

Scientific American.

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

VOLUME XI.

NEW-YORK, AUGUST 23, 1856.

NUMBER 50.

THE
Scientific American,
PUBLISHED WEEKLY
At 123 Fulton Street N. Y. (Sun Buildings.)
BY MUNN & COMPANY.

O. D. MUNN S. H. WALES A. E. BEACH.

Agents.

Federhen & Co. Boston. Dexter & Bro. New York
A. Winch, Philadelphia. E. B. Fuller, Halifax, N.
A. G. Courtenay, Charleston. S. W. Pease Cincinnati, O.
Responsible Agents may also be found in all the principal cities and towns in the United States.
Single copies of the paper are on sale at all the periodical stores in this city, Brooklyn, and Jersey City.
TERMS—\$2 a-year.—\$1 in advance and the remainder in six months

Natural Ice Houses.

The Dubuque (Iowa) *Express* says there is a cavern near Decorrah, in that State, so situated that the water which falls from its roof in winter is frozen, and such an amount of ice formed as to serve the citizens of that place, in summer, with the luxury of an abundant supply of ice.

Improved Gang Plow.

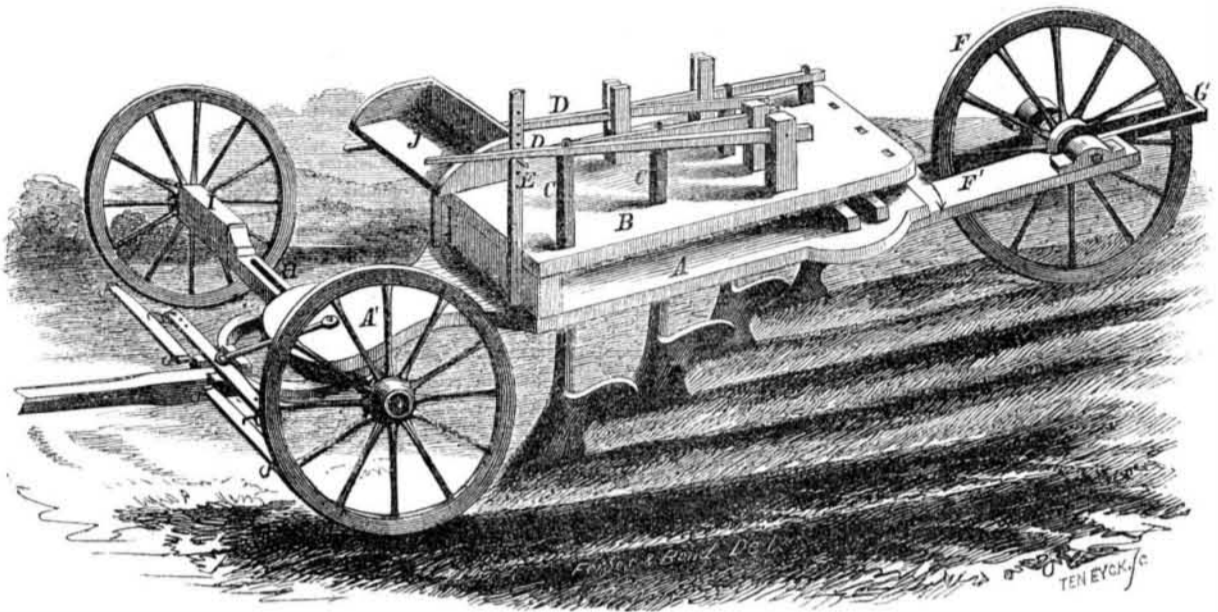
Our engraving illustrates an improvement for which Letters Patent were granted to Messrs. A. and T. S. Smith, of Troy, Ill., on the 4th of March, 1856. The machine is intended to expedite the laborious work of plowing, the arrangement being such as to permit the advantageous use of several plows at once.

A is a strong, flat, bottom board, and B another nearly similar, placed a short distance above A, the two being firmly bolted together at their ends. The shanks of the plows, C, pass through both boards, and connect above with the levers, D, by means of which the plows are raised or depressed at will. The levers are held in any desired position by means of the pins and posts, E. The two boards, A B, being separated, afford a strong and steady support for the shanks of the plows, while, the construction being simple, the plows may be renewed or changed with great facility. Wheel F supports the back end of the machine, and its frame, F, is pivoted to A. It permits the machine to make a very short turn, and adjusts itself. G is a scraper which removes any dirt that adheres to F.

The front axle, H, is slotted longitudinally, so that the front end of the machine, A', draft tongue bands, etc., may be shifted from side to side, according to the number of plows employed on the occasion. Such shifting is necessary in order to bring the draft always in proper line. The front end, A', and attachments, are secured at any position on the axle, H, by means of the screw, which permits a ready re-adjustment whenever necessary. The axle is somewhat enlarged at I, and the wheel on that side placed on a different level from its mate wheel, so that when one of the wheels runs in the furrow, the axles of both will be on the same plane.

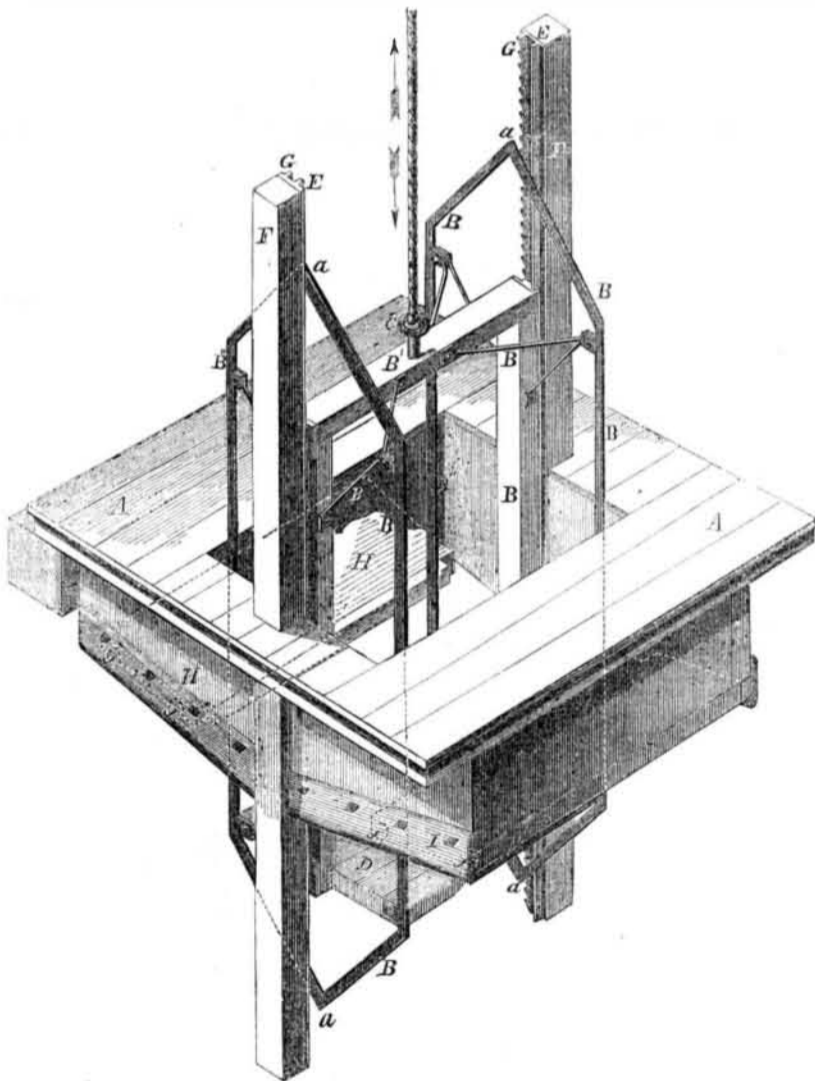
We are informed that this machine has been put to the severest tests, on all kinds of soils, and is found to operate admirably. When used for breaking up prairie or meadow ground, coulter are attached in front of the plows. In subsoiling, the subsoil plows stand immediately behind the others. The driver has a comfortable seat, J, and the levers, by which he can raise the plows at any instant, are within convenient reach of his hands. Two or four horses may be used, according to the amount of labor required to be done. The inventors inform us that one man, with a pair of horses, using one plow, can break up three acres of corn or oat land per diem, turning the soil ten inches deep. With the same team and three plows, four acres per day. With four horses from four to seven acres. Right or left plows may be used, or both together, for ridging, as desired. One of the most severe labors of the farmer is plowing; but by the use of this machine it becomes a pleas-

IMPROVED GANG PLOW.



ure, for he takes his ease and rides, there being no plow handles to hold. The apparatus is strong, simple, and durable. Works equally well on rough or smooth ground. Does not break by contact with stumps and other obstructions. Is manufactured at a comparatively light cost. Sells for \$40 retail. Address the inventors as above for further information.

IMPROVED SAFETY HATCH.



The accompanying engraving represents an improved Safety Hatch, adapted to elevators, for the use of mills and warehouses, for which Letters Patent were granted to William H. Thompson and Eustis P. Morgan, of Biddeford, Me., June 24th, 1856.

A is a section of floor containing the hatch opening. B B' is the frame of the transportation car, which is raised or lowered by the rope. The latter passes through an eye bolt in the cross piece, B'. The rope is drawn by means of suitable mechanism. D is the platform of the car. The car is guided in its path

of motion by means of guide strips, E, on the posts, F. G are ratchet toothed racks, so connected by pawls with the rope, that in case the rope should break, the pawls are instantly brought in contact with the racks, and the car thus prevented from falling. H I (shown chiefly by the dotted lines) are two sliding doors placed beneath the floor, which are closed at all times when the car is not passing through the floor. Upon each end of the doors are truck wheels, J, which run upon tracks; the tracks are so inclined towards the center of the opening in the floor as to cause the

doors to move together, and close by their own gravity.

The upper and lower ends of frame, B, are fashioned into wedge shape. This is for the purpose of opening the doors, the apex of the wedges, a, entering between the doors, and spreading them apart. In the engraving the car is represented as having passed partly through the floor. The doors having been opened by the action of the wedges, a, are retained in that position by the upright sides of the frame, B". When the car is in motion, either upward or downward, then the side pieces, B", against which the doors rest, terminating as they do in wedges, will allow the doors to close gradually. If the motion of the car be reversed, the wedges will again enter between the doors and forcethem gradually open. Thus we see that the doors close the opening in the floor, that they are always closed except at the time when the car is passing through the opening, and that the doors are opened by the action of the car, whether it be passing upward or downward.

It will be observed in the construction here shown, that the doors are placed several inches below the floor, the space being boxed down from the underside of the floor to the top of the doors. The object of this is to allow of the doors closing when the platform of the car is on line with the top of the floor, this being the proper position for receiving and discharging the load.

The safety hatch which is here illustrated is strictly self-operating, and of such construction as to prevent the possibility of accident to person or property by falling through the floor. We regard it as a duty incumbent upon the owners of buildings in which hatches are necessary, to adopt some such humane contrivance as this. Its general introduction would be the means of saving many lives. In case of fire, this invention is invaluable, since it entirely cuts off the communication between the different stories of the building, and thus prevents, in a measure, the draught of air and the spread of the flames. This improvement possesses many other advantages over the common open hatchway, which will be obvious to the reader.

The expense of its introduction is from \$35 to \$40 per floor. Its parts are simple, and there is nothing about it likely to get out of order. It is in use in a number of factories, and gives, we understand, the greatest satisfaction. Address the inventor as above for further information.