

Trade with Mexico.

A correspondent writing recently from the city of Mexico to the *New York Sun* says:

Two half dollars, United States silver coins, containing 346 grains pure silver, are worth fifteen cents more than a Mexican dollar, containing 376 grains, an anomaly caused by the fact that United States silver coin is at par with gold. The Mexicans don't understand this, and consequently they hate Americans and prefer to trade with any other foreigners.

If the United States desires to have the good will of Mexicans and build up a trade with Mexico, it can be done quickly and simply by Congress enacting a law making the Mexican dollar receivable for custom duties, and giving it equal value with the United States silver dollar. Mexicans say they do not want to trade with a people who will allow them only 85 cents for their silver dollar, which contains 30 grains more pure silver than the United States dollar.

I suppose the people of Chili, Peru, and other South American countries producing silver, and using almost exclusively silver money, feel and talk the same way.

Cotton Seed Oil.

Several years ago, when there was a less number of mills and a full supply of cotton seed, the manufacturers of cotton seed oil were enabled to sell it from 35 cents to 47½ cents per gallon at a good profit, but, as capitalists who knew nothing about the operation of such industrial establishments were anxious to invest in schemes in which they thought thousands, if not millions, of dollars would be reaped, the mills were multiplied until there are now 117 of them in the United States, but principally located in the South. A large number were built along the Mississippi River from New Orleans to St. Louis, ten having been put in operation at Memphis alone. The competition which resulted in the demand for the purchase of cotton seed, and the difficulty of finding markets for the product, was made very apparent last year, when the price of seed advanced, and the price of oil fell to 30 cents per gallon, at which figure it has since remained.

Two hundred thousand dollars were sunk at Memphis last year in the manufacture of cotton seed oil, and when it was found that some of the mills would be forced to the wall, the necessity for a pool became so marked that all the mills from New Orleans to St. Louis were compelled to form it as a protection against inevitable loss.

Capitalists in Great Britain caught the fever, and six mills were built in its domain, and seed denuded of lint was sent in bulk from New Orleans to Liverpool or other English ports as cheaply as it could be transported from Nashville to New Orleans. Here was another competitive market introduced. Formerly cotton seed oil, meal, and cotton seed, were shipped from America, not only to England in large quantities, but to France, Spain, and Italy; the oil bottled, labeled as "olive oil," and returned to America for sale. The owners of English mills at the start-out imported cotton seed from Egypt, because there was only a small amount of lint at the end of the seed, the seed from America being covered with lint. This objection did not long remain, as the ingenuity of the Yankee was brought into play, and a process invented by which all the lint could be removed, leaving the seed as smooth and black as bits of tar. The same process has recently been adopted by the Huntsville Cotton Seed Oil Company, and has proved very successful. Many of the mills in the South have been forced to cease operations, partly for want of knowledge to run them and partly from the scarcity of seed of this season.—*Nashville American*.

Proposed Reduction of Newspaper Postage.

There are now before Congress four bills to abolish the postage on newspapers altogether. One was introduced by Mr. Townshend, of Illinois, another by Mr. Morgan, of Missouri, another by Mr. Dockery, of Missouri, and the fourth by Senator Blair, of which the *N. Y. Sun* says: "We see no satisfactory reason why the Government of the United States should frank this, or any other newspaper, while it continues to tax anybody for the use of the mails. We are against deadheading at the public expense.

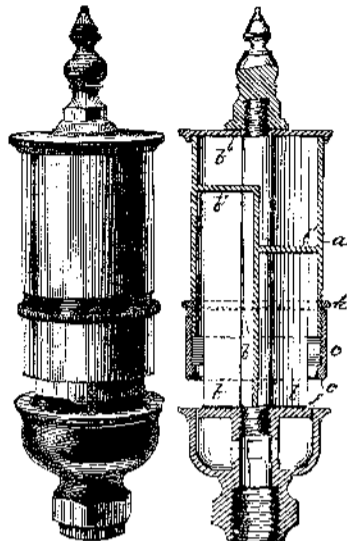
"There is a bill of a different sort before Congress which deserves more serious consideration. It was introduced by Senator Bowen, of Colorado, and it aims to reduce the postage on second-class matter from two cents to one cent a pound. We are glad to see that the Western newspaper men have decided to support the Bowen bill rather than to ask for a total remission of the postage on newspapers and other periodicals regularly mailed from a recognized office of publication. The reduction from two cents to one cent would be in line with the recent changes in the rates on other classes of matter, and would tend to secure a more equitable distribution of the cost of maintaining the postal service.

"Pass the Bowen bill. Let the deadhead bills alone."

To the above all good people will fervently say amen.

ADJUSTABLE SINGLE-BELL CHIME WHISTLE.

In the whistle shown in the engraving the bell, *a*, or upper part, is divided into three equal compartments of different heights; one of these is the full length of the bell; the second extends two-thirds the length of the bell, being cut off or stopped with an end plate, as shown in the sectional view; the third compartment is cut off so as to extend only one-half the length. These compartments form three separate whistles, and the length of each being different, each produces a distinct tone. As the lengths are properly proportioned, a musical and harmonious sound is produced, pleasant to the ear and yet penetrating and far reaching. The



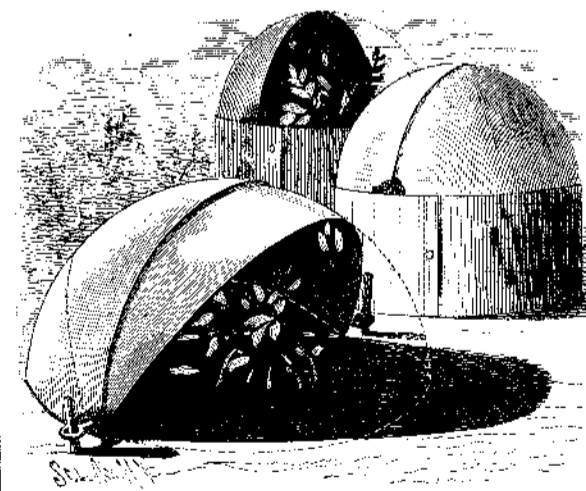
adjusting arrangement consists of a sleeve or band, *c*, covering the lower end of the bell, and so arranged that it can be brought nearer to or further away from the steam opening, as the case may be, with high or low pressure. For instance, if the lower edge of the bell should be too near the aperture admitting steam, the sound would be harsh, since the stream of steam would impinge on the edge of the bell with too much force;

the adjusting band would then be screwed up so as to bring its edge away from the steam opening; or if the edge of the bell should be too far away from the opening, the sleeve would be run down. The sleeve may be moved up or down until the right focus has been obtained, and then secured by a check ring, *b*, placed above it. Once in the correct position, the adjusting sleeve will need no further attention. This whistle is applicable to locomotives, buoys, etc., and owing to the great distance the sound can be heard in foggy weather, is specially adapted to the use of steamers.

This whistle was invented by Mr. John Einig, and is now manufactured by the Crosby Gauge and Valve Company, of Boston, Mass. For particulars concerning the English and Canadian patents address the inventor, care Marine Engineers' Association, Jacksonville, Fla.

PLANT PROTECTOR.

The protector shown in the engraving, recently patented by Mr. William H. Brown, of Dunedin, Florida, is to be used as a covering for plants to protect them from heat, cold, rain, wind, etc. It is formed of two pieces of paper or sheet metal, having the shape of a pointed ellipse, each being so curved as to form a quarter of a hollow globe. The points of the sheets are provided with sheet metal strengthening plates. One section is placed within the other, and the two pieces are pivoted together by rivets which pass through the end plates. The rivets are formed with loops on the outer ends, through which stakes are driven to hold the protector on the ground. When the plant is to be covered,

**BROWN'S PLANT PROTECTOR.**

the protector is placed over it on the ground, and the sections arranged to form half of a hollow globe. When the plant is to be ventilated, one section is swung up more or less, and supported upon a piece of stone or wood placed beneath its edge. Either section can be raised according to the direction of the wind. When the plant is so high that it cannot be covered with the protector, the latter is placed upon a ring which is formed of two half rings pivoted to each other; this arrangement is shown in two of the figures in the engraving.

SOME one has said that the man who is curious to see how the world could get along without him can find out by sticking a cambric needle into a millpond, and then withdrawing it and looking at the hole.

Correspondence.**Straightening Old Grate Bars.**

To the Editor of the *Scientific American*:

Your article of January 31, on "Draught of Boiler Furnaces," prompts me to communicate a fact that is not generally known, judging from the tons of old grate bars to be seen at the various junkshops, a large portion of which could be made as good as new. The bars, if not actually burned, can be brought back by heating the twisted portion to a very dull red, just enough to detect while in the fire; then nip the bar in a vise close enough to admit of its being shifted, bring a very gradual pressure on the other end with your hip, shifting the bar along so as not to take the warp all out at one place. With one heat I have taken three or four inches out of a bar. A very little beyond the right heat will cause them to break like old cheese. The degree of heat and gradual pressure that twisted the bar without breaking is the remedy to bring it back.

J. HARRY TAYLOR.

Philadelphia, February 2, 1885.

The Cause of Boiler Explosions.

To the Editor of the *Scientific American*:

Boiler explosions appear to occur fully as frequently as they did a year ago. On the 17th inst. a sawmill boiler at a small town in Pennsylvania exploded, killing five men; a few weeks since a boiler on a tug exploded here on the river, and a similar accident took place on a tug at Pittsburg a few days ago.

I have frequently had occasion to speak with some of the "engineers" who have taken an "active part" in some boiler explosions, and therefore venture a few remarks as to at least one cause why these calamities occur so often. I have discovered that in about five cases out of six the illiterate and uneducated man who has charge of a boiler believes it impossible to blow up a boiler, provided there is a sufficiency of water therein. These "engineers" will laugh at you when you question the working of the safety valve, or even hint that the iron might be torn asunder by a tremendous pressure of steam. With two gauges of water, they scorn the idea of bursting a boiler. (Two gauges is for them much safer than one!) One hundred pounds of steam on a five foot shell has no terrors for them if they have water; and should the engine lag on this pressure, they do not hesitate to screw or weight the safety valve, regardless of pressure or the condition of the boilers. These engineers are generally strong advocates of the "gas theory," i. e., from some reason, usually low water, gas is suddenly generated in the boilers, and thus the explosion follows as a matter of course, and no one is to blame.

J. J. BOHN.

Chicago, Ill., January, 1885.

System for Steering Balloons and Maintaining a Desired Elevation in the Atmosphere.

To the Editor of the *Scientific American*:

Long before the experiments of Messrs. Renard and Krebs had been made known (described in *SCIENTIFIC AMERICAN*, VOL. LI., No. 13), I devised a system of guiding elliptical balloons by the use of an electric current. This system, which was delivered to the Secretary of the Academy of Sciences of Paris, the 27th of August, 1883, No. 3,697, consists in an elliptical balloon inflated horizontally with gas to a suitable extent to almost balance the weight of the basket, the aeronaut, the motor, and the batteries, but in such manner that the basket should not be raised from the earth by the balloon proper, but should require a certain amount of power to lift it. The form of the balloon is that of a cylinder terminating in points at both extremities, thus offering the best possible resistance to the wind. Underneath, and extending its whole length, the balloon is provided with a sail which keeps it always head to the wind, like the tail of a windmill or weather vane. This sail acts as a sort of pivot in the air, and enables the balloon to be properly guided. The basket is provided with an electric motor connected with suitable batteries.

The motor works a horizontal propeller, which serves to impel the balloon forward and enables it to be moved out of the direction of the wind, if necessary. This propeller is movable on its axis, so that it can attain any desired inclination with reference to the sail. The motor also actuates a vertical stationary propeller situated between the sail and the basket, and which serves to raise the balloon either slowly or rapidly, or simply sustains it at a fixed elevation, according to the desire of the aeronaut. It is seen at once that this variation in the rotation of the propeller changes the ascensional force of the balloon, and sustains it at any desired height. Birds float in the air on the same principle. The basket is provided on its inner side with a semi-spherical parachute, which prevents the too rapid descent of the balloon. The guiding of the car is the most simple feature of the whole apparatus, it being necessary to raise it by mechanical power, on account of its being heavier than the atmosphere.

M. C. SENLECO.

Arres, France.

THE workingman's capital is health, and not wealth