

above, so that they will both take a black dye at one and the same time. I steep or pad the goods either before dyeing or after in the following dye:—One gallon of water, four ounces of chlorate of potash, twelve ounces of chloride of aniline crystals, six ounces of sal-ammoniac, two ounces of sulphate of copper. I then dry the goods at as low a heat as possible and age for two or three nights in a moist room at from about 76 deg. to 80 deg. Fah., and when the color is thoroughly developed it becomes an intense myrtle green, almost black. I raise the goods either in water or any weak alkali, or in a weak cold solution of neutral chromate of potash, which I use in preference; and if a brownish black is required, the goods may be subsequently dyed in a weak hot solution of archil or cudbear.

When the prepared cloth is used for printing, I print on the aniline black color, and dry and age in a warm moist room, and raise in a weak alkali as before. I then pass the goods through a warm solution of sulphite or hyposulphite of soda, or a solution of any suitable deoxidizing agent to improve the white or whites; or the goods may be passed through one of Mr. Thom's sulphuring apparatuses, which restores the white in the parts not printed, but does not injure the black. It is preferable after sulphuring, to re-pass the goods through a weak alkali.

#### Boiler Explosions.

Mr. L. E. Fletcher, Chief Engineer to the "Association for the prevention of Boiler Explosions," in Manchester, in a late report said:—

*"Corrosion.—Internal.*—Some corrosive waters not only waste and indent the surface of boilers internally, but also destroy the vitality of the metal, so that the edge of the overlap may be cut away with a few slight blows with the hammer, and the rivet heads knocked off with a hand-chisel only, and easily pulverized. Such was the character of the defects found in one of the boilers examined during the past month, which was at once laid off by the owners, and condemned as soon as its condition was pointed out by the association. The above shows the importance of carefully testing corroded rivet-heads with a hammer.

*"Corrosion.—External.*—Both the dangerous cases referred to arose from leakage at the joints of boiler mountings, in consequence of their being bolted to the shell instead of riveted. The plates were so eaten away that in one case the inspector scraped a hole through with his chisel, while this could easily have been repeated in the other. One of the mountings was a cast iron man-hole mouth piece of somewhat large size, and as the corrosion extended in a groove all round it the boiler was clearly unsafe to be worked, and was immediately laid off. This encircling groove was not very easy of detection, since, although nearly eating through the plate, it was only three-eighths to half an inch wide, and almost buried under the edge of the casting; added to which it was filled up with tar, with which the boiler had been coated. There may be others in a similar condition, for which this may be a caution. All mountings, instead of being bolted to boilers, should be attached with suitable fitting blocks riveted to the shell.

*"Deficiency of Water.*—This arose at night time, when the fires were banked up, from the attend-

ants omitting to close the feed stop-valve, there being no self-acting back-pressure valve, and the feed inlet being below the furnace crowns. The importance of every boiler being fitted with a good self-acting feed back-pressure valve, as well as of the feed inlet being above the level of the furnace crowns, has been frequently pointed out in previous reports. The furnace crown was fitted with one of those fusible plugs in which the alloy is in the shape of a washer about the size of a penny-piece, having a copper button in the center of it. This did not, however, prevent the plates becoming red-hot. The plug did not put out the fire, or properly speaking, go off at all. A little piece of alloy melted away on one side and allowed a slight escape of steam, which attracted the attention of a workman, who at once examined the boiler and found the furnace crown red-hot."

#### New Railway Turntable.

The *Mobile Tribune* says Capt. G. B. Massey of that city "has obtained letters-patent for the United States for an improved railway turn-table, which is pronounced by scientific men at the North to be one of the most valuable patents ever issued by the United States Patent Office. Capt. M. exhibited a model of this invention to a few friends before leaving for Washington a few weeks since, and all were impressed with a sense of the great value of the improvement. It is generally known that locomotives, with their tenders, are now turned or reversed, at each end of their route, by hand, requiring the labour of four or more men. By Capt. M.'s invention, the locomotive is made to do this work without the assistance of any one unconnected with the engine, and in one-fourth of the time usually required by the present mode."

#### Fire Engine Hose.

The *American Artisan* says: Riveted hose cannot be so strong as hose that is sewed with two or more seams—shoemaker's stitch. Such sewing can now be done, with some help from machinery, such as is used to sew boot-legs. The leakage from riveted joints is often excessive; and repairs are more difficult than they would have been with sewed hose. Without having studied this subject, we venture to say, from some observation, that a good boot-maker or harness-maker, who has an inventive faculty can make an improved sample of hose if he will labour resolutely to do so; and that there will be a demand and probably a fair reward for sewed hose, if it can be made at moderate price; and we think it can be made for less than riveted hose."

[We are satisfied, from nearly Forty years experience with sewed and riveted hose, that the former can neither be made so cheaply or as durable as the latter, nor can it be so easily repaired. ED. JOURNAL.]

#### The Effect of Color upon Health.

A correspondent of the *London Builder* says:—"From several year's observations in rooms of various sizes, used as manufacturing rooms, and occupied by females for twelve hours per day. I found that the workers who occupied those rooms which had large windows with large panes of glass