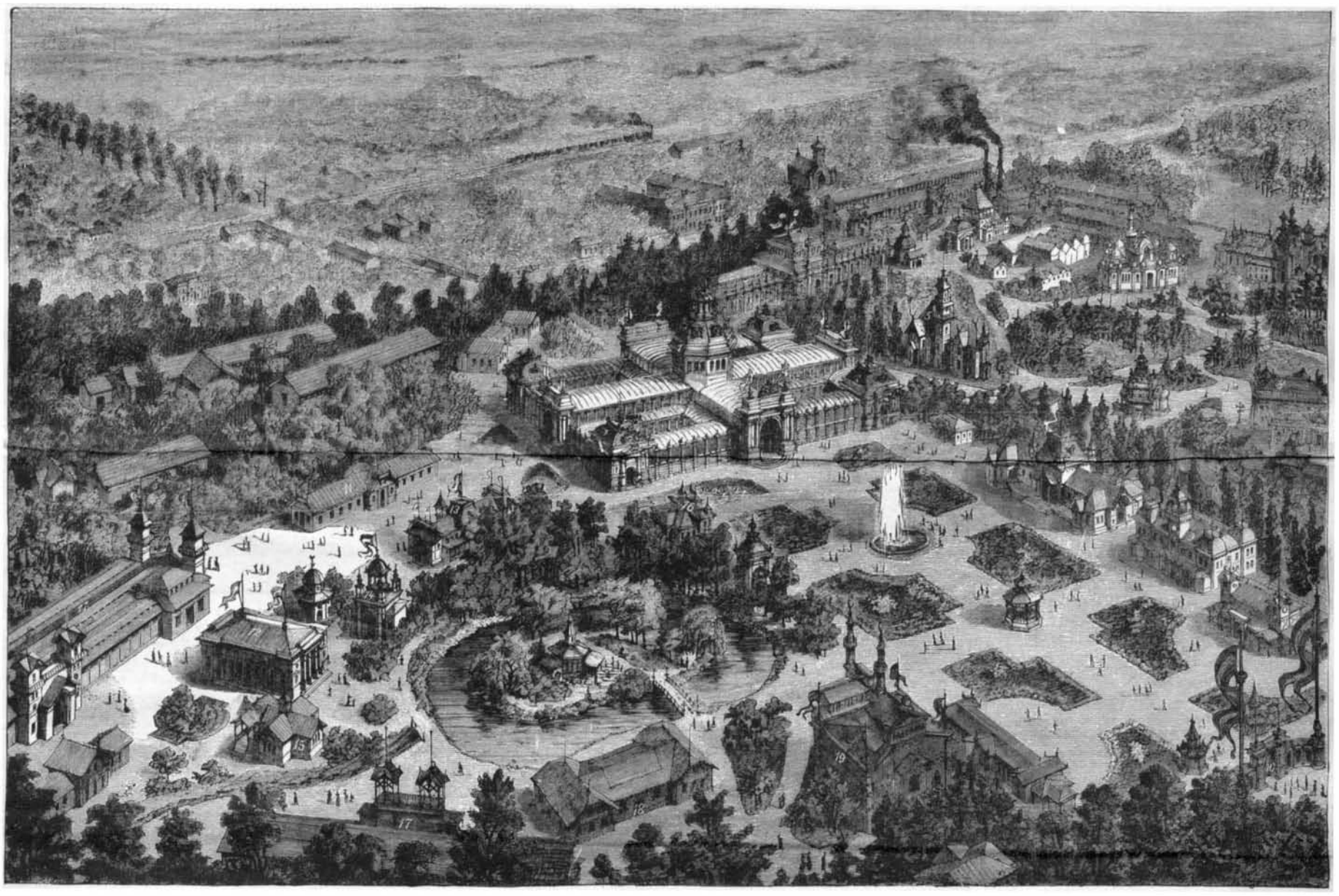
### THE EXPOSITION AT BUDAPESTH.

About forty years ago, the first exposition was opened in Hungary, and it was found an excellent means for improving the industries of the country. In 1872, 1876, and 1879, smaller expositions were opened in towns in the several provinces, and as these were all successful, a plan for a large exposition for the entire country, to be held at the capital, Budapesth, was matured. The buildings were erected in a part of the city park.

As shown in the annexed cut taken from the *Illustrirte Zeitung*, a large wooden portal leads into the enclosure containing the buildings. The Industrial Hall, which was erected as a permanent structure, and not for this exposition only, is surmounted by a large and elegant dome. The metal, glass, clay, and porcelain industries, the textile branches, furniture, the graphic arts, sugar manufacture, and chemical industries are exhibited in this building; 127,937 persons are now occupied, in Hungary, in the manufacture of leather, and this branch of industry was well represented; 30 per cent of the cultivated lands of Hungary are woodlands, kept in order by a small army of foresters and huntsmen. Their appliances and tools, different kinds of woods, etc., were also exhibited.



### THE BUILDINGS IN THE EXHIBITION AT BUDAPESTH.

1. Industrial Hall. 2. Large Machinery Hall. 3. International Machinery Hall. 4. Oriental Pavilion. 5. Forestry Pavilion. 6. Pavilion of the City of Budapesth. 7. King's Pavilion. 8. Art Building. 9. Directors' Building. 10. Main Entrance. 11. Agricultural Halls. 12. Building of the Secretary of the Treasury. 13. Wine Producers' Building. 14. Building for Horses. 15. Department of Worship and Education. 16. Model Hotel. 17. Building for Educational Appliances. 18. Building for Home Industries. 19. Panorama.

The pavilion of hygiene contained plans and models of schools, hospitals, etc., and samples of the different mineral waters of Hungary.

As Hungary is a great agricultural country, its products and the machines and tools for tilling the land, etc., were well represented in Agricultural Hall.

Eleven buildings were provided for the exhibition of animals, which number is by no means too large, as we will see when we take into consideration the fact that there are in Hungary 1,819,508 horses, 3,597,543 cows and oxen, 9,252,133 sheep, and 236,352 goats. In the latter part of May a special exhibition of sheep took place, in which 2,012 animals were exhibited, which is a greater number than was ever collected for a similar purpose heretofore.

### Russian Torpedo Boats.

The Russian naval maneuvers will take place this year in the Baltic about the end of this month. There will be five flotillas of sixteen torpedo boats each, in all eighty boats. The squadron of ironclads will take up positions partly in Cronstadt Roads and partly before the entry to the coast Archipelago of Finland. The Peter the Great and the frigate Dimitri Donskoi will cruise near the port of Reval.

### Torpedo Boats.

A new classification of torpedo boats has been adopted in the French Navy: First, torpedo cruisers, with a displacement of from 1,240 to 1,260 tons; second, torpedo dispatch boats, of from 320 to 380 tons; third, sea going torpedo boats, of 50 tons and over; fourth, coast defense torpedo boats, which are divided into two classes, those of 50 tons and those of 25 tons. In addition to these are the vedettes, torpedo boats which have less than 25 tons, but which, it is expected, will be of great service in the way of protecting the coast in the event of war. The *Illustration* of May 24 gives a sketch of the Bombe, belonging to the second class, which has just been constructed at Havre by a private firm, which has built two similar vessels for the Ottoman Government. The French will soon possess eight torpedo cruisers similar to the Bombe—the Coulevrine, the Dague, the Dragonne, the Fleche, the Lance, the Salve, and the Sainte-Barbe. The Bombe is built entirely of steel, is 30 meters long, her greatest breadth of beam being 6 meters 60 c. She is driven by 2 engines, steams about 18 knots an hour, and is provided with electric lights and all the latest improvements for firing torpedoes.

Large squadrons have this year been commissioned for the Russian naval exercises, in which the whole torpedo boat fleet will take part. The latter, to the number of eighty, will be divided into five smaller flotillas of 16 boats each. They are to cruise along the north shore of the Gulf of Finland, and will be commanded by Admirals Pilkin and Kuprianoff. The rest of the torpedo boats will remain at Cronstadt. The ironclads will take up positions from Cronstadt along the coast, and the naval maneuvers, which have just begun, will extend as far as Bjorkesund.

The *Army and Navy Gazette* says: "Within the past few days all the daily papers have contained glowing accounts of the results obtained by the newly invented Brennan torpedo, official trials of which were recently made at Sheerness. These reports will cause amusement to the initiated; but as they seem to be issued with some authority, and mention that sums ranging in amount from £10,000 to $100,000 are to be paid for the invention, it is perhaps as well that it should be pointed out that this weapon is not altogether faultless, and that certain of the statements made about it are erroneous. It has never run 50 miles an hour. It has never been run among shipping in the sense that it has been steered in and out and around them. In fact, we doubt if it can be steered more than just sufficient to keep a straight course. But perhaps its greatest fault is that it can only be worked from a fixed point, as it requires a special engine, and that, therefore, the hostile ship must *come to it*. For these reasons it is probable that the best attainable controllable torpedo is not to be found in the Brennan. The Brennan is thus described: the torpedo is ejected from the fort by means of a steam engine, at a velocity estimated at 50 miles an hour. There are within the machine two coils of wire wound on spindles, each connected with the shafting of a screw propeller. The ends of these wires are made fast to drums on the steam engine within the fort, and as the wires are unwound from the reels in the torpedo on to those on the engine, the screws are set revolving, and the weapon propelled forward. The steering is effected by hauling harder on one side or other of the wires, so as to make the respective screw revolve faster. Lights screened from the front are placed to show to those on the fort the position of the torpedo."

### One of the Evils of Natural Gas.

The legal papers in a nuisance suit against the Penn Fuel Gas Company, the largest natural gas company of this locality, will be filed to-morrow by M. Wood ward, attorney for William Metcalf and other residents of Cliff and Fulton Streets. For several weeks this gas company has been blowing off its surplus gas on the hill overlooking the Union Depot. At night the gas is lit, and the roaring, together with the light and heat, has so annoyed the neighboring residents that they will ask the courts to declare it a nuisance. They say that they cannot sleep, and the glare from the light is intolerable. The company answers that it must have an escape for the gas.—*Phila. Press.*

### Indelible Stamping Ink.

For an indelible stamping ink, M. E. Johanson, of St. Petersburg, gives the following for marking textile materials by a stamp: 22 parts of carbonate of soda are dissolved in 85 parts of glycerine, and triturated with 20 parts gum arabic; in a small flask are dissolved 11 parts of nitrate of silver in 20 parts of officinal water of ammonia. The two solutions are then mixed and heated to boiling. After the liquid has acquired a dark color, 10 parts of Venetian turpentine are stirred into it. The quantity of glycerine may be varied to suit the size of the letters. After stamping expose to the fire, or apply a hot iron.

### Mineral Products of the United States in 1884.

The second report on "The Mineral Resources of the United States," by Albert Williams, Jr., Chief of the Division of Mining Statistics and Technology, United States Geological Survey, is now in press, and will be issued shortly. This report is for the calendar years 1883 and 1884, and contains detailed statistics for these periods, and also for preceding years, together with much descriptive and technical matter. The following are the totals of the production of the more important mineral substances in 1884:

| | Quantity. | Value. |
|---|---|---|
| Pig iron, long tons, spot value | 4,097,868 | $73,761,624 |
| Silver, troy ounces, coining value | 37,744,605 | 48,800,000 |
| Gold troy ounces, coining value | 1,489,949 | 30,800,000 |
| Copper, pounds, value at New York city (*a*) | 145,221,934 | 17,789,687 |
| Lead, short tons, value at New York city | 139,897 | 10,537,042 |
| Zinc, short tons, value at New York city | 38,544 | 3,422,707 |
| Quicksilver, flasks, value at San Francisco | 31,913 | 936,327 |
| Nickel, pounds, value at Philadelphia (*b*) | 64,550 | 48,412 |
| Aluminum, troy ounces, value at Philadelphia | 1,800 | 1,350 |
| Platinum, troy ounces, value crude at New York city | 150 | 450 |
| Total | | 186,097,599 |

*a* Including copper made from imported pyrites.
*b* Including nickel in copper nickel alloy.

NON-METALLIC MINERAL PRODUCTS OF THE UNITED STATES IN 1884 (SPOT VALUES).

| | Quantity. | Value. |
|---|---|---|
| Bituminous coal, brown coal, lignite, and anthracite mined elsewhere than in Pennsylvania ..... long tons (*a*) | 73,730,539 | $77,417,066 |
| Pennsylvania anthracite ..... do (*b*) | 33,175,756 | 66,351,512 |
| Petroleum ..... barrels | 24,089,758 | 20,476,294 |
| Building stone | ..... | 19,000,000 |
| Lime ..... barrels | 37,000,000 | 18,500 000 |
| Salt ..... do | 6,514,937 | 4,197,734 |
| Cement ..... do | 4,000,000 | 3,720,000 |
| South Carolina phosphate rock, long tons (*c*) | 431,779 | 2,374,784 |
| Limestone for iron flux ..... do | 3,401,930 | 1,700,965 |
| Mineral waters ..... gallons sold | 68,720,936 | 1,665,490 |
| Natural gas | ..... | 1,460,000 |
| Zinc white ..... short tons | 13,000 | 910,000 |
| Concentrated borax ..... pounds | 7,000,000 | 490,000 |
| New Jersey marls ..... short tons | 875,000 | 437,500 |
| Mica ..... pounds | 147,410 | 368,525 |
| Pyrites ..... long tons | 35,000 | 175,000 |
| Gold quartz souvenirs, jewelry, etc | ..... | 140,000 |
| Manganese ore ..... long tons | 10,000 | 120, 000 |
| Crude barytes ..... do | 25,000 | 100,000 |
| Ocher ..... do | 7,000 | 84,000 |
| Precious stones | ..... | 82,975 |
| Bromine ..... pounds | 281,000 | 67,464 |
| Feldspar ..... long tons | 10,900 | 55,112 |
| Chrome iron ore ..... do | 2,000 | 35,000 |
| Asbestos ..... short tons | 1,0 | 30,000 |
| Slate ground as a pigment ..... long tons | 2,000 | 20,000 |
| Sulphur ..... short tons | 500 | 12,000 |
| Asphaltum ..... do | 3,000 | 10,500 |
| Cobalt oxide ..... pounds | 2,000 | 5,100 |
| Total | ..... | $220,007,021 |

*a* The commercial product, that is, the amonnt marketed, was only 66,875,772 tons, worth $70,219,561. *b* The commercial product, that is, the amount marketed, was only 30,718,293 tons, worth $61,436,586. *c* Year ending May 31.

RESUME OF THE VALUES OF THE METALLIC AND NON-METALLIC MINERAL SUBSTANCES PRODUCED IN THE UNITED STATES IN 1884.

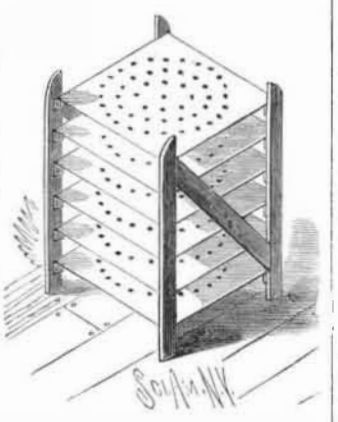
| | |
|---|---|
| Metals | $186,097,599 |
| Mineral substances named in the foregoing table | 220,007,021 |
| | $406,104,620 |
| Fire clay, kaolin, potter's clay, common brick clay, terra cotta, building sand, glass sand, limestone used as flux in lead smelting, limestone in glass making, iron ore used as flux in lead smelting, marls (other than New Jersey), gypsum, tin ore, antimony, iridosmine, millbuhrstone and stone for making grindstones, novaculite, corundum, lithographic stone, talc, and soapstone, quartz, fluorspar, nitrate of soda, carbonate of soda, sulphate of soda, native alum, ozocerite, mineral soap, strontia, infusorial earth and tripoli, pumice stone, sienna, umber, etc., certainly not less than | 7,000,000 |
| Grand total | $413,104,620 |

### Asphaltum.

As a building material, says a contemporary, asphaltum is fast growing in popular favor, and is used principally as a prevention against damp cellar walls and mason work under ground, water tight cellar floors, coating for rainwater cisterns, covering for underground vaults, etc. Its efficiency is fairly proved upon the first trial if applied properly. It has no equal for the purpose we have named, and needs only fairly to be introduced to make its own lasting reputation for reliability. The usual method of applying it is as follows: Reduce to a semi-liquid state, in an iron pot as large as can conveniently be obtained, over a good fire, sufficient asphalt to about two-thirds fill it. Use caution that the flame does not rise over the top of the pot to ignite the asphalt. Have the wall as nearly dry as possible and the joints somewhat rough—not smooth pointed—to admit of the asphalt penetrating the pores and securing a hold. Cover the wall with the asphalt, applied with a long handled brush, while the material is hot, and brush it in well. The asphalt will cool readily when applied to the cold surface of the wall. It is all-sufficient if the masonwork is thoroughly covered, for a coating ½ inch thick is as perfect a protection as a thicker one. On the roofs of vaults, tops of cisterns, or the like, where a settlement is likely to occur and produce rupture, mix a little air-slaked lime or clean, fine sand with the sand while hot. This will tend to preserve its proper elasticity, and destroy its brittleness and liability to fracture. For vault coverings, or floors to cellars, basements, etc., the coating should be about ½ inch thick, and thoroughly worked into the joints and smoothed with a trowel. A barrel of asphalt as found in the market, heated and applied to vertical brick walls as we have described, will ordinarily cover about 250 square feet of surface, and in point of cost compare favorably with other methods of damp proofing, and produces better and more lasting results.

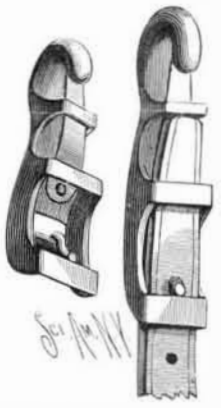
### PIE AND CAKE RACK.

The pie and cake rack shown in the engraving consists of shelves made with or without perforations, and supported by a frame of upright and bracing slats. The frame is made of four corner upright wood slats united at three sides of the rack by diagonal braces, leaving one side of the rack open to allow access to the shelves, which are about ten inches square, and made of tin or sheet metal of suitable stiffness to support the pies and cakes. The edges of the metal sheets are doubled against the main bodies of the sheets, thus forming four stiffening lips or flanges; at the corners are formed lugs, by bending the ends of the edges at right angles to the plates, by which the shelves are nailed or screwed to the uprights. This rack will be found very useful to housekeepers and others when baking, as the pies may be transferred at once from the baking plates to the shelves, where they will be held in small space, thus saving much room. This invention has been patented by Mrs. Lydia A. Rowe and Mr. D. S. Rowe; particulars can be obtained by addressing the former, 121 Clifton St., Springfield, Ohio.



### IMPROVED SNAP HOOK.

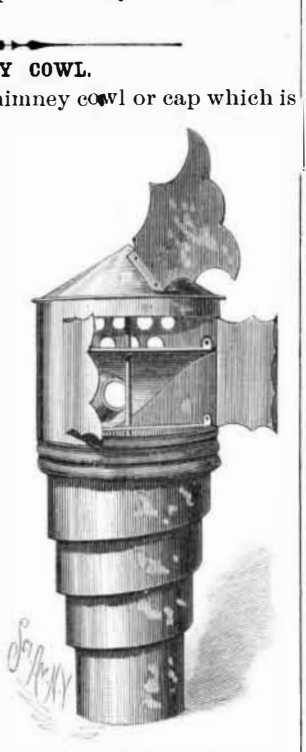
This snap hook may be applied to straps without stitching, thus effecting a saving in leather stock and enabling any person to attach a snap hook to a strap in a very short time. The hook and spring tongue are of the ordinary construction, but the spring is protected by a cross piece, so that it cannot be accidentally pressed down to release the object held in the hook. At the back end of the snap hook is a buckle to receive the strap and in front of the buckle is a loop or keeper to hold the end of the strap. The tongue of the buckle is placed upon a rod held in the frame below and somewhat in front of the cross piece of the buckle. The loop or keeper being in a line with the buckle plate, the strap will be straight and smooth when attached.



This invention has been patented by Mr. Dennis W. Palmer, of Detroit, Maine.

### CHIMNEY COWL.

The engraving shows a chimney cowl or cap which is very effective in preventing draughts from blowing down the chimney, and in keeping out rain and snow, while it increases and regulates the draught. The lower part consists of a series of tubes of different diameters formed with inclined edges and secured together one above the other by clips, the smallest being at the bottom to enter the chimney. The tubes are so held by the clips as to form passages to permit any draughts or currents of air that may blow down the cowl to pass out without entering or materially obstructing the draught of the chimney. Held in cross pieces in the center of the tubes is a standard, upon the upper end of which is placed a revolving top, at one side of which is a large opening which is always kept to leeward by a vane secured to the dome, and side wings attached to the casing, one at each side of the opening. Opposite the opening is formed a series of holes through the casing, and below these is secured a funnel, the inner end of which passes through an opening in a curved deflecting plate secured inside of the cap, so that air entering the funnel will be directed through the cap to the large opening, and air entering the holes will be directed, by the upper surface of the curved plate, also to the opening. At the base of the dome is a horizontal plate, and secured in a diagonal position above the opening is a plate which acts to direct the air downward to the opening.



This invention has been patented by Mr. Ira G. Lane, of 207 E. 64th St., New York city.

### Color Blindness.

Color blindness, like other defects of vision, affects people in different degrees of intensity, and, like myopia, or short sight, it is frequently hereditary. It often becomes more pronounced in after life, or when the near point of vision begins to recede.

Among the more highly educated of all nationalities the average number of color blind is 4 per cent, an average in excess of that of all other classes A man may have a good eye for form and outline, and yet be partially or wholly color blind. To select an instance from among many is difficult, but one impresses me more than the rest—that of Wyatt, the sculptor, who at the outset of his career was known as a remarkably good draughtsman. He naturally took to painting, but, as his pictures were observed to present curious incongruities of color, that involved him in grievous difficulties, he with much reluctance was obliged to abandon the brush for the chisel. He was altogether unable to comprehend the nature of his defect—indeed, refused to believe that he was color blind. So of men who have attained to eminence in the world of letters, and whose writings unmistakably betray evidences of a meager color vocabulary. A striking example of this occurred in the person of Angus B. Reach.

He was unable to recognize a difference in color between the leaf, the flower, and the fruit of plants and trees. His want of perception of color was wholly unknown to and unrecognized by himself, until we sat together at the table of a Paris restaurant. He, wishing to finish his letter to the "Chronicle" newspaper, requested the waiter to bring him some ink. As it often happens, under similar circumstances, the ink was brought in a wineglass. Reach became absorbed in his subject, while I, seated opposite to him, observed him alternately dipping his pen into his claret glass and into the ink glass. I frequently checked him, but presently to my surprise he took up the ink glass and was about to drink, when I remonstrated, and he then said he could see no difference between the color of the ink and the wine. On subsequently testing him I discovered that he was completely color blind.

Homer certainly labored under a physical defect of vision, and this fully explains the limited use of the terms he employed to express his sense of color, and to which Mr. Gladstone has drawn attention.—*Jour. of Science.*

### Cotton and its Machinery.

The fly shuttle, or "picking peg," was invented in 1738, by John Kay, and the drop box by Robert Kay, in 1760. A machine for spinning by rollers was invented by John Wyatt, and patented by Louis Paul, in 1738. In 1769, Arkwright patented his water frame. James Hargreaves invented his spinning jenny in 1770; while a few years after, Samuel Crompton united the principles of Hargreave's jenny and Arkwright's water frame, and gave to the world the mule spinning frame.

It was about 1790 when the improved steam engine of James Watt was successfully applied to cotton machinery. The power loom was invented by Dr. Cartwright in 1785. The headstock was placed in the center of the mule by Wright, while Richard Roberts about 1825 achieved an enormous step in advance by his invention of the self-acting mule. The Jacquard loom was invented by Jacquard, of Lyons, in 1801. The dead spindle was of American origin in 1831. The combing machine for cotton was invented by Heilmann, of Mulhouse, in 1846—adapted from his wool combing machine. The Whitney cotton gin was patented in 1794, which set aside the labor of two hundred and ninety-nine men out of every three hundred, in separating the seeds from cotton.

The first we hear tell of cotton being exported to England from the United States was in 1770, when three bags from New York, four bags from Virginia and Maryland, three barrels from North Carolina, and three bags from Georgia were received in the port of Liverpool. In 1784, eight bags of cotton were imported into Liverpool from the United States, and a blundering custom house official detained them, as he was confident they had not been grown in America. They were consigned to the firm of William Rathbone & Son, who for several months were unable to find buyers; but eventually disposed of them to the Strutts, of Derby. The cotton imported into England from America in 1883 was 3,222,000 bales of four hundred pounds each.—*Wade's Fiber.*

To disguise the odor of iodoform, Mr. P. E. Smith, of Pinckneyville, Ill., states (*Nat. Drug.*) that the best oil of lavender will almost if not entirely disguise the odor of iodoform.