

THE
Scientific American.

MUNN & COMPANY, Editors & Proprietors.

PUBLISHED WEEKLY AT
O. 37 PARK ROW (PARK BUILDING), NEW YORK.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Agents, 121 Nassau street, New York.

Messrs. Sampson Low, Son & Co., Booksellers, 47 Ludgate Hill, London, England, are the Agents to receive European subscriptions or advertisements for the Scientific American. Orders sent to them will be promptly attended to.

VOL. XI. NO. 26. . . . [NEW SERIES.] . . . Twentieth Year.

NEW YORK, SATURDAY, DECEMBER 24, 1864.

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WHAT CAN BE DONE FOR INVENTORS.—ADVICE GRATIS AND ADVICE FOR PAY.

For the information of Inventors, we would state that it is the custom, at the office of this paper, to examine models or drawings and descriptions of alleged new inventions, and to give written or verbal advice as to their patentability, without charge. Persons having made what they consider improvements in any branch of machinery, and contemplate securing the same by Letters Patent, are advised to send a sketch or model of it to this office. An examination will be made and an answer returned by early mail. Through our Branch Office, located directly opposite the Patent Office in Washington, we are enabled to make special examinations into the novelty and patentability of inventions. By having the records of the Patent Office to search, and the models and drawings deposited therein to examine, we are enabled to give an inventor most reliable advice as to the probabilities of his obtaining a patent, and also as to the extent of the claim that it is expedient to set up when the papers for an application are prepared. For this special examination at the Patent Office we make a charge of Five Dollars. It is necessary that a model or drawing and a description of the invention should accompany the remittance.

The publishers of this paper have been engaged in procuring patents for the past eighteen years, during which time they have acted as Attorneys for more than TWENTY THOUSAND patentees. Nearly all the patents taken by American citizens in FOREIGN countries are procured through the agency of this office.

Pamphlets of instructions as to the best mode of obtaining patents in this and all foreign countries are furnished free on application.

For further particulars as to what can be done for inventors at this office, see advertisement on another page, or address

MUNN & CO.,
No. 37 Park Row, New York.

STEAM ENGINES IN COLD WEATHER.

It is a curious fact that steam engines, in general, are put up in situations where no other machines would be: in cold bleak exposure where the winds sweep directly on them; in rough sheds where the rain drops down on the cylinder, and dust flies into the journals, and in all conceivable spots where loss can ensue by their imperfect operation, or damage come from the elements. Where no animal used by man could exist, there shall the steam engine be found. Of course, such a state of things is the result of the grossest ignorance and laxity of management, but these should never have been tolerated, and changes ought to be made where they exist.

From this writing, henceforward, until the return of more genial weather there will be frequent casualties from the circumstances mentioned. Feed pumps and pipes will freeze up and burst, and vertical tubular boilers will meet a like fate. Left over night in cold sheds, the water in them will soon freeze, and the consequent expansion will work the usual destruction. Many instances have occurred of boiler explosions caused by feed pipes freezing solid. No water passes to the boiler, and what remains is soon evaporated. The flues or crown sheet burns, and are forced down, even if no greater injury occurs. When the tubes are not frozen up, much damage ensues from the great extremes of heat and cold the boiler has to sustain; leaks frequently start from this cause. Where steam engines are exposed, the water should be drawn out of the feed pipe, and pump every night. There should be a pet-cock between the two valves, suction and feed, by which to empty the pump barrel and valve chambers, and another cock in the lowest part of the suction pipe; bends sometimes occur which hold water, while the body of the pipe is clear. The pump ought to be boxed up; also the exhaust pipe if it enter or leave a heater. The heater must also be emptied, so that no injury may happen to it. With these simple precautions no damage can occur, and the loss which arises not only from the expense of repairs but also from the stoppage of the factory will be avoided.

WILL PHOSPHORUS SET WOOD ON FIRE?

Professor Doremus having stated in one of his lectures that phosphorus burns with a flame, the heat of which is not sufficiently intense to set wood on fire, some of the daily papers which are advocating the cause of Jeff. Davis, have seized upon the statement, as proving that the recent attempt to burn this city was not directed by men of intelligence, and therefore could not have originated with the arch rebel.

Phosphorus has a strong affinity for oxygen, and is constantly absorbing it from the atmosphere when exposed to its action. The absorption is usually sufficiently rapid to cause a feeble glow, visible in the night, but not in daylight; and persons have been frightened into convulsions by having "Death," or some other startling word, written with phosphorus on the walls of their bedroom—the writing being invisible until the gas was turned off, when it came forth in letters of fire.

If the phosphorus is spread out into an exceedingly thin sheet, so as to expose a large surface to the action of the air, the absorption of the oxygen will be so rapid as to kindle the substance into flame. This extended surface is most readily obtained by dissolving phosphorus in some volatile liquid, and pouring the solution over some surface on which it may spread; then as the liquid evaporates, it will leave the phosphorus very thinly extended. The best liquid for this purpose is bisulphide of carbon, which is a powerful solvent of phosphorus, and exceedingly volatile.

Our readers will remember that a few years since, a good deal was said in the English newspapers about an incendiary shell, filled with a solution of phosphorus in bisulphide of carbon. It was gravely stated that this shell was too destructive for the humanity of the English people—a humanity that was gratified by blowing the Sepoy rebels from the mouths of cannon, by the destruction of peaceful hamlets along the shores of the gulf of Finland, and by the bombardment of Kagosima.

The truth was that the shells were wholly inefficient, from the property of the phosphorus flame

pointed out by Professor Doremus. Whenever the shells burst the liquid itself would take fire and burn up, but it failed to set other substances on fire.

The villains who tried to burn this city provided themselves with phosphorus dissolved in bisulphide of carbon, and if they failed to use sulphur, which the phosphorus will set on fire, and which in its turn will convey the flame to wood, they did not fail to employ an effective substitute for sulphur, as the event showed; for the furniture was set on fire.

The real cause of the failure of this fiendish attempt is that which we have already pointed out. The criminals had not sufficient knowledge to add to their incendiary piles a quantity of some substance containing oxygen which would have been set free by the heat, and would have continued the fire with the greatest violence and intensity.

THE ONE THING TO DO WITH THE CURRENCY.

The high price of gold is no sign of impaired confidence in the credit of the Government; nor is it a necessary result of the war; it is simply an inevitable effect of certain laws of Congress, namely: those laws authorising the issue of four hundred millions of treasury notes for circulation. Had these laws been passed in a period of profound peace, gold would have risen to the same price that it now commands. That the issue of an excessive quantity of paper money will lower its value, as compared with that of the precious metals and other commodities, has been proved by most disastrous experiments in Russia, Austria, and other countries—experiments that were made in times of peace.

In November, 1861, Salmon P. Chase, Secretary of the Treasury, estimated the bank note circulation of the loyal States at \$130,000,000, and the specie, including the deposits in the banks, at \$210,000,000, making a total of \$340,000,000. This was the portion of the currency of the world which fell to the share of these loyal States under its natural distribution by the inexorable laws of trade. As we have repeatedly shown, it is impossible to change the aggregate value of this currency, unless there should be a change in the wealth and commerce of the country as compared with the wealth and commerce of the rest of the world. Consequently, any change in the volume of the paper portion of the currency must be necessarily accompanied by a corresponding change in its price. Our readers will remember that before the change in the price of a single article, we predicted in the plainest language the general advance in prices that has resulted from the inflation of our currency.

Assuming the estimate of the Secretary to be correct, the \$200,000,000 of specie might have been displaced by government notes without any considerable advance in the price of gold and other commodities. This, in fact, was the case; there was no great advance in prices when the first \$200,000,000 of "legal tenders" were issued. The principal effect of this issue was to drive the gold out of circulation, and out of the country. It converted our mixed currency of gold and paper into one wholly of paper of about the same value—a change of no great importance. But all further issues inflated the currency, and thus lowered its price, or in other words, raised the price of gold.

As the issue of the \$200,000,000 of currency in excess of our share of the currency of the world, is the measure that has wrought all the evil, the simple remedy is to withdraw this amount of notes from circulation. The only way of doing this is by funding them. If bonds were offered for this purpose, all that great majority of the people who are interested in lowering the price of gold would be prompted to subscribe for them. If every man who has any money in his pocket would invest half of it in these bonds, the remaining half would become worth just as much as the whole is worth now, and he would have his investment into the bargain. There can be no doubt that there is sufficient public interest felt to secure the success of the measure, and this measure adopted would bring gold to par or very near it. Our whole internal revenue of \$300,000,000 would then be in gold or its equivalent. The credit of the Government would be established in Germany and other parts of Europe beyond all question, securing an unlimited sale of our bonds at nearly par in specie. This would insure our ability to carry on the war for