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A SUPERIOR NUMBER.—THE PHRENOLOGICAL JOURNAL for November contains sketches of the King and Queen of the Belgians, with likenesses; Chief Men among the Mormons, with many excellent portraits, and other illustrations.

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Mr. Joseph Harrison, Jr.: Dear Sir:—I will say in reply to yours of the 9th inst., that I have had one of your Boilers almost in constant use over one of my Puddling Furnaces for over eighteen months, and in all that time it required no repairs, with the exception of changing a few light bolts for heavier ones, and it is now running without any signs of leaking or want of repair.

Mr. Joseph Harrison, Jr.: Dear Sir:—We take great pleasure in testifying to the merits of your Boiler, as a generator of steam, the confidence we have in its safety, its economy of fuel, and also the space for its erection.

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Mr. Joseph Harrison, Jr.: Dear Sir:—About four months ago, we put in one of your "Harrison Boilers," and it gives us much pleasure to be able to inform you that your Boiler comes up to the most sanguine expectations.

Mr. Joseph Harrison, Jr.: Dear Sir:—We take pleasure in informing you that the Boiler purchased from you, which we have had in use about five months, has given the best satisfaction, and has been out every thing you could desire for.

My Dear Sir:—In my annual Report of this Institution, for 1866, I stated my highest estimate of your Boiler, for safety, economy, and general efficiency.

Joseph Harrison, Jr., Esq.: Dear Sir:—The "Harrison Boiler" we bought of you, some four months ago, has given us perfect satisfaction.

Joseph Harrison, Jr., Esq.: Dear Sir:—Having charge (as administrators) of the Worsted Mills of the late Mr. Samuel Yewall at which the recent terrible explosion of a wrought-iron boiler occurred, we have decided to avoid a recurrence of such a calamity in the future.

Mr. Joseph Harrison, Jr.: Dear Sir:—Our experience with your Boiler warrants us in bearing testimony to its superiority over any other with which we are acquainted.

Mr. Joseph Harrison, Jr.: Dear Sir:—We have had one of your six-slab Boilers in use in our Paper Mill for five months, and we consider it unequalled by any other make of boiler we have used.

It is simple, easily managed, and perfectly safe. Our Boiler bleaches the stock for, and drives one ton of paper daily, with one cord of pine wood per day.

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Dear Sir:—In reply to your letter of the 9th inst., I would say that I have been using the "Harrison Boiler" for more than two years, and it gives me great pleasure to state that I find it entirely satisfactory.

Dear Sir:—You ask our opinion of the safety, economy in fuel, and general merit of the Harrison Boiler we have in use.

Dear Sir:—Having charge (as administrators) of the Worsted Mills of the late Mr. Samuel Yewall at which the recent terrible explosion of a wrought-iron boiler occurred, we have decided to avoid a recurrence of such a calamity in the future.

Dear Sir:—Our experience with your Boiler warrants us in bearing testimony to its superiority over any other with which we are acquainted.

Dear Sir:—We have had one of your six-slab Boilers in use in our Paper Mill for five months, and we consider it unequalled by any other make of boiler we have used.

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Improved Patent Station Indicator.

The ordinary way of giving railway passengers notice of their arrival at stations, is by the call of the conductor or brakeman at the door of a car. Generally this call is given while the train is in motion, and the noise of the cars frequently drowns the voice of the conductor, or renders his direction indistinct. Then the difficulty of getting ready to leave the train on such short notice is one of a serious character. For these reasons persons are often carried beyond the point of their destination.

To obviate these difficulties is the design of the device herewith illustrated. The apparatus is a box, containing a simple mechanism, operated by a lever, which, by means of a ratchet and pawl, moves an endless band, bearing at equal distances the names of stations, with the distance between the two termini.

The engraving represents one of these indicators in a car, the side of which is broken away to expose the apparatus. A lever A, projects through the side and is operated by the post and incline, B, at the side of the road. As the car passes a station, the incline turns the lever and presents the direction, "the next station is ———." If, on a car backing, it again passes the post, this action is reversed, so that the apparatus is self-operating, or automatic, and always correct. A bell can be attached to the indicator to call the attention of the passengers to its operation.

When the car has run the route and is ready to return, the indicator is to be unhooked and hung at the rear end of the car, now become the forward end, when the action of the posts by the roadside will reverse its action giving a correct indication of the stations.

This device was patented April 3, 1866, by P. E. and J. P. Gruger, Lancaster, Pa., to whom apply for the purchase of rights or for further information.

The Photographic Art.

Sir David Brewster, in a recent address on the claim of science and art to national recognition and support, indulges in the following beautiful remarks concerning the photographic art:—

But while the artist is thus supplied with every material for his creative genius, society derives a still greater boon. The home-faring man, whom fate or duty chains to his birth place, or imprisons in his fatherland, will without fatigue and danger, scan the beauties of the globe, not in the deceitful image of a hurried pencil, but in the very picture which would have been painted on his retina had he been magically carried to the scene. The outlines of the Himalayas and the Andes will stand before him in their most favored aspect. The Niagara will pour out her mighty cataract of waters, while the dreaded volcano will toss into the air her clouds of dust and fragments of fire. At a lower altitude, Egypt's colossal pyramids will rise before him; the temples, too, of Greece and Rome, and the gilded mosques and minarets of the East. With a more affectionate gaze he will survey the hallowed scenes which faith has consecrated and love endeared. Mount Zion will stand before him "as a field that is plowed," Tyre as a rock on which "the fishermen dry their nets," Nineveh "made as a grave," and Babylon the great "cast up as a heap," covered with pools of water, and without even the "Arab's tent" or the "shepherd's fold." Yet, though, it is not only Palestine in desolation that we see; the seas which bore on their waves the Divine Redeemer, the hills which bounded his view, the pathway which he trod, and the mount from which he spoke the message of salvation, stand unchanged, and appeal to us with immortal interest.

Molds for Casting Iron, Steel, etc.

Mr. Frederick Tachsel, analytical chemist, and Mr. Wm. Hall, brass founder, of Manchester, England, have patented certain improvements made by them

in molding forecasting steel, iron, and other metals. According to the usual process of molding for casting, it is well known that sand is employed which is more or less silicious, the silica of which, when submitted to the melting temperature of certain metals, becomes fused and combines with said metal. This invention consists in substituting for the aforesaid sand, a material which does not substantially contain free silica, lime, or other material which

stages of manufacture. A is the slug as first cast. The nick, at B, is to receive the margin or edges of the patch, represented at C. This patch may be of cloth, paper, or parchment. The patch and slug are placed in a matrix, and a die compresses the metal, securing the patch smoothly around the base of the bullet, as seen at D. Another operation by means of the compression of dies, gives the finished form of E. At F is represented a vertical longitudinal section of the finished projectile, showing exactly how the patch is secured. From specimens, we judge this mode of patching to be very superior. It makes a very handsome projectile.

This improvement was patented July 19, 1864, by Milo Peck, New Haven, Conn., whom address for further information.

Petroleum and Sperm Oil as Lubricators.

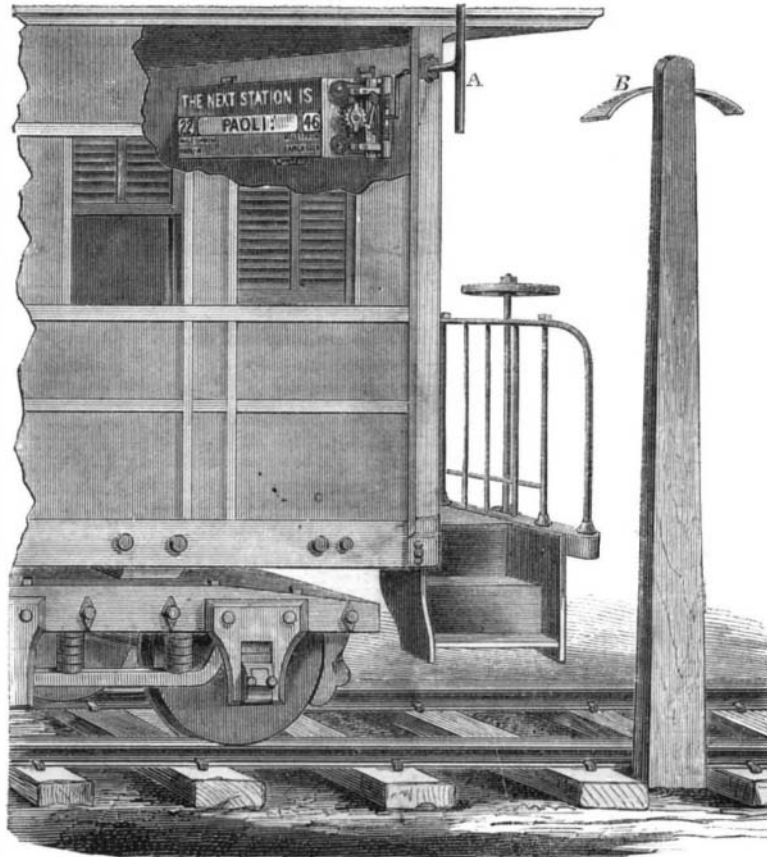
The *Engineering* says that an American correspondent states that on the Boston and Worcester, and the Boston and Maine railroads, experiments have been made with petroleum and sperm oil to determine which is the best as a lubricator. The results were as follows:—

They put a railway carriage on each line in perfect order, calipered the journals and weighed the brasses, and used only sperm on one truck and only petroleum on the other of each carriage. After running the carriage 19,000 miles, all the axles and brasses were found in good order, with equal wear all round, and 20 per cent less oil had been used from the petroleum cask. They now use petroleum exclusively in the Lightner boxes of their carriages.

This oil, of the best quality, fully equal to pure sperm oil at the least, and probably better for carriage axles, can now be bought for 50 cents per gallon, and can be laid down in Liverpool at 2s. per gallon. Sperm is worth \$2 85, and must be worth four or five times as much as petroleum in Liverpool.

The cause of the great depression in price here just now is the sudden and enormous supply of this lubricating oil obtained in Western Virginia, said to be 1,000 barrels per day, while the consumption in this country is only about half as much. The export trade in this quality of oil has yet to be opened.

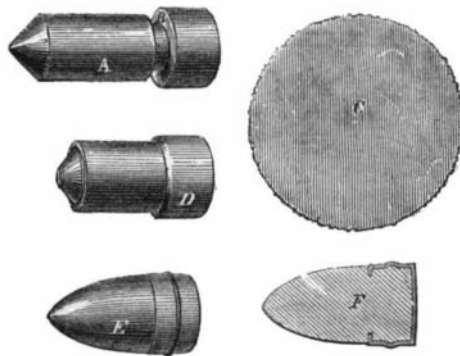
P. E. & J. P. GRUGER'S STATION INDICATOR.



will fuse at the melting temperature of the metal to be cast. With this view, materials with an aluminous base, having been previously reduced to a state of powder, are employed in the place of the usual sand, and after the ordinary manner of molding. As illustrative of the invention, coal shale or fire-clay, ground, when dry, to a powder, may be used as above described.—*Railway Times.*

PECK'S PATENT PATCHED BULLET.

There has been much discussion of the comparative merits of breech and muzzle-loading rifles. The patch used on the ball in the muzzle-loader causes a smooth, even fit in the barrel, renders leading impossible, prevents friction and irregular



motion, and cannot be dispensed with in close shooting. It seems to be conceded that if the ball used in the breech-loader could be thus patched, it would add to its other merits all the accuracy of the muzzle-loader.

It is claimed for the invention herewith illustrated that it answers all the requirements of a perfect patched bullet, and can be used with equal facility in a breech or muzzle-loading rifle, but is more especially adapted to metallic cartridges for breech-loaders, and that it can be manufactured at a very slight advance upon the cost of the naked bullet. The engravings represent the bullet in its various



INVENTORS, MANUFACTURERS.

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