

H. and feed board, I, substantially as shown, for the purpose specified.

Third, The corrugated roller, F, in combination with the auxiliary smooth roller, F, and roller, C, with or without the elastic surface, D, arranged or disposed so that the roller, F, may serve in the capacity of a stripper to the roller, E, or both as a stripper and draw roller, as described.

Fourth, The employment or use of the discharging rollers, Q, R, applied to a roller cotton gin, and arranged to operate substantially as and for the purpose set forth.

Fifth, The employment or use of the guard plate, G, either vibratory or stationary, in combination with the rollers, E F and B, substantially as set forth.

22,816.—John Dick (assignor to himself and S. C. Hills), of New York City, for an Improvement in Sewing Machines:

I claim, first, The combination of a feeding dog attached to a lever working on a fixed axle, on which the feed wheel rotates, and a retaining dog carried by an arm rigidly secured to the said axle, substantially as described.

Second, The combination, with the lever which carries the feeding dog, of a crank, H, applied to slide across the end of a hollow shaft, G, a lever, I, applied within the said shaft, and connecting the said crank with a screw arranged transversely to the said shaft, and an index attached to the said screw, outside of a dial attached to the exterior of the said shaft; the whole applied and operating substantially as described for the purpose set forth.

26,817.—Henry C. Foote, of Fredericktown, Ohio, assignor to himself and C. Kilgore, of Chattanooga, Tenn., for an Improved Combined Watch-key and Calendar:

I claim the combined calendar and shield as a new article of manufacture, the same consisting of a shield, circular plates and split ring, as described.

[This invention consists in combining with a shield an adjustable circular plate; on the latter is inscribed the days of the months and days of the week, and on the former the days of the month, the whole forming an almanac which may be adjusted so as to readily indicate the day of the week or month; it forms also an ornamental pendant which, if made of gold or other metal, may be hung on a watch chain or ribbon, by a split ring or other suitable fastening, which will serve to keep the dial plate in its place.]

25,818.—Franklin B. Hunt (assignor to R. D. Van Duersen and Ira B. Gibbs), of Cincinnati, Ohio, for an Improvement in Mills:

I claim, first, the reversible block, Q, secondary frame, M, and cylinder carrier, F G H, constructed and arranged for the use of different cylinders, substantially as described.

Second, In combination with the above arrangement of parts, I claim the feed plates, U, constructed and arranged to operate substantially as described.

26,819.—Joseph J. Knight, of Philadelphia, Pa., assignor to himself, Thomas Patterson and James Lyndell, of Bristol, Pa., for an Improvement in Corn Planters:

I claim the axle, C, with the sleeve, E, its ratchet wheels, ff, operating the lever, g, the clutch box, y, operated by the lever, E, the latter being connected to a catch, y, for operating the ratchet wheel, p, and also connected to the lever, W, on the shaft, x, for operating the plow teeth, H, when the whole of the parts are combined for joint action, as and for the purpose set forth.

26,820.—Wm. P. Patton (assignor to himself and Wm. Moyer), of Harrisburg, Pa., for an Improved Stopper for Preserve Cans:

I claim the peculiar combination and arrangement of the several parts, A B C D, or their equivalents, substantially in the manner and for the purpose set forth and described.

26,821.—William Smith (assignor to Smith, Park & Co.), of Pittsburgh, Pa., for an Improvement in Railroad Car Wheels:

I claim making railroad car wheels having cast iron rims, and hubs with a rim plate, either sinuous or otherwise, extending around and underneath the rim, the hub and rim being connected by wrought iron spokes, placed alternately at the outer and inner face or edge of the rim and hub, in the manner described for the purpose of distributing the bearing or pressure of the spokes, so as to make it equal on both edges of the rim and hub.

Second, Making the cast iron rim of railroad car wheels with a sinuous rim plate cast in one piece with the rim, and extending around the inner face of the rim, the rim plate being so shaped that both of its edges (following its windings) are of equal length to each other and also to the circumference of the outer face or tread of the wheel, for the purpose of securing an equal degree of contraction of the rim and rim plate, and at the same time strengthening and bracing the rim and supporting the strain of the wrought iron spokes.

Third, Also, the combination in railroad car wheels of a cast iron rim, having a waving or sinuous rim plate around its under or inner circumference, with a cast iron hub connected with the rim plate and rim by means of wrought iron spokes arranged alternately near the inner and outer face of the wheel, substantially in the manner described.

26,822.—L. A. Dole (assignor to himself and Albert R. Silver), of Salem, Ohio, for an Improved Tool for Cutting Round Tenons:

I claim, first, The arrangement of the flanged cylinder, A, face plate, D, radial rests, e e e, and cutter, f, in the peculiarly constructed adjusting ring, C, G, substantially as and for the purpose set forth.

Second, The combination of the right hand screw thread, k, formed on the inner circumference of the flanged cylinder, A, the left hand screw thread, l, formed on the circumference of the gage shank and the set nut, F, substantially as and for the purposes set forth.

[This is a very neat and simple tool. The end of the piece of wood on which a round tenon is to be cut is inserted into a hollow tube which has at its front end several radial rests and a radial cutter. The tool is revolved, and the stick being fed forward on the rests, has a perfectly round tenon formed on it by the cutter, the length of the tenon being gaged by means of an adjustable stop at the rear end of the tube. Mr. Dole also obtained a patent, through the Scientific American Patent Agency, last week, on a simple and good washing machine. This washing machine produces, by one movement of the hands, a lateral squeezing action, and an up-and-down rubbing action on the clothes.]

#### DESIGNS.

S. W. Gibbs, of Albany, N. Y., assignor to North, Chase and North, of Philadelphia, for a Design for Stoves.

Theodore W. Lillagore (assignor to Savery & Co.), of Philadelphia, Pa., for a Design for Fire-dogs.

#### ADDITIONAL IMPROVEMENT.

Addison G. Brush, of Great Bend, Pa., for an Improvement in Operating Churns. Patented June 15, 1858:

I claim, in combination with the rotating tread wheel, A, the vertical pins, a, vibrating levers, b b, and connecting rods, d, d, arranged and operating with the rockshaft which drives the churn-dashers, as specified.

## Notes & Queries

E. P. J., of Vt.—To make a cheap telescope, procure from an optician a 35-inch object-glass (that is, a convex glass which produces a focus of the sun's rays at the distance of 35 inches), and a 1-inch eye-glass (that is, a convex glass producing a focus at 1 inch). Employ a tin plate-worker to make two tin tubes, one 30 inches long, and about 1 1/4 inch in diameter; the other, 10 or 12 inches long, and its diameter such that it will just slide comfortably inside the larger. The inside of these tubes should be first painted, or otherwise lined with a dull black. At the end of the larger tube an ingenious workman will have no difficulty in securing the object-glass, so that no more than an inch diameter of it shall be exposed, and at the end of the smaller tube the eye-glass must be fixed. When the open end of one tube is inserted in the open end of the other, so that the two glasses shall be about 37 inches apart, a telescope will be presented which will magnify the diameter of objects 36 times; or, in other words, will make heavenly objects appear 36 times nearer. We need scarcely add that, with this instrument, all objects will appear inverted; but, with regard to celestial objects, this is of no importance.

C. T. M., of S. C.—You say: "Seeing an answer to a correspondent that a gunpowder engine would not work, for the reason that it would explode too suddenly, induced me to try the experiment. I took a tin can, and fixed the mouth of a pistol in it, with a gas cock to shut off to reload; and found, by firing very small quantities of powder in at a time, I could get up considerable pressure without bursting the can. Could that be used as a boiler in place of steam? I do not want to go to the expense of a model if it will not work." An interesting experiment; but the great difficulty is to prevent the cylinder from becoming foul with powder smoke.

J. I., of Iowa.—A circular saw which has become "buckled," by overheating can be straightened by the usual mode of hammering, or by cutting into the softened part, or by pressing out the buckle by a method described on page 379, Vol. X. (old series), SCIENTIFIC AMERICAN. It requires great care and a proper anvil to straighten a buckled saw by hammering, but it is the best method. It would require too much of our space to give you recipes for making such a number of varnishes as you desire for furniture and carriages.

M. M., of Mo.—When air is raised in temperature in a close vessel to 350° Fah., it exerts a pressure of 10.69 lbs. on the square inch. When air is heated to 491° Fah., it is doubled in volume at the same pressure; or, if confined to its original volume, it exerts a pressure of 15 lbs. on the square inch. In compressing air, it gives out its latent heat according to the pressure to which it is subjected; but we have no table of experiments which give the accurate degrees of temperature according to the pressures.

I. K., of Pa.—A belt for polishing oak and hickory spokes is made by coating the belt with glue, then dusting it over the entire surface with very fine emery, and allowing it to dry. Give three separate coats in this manner. Some persons mix the emery with the glue, and put the whole on at once with a brush. Be sure and allow it to dry thoroughly before you use the belt.

T. C. H., of Cal.—We have read of Dr. Collyer's discoveries in paper-making from straw, &c., but we are not minutely acquainted with the process. So far as we have been able to learn, we have thought it was similar to some of the processes used for making paper from straw in the United States. No patent has been taken out by Collyer in this country, but he has secured it in England, where he resides.

D. L. W., of Ind.—You are right about perpetual motion being as easily obtained by a magnet placed in a close vessel containing aquafortis and iron as by any other mode. The magnet, however, will soon become an oxyd by the action of any free acid that may be in the bottle.

H. K., of —.—The atmospheric hammer to which you refer could compress air in a cylinder by its falling action, but no benefit could be derived from such an application, because no work could be performed by the falling hammer but the compression of the air. A galvanic battery is made of alternate plates of zinc and copper, arranged in pairs in cells or tumblers containing dilute sulphuric acid. All the plates are connected together in a circle with a thick copper wire.

J. N. V. L., of Va.—We do not remember having received your new theory in regard to the aurora borealis; but if we had received it, we should probably not have published it. We value new theories much less than we do new facts. If you will make any observations on the aurora at its next appearance, and will send us an account of them, we shall be pleased to give them a place in our paper. A gentleman in our office offers to furnish us with one new theory of the aurora borealis per day throughout the year.

F. L. G., of Conn.—You ask whether the metals gold, silver, copper and iron grow or not. All the metals are simple substances, and the quantity of them on the earth does not vary (with the exception of the small amount which is added by the fall of meteoric stones), but portions of them are constantly being moved from one part of the earth to another. Iron situated near the top of a hill may be washed down by the water and deposited in new beds at a lower level. There are also animals so small as to be invisible to the naked eye, the bodies of which are covered with scales of iron, and they congregate in marshes in such inconceivable multitudes as to form beds of iron ore which will supply large furnaces for years. Beds of metal may grow, but the quantity of metal on the earth does not sensibly vary.

J. W. & N. G., of C. W.—You can cast your plow points as hard as steel on the surface by using iron molds. You must cool the surface of the metal suddenly, if you wish to make it hard.

R. E., of Miss.—Sufficient heat may be concentrated by a burning lens from the solar beam to heat as much air as will drive a small air engine, but the lens will require to be very large, and to be continuously shifted, in order to focus the rays. The apparatus would be impracticable for useful purposes.

T. D. W., of Ala.—India-rubber tubing is not used in conveying steam except on extraordinary occasions, such as for carrying steam to extinguish a fire. It may thus be used, as it can stand a temperature somewhat above 230° Fah. We do not know the pressure such tubing will stand when highly heated, but you can get it made to stand a pressure of 200 lbs. of water on the square inch.

R. W. H., of Conn.—We think such a pipe as you mention would be very useful in many cases. We suppose you are aware that steam hose is made strengthened with coiled wire inside, but this is neither metal pipe nor elastic.

W. H. S., of Ind.—There is no tool used for dressing millstones, known to us, called the "diamond pick." Millers have frequently much trouble in obtaining picks that will keep the edge well for dressing stones, and they generally attribute the failure to a want of skill in tempering. The great object should be the selection of good cast steel, as no skill in tempering can make a good tool out of a poor piece of metal. Your method of backing millstones will be acceptable for publication.

S. T. V., of N. Y.—By boiling hickory wood in oil it does not become "seasoned" according to the common meaning of the term; but it is rendered harder and is prevented from absorbing moisture. Unless great care is observed, however, to boil it for a very short period only, the fiber of the wood will be greatly injured. You can season your hickory quickly by submitting it to boiling in water for about 10 minutes, then allowing it to dry afterwards in a shed. Steaming would effect similar results, the heat to which it is submitted having the effect of coagulating the vegetable albumen in the sap.

#### Money Received

At the Scientific American Office on account of Patent Office business, for the week ending Saturday, Jan. 14, 1860:—

S. & J. H. B., of Mo., \$35; G. McK., of Ill., \$25; G. D., of Ohio, \$25; B. J. L., of Mass., \$30; J. M. K., of Vt., \$25; J. A. S., of Wis., \$35; J. W. C., of Maine, \$30; D. G. F., of Wis., \$30; R. P. B., of Miss., \$35; I. W. K., of Cal., \$15; T. H. B. & Co., of N. Y., \$350; G. W., of Conn., \$30; C. A., of Ill., \$35; P. M., of Ill., \$65; J. G. P., of Pa., \$30; T. J. G., of Mass., \$25; G. W. D., of N. Y., \$30; I. E. P., of Conn., \$25; G. P., of N. Y., \$25; O. H., of N. Y., \$15; H. H., of Cal., \$10; A. H. C., of Wis., \$12; A. E. D., of Ill., \$20; D. W. M. L., of Iowa, \$30; F. D., of Conn., \$25; A. H., of Ill., \$20; J. L., of N. Y., \$30; G. P., of N. Y., \$30; W. B. & R. B., of N. Y., \$20; J. P. H., of La., \$25; W. C., of N. Y., \$25; W. A. P., of Vt., \$25; J. A., of La., \$30; J. H. T., of N. Y., \$50; C. E., of Conn., \$25; F. & H., of Cal., \$35; C. E., of N. J., \$30; H. H., of Cal., \$27; F. & H., of N. Y., \$35; C. H. D., of Mass., \$30; T. S., of Conn., \$30; J. E. P., of Conn., \$35; C. M. S., of Conn., \$25; G. W. D., Jr., of Va., \$25; J. H. N., of N. Y., \$30; C. & P., of Ind., \$30; J. McC., of N. J., \$20; B. & F., of Pa., \$30; H. B. F., of N. Y., \$30; J. H., of R. I., \$50; V. B. B., of N. Y., \$30; E. H., of Cal., \$45; J. R. E., of La., \$35; R. W. J., of R. I., \$25; W. G. M., of N. Y., \$30; S. G. L., of N. Y., \$30; J. C. R., of N. Y., \$30; P. A., of N. Y., \$25; T. D., of N. J., \$25; J. B. T., of Ill., \$25.

Specifications, drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Jan. 14, 1860:—

T. D., of N. J.; P. A., of N. Y.; J. B. T., of Ill.; S. R., of N. J.; N. C. S., of Conn. (2 cases); J. M. K., of Vt.; I. E. P., of Conn.; H. H., of Cal.; G. L., of N. Y.; G. W., of N. Y.; H. M., of N. J.; O. H., of N. Y.; J. P. L., of N. Y.; F. D., of Conn.; T. J. G., of Mass.; J. N., of N. Y.; R. W. H., of Ga.; J. C., of N. Y.; W. A. P., of Vt.; T. R., D., of N. J.; R. W. J., of R. I.; C. & E., of Conn.; G. W. D., Jr., of Va.; C. M. S., of Conn.; J. H., of R. I. (2 cases); W. H. L., of N. Y.; A. H. C., of Wis.; G. P., of N. Y.

#### Literary Notices.

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