

about half way between the cock-head and the face of the stone. This puts them in running as well as standing balance, as the standing balance will counterbalance with the heavy block at *a*.

After putting on the iron at *c*, and the stone is in standing balance, or nearly so, I raise the runner by the spindle three quarters of an inch above the bed stone, the back having been previously turned true while grinding the face of the stones together. The driving iron should drive very true at both ends, back and forth. I then run up to grinding speed. I can now see by the eye whether the stone runs true on its face or back; if it seems to run pretty true it is about right, but if it wobbles a little too much I hold a pencil from a rest near the back, and let the high place touch the pencil four or five times; if it touches all on one side I add in a little lead at the point where the pencil touched out against the band and as near the top as is safe to prevent its flying out; and I also put as much more lead on the opposite side down as near the face as it can be put, say, fasten it to the driving band, repeating this till they run true on the face. Then the miller can make good flour with common care.

Such a pulley as is shown in Fig. 2, if it should be cast or made in any other way, bored, and turned up and hung on the shaft, no man could guess where the weight might be put, even to put it in standing balance. At *a* it might put it more out of running balance; the rim being a little thicker at C C, it would be best to put weight at B B. If the rim is the heaviest at C C, and you would put it in standing balance at *a*, when the pulley is put in motion, the heaviest parts at C C will throw each end of the spindle up and down in their bearings, and if the spindle is not stiff it will spring and make matters worse. This is the case with all cylinders, after they are made you cannot tell where to put the balance, as materials are sometimes heavier at one place than another, even if they are all of a size. The only way is to balance them as you build them. Anything to run with a high speed ought to be thus made.

PHILIP STRICKLER.

Timberville, Va.

#### On the Use of Tin for Fruit and Culinary Purposes.

MESSRS. EDITORS:—If it would not be regarded as saying more upon the subject than its importance demands, I should like, as a tinner of forty years' experience, to say something upon the tin fruit can and kindred subjects, not so much with a view of allaying apprehension as of stating such facts as are within my knowledge; and first I would remark that tin ware, on account of its lightness, durability, and adaptability to almost all culinary purposes, has driven almost everything else out of every well-ordered kitchen, and if there is any danger to health from its use, this danger is greater in any other article than in the fruit can, because all other articles are exposed to the corroding effects of atmospheric influence, while the fruit can, the moment it is sealed, is secure from the influence. Let me here remark that it is the opinion of some very intelligent persons that the thorough amalgamation of lead with tin, as in the manufacture of solder, neutralizes or renders inoperative the power of the lead, and this view receives considerable weight from the fact that the article so extensively used and highly prized by many of our best housekeepers, known under the name of Britannia ware, which is an alloy of tin and lead, has never been known to injure any one. How little do those housekeepers dream, while regarding with pride their well filled cupboards, that there lurks underneath the beautiful polish a poison deadly as the upas. The new article of manufacture, the tin-lined lead pipe, so confidently recommended as free from all danger, is only so in regard to liquids passing through them. In a well or cistern if the outside is not also protected it will oxidize by contact with the atmosphere, and the agitation or vibration from pumping will cause this poison to fall into the water, whence it will occasionally pass up through the pipe and cause mischief.

Many people have in their composition so much of the timid, the suspicious, and the apprehensive that they undergo an amount of imaginary suffering unknown to those of "sterner mold," and it is curious to witness the contradictory and inconsistent conduct of some of these persons. An acquaintance of mine, for instance, suffers an amount of mental laceration that is affecting to behold, from an apprehension that his store rooms produce an atmosphere unfit for breathing purposes; yet he sees nothing at all unhealthy or injurious in the foul stench of a vile cigar, and will absolutely luxuriate in a cloud of tobacco smoke that would stifle any decent being.

Tin cans for family use should be made of the best charcoal tin, the seams of the body locked rather than soldered, and the tops and bottoms well fitted and soldered on the outside. When emptied of their contents they should be thoroughly scalded and carefully dried, and the caps should be replaced upon them. They should then be put away in as dry a place as possible until they are wanted again. If these precautions are observed, their durability will greatly exceed that of most articles of tin ware now in use.

Delphi, Ind.

N. SMITH.

#### Hub Boxes on Railway Cars.

MESSRS. EDITORS:—In your issue of August 20, 1870, I notice an article complaining of hot boxes, and the query, Can the heating of journals be remedied? Please allow me to state what I consider the principal cause on most railroads. Journals and the boxes in which they run are but too often neglected, so long as they run without any apparent trouble. In many shops a pair of wheels will be placed under a car by (often the case) a carpenter of but little railroad experience, and of no practical knowledge of how a brass should be fitted to the journal, and also without knowing for certain that the

packing leathers in the back of the boxes fit the shafts and are oil tight. One thing is certain; if good Lightner boxes have good, well-fitted brasses, not Babbitt, done by a skillful machinist, with oil-tight leather washers, and if the centers of shafts in each truck in the train be packed with salt, hay, tallow, and oil, they will run on any road for months without heating, and seldom need oiling.

C. STEWART.

Aspinwall.

#### Rock Asphalt Paving.

MESSRS. EDITORS:—Noticing in your issue of 24th ult. an article from the pen of Dr. Hayes on "Concrete" (or asphalt) paving, I forward an account of the pavement now in well-merited esteem and being largely adopted in the city of London—viz., that of the Val de Travers rock asphalt, which, having proved generally its entire success in Paris, rapidly superseding the plan of macadamizing and stone pitching there, and experimentally tried for the last eighteen months in the former city, has shown clearly its great value, and is now being substituted for the granite pitching for a large portion of Holborn and the entire Cheapside and Poultry, where in either the wear and tear of the traffic exceed that of our busiest streets.

The original asphalt, as adopted by the Continental engineers for paving purposes, was a species of bituminous rock found at Seyssel, on the Rhone, whence its distinctive name, which, however, as we all know, did not prove in every respect satisfactory.

This, however, led to further experiments, and a hard limestone rock was found in the Val de Travers, canton of Neufchatel, Switzerland, containing from twelve to thirteen per cent of bitumen equitably diffused throughout, and consequently allowing a more perfect solving and subsequent hardening process than any of the earlier asphalts ever could command.

Besides the Val de Travers and the Seyssel there are, strictly speaking, of mines of bituminous materials known, but those of Seyssel Volant, of Auvergne, and of Maestu, near Vittoria (Spain).

The last three are not sufficiently homogeneous in their composition to succeed for paving purposes, while the Seyssel contains but six to eight per cent of bitumen, which is not a sufficient proportion to enable its particles to consolidate quickly and thoroughly under the action of heat and compression. Again, in the Pyrimont Seyssel mine, while the proportion of bitumen is extremely small, the irregularity of its bituminous impregnation, as well as the variety of its associate minerals, rendered its use difficult and unreliable; consequently its endurance was uncertain, and, unless a much more stable material could be adopted, the success of asphalt, once so generally employed by the ancients, was improbable.

Many of the recent compound imitations under the name of asphalt, but consisting of coal tar and such inferior pitch, mixed with lime, chalk, sand, or gravel, have brought into discredit the true material, and it was in the face of great prejudice that the Val de Travers could be even given a fair trial in the crowded streets of England's metropolis. In May, 1869, however, 485 square yards of the Val de Travers compressed asphalt was laid in Threadneedle street, over which passes a traffic of 2,500 vehicles daily. A year and a half afterwards no perceptible wear could be observed, while openings purposely cut in its surface and repaired within fifty minutes were barely visible, and as perfect as the original bed.

The result has been that over 1,000 of the leading firms, banks, and companies, petitioned for its extension on all the city streets, urging that its "freedom from the roar of traffic, and its cleanliness, safety, facility of construction and repair, and less cost, as compared with granite, wood, iron, or any known variety of paving, rendered the desirability of extending its use throughout the city as imperative." And the report of the street committee indorsing the Val de Travers asphalt on all these points, the change is being already effected.

The term "compressed" asphalt is used to distinguish it from those asphalts where the material is boiled to a liquid, which this is not, being spread upon the surface in the form of a fine powder, and never liquefied.

In its use for paving the natural rock is first ground to a powder and subjected to an intense heat in a revolving boiler near the place of use, then taken and spread over the prepared surface to a depth of but two inches, and compressed with heated irons into a homogeneous mass without joints and entirely impervious to moisture.

As it cools it hardens to the original density of the rock, and for my own satisfaction I tested the fact that in less than one hour from the spreading of the powdered material the vehicles were traversing its surface without causing injury or impression.

The foundation used is Portland cement concrete, say eight inches thick, on which half an inch of thin mastic is run to economize the asphalt, which is then spread and leveled.

The advantages claimed for the Val de Travers are seven-fold:

1. It produces neither dust nor mud.
2. It is perfectly noiseless.
3. It diminishes, by a large percentage, the draft on horses.
4. It reduces the wear and tear of vehicles to one half, the annual saving in Paris being computed at over three million dollars for horses and carriages.
5. It increases the comfort and rapidity of travel.
6. Its economy and durability.
7. It is unaffected by heat or by frost.

In addition to its uses for paving it is in much demand for terraces, conservatories, slaughter houses, court-yards, breweries, fire-proof floors, docks, fortifications, powder magazines, etc. Now, if this wonderfully valuable material can be readily

shipped to England, why not to this country, or, if the increased freight, exchange, etc., render it too expensive for our use, let our numerous inventors follow out the suggestions of Dr. Hayes, which are surely based on correct grounds, and with bitumen, chemically combined with calcareous earths, devise a compact, artificial asphalt, unaffected by alternations of heat or cold, which, hardening readily, shall, by its semi-elasticity, tenacity, and cheapness of production, prove its advantages, reap a fortune for its discoverer, and earn the blessings of all unborn citizens.

New York city.

GEO. E. HARDING.

#### Inventors who are Satisfied.

FREEMONT, ILL., Sept. 21, 1870.

MESSRS. MUNN & Co.:—I thank you for reminding me of the extension of my patents, but I cannot take the oath necessary, believing I have received a reasonable compensation on all my patents, and have sold out my reaper establishment; but I find exercise absolutely as necessary for me as food, and therefore fancy farming, or rather vinyarding, which has not as yet been very successful in this country. I find in it ample exercise and study for the mind in trying to solve the mystery. In trying all sorts of experiments, I may perhaps hit on something useful. It is a very pleasant occupation at all events.

Yours, etc.,

P. MANNY.

RIGGSVILLE, PA., Sept. 22, 1870.

MESSRS. MUNN & Co.:—I take much pleasure in informing you that I have received my letters patent, all in good order, and I am a thousand times obliged to you for your honest, upright, and careful attention to my business. I praise the bridge that carries me safe over. I would sooner pay your fees all down, without a receipt, than to trust my business in other hands. I shall recommend your Agency and paper without your request, for I think it my duty to do so.

JAS. K. B. SOLOMON.

CHESTER, PA., Sept. 15, 1870.

MESSRS. MUNN & Co.:—Please accept my thanks for the very efficient manner in which you have transacted the business intrusted to you, namely, procuring patent for steam piston packing. If my experiments prove successful, I will require your assistance again.

Respectfully,

JOHN KEESEY.

#### DESIGN PATENTS.

DECISION BY JUDGE BLATCHFORD.

The bearing and scope of design patents have, in a recent suit of the Gorham Manufacturing Company vs. George C. White, selling agent of Rogers & Bro., for the infringement of a design patent, been more clearly defined than on any previous occasion.

The letters patent in question cover the invention of a design for a spoon and fork handle, not only as far as the configuration or mere outline, or the ornamentation on the face of the same is concerned, but as a "unit," which was in this case construed to be the combination of configuration and ornamentation.

The defendant has sold spoons and forks whose handles were, in outline, more or less similar to, but in ornamentation entirely different from the design represented in complainant's patent. And although the complainants sought to prove by witnesses that the respective articles or designs resembled each other in general appearance, such testimony was held to be ineffective, as long as persons in the trade will not be deceived by the resemblance into taking an article of the one design for an article of the other. The letters patent in question, covering, by the claim, the design as represented, were held to protect, not the result or appearance of such design, but the means of producing the result or appearance, so that even if the same appearance is produced by another design, if the means used to produce it are different from the means used in the prior patented design to produce such appearance, the latter design is not an infringement of the patented one. The suit was consequently dismissed.

The chief point settled by this decision, is that design patents must be construed, as to their scope, in the same manner as mechanical patents—that is to say, if a patented design consists of a new addition to an old form, and is so claimed, the patent will cover the addition only, and not its connection with the old form; if the design, however, is patented as a unit, it is for a combination of all of its parts, and any other person may use any of its parts, less than the whole, and not be an infringer.

The same rule, as applied to the matter of infringements will, of necessity be and has in fact always been, a guide to the Commissioner of Patents in determining the question of interference between different designs. He examines not the effect produced by a design, but the means used for producing the same, and if the means employed to the same end differ, they entitle each applicant to a patent, provided that the stated novelty is not disproved.

A KANSAS SILK FACTORY.—According to the *Detroit Tribune*, the first velvet factory in the United States has been started by a French colony in Kansas, at the town of Franklin, eighteen miles southwest of Ottawa. The colony began operations last summer on the co-operative plan, and have already, besides their manufactory, comfortable dwellings, stores, and shops, and farms under full cultivation. The pioneer in this enterprise, M. Veleton de Boissiere, contemplates supplying his community with other looms, not only to increase the manufacture of ribbons, but also to enlarge the products of his community by including sewing silks, tassels, trimmings, and other dress materials, which are fast becoming indispensable even beyond the Mississippi.