

# Scientific American.

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

VOLUME VIII.]

NEW-YORK, OCTOBER 16, 1852.

[NUMBER 5.

THE  
Scientific American,  
CIRCULATION 16,000.

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

Hatchkiss & Co., Boston.  
Dexter & Bro., New York City.  
Stokes & Bro., Philadelphia.  
Cooke & LeCount, San Francisco, Cal.  
G. S. Courtenay, Charleston, S. C.  
John Carruthers, Savannah, Ga.  
M. Boulemet, Mobile, Ala.  
J. G. & J. B. Marey, Jackson, Miss.  
Sidney Smith, St. Louis, Mo.  
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.

### Great Railroad Tunnel.

We see by the Cincinnati papers that their great tunnel is advertised for letting. The hills on the north side of the city rise about 200 feet above the upper plains of the town, obstructing, except in one direction, the free access of railways to the upper part of the town. A company has been formed to tunnel the hill, for the benefit of all the railways approaching from the Ohio side. This tunnel will be 6,000 feet in length, and will have 2,000 feet of side cuttings. It is intended to lay it with four tracks, and thus provide free and safe entrance into the city for six or eight different railways, who will each contribute to its receipts, and thus make it very profitable stock. The enterprise is a great one, and will prove eminently useful.

### Serious Railroad Accident.

On the 7th inst, on the Montreal Railroad, near Concord, N. H., a car coupling broke and left a car on a pile bridge, and before the accident was repaired an extra train from Dover, N. H., came up and ran into it; six were killed and sixteen dangerously wounded. Those who escaped had to jump down into the water which was fifteen feet deep. There can be no doubt but this accident occurred by bad management—recklessness.

### Pneumatic Railroad.

C. Mowry, of Auburn, N. Y., has issued a card in which he states he has invented an arrangement by which the elasticity of compressed air can be used to propel carriages on railroads. The air is compressed by water-power or otherwise, and carried in a tube or pipe the whole length of the road. He also says he has taken measures to secure a patent for the same. He perhaps thinks he has made a most wonderful discovery; it is neither new nor useful.

### Steam on the Rio de la Plata.

A company has been chartered, and is now receiving stock in this city, for the purpose of establishing a line of steamers to run on the de la Plata and the tributaries. The government of Bolivia has offered \$20,000 to the first steamboat that succeeds in getting up into that country; the Americans will do it.

### Weaving Wire Lace.

The Birmingham (Eng.) electro-plating manufacturers have employed the Nottingham lace weavers to weave lace designs in wire, for electrotyping on plate. The invention is new, beautiful, and ingenious.

The next balloonist that appears in public should be requested to make a journey to the arctic regions in search of Sir J. Franklin; the road is straight over our continent. This would be a capital way to go in search of the N. W. passage.

Steam machinery is now employed for the transshipment of coal at the wharves in Philadelphia, it saves 15 cents per ton.

## FRENCH PORTABLE STEAM ENGINE.

Figure 1.

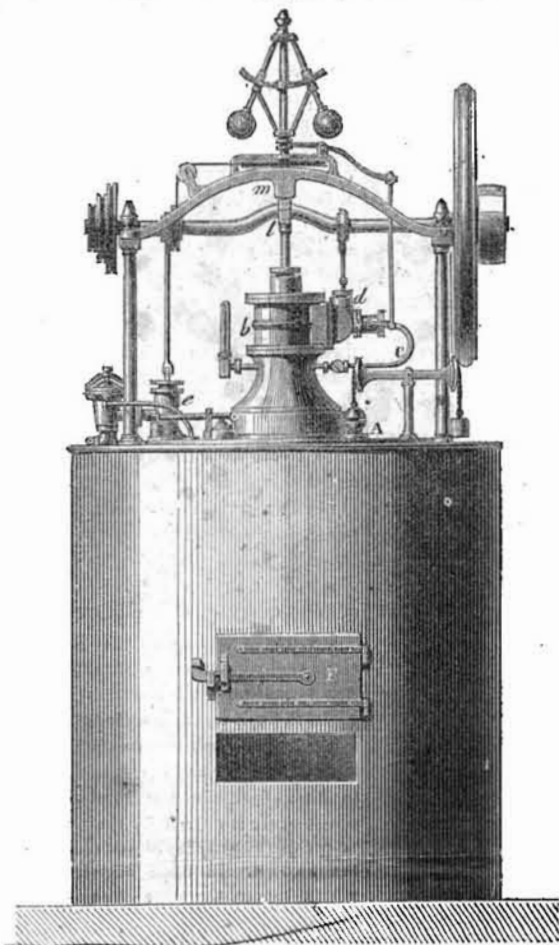
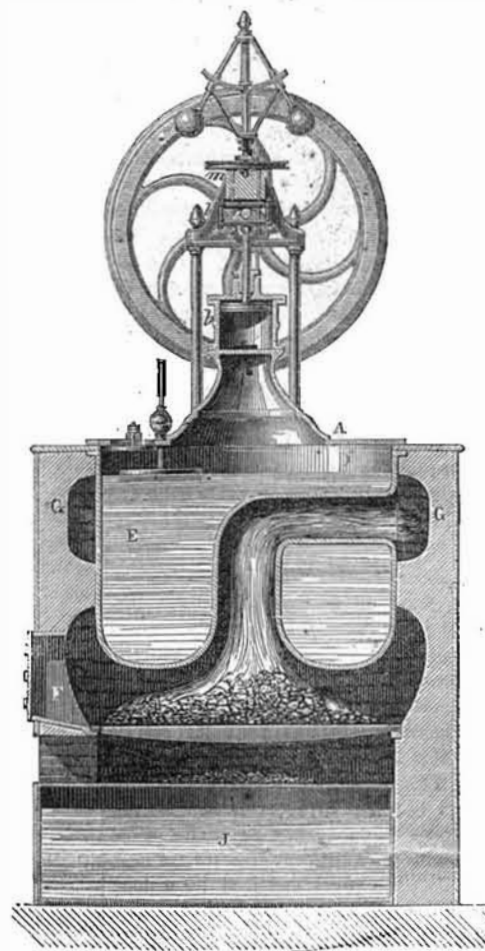


Figure 2.



Steam engine makers have been occupied for the last five or six years in discovering plans for manufacturing steam engines (or steam motors) which shall unite in themselves, the advantage of being easily moved from place to place, and be capable of giving sufficient power for the light work of an ordinary machinist. This is why that, at the Exhibition at London—a large number of machines of this kind were exhibited.

In France, as in England and America, many ingenious machinists have tasked themselves to construct small engines with the machinery so simplified as to render them light and easy of transportation.

Various machines of this kind have been invented; the engine being generally (though not always) separated.

Having thus premised and shown that it is essential to procure a small engine which will occupy but little space, and may be easily moved from place to place, we will describe the portable engine of Mons. Renées, an ingenious machinist of Paris, France:—

Figure 1 is an outside elevation, and fig. 2 is a transverse section. The same letters refer to like parts. First—The entire machine, including its boiler, occupies no more room than an ordinary turning lathe. Second—It is as easy put together as an ordinary stove, and in many instances may be made to answer the purpose of a stove. It will be easy to see by the engravings that this engine is mounted upon the upper surface or cover, A, of the boiler, E, from which the steam is conveyed at once into the cylinder, b, by the tube or conduit, C, which adapts itself to the box, d, which is cast with this cylinder.

By this arrangement the inventor says he obtains, in the cylinder, a pressure nearly equal to that in the boiler, owing to their near vicinity, and, as a consequence, produces a certain economy in fuel, by avoiding condensation and a consequent diminution of the pressure. The boiler, E, placed under the machine, is of the greatest simplicity of construction. The

furnace is constructed in the interior of the boiler, in such a manner as to cause the boiler to receive nearly all the heat generated by the fire. The smoke, upon leaving the fire, passes around the boiler by two flues, G (the openings to which are within the furnace), and unite in a common chimney. This chimney may be a common stovepipe, adapted to the size of the machine, and made to answer the purpose of warming the shop in which the engine is employed.

The whole of this apparatus rests upon a foundation of bricks, enclosed by a casing of sheet-iron. Under the fire, and in the interior of the furnace, is placed a reservoir, J, from which the boiler obtains its supply of water.

It will be seen that a machine of this kind may easily be constructed from a one man power to a two-horse power—may be made to turn a heavy piece of machinery or a child's plaything, and may be put up, raised, or shifted from place to place, without altering any arrangement connected with it when it was placed in its first position.

The upper surface of the boiler, the cover, A, supports the various machinery and safety apparatus necessary to the propulsion, such as the float, level, safety-valve, alarm whistle, and steam gauge.

The engravings suppose that the supply pump, e, is connected with the surface of the boiler, and the rod connected with a bowed shaft, l, which gives motion to the slide valve. This arrangement is economical, because it dispenses with not only the handle, but also several pieces which usually serve to work the cut-off, &c.

The engine is direct-acting, the piston rod being connected to the double crank in the middle of the shaft, l. The slide valve is worked by an eccentric on this shaft, which has its bearings in the side supports which are braced together by the transverse beam, m. It is a very compact engine in every respect, and the power can be carried off and applied to

drive other machinery by belts from pulleys on the bowed shaft.

We have translated this from "Le Genie Industriel," of Paris, with some slight alterations to render the matter more clear to our readers. It resembles, in a measure, the portable engine of Hoard & Bradford, of Watertown, N. Y., and is something like the one of Charles Mann, of Troy, N. Y. Portable steam engines, we know, interest a large class of our readers, and also a very large proportion of our citizens who are not readers but should be, if they consulted their own interests.

### Adjustment of Compasses in Iron Vessels.

Mr. John Gray, of Liverpool, has published a letter, in which he proves, by the example of the Sarah Sands, that the compass can be as accurately adjusted in iron vessels as in those of wood. He says:—This steamship has been a most valuable agent for the determination of a mooted point now being investigated, whether iron ships undergo a very important change after crossing the Equator or not. For years I have entertained the opinion that, for all practical purposes, the adjustment on Professor Airy's principle will answer equally well in both north and south latitudes, and which this vessel has demonstrated beyond all doubt. Simultaneous bearings were taken by Captain Thompson, and his chief-officers, in various parts of the Straits of Magellan, and the result clearly showed that no deviation whatever took place.

### Antidote for Corrosive Sublimate.

The proto-sulphuret of iron, a very inactive substance, has the property of decomposing immediately the deuto-chloride of mercury, and producing a proto-chloride of iron, and a bi-sulphur of mercury, both entirely harmless compounds.

### Tooth Powder.

Sifted white sugar, 8 parts; finely ground charcoal, 8 parts; quinquina (bark) powder, 4 parts; cream of tartar 1½ parts; cinnamon 1-3 part.