Correspondence

Preventing Frost from injuring Fruit Trees.

MESSRS. EDITORS:—Seeing the article entitled "Curious if Credible," on page 277, Vol. X., of the SCIENTIFIC AMERICAN, I am reminded that an experiment that I have tried heretofore, and the success of which I have been fully satisfied with, might be useful to those among your readers who cultivate fruits.

There is no more annoying evil to contend with than that of frost acting upon the tender buds of fruit trees. This evil I have counteracted, by tying one end of a rope (clothes-line) to the lower branch, on one side of a tree, then throwing it over the top and across the middle of the tree and placing the other end in a bucket or tub of water. The rope may be also tangled about the outer branches or twigs, if the tree is a very large one. This I proved by three years' satisfactory experimenting while Superintendent of the Missouri Blind Institution, and as a result obtained a most abundant supply of fruit from eleven trees. Some had previously shed their tender fruit early from frost-blight, so that I did not know the taste of it. The rope, it is evident, as certainly conducts the frost out of the tree as did Franklin's kite-cord conduct electricity from the cloud. Every spring I watched the buds for the "first swelling;" the lilac buds being shortly in advance of the fruit trees, served to give me due notice of the proper time to put the ropes or "frost-traps" on the trees; and I let them remain as long as there was the least likelihood of sudden frost, watching to keep the tubs always filled. I made one tub answer for four trees. About two years ago I noticed the same thing suggested in some religious paper; in which the writer stated as proof, that the rope did really conduct the frost to the water:—"He placed alongside of the tub that received the rope, another tub of water, entirely independent of the 'frost-trap.' Morning after morning he noticed when it was not cold enough for ice to form in the latter tub, the one that received the end of the rope would have a cake of ice of considerable thickness upon it, indicating a greater degree of cold in it."

I have never seen the various operations by which owners of orchards try to counteract the effect—the dreaded effect—of frost upon their trees, but have understood that many spend much time in watching the weather and keeping in readiness large heaps of brush-wood and timber; and on the apparent approach of frost it must be hastily hauled to the windward side of the orchards and large fires kept burning night and day; the heat from which is supposed to reach entirely across the orchard, it matters not how large. "Time is money," and certainly to save so much time, besides labor, particularly during the long cold spring seasons that are apt to occur in some sections, is a matter of no small importance. Some have suggestedcovering the windward side of a tree with straw matting, which seems perfectly ridiculous to me. The rope and tubs would cost little compared with the abundant yield of fruit in return, and the profits accruing therefrom. And it would require no waste of time to watch them; a glance at each tub, once a week or fortnight, to see that they were always full of water, would suffice. C. H. K.

James River, Va., June 11, 1864.

The Way Saws are Straightened.

MESSRS. EDITORS:—Permit us to correct your reply to "P. D. G., of N. Y.," on page 13, current volume of the SCIENTIFIC AMERICAN. The writer, as well as the other members of our firm, is a practical sawmaker. Circular saws are straightened on an anvil 6 by 12 inches face, slightly convex, by hammers weighing from 8 to 10 lbs. One hammer is used for this purpose which is called the "cross-faced hammer." It strikes a blow one inch long and three-sixteenths of an inch wide. With it we work on the high places and twists of the plate. The other we term the "round-faced hammer," which makes a blow in shape and size of a five-cent silver coin (if you can recollect that!), to stretch the steel in whatever way needed to stiffen [straighten?] the saw after being buckled. There is such a machine as you describe, used by Waterman, of Brooklyn (E. D.), N. Y., to *chill* saw-plates, after which he straightens them as above. WOODROUGH, MCPARLIN & DUNN.

Cincinnati, Ohio, July 9, 1864.

[This communication was published last week, but contained a typographical error, to correct which is our object in publishing it again.—EDS.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Hoop Lock.—Wooden hoops for casks have hitherto had their ends connected together by notching the same and overlapping them, so that the shoulder formed by one notch bore against the shoulder of the other notch. Such a lock or fastening materially diminishes the strength of the hoop, and renders it liable to break where the notches are made. This invention consists in constructing a lock or fastening of metal, and out of a plate provided with two openings and of curved form, so as to admit of the ends of the hoop being passed through the openings and to lap over each other, and be securely fastened by striking the outer side of the lock with a hammer, or pressing it inward so as to clamp the hoop and form a secure lock without diminishing the strength of the hoop. H. W. Catlin, of Burlington, Vt., is the inventor of this improvement.

Weighing Scale.—This invention relates to an improvement in that class of scales for weighing which are provided with a counterpoise arranged in such a manner that the scales, when an article is applied to it to be weighed, will adjust itself, or be self-counterpoising. It consists in a novel arrangement of a loaded arm or lever, the weight of which is adjustable, an adjustable index and a graduated arc, whereby the scales may always be kept in a properly balanced state so as to insure correct weighing at all times. The invention further consists in the employment of a friction attachment constructed and arranged in such a manner that the vibration of the index may, by a very slight manipulation on the part of the attendant or operator, be stopped and the weight of the article on the scales immediately known, thereby avoiding the delay which would otherwise be necessary, for the index to assume a fixed position or be motionless. H. W. Catlin, of Burlington, Vt.; is the inventor of this improvement.

Manufacture of Malleable Iron.—The usual process for converting small articles of cast-iron into malleable iron is effected by subjecting said articles to red heat continued for several days while they are buried in oxide of iron which may be either scales of iron rust, or pulverized specular iron ore. The oxide gradually yields its oxygen or a portion of its oxygen to the carbon of the cast-iron and this is rendered malleable. The scales of iron-rust or other material, as the same become deoxidized, prevents the contact of fresh portions of oxide with the cast-iron and the operation is consequently impeded. The object of this present invention is to facilitate the decarbonizing process of the cast-iron and shorten the time required to reduce the same to a malleable state. The invention consists in the employment or use in combination with the iron scales or oxide of iron, of a small quantity of oil of vitriol or diluted sulphuric acid, in such a manner that by the action of the sulphuric acid when the same comes in contact with red-hot iron in presence of water, said water and a portion of the acid are decomposed, forming sulphureted hydrogen which passes off in a gaseous state, and the oxygen evolved by this decomposition combines with a portion of the carbon of the cast-iron and reduces the same to malleable iron. Albert Manvel, of Elizabethport, N. J., is the inventor of this improvement.

Steam Boiler.—This invention consists in a novel arrangement of water tubes, smoke or gas tubes, and smoke-box in combination with the fire-box of a horizontal boiler, whereby a large heating surface is obtained and the head of the escaping gaseous products of combustion is utilized in a very high degree before permitting them to escape to the chimney. C. M. Miles, of Vineland, N. J., is the inventor of this improvement.

Lightning Conductor.—This invention consists in a conductor composed of a continuous strip of copper without any joint, unless to form the tip or point, placed close against the building or structure to be protected without insulation, and secured thereto by strips of the same or other metal placed across it and nailed to the building or structure. It also consists in a novel mode of forming the tip point of such a conductor from the strip itself, thereby making it entirely continuous from end to end. N. Brittan, of Chicago, Ill., is the inventor of this improvement.

Tuyere.—This invention is intended as an improvement on that class of tuyeres in which the air is forced into an air-box, with an opening in its top to let the air escape to the fire, and in which the hole in said air-box can be partially closed by an adjustable valve. Its peculiar advantages and its superiority over other tuyeres of a similar construction is derived from the shape of the valve. If the valve is screwed up so that it is in contact with the inside of the cover, no air will reach the fire except what passes through a series of small holes, and a very small but uniform fire can thus be kept. If it is desired to increase the blast, the valve is lowered, thus allowing the blast to pass through the small holes and through the opening left between the edge of the valve and the under surface of the cover. Wherever the valve may be set, a uniform central blast passes up through the aperture, and a regular fire can be entertained capable of heating uniformly a large or a small piece of iron, according to the position of the valve. M. W. Barrett, of Mishawaka, Ind., is the inventor.

Converting Reciprocating into Rotary Motion.—This invention consists in the employment of two or more wheels firmly keyed to two or more shafts, and provided on their peripheries with inclined planes rising in opposite directions, in combination with a toothed rack and cog-wheels and with hollow drums surrounding the wheels with the inclined planes and running loosely on the shafts, and with rollers placed on the inclined planes between the inner circumference of the hollow drums and the outer circumference of the wheels with the inclined planes in such a manner that in moving the toothed rack in one direction, the rollers in one of the drums run up the inclined planes and bind between the same and the inner peripheries of said drum, rendering it rigid with its shaft, while at the same time the rollers in the opposite drum are drawn off from the inner circumference of the same, allowing it to rotate independent of its shaft, and if the two shafts are geared together the reciprocating motion of the toothed rack is converted into a positive continuous rotary motion of said shafts and the dead centers are completely avoided. William H. Akins, of Dryden, N. Y., is the inventor of this improvement.

Securing Circular Saws on Mandrels.—Circular saws are at present secured on their mandrels by having the former provided with a central hole through which the mandrel passes snugly in order to center the saw, the latter being secured on the mandrel so as to turn with it by means of a stationary and a screw collar. This arrangement is attended with the difficulty of the "buckling" of the saw caused by the expansion of the mandrel and the consequent pressure of the same around the hole under the heat conducted to it by the warming of the saw during its cutting operation. To avoid this the mandrel-hole at the center of the saw has been made of greater diameter than the mandrel; but this plan, while obviating the difficulty above named, creates one equally as bad, to wit, the impossibility of centering the saw, after removing it from the mandrel, without facing off the teeth, which occasions considerable trouble and delay, and rapidly cuts away the saw. This invention consists in having the saw provided with the two collars placed one on each side of the saw and secured to it by screws, and having one of said collars provided with a circular concentric recess to fit over a stationary collar on the mandrel, whereby the saw may at at any time be centered on its mandrel and the former provided with a large mandrel-hole, so that the saw will not be in direct contact with the mandrel. Josiah Young, of Bangor, Maine, is the inventor.

THE Government of Spain is about to erect a statue in Madrid to Christopher Columbus. It will be from 25 to 30 feet high, on a pedestal 16 feet. Competition for the work will be open to sculptors of all nations.