Compressed Tea.

Tablet tea is manufactured at Hankow in factories belonging to Russian firms there. It is made of the finest tea dust procurable. The selection of the dust is the work of skilled experts; the cost of the dust varies from 10d. a pound upward. This dust is manufactured into tablets by steam machinery. About two ounces and a half of dust are poured into a steel mould on a steel cylinder. The dust is poured in dry without steaming, and the pressure brought to bear is two tons per tablet. Great care is required in the manufacture and packing of tablet tea, and the cost is comparatively high. The tablets are wrapped first in tinfoil, then in expensive and attractive paper wrappers, and finally packed in tin-lined cases for export to Russia. The tea, it is stated, loses none of its flavor by being pressed into tablets, and, as tablet tea is only one-sixth of the bulk of leaf tea, it is most convenient for travelers, and also for importing into the remoter regions of Russia. The increase in the export of tea dust from Hankow to 726,729 lb. in 1890, from 140,933 lb. in 1889, is due to the fact that while Indian and Ceylon teas are ousting China tea from the British market, many consumers, being accustomed to the flavor of China tea, wish for it. To meet this demand grocers use China tea dust to flavor the Indian tea. All the tea dust exported goes to Great Britain. Lately a new commodity has come on the Hankow market, to which the customs give the name of log tea. It is an inferior tea with stalks packed in the shape of logs, which weigh from 8 lb. to 80 lb. each log. The tea is wrapped in the leaves of the *Bambusa latifolia*, and then reduced in bulk by binding round the log with lengths of split bamboo.

Heat from the Moon.

Mr. C. Vernon Boys has been making measurements of the heat of the moon by means of his very delicate radiomicrometer. His method was to focus the rays of the moon on the face of the radiomicrometer by a reflecting telescope of 16 inches aperture. In the case of a new moon, he found that the heat coming from its disk diminished as you passed from the convex to the concave edge, and that from the dark surface was so slight as not to affect the apparatus. The maximum radiation of heat came from points of the disk itself, not from its limbs. At full moon the maximum point was at the center of the disk. The side of the moon which had been exposed to the sun for fourteen days was not warmer than that which had been exposed for seven days. No sensible heat was observed to come from the stars.

Electricity in the Printing Office.

No discovery has yet been made and no contrivance has been introduced that will *absolutely* dissipate or nullify the disturbing effects of electricity in paper, either latent or generated by the revolutions of the press. Many employers have paid out considerable money to electrical experts and others who claimed to have discovered or to be in possession of infallible remedies for this trouble; but not one of them has squarely fulfilled the terms of his contract. We have studied the effect of wires connected with batteries and of wires connected with gas or other pipes leading to the ground; the latter on the principle of the lightning rod. While these do to a certain extent help to modify the action of electricity or the generation of it, they fall far short of doing it effectively and completely, and for that reason do not justify the outlay of much money upon them. Again, many printeries throughout the country are beyond the reach of those who could help them with the appliances described; are at an expense which, as we have just said, the modicum of benefit that would be derived would not justify. It is for this reason that we recommend to all who have trouble with electricity in paper the adoption of the simple and inexpensive but surprisingly effective remedy we now present.

In nearly every printery a bottle of glycerine is kept for one purpose or another. Take this bottle and a clean rag or other cloth, wet the cloth with water and wring it out well until it is only damp, then pour a little glycerine upon the damp cloth, and wipe the surface of the tympan sheet with it, only on that part of the sheet where the impression is, as it is there that reaction is effected—at the point of pressure. Do not put on too much glycerine, as it will wrinkle the sheet too much. Simply go over it as you would in oiling the sheet to prevent off-set, but do not saturate it. If you find that one application or wiping will not stop the trouble, go over the impression parts again in the same manner. Some kinds of stock are more susceptible than others, and call for an additional application.

This is the simplest and cheapest of all the remedies, and as good as any hitherto known.—*American Art Printer.*

GUILEY'S ELECTRICAL BLOCK SYSTEM FOR RAILWAYS.

An invention which will tend to prevent railway collisions, by giving a timely alarm to an engineer on a moving locomotive when approaching a standing or moving locomotive on the same track, and which will give notice of an occupied grade crossing, an open switch, an open drawbridge, or a car projecting from a

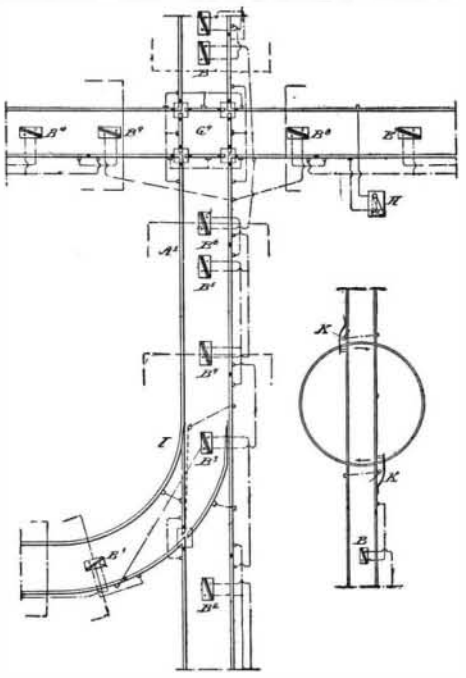
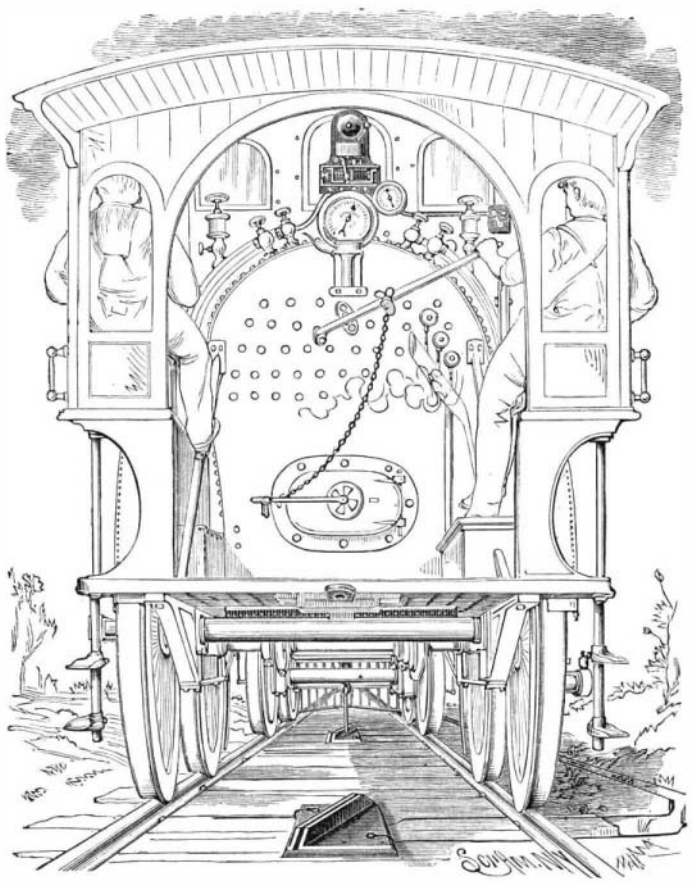


DIAGRAM OF GUILEY BLOCK SYSTEM.

side track over the main track, and which will afford a signal effective in daylight or darkness, on a straight or curved track, or in a tunnel, is one which would cover most of the causes of disaster on railways, and would prove a boon to travelers, and a paying investment for railways if generally adopted.

Such an invention has been made by Dr. A. H. R. Guiley, and has been patented in this and most other countries in the world.

According to this invention, which is illustrated in the annexed engraving, one of the rails is made a continuous conductor by connecting the rails electrically at the joints, and the other rail is divided into sections or blocks, and provided with electrical connections which overlap from one block to the other. Between the rails at suitable intervals, preferably at opposite ends of the blocks, are placed electric contact pieces, each formed of two plates insulated from each other and provided with vertical ribs arranged diagonally. These ribs lie in the path of an arm or "feeler" carried by the locomotive, and upon the locomotive is placed a battery and alarm mechanism.



NEW ELECTRICAL BLOCK SYSTEM FOR RAILWAYS.

The arrangement of the circuits is such that when a train is passing in one direction, the feeler strikes a set of contacts controlling the circuit arranged for trains passing in that direction. When the train passes in the opposite direction, the feeler strikes the opposite contact plate, securing opposite results. The feeler, which extends downwardly from the pilot of the locomotive, is capable of swinging laterally, and is protected so that it is not injured by the shock due to striking the contact plates, or other objects lying on the track.

In the cab of the locomotive is arranged an electrical alarm which is set off by the contact of the feeler with one of the plates, and continues to ring until the engineer readjusts it for another alarm. The inventor has devised an attachment to the feeler by means of which steam is taken through pipes and through the contact end of the feeler for thawing snow and ice that may accumulate upon the feeler or upon the contact plates.

This improved system applied to a railway furnishes a complete grade crossing protection, and a very efficient block signal, while at the same time, under certain conditions, it may be used as a train signal by which one train may signal to another.

In the annexed diagram, the contacts, B, B', etc., and the electrical connections, as arranged upon the main track, A', and branch track, and on opposite sides of the crossing, as shown in the diagram, protect the grade crossing, G^4, and the switch, I.

The switch, H, is provided for the use of the track master and others for signaling a train in case of necessity. The detached view shows the application of the invention to a drawbridge, J, the contact springs, K, in this case serving to make or break the connections as the bridge is closed or opened.

Mr. E. B. Cornell, 922 N. 19th Street, Philadelphia, Pa., has the business management of this invention.

Determination of Resin Oil in Mineral Lubricants.

Ten to 15 grms. of the lubricant containing resin oil, but no fatty oils, is gently heated on the water bath in a small flask with 5 vols. alcohol at 96 p. c., shaken up, and let cool down to the temperature of the room. The alcohol is then placed in a small Erlenmeyer flask about 7 cm. in height; the mineral oil which remained in the first flask is rinsed round (not shaken) with a few c. c. of 90 per cent alcohol, the solution poured into the second flask and heated upon a water bath which is slightly simmering, inclosing it within a beaker with the bottom cut off, to avoid too rapid condensation on the sides of the vessel. The heat is continued until the residue in the flask is free from bubbles. It is weighed when cold, and the residue is covered with ten parts by weight of alcohol at 96 per cent. If the residue consists entirely of resin oil, this quantity of alcohol will suffice for its solution. The alcoholic solution is treated as above, and the residue contains small quantities of mineral oils.—*L. Storch, Chemiker Zeitung.*

How Tin Plates are Made.

Following is a summary of the Morewood process of tinning plates now in use at the works of the United States Iron and Tin Plate Company, Limited, at Demmler Station, Pa.:

The plates are rolled in the ordinary manner into black sheets, eight of these sheets being rolled at one time, and after being sheared to size are placed in the "black pickle" bath of sulphuric acid, where all oxidation is removed. They are placed in an annealing furnace for 36 hours and are next passed through the cold rolls, receiving a smoothly polished surface, after which they are annealed again and put into the "white pickle," where they are thoroughly cleansed from any oxidation and are ready for the tinning process. The mode of putting on the coating of tin is a very simple one, and is begun by submerging the plates in a bath of palm oil until all the water disappears, the oil forming a flux for the tin, the first coat of which is received in the tin pot, the plates next being dipped into the "wash pot," and when taken out the tin is spread over the surface with a brush by hand. The final act in the tin coating process is in passing the plates through rolls running in palm oil, whereby the tin is evenly distributed and a smooth surface is obtained. There are 5 of these rolls used, 3 running on top of 2, and the plates make two passes through them, first being let down through the first and second of the upper set, and by a cradle arrangement are returned through the second and third. This completes the tinning operation proper, and the polish is obtained by rapid movements of the plates through bran and middlings, respectively, and then polishing with sheepskin. The result obtained at the Demmler works is a very excellent article of bright tin plate.—*Iron Indus. Gazette.*

AT the great factory of the Singer Manufacturing Company, at Elizabethport, N. J., a half hour is allowed for the noon-day meal, and it is invariably taken in the shops, or in the immediate vicinity. The whistle sounds, and instantly 500 or more boys or young men appear on a run armed with tin pails, some carrying a dozen. They immediately repair to some adjoining saloons, where the pails are filled with beer, which shortly before has been drawn into tubs so as to allow of expeditious dipping. The beer is then carried to waiting comrades in the factories.