

VALUABLE RECEIPTS.

TRANSFERRING PRINTS TO GLASS, WOOD, &c.—When it is desired to transfer a steel, copper or lithographic print to glass, the first operation is to coat the glass with dilute lac or clear copal varnish. The print is then moistened with water, and while the varnish remains sticky, the paper is placed on the glass with the print side upon the varnish; it is then pressed gently to make it adhere. Several folds of white paper are now placed upon the back of the print, also a board with a light weight thereon to keep the print and varnish in contact till both are dry. After this the paper is moistened and rubbed off gently with the fingers, when the ink composing the print is left adhering to the glass. The several parts of the print may then be painted with appropriate colors and then finished with a ground coat over all. Prints may be transferred to wood in the same manner. The common mode of transferring prints to wooden blocks, for engraving, is to immerse a print for a short period in a solution of potash, then place it upon the block and press it. The potash softens the ink on the paper of the print, and, when placed upon the block of wood and pressed, the impression is made in the same manner as printing in the usual way. Prints are also transferred thus to stones for lithographic printing; also to plates of zinc for printing in a lithographic press.

STAINING MARBLE.—A solution of the nitrate of silver stains marble black; a solution of verdigris applied hot stains it green; a concentrated solution of carmine applied hot stains it red; orpiment dissolved in ammonia stains it yellow; the sulphate of copper, blue; and a solution of magenta, purple. The marble should be warmed before any of these solutions are applied, so as to open its pores and enable it to absorb more of the coloring matter. Marble may be stained according to beautiful designs with such colors. This art was more extensively practiced in Italy during former ages than it is at present.

COPPERSMITH'S CEMENT.—Boiled linseed oil and red lead mixed together into a putty. The washers of leather or cloth are smeared with this mixture in a pasty state. Resin mastic alone is sometimes used by jewelers to cement, by heat, cameos of white enamel or colored glass to a real stone, as a ground to produce the appearance of an onyx.

PLUMBER'S CEMENT.—Black resin 1 part, brick-dust 2 parts, well incorporated by a melting heat.

CEMENT OF DIHL FOR COATING THE FRONTS OF BUILDINGS.—This cement consists of linseed oil, dried by being boiled with litharge, and mixed with porcelain clay in fine powder, to give the consistence of stiff mortar. Brown color may be given with ground bricks or pottery. A little oil of turpentine aids its cohesion upon stone, brick or wood; it may be applied to sheets of wire cloth and laid upon terraces to make them water-tight; but lead is not much more expensive.

CEMENT FOR WINE-BOTTLE CORKS.—This cement consists of pitch hardened by adding resin and brick-dust.

A COMPOSITION FOR ARCHITECTURAL ORNAMENTS is formed of glue, chalk and paper pulp; the paper aiding the cohesion of the mass.

APPLICATION FOR THE EXTENSION OF A PATENT.

Ox-yoke Fastening.—A. A. Hotchkiss, of Sharon, Conn., administrator of the estate of Andrew Hotchkiss, deceased, has applied to the Commissioner of Patents for the extension of a patent granted to said Andrew Hotchkiss, on July 17, 1849, for an improvement in Ox-yoke Fastenings. The petition will be heard at the Patent Office on June 29th; the testimony will be closed on the 15th of that month.

WOOD PAPER.—There is an establishment at Royer's Ford, Pa., in which paper is manufactured from wood. Any kind of white wood is used. From five to six cords are consumed each day. About two and a half tons of paper are manufactured per day, running day and night. Over fifty hands are employed, and the paper is used by a number of the leading newspapers. The experiment of making writing paper is just being tried. The art of making paper out of wood is decidedly a novelty and is well worth the attention of the curious.—*Exchange.*

IMPROVED HORSE HAY-FORK.

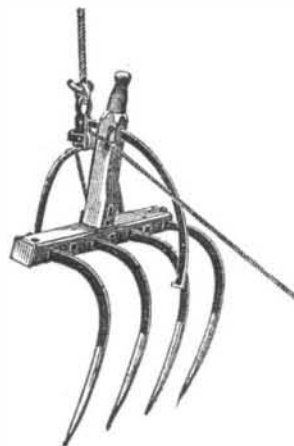
Great benefits have of late years been conferred upon our farmers by the successful application of improved implements and machines for saving severe human labor. The pitching of hay in the barn by hand was among the most laborious exercises of the farmer; but he can now be relieved of this toil by applying horse-power to unload his wagons, by a simple adjustable fork like the one represented by the accompanying figures. One of these figures represents the fork in a position ready to be pushed into the hay on a wagon, and the second represents it in the position it occupies when discharged.

FIG. 1.



The teeth of the fork are secured in the usual manner in a cross-head, to which is fastened an iron suspension yoke. On the top of this yoke is an eye to which the rope is secured that elevates the fork with its load, and also lowers it. This rope passes up over a pulley secured in a beam of the barn, then down and over a pulley fastened to the floor, thence to the horse which operates the fork. A shank projects behind the head of the fork, in the interior of which is a sliding spring catch. A metal bow-brace, secured to the head of the suspension yoke, passes backward through an opening in the shank. On the lower end of the bow-brace is a notch, shown in Fig. 2. A cord is attached to the inner end of the sliding spring catch in the shank, thence carried over a roller in the yoke and down to the person who is on the wagon, or the one who is to discharge the fork. The fork is thrust into the hay by taking hold of the shank and yoke with the fork in the position as shown in Fig. 1, then it is raised with its load by the horse drawing on the upper rope shown. When the fork has arrived at the place where it is to be

FIG. 2.



discharged, the cord is drawn which liberates the brace-bow, and the fork is canted as shown by Fig. 2. This is a very simple horse-fork. It requires no attention until it arrives where it is to be discharged, and it can readily be moved to any point in a barn so as to swing directly over a mow. By it the greatest labor in harvesting the hay crop is rendered comparatively easy, and a ton of hay may be unloaded with it in a few minutes. A patent was granted for it on Feb. 4, 1862; for further information address George W. King & Co., Greenville, N. Y.

The gold fields of New Zealand are now yielding at the rate of 20,000 ounces per week.

Bristol's Anti-friction Slide Valve.

We have examined a model of this apparatus, and found the mechanical arrangement very simple. It consists of a slide valve mounted upon steel rolls in such a way that the weight, amounting to several tons in a large valve, is removed from the valve seat and the valve itself enabled to move easily back and forth; thus relieving the tremendous strain on the valve-rods and eccentrics, and adding materially to the effectiveness of the machinery. The inventor has experimented very carefully upon the relative proportions of the two surfaces—those under the rolls and the valve face itself—and we are assured that the latter is always steam-tight, requiring no lubrication and unlikely to cut when neglected. If all the conditions claimed for this invention are obtained, it is certainly a long-sought-for desideratum and solves a great problem in steam engineering. These valves are now fitted to some new engines in United States sloops-of-war. See advertisement on page 287.

LITERARY NOTICE.

ANNUAL OF SCIENTIFIC DISCOVERY.—A Year-book of Facts in Science and Art. Sheldon & Co., New York; Gould & Lincoln, Boston.

This volume presents in a compendious form a large amount of scientific information, useful for reference and interesting to those who are fond of natural science. The work is prefaced with an admirable portrait of John Ericsson, the inventor and engineer, to whom is attributed the honor of bringing into public use the *Monitor* batteries. The several discoveries in manufactures and the arts are alluded to, and all objects of interest in the material world have their appropriate place allotted them. Information that can be obtained from no other sources is here easily attainable, and will be highly prized by the searcher-after-facts concerning the progress of the world. Mr. David A. Wells is the editor, and the arrangement of the matter does credit to his taste and judgment.

"WELL'S COMMERCIAL EXPRESS AND PRODUCE REPORTER."—We have often desired to obtain statistics of the grain crops and of the cereals generally which are raised at the West, and we have always found *Well's Commercial Express and Produce Reporter* a reliable reference for the purpose. It contains a large amount of useful intelligence on those points, and has, in addition, extracts from the best journals of the day; also, the latest market reports and editorial suggestions to the business community, which are doubtless valued and heeded. Every merchant in the produce trade should consult its columns.

THE NATIONAL ACADEMY OF SCIENCES.—At the late session of Congress, an act was passed for the formation of a National Academy of Sciences, and fifty corporators, mostly members of the American Association for the Advancement of Science, were included in the bill. A preliminary meeting of the corporators were held in this city, last week, and fifty members were present; Prof. Joseph Henry of the Smithsonian Institute, was chosen president. A committee was appointed to report a plan of organization for the Academy.

MOVING A CHIMNEY.—A remarkable work was accomplished at Worcester, Mass., last week. The chimney-stack at the iron-works of Nathan Washburn, which is 100 feet high, having in it 80,000 bricks and weighing 170 tons, was moved a distance of 150 feet and turned partly around, without the slightest accident, and not even a brick was dislocated.—*Commercial Bulletin.*

A WOMAN was walking in a street in Philadelphia the other evening, with a box of matches in her pocket, when she fell; the fall ignited the matches and her clothes were set on fire; in her alarm she started to run, thereby fanning the flames, and she became so badly burnt that she soon after died in the hospital.

ACCOUNTS from the principal agricultural centers of the Western States inform us that the prospect for the coming crop of winter wheat is very good. Notwithstanding the great scarcity of labor, more than an average breadth of land has been sown in most places.