Science and Art.

The Art of Dyeing.—No. 23.

DRABS ON WOOLEN GOODS—The variety of drab shades on woolen goods are exceedingly numerous. A dark reddish drab is dyed on 10 lbs. of goods by first preparing them by boiling for one hour in a mordant of 3¼ ounces of the bichromate of potash and a little quantity of crude or red tartar, and of alum. They are then taken out of the kettle, washed in one water, and dyed in a clean kettle with one pound of fustic and one pound of crop madder. This shade is cleared with a weak sour of sulphuric acid, which is added to the liquor like *raising*, a short time before the goods are finished. Various shades of this dark brownish drab, may be dyed by altering the proportions of the mordant and dye stuffs.

VERY DARK DRAB—10 lbs. of goods. Boil the goods in a clean kettle for one hour, with 2 lbs. of fustic, 2 lbs. of crop madder, and one pound of camwood. They are then lifted and saddened with one ounce of copperas in the same liquor. The copperas is boiled for ten minutes, and the froth skimmed off the top of the liquor before the goods are re-entered. Great care must be exercised in saddening drab colors, because they are so liable to become uneven and spotted; a little sumac, in some way or other not clearly understood, has the effect of making saddening work level.

FAWN DRAB.—10 lbs. of goods. Take five ounces of camwood, eight ounces of fustic, and one of logwood. Boil for one hour in a clean kettle, then sadden with one ounce of copperas. By increasing the quantities of these stuffs, darker drabs will be produced, and by using less quantities, lighter shades will be produced; indeed, every variety of drab can be colored with these stuffs. By preparing goods with the bichromate of potash and crude tartar, no saddening by copperas is required; this is the best way to dye such drabs. One ounce of logwood and one onnce of camwood, and half an ounce of fustic, will dye a light silver drab on ten pounds of wool, it is saddened with one-fourth of an ounce of copperas.

CUDBEAR DRAB—A light drab may be dyed on ten pounds of goods with one ounce of cudbear and a very small quantity of the extract of indigo, or with chemic (sulphate of indigo.) Camwood is used to impart the red shade, fustic the yellow, and logwood or indigo the blue, to goods. Madder (which produces the fastest colors,) when used in small quantities, has the quality of imparting a yellow reddish hue to goods. Copperas (sulphate of iron) possesses the quality of darkening fustic, madder, camwood, and logwood. A knowledge of these qualities of chemicals enables the dyer to give his goods such stuffs, and in such proportions, as will match his colors to any pattern.

GRAY DRABS—Some dyers make very good gray drabs, or stone colors, with logwood, fustic, aud copperas all boiled together—at one dip. One ounce of logwood, one of fustic, and one-fourth of an ounce of copperas, will dye a light shade. To ensure a level color, it is best to add half an ounce of sumac. By using more logwood, and a little blue vitriol (sulphate of copper,) a very good slate color will be produced.

By bottoming woolen goods with madder, they can be blued to a very fine drab shade with chemic (sulphate of indigo.)

FAST DRAB—This color is dyed on cloth intended to stand washing and fulling, with madder and sumac, saddened with copperas to shade. The goods (10 lbs.) are boiled for one hour in about one ounce of crop madder and one ounce of sumac, then lifted, and saddened with one-fourth of an ounce of copperas. Great care must be taken to avoid black spots in dyeing this color.

Camwood drabs, which are dyed with fustic, camwood, sumac, a little sulphuric acid, and saddened with copperas, are easier managed than madder drabs; they are not so liable to spot.

Any shade of drab may be dyed on woolen goods with cudbear, fustic, and the sulphate of indigo.

STRAW HATS—Any shade of drab may be dyed on straw hats by the same stuffs, only, they must not be boiled like woolen goods. By dyeing them (or woolen goods) a very light purple, for a basis, very good stone drabs can be colored, by working to shade afterwards in a clean liquor, with the sulphate of indigo and fustic.

Any shade of drab may be dyed on silk in the same manner. The finest silver drabs can be dyed on silk with archil, topped with *china* (neutralized indigo.) The goods are bottomed with a very light dip of archil, then the china is given in a clean vessel by itself. The extract of indigo, which is now very generally used, has superseded *china blue* for delicate shades on silk; a careful dyer, however, who makes his own sulphate of indigo, can dye these shades without neutralizing his chemic. But in jobbing dyeing, so many fabrics are now composed partly of cotton and silk, the chemic used for dyeing them drab, should be neutralized with the acetate of lead, which is much better than simple chalk—the substance commonly used.

Perry's Breech-Loading Fire Arms.

The annexed engravings represent an improvement in fire arms, for which a patent was granted to A. D. Perry, on the 3rd of June, last year.

Fig. 1 is a perspective view of the improvement with the breech lever down, showing the breech and nipple, and the open butt of the gun barrel. Fig. 2 is a segment piece drawn back from the breech in position for loading; and fig. 3 represents the breech closed by the segment piece. Similar letters refer to like parts.

The nature of the invention consists in the peculiar and effectual mode of closing the breech of the gun after the cartridge has been inserted, providing most effectually against the escape of the gas and the recoil of the breech piece under the effect of the discharge, by a segmental revolving breech piece, like the one shown, in which there is a cylindrical or conical projection on its face to enter the bore of the barrel, when the plane surface of the breech piece is brought up in contact with the rear of the bore of the barrel, and having a circular surface fitting in a corresponding recess at its rear, as combined; also a peculiar combination, and an arrangement of parts for the purpose of holding this peculiar breech piece firmly in place during the discharge.

The segment piece, *a*, turns upon the center, *b*, within a slot, *s*, in the gun stock, and has upon its face a projection, P, to enter and fit the open end of the barrel as seen in

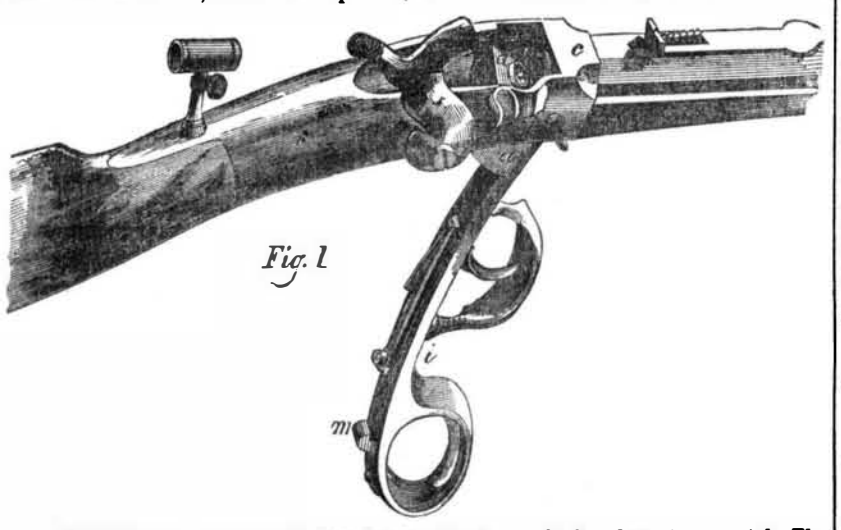

Fig. 1

fig. 3. In the center of this projection is a raised nipple, *d*, and around this nipple a slight depression, *d'*. The fire from the cap enters the charge through the center of this nipple, and the purpose of this nipple is to concentrate the fire upon the charge, in consequence of the nipple's being forced slightly within the surface of the end of the cartridge.

The segment piece is worked on and off the breech of the barrel by means of the cam levers, *g*, *h*, and the hand lever, *i*. The hand lever is provided with a spring latch, *m*, to secure it in place by a catch. The lever, *g*, is jointed to the segment piece within a slot, *g'*, in the same, and the lever, *h*, is jointed to lever *g* within a slot, *g''*, in this lever, and the lever *h* is also jointed to lever *i*, within a slot, *i'*, in this lever.

There is a notch and projection at *h'* on lever *h*, which bears upon the end of the lever *g*, when the segment commences to move towards closing the barrel, but as the segment advances, it will be seen from the figures 2 and 3, that lever *g* changes its relation to *h*, the end of *h* bearing upon the

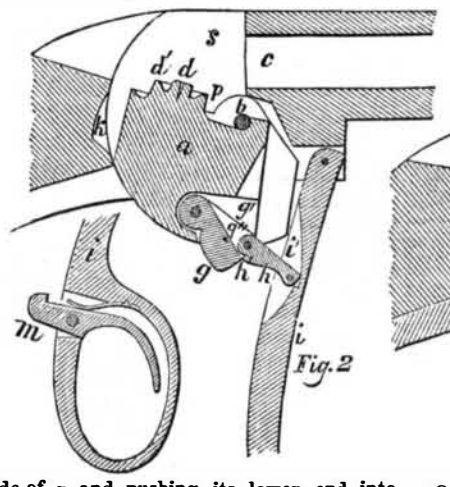

Fig. 2

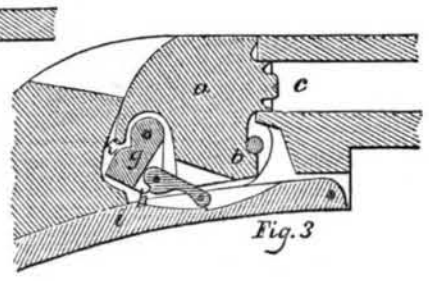

Fig. 3

side of *g*, and pushing its lower end into cavity, *k*, in the gun stock. The extremity of *g* bearing upon the side of cavity *k*, is so made and moved as to wedge itself as it advances, and thus forces the segment piece firmly against the breech of the barrel, and holds it in place. The parts around and below the projection, *p*, are cut away so as to leave room for grit or dirt to fall out of the way of the fitting parts. The operation of the segment piece is simple, and from the small number of parts, and their relation, arrangement, and operation, the work keeps clean and in order.

On page 4, this Volume SCIENTIFIC AMERICAN, we also published an illustrated description of a self-capping rifle belonging to the same Company.

More information may be obtained by letter addressed to J. M. Quimby, President of the "Perry Arms Co.," Newark, N. J.

Rice Culture on Upland.

The cultivation of rice on upland is so simple, that it is a matter to be regretted that more is not raised by planters. Those who clear rich lands every year, can feed horses and mules cheaper with it than with corn, as a per acre feed. Mules have been worked, when fed solely on rice, say two sheaves twice a day. The mode of culture is very simple, as follows: Take fresh land, new ground, break it up thoroughly, lay off rows two to three feet distant, owing to quality of land; with a hill-tongue plow, scattering the seed as regularly as possible the width of drill, cover with an iron tooth harrow. When the rice is up son e two inches, shave all off, grass and all; in a few days the rice will be up high enough to mold with a hill-tongue plow, then clean middles with plow, and run it occasionally, so as to keep clean.—[American Cotton Planter.

A new "Cornish engine" has been pu up in the Schuylkill Water Works, Philadelphia. The Philadelphia *Ledger* says, that the builders of this engine guaranteed it to do the duty of lifting 50,000,000 lbs. one foot high with one hundred lbs. of coal.

LITERARY NOTICES.

WESTMINSTER REVIEW—The April number of this able foreign Quarterly, contains a fine article on the Memoirs of the Court of Austria: another on the Administrative Example of the United States, is written with great power and commended to England. This Review is republican in its tone. The other five articles of the Review are equal to its general character. The Criticisms of Cotemporary Literature in this Review are exceedingly able and worth the whole price of the work. Leonard Scott & Co., 54 Gold st., are the publishers.

AMERICAN RAILWAY GUIDE—No person can travel satisfactorily to himself, in our country, withoutone of these useful little books: it contains information relative to all our railroads, such as hours of leaving every station, distance from one depot to another, &c. Dinsmore & Co., No. 9 Spruce st., publishers.

BLACK DIAMONDS—This is the title of a collection of comical negro lectures by Professor Julius Cæsar Hannibal, a well-known contributor to the New York *Picayune*. The real name of theauthor, we believe, is Levison. He seems to be gifted with the spirit of true humor. The book flashes with wit, laughable and ludicrous, from title page to finish. It is a real side-shaker, an infallible remedy for dyspepsia and long faces. Douglas Jerrold's Caudle Lectures, in *Punch*, has been admired by thousands, but these *Black Diamonds* beat it all hollow. Ranney, publisher, 195 Broadway, New York.

[THE PATENT HAT—Is the name of a general essay upon the evils of mental sluggishness, by Ellis Ballou. It is religious in its character; designed to rub up the bumps of clergy and laymen, and stimulate them te greater ardor in thedischarge of their duties. Published by Carlton and Phillips, Methodist Book Concern, 200 Mulberry street, N. Y.