

not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, stating the amount and how it was sent, whether by mail or express.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office, from Wednesday, Dec. 16, to Wednesday Dec. 23, 1864:—

J. O. H., of Pa. (2 cases); A. S., of N. Y.; A. C., of N. Y.; W. M. D., of N. Y.; V. H. H., of N. Y.; C. H. H., of N. Y.; J. P. B., of Ill. (2 cases); M. B., of Ky.; P. B., of N. Y.; B. E., of N. Y.; W. M. K., of N. Y.; E. C. C., of Ill.; J. W. P., of Mass.; D. & K., of Cal.; A. L. S., of Conn.; D. E. H., of Mass.; A. & H., of Conn.; A. B. G., of N. Y.; F. C., of Mass.; W. H., of N. Y.; W. L., of N. Y.; L. S., of N. Y.; A. A. B., of N. Y.; B. & G., of Conn.; G. O. W., of Mass.; F. McC., of Conn.; D. E. H., of Mass.; G. R., of Ky.; C. W., of Mich.

TO OUR READERS.

PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within thirty years, can obtain a copy by addressing a note to this office, stating the name of the patentee and date of patent, when known, and enclosing \$1 as fee for copying. We can also furnish a sketch of any patented machine issued since 1853, to accompany the claim, on receipt of \$2. Address MUNN & CO., Patent Solicitors, No. 37 Park Row, New York.

INVARIABLE RULE.—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired.

Models are required to accompany applications for Patents under the new law, the same as formerly, except on design patents, when two good drawings are all that are required to accompany the petition, specification and oath, except the Government fee.

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THE NEW PATENTS.

No. 265 BROADWAY, NEW YORK. TO THE PUBLIC.—PERMIT US TO CALL YOUR attention to important improvements in Fire and Burglar Proof Safes, recently patented by Walter K. Marvin, of our firm, and bearing the following dates:

First Patent, for improvement in filling for safes, Dec. 1st, 1863. Second Patent, for securing durability of both the lining and iron works of safes, Dec. 1st, 1863. The knowledge gained from over 20 years' experience as manufacturers and sellers of the two popular Safes, known as the "Plaster or Wilder Patent" and the "Alum Patent," enables us to construct a safe possessing the good qualities of each of these, while defects have been remedied which experience has proven to belong to both of them. The explanation is simple. We take dry calcined plaster of Paris and Alum (the latter being broken into small lumps), and thoroughly mix them.

We pack this mixture between the inner and outer cases, where it remains unchanged any number of years, until fire melts the alum (which contains a large quantity of water), and thus saturates the plaster, and forms the steam, which always preserves the contents of the safe. The plaster, by being wet, sets firmly and even; if the alum near the outside is entirely melted it forms cells which retain the precise shape of the lumps of alum, and even the filling or plaster keeps the safe as well filled as before the fire. This constitutes the first patent.

The second patent consists in coating the sides of the cases exposed to the flames with a quart of oil, making a complete enamel, and thus rendering the joints hermetically tight.

Our safes, therefore, possess the following advantages: They combine the two most fireproof substances known. They are perfectly dry, and do not corrode the iron. They do not lose their fireproof qualities by age.

Our Locks are superior in use. When it is remembered that nearly all the safes now in use are filled with plaster and water, or with alum and clay, the value of our improvement in obtaining perfect security from fire, non-liability to shrinkage of filling, so troublesome and dangerous in other modes, will be recognized.

We would call special attention to our "Steel Burglar-Proof Bank Safes and Specie Chests." As they are made of three, or five, or more thicknesses, as may be desired, and the steel is hardened beyond the temper of any drill, and the rivets are so arranged that they do not go through more than two plates, and consequently can not be punched in, we know that we can produce a safe that is impervious to any force that man or machine can exert. We make these of all sizes, from \$100 upwards, and they can be securely fastened in any of our fireproof safes.

We submit, from some of the highest authorities in the United States, the following testimony:

U. S. Assay Office, New York, Dec. 10th, 1863. "Walter K. Marvin, Esq.:—Dear Sir:—I have submitted to careful examination the combination of materials lately patented by you as a non-conducting filling for Fireproof Safes, and I find them admirably adapted to resist fire and to be proof which I placed in your hands this day. Having long given my study to the improvement of Fire Safes, I can confidently say that I consider your new composition superior to all others of the kind that have come under my notice. Respectfully yours, JOHN TORREY."

"I have tested your fireproof filling thoroughly, and am satisfied that no other in use is equal to it. ALEXANDER H. EVERETT, Analytical and Consulting Chemist. New York College of Pharmacy, Dec. 4th, 1863."

"I regard your improved lining as superior to either the old plaster and water, or alum and clay filling. DUBOIS D. PARMELEE, M. D., Practical and Analytical Chemist. 22 East 41st street, New York, Dec. 1st, 1863."

"Having been long acquainted with the materials used and modes of filling Safes, I am prepared to express a highly favorable opinion of your invention, as fulfilling the required conditions, mechanically and chemically, and no mixture of superior qualities is known to me. A. A. HAYES, M. D., State Assayer. 16 Boylston street, Boston, Dec. 7th, 1863."

"And I consider yours the best combination of materials for fire proof filling with which I am acquainted. DUBOIS D. PARMELEE, M. D., Practical and Analytical Chemist. 24 Canal street, New York, Dec. 2, 1863."

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DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C., Dec. 15, 1863. To the Growers and Manufacturers of Flax and Hemp:

THE COMMISSIONERS APPOINTED BY THIS DEPARTMENT, consisting of Hon. J. K. Morehead, of Pennsylvania, William M. Bailey, of Rhode Island, and John A. Warder, of Ohio, to consider the following appropriation made by the last Congress, viz: "For investigations to test the practicality of cultivating and preparing flax and hemp as a substitute for cotton, twenty thousand dollars."

Having met, and after several days' investigation, believing that a further and fuller notice of their investigations might produce valuable results, adjourned to meet again on Wednesday the 24th day of February next, at 12 o'clock, M.

They request all interested in the distribution of this appropriation, or anxious to develop the subject for the public good, to send to this Department, on or before that day, samples of the hemp and flax in the different stages of preparation; of the fibers and fabrics prepared by them, accompanied by statements of the various processes used, and the cost of production in each case; also, descriptions of the kind and cost of machinery used, where made, &c., together with any and all information that may be useful to the Commission.

This information is necessary before an intelligent distribution of the appropriation can be made. ISAAC NEWTON, Commissioner.

UNITED STATES MILITARY RAILROAD OFFICE, No. 250 G street, Washington, D. C., December 19, 1863.

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\$200, \$150, \$100, \$50 PREMIUMS.—TO EDITORS, Ladies and Others. I will pay the above-named amounts for the best four articles on either my Soap, Saleratus, or Concentrated Potash. The article must state the writer's experience in using the goods, and must be not less than ten lines, and be published in the editorial columns of any good family newspaper. Any party wishing to compete for the above, and desiring further information, may address the undersigned. Each person writing and publishing a notice, as above, will mail a marked copy of the paper containing the notice to me, and also write me by mail, giving full address. The Premiums will be awarded on the fourth day of July, 1864. B. T. BABBITT, 64 to 74 Washington street, New York. 12*

NEW HAVEN, CONN., Oct 22, 1863.

To B. T. BABBITT: Sir:—Observing your Premium advertisement in the SCIENTIFIC AMERICAN, I concluded to state, in a few words, what I knew of the merits of your soap, having used it enough to conscientiously say that it is all that it is represented to be.

I wish to ask you if it is necessary to write my name in full under the article, should I put it in one of the New Haven papers. If not, please let me know in the next page, is of no account, please say so, and that will end the matter; if it is acceptable, it will appear in the paper immediately. J. D. W.

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THE STUDY AND CONSTRUCTION OF TOOTHED GEAR.—Involute, cycloid, and epicycloid, Plates XVII and XVIII. Involute, Fig. 1. Cycloid, Fig. 2. Epicycloid, Fig. 3. External epicycloid, described by a circle rolling about a fixed circle inside it, Fig. 4, Plate XIX. Internal epicycloid, Fig. 2, Plate XIX. Delineation of a rack and pinion in gear, Fig. 4, Plate XVIII. Gearing of a worm with a worm-wheel, Figs. 5 and 6, Plate XVIII. Cycloid of Spur Gearing, Plate XIX. Practical delineation of a couple of Spur wheels, Figs. 2 and 3, Plate XXI. Rules and Practical Data.—Toothed gearing, Angular and circumferential velocity of wheels, Dimensions of gearing, Thickness of the teeth, Pitch of the teeth, Dimensions of the web, Number and dimensions of the arms, wooden patterns.

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APPLICATION OF SHADOWS TO TOOTHED GEAR, Plate XXX. Application of Shadows to Screws, Plate XXXI. Application of Shadows to a Boiler and its Furnace, Plate XXXII. Shadowing in Black-Shading in Colors, Plate XXXIII. THE CUTTING AND SHAPING OF MASONRY, Plate XXXIV. Rules and Practical Data.—Hydraulic motors, water wheels, water wheels, plane floats and a circular channel, Width, Diameter, Velocity, Number and capacity of the buckets, Useful effect of the water-wheel, Over-shot water wheels, Water-wheels with radial floats, Water-wheel with curved buckets, Turbines, Remarks on Marine Tools.

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OBSCURE PROPOSITIONS.—Application of rules to the delineation of an oscillating cylinder, Plate XLII. PARALLEL PERSPECTIVE.—Principles and applications, Plate XLIII. TRUCK PERSPECTIVE.—Elementary principles, Plate XLIV. Applications—Four mill given by belts, Plates XLV and XLVI. Description of the mill, Representation of the mill in perspective, Notes of recent improvements in flour mills, Sleighing mill, Expansive mill, Harrett's mill-stone, Harrett's arrangement for driving mills, Currier's improvements in millstones, Rules and Practical Data.—Work performed by various machines, Flour mills, Saw mills, Veneer-sawing machines, Circular saws. EXAMPLES OF FINISHED DRAWINGS OF MACHINERY.—Plate A, Balance water meter, Plate B, Engineer's shaping machine, Plate C, D, E, Express locomotive engine, Plate F, Wood planing machine, Plate G, Washing machine for piece goods, Plate H, Power loom, Plate I, Duplex steam boiler, Plate J, Direct-acting marine engine. DRAWING INSTRUMENTS.—Also published a PRACTICAL TREATISE ON MECHANICAL ENGINEERING, Metalworking, Milling, Casting, Forging, Tools, Workshop Machinery, Mechanics, Manufacturing, Manufacture of Steam Engine, &c. With an Appendix on the Analysis of Iron and Iron Ores. By Francis Caupin, C. E., President of the Civil and Mechanical Engineers' Society, &c. To which are added, Observations on the Construction of Steam Boilers and Remarks upon Furnaces used for Smelting and Prevention of the Danger of Explosions, by Robert Armstrong, C. E. Revised, with Notes by John Bourne, Rules for Calculating the Change Wheels for Screws on a Turning Lathe, and for a Wheel-cutting Machine. By J. La Nioca. The Management of Steel, including Forging, Hardening, Tempering, Annealing, Shotting and Expansion, and the case hardening of Iron. By George E. B. Smith, with 24 plates of Cast Iron, Steam Engines, Workshop Machinery, Change Wheels for Screws, &c., and 100 wood engravings. 8vo., Price SIX DOLLARS. The above or any other of my Books sent by mail free of postage. My new catalogue of Practical and Scientific Books just ready will be sent free of postage to any address HENRY CAREY BAIRD, Industrial Publisher, 406 Walnut street, Philadelphia. 14

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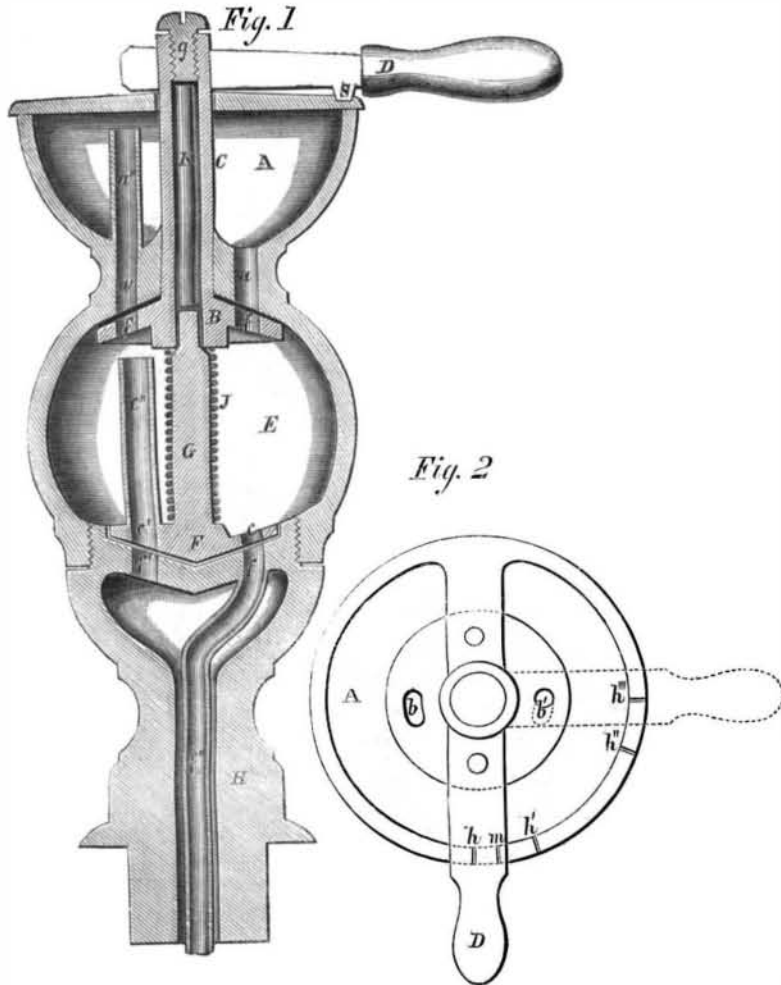
Improved Lubricator.

Thorough lubrication of the valves and pistons of steam engines is acknowledged as a necessity by most engineers. For the accomplishment of that object various devices have been employed, viz: the simple cup with a single cock below it; the globe with two and sometimes three cocks; the pump to force the oil into the cylinder, and others more or less complicated in construction and operation called "self-feeding," &c. The merits and demerits of these various devices are well known by those who employ them. Without disparaging any, it is confidently believed that the following engraving and description illustrates a lubricator that will prove equal if not superior to all predecessors.

It is simple and scientific in construction and ar-

and B. H is the neck by which the apparatus is secured to the steam cylinder; *h*, *h1*, *h2*, *h3*, are notches on the top of the rim of the basin; S is a catch on the lever, D, which keeps the said lever in the desired position.

The operation is as follows:—The receiving basin, A, being filled with oil, the lever, D, is moved till it reaches the position indicated by the dotted lines in Fig. 2; the oil will flow down through the aperture, *a*, into the reservoir, E; the air or steam escaping from the latter through the tube, *a2*, without interfering with the descending oil. When it is desired to introduce the oil into the steam cylinder, the lever, D, is returned to the position shown in Figs. 1 and 2, which closes the apertures, *a* and *a'*, above the reservoir, and opens *c f* and *c' f'* below it. The steam will



DUNHAM'S PATENT LUBRICATOR.

angement, easily worked and instantaneous in its operation, and belongs to the class of lubricators which works with the same facility under high steam pressure that it would under atmospheric pressure alone. A is the open basin at the top in which the oil is first placed; the bottom of said basin has two apertures, *a a*, on opposite sides from the letter *f*, where a tube, *a2*, rises to the top of the basin. B is a disk valve seated beneath the said basin, A, and perforated to correspond with the apertures, *a a'*. C is a stem which rises through the basin, A, sufficiently to receive the lever, D, for the purpose of rotating the valve; E is the internal reservoir, the bottom of which has also two apertures, *c c'*, which constitute the seat of the valve, F; F is a disk valve seated at the bottom of the said reservoir, and having apertures, *f f'*, at opposite sides, corresponding with the apertures, *c c*, from the letter *f'*, where a tube rises to nearly the top of the said reservoir. G is a stem of the valve, F, which connects it with B, the top of which is flattened to fit into a recess of similar shape in the bottom of B, by means of which both valves revolve simultaneously; *f2* is a bent tube fitted to the bottom of the reservoir, to conduct the oil from the said reservoir to the cylinder below; K is a small rod that passes through (or nearly so) the stem of the valve, B; *g* is a screw pressing upon K, which, resting upon G, presses the valve, F, firmly to its seat, while the valve, B, is raised, and kept firmly to its seat also. J is a strong spiral spring, compressed so as to exactly fill the space on the stem, G, between the valves, F

now rush up through the neck, H, on the outside of the tube, *f2*, and through the passages *f*, *c*, *c2*, into the reservoir, instantly producing a pressure, in the reservoir nearly equal to that in the cylinder. The oil will then run by gravity down through the aperture, *c f*, and the tube, *f2*, into the cylinder until the reservoir is empty, steam passing upward as before explained, to take the place of the oil. The apertures, *b'*, in valve B, shown at the top in Fig. 2, and *f'*, in the seat of valve, F, are elongated, so that when the catch, S on D, reaches notch *h2*, the steam will escape from the internal reservoir, through the tube, *a2*, and aperture *b*; moved forward till it rests in *h3*, the apertures, *a b*, are brought to correspond when the oil will descend. Reverse the lever till the catch rests in *h*; the aperture, *f*, being elongated, *f' c2* are brought to correspond before *e f*; consequently the steam will rush up through the tube, *c2*, and fill the space above the oil before the oil is allowed to descend. Now move the lever backward till the catch rests in *h*, and the operation is complete. This will introduce the whole quantity of oil immediately into the cylinder. To render it self-feeding, we have but to introduce other notches like *m*, between *h h*, to admit the oil more slowly, or even drop by drop, as the exigency of the case may demand.

This invention was patented through the Scientific American Patent Agency, Dec. 2, 1862. For further information address the inventor, O. H. Dunham, Hydrostatic Press Room, U. S. Treasury, Washington, D. C.

HOW A CROOKED KEEL AFFECTS A SHIP.—The London *Mechanic's Magazine* says in a recent issue:—"I shall now refer to Captain Broadhead's report of the trial in the *Princess Royal*. In this vessel, from some cause or other, which we only found out after she was docked, a difficulty was experienced in making her complete the circle to starboard. It arose from the crookedness of the keel, which had been put on out of the straight, so that she carried, under ordinary circumstances, a strong port helm, and she could not be got round in one way for some time; but at the trial by Captain Coles, and by humoring her, the circle was completed to starboard; that being done, it satisfactorily proved that the rudder acted perfectly; but the fault in steering arose from a malformation of the vessel. This was the opinion of the Government officers."

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