

### An English Capitalist on Lock-outs.

Recently, Mr. Thomas Lishman, of Stockton (formerly manager of the Millbank-Forge, Hart-warren, now, in partnership with his brother, delivered a lecture on strikes, at Hartlepool, in the course of which he said, to strike for the shortening of the hours of labor, put short hours further off than ever. The way to cure low wages was for working men to hoard up money and become themselves the employers of labor, as was done in co-operative societies, and limited liability companies. The lecturer instanced the great effects of the Rochdale Co-operative Society, and what had arisen from two pence a week collected among twenty-eight weavers. The annual profits of that society, now more than thirty years old, were £5,000. Teetotalism was also a tremendous help in this matter of doing away with strikes. But the worst of all these matters was a lock-out. He was entirely opposed to strikes; but still more deadly against a lock-out. It was not for a raising of the number of the hours of labor that a lock-out occurred; but a spirit of vengeance actuated the man who locked his employees out. Trade societies would be beneficial if they would neither recognize "strikes" nor "lock-outs." Already, the workmen in the iron shipbuilding yards of this district had lost over £2,000, which would be forever lost to them and to the district. If the men saved the money expended in strikes they would be able to start concerns of their own.

### Improvements in Gas Engines.

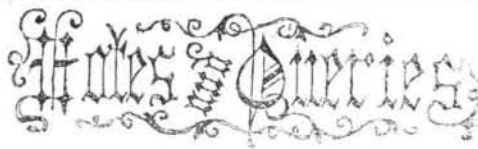
In gas engines, as at present arranged, it is common to fire the charges of mixed gas and air by means of electricity, but this is inconvenient, as it is found difficult to keep the batteries in working order. Mr. Hugh Smith, of Westbourne Park, therefore proposes as an improvement to fire the charges by means of vapor which burns spontaneously on coming in contact with air; the vapor he employs is that of the liquid phosphide of hydrogen; and he passes small pipes, which he calls explosion tubes, from the gas main to each end of the cylinder, and on these tubes are applied, just before the connection with the cylinder, bottles containing the liquid phosphide, so that the gas may pass over the liquid. When the cylinder is charged with gas and air, a tap on one of the explosion tubes is opened, and the gas, carrying with it the vapor of the phosphide, enters the cylinder, and the vapor there meeting with air, an explosion at once takes place, driving the piston along the cylinder, and in this manner the piston is driven from end to end of the cylinder. This method of firing the charges is applicable whatever be the form of the combustion chamber, whether it be, as assumed, in the foregoing description, a cylinder with a piston working within it, or of other form and construction.—*London Artizan.*

### Paper from Wood.

We stated some time since that the paper on which the SCIENTIFIC AMERICAN is printed contained thirty per cent of wood pulp. A company has been formed with a capital of \$500,000 for preparing the pulp, and on the 12th inst., they met to examine the works, which are situated on the Schuylkill, near Philadelphia. A poplar tree taken from the hillside was converted into clear, white, soft paper, in the space of five hours. In the evening a banquet was given by Messrs. Jessup & Moore, at the Continental Hotel. About 200 guests were present, and speeches were made by the Mayor of Philadelphia and other prominent gentlemen.

**A STEAM HOIST.**—At the Newark Castle Wharf a steam hoist (without any engine), made at the Trent Iron Works, has been successfully tried. A timber frame forming the base of the machine, incloses a large cylinder. On the steam being admitted to it a beam of iron, armed with strong teeth, is forced out, and from this motion is given through a simple arrangement of wheels, which causes the chain barrel to revolve. The direct action of steam is thus brought into use without the intervention of a steam engine as in ordinary steam cranes. The working is easy, and without noise.

**A BALLOON train,** to ply between the Place de la Concorde and the Champs de Mars, is spoken of as one of the schemes to be tried during the great gathering in Paris next year.



**E. A. V., of Md.**—Illuminating gas may be made by the destructive distillation, in a close retort, at a bright red heat of wood, bituminous coal, petroleum, and other organic compounds which contain hydrogen and carbon. Several forms of apparatus for the purpose—some very cheap and simple—have been illustrated in our columns. The simplest, and probably the best apparatus for obtaining light from petroleum, is a kerosene lamp.

**C. W. B., of N. H.**—In order not to lose any power in conducting your water down an inclined pipe to your turbine, you must have the pipe or sufficient size to keep up the full pressure of the head upon the wheel.

**B. H. P., of Iowa.**—The specimen which you send us is a piece of a tin pail. If you "found it 40 feet below the surface and 17 feet in sand stone rock," some person must have carried it there. We have known miners in California to be puzzled by finding pieces of their own shovels in their diggings.

**A. S., of Iowa.**—The most effectual mode of making bridge bolts rust proof is to cover them with zinc—galvanizing, as it is improperly called. Next to this the best plan is to paint them with linseed oil and white or red lead.

**E. S. W., of Conn.**—For directions for making black ink, see page 211, current volume.

**B. P. B., of Conn.**—Blowers must of course be so placed as to allow a free supply of air.

**G. A. S., of N. Y.**—Professor Chandler's elaborate discussion of boiler incrustations having been so recently published in our columns, nothing in your paper, can be new to our readers, excepting, possibly, the suggestion that lime in the feed water may combine with the grease from the engine to form lime soap.

**E. C. E., of Pa.**—It will take any person of ordinary intelligence, certainly not more than thirty minutes to understand chemical symbols. He needs to be told only that they are the initials of the names of the elements, and that the atomic weight of any element is the number of times which its atom is heavier than the atom of hydrogen. We can conceive no greater waste of time than the attempt to teach chemistry without first teaching Dalton's atomic theory.

**B. F. M., of N. Y.**—A cylinder is a round body of the same size throughout its whole length; a body with a circular base which tapers to a point, is called a cone. The form of the cigar steamer approaches that of two cones joined at their bases; it is therefore called conical in form—never cylindrical.

**J. B. F., of —.**—"I want to know what book is the best for a young man to take that wants to learn about steam and steam engines." One of the best is Bourne's Hand Book. We can send it for \$1 50.

**C. C., of N. Y.**—The directions for making a sun dial were published in Vol. 2d. New series page 96—No. 6.

**J. H. H., of N. Y.**—Chloroform, benzine, and naphtha are all solvents of india-rubber.

**S. P., of Pa.**—We cannot tell you how to become a locomotive engineer in the SCIENTIFIC AMERICAN.

**J. S., of N. Y.**—You have omitted to send anything but the size of your shaft, viz., 3½ inches by 13 feet long, and you wish to know whether it is strong enough for your water wheel. If we knew more about it we should give you an answer with pleasure. Mills that have balanced wheels and sashes can be run much faster than others not balanced.

**F. M. H., asks.**—"If I obtain a patent for spring bed bottoms with slots suspended by annular rubber rings, can I apply the same to carriage seats and sell rights for same without taking out a separate patent?" No A separate patent will be needed.

**Drawing Dust from Shops.**—It Brooklyn Inquirer will call, we will relieve him, or no pay. American Ventilation Company, 17 Courtland street, N. Y.

**W. F. M., of N. J.**—A Barker's mill applied to a hydrant would probably yield less power than a little turbine, and would be more expensive.

**G. F., of Me.**—For a discussion of the power of wind mills we refer you to Morin's Mechanics.

**S. W. M., of N. Y.**—There is no other disinfectant for your stagnant pond so cheap as the surrounding soil. You must either fill or drain it.

**L. S., of Cal.**—In a syphon gage the length of the divisions in the scale is not varied by the difference in the area of the surface of mercury acted upon by the steam.

**W. G. B., of Del.**—Electroplating with iron is effected by reducing the iron from the proto-sulphate, or the neutral chloride. Brass cannot be deposited by the battery. Perhaps by employing a very powerful current you may deposit the copper and zinc simultaneously, and then unite them by heat.

**T. G., of Conn.**—We know of no such substance as the oxalic muriate of tin.

**E. S., of Ohio.**—To make cloth water-proof, cover it with a mixture of paraffine and a minute proportion of linseed oil.

**L. O., of N. Y.**—The specific gravity of the human body is very nearly the same as that of water; it is said that a lift of about four pounds is sufficient to float an ordinary person. The specific gravity of cork varies very widely with different samples, but it is probable that from one-tenth to one-fourth of a cubic foot would float a person weighing 175 lbs., provided the whole of the body and head except the month was submerged.

**T. H. M. H., of Pa.**—The swarming of bees is easily prevented by keeping them in a large hive or room. This plan is extensively practiced. The hymenial flight is liable to take place during the season for most profitable swarming.



ISSUED FROM THE U. S. PATENT OFFICE

FOR THE WEEK ENDING APRIL 10, 1866.

Reported Officially for the Scientific American

53 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.

53,765.—Manufacture of Cans.—John T. Ackley and John K. Truax, Philadelphia, Pa.:

We claim the application of pitch or a bituminous or resinous cement to the inside or the outside of a box or can, made wholly or partly of paper, substantially as and for the purpose above set forth.

[The object of this invention is to produce a can made wholly or partly of paper or pasteboard, which will hold greasy and corrosive solids and fluids without leaking or oozing through its walls. The inner surface is coated with a resinous or bituminous cement, so as to protect the substance from which the can is made from the action of its contents, whereby a can composed wholly or partly of paper can be made capable of holding solids and liquids of a greasy or volatile and penetrating character. The outside may be coated likewise, if desired, and the lid or cover is also protected by the same means.]

53,766.—Churn.—Levi O. Allen, Gardiner, Maine:

First, I claim the compressing curb, C, and disk, H, acting in combination with the adjustable floats inclosed by them, as and for the purpose described.

Second, I claim the arrangement and mode of adjusting the floats relatively to each other and the containing vessel, as and for the purpose described.

Third, I claim the ribbed plates in each end of the churn box, in combination with the adjustable floats.

53,767.—Constructing Wells.—E. S. Alvord, Milford, Del.:

First, I claim the combination of the driving pipe, A, the inclosed short pipe, C, and the pump tube, B, arranged substantially as above described.

Second, I also claim the combination of the short pipe, C, the pump tube, B, when surrounded by gravel or other analogous filtering material, arranged substantially as set forth.

[The object of this invention is to construct a well by sinking or driving tubes into the ground, and forming at the bottom a cavity, the lower part of which is filled with gravel or other filtering material, to prevent dirt from entering the pump when it is operated.]

53,768.—Staging for Buildings.—William Arrouquier, Worcester, Mass.:

First, I claim an adjustable and portable staging constructed so that it can be attached to the window frames, or similar apertures of a building, which consists of the combination of the pieces, A, B, C, D, bolts, E, G, and supported piece, F, in the manner and for the purpose herein described and set forth.

Second, I claim the combination with the staging above described, I claim the metal frame or carriage, H, having friction rolls, i, h, j, and lips, g and f, as and for the purposes herein set forth.

53,769.—Cistern for Draining Peat.—E. H. Ashcroft, Lynn, Mass.:

I claim the tank or drainage vessel constructed as described, with perforated side and bottom, together with the perforated tubes connected therewith.

53,770.—Heater for Chimneys.—Thomas M. Aspinall and Stephen H. Whitlock, Piqua, Ohio:

We claim the arrangement of the heater box for insertion in the chimney above the arch and provided with a flue, A, A, for the passage of the heated air to the trunk of a tree in combination with the opening, B, and a warm air delivery, C, substantially as described and represented.

53,771.—Leather Splitting Machine.—Cyrus W. Baldwin, Charlestown, Mass., and Lorenzo D. Hawkins, Stoneham, Mass.:

We claim the arrangement as well as the combination of the hand wheel shaft, its right and left screws, and the two wedges in the frame of the machine and with the boxes of the upper or gage roller and springs or their equivalents, applied to such boxes, substantially as specified.

We also claim the combination as well as the arrangement of the abutments, K, K, with the hand wheel shaft, its right and left screws, and the two wedges applied in the frame of the machine and with the boxes of the upper or gage roller and the springs or their equivalents applied to such boxes, substantially as specified.

53,772.—Tree Protector.—Burroughs Beach, West Meriden, Conn. Antedated March 30, 1866:

I claim a disk, A, constructed of wood, metal, or other suitable material, and of two or more parts, in such a manner as to admit of being snugly adjusted to the trunk of a tree in combination with the pendant flange, B, at the under side of the disk, substantially as and for the purpose set forth.

I also claim the tube, C, inserted in the disk in connection with the vessel, D, substantially as and for the purpose specified.

53,773.—Plow.—J. S. Beals, Alabama Center, N. Y.:

I claim the supplemental share, D, constructed substantially, as shown and described, and attached to the plow beam at the rear of the coulter and point of the share of the main plow, as and for the purpose herein set forth.

53,774.—Extension Table.—William Beadle, Keyport, N. J.:

I claim the leaves, D, D, falling parallel to the line of extension when in combination with the sliding rods, C, C, the removable top or center boards, G, G, and stationary box frame, for the purposes set forth.

53,775.—Float for Boats.—Alonzo T. Boon, Galesburg, Ill., assignor to self and J. Scott Richnor, Muscatine, Iowa:

I claim the adjustability of the buoys or floats, B, by means of the ears, C, and plates, A, and their arrangement and attachment to the platform, A, substantially in the manner and for the purpose as herein set forth.

53,776.—Clamp for Brooms.—Theodore F. Boyer, Harrisburg, Penn.:

I claim the wire clamp described, the same consisting of the upper part, A, B, formed of a single piece of wire, as described, and two straight pieces, a2 a2, attached thereto, and of the lower part, C, D, formed and constructed like the said upper part, A, B, with the addition of the uprights, b1 b2 b3, as described; the said two parts being adapted for adjustment together on a broom, substantially as and for the purpose described.