cement. The building of brick to receive it should be covered with three coats of boiled oil laid on with a brush, and all suffered to dry, before the mastic is put on. It is laid on with a trowel like plaster, but it is not so moist. It becomes as hard as stone in the course of a few months. Care must be exercized not to use too much oil—although no evil will be the result—excepting that the cement will require longer exposure to harden. The oil prevents rain and moisture penetrating, and this is the reason why this mastic is not affected with the weather. Various compositions will answer about as well as the receipt above. We will present a few.

100 parts (by measure) of clear dry sand; 100 parts of powdered limestone, and 5 of red lead, make a hard mastic; this may be varied with the addition of 10 parts of red lead. 100 parts of sand, 50 parts of whiting, and 10 of red lead make a moderately hard cement. 100 parts of sand, 25 parts of the plaster of Paris (or the same of marble dust) 10 parts of red lead, and 5 parts of yellow ochre, make a very beautiful and hard cement. As stated before, all of these compositions must be moistened with boiled linseed oil. The quantity of oil is so very small in proportion to the other materials, that the whole mass is very porous. The oil unites the particles together, it is the affinitive agent. The sand, &c., must be perfectly dry before they are mixed together; that is, they must be subjected to heat in an oven to drive off all the water contained in them. The sand should not be too coarse and should be passed through a fine sieve. Various coloring substances may be employed to mix with the above composition, such as any of the pigments used in oil painting. We would never use less than 10 parts of red lead in the cement.

The above compositions might be moulded into statues and works of art, by oiling the patterns inside, before putting in the composition and allowing the mastic to harden in the moulds before it is removed. Two ounces of rosin pounded very fine should be added for every pint of oil used. The whole must be mixed with great care to make the cement properly.

Steam engines for agricultural purposes have increased ten-fold in the last three years in England.

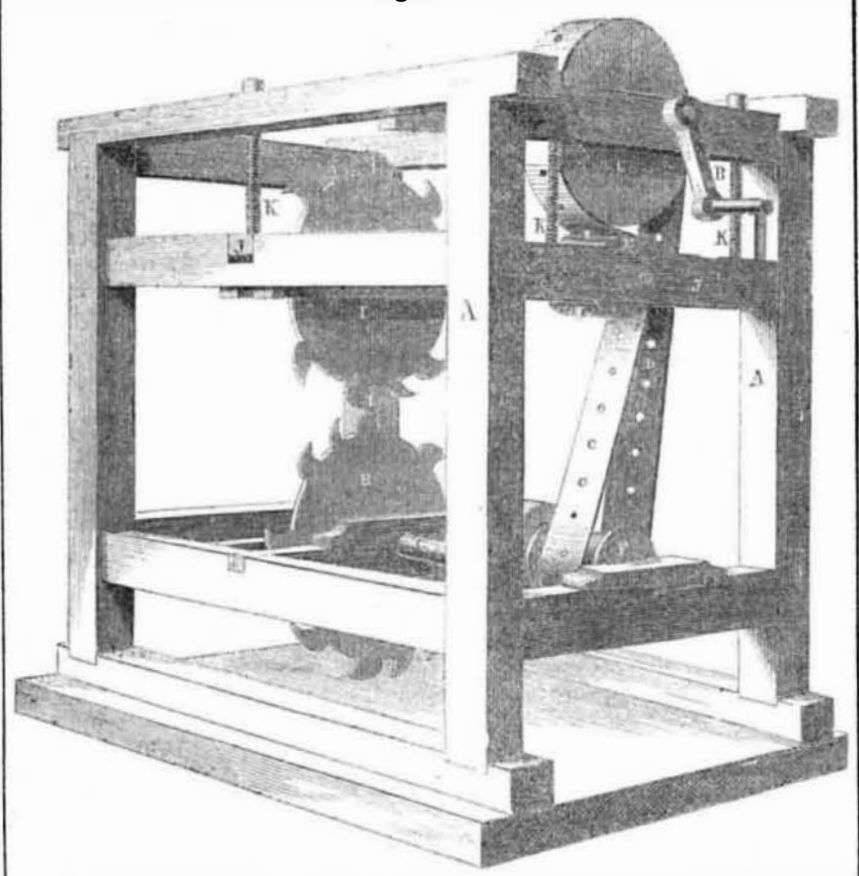
CIRCULAR SAW WITHOUT AN ARBOR, AND IMPROVEMENT IN TEETH OF CIRCULAR SAWS.---Fig. 1.



The annexed engraving, fig. 1, is an isometrical perspective view of a new mode of running a circular saw without an arbor, invented by T. J. Flanders, of Concord, N. H., who has taken measures to secure a patent. The principal feature in this plan, is that of the saw being run vertical, and its teeth made to form part of the gearing.

Figure 2 is a perspective view of an improvement in running circular saws, by the same inventor, Mr. Flanders, who has taken measures to secure a patent for it also.

Figure 2.



A, fig. 1, is a stout frame; B is the driving pulley, and C is the band passing over pulley, D, for driving the shaft of wheel, E. This wheel gears into the horizontal ones, F, which are secured on a vertical spindle; G is a circular saw without an arbor; it will be seen that the teeth of wheels, F F, gear into the teeth of the saw, and serve to support as well as rotate the saw; H H H H are small friction rollers situated in the frame, and made to press against the saw near its upper and under edges, so as to sustain it in its vertical position, and yet produce but a small amount of friction. These rollers are adjustable and can be screwed up to the desired pressure. The rest of the parts are in common use, such as the log carriage, N, moved by rack and pinions, L K, and made to reverse by the auxiliary belt, I, in the usual way. This circular saw without an arbor saws out boards from a log in the same line of cut as a reciprocating saw. The object of running a circular saw without an arbor is to enable persons to use smaller saws, large ones being very expensive.—The log passes through (as in the common mills,) within the space of the upper and lower friction rollers, H H.

A A, fig 2, is a stout frame; B is merely a handle on the driving shaft of pulley, C, over which the driving band, D, passes, running over the one side of the pulley on the upper saw (I) spindle or arbor, and then around the pulley, F, on the arbor, G, of the nether saw, H. The two saws, I and H, are constructed and arranged to saw logs, the upper one sawing through one half and the lower one through the other half. There is a peculiarity in the teeth of the saw. They are made one-half thinner than the plate, and thus make a fine cut, requiring less power to drive, and at the same time saving some timber; the teeth are set so as to make the board clear the plate, and a gouge tooth may be set on the saw, as a clearer. These teeth may be made of fine steel and inserted in the saw plate, which may be of wrought iron. As the teeth of the saws wear down by sharpening, an excellent arrangement is presented for keeping them always in the same relative position to one another, by lowering the arbor of the upper saw, and yet having its belt always taut. The bearings, J J, which support the spindle of saw, I, are suspended and supported by screw rods, K K K. These screws therefore lower the bearings of saw, I, just in proportion as the teeth wear down, and thus they are made to cut always in the same line. The belt, D, is always kept tight, owing to the mode of its arrangement, although the pulley, E, may be placed at any height in the frame; this is evident because it must pass over the same amount of pulley surface and through the same space. The pins in pulley, E, take into the holes in the belt, D, and by this means the spindle of saw, I, is revolved. These descriptions, we suppose, will render the machines and their operations, plain to all, as they are exceedingly simple.

For particulars address Flanders & Mansfield, Concord, N. H.

Gold Pens.

This elegant branch of manufacture is yearly progressing in importance as a source of industry, and nowhere is it more fully exemplified than in our own country. We are led to make the above remark from some specimen gold pens that have been presented to our notice by C. Piquette who received the first premium at the Michigan and Ohio State Fairs, and which, for variety and good workmanship are a fair sample of American skill.

Alligator Skins.

The "Houston Telegraph," (Texas,) says, that J. W. Benedict, of Galveston, has manufactured some of the most beautiful boots and shoes that we have ever seen, with leather made of alligator skins. The skins are tanned and prepared, so that they resemble the finest calf skin in pliability, and are beautifully mottled, like tortoise shell. He intends to send a pair of boots to the World's Fair in New York. He certainly merits a premium for changing the skins of these huge, ugly, monsters to forms of beauty and usefulness.