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**LIST OF PATENT CLAIMS**  
Issued from the United States Patent Office.  
FOR THE WEEK ENDING FEBRUARY 5, 1851.

To Delamar Kinnear, of Circleville, Ohio, for improvement in Lard Lamps.

I disclaim the invention of every part of the lamp, except the angular grooves above the reservoir on either side of the wick tubes, for preventing the spilling or waste of the oil, when the stem of the lamp is held in a horizontal or inclined position, and also the dovetailed slide and the aforesaid angular channels or grooves.

I claim, as my invention, in combination with a lamp of the peculiar form and construction represented, or other form substantially the same, said channels or grooves serving also to receive and hold the sliding cover, and for closing the supply opening, instead of the ordinary screw cap, and in combination with the aforesaid angular channels.

I also claim the said sliding cover when made with correspondingly shaped sides to fit and move in said channels, all as herein described.

To Wm. M. Storm, of New York, N. Y., for improved method of obtaining motive power.

I claim actuating an engine, such as are now usually driven by steam, or of any convenient form, by means of the combustion allied to an explosion of a measured or detailed quantity of charcoal (or other solid carbonaceous fuel, similar in nature, and of like effect), in a measured quantity of highly compressed air (or oxygen), said combustion being effected in a vessel, which, at that time, is not in connection either with the reservoir or main source of compressed air, or with that of the charcoal, and the gases resulting from each separate and distinct explosion being allowed to act on the piston, or their equivalents, before the other charges are introduced into the exploding or combustion vessel, the whole operation being effected through the agency of apparatus, in nature substantially such as are herein specified, or apparatus that shall effect the whole operation in the manner claimed.

I also claim, in actuating an engine, as just claimed, using the combustible in a granulated or pulverized form, for the purposes and various reasons made known.

To B. A. Beardale, of Waterville, N. Y., for improvement in Cooking Stoves.

I claim the combination of the adjustable and sliding pistons, by which the draught of the stove, and the distribution of the heated air under the bottom of the lower oven, is varied and controlled at pleasure, adjusting the same to the particular place and circumstances of each stove, the whole being arranged and constructed substantially as set forth and described.

To T. H. Jones, of Philomath, Ga., for improvement in machines for preparing hides.

I claim the method of consolidating and smoothing leather, by drawing it with a continuous motion, beneath a series of stampers, which alternately rise, fall, and rest upon the surface, a portion of the stampers being, at all times, in contact with the leather, so that the smoothing of its surface is constantly going on simultaneously with the consolidation, by the blows of the falling stampers.

To Enoch Burt, of Manchester, Conn., for improvements in Fancy Check Power Looms.

I claim the method, substantially as above described, of regulating the packing ring interposed between the steam wheel and head of

the cylinder or outer casing of rotary steam engines, by combining with the said packing ring a series of segment wedges, operated simultaneously, in the manner substantially as described.

To Leonard Goodrich, of New York, N. Y., for improved Ship's Light.

I claim hanging the screwed socket or frame containing the glass, so as to turn freely within a frame, which swings on a hinge provided with a slot, or its equivalent, whereby the socket can be screwed into or unscrewed from the fixed socket, and when unscrewed be swung back, substantially as herein described.

[See engraving in No. 15, Vol. 6, Sci. Am.]

To S. S. Hurlbut, of Racine, Wis., for improvement Grain Harvesters.

I first claim combining with a reaping machine, a self-acting weighing apparatus for weighing the grain into any required quantity to form sheaves or bundles of a uniform weight, as described, depositing the same upon the ground, in readiness to be tied, whilst the reaping machine is drawn forward and cuts the grain, the said weighing apparatus being made adjustable, so as to increase or diminish the size of the bundles at pleasure, and this I claim, whether the weighing apparatus be made and arranged, as described, or in any other way which is substantially the same, or whether combined with the aforesaid reaping machine, or any other of a similar character.

Second, I likewise claim the combination of the bent holders, with the inclined endless conveyor, for holding the grain thereupon, whilst conveying it to the weighing and depositing apparatus, as aforesaid.

To H. G. Thompson, of New York, N. Y., for improved method of adjusting the packing of rotary engines.

I claim the method substantially as above described, of regulating the packing ring interposed between the steam wheel and head of the cylinder, or outer casing of rotary steam engines, by combining with the said packing ring, a series of segment wedges, operated simultaneously in the manner, substantially as described.

**DESIGNS.**

To S. A. House, of Mechanicsville, N. Y., for a Design for Cooking Stoves, and also a patent for a Design on Parlor Stoves.

[What are the Commissioner and his eight Examiners about, these days? The list above shows but a small week's work for the twenty-five men who are attached to the Office in its various departments. Well, we hope they will make up a good long list some of these nights.]

(For the Scientific American.)

**Thick and Thin Belts.**

Several weeks since I wrote you, making inquiry as to whether the thickness of belts can make any difference in the speed of machinery. My reasons for asking the question arose from the fact that I have always noticed in substituting a thick for a thin belt, and vice versa, particularly on machines where the calculations are nice—such as the cone belts on speeders—that a change in the working of the machine always ensued. From the remarks you made at the time, in answer to my question, I was inclined to think you misapprehended my meaning entirely; and you disposed of the matter in a very summary manner by saying: "The machinist of good perceptive faculties has what is called a 'knack' in adapting everything under his care to perform its duty in the best possible manner; this 'knack,' like the skill of the painter, cannot be taught by any rule." Now it was not as to the practicability of thick and thin belts, that I made the inquiry; nor was I desirous to be enlightened as it regards any particular "knack," but it was in relation to the principle involved in the matter, that I wanted light. I supposed this subject might be quite familiar to scientific men, but, on considerable inquiry, I find that this thing has hardly been thought of; and, in some instances, where it has been presented for the first time, it has been met by a strange incredulity; it seems exceedingly difficult for many to conceive it possible that the thickness of a belt can make any difference in speed, as a matter of principle. Since I wrote you I have instituted a series of experiments, and am prepared to speak with confi-

dence and considerable precision, in relation to this matter. Besides, I observe that your New Haven correspondent has been thinking on the subject, and is, in the main, on the right track. To make the thing plain, let us suppose a driving pulley 20 inches in diameter, and a driven pulley 10 inches in diameter, and the belt going round both two-eighths of an inch thick, and that each pulley is half covered by the belt—which is not the fact, quite, but it will not affect the argument. Now, the circumference of the 20-inch pulley is 62.832 inches, and that of the 10-inch, 31.416 inches. The length of belting which lies continually on the 20-inch pulley, which we have supposed covered one half the circumference, viz., 31.416 inches, in being transferred to the 10-inch pulley, whose entire circumference, of course, is just half that of the 20-inch pulley, is found to be insufficient to produce one revolution of this pulley, or to carry it through 31.416 inches of space, for the obvious reason that this length of belt describing the large circle, on being transferred to the small one, will not cover the same number of inches in consequence of its having to contract so much more than on the large pulley. Let us attempt to make this still more plain: we wish to cover a pulley 6 inches in diameter, with leather two-eighths of an inch thick; the circumference of a 6-inch diameter is 18.849 inches; but this length of straight belting will not reach round the pulley. Why? Because we have added four-eighths of an inch to the diameter of the pulley, by the covering; and we shall find that, by adding the circumference of this additional diameter to the original circumference, we shall have the length of two-eighth-inch thick leather required to cover the pulley. Example:—The circumference of a four-eighth-inch diameter is 1.571 + 18.849 = 20.420 inches; hence it is plain to see how thick and thin belts affect the relative speed of machines. It is not pretended that belts, generally, will affect the speed the entire amount of their thickness; it will depend upon the quality of the belts.

Some of our best and most practical manufacturers, here, add "the thickness of the belt to the diameter of the pulley," and this rule is probably not far from just in the majority of cases; but I am persuaded that more than this should be added where the pulleys are very small. Perhaps the rule laid down by your correspondent, Mr. Chaffee, is not far out of the way, viz., "That the belt increases the size of the pulley by so much of the thickness of the strap as is not strained."

Let it be remembered that the greater the disparity in the driver and driven pulleys, the more difference, in time and power, is perceived, and if the two pulleys are the same size, the thickness of the belt cannot make a hair's difference in the speed, of course. Mr. C. seems to have groped in the dark on this point.

E. B. M.

Manchester, N. H., Jan. 30, 1851.

**Foreign Correspondence.**

GLASGOW, Jan. 16, 1851.

**COTTON.—NEW STEAMER.**—An error of 70,000 bales of cotton, in the year's account, at Liverpool, has been discovered. The error is in the wrong way for the United States. The exports from Bombay are for the year, to 30th November, nearly 376,000 bales, of which 266,000 came here, and 110,000 went to China. The receipts from the East Indies are treble of last year's quantity. In the previous statement, of course, shipments from Calcutta and Madras are not counted. The fever is very bad at Lahore, Punjab; half of the First Fusiliers, and three-fourths of another regiment, are in barracks. Having beaten the Sikhs we shall now have to combat the fever.

The new steamers building here, for the Glasgow and New York line, are to be larger than the City of Glasgow, or, at least, more powerful, but propellers. Two new steamers are building for the Cunard line, larger than the Africa and Asia. They have been named, in some journals, the Arabia and Persia; this is an error; I understand one of them is to be known as the Scutia,—so they should call the other the Anglia. The Asia's last passage is said to be the shortest crossing ever made—10 days 4½ hours. An American ship, the

Oriental, made a splendid run from Canton to London. It was deemed the quickest, until an Aberdeen house looked up their ledger and found that their ship, the John Bunyan, (worthy name,) had done better. \*\*.

A new article of boots and shoes has just come up in England. It is called the Panama Corium, the leather cloth, and was invented by a person named Hull. The material is cotton, but has the mass and general appearance of leather, and receives a polish from ordinary blacking, and in the same way. It is used only for the upper, the sole being leather. It is said to be as durable as leather, never cracks or splits, and possesses the advantage of not drawing the foot.

**California Gold.**

A machine is in preparation in this city designed for crushing quartz, which it is said will break up one hundred tons per day. It is intended for the Rocky Bar Mining Company, and will be sent out by the steamer Pacific, in May next.

We have no word of the Atlantic yet.

**TO CORRESPONDENTS.**

"C. C., of N. J."—The advertisement for a draughtman belongs to the same parties who require answers to be directed to box 664, P. O., this city. Your volume of the Scientific American was directed to you, and left at 73 Courtlandt street about two weeks ago.

"T. G. S., of Pa."—Your apparatus is no doubt a good one, and will accomplish all that it is recommended to, but to engage in the sale of patent rights is not in our line of business. We should be pleased to insert an advertisement for you in accordance with our published terms; see heading over advertisements in another column.

"L. B. G., of Pa."—We think you may be obliged to alter your claim slightly, but we see nothing to prevent your obtaining your patent, if you have properly described the machine throughout and furnished the office suitable drawings. An engraving will cost you \$8.

"E. R. B., of N. Y."—It is too late already to enter for the World's Fair. You should have got your model ready earlier.

"E. G., of Ga."—Your letter of the 4th has been passed over to the parties interested in that advertisement.

"L. F. H., of Vt."—We have no more copies of Minifie's Drawing Books on hand. We advise you to address Wm. Minifie & Co., Baltimore, Md., who will give you information on both the subjects of your enquiry.

"H. S., of Mass."—Your suggestions in regard to placing plates of iron alternately in opposite directions, so as to destroy the regularity of the grain, is correct, as concerns increasing the strength of a boiler, but it is a theory too well known by all boiler makers to admit of its being patentable.

"R. L., of O."—The specifications and drawings of your press have been forwarded to the P. O., and fees paid. It is not possible for us to inform you at what time the application will come up for examination but we presume it will not be "LONG" hence.

"M. D., of Pa."—We have not complete sets of volume 4, but can furnish about 30 numbers (not consecutive) for \$1.

"T. D. D., of Vt."—Blanchard's patent was originally granted in 1843, and has since been re-issued. A. K. Carter, of Newark, N. J., is the agent for Blanchard's machine, and you had better address a letter of enquiry to him.

"G. W., of O."—The converting of a common fire place or box stove into a steam boiler is certainly a new idea but not a patentable one.

"R. S. S., of Pa."—Your friend's model has been received but it is impossible for us to conceive the least advantage he derives from his arrangement and manner of operating the pitman. Let the inventor express his views by letter.

"J. T., of Pa."—Your mode of constructing the tubes we believe to be new and patentable, and your theory is in most respects correct. Perhaps however you would do well to consult some of your practical engineers upon the subject of the boiler's operation on a large scale.