Improvement in Sawing Machines.

The above engraving illustrates an improvement in machines for sawing up boards, and is in number of parts described. It is the invention of Mr. J. P. Lovecraft, of Echolsdale, N. C., and was patented by him Dec. 12, 1854.

This invention consists in a peculiar arrangement for feeding the stuff to the saw. A is the frame of the machine, B is the saw, C a handle of some, D F driving belts and pulleys. E is the shaft upon which the feed wheels, D & D, are placed. They consist of four wheels, having teeth shaped somewhat like those of a saw. The teeth of one wheel, it will be observed, are placed opposite the open space between the teeth of the other. This arrangement increases the number of passing points of the feed wheels, and prevents any jamming or indentation, when this stuff is being sawed.

The top table of the machine is thrown up, as the engraving shews, so as to afford a better view of the parts. There is a slot in the table, through which the feed wheels, D & D, project. In moving the stuff is laid on the table, and rest upon the spur of the feed wheels. A slow motion, towards the saw, is given to the shaft, E, which causes the feed wheels to carry the stuff up against the saws, with perfect accuracy, and without skill from the attendant.

By the path of a small lever, the feed wheels may, at pleasure, be depressed and thrown below the top of the table, that becoming inoperative. This lever is shown at H, which is pivoted at one end, and terminates in a convenient handle on the side of the machine opposite to that shown. A connecting rod, O, connects lever H, to bar G, which latter supports one end of shaft E. Bar G has a pivot at D, so that when the lever, H, is raised bar G is also elevated, and with it shafts E and the feed wheels, D & D. If the lever is depressed, the feed wheels are correspondingly carried down below the table top. This method of throwing the feed wheels in and out of operation in the stuff is convenient and quick. The arrangement also enables the operator to regulate the bite of the feed wheels upon the stuff, according to the stuff is heavy or light. The handles at the extreme of the lever, and the connection between rod O, bar G and shaft E, are plainly seen in figure 2. This invention, although quite simple, and cheap in construction, is nevertheless one of great utility. It can hardly fail to meet with general favor among that large portion of the working community for whose assistance it is intended. Any further information can be had by application to the inventor.

Note.—We have received a communication from D. E. Goodell, of Pittsfield, Mass., in which he states, he is in opinion, that of other, this machine is more positive than white lead. He is a painter, and he judges from witnesses as to effects upon himself and other persons. He asks our opinion on the point, because it has been stated, that zinc paint will not injure the human system like lead paints.

Pure oxide of zinc used as a paint is not poisonous, as we understand it, therefore it is not hurtful to the system like white lead. But then, almost all zinc ores contain arsenic, and unless this is expelled in making the oxide for paint, it (the paint) will be more poisonous than white lead. Mr. Goodell states it as his belief that it will never take the place of white lead for priming, but it is four times more durable for an outer coating, and will therefore still maintain its place as a valuable paint. He also states that it turns yellow much sooner than white lead. This should not be the case with pure white oxide of zinc; and in our opinion it is a sign that the kind he speaks of contains arsenic, which becomes yellow by an increased absorption of oxygen. Arsenic forms the basis of the yellow in French green paint, and is in the "sage green" of the dyer.

Putz Writing.—In writing for publication, persons should be careful to write in a plain bold hand, using no abbreviated words. In making a statement of fact, the correspondent—who knows what they are, and not the editor—should be careful not to use the stated words B, for pound, and & for and, or else write them pointedly plain, which very few persons do. Many great typographical mistakes have occurred from the use of abbreviated terms by correspondents, of periodicals.
LIST OF PATENT CLAIMS

For the week ending December 23, 1855.


e. M. P. Gardiner, of New York City, and George W. N. Yost, of Pittsburgh, Pa.: We claim the described method of softening or removing the deposits upon boilers, commonly known by the trade name of 'boiler' or 'steam' cleaners, and the apparatus therefor.

J. M. Thompson, of Philadelphia: I do not claim the use of the pulley lever, p. and brace, q. in connection with the stem or supporter, r. and tilt plate, s, constructed and operated as described.

C. C. Heff, of Albany, N. Y.: I claim the angular movement of the cones made close, with an internal friction or screw valve, and the valve, c, constructed and operating as described.

H. W. Wood, of Washington, D. C., and G. W. N. Yost, of Pittsburgh, Pa.: I claim to have ground metallic surfaces which are always setting out of order, this lubricator will answer for supplying vacuum, or the like, to the machine.

C. H. Sayre and G. Klink, at Utica, N. Y.: We claim the arrangement and combination of the sliding drums, as described.

P. A. Adams and John Whitcomb, of Detroit: I claim the use of the pulley lever, p. and brace, q. in connection with the stem or supporter, r. and tilt plate, s, constructed and operated as described.

G. W. N. Yost, of Pittsburgh, Pa.: I do not claim springs for holding the cutter bar, or the like, to side, as to be placed upon adjustable centers, or pivot, or rods.

G. W. N. Yost, of Pittsburgh, Pa.: I claim the method of holding the terminating roller, or its equivalent, to the regulating rod, thereby the regulating rod, the use of which is substantially a matter of form, as the same may be retained in position by the roller, or the like, and is substantially a matter of form, as the same may be done or fastened to the buffers, while it is retained in position.

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In its annual report, the Secretary of the U.S. Patent Office states that the number of cases acted upon during that year amounted to 1,531,531, the aggregate amount of money received being $176,380.77, of which the aggregate amount of income during the year was $101,459.35, an increase of $442,379.72 over the amount of income during the previous year, and its condition for the present year is now such as to lead to a result more satisfactory than any other of the same kind. The amount of income during the year is to be applied to the payment of the expenses of the Patent Office for the next year, and its condition is now such as to lead to a result more satisfactory than any other of the same kind.

The total number of applications for patents during the year 1865 is 1,531,531, an increase of 220,000 over the number of applications filed the previous year. The number of patents granted during the year is 1,426,479, an increase of 12,000 over the number granted in 1864. The number of patents granted in 1865 was 1,300,000, and the number granted in 1864 was 1,180,000. The increase during the past fifteen years in the number of patents granted is 250,000. The number of applications filed during the past year was 1,531,531, an increase of 220,000 over the number of applications filed the previous year. The number of patents granted during the year was 1,426,479, an increase of 12,000 over the number granted in 1864.

The increase during the past year is sufficient to show that the march of the Patent Office is boding well for the future. The increase during the past year is more than thirty-three per cent of the whole number of patents granted during the past year. The number of applications filed during the past year is more than thirty-three per cent of the whole number of applications filed during the past year. The number of patents granted during the past year is more than thirty-three per cent of the whole number of patents granted during the past year.

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New Inventions.

Captain Whitaker's Improvement in Propulsion.

We have several times had occasion to call the attention of our readers to the successful experimental engineer, Captain Whitaker, on Lake Erie, in the propulsion of vessels, and we now publish his method, which is now about to be introduced on the ocean. Our friends who are interested in the science and practice of marine engineering, will be pleased to learn that this is a step in the direction of economy, and with greater safety, less expense, &c. It is the result of his experiments, and it is not surprising that they may be driven at a speed sufficient to overtake the steamer Bluff, which has now closed her second season upon our lakes, and which we believe, as yet, is the only practical exponent of the principle of propulsion illustrated by the engraving at the head of this article. The Bluff is a full-rigged ship of about 300 tons capacity, and was originally built a paddle wheel boat.

Captain Whitaker, her enterprise owner, being favorably improved with the simplicity and feasibility of Capt. Whitaker's plan of placing screw propeller upon vessels, while the whole of his new screw has about double the speed and economy of the Bluff.

IMPROVEMENT IN THE PROPULSION OF VESSELS.

In his plan, the screw is placed on the under side of the vessel, and the water, as it is forced downwards by the propeller, is directed upon the back wheels, which are placed in a horizontal position, and completely buried in the water. A screw is thus obtained which, when the water is not impeded by rocks or shoals, will force the vessel apace with a velocity greater than that of a paddle wheel of the same diameter, which is a great reduction of power. The speed has been greatly increased, and in addition, she is able to carry 200 tons more freight, and all this with out a very small portion of her former expense for fuel.

We have been furnished with a large mass of testimony to prove the practicability and success of this new mode of propulsion. The Bluff has, in fact, only found room for the remarks of Mr. Samuel Hathaway, who is a constructor of engines, and was formerly chief engineer of the Bluff. He says—"No was first stationed on the steamer Bluff up to the last of July, 1854, and assisted in putting up her engines and side propellers. I was satisfied by practical knowledge of what is the best application of power to the propulsion of boat ever made, and I believe she can run quarters miles side of boats, determined to make the application to the Bluff.

Accordingly she was dismounted of her old engines and paddle wheels and side screws and new machinery substituted. The engines taken out of the Bluff had a cylinder 35, 28 in. diameter, with 8 ft. stroke, equal to 504 cubic feet. Her new cylinders are 26 in. diameter, and 3 ft. 6 in. stroke, and 1,110 ft. 112 sq. inches for both—about 40 per cent. (with the same pressure of steam) of the new screw wheel, while the whole of her old machinery weight was only 11 tons; there has been a saving in weight of 50 tons, and in the cost of materials and workmanship, 20 per cent. Thus, the Bluff has been reduced in cost 40 per cent. The effect is, that if we do not already, the Government can put on the service a vessel of the same class, which will cost 10,000,000 dollars less in freight.

The contact that has been going on for several years past between the paddle wheel and the screw, is now the object of some attention, and the comparative results obtained would seem to indicate that the palm of victory, both in regard to speed as well as economy, is soon, if not already, to be awarded to the screw.

The following details, which we conceive from the London Review will show the results obtained on the two modes of propulsion in the steamships Hindoo (screw) and Bluff (paddle).

<table>
<thead>
<tr>
<th>Description</th>
<th>Hindoo (Screw)</th>
<th>Bluff (Paddle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>338 ft.</td>
<td>328 ft.</td>
</tr>
<tr>
<td>Breadth</td>
<td>43 ft.</td>
<td>43 ft.</td>
</tr>
<tr>
<td>Depth</td>
<td>29 ft.</td>
<td>30 ft.</td>
</tr>
<tr>
<td>Speed</td>
<td>8 knots</td>
<td>5 knots</td>
</tr>
<tr>
<td>Fuel</td>
<td>3 tons</td>
<td>5 tons</td>
</tr>
<tr>
<td>Passengers</td>
<td>150</td>
<td>120</td>
</tr>
<tr>
<td>Cargo</td>
<td>1500 tons</td>
<td>1200 tons</td>
</tr>
</tbody>
</table>

It would seem from the foregoing details, that the screw propelled the Hindoo at nearly the same speed as 1790 H. P., transmitted by paddle wheels, where the screw is of the same length and breadth, and are both built of iron, and are said "to offer in to the wind less than one-tenth part of the resistance offered by the paddle wheels." It seems as though the screw propulsion is the only one for practical purposes, in as much as it is the only one that can be made to work under the pressure of wind.

The report of the British Admiralty, in the course of their inquiries, are in favor of the screw propulsion, and, in fact, they have given the preference to it over the paddle wheel, and have recommended the adoption of the screw for all vessels of war any distance from the shore.

The inquiry by "Perdix," was made through the column of the "Scientific American" for Feb. 6, "Do the rays of the sun lose any of their power in passing through free space?" A peculiar answer was given by it in the succeeding number by W. Partridge, as follows: "If the rays of the sun lose none of their power in passing through free space, they would retain all of their power and would pass through the earth with the same velocity that they pass through the sun, and would consequently be the same as the rays of the sun that pass through the earth with the same velocity as the rays of the sun that pass through the earth."

The above inquiry is, and the above answer, is the same as the question of C. E. Moore, of East Fort, N. J., as answerer. Captain Whitaker states that he has found rays of light from the clouds, and are reflected from the sun in sunlight, and that they are reflected from the rays of the sun, leaving the top exposed, and colder, while the sun has been covered with clouds, which obstruct the rays of the sun.

The idea relating to the reflection of the sun's rays on the sides of mountains, leads to the conclusion that all valleys—even those between snow-capped mountains—must be of a temperature equal to that of the atmosphere, while the sun shines. As the sun sets, the temperature of the air falls, and the valley is colder than the surrounding mountains, and the valley is a region of frost and snow.

The question is also asked, "Can lightning strike a vessel?" and the answer is that it cannot. However, the answer is that it does not always occur. The question is also asked, "Can lightning strike a vessel?" and the answer is that it cannot.

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The Patent Law—its defects and remedies.

DAVIS IN COLUMM.

In consequence with an incident sometimes ago expressed, we present, for the consideration of the Council, a bill embodying some very important changes in the Patent Laws. It is proposed to embody in its provisions the sentiment of the bill, to be made thereon as much of its proper and necessary details, as can be without involving the attention of Congress, or taking up the time of the present session. The bill has been prepared by the Committee on Patents, and is intended to be an improvement of our paper. We have shown the great importance of the invention, and have pointed out the necessity for the passage of a bill providing for its protection. The bill is not intended to be a sinecure, but it is a measure which, if properly carried into effect, will be of great benefit to the country, and will enable us to compete with foreign nations in the manufacture of articles of improvement. The bill also contains provisions for the protection of the rights of inventors, and for the encouragement of those who, by their ingenuity and industry, are contributing to the advancement of the arts and sciences. It is our opinion that the bill will be of great benefit to the country, and we trust that it will be passed into law without delay.

A BILL

To amend the Patent Law now in force in relation to the Patent Office.

The Patent Office is a public office, and its duties are of great importance to the country. The bill contains provisions for the proper administration of the office, and for the protection of the inventors. It provides for the examination of the patents, and for the appointment of examiners to act in that capacity. The bill also contains provisions for the publication of the patents, and for the protection of the inventors in their rights. The bill is intended to be a measure of great benefit to the country, and we trust that it will be passed into law without delay.
In our engraving, A is a portion of the bore of the barrel. B is a light cylindrical piece of metal, somewhat thinner in diameter than the bore of the pump, to this cylinder is secured a perforated metal cone, C, inside which is placed a conical shaped piece, D, of leather, gutta percha, india rubber, felt, or other similar substance, fig. 3. The cone, G, of leather, gutta percha, india rubber, felt, or other similar substance, fig. 3. The cone, G, of leather, gutta percha, india rubber, felt, or other similar substance, fig. 3.

The upper invention is applicable to every description of pump, other than the marine, by placing the whole surface of the water of the bore is used over and over. The invention is not claimed as a substitute for the condenser in the larger kinds of engines, but is particularly applicable to steam pumps or pumping engines, for lifting bolters and other purposes, and when applied to bolted feeders it condenses every particle of the steam used to drive the pump, and returns it to the boiler, giving the whole of its calorific to the feed water.

The action of the conical cone in the lower valve is similar to that of the perforated cone by an ordinary bolt. The action of the upper invention is applicable to every description of pump, other than the marine, by placing the whole surface of the water of the bore is used over and over. The invention is not claimed as a substitute for the condenser in the larger kinds of engines, but is particularly applicable to steam pumps or pumping engines, for lifting bolters and other purposes, and when applied to bolted feeders it condenses every particle of the steam used to drive the pump, and returns it to the boiler, giving the whole of its calorific to the feed water.

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ventors of it. With the shifting arrangement the train could not be backed when pending case can prove priority of invention, the Commiss­
you can obtain good yellow and vermillion lIImalts.
is suggested by you. We do not see any chance whatever to give you twelve actual horse power. A
d illustrous personages the Emperor of France and Rus.
channel of communication will be through the United
of them is published through the SCI. A.M.
work on surveying, which is the best work of thj kind
not undertake to do this without involving us
carving. &c.
the tread of a railroad wheel is coned
important.
cocks when heating up and working. The Woodworth
is patented. The list of patents is as follows, to any
95 Maiden Lane. New York.
 admitted.
reasonably.
important.
are entirely exhausted are
"Adams' Improved batteries and black·lead machines abo for sale .
and that always give satisfaction. When money and paper of mechanical invention or to mi-
Art. 5. We are not in the habit of giving out the whole of our inventions for free, but we are will-
before heat takes place.
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rence, with the change so often made. The great want in making, and directions will be made free.
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The morning's milk is richer than the even- ing's, and frequently a portion of this milk at all times, and season is rich, than the first drawn.

**Telegraph for Preventing Collisions.**

The Monticello Polarizer states that Mr. McLaugh- lins, of Quebec, has invented an instrument by which trains approaching such other upon a railway can be safely warned of their danger. Upon the miles posts along the road side are false plates with an index, connected with a telegraphic wire extending the whole length.

Improvement in Dressing Millsstones.

The invention illustrated by the accompanying engravings is designed for the purpose of improving or the force of the mill-stones, used in grinding flour. After the stones have been in use for a time the grooves become worn down or dulled, and must then be renewed. To clean them out by hand would be a long and tedious job, yet it is only within a few years that mechanism has been done to the work.

The apparatus here described is provided with a set of hewn or bedded pieces, B, through which the mill spindle passes, the pitching machine resting upon and revolving with the stones. When the upper stones is to be done the lower must be made movable, unless some improvement in the art of mining be discovered.

**Contacting a Great Depth of North British Review.**

Any one who has a slide ladder at command, on board steamer or wharf, and the other usual appliances—try his hand, for example, on a mill-stone. Here at a temperature does this metal show when you would apply tools to its disintruction; try to drill it, try to cut it, try to plane; plain, roll it out, or stretch it over a snail. These things—al most—may—indeed can—be done; you find that the molecular construction of the entire mass has undergone an instantaneous transformation, and it has become incrustation, plastic, non-elastic. In the two articles on "Copper and its uses," which have appeared in our columns, we would correct the word mass in the first article referring to the ore of our country sent to Swansea, and substitute the word stones. We know that the stones go to England; almost are milled at home. The mining of copper and its ores appears to be a very expensive. Mining is out of the question in pure copper lodes, and the ore could not even be smelted. Copper will always be a dear metal, unless some great improvement in the art of mining be discovered.

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