up said openings, and impervious to perspiration, as represented, and for the purpose set forth.

Lauriston Towne, of Providence, R. I., for an Improved Chain Machine. Patented Oct. 20, 1857:

I claim, first, The combination of a punch-plunger, or other equivalent instrument, with a forming guide, or its equivalent, substantially as described.

Second, I also claim the combination of a forming guide, or its equivalent, with the instruments co-operating with said guide, or their equivalents, to effect the bending of the arms, substantially as described.

Third, I also claim the combination of a die, j, Fig. 6, or its equivalent, for giving the first bend to the link with a forming guide, or its equivalent, substantially as described.

Fourth, I also claim the combination of a carrier on which the link is transported with a forming guide in which the link is deposited, or their equivalents, substantially as described.

Fifth, I also claim the forming guide for holding and transmitting the chain during the formation thereof, or its equivalent, substantially as described.

Sixth, I also claim giving to the forming guide an angular or intermittent rotary movement upon its axis, so as to present the chain to the successive links in such positions that the arms thereof will alternately interlock.

Seventh, I also claim the slender converging rods, r r, or other equivalent instruments, for holding down the top link while the arms of the link next beneath are being bent over it, substantially as described.

Eighth, I also claim the arrangement and operation of the slides, aa, or their equivalents, substantially as described, so as to bend the arms of each link successively by pairs and cause the succeeding pair or pairs to overlap the preceding ones, or in case the links have an odd number of arms, to cause the succeeding arms of each link to overlap the preceding ones singly in succession.

Philip Ulmer, of New York City, for an Improved Spring Bed Bottom. Patented Oct. 4, 1859:

I claim, first, The method described of connecting the spring, b, or any equivalent means, to the strip, a, by which the same is secured in placed by contact between compressing surfaces, substantially in the manner and for the purposes set forth.

Second, I also claim the use and application of the strip, a, substantially in the manner and for the purpose specified.

D. S. Wagener, of Penn Yan, N. Y., for an Improvement in Flouring Mills. Patented Sept. 25, 1855:

I claim the arrangement of tubes, B and C, connected by the supplemental shoe, K, within the air-tight chamber, A, in the manner described and for the purposes specified.

I claim cleaning grain through a tube or case at the point, K, by means of tube or case, C and K, and blast fan, D, or their equivalent, as set forth.

ADDITIONAL IMPROVEMENTS.

Norman Cowles and Abijah Hulbert, of Edgefield, S. C., for an Improvement in Spring Back Carriage Seats. Patented Oct. 11, 1859:

We claim the upright spring blades, c c, supporting the lazy-back, B, the arm rest springs, D D, when arranged and combined substantially in the manner and for the purposes set forth.

EXTENSIONS.

Solyman Merrick, of Springfield, Mass., for an Improvement in Feeders for Screw Machines. Patented March 7, 1846; re-issued May 7, 1850:

I claim, first, The method, substantially as described, of arranging screw blanks, &c., by the motion of oppositely inclined beveled or curved surfaces with sufficient space between them to receive freely the shanks of the blanks whilst they hang suspended by their heads, the said motion of such surfaces being in the direction of the space between them, substantially as described.

Second, Making one of the said inclined beveled or curved surfaces in two parts, one above the other, substantially in the manner and for the purpose specified.

Third, Combining with the said oppositely inclined beveled or curved surfaces, a fence or guard plate placed across from the one towards the other, and over the space in which the blanks are suspended, substantially in the manner and for the purpose specified.

Fourth, In combining with oppositely inclined beveled or curved surfaces revolving arms, wings or heaters, substantially in the manner and for the purpose specified.

Fifth, In combining with the said oppositely inclined beveled or curved surfaces a checking and delivering apparatus, substantially in the manner and for the purpose specified.

Ezra Ripley, of Troy, N. Y., for an Improvement in Tea Kettles. Patented March 14, 1846:

I claim making the spout of tea kettles at its junction with the body to extend from the bulge of the body to within a short distance of the top, whereby, in molding, the spout can be formed by means of a green instead of a dry sand core, as described.

Notes & Queries

J. M. R., of Ohio.—The oil springs are probably the result of the decomposition of vegetable substances by the action of the internal heat of the earth. It is not likely that any of them are absolutely inexhaustable, and their extent will no doubt vary like that of coal beds and other geological deposits.

F. J. H., of D. C.—We saw the boiler and engine of Mr. Frost, while he was alive, in Brooklyn, and witnessed several experiments with his "stame." This is what is now commonly called superheated steam and its being somewhat extensively applied in England.

W. G. C. W., of Mass.—Your case is slowly progressing.

D. R, K., of Conn.—The rock formation of which you speak is by no means of an unusual extent. The whole peninsula of Sweden and Norway is now slowly rising, and the process has been going on for centuries.

W. T. G., of Conn.—The shining substance which you send us is "mica," one of the three constituents of granite. Your stone walls are no doubt full of it, but you have not a placer notwithstanding.

M. A. S., of Ill.—You can gain no power by a siphon. If you have a fall of one foot, and turn over its siphon which has one leg four feet long, and the other five, the power obtained by the fall of the water through four feet of the longer leg is just expended in drawing the water up through the shorter leg.

J. F., of Md.—If the twist of trees is more apt to turn in a direction corresponding with the course of the sun, it is certainly a very curious fact. Suppose you make a memorandum of the next hundred trees that you split, and see in how many the twist is with the sun.

R. H., of Pa.—You have probably noticed that the statement of a correspondent, that coal tar would keep the curculio off from trees, has been already contradicted.

L. K., of N. Y.—The general rule used for cutting the depth of wheel teeth is to allow .65 of the pitch for the depth. If the space is one inch between two teeth, the depth should be .65 of an inch.

J. C. H., of Tenn.—There is no work in print specially devoted to steam engines and power presses. Catechu is very good for putting into steam boilers to remove incrustations. Slippery elm bark would suit your purpose better than any other substance for the boiler.

A. C. Jr., of Texas.—If you will send us some of the California beer seed we will examine it, and give you our opinion of it.

P. S., of Md.—We like to answer all questions addressed to us, if we can, but really we have not the space to spare for replies to all of yours. They would fill our whole paper. We think that Appleton's Cyclopædia is just the thing for the great mass of intelligent families in this country.

M. & J. H. B. & Co., of N. H.—We hope soon to have a full report of the experiments with turbine wheels at Philadelphia, which we shall lose no time in laying before our readers.

J. A. W., of N. Y.—The breaking weight of different kinds of wood has been found by experiment to be as follows: the sticks, one inch square, extended horizontally with the weight suspended at the end, one foot from the support: oak, 240 lbs.; chestnut, 170; yellow pine, 150; white pine, 135; ash, 175; hickory, 270.

H. L. R., of Texas.—The spinning wheel, for spinning wool by hand, was in universal use by the last generation, and they are very common now in many parts of the country. We presume you can get them made in Texas. The placing of oyster shells in steam boilers to prevent incrustations has been repeatedly suggested.

W. M., of N. Y.—Very manifestly the statement should be: "Water changing into ice converts 140° of latent into sensible heat."

C. H. A., of Mass.—If you mix fine plumbago with india-rubber, you will obtain an article which will have a smooth and hard surface, if a sufficient quantity of it is used. Chalk makes a hard white compound when mixed with india-rubber.

J. S., of N. Y.—The process of rectifying naphtha by distillation is public property—free to you and all. The instructions given on page 350 of our last volume, for purifying coal oil, are suitable to your case, and may be followed with profit.

C. L. C., of Conn.—We believe that a solution of the sulphate of copper (blue vitriol) is better for preserving timber than a mixture of the sulphate of iron (copperas) and copper.

F. F., of Kansas.—You can only obtain works published by order of Congress by applying for them to some of the members. We do not know where you can get "astronomical telescopes at the lowest price." The best telescopes in our observatories have been made to order in Germany.

S. K., of Conn.—A small quantity of the nitrate of silver dissolved in ammonia, and added to your stencil ink, will render it indelible; but it should be kept in a blue-colored dish, or it will be decomposed before it is applied by the action of white light.

D. A. W., of Vt.—The best composition to put on iron gearing as a lubricator when it is exposed to water, to prevent wearing out, is one pound of tallow to the quart of sperm oil, and one ounce of fine plumbago carefully stirred in when the tallow and oil are warm. Oak is the most durable timber for the sills of mills. If you char the surface of the wood by burning it slightly, it will endure much longer, either above or below water. An application of hot pitch to the surface of such wood also renders it more durable.

J. P. A., of Ohio.—A good lacquer is made by coloring lac-varnish with turmeric and annato. Add as much of these two coloring substances to the varnish as will give it the proper color; then squeeze the varnish through a cotton cloth, when it forms lacquer. You can obtain bronze powders in any store where artists' materials are sold. With any proper varnish, you can bronze lamps with such colored bronze powders as may suit your taste.

G. B., of N. Y.—Perhaps the reason of our misunderstanding you is to be found in the peculiar manner in which you use the word "ponderable." As ordinarily understood, carbon is just as ponderable when floating in the air as when concentrated in woody fiber or charcoal. The position of yours which we pronounced unsound, was that vegetable life converts imponderable into ponderable substances.

T. S. P., of Ill.—The experiment has been tried of melting quartz to extract the gold. One trader in this city was included to purchase the secret of a flux, and to fit out quite an expedition to California to put it in practice. After he got there, he was surprised to find how great a heat was required to melt the quartz; and the first intelligent man that he fell in with told him that no doubt the flux which he was keeping so private was potash. The plan takes too much fuel to be profitable.

E. T. Q., of N. H.—Certainly our answers are open to criticism. Of course, writing for so many readers and making a business of it, we use every means in our power to make our statements correct, but none but a perfect ass will pretend to be infallible. If we make a false assertion we are more anxious than any one else can be to have it promptly and unequivocally corrected, and we thank you for calling our attention to the answers which you speak of. The one in regard to the mirror was made in reference to our understanding of the question, which you will find fully explained elsewhere. In regard to the velocities of falling bodies: Suppose that there were but two bodies in the universe—the earth and a pebble the size of an egg—and that they were 95,000,000 of miles apart in a state of rest when the force of gravitation commenced its action upon them, they would fall toward each other, meeting at their common center of gravity (Newton's Principia, law iii., cor. 4). Now, suppose again but two bodies—the earth and the sun—meeting also at their common center of gravity. Would not the pebble move with greater velocity than the sun?

J. H. M., of N. Y.—Numerous correspondents have entirely settled the question in regard to cracks in frozen mud. They run in all directions, and "Medicus" was in error.

G. E. S., of Mass.—The plan of forcing up water into an elevated reservoir and then using the head to throw the water over buildings in case of fire, has been long in use. The city of Worcester has such a water supply, though we believe the reservoir is supplied by natural sources from the hills and requires no power to raise it.

J. C. W., of Ohio.—Water colors are used for colcring maps. They are applied with a brush, and when done in large establishments, generally through stencil plates.

E. H. C., of Mass.—A horse will draw a larger load up hill if the wheels of the wagon run on iron rails than if they run on a good hard road.

Money Received

At the Scientific American Office on account of Patent Office business, for the week ending Saturday, March 17, 1860:—

A. W., of Conn., $20; F. Y. C., of Ga., $30; E. T. W., of Ind., $30. I. C., of Iowa, $30; H. N. & J. C. B., of Conn., $25; S. F. J., of Ind., $30; T. & W., of N. Y., $25; J. M., Jr., of Ill., $30; B. & McC., of Iowa, $30; I. R. S., of Va., $30; G. T., of U. C., $25; E. P. G., of Iowa, $28; G. D., of Ill., $30; D. S. H., of Mich., $10; J. & S., of R. I., $30; G. E. H., of N. Y., $30; W. F. J., of Ala., $100; W. A. B., of Texas, $30; S. R. G., of N. Y., $20; A. H., of Conn., $30; K. C. K., of N. Y., $25; J. T. F., of Ky., $25; S. & P., of Mich., $30; C. E. H., of Mass., $25; S. & S., of Vt., $30; W. G., of Ohio, $25; W. J. J., of Ala., $20; J. B. J., of N. Y., $30; J. O. C., of Conn., $25; W. H. S., of Conn., $35; A. S., of N. J., $20; S. & M., of N. Y., $25; T. B. L., of Mich., $30; J. W., of Iowa, $60; G. A. N., of N. Y., $150; F. F., of N. Y., $25; A. & W., of N. Y., $25; H. & W., of Ohio, $16; H. S., of R. I., $25; W. F., of Mich., $25; S. L. A., of N. Y., $30; C. M. D., of Conn., $30; J. S., of N. Y., $25; E. B., of Conn., $58; N. H. H., of Wis., $25; H. & P., of N. Y., $150; O. Z. P., of N. Y., $25; G. M., of Conn., $25; F. F. S., of Ill., $12; L. H., of N. Y., $30; H. Van S. & Co., of N. Y., $58; J. H. I., of Ill., $30; H. G. S., of Iowa, $25; B. & L., of N. Y., $25; J. B., of Del., $25; G. & B., of Conn., $20; B. S., of Va., $25; J. H., Jr., of N. J., $25; O. Z. P., of Conn., $30; W. P. F., of Conn., $30; J. J., of Ill., $30; G. W., of Pa., $30; T. H. G., of Wis., $25; F. G. & E. A. F., of Ill., $30; W. W. H., of N. Y., $30; F. B. L., of N. Y., $25; J. M., of Ill., $25; W. S., of N. Y., $30; H. B., of N. Y., $30; E. H. B., of N. Y., $25; J. H. L., of N. Y., $25.

Specifications, drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, March 17, 1860:—

F. Y. C., of Ga.; G. M., of Conn.; J. O. C., of Conn.; M. E. T., of N. Y.; B. S., of Va.; J. L., of N. J.; T. H. G., of Wis.; W. F., of Mich.; F. B. L., of N. Y.; J. E. A., of Tenn.; J. M., of Ill.; N. H. H., of Wis.; C. E. H., of Mass.; J. H., Jr., of N. J.; G. M., of Conn.; W. G., of Ohio; H. G. S., of Iowa; B. & L., of N. Y.; S. & M., of N. Y.; T. & W., of N. Y.; J. M., of Ill.; E. P. G., of Iowa; K. C. K., of N. Y.; E. B., of Conn.; E. H. B., of N. Y.; J. T. F., of Ky.; S. & S., of Vt.; H. N. & J. C. B., of Conn.; M. A. H., Jr., of Ill.; W. H. S., of Conn.; J. B., of Del.; T. B. L., of Mich.; H. S. of R. I.; H. A. J., of Mo.; A. & W., of N. Y.; D. S. H., of Ill.; J. H. L., of N. Y.; W. M. B., of Ind.; O. Z. P., of Conn.

HINTS TO OUR READERS.

To New Subscribers.—Back numbers to commence the volume.—As most subscribers to this paper desire the back numbers to render their volumes complete for binding, we shall continue to send the back numbers to January 1st (the commencement of Vol. II, new series), unless the person ordering the paper instructs us to the contrary, at the time of making the remittance. Should the person sending for the paper desire his subscription to commence at the time he makes his remittance, or at any other period, he can be accommodated, as we are constantly re-printing back numbers from our electrotype plates, and can supply as many of any number as may be desired, up to a million of copies; in fact we have printed over 70,000 copies of a single number—such has been the demand for back numbers.

Bound Volume I.—Covers for Binding, &c.—New subscribers who may desire the first volume of the New Series which contains the numbers from July 1, 1859, to January 1, 1860, can be supplied with it by mail or express, handsomely bound, in cloth, at the following prices:—At the office of publication, or by express, $1.50; by mail (which includes postage), $2; in sheets, complete, $1. Covers may also be had separately, which answer as portfolios for preserving the papers, or for binding. Price for covers at the office, or delivered by express, 40 cents; by mail (including postage), 50 cents. For the same investment no work containing so much valuable information can be obtained as is contained in one volume of the Scientific American. Orders should be addressed to MUNN & CO., 37 Park-row, New York. Bound volumes may also be had of most all the periodical dealers throughout the country.