Scientific American.

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

VOLUME IX.] NEW-YORK JANUARY 28, 1854. [NUMBER 20.

THE SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY,
At 128 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

Agents.

Federhen' & Co., Boston.	Dexter & Bro. New York
Stokes & Bro., Philadelphia.	B. Dawson, Montreal, C.E
Cook, Kinney & Co., San Francisco.	M. Boullemet, Mobile, Ala
Le Count & Strong, San Fran.	E. W. Wiley, New Orleans
Avery Bellford & Co., London	E. G. Fuller, Halifax, N. S
S. G. Courtenay, Charleston,	M. M. Gardissal & Co. Paris
	S. W. Pease, Cincinnati, O

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 six months.

A Ship Illuminated by Gas.

Some necessary operations connected with ship building are now being conducted in Liverpool, highly characteristic of the progressive spirit of the age. Messrs. Humble and Gruyson having contracted to execute the fastenings of the clipper ship "Shooting Star," 1500 tons burden, lying in No. 2, Queen's Graving dock, the time being limited and the days short, they conceived the idea of introducing gas into the body of the vessel, in lieu of the blinking lanterns generally in use. After the usual difficulties in getting the consent of large public bodies, it was at length obtained of the dock committee, harbormaster's committee, town surveyor, directors of the gas company, and the police; and a main pipe having been laid on from the shore, the hold was brilliantly lighted up by 14 common street lamps, and the 'tween decks by six, enabling the workmen to guide their operations even better than by daylight. The fastenings are of a rather novel kind, comprising not only the usual number of iron knees, but a double set of oak diagonals additional. The size and beauty of the vessel, the peculiarity of the work, and the novel means of illumination, excites much interest. She will be completed in about a fortnight.—[Liverpool Mercury.

Incrustations of Boilers.

The following receipt for preventing incrustations in steam boilers was published in Vol. 7, "Scientific American," and is only republished at the request of a new subscriber, who says he is confident it will be of immense benefit to many of our readers, as he had tried it once on the recommendation of a friend, but had lost the receipt, and when he came to make up the compositition from memory he found out that something was forgotten:—

"Take 32 gallons of coal tar, 21 gallons of linseed water, 5 pounds of black-lead in powder, and 8 pounds of common soap, and mix these ingredients intimately together by stirring them in an iron kettle under a gentle heat. When they are well mixed and of a creamy consistency, they are fit for use. This composition is to be applied to the boiler after the steam is blown off in about the proportion of one gallon to a thirty horse boiler. This quantity is simply introduced through the man hole every four days when the water is very hard. This composition, it is said, will loosen incrustations which may have formed on the boiler, so that they can be swept out; and it will, while used, prevent the sediment from adhering to the boiler in the form of hard scale. The linseed water is prepared by boiling 14 lbs. of linseed by means of steam heat, then straining the water through a cloth. The above proportions being retained, any quantity from one to fifty gallons can be made at once.

Import of Sperm and Whale Oil.

The import of Sperm and Whale Oil into the United States, during 1853, was 103,077 barrels, and for 1852 79,950 barrels. Of Whale oil the import in 1853 was 260,114 barrels, and in 1852, 83,775, showing an aggregate increase in the import of sperm and whale oil for the present year, of 199,466 barrels, or more than the entire import of 1852.

BUSHNELL'S SELF-FEEDING HAND DRILL.

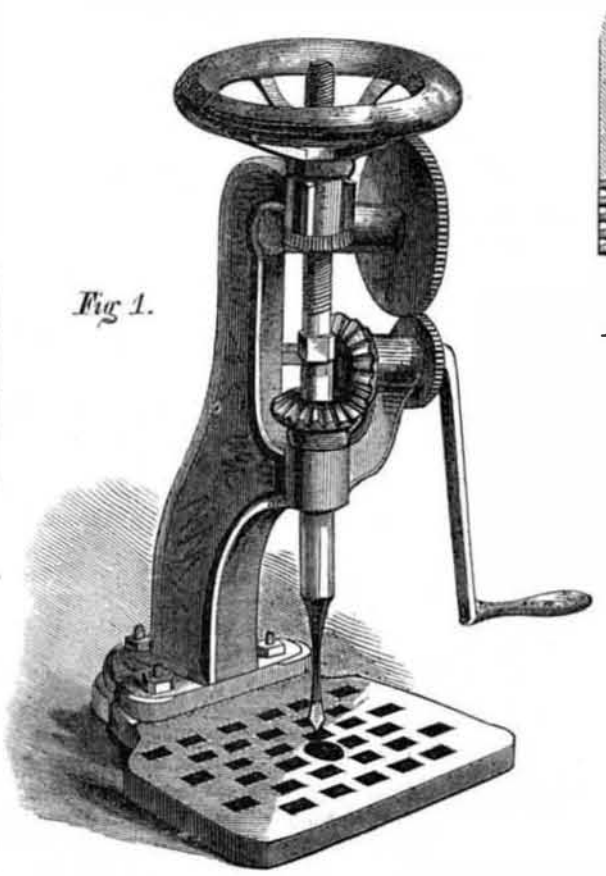

Fig 1.

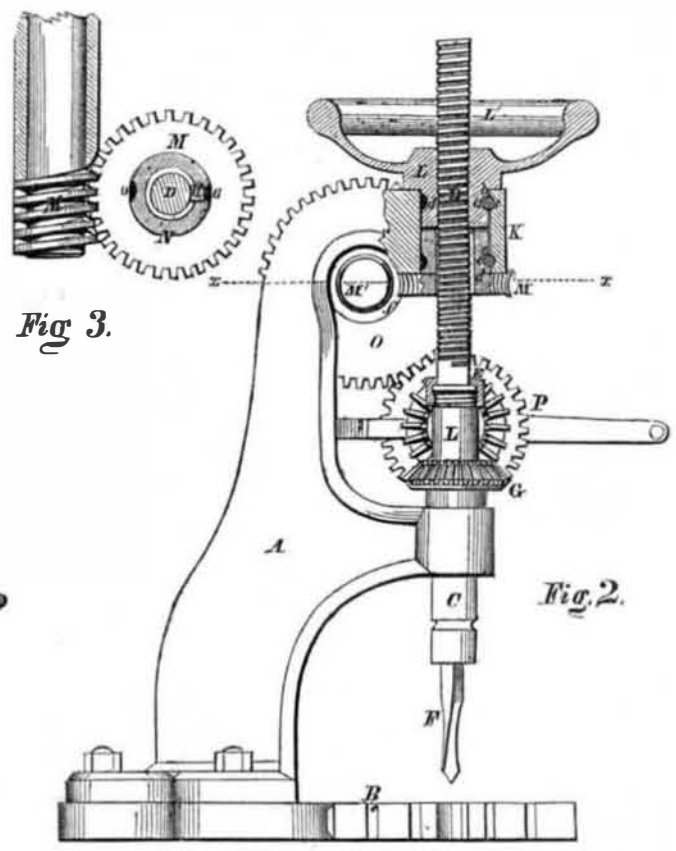

Fig 3.

Fig 2.

The above engravings are illustrations of an improvement in machines for boring metal by hand, invented by Wm. Bushnell, of this city, a notice of which appeared in our paper two weeks since.

Figure 1 is a perspective view; fig. 2 is a side view, partly sectional, and fig. 3, a section through the line, *x x*. The portion of the standard above this line is removed in the side elevation to show the arrangement of the gearing.

In many other hand drills for boring metal, springs or weights, are employed for facilitating their operation by acting as feeders. These devices answer a good purpose until the hole is bored nearly through, when owing to the great force they constantly exert, they cause the tool to escape suddenly through the iron, and consequently cause the metal to chip or break off; this difficulty is removed in this drill, as the force is exerted in such a manner as to insure a steady feed proportionate to the rapidity with which the tool revolves.

A represents the standard or frame in which the operative mechanism is arranged, as shown in fig. 2. This frame is cast in one piece and bolted to the perforated base plate, B, suitable bearings being cast upon it to sustain the working parts. The drill spindle is made in two parts, C D, which are coupled together by the nut, E. The lower part, C, carries the tool, F, and is made to revolve rapidly, independent of the screw part, D, by means of the two bevel wheels, G H, which receive motion from the driving shaft, J. One of these wheels, G, has a key working in a slot, upon the shaft, turning with it, but allowing it to descend gradually. The driving shaft, I, which carries the wheel, H, rests in the bearing, J, cast upon the frame. D, the upper part of the spindle, forms a screw which passes up through the central box, K, of the frame. In this box the nut, L, of the elevating wheel, L', fits and turns loosely, being about half the depth of the box, it has a shoulder resting upon the top of the box, and also a semi-circular groove, *d*, cut in its periphery, corresponding with another in the box, which when brought together, form an annular ring for the pin, *c*, to fit in, which pin confines the nut to its place.

M is a horizontal worm wheel, and M' is a worm for driving it upon the shaft to which the handle is attached. This wheel has a hub, N, projecting from its upper surface, and is fitted loosely over the screw, D, at the spindle, its hub passing up in the box, K, until it meets the bottom of the nut, L', it is keyed to the screw by the key, *d*, and also secured in the box, K, in a similar manner with the nut, L'. The screw has a key seat or groove, *d*, cut in it along its whole length, in which the key, *d*, which connects the worm wheel, M, with the screw, D, slides freely as the screw moves up and down.

The shaft of the worm, M, turns in the upper box, *f*, of the frame, A, and its connection with the remaining mechanism can be clearly seen. By means of it a slow downward motion is communicated to the drill spindle simultaneously with the rotary motion which it receives through the wheels, O P, and the bevel wheels, G H. By the arrangement of the parts, all the mechanism of the drill can be actuated by a single crank.

This drill is a superior article, and we can cheerfully recommend it to our readers. Its parts are well arranged, and it is constructed in a workmanlike manner. A few of them have been left at our office for sale, and we will ship them to the address of any person remitting $25.

Cinder Basket.

This engraving exhibits this useful little invention, patented in England by Mathhias Walker, with its side and cover partially broken away, to show the internal arrangement. The cinders and ashes to be separated are shovelled into it by the large end door, A, and they thus fall on the curved incline grating, B. Then by shaking the basket, the ashes fall through the grating, and may be emptied by the small end door, C, whilst the cinders remain in the basket for use. The basket presents a very neat exterior; and, as it is all covered in, no dust can rise during the process of sifting. Besides, it effects considerable economy in the cinders.—Mr. Walker has also patented an important contrivance applicable to barrels and other fluid-containing vessels. This arrangement, which he terms a "hydrostatic vessel," consists in encircling the vessel with an outer case, filled with a cooling fluid, so that the actual contents of the vessel are well defended from atmospheric influences, and are kept fresh, cool, and at a uniform temperature.

The Maryland Coal Trade the present year has amounted to over 559,331 tons.

Tobacco at the North.

The Culture of the weed in Connecticut is becoming extensive and profitable. In many o the river towns, tobacco is the principal crop grown. In order to promote its culture, a company has been formed in Hartford, with a capital of $25,000, for the purpose of opening a Tobacco Inspection Warehouse in that city, to be governed by a large board of directors, president, etc., representing the various tobacco growing districts. The capital invested is to be used to buy or advance on crops in growth; and the company is to provide suitable warehouses in which to pack, inspect and store the crops that may be consigned to them; to keep the same insured, and hold till fully cured, then to sell and pay over the net proceeds to the owners. The tobacco crop is an exhausting one.