IMPROVED STOVE FOR SMOKE HOUSES.

The invention represented in the annexed engravings is a stove or furnace in which it is proposed to generate smoke by burning twigs or other suitable fuel. The device is to be used in the ordinary smoke house for curing meats, and is so constructed as to produce a large volume of smoke, regulate its production, and insure safety against fire.

The body, which may be made of any suitable material, is provided with perforations on top and also at the sides. Within is the grate, A, shown through the broken-away portion of Fig. 1, and in the sectional view, Fig. 2, which is formed with inclined sides and a horizontal middle portion provided with apertures closed by the damper, B, Fig. 2. By this arrangement, it is claimed, the admission of air to the fuel, and the combustion thereof, can be regulated with great exactness, to suit dry or green wood, or any other cause of variation in the smoke-producing circumstances.

In the upper part of the chamber is placed a partition, C, also having inclined sides through which are a number of perforations. These apertures are governed by suitable dampers, the handle of which is shown at D, Fig. 1, and which regulate somewhat the combustion in the grate below, according to the condition of the wood or the draft.

The device is quite simple and is said to be very efficient in operation. It is covered by two patents, dated October 15, 1872, and December 2, 1873.

Further particulars may be obtained by addressing the inventor, Mr. Isaac N. Deardorff, Canal Dover Tuscarawas county, Ohio.

Fig. 1

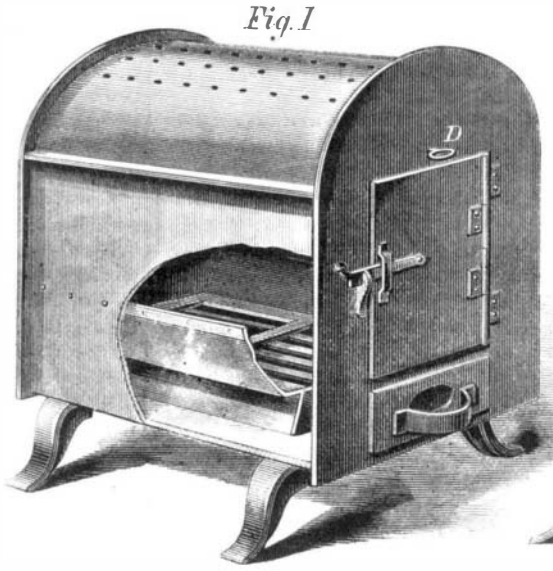
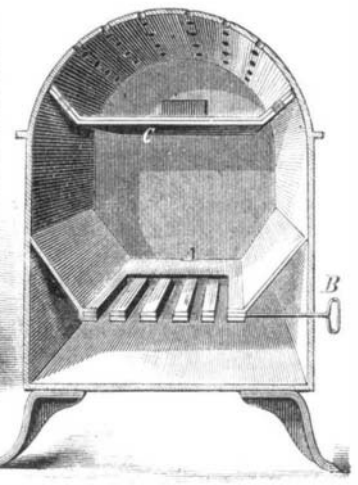


Fig. 2



DEARDORFF'S STOVE FOR SMOKE HOUSES.

IMPROVED TURBINE WHEEL.

The invention herewith illustrated is an improvement in the gates and chutes of a turbine, in order that an unbroken sheet of water may be admitted to strike the wheel without becoming expanded or interrupted, and this whether the gate be fully or partially open. The issues or guide chutes are opened from their inner ends, and the water brought at once in contact with the buckets of the wheel. By this means, it is claimed, the greatest possible percentage of power with a partially drawn gate is obtained, and it is said that there is no decrease of power when the gates are partially closed. The inventor asserts that, if there be any loss, it must be when the issues are fully open.

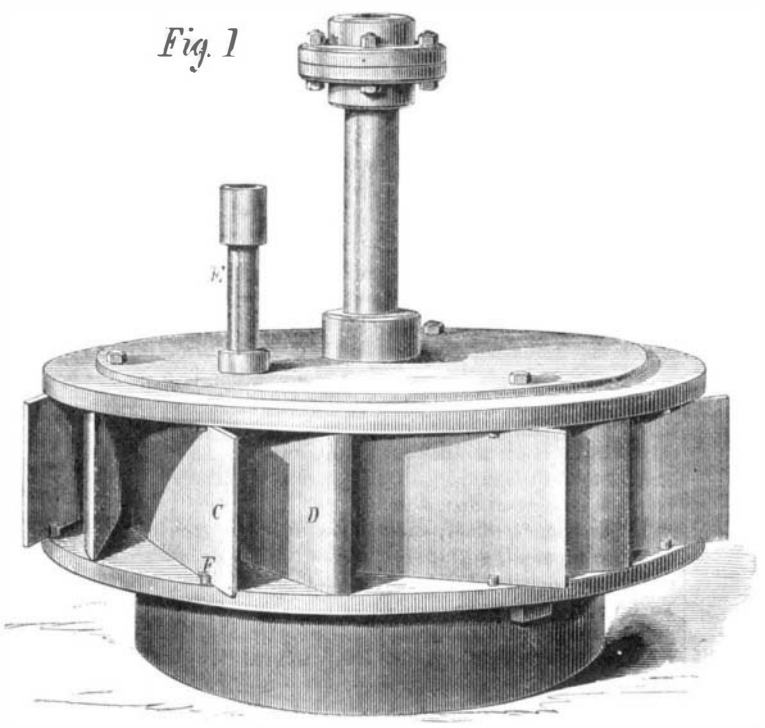
Fig. 1 shows the device in perspective, and Figs. 2 and 3 are respectively vertical and horizontal sections. A, in the latter illustrations, is a rotating gate placed between the top and bottom plates, and resting on the top of the tail water tube, as represented in Fig. 2. In this are made openings, B, which correspond to the buckets of the wheel and form thwarts for admission of the water. To one side of each aperture are keyed the adjustable wings, C, which guide the water, in connection with the curved chutes, D. The latter extend, in part, along the circumference of the wheel and then turn outwardly. On the inner periphery of the gate, A, is a rack, in which a pinion on the vertical rod, E, engages, by which mechanism the gate is rotated so as to open the orifices, B, more or less, as desired. The wings are guided by pins, F, when the ring, A, is turned, and thereby the equal flow of water for the different positions of the latter is secured, it is claimed, without break or interruption.

This construction, it will be noted, is quite simple, and obviates the use of considerable mechanism. The whole curb, it is stated, by suitably reversing it when down, can be applied to either a right or a left hand wheel. The two sets of patterns ordinarily required for casting either description of wheel are consequently not needed, thus adding to the economy of the apparatus. The gate will open under high heads about as readily as under low ones, as the only force to be overcome is the mere weight of the ring which supports the pressure. The appliance, being thus balanced under all heads, is well fitted for the application of a governor. The device is also claimed to be free from danger of injury or obstruction from anything that can come into the guides. The chutes also cannot interfere with the gate and prevent its operation. The invention is said to be applicable to any and all of the class of wheels called vertical, whether they discharge the water downward, centrally, or outward.

The use of the internal circular gate also, it is believed, permits of the constructing of a cheap wheel of wood, by setting the guide chutes of blocks of that material between the floor of the flume and the upper curb of plank, and griping with scantling frame. The ring may be made of square bar iron rolled in circular form, and plates of boiler iron cut to required width and length, and fastened to the circle by rivets. In time of drought, the quantity of water used may be regulated by attaching strips of plank upon the faces of the guide chutes.

Patented through the Scientific American Patent Agency, September 9, 1873. For further particulars address the inventor, Mr. Angus A. Herriman, Owen Sound, Ontario, Canada.

Fig. 1



HERRIMAN'S IMPROVED TURBINE WHEEL.

Fig. 2

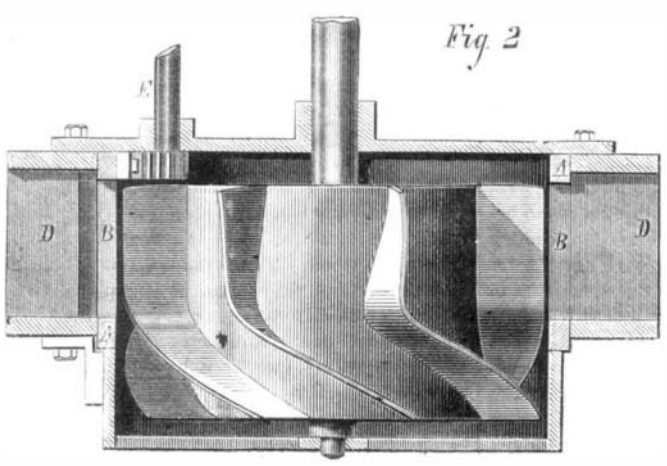
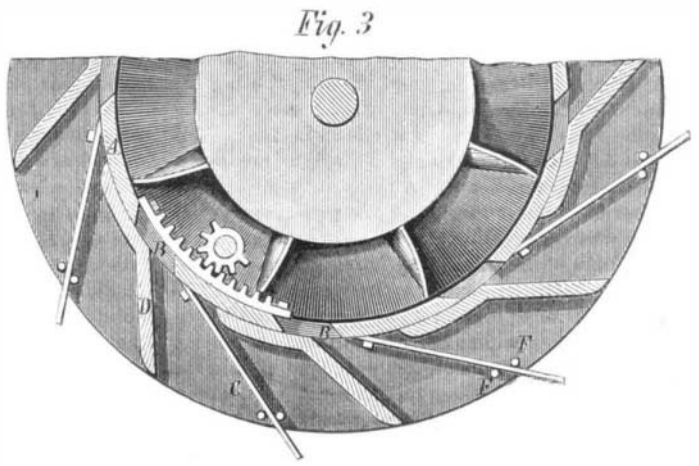


Fig. 3



Electro-Sympathetic Clocks.

Among the many objects of interest in the recent Art Exhibition of Dundee, perhaps few things excited more interest among the visitors than a clock worked by electricity in connection with a normal or master clock. Messrs. Ritchie and Sons, of Edinburgh, whose names are familiar in connection with the time-gun signal, introduced the system some time since, and this system the present clocks are intended to illustrate. The master clock, which is one merely of an ordinary kind, requiring to be wound up periodically, is placed on the platform of the large hall. The oscillations of its pendulum are used to complete contact between the poles of a galvanic battery on the top of the clock case. There are two cells of the ordinary Daniell's sulphate of copper battery, one pole of each being placed in metallic connection with the gas pipe, and the other pole terminating in a slender spring, against which the pendulum rod impinges; and while contact is thus obtained alternately with one or other spring, a current of positive or negative electricity is sent through the pendulum rod, along the insulated wire connected with it to the other end of the hall, where the sympathetic clock is placed. This differs from previous electric clocks, and is provided with a magnetic pendulum, consisting of a wooden rod having a hollow coil or bobbin of insulated copper wire, the ends of which are attached to the suspension springs on which the pendulum is hung. A double bundle of permanent magnets is fixed in the center of this bobbin, their similar poles being placed towards each other. An attraction to and repulsion from the poles of the magnet hung in the center of the coil is caused by the passage of the currents of electricity through the wire coil of the pendulum, in which motion is thus produced and maintained. The makers have constructed a simple but effective escapement, or rather propelment, by which two arms are alternately raised by the pendulum out of action with the record wheel of the clockwork, and when released, by mere force of gravity, push forward the wheel work and hands by sudden and decided steps, which are thus registered by the hands of the clock. There is such a peculiarity in the construction of the pallets that no probable force can push forward the hands beyond the fixed stops, and no power less than the weight of the gravity arm will drive the wheel work backwards.

The difference between this system and that which works electric clocks hitherto in use is that the passing currents of electricity are employed merely to maintain motion in the pendulum, which is effected by a very weak battery; and from the great momentum, these currents may be intermitted or the wire cut for even two minutes at a time without destroying the coincidence of time shown by the sympathetic clock, which is dependent on the motion of its own pendulum, and not in any way upon the power of the battery. This allows the opportunity of causing several clocks attached to the same wire circuit to report their accuracy by making each clock at a certain second to cut the wire connection during that second, and thus the flow of the current is prevented. By means of a galvanometer placed in the wire these dropped seconds are observed, and the correctness of the respective clocks guaranteed. Whatever the number of clocks placed on the same wire circuit, all of them will, of course, act in unison with the beat of the normal or master clock.—*The Engineer.*

Coffee and Milk as an Aliment.

The stimulating and tonic effect of coffee alone is well known, and also the value of milk alone as an aliment, and of them both when taken alone at long intervals. Abbé Moigno states, however, that when mixed they form a compound absolutely indigestible and unassimilable He attributes this to the fact that coffee is rich in tannin, and that its mixture with milk transforms the albumen and casein into a sort of indigestible and imputrescible substance, as is formed in the tan vat when animal tissue is placed in it.

To Improve the Adhesion of Gum Arabic.—It is a well known fact that gum arabic will not cause some kinds of blotting paper to adhere. This may be remedied by adding, to eight ounces of the concentrated solution, 16 grains of aluminum sulphate. Alum answers also, but not so well.