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**WHISTLES AS SIGNALS ON TRAINS.**

One of the most extraordinary things to an American is the mystery and difficulty they make in England about communicating between the engineer and passengers on a railway train. In this country, as our readers well know, the cars are one large apartment on wheels, but in England they are different, being like several stage coaches coupled together, each car consisting of three or more compartments. This affords special facilities to murderers and other agreeable persons who are not slow to take advantage of them, as criminal records show. All sorts of ingenious and impracticable schemes have been devised to communicate between the engineer and conductor or "guard," as he is called, but the simplest and most effective has not been tried, or if tried, meets with little favor. That is, the plan in vogue here, consisting of a bell and a cord which runs the whole length of the train and to be found on every railroad in our land.

It must not be supposed that this plan is not tried because it is unknown, but it is left untried for some reasons not stated. Whether the murderers would ring the bell "for fun," or whether the murderers, if left alone, would steal the rope, does not appear; it is sufficient to know that British ingenuity has not as yet solved the problem of communicating between the engineer of a train and the passengers on it.

The latest proposition is that the engineer should be signalled by sound. To make the sound the inventor uses compressed air and a whistle. He compresses the air with a pair of bellows and he places the whistle in front of "a reflector" (which is probably a deflector) to throw the sound forward; the whistle machinery being in the guard's "van." This van, a curious misnomer, is in the rear, being 300 feet from the engineer.

At a recent experiment with this machine (the speed of the train was about thirty miles an hour) the engineer heard the sound with difficulty on the foot board of the engine, although the whistles em-

ployed were four inches in diameter and were heard distinctly two miles in the rear.

Of course they were; that was the place to hear them. The *Engineer* says: "On the foot plate we heard the whistle very distinctly while the speed did not exceed 25 miles per hour, but in the open country at higher speed it became indistinct, though never totally lost. In cuttings it was at all times heard plainly, but the position of the hearer exerted considerable influence; thus when standing under the lee of the fire-box, which was large and high, it could be plainly heard, while it was inaudible to the engineer looking out." We are also further told that this apparatus is simple and not liable to get out of order and it may yet take the place of the ordinary signal cord. That is in England.

**THE RIGHT KIND OF A GROCERY.**

The old proverb says, "one cannot eat their cake and have it," but there seems to be a doubt whether this is literally true. That it is only partially so is daily proved at a certain store in this city. Some good and thoughtful men of the Novelty Iron Works, deeming the principle of a mutual benefit society good as applied to a grocery store, have opened one at the corner of Twelfth street and Dry Dock street, where they sell provisions to men employed at the Novelty Works only.

Last Tuesday we went into this store, and it was pleasant to see the neatness and order which prevailed. Everything was clean and wholesome, and the stock was palpably of the best quality. This scheme is very different from such affairs in general. Usually individuals are called upon to take stock in such enterprises to the extent they may deem an advantage. The concern is then embarked in business, with as much risk and interference from competition as any other, while the chances of its decline and fall are greater, for each individual stockholder thinks he of all others is the man to lead it up to profit and renown, when in all probability he is specially unfit. The consequences are disgust on the part of others, and a total collapse in a few months. The failure of co-operation is then pointed out by its opponents, and every one who entertains the idea subsequently is confronted with this precedent.

The Novelty Iron Works grocery store is quite another thing. No one takes any stock in it, at least not the parties chiefly interested. The object, says the circular before us, is to buy at wholesale, articles of food needed in families, and to sell only to men employed at the Novelty Iron Works, in small quantities at retail prices.

The difference between the cost (including expenses) of articles sold, and amount received from sales will be the saving or profit. This saving or profit will be entirely the property of the purchasers, and once in three months will be divided in cash among the purchasers in proportion to the amount of purchases by each man.

Each man wishing to make his purchases in this way will write his name and number on an envelope, which can be had of the gate keeper on Avenue D.

The amount of money he wishes to trade out must be put in the envelope in even dollars.

These envelopes with the money in, are to be put in a box to be found at each gate at Avenue D.

A pass book will then be sent to each man with his amount entered in his book. This book will then be good at this store until the money is used up. The pass book will have printed directions on the inside cover.

Care will be taken that all weights and measures are correct.

It will be seen from this that if the business is properly conducted by the managers, they will succeed, and that in any event the workman loses nothing, for he gets the market value of his dollar at the time of purchase. Thus it is that the cake is eaten and part of it saved, for if a man buys a loaf of bread only, at the end of three months he gets his *pro rata* profit on it, and we all know that half a loaf is better than no bread. Further, the more money a man lays out at this grocery, the larger his dividend will be; therefore the largest eaters make the most money.

If this logic is defective it is the fault of the benevo-

lent founders of this scheme, for it follows from the facts.

It is needless for us to say that it has our hearty good wishes; therefore we won't say so, but it is very clear that the cost of living can in this way be reduced to the lowest point.

In all large manufacturing towns a plan like this well managed would be inestimable, and they are wise who take advantage of it.

**ANOTHER TAX ON GENIUS.**

We publish on another page a letter from an inventor who takes exceptions to the bill before Congress requiring the Commissioner of Patents to exact a fee of ten dollars in all rejected cases, before an appeal can be made to the Appeal Board.

We do not fully concur with the writer in the implication that the Examiners are lazy or incompetent; but every one who does business at the Patent Office knows that a great many erroneous decisions are made by the Examiners, and it was to remedy this evil that the Appeal Board was created, and much good has resulted from it. The number of decisions which this Board reverses is most convincing evidence that it is vitally important to inventors that it be continued; but we cannot see why the inventor should be taxed an extra fee for its support, when it was created for the primal object of correcting the Office's own errors, by reviewing the decisions of those Examiners to whose opinions an inventor might take exceptions.

The Appeal Board is constituted of intelligent scientific gentlemen, and has the power of vastly benefiting the inventor; but the receipts of the Patent Office are more than adequate to meet its expenditures, and we think it not only inexpedient, but unjust to inventors to impose a further tax upon them.

We concur with our correspondent in hoping that the bill will not become a law.

**SODIUM AMALGAM.**

Sodium amalgam has been pretty well known for about sixty years. Several distinguished chemists, among whom was Sir Humphrey Davy, at the beginning of this century, busied themselves with studying it, and it was reasonably supposed that nothing of importance would be added to what they taught us of its properties. Yet the fact is that quite recently we have learned something about sodium amalgam that is practically worth more than all that we previously knew. It will now be taken out of the old curiosity shop and put in the market place; instead of being only a source of amusement and instruction to beginners in chemistry, it will minister to one of the strongest desires of men.

Sodium and mercury being both metals, have a wonderful affinity for each other. When they are brought together, there is a grand clash of atoms, so Prof. Tyndall would express it, and there is smoke and loud sounds, and flame, and intense heat; the experiment is a dangerous one, unless made on a very small scale. When the sodium amalgam is brought into contact with almost any metallic salt, the sodium seizes the oxygen, chlorine, or sulphur, and the mercury lays hold of the metal; in this way amalgams of iron, platinum and other metals which ordinarily do not combine with mercury, may be made. If sodium amalgam be put into a solution of sal-ammoniac, the amalgam, without losing its metallic appearance, increases prodigiously in size, and reminds one now-a-days of Pharaoh's serpents; this curious experiment suggested the famous ammonium theory, which is discussed in every text book on chemistry. A very little sodium makes a solid amalgam; 1 part sodium to 50 parts mercury, gives a consistency of butter; 1 sodium to 30 mercury gives a solid, not so tough, but otherwise much resembling zinc. But these facts are not new, and we proceed to those which are the object of this article.

Dr. Henry Wurtz, now of this city, but formerly of the Patent Office, is the discoverer of the new uses of sodium amalgam. From patent examiner, he has become an inventor; we congratulate him on his auspicious beginning. Dr. Wurtz has found that when a very little sodium is added to ordinary mercury, the affinity of the mercury for metals generally