



The Lightning Rod Question.

MESSE. EDITORS:—In No. 11, current volume, SCIENTIFIC AMERICAN, is an article entitled "Insulation of Lightning Rods." I am surprised that you allowed such an article to appear in your paper, as it is a subject that should not be laid blindly before your readers, for it may cause a great deal of mischief. S. D. C. says lightning rods must not be insulated. But where are his proofs? I say a rod that is not insulated is worse than useless; my proof is that several houses that have been struck in this city, although armed with rods, showed, on examination, that the insulation of the rod was imperfect; and, on the other hand, where the rod that was put up to protect the building was well insulated, when struck by lightning it proved a complete protection. The Burnett House here, for instance, has a rod that was struck, and the platinum points with which it was armed were completely melted, but the house was safe, the rod was well insulated. Also Mr. Diehls' establishment for manufacturing fireworks, situated on Mount Adams, received a heavy charge; the rod was insulated and saved the building. No rod should be put up without being insulated, and Franklin says so, S. D. C. to the contrary notwithstanding.

S. D. C. says rods should be in connection with gutter spouts. That is a very good arrangement when the rain is falling and the water running through the spout, for then the water will carry off the electricity that would otherwise go into the house, as likely as anywhere else; but as rods often receive a charge before any rain falls, it is best to trust to the rod alone, for if the rod is in connection with anything else which is a good conductor, that does not lead to the ground, the lightning will be compelled to take some other course to get to the ground, and then there is no telling where it will go, or what damage it will do before it is spent. In proof of this, I will give an instance. The cross which surmounts the steeple of the Cathedral in this city, was put together with an iron rod that passed through it. The conductor was well insulated all the way down, but one of the fastenings that held it to the cross came in contact with the iron rod that held the cross together. This rod was struck, the lightning ran into the cross, on the iron rod running through it, but it could go no further. The consequence was that the cross was split into fragments, and as the steeple is one of the highest in the city it was no easy thing to replace it.

The whole trouble is that people will get the cheapest rods that can be had. It is better to pay for a rod that is large enough to conduct any amount of electricity that it is likely to get, and have it well put up by some one that knows his business. S. D. C. talks of safety valves. The comparison is not at all analogous. F. F. S. Cincinnati, Ohio.

[Our correspondent's strictures on the publication of contributions, are not entirely just. We are in no way responsible for the opinions of correspondents, and on this subject of insulation, men equally well experienced hold opinions diametrically opposed. Our object is to allow both sides to present their differing views, and thus by a courteous discussion eliminate the truth.—EDS.]

Mechanics Needed.

MESSE. EDITORS:—Owing to natural and accidental causes, mechanics are many times compelled to move their base of operations to some more eligible point, where they can get supplies at more reduced prices and in greater abundance. To such, I would say that this point offers extraordinary inducements, and invite their attention to the following facts: We are situated about midway between St. Louis and Cairo, on the east bank of the Mississippi, with an immense extent of the finest farming land in the United States back of us. We have large beds of coal within fourteen miles of us, from twenty to one hundred feet below the surface, and from three to seven feet vein. The St. Louis and Iron Mountain

Railroad strikes the mine some 40 miles above here, and the ore could be brought by barges to this point very cheaply. We have an abundance of the finest kind of timber—such as oak, black walnut, ash and all kinds of hard wood. Land is cheap, the climate is healthy, and all kinds of fruits abundant. For a manufactory of agricultural implements, or a machine shop and foundry, this place offers superior inducements.

Any further information in regard to the subject will be willingly given. We need mechanics and we are willing to do all we can for them.

C. B. COLE.

Chester, Ill., Sept. 4, 1866.

Effects of Sunshine on Fire.

MESSE. EDITORS:—In reading your article on the "Effects of Sunshine on Fire," in your issue of Sept. 8th, I notice in the summary of Prof. Horsford the following:—

"Sixth, That the very diminished draft of chimneys in very hot weather, when the general atmosphere is at rest, and the sunshine intense, is due to upward currents on the outside of the house, arising from the heated surfaces of the roof and walls; which currents, by friction, draw outward through cracks and open doors and windows, the air from the interior of the house, and so lessen the pressure within and overcome the draft of the chimney." In describing the circumstances, he mentions that "the roof of the house was of dark slate" and exposed to the heat from 11 A. M. till 3 P. M.

Could not this occurrence be accounted for as follows? The draft of a flue or chimney being caused by the difference in weight of hot and cold air, did not the heated air rising from the roof surround the chimney? And was there not so little difference in temperature between the air from the range rising within the chimney, and the air from the roofing without the chimney that a sluggish draft was the consequence; until, later in the day when the roof became cool and a better draft would result?

J. WENDELL COLE.

New York, Sept. 17, 1866.

Concrete for Building Purposes.

MESSE. EDITORS:—In the SCIENTIFIC AMERICAN of Sept. 1st, C. W. C., of Mo., under the head of "Notes and Queries," is wrongly informed as to the relative strength of stone, brick and concrete for building purposes. You will see in "Gillmore's Report on Hydraulic Cements and Mortars," at page 225, article 447, the following, which I think would be the correct reply to your correspondent:—

"Concrete is admirably adapted to a variety of most important purposes, and is daily growing into more extensive use and application. For foundations in damp and yielding soils, and for subterranean and submarine masonry, under almost every combination of circumstances likely to occur in practice, it is superior to brick work in strength, durability and economy, and in some exceptional cases, is considered a reliable substitute for the best stone, while it is almost always preferable to the poorer varieties."

The work of Mahan, which you quote in your reply to C. W. C., is strangely incorrect on the subject. R. K. D.

New York, Sept. 18, 1866.

[In the case alluded to, C. W. C. inquired as to the relative strength of stone, brick, and concrete for a church, 40 by 80 feet and 25 feet high to the eaves. It will be seen by the quotation from "Gillmore's Report" that he does not recommend it for open air structures, but for "foundations in damp and yielding soils, and for subterranean and submarine masonry." For these purposes the value of concrete, made of stone and cement, is indisputable.—EDS.]

THE Italian gold mines are producing gold to an extent that has justified the introduction of new and improved machinery. In July last the product of three mines amounted to 1,511 ounces, valued at about \$20 per ounce, all of which was transmitted to London.

THE Geographical Society, of St. Petersburg, is making preparations for a scientific expedition, for tracing the course of the river Yenisei up to its mouth in the icy sea.

NEW INVENTIONS.

The following are some of the most prominent of the patents issued this week, with the names of the patentees:—

CULTIVATOR.—ANDREW STARK, Topeka, Kansas.—This invention relates to a new and improved cultivator for cultivating those crops which are grown in hills or drills, and it consists in a novel arrangement of a seat frame with the plow beams of the device, whereby the plows are placed under the complete control of the driver. The invention also consists in a novel manner of constructing and arranging the frame of the device and the draught pole, whereby a very simple, strong and durable device is obtained.

TRUNK.—A. V. RYDER, New York City.—This invention relates to a new and improved trunk, of that class which are provided with drawers, and it consists in constructing the trunk in such a manner that the drawer is rendered very accessible and, when the trunk is open, the drawer will not interfere with the other portion of the trunk. This invention, it is believed, is superior to other trunks provided with drawers, in consequence of all the portions of the trunk being accessible when the trunk is open, all the drawers being exposed, so that they may be drawn out, and the lid of the other portion raised without the necessity of removing or detaching any parts.

CAR COUPLING.—HOMER ADKINS, Plymouth, Ill.—This invention relates to a new and improved car coupling, of that class which are commonly termed self-acting or self-coupling, and it consists in a novel means for holding up the coupling pin in one drawhead, whereby the other drawhead, which contains the link, may, when the two drawheads come in contact, release the coupling pin, so that it may drop through the link, provision being also made for holding the link so that a coupling of the two drawheads may be effected or not, as desired.

MACHINE FOR CUTTING THE CORNERS OF PAPER FOR THE MANUFACTURE OF PAPER BOXES.—DANIEL WHITLOCK, Newark, N. J.—This invention relates to a new and improved machine for cutting out the corners of rectangular pieces of paper for the manufacture of rectangular paper boxes. The invention consists in a novel construction of the knife or cutter, whereby the same is made to work in proper position at all times, being prevented from getting out of place under the resistance offered to it by the paper. The invention also consists in the employment or use of an adjustable bed and in graduating the bed so that by means of adjustable gages, used in connection with the bed, the openings at the corners of the pieces of paper may be cut larger or smaller, as occasion may require.

PUMP FOR DEEP WELLS.—J. W. SUMMERS, Tarr Farm, Pa.—This invention consists, among other things, in suspending or attaching the piston of a pump to its rod by means of a ball and socket joint, or its equivalent, in contradistinction from a rigid or fixed joint, whereby the piston is allowed lateral play in the pump cylinder so that it can easily yield in any direction when the pump tube or the cylinder is deflected from a right line.

STITCHING CLAMP FOR HARNESS MAKERS.—W. M. MCCOY, Bloomingdale, Ind.—This invention is designed for the use of harness makers for holding rolled work while stitching the same; and it consists in a device provided with a grooved bed for the work to lie in, and at either end with a band, or its equivalent operated by a set screw for holding the work firmly while being stitched.

BLOW PIPE.—JOSIAH McFARLAND, Clinton, Ill.—This invention consists in applying an air chamber to a force pump, and to a flexible pipe with a fine-pointed mouth piece, in such a way that by means of the pump the chamber is filled with compressed air or gas of any character, when, by closing suitable cocks, the same can be confined and retained therein and the air chamber taken off and carried to the place where the blow pipe is to be used and by the action of the air or gas a powerful blast obtained without the labor or agency of the operator.

SKATE.—M. FLEISHER, Philadelphia, Pa.—This invention relates to that class of skates in which the skates are secured to the boots by means of clamps brought to bear against the edges or sides the sole and heel, and it consists in a novel arrangement of the said clamps.

MACHINE FOR BORING OR CUTTING KEY SEATS.—JOHN K. DIENER, Honesdale, Pa.—This invention consists in a novel manner of arranging the cutting tool of the machine, whereby the tool can be so adjusted or set in position and so regulated as to cut a key seat with an inward or outward incline or in a parallel line with the central axis of the car wheel, crank, or other device in connection with which it is being used.

HOISTING APPARATUS.—GEORGE L. HOWLAND, Topsham, Me.—This invention relates to an improved hoisting apparatus, by means of which weights may be raised or lowered to or from any desired elevation; which will occupy but little space, and be easily transferable from one place to another.

SAFETY POCKET.—JAMES T. CHAMBERS, Utica, N. Y.—This invention consists in so constructing a pocket, that a watch or any other article placed in it cannot be abstracted, or removed without the knowledge of the possessor or wearer.

SHIRT BOSOM.—C. F. PIDGIN, Boston, Mass.—The objects of this invention are to increase the flexibility of the bosom so as to allow it to yield or give to the backward or forward motion of the wearer; to diminish its cost; and to make it lighter.

WELL.—D. P. CHESBROUGH, Lansingburgh, N. Y.—This invention consists in so attaching to a well-tube, below its waste-water pipe, a reservoir or receptacle for the waste water escaping or flowing from the pipe, that such water can be reconveyed or conducted back into the well-tube.

SAW MILL.—GEORGE W. CODDINGTON, Middletown, Ohio.—This invention has for its object to furnish an apparatus for supporting the middle part of the log while being sawed, so that it may be prevented from bouncing and jumping, enabling the saw to be run at full speed from one end of the log to the other without its being necessary to check the speed of the saw, or alter or take off the feed when approaching the middle of the log or carriage, as is now the case.