

Improvement in Horse Hay Rakes.

After an examination of the machine represented in the engravings accompanying this description, practical farmers will notice its simplicity of construction, its ease of operation, lightness, compactness, and efficiency. The driver has both hands at liberty, to be used in guiding the horse; the work to be done and the work already done is straight before him, and a touch of his foot on a pedal lever will discharge the windrow of hay and return the rake teeth to position instantly.

The general appearance and construction of the machine will be understood by reference to Fig. 1, and the peculiar

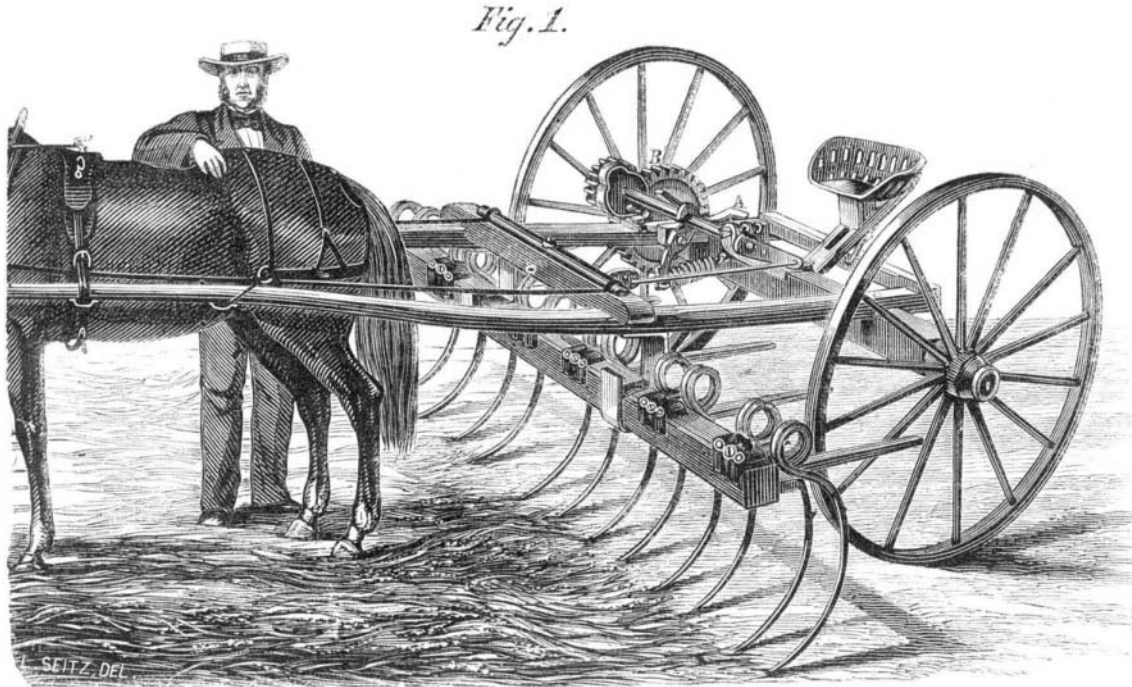
raked one hundred tons of hay in one season—1863—with this machine, and has repeated the work for the four years succeeding." Several patents have been issued on this rake, and an application on other improvements is pending before the Patent Office.

All communications relative to this implement should be addressed to J. C. Stoddard, Worcester, Mass.

Defenses Against Hurricanes.

In the London *Mechanics' Magazine* of January 10th we notice a correspondent's plan for the protection of buildings, plantations, etc., from the effects of hurricanes, intended for

of the body, and the other being in the act of beginning a forward movement. Fig. 2 presents a bottom view of the skate, showing the runner—the edge of which is round like that of a sled or cutter—and of the attachments on its side intended to grasp and adhere to the ice for the purpose of propulsion. A shows a single lever claw, intended for low irons, adjusted merely by a screw on its rear end, and held in place by guides. B is a double lever claw, the back end of the long lever pivoted and the claw end controlled in its action by a short screw lever, having a nut on it seated in a recess between the two hinged parts of the skate, and acting as a fulcrum for the short lever, which by means of a sliding

**STODDARD'S SELF-OPERATING HORSE HAY RAKE.**

method of securing the teeth to the rake head by Fig. 2. The driver's seat is placed at the extreme rear of the implement, it being capable of being raised or lowered on the spring-board which sustains it, to accommodate any length of leg, by means of a bolt, traversing a slot in the support, and a lever nut. In front of the driver is a bell crank with a projection, A, for his foot, the crank, or lever, having a hook engaging with the delivery shaft to throw the pinion on that shaft in gear with the cog wheel, B, secured to the hub of one of the driving wheels. When the bell crank is not pressed down by the foot a spiral spring underneath the shaft and attached to the lever, keeps the pinion from meshing with the main gear wheel. The end of the counter shaft, carrying the pinion, opposite from the driving wheel, has a crank which connects by a rod with an arm on the rake head by which the head may be partially rotated and the teeth elevated or depressed. While the rake is gathering the hay the pinion is disengaged from the gear wheel; soon, however, as the teeth are filled the driver touches the pedal, engaging the pinion with the larger gear, and the crank on the pinion shaft actuates the rake head and the teeth. The rake is held in position, whether elevated from the ground for driving over common roads, or depressed to perform its work, by means of a hollow cam on the inside of the pinion and revolving with it. This cam has two depressions, one opposite the other, in which a fixed horizontal catch or bar engages to hold the pinion shaft firmly in the position desired. The driver has only to press his foot on the pedal to disengage the catch when the pinion shaft will make only half a revolution, being stopped by the action of the catch engaging with the depressions on the cam. This action of the rake head, cam, etc.; can be secured by the driver whether the machine is running forward or backward. The devices for securing the delivery action of the rake head are very simple, the mechanical arrangements being few in number and not liable to derangement. A bar secured to the rear of the rake head has a number of horizontally projecting fingers between the rake teeth to prevent the hay from being crowded up beyond a certain point.

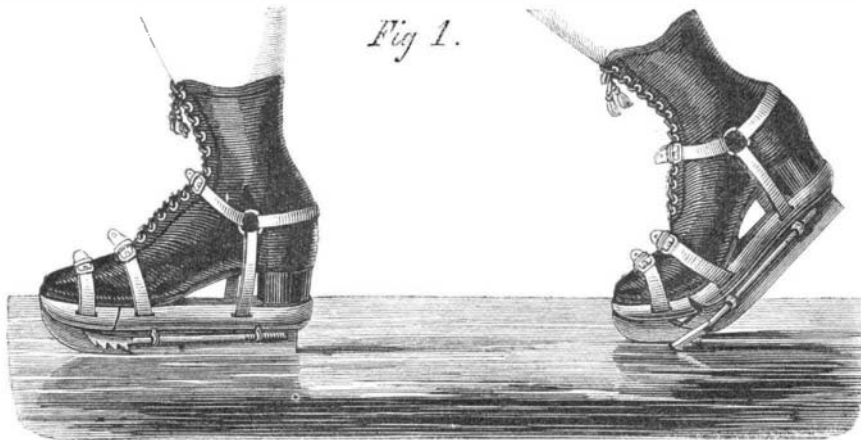
Fig. 2 shows a simple device for securing the rake teeth to the head. The teeth are of round steel, coiled as at C, to form a spring, the ends being bent and held in recesses in the casting, D, which contains two teeth the whole being secured by a single screw or bolt. The rake head is sustained in boxes which allow of its adaptation to unevenness of the surface of the ground. It is evident that the horse, and not the driver, does the work, the draft of the machine holding the teeth to their work. The rake will always conform to the surface of the ground independent of the wheels. The draft of the horse is directly in front of the work so there is no lateral or side pull. The grass is gathered before the wheels can press it into the ground as the rake is in front of the wheels. The ease of operation of this machine is illustrated by the following statement from the inventor; "A son of Mr. James Taylor of Sutton, Mass., only seven years old

the West India islands, where during the past few months great devastations have been done by the forces of nature. The idea is to build the houses, whether dwellings or otherwise, like that of the "old woman who lived under a hill," partially subterranean, and then to erect pyramidal structures of iron "in combination with wooden beams, wire ropes, chains, etc.," to break the force of the gale, etc., etc.

Now, we would suggest to this correspondent to give the public, and especially the miserable inhabitants of the torrid zone, some idea of protection against earthquakes. Cannot he show how buildings may be erected on rollers or balls so that their foundations may be moved without displacing the walls?

Improvement in the Construction of Skates.

Since the skating mania has spread over the country, all classes, young and old, have endeavored to avail themselves of this health-giving amusement. Among the chief difficulties that grown persons have to encounter are weak ankles and cold feet; in fact, skating, in place of being an amusement, soon becomes a labor to them.

**BROWNLEE'S PATENT ICE AND PARLOR FLEXIBLE SKATES.**

The jointed or flexible skate is intended to remove these difficulties. With this article any person that can walk can skate; he has no new motions to make with his feet or legs; all he has to do is to start off as if walking, and his feet are not bound up like club feet, and he uses the same muscles and motions as walking, his feet not becoming cold nor his muscles soon tired. Ladies can put on these skates at home, screw up the claws, (unless there is ice in the road), and walk to the skating pond or rink. These skates being propelled by claws, which take hold of the ice as the foot is bent, there is no necessity for fluted or sharp edges to cut up the ice or retard the skater and turn his amusement into work. By having the claws shod with rubber, this improvement can be applied to roller or parlor skates. Any good mechanic can see how to apply this improvement to old skates without much expense. A patent for this improvement has been issued to Geo. Brownlee through the Scientific American Patent Agency, Dec. 24, 1867. Any information desired in regard to the sale of rights will be given by addressing G. & C. Brownlee, proprietors, at Princeton, Ind.

The description may be very brief as the engravings sufficiently exhibit the peculiarities of the device. Fig. 1 represents the skate in use on the ice, one foot receiving the weight

yoke or clasp, and the nut, can govern the height of the claw and its motion.

Curculio Arrester.

General William H. Noble, of Bridgeport, Conn., has lately patented an apparatus for preventing the curculio from ascending fruit trees. He says:

"This invention is designed to prevent the ascent of or to drive the curculio from fruit trees, vines, etc. It needs not that I should say anything to show the importance of preventing the attacks of this insect upon fruit trees; this is too well known to all experienced in horticulture, and many devices have been practiced to destroy the insect, or prevent its devastations. It has been found, by practice, that a slight jar upon the tree or vine causes the curculio to let go its hold and fall to the ground. It is well known to horticulturists that the curculio is very timid, and to this weakness I attribute the effect of the slight jar upon the tree, as the jar requires to be only so heavy as will simply give the slightest shock, and scarcely perceptible to the person, to cause the insect to fall to the ground.

"My invention consists in the arrangement of an automatic hammer, in such relative position to the tree or vine which it is designed to protect, that the hammer may so strike the tree or vine, or rods, or frame, attached thereto, as to give the slight shock required.

"A hammer is arranged in connection with a clock work, so that the hammer is caused to vibrate as often as may be expedient, and should give from ten to fifteen blows per minute, and this is arranged in such relative position to a frame that the hammer may strike on the frame. A clock work set in motion, by winding or otherwise, causes the hammer to strike the frame, and, through the blows constantly given, a jarring effect on the tree is constantly kept up, and when so continued, the curculio will not ascend, or, if ascending, will drop to the ground, where it may be destroyed in any convenient manner.

"For vines, a single apparatus may be sufficient for a long frame, but for trees one apparatus should be attached directly to the tree, and I prefer that it be so attached at some little distance above the roots; or several trees may be attached to rods, so that a single apparatus may answer the purpose for many trees."

GOLD filings are saved only because the metal is deemed precious; but iron filings are of real value, mechanical and medicinal, but are frequently foolishly thrown away.—*Verb. sap., etc.*