

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Puddling Furnace.—This improvement relates to the construction of the boshes of the furnace, and the object of the invention is to so form the inner surfaces of the boshes that the said surfaces will serve to hold up in place and prevent the falling down of a protecting composition or layer. The boshes of ordinary boiling or puddling furnaces are commonly made of cast-iron, inclined and smooth on their inner or fire surfaces, and so constructed and set in surrounding fire-brick that a current of cold air circulates under the locks of the plates composing the boshes, and prevents them from becoming melted. As a further preventive against the destruction of the boshes it is common to "fix" or protect the boshes by placing against them a layer or layers of iron ore in lumps, while a layer of iron-scrap is placed upon the bottom or hearth. The ore and scraps are then partially proved and form a protection from the boshes and bottom, under the intense heat to which they are exposed during the subsequent process of boiling or puddling. The ordinary fixing or preparing of the furnace to receive a charge for puddling, is a work of much labor, requires from two to three hours' time, and involves the consumption of a considerable quantity of fuel. This improvement overcomes the above difficulties, dispenses with and saves the time, labor and expense of the usual fixing, and the attendant losses of fuel, ore and scrap-iron, etc. For this purpose the inside faces of the boshes are constructed with a series of step-like ridges, recesses or corrugations, which serve to hold or retain a protecting composition, which is thrown upon the said ridges, recesses or corrugations, and the hearth, preparatory to charging the furnace. The protecting compound is composed of lime, ore-clay, iron ore, tap cinder and iron scales. But any other suitable protecting medium or compound may be employed. Morgan J. Davies, of Zanesville, Ohio, is the inventor.

Cloth-shearing Machine.—This invention is an improvement upon the invention which constitutes the subject-matter of Letters Patent dated May 28, 1850. The improvement relates to the appliances for producing the automatic extension and contraction of the movable or flexible rest. The action of the mechanism for extending the rest is governed by what are termed "feelers" and when these have been applied as described in the aforesaid Letters Patent, from twenty to sixty of them have been used in a gang on each side of the machine, for the cloth to pass over. There have been two sources of trouble with these feelers, viz., first, the filling-up of the spaces between them with flocks and dust from the cloth, which necessitates frequent cleaning; and, second, the liability to breakage of the frames which contain them, owing to the distance between the feelers being too small for a sufficient thickness of those portions of the frame between which the feelers are placed. The object of this invention is to obviate these inconveniences, and to this end it consists principally in a novel mode of applying the feelers and combining them with the sliding bars which shift the movable rests, whereby the feelers at each side of the machine are made to effect all that has been accomplished with the larger number. It also consists in a novel mode of combining two feelers on either side of the machine to make them so operate that the movable rests are kept stationary except when the edge of the cloth runs uneven. It further consists in the employment in combination with the movable rests of sliding covers, which cover up all of the mechanism by which the said rests are operated, except portions of the feelers, and which serve to lead the lists or edges of the cloth to the feelers. Amasa Woolson, of Springfield, Vt., is the inventor.

Steam Valve.—This invention consists in a solid plug provided with a cavity and fitted in a case surrounded by an annular steam chamber furnished with three or more ports and divided off in three or more separate compartments, one to communicate with the interior of the cylinder, and one with the steam, and another with the exhaust pipe, in such a manner

that the plug is relieved from all or nearly all pressure of steam, and therefore can be moved instantaneously, and by turning said plug over a small arc, the interior of the cylinder can be brought to communicate either with the steam or with the exhaust pipe, as circumstances will require. Wm. H. Akins, of Dryden, N. Y., is the inventor.

Machine for Cutting and Twisting Paper.—This invention relates to a machine for cutting paper from a continuous roll into strips of a suitable width and twisting the latter into threads or twine, to be used as such, or to be woven or knitted into any suitable fabric, the cutting and twisting operations being simultaneously performed. The invention consists in using with an ordinary throstle or spinning frame, a cutting device formed of a series of cutters working upon a cylinder, arranged so as to admit of the cutting and twisting operations being simultaneously performed. The invention further consists in a novel means employed for facilitating the twisting of the strips of paper. Isaac P. Tice, of New York city, is the inventor.

Feeding Mechanism of Batting and Lapping Machines.—This invention relates to that class of machinery in which fibrous materials are fed to rollers in a loose, light state, for the formation of filmy sheets, such for instance as laps in the manufacture of cotton into textile fabrics and batting used in the making of garments and for various other purposes. Machines for this purpose are composed of a rapidly-revolving cylinder, most generally toothed, two feed rollers for delivering the material to said cylinder and two wire-cloth drums, or one drum and an endless belt to receive the material from the cylinder and compress it into a filing sheet, lap or bat. The great difficulty attending the operation of this class of machines has been the uniform feeding of the material to the drums, so that the former will be evenly distributed over them, and the sheet, lap, or bat, be of a uniform thickness throughout its entire width. This difficulty is occasioned by the blast, produced by the revolution of the cylinder which takes the material from the feed rollers, being retarded at the sides of the case by friction, causing the blast at the center of the case to be stronger, the latter thereby throwing an excess of the material at the central part of the compressing drum or drums. The invention consists in a novel construction of the draught board underneath the feed rollers and cylinder, whereby a strong blast is obtained at each side of the case of the machine sufficient to compensate for the retardation by friction, and thereby insure an even discharge upon or to the compressing drum or drums. William Fuzzard, of Malden, Mass., is the inventor.

MISCELLANEOUS SUMMARY.

WEALTH OF THE COUNTRY.—According to the census returns, the property belonging to the people of the United States amounted in 1850 to \$6,174,780,000, and in 1830 to \$14,222,618,068; showing an increase in ten years of \$8,048,825,840, equal to 130 per cent. This is exclusive of slaves, which were valued at 961 millions of dollars in 1850, and at 1,936 millions in 1860.

The lead mines of Bleiberg, near Villach, are the most extensive in Austria, yielding annually 1,600 or 1,700 tons of metal. The roof of the workings is formed of a dark brown marble, full of Ammonites, polished sections of which exhibit the most brilliant iridescence. This is the famous Lumachello, or fire-marble.

The Boston *Bulletin* says the New York and New Haven R. E. Company lately received a new engine, which was built in Patterson, for which they are to pay \$14,000, according to contract. The builders offered to keep it and pay the company \$30,000.

[It would be interesting to know what kind of an engine this is.—Eds.]

An immense quantity of straw is being cured and bleached in Middleboro', Mass., and vicinity, to supply the place of imported goods. Foreign straw brings an almost fabulous price.

An English steamer lately built has the escape-pipe leading from the safety valve, under water, so as to avoid the unpleasant noise caused by blowing-off in the air.

POTATO DIGGING MACHINES.—Moore's *Rural New Yorker* says to a reader, Minneapolis, Minn.:—"We do not know of any machine that digs and picks up potatoes, except humans and swine."

[We can inform the *New Yorker* that within the last two years three or four potato-diggers have been illustrated and described in the *SCIENTIFIC AMERICAN*. In the general scarcity of labor attention should be called to these machines.—Eds.]

THE MONT CENIS TUNNEL.—M. Sommeiller, the engineer, who has a great share in the direction of the works at Mont Cenis, expresses his decided opinion that the tunnel will be opened in 1872. Only one-third of the undertaking is at present completed, but there is a steady advance in the result of the labor of each successive month, the gain in July, for instance, as compared with the preceding month, being ten meters.

From a document published by the men engaged in the "lock-out" of the Leeds, England, iron trades, it appears that the nine weeks' strike has cost them £6,746. That amount has been distributed to the men locked out during the period named. The balance in hand is now little more than £62.

THE HOTTEST DAY IN TWENTY-EIGHT YEARS.—Prof. Snell, of Amherst College, who has kept a meteorological register for twenty-eight years, says that Monday, the 1st of August, was the hottest day during that period.

On some of the inclined planes of the Pennsylvania railroads the long bands for drawing up the trains are made of steel plates.

At Summit, in Pennsylvania, a coal mine is burning which has been on fire for the last eight years.

A LATIN GRAMMAR FOR SCHOOLS AND COLLEGES.—By Alfred Harkness Ph. D., Professor in Brown University, author of a "A First Latin Book," "A Second Latin Book," "A First Greek Book," etc. Published by D. Appleton & Co., 443 & 445 Broadway, New York. It is the aim of the author to present the study in a form simple, attractive, and philosophical.

ROBINSON'S ARITHMETICAL SERIES.—Published by Ivison, Phinney, Blackman & Co., 48 & 50 Walker street, New York. This work was prepared to meet a demand in advanced schools for a larger number of examples for review and drill exercises.



ISSUED FROM THE UNITED STATES PATENT-OFFICE FOR THE WEEK ENDING AUGUST 16, 1864.

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Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the *SCIENTIFIC AMERICAN*, New York.

43,823.—Cigar Knife.—John H. Abbott, Frederick City, Md.:

I claim a machine for gaging the length and cutting off the ends of cigars, in the process of their manufacture, constructed and operating substantially as described.

43,824.—Cylindrical Steam Valve.—Wm. H. Akins, Dryden, N. Y.:

I claim the solid plug or plugs, E, E', provided with cavities, e, e', and fitted in cases, F, F', with ports, f, f', f', f', to operate in combination with the annular steam chambers, g, g', each divided off in three compartments, to communicate with the interior of the cylinder, with the steam pipe, and with the exhaust pipe, in the manner and for the purpose substantially as herein shown and described.

43,825.—Manufacture of Wrought Cannon.—Horatio Ames, Falls Village, Conn.:

I claim, first, Giving a convex form to the face of the plate and rings after being welded, for the purpose set forth.

Second, The use of planed and turned rings, Figs. 3 and 4, and the heating of the same in an upright position, substantially as set forth, in combination with the pin, Fig. 7, and convex surface of the rings, as shown in Fig. 2.

43,826.—Pump.—Oren Baldwin, Summitville, Iowa:

I claim, first, The combination of a pen-stock, A, with the head, C, removable stuffing-box, g, g', and detachable cylinder, D, constructed substantially in the manner described.

Second, The construction of the valve or piston of the pump, of two perforated disks, m, m', of the same diameter as the pump cylinder, and with the aperture of one disk opposite solid portions of the other, these disks being applied to a stud, G, and operating substantially as described.