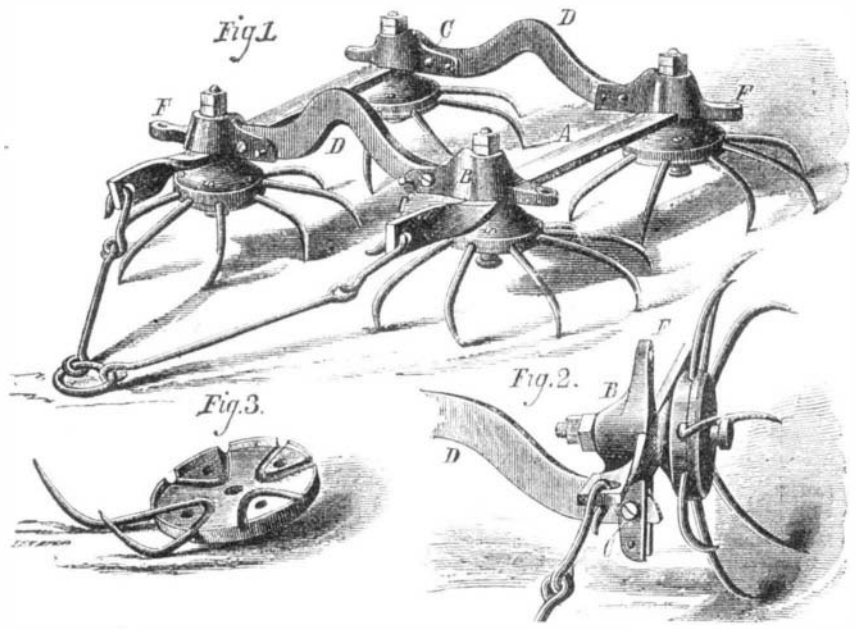
THE TARANTULA WHEEL ROTARY HARROW.

The accompanying engraving represents a novel and, doubtless, very useful agricultural implement to which, from its odd and spider-like appearance, the above appro priate name has been applied. It is a rotary harrow, composed of several wheels, each containing a number of teeth which operate in a manner below described. The wheels are so arranged that they may be turned from a horizontal into a vertical position, thus enabling the device to be conveniently transported from field to field.

At A are two bars, to the inner sides of which are attached brackets, B, through which pass the vertical shafts of the wheels, said shafts being secured by the nuts above. The inner ends of the brackets, C, are slotted to receive cross bars, D, which are secured to them by two bolts, as shown, by removing one of which the connection may be changed from a rigid to a flexible one if desired. In Fig. 2 is shown the position of a wheel when turned vertically on the connection, as above described, as on a hinge. The bars, D, are made with a bow or arch in the middle, to enable the harrow to be used for cultivating corn or other vegetables planted in rows. The harrow teeth are made in U shape, with their ends bent downward and to one side, Fig. 3. The hubs are constructed in two parts secured together by bolts which also pass through the bends of the teeth. The latter are received in grooves, as represented in Fig. 3, and are thus securely clamped and held. The journals are made longer than the hubs in order that the wheels may have play to enable them to adapt themselves to the surface of the ground.

As represented in our engraving, the device is adapted for use as a cultivator, but it may be readily changed to a harrow by hooking the draft bars to the eyes in the brackets, shown at F, at right angles to the beams.



THE TARANTULA WHEEL ROTARY HARROW

The advantages claimed for the invention are as follows: It is durable, and, being constructed of iron, cannot decay when left out in the field. It is simple in construction. It will run, we are informed, deeper or shallower, as desired. Each tooth cuts through ground three times as far as the distance passed over, owing to the rotation of the wheel, thus harrowing the soil to three times the extent of a simple drag machine. The convenience of moving, afforded by the vertically adjustable wheels, is also a point of merit. There is, besides, a reversible motion in every otber wheel when drawn, double harrowing the ground in every direction.

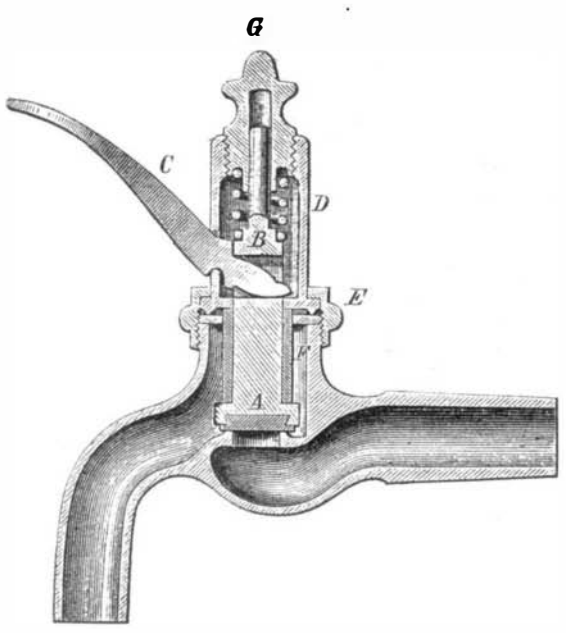
The teeth, it is stated, never choke or clog in any trash, but pull up all that has been plowed under, and scatter it regularly over the surface. None of the soil, consequently, becomes mixed with the refuse, so that the danger of wheat or winter crops freezing, from the springing up of the ground, is largely obviated. For preparing the soil for wheat, we are informed, the machine is especially adapted; and as a cultivator, the inventor states the device to be of great merit.

Two sizes of this harrow are manufactured, one of six wheels, cutting from six and a half to seven and a half feet, making one cultivator. The other and larger size has eight wheels. In field harrowing it is run four wheels abreast, cutting nine feet and nine feet ten inches. By removing two bolts, it is changed into two cultivators. We learn that, in repeated trials, the machine has proved very successful.

Patented through the Scientific American Patent Agency, April 7, 1874. For further particulars address the inventor, Mr. D. L. Benson, Tamaroa, Perry county, Ill.

HOTZ'S PATENT SELF-CLOSING FAUCET.

Overflowing basins, leaky faucets, and burst water pipes



are probably the commonest troubles which families in cities have to endure. Plumbers' bills in cities are, as a rule, excessively high, and when, in addition to this expense, the hapless landlord finds himself compelled to pay for the services of a plasterer to repair soaked and fallen ceilings, and of a painter to make good his disfigured walls, it becomes very clear, to him at least, that an invention which will render water pipes proof against leakage and an overflow of basins is of infinite importance. Faucets which will stay tight, and not require re-grinding every few months, are also an important desideratum. We can assert, from our own experience, having the Hotz faucet some time in use in this office, that it meets all the requirements of a faucet better than any other we have used.

Hotz's self-closing faucet, a sectional view of which is represented in the annexed engraving, is an invention which has been in use some four years, during which time it has withstood severe tests of both frost and heat. The construction consists in a rubber-faced stop valve, A, from the top of which rises a spindle, B, which is slotted to admit the point of a thumb lever, C. D is an upper cylinder, which is flanged and united to the body of the faucet by a union, E, with suitable packing. At the bottom of the cylinder is an annular septum, through which rises the spindle, B. Between the valve, A, and this annular septum, the spindle has, slipped over it, a piece of rubber tubing, F, which abuts against the septum and makes a watertight joint, so that no water can rise into the cylinder. The spindle, B, is made small at the top, and over this portion, and resting upon a shoulder, is placed a coil spring. The upper part of the latter abuts against a male screw, G, which fits into a female screw at the top of the cylinder. Screw G has a milled head, by which it is easily turned up or down to adjust the tension of the spring to the pressure of water against the valve, A. By so regulating the screw that the tension of the spring is just sufficient to overcome the pressure of water against the valve, it is evident that the pipe in connection with the faucet is provided with the means of relieving itself the moment any extra pressure begins within. The tension of the spring, in such case, being overbalanced, the valve will be lifted from below, and water allowed to escape until the equilibrium is restored. No further explanation is, we think, necessary to render it obvious that, so long as the mechanism is properly adjusted and free to work, it is hardly possible for an excess of strain to happen in the pipe.

While this advantage is of first importance, there are others claimed, which are perhaps of nearly equal value. The faucet being self-closing, the danger of its being left running by accident, causing overflow, is obviated. Its construction is such that no grinding of metallic surface is necessary. The deterioration of the piece of rubber tubing and the valve face cannot but be slow; and when worn out, their replacement is a very easy matter, accomplished at a trivial cost. It will be observed that the valve can be regulated to any pressure, and that the water, striking the valve, meets a cushion which is elastic, and hence there is no jarring or hammering of the pipe due to the sudden turning off. Not only is this the case in the single faucet operated; but should the flow from any other cock be quickly stopped, the shock is communicated to the rubber valve which, after lifting, relieves the pipe instantly. From the same cause range boiler explosions will be prevented. Finally, a direct saving is claimed in the cost of pipe, because the heavy tubing necessary to withstand concussions, freezing, and similar forces is rendered unnecessary.

We have had submitted to us reports of several cases which exemplify the successful working of the device, in instances where pipes froze solid throughout a house but no rupture took place. The inventor gives several illustrations (in a pamphlet he has published which parties desiring further information should send for), showing the variety of forms in which the faucet is manufactured in order to suit hydrants, closets, etc.

Considerable ingenuity is shown in the bath tub arrangement, in which the faucet is so governed that it allows water to escape until a sufficient quantity is drawn, when it automatically closes. This is accomplished by a float fastened to a chain of suitable length, attached to the faucet lever. When the float hangs from the latter, its weight is sufficient to raise the valve. The water then runs into the tub until it reaches the float, which it buoys, relieving the lever, and so causing the valve to be shut by its spring.

For further particulars address the E. P. Gleason Manufacturing Co., corner Mercer and Houston streets, New York.

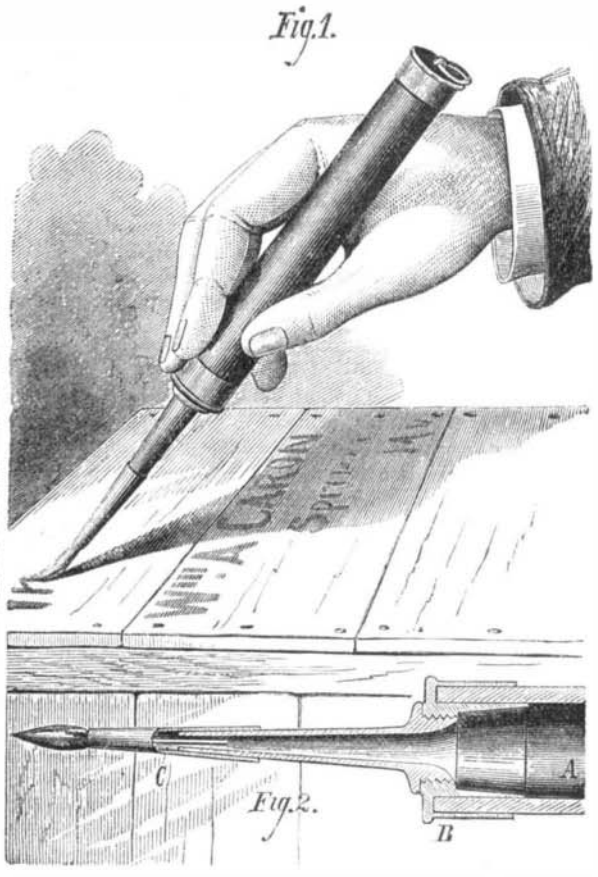
Time Telegraph of the Reading Railroad Company

The manner of giving the correct standard time of the Philadelphia and Reading Railroad Company, to all its telegraph stations, 255 in number, along the main road and all its branches, is as follows: At three minutes to 4 o'clock P. M., daily except Sunday, all business along the lines is suspended; and by means of a series of repeaters, all the lines of this company, 36 in number, are arranged so as to be operated and controlled by one operator at the Reading office, who has a chronometer before him, from which the correct time is given. Commencing at three minutes to 4 P. M., the Reading operator says "time" on the lines, which calls the attention of all operators to adjust their clocks, and is continued at short intervals until five seconds to 4, when he opens the circuit. At 4 o'clock he makes one tap; at fifteen seconds after 4, two taps; at thirty seconds after 4, three taps; at forty-five seconds after 4, four taps, and at one minute after 4, five taps. By this arrangement every telegraph station is able to get the correct time to the second, daily, and thereby have the railroad clocks and watches of the employees properly adjusted, which is a very important matter in the management of a railroad.

MR. PROCTOR has returned to England from America. He recently gave an intensely interesting lecture at St. George's Hall, Langham Place, on the progress of astronomy in America. Mr. Proctor showed that in many respects the Americans were in advance of Englishmen, both in their instruments and the courageous and rapid manner in which they conduct scientific enquiries. He spoke highly of the manner in which he was received, listened to, and treated in the States.—*English Mechanic.*

CARON'S FOUNTAIN MARKING BRUSH.

Our engraving represents a simple form of fountain brush which will, to porters having goods to mark, expressmen, bulletin writers, and others who have occasion for its use, prove, we think, a handy and time-saving invention. It consists of a rubber tube, A, Fig. 1, lined within with a material known as Frink's indestructible rubber lining, which, we are informed, resists the action of acid compounds. The tube is some five or six inches in length, and has on its upper end a cap and ferrule in one, provided, as shown, with a ring, for suspending when not in use. The lower end has also a ferrule, and is threaded to receive a metal funnel, B, as shown in section, Fig. 2. Over the end of the funnel the brush is slipped. In use, the funnel is removed from its ferrule and the handle filled with ink. The former is then returned; and on being held to write, the liquid flows down to the brush through a small tube, C, which extends up into the extremity of the funnel. It will be seen that the necessity of a pot of ink is avoided, and consequently the hand of the operator ordinarily employed in holding the same is left free. The interior construction is of the simplest description, with no mechanism to get out of order. The ink flows freely, and, from its gradual feed and large supply, lasts for a long time. By its use marks can be easily made on uneven surfaces, such as coarse sacking, which cannot be done, except with considerable difficulty, with the ordinary brush. Fine or coarse lines are readily



traced, as the flow is regulated by the pressure of the hand upon the compressible tube.

Further particulars, regarding sale of rights, etc., may be obtained by addressing Mr. William A. Caron, No. 142 Union street, Springfield, Mass., or Mr. F. W. Wentworth 45 Green street, Boston, Mass.