

Science and Art.

Signals and Color Blindness.

We recently alluded to an article in the last number of the *North British Review*, in which it was stated—as taken from Dr. Wilson's work—that one person out of every eighteen was unable to distinguish different colors. The subject is one which deserves more than a mere passing notice. If it be true that color blindness is as prevalent as Dr. Wilson has stated, then all the engineers and switchmen on our railroads, and all the pilots on our rivers, should be thoroughly examined respecting their capacity to distinguish colored signals. This is something that never has been thought of, and yet we can easily conceive what consequences might ensue on a railroad by an engineer mistaking a red for a white signal. Red flags, red globes, red lights, and other colored signals, are used on railroads and steamboats, and no doubt they always will be used, because they are so convenient. While in themselves they are good and necessary, it is the duty of those companies using such, to see to it, that those whom they employ, are not defective in recognizing and distinguishing them.

Although it is our opinion that color blindness is not so common as has been asserted; still nothing should be left in doubt, when the safety of life is concerned, as on our railroads and night steamboats.

Color blindness is something that baffles the best opticians to account for satisfactorily,—indeed the power of vision, in itself, is shrouded in much mystery, like that of every other sense man possesses. As far back as 1684, Dr. Tuberville, of Salisbury, Eng., described the case of a young female, who could see very well, but no color besides black and white; and, singular to relate, she could sometimes see to read in a dark room. The famous chemist, Dr. Dalton, was unable to distinguish between red and green colors; and Dugald Stewart, the philosopher, had the same defect of vision. This defect of vision has been long known to have had an existence, but was supposed to be limited to a very small number of persons. Dr. Wilson's experiments were instituted to discover the extent of color blindness and, if possible, its nature. Its prevalence has astonished himself. Out of 1,154 persons examined indiscriminately, he found 65 defective in distinguishing colors.

Red and green are often confounded together, and some persons that could distinguish these within one foot of their eyes, failed to do so when they were removed from twelve to fifteen feet. These persons would not answer for safe signal-men. The greatest number confound blue with green, and the next greatest number confound brown and red with green.

Among a number of possible sources or influences upon color vision, Dr. Wilson mentions the *yellow spot* on the retina, and the colors of the choroid Soemmering discovered this spot; it is found only in the human retina, that of apes, and some lizards. The true character of this spot and its uses is unknown. It has properties different from every other part of the retina, and is the spot of most distinct vision.

The *cerebral* theory of color—that of the phrenologists, is stated to be disavowed by all natural philosophers. The cause of color blindness—whether in the coating of the eye or in the nerves, no one can tell at present. There are just as great differences in the senses of taste, smelling, hearing, and feeling in persons, as in distinguishing colors. One person can distinguish musical notes correctly and another cannot, and we may never know the reason. It is enough for the present to know that color blindness does exist, and that it is more prevalent than was supposed, in order for us to direct attention to it, for the reasons already given.

New Seed Planter.

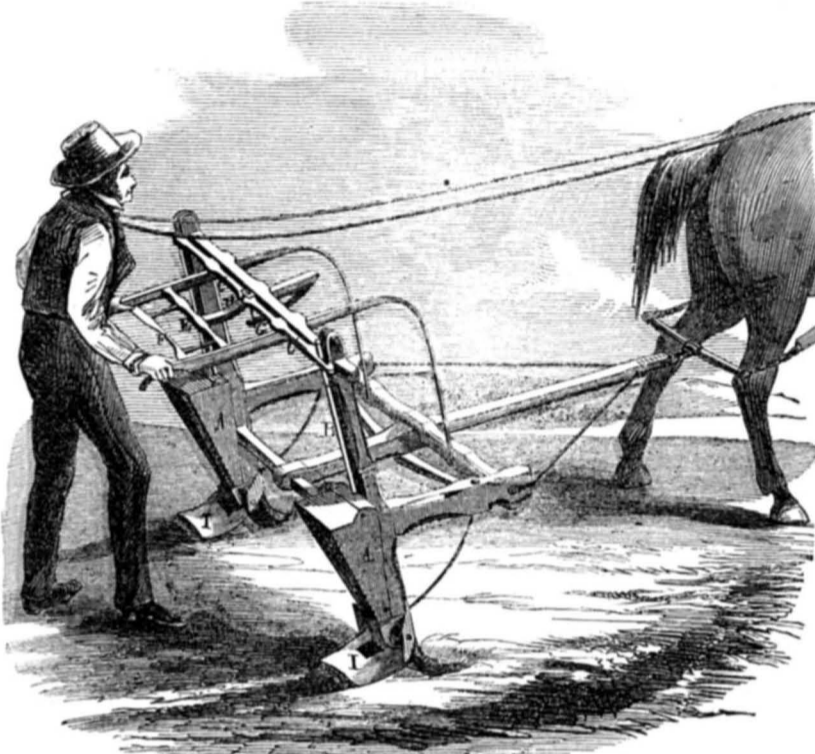
The improvement shown in our engraving is the invention of Messrs. R. & W. L. Gebby, of New Richland, Logan Co., Ohio. It is intended principally for the planting of corn,

but it may be used for other species of grain.

A A are the seed boxes, in which are slides, B, connected with levers, C, the inner ends of which rest on the tongue, D; this tongue projects from the cross bar, E, which is pivoted, and is moved by pressure on the small cross bar, F. The extremities of bar, F, terminate near the handles of the machine, and the plant-

ing is done by the attendant, who touches the bar, F, with his thumb, whenever he wishes to deposit the kernels of corn for a hill. By pressing bar F, the slides, B, are operated, through the levers before-named. G is a spring which brings up the slides after they have been pressed down. Two hills are thus simultaneously planted by one pressure of bar,

IMPROVED SEED PLANTER.



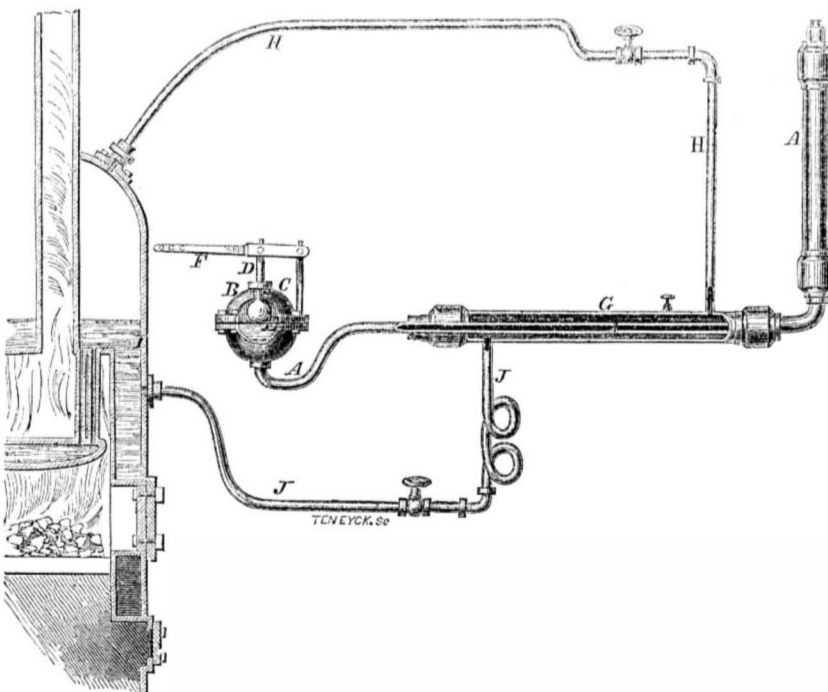
F. I I are plates, which cover the seed after planting. The weight of the machine rests, in a great measure upon these plates, and thus compacts the earth properly, and tends to facilitate germination.

The operation of this machine very closely resembles hand planting. The attendant drops the seed at the desired spot; the seed boxes are near the ground, and the slides act with perfect certainty; the channels are large, and whether the soil be dry or damp, makes no difference with the planting. The machine may be used for planting in drills or hills; for re-

planting it is also useful. In nearly all other planters the seed is dropped at certain intervals, by the revolution of a cam or wheel, and the planting is not therefore under the control of the operator.

This machine is very light, simple, cheap, durable, and serviceable. By its use one man with a horse can plant from 16 to 20 acres per day with ease, so we are told. Single machines, still simpler, are made by the patentees, of whom further information may be obtained, by letter or otherwise. Patented Feb. 12, 1856.

IMPROVED SAFETY INDICATOR AND FEEDER FOR STEAM BOILERS.



Steam Boiler Indicator.

Many of the safety indicators and explosion preventors used on steam boilers depend for their operation upon a float resting upon the surface of the water within the boiler. When the water sinks below a certain level the float is expected to follow, and pull down the lever to which it is attached, thus sounding an alarm, moving a pointer, or opening the pump valve for the admission of more water. Some of these devices are very good, yet they are not entirely reliable, for occasionally the floats or levers get stuck, and refuse to operate. The improvement herewith presented is

quite different from the generality of Indicators. A is a cold water pipe extending from a tank or other supply, and terminating below the diaphragm, E, in the sphere, B. Resting on the diaphragm above is a plunger, D, which, when it rises or falls, operates the lever, F; this lever is connected with the feed pump and with an indicating pointer or whistle, as desired. Pipe A is enclosed for a portion of its length by another pipe, G, of larger diameter. Pipe G communicates, by means of tube, H, with the steam dome of the boiler, and also by means of tube, J, with the water in the boiler. The horizontal portions of pipes

A and G are located on the exact level at which it is always desired to keep the line of water in the boiler, and so long as such level is maintained pipe G will be filled half with steam and half with water. But when the water in the boiler falls the water in pipe G will also fall and steam will occupy its place. The steam having a greater heat than the water, rapidly converts the water in pipe, A, also into steam, and thus causes an upward pressure on diaphragm, E, which raises the plunger, sounds the whistle, and opens the pump.—As fast as the water rises in the boiler the water also rises in tube, G, reduces the temperature of pipe, A, condenses its steam, and removes the pressure from diaphragm, E, whereupon plunger D falls, and the pump is closed, &c.

This apparatus is one of great simplicity and certainty in its operations. It requires but a few minutes time to attach it to any steam boiler. One of them has been in use for some months on the steam boiler of our neighbor the *New York Sun* newspaper. The engineer informs us that its use effects a considerable saving in fuel, as it maintains a very even water line in the boiler, and prevents rapid alterations of pressure. He thinks it is a true safeguard against explosion or boiler burning, and says it is worth its weight in gold.

The above improvement is the invention of P. Clark, of Rahway, N. J., and was patented June 6, 1854. Shiverick, Malcom & Co., 290 Broadway, New York City, are proprietors of the patent, of whom further information can be obtained.

Discovery of Silver Mines.

Rich mines of silver ores are stated to have been discovered in the Mesilla Valley. We have no doubt but more rich mines of silver will yet be discovered in those regions. In the mountains of Northern Texas rich silver lodes, in all probability, will reward the first adventurous explorers. The mountains belong to the range in which the richest Mexican mines are located.



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ELEVENTH YEAR!

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