Scientific American.

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

VOLUME VII.] NEW-YORK, JANUARY 31, 1852. [NUMBER 20.

THE
Scientific American,
CIRCULATION 16,000.
PUBLISHED WEEKLY
At 128 Fulton street, N. Y., (Sun Buildings),
BY MUNN & COMPANY.

Hotchkiss & Co., Boston.
Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
Jno. Thomson, Cincinnati, O.
Cooke & LeCount, San Francisco, Cal.
Courtenay & Wienges, Charleston, S. C.
John Carruthers, Savannah, Ga.
M. Boullemet, Mobile, Ala.
Sidney Smith, St. Louis, Mo.
Barlow & Co., London.
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.

RAIL-ROAD NEWS.

What Railroads Do.

The Galena and Chicago Railroad has been extended thirty-five miles west of Chicago, penetrating a region solely agricultural, and which scarcely had an inhabitant before 1835. When the building of this railroad was commenced, it was supposed that it would yield little or nothing to the stockholders, till after its completion to Galena. But the experiment of a dozen miles of finished road, says the Ill. State Register, demonstrated that the calculations of the projectors were erroneous, and every successive mile constructed has made that demonstration more complete.

"When it was extended thirty-five miles west of Chicago, it paid fourten per cent. upon the cost; and the same income has been realized constantly as the road progressed to its present western termination, which it reached this month. Calculations for a certain amount of business between this time and the opening of navigation were made, and locomotives and cars were provided in accordance with these calculations, but it is ascertained that there is a great deal more business than the road can do, and that several more locomotives could find constant employment now, and through the winter season.

We mention these facts to show that railroads create business where little existed before, and that capitalists need not object to western railroad stock, simply because the lines are located in what is generally termed a wilderness country.

What has been said of the Chicago and Galena road may be said of every projected line in this State, and we shall find, that as they progress, business sufficient to support them and pay besides a handsome income to the owners, will spring up and extend, and speedily make our glorious State the gem and bright particular star of the Union."

City Railroads.

A grant was given by our late Common Council to certain parties to construct a railroad through Sixth Avenue, and they have set themselves resolutely to work for the advancement of the project. The company is now a joint stock one, and of course it cannot be held up as a monopoly. In a few years we will have quite a number of railroads running through our city for the accommodation of citizens going to and coming from their places. of business. The difficulties which have attended the crossing of the North and East rivers this winter, will make a great many leave Brooklyn and Williamsburg to reside in New York. In consequence of this, city railroads will become more necessary. Let the good work go on.

Explosions of Steam Boilers.

Two correspondents of the Syracuse Star recommend Congress to offer a reward for the best invention, to be produced in a given time, to prevent the explosion of steam boilers. The inventions are to be all tested by a competent commission at a given time and place.

MACHINE FOR MEASURING THE FLOW OF WATER.

Figure 1.

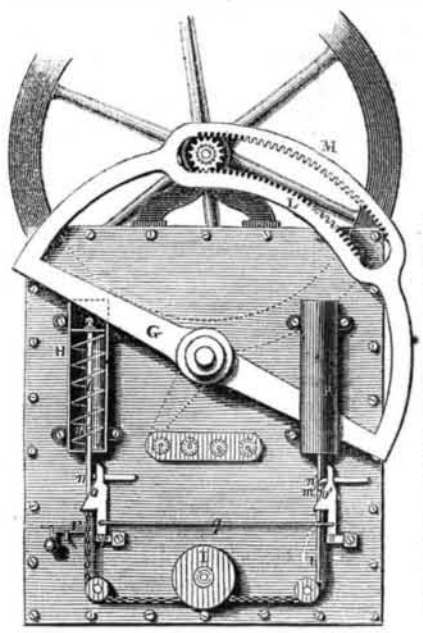
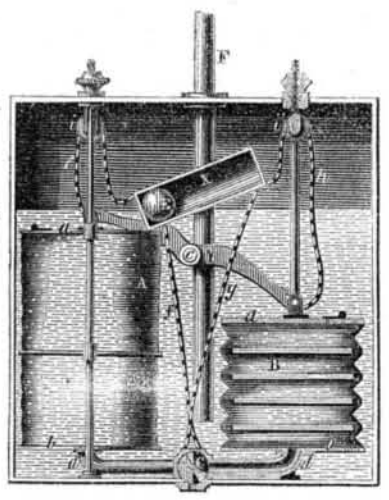


Figure 2.



This is rather a singular machine for measuring water or other fluids and deriving some mechanical power therefrom. It is the invention of Mr. Samuel Brown, an English engineer residing in Lambeth, Eng.

The improved fluid measurer is represented by figs. 1 and 2; fig. 1 representing a modification, for the purpose of obtaining motive power. Fig. 2 shows a transverse vertical section of the measuring apparatus. The measures or receptacles, into which the fluid is conveyed for measurement, consist of two flexible bags or vessels, A and B, kept distended by metal rings; these collapsible vessels are of some fluid-tight material, and capable of sustaining a considerable pressure; they are attached to discs, *a a*, and *b b*, at top and bottom,—*b b*, at the lower part being fixed, while the upper discs, *a a*, are free to move. The upper discs, *a a*, have joint pins supported in brackets, and take into the forked end of a lever, Y, which oscillates on a fixed centre, *c*. The under discs, *b b*, are united with a four-way cock, C, the upper passage of which forms the inlet for the water, and the under one the delivery,—the two side passages being connected by pipes, *d d*, with the vessels, A and B. In the position shown, the vessel, A, is about to deliver its contents, and the vessel, B, again be refilled. Another oscillating cylinder, X, is provided, in which a globular weight is placed, having free motion to traverse from one end to the other, on the lever, Y, being canted. This cylinder is connected at each end by two chains, *e f*, and *g h*; the chain, *e*, is attached to one end of the lever, Y, and the chain, *h*, to the other end; while the chains, *f* and *g*, communicate with a drum on the axis of the four-way cock, C, in such manner that, on either of them being subjected to tension, the one will tend to turn the plug of the cock in the opposite direction to that caused by tension on the other. The water or other fluid as it leaves A, will cause the depression of the upper disc, *a*, which, by the tension created on the chain *e*, will gradually raise that end of the cylinder, X, a little beyond the horizontal position, when the ball, E, will roll to the opposite end of that cylinder and complete the oscillation. The period having arrived when the position of the plug of the cock, C, is to be reversed, the cylinder, X, at that time completes its oscillation, when the gravity of the ball, E, overcomes the friction of the cock, C, reversing the position of the plug, so as to change the inlet and outlet passages; the water will now be allowed to escape from the full vessel, B, and enter, A, which may have been more or less emptied. The reverse oscillation of the cylinder takes place when the necessary changes are repeated, and so on; the whole is continued so long as the supply and delivery are uninterrupted; F is the supply pipe, which simply delivers the water into the outer case. The registering apparatus is actuated by the axis of the lever, Y, which has affixed to it, on the outside of the case, as seen in fig. 1, a short beam, from opposite ends of which two palls take into the teeth of a ratchet, on the first axis of the train of registering apparatus. It will be observed that the rollers, *i i*, over which the chains, *e* and *h*, pass, are supported from brackets, the stems of which pass through the cover; these are furnished with screw nuts, by which they may be elevated or depressed. By raising or lowering these rollers, the chains, *e* and *h*, will be sooner or later brought to a state of tension, and consequently produce the oscillation of the cylinder, Y, at an earlier or later period, thereby suffering a greater or less quantity of fluid to escape from the vessels, A and B, and by which it may be adjusted to the registering apparatus.

Part of the invention consists in the adaptation of the apparatus last described to the development of motion. Some of the internal parts are omitted, and others substituted, which are placed on the outside of the case, as shown in fig. 1. On the axis, *c*, a lever and segment, G, is fitted, which performs the oscillations as transmitted by the vessels, A and B. The lever, G, in oscillating, presses on a roller and piston, of which there are duplicates as represented. The piston is thereby depressed, which contracts the spring within the tube, H, and at the same time depressing the rod, *l*, until the pin, *m*, slips over a catch lever, *n*, and presses upon the incline, *o*. This incline is mounted upon a fulcrum, *p*, on which the several parts connected there will oscillate. By the contact of the pin, *m*, with the incline, *o*, that lever will be thrown backwards,—that is, towards the centre of the machine. This motion is transmitted by the rod, *q*, to a small corresponding lever, *o'*, which, therefore, performs a simultaneous movement, releasing the pin, *m'*, which it will be observed has been caught by the catch, *n'*. This pin, on being released, is thrown upwards with its rod and piston, by the expansion of the spring in the tube, H',—the lever, G, being at the time in the opposite position to that shown. The rods, *l l*, are connected by chains to a drum, I, on the four-way tap, C, which is thereby caused to perform its oscillation. The levers, *o o'*, will be brought back to the vertical position by the weighted lever, and the pin, *m*, will now be caught by the catch, *n*, and retained until a like action of the pin, *m'*, on the rod, *l'*, releases it by contact with the incline, *o'*, consequent on the alternate descent. The power to be transmitted is supposed to be from a head of water, which, according to the height of the column, will exert greater or less force on the moving discs of the vessels, A and B, which pressure, by the influx and escape of the water from those vessels, will be transmitted to the lever and segment, G. The oscillatory motion of the lever, G, is transmitted to a rotary shaft, as follows:—Two sets of teeth, L and M, are formed on the segment, which take into two pinions placed loosely on the fly-wheel shaft,—the teeth being in different planes for that object. The pinions have spring-palls attached, which take into the teeth of ratchet wheels fixed to the shaft. The teeth of these ratchets are set in opposite directions, so that while one pinion is transmitting the motion of G, to the main shaft, the other pinion is revolving on the shaft in the reverse direction, and its pall slipping backwards over the teeth of its respective ratchet wheel.

Electric Telegraph in Hospitals.

The St. George Hospital, London, has an ingenious and novel application of the Electric Telegraph. It consists of a small dial, not more than a foot in diameter, with a hand which points to certain numbers on it. They refer to a printed scale over it, on which are the names of all the physicians and surgeons of the hospital; and it is intended by means of this wonderful agency to intimate the moment they arrive, that in case of danger to any patient they may be instantly seen. On the directions are also the hours for meals, the time at which the friends of the sick must leave, the time for operations, and every other matter desirable to be known in the wards where it is thus intimated. The dial is placed in the hall of the hospital, and as the message is to be sent, so the corresponding number is found on the direction-table, and the hand is turned to a corresponding one on the dial. This causes a bell to ring in each ward, which indicates that the nurses are to refer to the dial—for they are placed throughout the establishment—when they will find the same number pointed to as the one in the hall, and by referring to the directions they at once see what the message is. This saves a vast deal of confusion in running up and down stairs, besides being more desirable for the patients, who will be exposed to much less noise. It is probable that this admirable plan will soon be adopted in all similar establishments, as well as prisons.

Counterfeit Gold Coin.

Counterfeit quarter eagles are in circulation in Savannah. The piece is described as being composed of some hard metal which has the color and ring of silver, but is easily distinguished by its glossy brightness. It has been cast in a mould, and has the milled edge. It may be easily detected by the roundness of its imprint, and the oily feeling which it has when pressed between the fingers. It purports to be of the coinage of 1847

Extraordinary Case of Mirage.

The steamship Arctic was seen in a cloud off Newport beach on Thursday last week. It was a case of mirage, as the steamship was distant about 60 miles from the place where she was seen. At that time a vapor was rising from the water.

We see it stated that a number of Americans for California, who purchased tickets from an agent of the steamer Brother Jonathan, have arrived at Panama and been refused a through passage.