BALE TIE.—Joseph Bragg Dunn, Petersburg, Va.—This invention has for its object to furnish an improved bale tie, simple in construction, which will hold the hoop securely, which may be easily applied, and which can be manufactured at small expense and without waste of material.

CORN PLANTER.—N. G. Hughes, Waynesburg, Pa —This invention has for its object to furnish an improved cornplatter, by means of which the ground may be marked and the seed dropped and covered at the same time and by the same operation.

SNAP HOOK.—John McKibben, Lima. Ohio—This invention relates to an improved spring snap hook, the advantages of which are that while it secures all the advantages of other rein and springs naps now in use, it is greatly reduced in size. By the position of the spring it acts as a guard snap, and as the spring is almost concealed within the hook, it is protected by the jaws that hold the lip on which it acts. It is also very compact, thus securing greater strength, so there is less purchase bearing upon it from its curtailed length of body and spring, also rendering it lighter, neater, and better, and more convenient.

VISE.—Samuel S. Barnaby, Macon, Ga.—The object of this invention is to produce a vise which will be of such a construction as to obviate the great inconvenience and loss of time now unavoidable with the use of all vises heretofore invented.

MACHINE FORRAISING HEAVY WEIGHTS.—S. E. Tuttle, Genoa, Nevada.— This invention has for its object to furnish an improved machine by means of which heavy weights may be raised with a comparatively small outlay of power.

ROTARY STEAM ENGINE.—Chester B. Turner, Grand Rapids, Mich.—This invention consists in the arrangement of wmgs or valves on the piston core, or center, and in so forming the parts of the engine that the steamcan be cut off at any part of the stroke, or at any desired point.

Horse Rake.—Oliver E. Randall, Lewiston, Maine.—This invention consists in the application of a separate and independent spring to each tooth bar, and in a peculiar lifting arrangement whereby the rake teeth, as hitherto, are allowed to conform to the inequalities of surface over which they may pass, and the rake at the same time allowed to gather up and retain a large quantity of hay or grain before being discharged.

PORTABLE SAWING MACHINE.—G.W. Bell, Rising Sun, Ind.—This invention has for its object to turn is has imple, cheap, and portable machine, by means of which timber for shingles, staves, fre-wood, etc., may be sawn in the woods without its being necessary to incur the expense and labor of transporting the logs to a machine, as is now the case.

STREET AND TATION INDICATOR FOR RAILROAD CARS.—Anthony Pirz, and ManuclPirz, East New York, N.Y.—This invention relates to a new and improved street and station indicator for railroad cars, and of that class in which the names of the streets or stations are on a belt or band which is moved at certain proper intervals, after each street or station is passed, in order to exhibit to the passengers the name of the preceding street or station.

FLOUR SAFE AND SIFTER.—F. A. Hoyt, Hanover, Mis.—This invention relates to an article of household use, and consists of a sifter operated by a crank and gearing, the said sifter located over a drawer covering the flour recentacle beneath.

DITCHING MACHINE.—A. A. Taselier, Alkiers, La.—This invention relates to an improved machine for excavating ditches or canals, and consists of a carriage mounted on wheels, to be worked and propelled on temporary movable rails, by a steam engine, and supporting drums for carrying an endless belt or chain to which are affixed excavating buckets.

CALCULATING AND REGISTERING MACHINE.—Thomas T. Strode, Mortonville, Pa.—This invention relates to an improved calculating and registering machine, being a simplification of the calculating machines heretofore invented.

COMBINED FLOUR SIFTER AND SCOOP.—G.W.&C.L.Sherman, Seymour. Conn.—This invention of an improved article of domestic utility relates to a flour sifter and accom-

MACHINE FOR EMBOSSING WINDOW SHADES.—R. K. Slaughter, and J. O. Hundt, New York city.—This invention relates to a new machine for embossing window shades of all sizes with ornamental borders, corner or central pieces, and consists chiefly in the use of a sliding carriage, which is covered with a plate of rubber or other elastic surface, and which is provided with adjustable guidebars for guiding the rollers, by which the ornamental borders are produced, and for holding the shade to be embossed on the table.

HAY PRESS.—George W. D. Culp. East Enterprise, Ind.—This invention re

lates to an improved beater press, which is so arranged that the motion of follower can be reversed whenever desired, without reversing the motion of the horses; and that, furthermore, the beater or the follower, or noth, can be thrown outof gear whenever desired, without stopping the horses, and in which an automatic self-opening and closing feed door is arranged in such a manner that when the beater ascends it will be closed, while it will open as soon as the beater is down.

SPINNING WHEEL.—S. W. Clark, Seneca, Wis.—The nature of this invention consists in a novel and useful modification of the ordinary domestic spinning wheel, enabling the operator to sit while spinning, and thus avoid the labor of walking to and from the head of the wheel.

Walking Vehicle.—R. C. Vernol, New York city.—This invention relates to a new manner of operating vehicles, and consists in the use of legs, to which a motion is imparted imitating as near as possible the motion of the human extremities. At least two legs or bars are arranged on each side of the platform of the wagon, or vehicle, and are secured to and suspended from a horizontal axle, which has its bearings on the platform. On the shaft are two circular eccentric cams, to which the legs are secured, the cams projecting equally far from opposite sides of the shaft. An alternate up and down motion is thus imparted to the two legs on each side of the platform.

BRICK MACHINE.—Ephraim R. Greene, and Henry D. Phillips, Trenton, N. J.—This invention relates to a machine for pressing and molding brick, and it consists in a novel manner of operating the plungers, by which the clay is forced into the molds, and in a novel manner of operating the molds, feeding them underneath the press boxes.

CORN GATHERER.—James Mains, Olena, Ill.—This invention has for its object to furnish an improved machine for gathering the corn, simple and inexpensive, in construction and effective in operation.

HORSE HAY FORK.—L.S. Mason, Middlefield Centre, N. Y.—This invention relates to a harpoon hay fork, which is provided with times projecting from the sides of time shank, so that the hay, straw or grain will be prevented from slipping on the shank.

PORTABLE HAY AND GRAIN ROOF.—John J. Naylon, Brighton, Mich.—This invention has for its object to furnish a simple and convenient portable roof for covering hay and grain stacks, and for other purposes.

GRINDING MILLS.—John Snyder, Hart's Mills, Ind.—This invention has for its object to furnish an improved manner of hanging the upper mill-stone or runner, so asto insure freedom of motion and the proper and effective action of the runner and spindle, and at the same time to facilitate the tramming of the spindle.

WAGON HUB REAMER.—J. W. Emerson, Rochester, Minn.—This invention has for its object to furnish an improved machine by meaus of which wagon and other hubs may be reamed out quickly and accurately, so as to be ready to at once receive the cast-iron box.

DRYING AND VENTILATING APPARATUS.—Jarvis Royal, Rochelle, Ill.— This invention hasfortis object to furnish an improved means for drying and ventilating damp grain fish, and other things, stored in bins, holds of vessels and other places.

ANIMAL TRAPS.—Joel Manchester, New York City.—This invention has for its object to furnish a simple, cheap, and effective trap, by means of which animals may be killed and thrown from the trap, the trap setting itself for

WOOD SAWING MACHINES,—Isaac B. Jones, Xenia, Ohio.—This invention relates to improvements in machines for sawing wood, whereby great strength, firmness, simplicity and efficiency of operation are secured.

BED BOTTOMS.—S. L. Southard, Rock Island, Ill.—This invention relates to an improvement in bed bottoms, and consists in an arrangement of compound special springs attached to the under side of the bed bottom and resting upon cross pieces set in the bedstead.

SEEDER.—Olney Fry, Jr., Albany, Oregon.—This invention has for its object to furnish a simple, cheap and effective machine for sowing grain broadcast, which shall sowthe grain evenly and coverit at a uniform depth, thereby decreasing the labor and time required for putting in the grain, and at the same time increasing the yield.

PORTABLE PISTOL GALLERY.—F. A. Spotford & M.G. Rafflugton, Columbus Obio.—This invention relates to a device for supporting the aim and for retaining the balls, marbles, or other articles thrown at the sim, during target exercise with toy guns.

SECURING THE OUTER SOLE OR PATTERN AND THE HEEL TO BOOTS AND SHOBS.—L. A. Favre, Paris, France,—This invention consists in securing to the underside of the inner sole, whether it is sewed or nailed to the vame, a metallic plate, which is provided with small perforations or slots, and in securing said plate, either by nails, rivets, screws, or other suitable means thereon. The outer sole or pattern, which is to be connected to the sole and to complete the shoe, is provided with a set of projecting screws or tenons on its upper face, saidscrewsor tenons being intended to fit into corresponding slots in the plate.

FASTENING BOILER TUBES.—James U. Adams, Richfield, Mich.—This invention relates to a mode of fastening tubes in steam boilers, and consists in attaching a thimble or ferrule having external and internal threads cut on it which screwsengagewith the internal threads upon the end of the boiler tube and with the external threads upon the boiler plate.

PORTABLE FENCE.—H. A. Stewart, Minneapolis, Minn.—This invention has for its object to furnish an improved portable fence, simple and cheap in construction, durable, easily taken down, set up, or transported from place to place, and which, when not in use, can be packed for storage in a very small space.

ELEVATING DEVICE FOR LOADING HAY, ETC.—Ezra N. Curtice, Spring Water, N. Y.—This invention relates to a new and useful device for making hay loaders, elevators, &c., and consists in applying rubber friction rollers to the irontwheels, in such mannerthat they shall rotate one or more drums placed on the shafts of the friction rollers, and wind a rope for elevating hay, &c., as may be required.

BOILER FOR HEATING WATER.—John Ellis, White Plains, N. Y.—This invention relates to a boiler for heating water for buildings, green houses, and other similar purposes, and consists in arranging a series of horizontal pipes between two boilow heads, insuch a manner that the water will flow at least twice through the tubes, so as to be very completely heated.

SAP SPOUT.—R. F. Livermore, Starksboro, Vt.—This invention consists of a metallic sap spout of such a form that many important advantages are secured overthecommon wooden spout as heretofore used.

CARPET HOLDER.—F. Smith, Alexanders ville, Ohio.—This invention relates to a device for holding carpets upon the floors, whereby the same are more firmly held against the mon board and more easily at a nytime moved.

Pump Rod.—H. F. Purmort, Saginaw City, Mich.—This invention relates to pump and drill poles or rods, and consists in a novel manner of jointing together the several sections composing the same, whereby rivots are dispensed with, consequently obviating not only all injury to the interior of the pump now resulting from the breaking and falling of rivets into the same, but also the frequent drawing up of the pump tube from the well to remove the

SAFETY HOOK.—E. F. Brundage, Virginia City, Nevada, --This invention relates to a safety nookfor watch and locketchains, bridle reins, trace chains, etc. The object of the invention is to obtain a simple and efficient hook of the kindspecified, and one which will admit of the jointed portion of the book being readily opened and closed and also readily secured in a closed state.

STREET LAMP LIGHTER.—Albert Assman.—Rahway, N. J.—This invention relates to a device for lighting lanterns in streets, public buildings, railroad depots, or wherevor a large number of lights are arranged too high to be reached without the use of a ladder or long lighter. The invention consists in attaching the lamp or light to the upper end of a pole of suitable length, and in arranging the pole and lamp within a tubular inclosure.

Hooks for Hold Back Straps.--N. W. Robinson, Norwich, N. Y.—This invention relates to an improvement in hooks for hold back straps of harnesses, which improvement consists in a novel combination of a post with the hook, whereby the unfastening or detachment of the strap therefrom, by accident or otherwise, except so desired, is rendered impossible, while at the same time the unbitching of the strap, if desired, can be accomplished with the utmost ease and dispatch.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek in formation from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and in struction of our readers, not for gratuitous replies to questions of a purity business or personal nature. We will publish such inquiries, however, when paid for as advertisemets at \$100 a line, under the head of "Business and Personal."

All reference to back numbers should be by volume and page.

- W. M., of Canada, asks how he can lengthen boiler tubes three-eighths of an inch. They are 7 feet, 8% inches long by 3% inches diameter and were cut too short by three-eighths of an mch. We think they might easily be lengthened by heating, two feet or so between the ends and then stretching them in an ordinary horizontal screw press. Or, they may be slightly drawn by means of a die which may be made in halves, one half to be forced upon the other by a screw.
- G. & P., of Ky., ask how to bronze or lacquer the handles of steel instruments. We have often answered similar questions and should, in justice to ourselves, refert. is correspondent to back numbers of our paper; but, as we have frequent inquiries on this subject we will repeat what we have several times said before. An ordinary coating of a coppery color can be deposited on polished iron or steel by immersing the article in a solution of sulphate of copper (blue vitriol), the mineral being dissolved inwater. Butif a more brilliant bronze is required it can be produced by simply painting the article with a sizing and sprinkling it with bronze powder. Coating iron or steel with bronze can be done only by a deposition of the copper or brass on the surface of the iron by the galvanic battery. It is difficult and costly.
- In reply to a correspondent who asked how to harden plaster of Pariscasts, X says: A little glue dissolved in the water with which plaster is mixed will harden it to almost any degree. Experiment will soon determine the proper quantity for the degree required.

 N. C. L., of N. Y., asks if it is not time for "C," of Troy, N.
- N. C. L., Of N. Y., asks if it is not time for "C," of Troy, N. Y., to explain, as promised, his system of cypher published in No. 18, Vol. XVII. He says: "I, for one, have worried enough over it."
- J. L. B., of Iowa, says he has a well 45 feet deep, surface of water generally within 20 feet of the ground, never more than 25 feet. From well to house 100 feet with rise of 12 feet. He wishes to use wind powerfor pumping so as to supply a reservoir at the house at all times, but there are tall trees near the well which would interfere. He asksifhe can locatethe windmill near the house and what sort of pump he shall use. There are plenty of good pumps in the market intended for lifting and forcing. The proper location for a pump in this case would be at the well so that it could lift 25 feet and force 12 feet higher through 100 feet of pipe. Of course, the windmill and pump should be located together. If the pump and powershould be located at the houseit would we think befound difficult, even with an air chamber, to obtain a supply from an ordinary litting or suction pump. Any sensible pump maker or dealer can overcome your difficulty on a personal inspection of the premises.

- G. W. E, of Wis., asks us to give him the rule for calculating horse-power of non-condensing lengine. John Bourne states it briefly thus: "Multiply the square of the cylinder's diameter in inches by the cuberoot of the length of stroke in feet, and divide the product by 47. This is the nominal horse-power." We prefer to state it thus: "Multiply number offeet traveled by the piston per minute by the pressure of steam on the piston and divide by 33,000." We choose that you apply the above to the data you send rather than have ustell you the power of your teninch cylinder engine.
- J. F. L., of Ohio.—Henry Carey Baird, 406 Walnut street, Philadelphia, Pa., will probably furnish you with a manual on sugar refining from which you will obtain more information than it is possible to crowdinto our columns.
- G. H. W., of N. Y.—"How many feet of grate surface will be required for a boiler nine feet, six inches long with thirty two-inch tubes?" The rule is to allow one square foot of grate surface to twenty inches flue surface. See No. 9, Vol. XVII SCIENTIFIC AMERICAN for the proper method of setting boiler. It has saved our readers already many hundreds of dollars.
- F. M. D., of Va., asks "what is the best mixture to temper [harden] files in?" Files are not generally "tempered" they are left of full hardness. There is no "mixture" equal to clean cold water for file hardening. Before they are heated for hardening the teeth are coated with strong brine thickened with beer grounds, yeast, or bean flour and allowed to dry. This makes a protecting flux for preventing the teeth from burning.
- G. G. B., of Conn., inquires "whether yellow pine or cypress is to be preferred for frame and tressle work for water wheel where the timber will be exposed to water and steam." The cypress in use in this country is not the true cypress of which we read in sacred and profane history. It is a deciduous tree whose value for timber exposed to constant moisture we do not fully understand. The yellow pine is very long lived under the circumstances mentioned.
- G. W. R., of Pa.—"Can you tell me the ingredients of a good marking ink that will not evaporate and will resist theaction of rain, etc.? I want something better than the mixture of lamp black and turpentine now used." We have used successfully shellac varnish thin, with lamp black stirred in. It will evaporate but will stand water. The evaporation, however, is necessary if you want the marking ink to dry rapidly.
- E. B. R., of Mass.—"Can you inform me of the best method of conveying power a distance of one hundred feet, whether by a leather or other flat belt or a rope running over a wheel with a V-groove?" The riter method we put in practice nearly twenty years ago, the distance between points being over two hundred feet. It was speedily rejected for the ordinary belt and pulleys. We know of nothing better than flat belts or a continuous shaft. The rope is unreliable and annoying.
- J. S., of Pa.—The essential oils of wintergreen, mint, spruce, hemlock, etc.. are procured by steam distillation of the leaves, buds, blossoms. or roots of the plants. For processes and full details werefer you to the "Art of Perfumery" by Piesse, published by Lindsay & Blakiston-Philadelphia, Pa., or to "Perfumery: Its Manufacture and Uses," by Campbell Morfit, published by H. C. Baird, 406 Walnut street, Philadelphia, Pa.

Business and Lersonal.

The charge for insertion under this head is one dollar a line.

Inventors and Patentees wishing to get small, light articles manufactured for them in German Silver or Brass, address Schofield Brothers, Plainville, Mass.

\$300 will buy a Patent of A. Grushus, St. Paul, Minn.

Agents wanted everywhere—enormous profits. Sample doz. \$150. Retailfor \$3 each. Thomas Powell, Milroy, Ind.

Scale removed from Boilers by Winans' Powder (11 Wall st., N. Y.), 12 years' use proves it reliable an uninjurious.

For Steam and Gas Fitters Tools, Machines for Hand or Power to Screw and Cut-off Gas pipe; stocks, dies, pipe, vises, Peace's adjustablepipe tongs, address Camden Tool and Tube Works Co., Camden, N.J.

Address J. S. Elliott, East Boston, Mass., for best machinery for making lime and sand building blocks.

Good 2d-hand engines, all sizes&styles. A.Logan, Tideoute, Pa.

Persons having the best barrel and bucket machinery send circulars to D. C. Baggerly, Luray, Page Co., Va.

Manufacturers of potato diggers send circulars to H. C. Oathout, Luana, lowa.

Inventions made for those desiring them, or aid lent to perfect others. Address A. E. Watkins, 114 Fulton st.

- Hamilton's self-oiler for shafting uses one half-pint of poor oilfortwo-inch bearing in three months. Has been inconstant use two years, and fast coming into use. Rights for sale by A. G. Stevens, Manchester, N. H.
- J. N. Proctor, of Albion, Orleans county, N. Y., wants the address of Inventors and Manufacturers of Brick Machines with descriptive circular and mode and operations for burning Brick.

W. C. Stripe, Keokuk, Iowa, wishes to obtain a mill capable of grinding fifteen barrels of lime per day,

Manufacturers of Wood-working Machinery send Catalogue and prices to Wm. Z. Hallam, Denver, Colorado Ter.

EXTENSION NOTICES.

Mablon Loomis, of Washington, D.C., having petitioned for the extension of a patent granted to him the 2d day of May, 1834, for an improvement in plates for artificial teeth, for seven years from the expiration of said patent, which takes place on the 2d day of May, 1888, it is ordered that the said petition be heard at the Patent Office on Monday, the 13th day of April next.

Philander Shaw, of Boston, Mass., having petitioned for the extension of a patent granted to him the 2d day of May, 1854, and reissued the 17th day of July, 1860, for a nimprovement in air engines, for seven years from the expiration of said patent, which takes place on the 2d day of May, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 18th day of April next.

Conrad Liebrich, of Philadelphia, Pa., having petitioned for the extension of a patent granted to him the 2d day of May, 1854, for an improvement in trunk lock hasps, for seven years from the expiration of said patent, which takes place on the 2d day of May, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 13th day of April next.

E. G.Allen, of Boston, Mass., having petitioned for the extension of a patent granted to him the 27th day of October, 1857, for an improvement in steam pressure gages, for seven years from the expiration of said patent, which takes place on the 27th day of October, 1871, it is ordered that the said petition be heard at the Patent Office on Monday, the 29th day of June

E. G. Allen, of Boston, Mass., having petitioned for the extension of a patent granted to him the 22d day of November, 1859, for an improvement in combination steam gage, for seven years from the expiration of said patent, which takes place on the 22d day of November, 1873, it is ordered that the said petition be heard at the Patent Office on Monday, the 29th day of June next.

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 instant-

The general appearance and construction of the machine

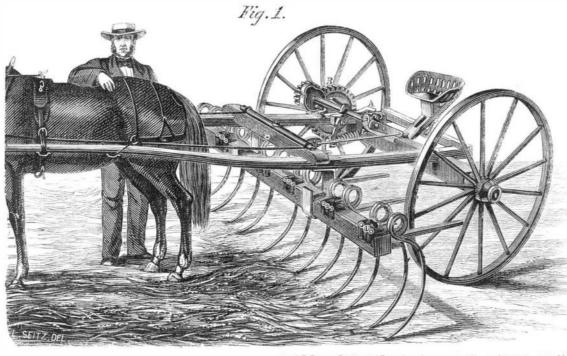
and an application on other improvements is pending before the Patent Office.

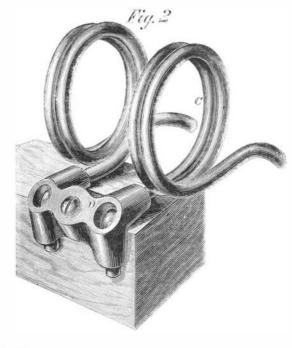
All communications relative to this implement should be addressed to J. C. Stoddard, Worcester, Mass.

Defenses Against Hurricanes.

In the London Mechanics' Magazine of January 10th we notice a correspondent's plan for the protection of buildings, will be understood by reference to Fig. 1, and the peculiar plantations, etc., from the effects of hurricanes, intended for as a fulcrum for the short lever, which by means of a sliding

raked one hundred tuns of hay in one season—1863—with of the body, and the other being in the act of beginning a this machine, and has repeated the work for the four years forward movement. Fig. 2 presents a bottom view of the succeeding." Several patents have been issued on this rake, 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 ac tion by a short screw lever, having a nut on it seated in a recess between the two hinged parts of the skate, and acting





STODDARD'S SELF-OPERATING HORSE HAY RAKE.

method of securing the teeth to the rake head by Fig. 2. | the West India islands, where during the past few months | yoke or clasp, and the nut, can govern the hight of the claw 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, en. gaging the pinion with the larger gear, and the crank on the | ment, soon becomes a labor to them.

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 crowded up beyond a certain point.

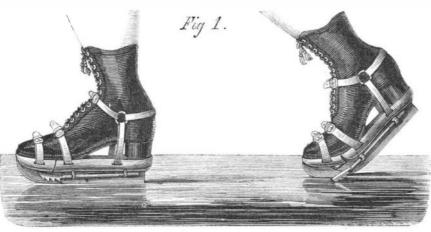
Fig. 2 shows a simple device for securing the rake teeth to the head. The teeth are of round steel, coiled as at C, to form a spring, the ends being bent and held in recesses in the casting, D, which contains two teeth the whole being secured by a single screw or bolt. The rake head is sustained in boxes 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 Brownlee, proprietors, at Princeton, Ind. the wheels. The ease of operation of this machine is illustrated by the following statement from the inventor; "A son | ficiently exhibit the peculiarities of the device. Fig. 1 repreof Mr. James Taylor of Sutton, Mass., only seven years old sents the skate in use on the ice, one foot receiving the weight sap., etc.

great devastations have been done by the forces of nature. and its motion. 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 amuse-



BROWNLEE'S PATENT ICE AND PARLOR FLEXIBLE SKATES.

Th . jointed or flexible skate is intended to remove these slight shock required. devices for securing the delivery action of the rake head are difficulties. With this article any person that can walk can very simple, the mechanical arrangements being few in num- skate; he has no new motions to make with his feet or legs; so that the hammer is caused to vibrate as often as may be ber and not liable to derangement. A bar secured to the rear all he has to do is to start off as if walking, and his feet are of the rake head has a number of horizontally projecting not bound up like club feet, and he uses the same muscles fingers between the rake teeth to prevent the hay from being 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 for many trees." to the sale of rights will be given by addressing G. & C.

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 hor ticulture, 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

"A hammer is arranged in connection with a clock work, 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

GOLD filings are saved only because the metal is deemed The description may be very brief as the engravings suf- precious; kut iron filings are of real value, mechanical and medicinal, but are frequently foolishly thrown away.—Verb.