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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.

THE "SCIENTIFIC AMERICAN" FOR THE ENSUING YEAR.

On the first day of January next we shall commence Volume XII. of the New Series of the SCIENTIFIC AMERICAN, and we scarcely need to remind our readers that in the present state of Journalism in this country, things are so much changed by the exigencies of the war, that publishers are compelled to carry burdens almost too heavy for them.

In spite, however, of these burdens, which we confess to have felt to some extent by a decreased profit for our labor, we have maintained the standard of the SCIENTIFIC AMERICAN equal to that of any previous year. The paper we believe has lost none of its old renown; indeed, if we may trust to the judgment of many of our oldest readers, we may well cherish the conviction that it was never before so well edited. We are conscious, at least, that our labors in this particular have never been more earnestly directed to gratify our readers. The valuable information published in the SCIENTIFIC AMERICAN can not be obtained from any other journal. In the volume now closing the mechanic will find that special attention has been paid to his interests; the manufacturer will observe many hints on workshop economy, new fabrics, systems and schemes, the inventor and patentee will find the fullest and earliest intelligence on all that belongs to his peculiar calling; and the general reader will observe that all the great industrial enterprises, all the newest and best plans for ordnance, torpedoes, small arms, steam engines and telegraphing are noticed and discussed. Articles on the large manufactories have been illustrated also, and described at length.

The SCIENTIFIC AMERICAN has had early intelligence of every rebel iron-clad of note, and also descriptions of our own monitors, and illustrations of the Government ordnance, and experiments on iron-clad targets. The great question of the expansion of steam has again arisen, and is still being tested. The Hecker and Waterman experiments, as well as those of Government, are yet under way; and the partial results of the former have already been published. Illustrated articles on machinists' tools, as well as practical rules and hints, will be found in the approaching volumes. The first volume will open with an article on "Lathe Tools," in which all the newest and most approved forms, as well as the work to which they are adapted, will be lavishly illustrated. The attractions, past and forthcoming, of the SCIENTIFIC AMERICAN, render it indispensable to every workshop, and we intend that it shall be welcome at the fireside.

IMPROVEMENT IN PHOTOGRAPHY.

We recently published an account of a new discovery in photography, by Jacob Wothly, of Germany, by which printing upon paper by means of the salts of Uranium had been successfully accomplished. The prints were stated to compare favorably in appearance, and in every other respect, with the pictures ordinarily produced upon albumenized paper and the salts of silver.

The discovery of Wothly was immediately bought up by a company of gentlemen in London, who had made it the basis for a joint stock concern having a very large capital. Letters Patent have been obtained in Great Britain, and we presume that measures have been taken to secure patents in this and other countries. But until the patent is granted here all our photographers are at liberty to make use of the process, and for their convenience we subjoin the following directions, extracted from the British specification:—

To one pound of plain collodion add from 1½ to 3 ounces of nitrate of uranium and from 20 to 60 grains of nitrate of silver.

The paper is prepared for printing by simply pouring the above sensitized collodion upon its surface, and hanging the sheets to dry in the dark.

The printing is accomplished by exposing the paper to light under the negative in the usual manner, and for about the usual time required for silvered paper; print until the desired depth is reached. It is not necessary, as in the ordinary process, to print the positive to a greater intensity of color than the fixed picture is intended to have.

After printing immerse the picture in a bath of acetic acid for about ten minutes, or until that portion

of the salts not acted upon by the light has been dissolved. The picture is now fixed and finished by thorough washing or rubbing with a sponge or brush, or by rinsing in pure water; then dry. Changes in the tone of the picture to suit the taste may be made before drying, by using a bath of chloride of gold, or of hyposulphite of soda.

Such, in brief, is the new Wothlytype process. We have given it a few trials, with the most gratifying success. We presume that it will ere long be recognized among photographers as an established and excellent method of printing. It is not claimed that it surpasses the silver printing, but the superior convenience of the Wothlytype process will be a very strong reason for its employment, if the pictures it produces prove equal, or nearly equal, in durability and other qualities, to those resulting from the old method of printing.

The uranium sensitized paper, it is stated, can be preserved for an indefinite time in properly-prepared receptacles, from which light is excluded. This is another important advantage, as the common silvered paper loses its value soon after preparation.

The uranium prints, made as above described, have a smooth and glossy appearance. When an unglazed surface is desired the sensitive salts are dissolved in alcohol and water, adding some saccharine substance. The paper is then coated with the mixture.

The best results of the Wothlytype process ensue when a well-sized, fine and very hard-rolled paper is employed. It is recommended to coat the surface of the paper with a sizing of starch, arrow-root or gum tragacanth.

We shall frequently refer to this subject again, and intend to keep our photographic readers fully posted in regard to all the most useful details. In the meantime, the information here presented will enable them to give the new process a preliminary trial.

The holders of the Wothlytype patents are likely to realize immense sums as the proceeds of a very simple but most useful discovery. The patent claims rest chiefly upon the combination of the salts of uranium and silver.

THE ATTEMPT TO BURN THE CITY.

In our last number we briefly mentioned the attempt to destroy this city by fire, on the night of Friday, the 26th of November, by a band of depraved criminals. The plan of the villains was to set fire simultaneously to the principal hotels, and to such hay barges and lumber yards as they could reach. For this purpose they entered the hotels as lodgers, and piling the furniture in the middle of their rooms, covered it with turpentine and phosphorus, and set it on fire. In this way twelve of the principal hotels were fired, but fortunately, in every case, the flames were extinguished before they had obtained sufficient headway to destroy the building.

The failure in so many instances of a scheme apparently so well contrived, may inspire the feeling that it is impossible to burn down a great city. Several of the papers have remarked that the mistake of the criminals was in closing tightly the windows and doors of the rooms, by which an access of air was prevented, and the fire was smothered. This closing of the windows was doubtless a precaution on the part of the incendiaries to enable them to escape before the fires were discovered, as the saving of their necks was more important to them than the success of their fiendish scheme.

Had the knowledge of these incendiaries been equal to their wickedness, they could have secured an abundant supply of oxygen for their fires, without any opening of doors or windows. It is perhaps not advisable to point out the accessible and well-known substances which would have furnished a supply of oxygen, but it is advisable that the community should be warned of their existence, in order that proper precautions may be taken to frustrate any similar attempt that may be more intelligently planned.

DEATH OF PROFESSOR SILLIMAN.

Benjamin Silliman, LL. D., died at his residence in New Haven, Conn., on Wednesday, the 24th of November, in the 86th year of his age. He was born at North Hartford, Conn., Aug. 8th, 1779. His father was a lawyer of distinction, and served as a Brigadier General in the War of the Revolution.

Professor Silliman was educated at Yale College,

where he graduated in 1796. He studied law, but was induced to abandon his profession and accept the new chair of chemistry at Yale in 1804. In 1818 he founded the *American Journal of Science and Arts*, and was its sole editor for twenty years.

The subject which most warmly enlisted Professor Silliman's sympathies, and to the elucidation of which he most zealously devoted his faculties, was the harmony of science and religion. In a course of lectures which the writer of this heard him deliver in 1834, he argued with almost passionate zeal that the word "day," as used in the beginning of Genesis, does not mean twenty-four hours, but an indefinite period of time; contending that this is conclusively shown in the sentence at the close of the account, "These are the generations of the heavens and of the earth when they were created, in the day that the Lord God made the earth and the heavens." Many years afterward, at the meeting of the American Association for the advancement of Science, at Providence, he argued with the same enthusiasm on his favorite topic. He said, "All the scientific men ask is *time*, and time the religious men are ready to grant." From his learning, his ability, his position, and his zeal, he was enabled, by showing the eternal harmony of the two, to render a service to both science and religion which will never be fully appreciated.

Professor Silliman was remarkable for his warm and genial nature; his life was an exemplification of the Christian virtues; and after doing more perhaps than any other man of his generation for the advancement and diffusion of knowledge, his long and useful career has been brought to a close amid the sorrow not only of his countrymen, but of all lovers of science throughout the civilized world.

OIL CUPS.

A most objectionable and wasteful practice of using oil cans, instead of oil cups, for lubricating machines, prevails extensively. It is objectionable because uncleanly, for one reason, and extravagant because too much oil is put on at once. A journal will carry only a certain quantity of oil, and all that is poured in after the surfaces are well covered, runs off at the nearest aperture. When oil cups are applied, and properly used, the bearing takes up all the oil admitted, and uses it economically; that which is now lost might be saved. By an oil cup we do not mean a simple brass funnel to guide the nose of the can to the proper place, but a cup with a wick and a tube, or the equivalent of this device, for feeding the oil at regular and proper times. The wick and tube is the one generally used, and it can be made to feed fast or slow according to the amount of oil needed.

The filthy drip pans placed under the hangers of shafting are entirely unnecessary, and should be dispensed with by using cups. Many a suit of clothes has been spoiled, and not a little profanity caused by the upsetting of these drip pans, and the descent of their contents on workmen when belts run off. Where oil cups are not used fully one-half the oil poured on the bearing runs out again; and, as a matter of economy, every manufacturer, of whatever class, should see that his engines, his lathes, shafting and similar machines and fixtures are furnished with oil cups that feed the lubricator to the journals, as fast or as slow as it is required.

Good Inventions in Demand.

There never was a time when really good inventions were in so great demand as now. Almost every day we are called upon to prepare assignments for parties who have recently obtained patents, and we have been surprised at the large prices which rights on some small, useful articles have commanded. In another column may be found an advertisement of two brothers who wish to invest \$10,000 in some new and useful improvement in the hardware trade. The advertisers are known to us to be men of integrity, and to mean what they say, so that parties having any patented article for sale which meets the requirements set forth in the advertisement may correspond with them in full confidence of honorable treatment.

A Boston firm has just put into operation, at Fisherville, N. H., a factory which transforms poplar wood into "excelsior," for filling mattresses, at the rate of two tons per day.

MARKETS FOR THE MONTH.

The leading feature in the market for the past month has been the great fluctuation in the price of gold, which has ranged from 260 to 209½. As long as our currency is so inflated it will doubtless be subject to these disturbing fluctuations. The following table shows the prices of the leading staples, reckoned in our paper currency, at the end of October and November:—

	Price Oct. 26.	Price Nov. 30.
Coal (Anth.) 2,000 lb.	\$9 50 @ 11 00	\$9 00 @ 10 50
Coffee (Java) 100 lb.	45	50
Copper (Am. Ingot) 100 lb.	47 @ 48	48 @ 49
Cotton (middling) 100 lb.	1 22	1 29 @ 1 30
Flour (State) 100 bbl.	\$8 90 @ 9 25	\$9 65 @ 10 25
Wheat 100 bush.	\$2 25 @ 2 60	\$2 50 @ 2 80
Hay 100 lb.	1 30 @ 1 35	1 45
Hemp (Am. drs'd) 100 tun.	320 00 @ 350 00	\$320 00 @ 350 00
Hides (city slaughter) 100 lb.	11 @ 11	13½ @ 14
India rubber 100 lb.	\$1 10 @ 1 15	70 @ 1 15
Lead (Am.) 100 lb.	\$13 87 @ 14 00	\$15 50 @ 16 00
Nails 100 lb.	\$9 50 @ 10 00	9 00 @ 10 00
Petroleum (crude) 100 gal.	46½ @ 47	48
Beef (mess) 100 bbl.	\$8 00 @ 13 00	7 00 @ 12 00
Saltpeter 100 lb.	24 @ 30	30
Steel (Am. cast) 100 lb.	18 @ 33	30 @ 34
Sugar (brown) 100 lb.	18 @ 21	16½ @ 22½
Wool (American Saxony fleece) 100 lb.	90 @ 1 00	90 @ 1 10
Zinc 100 lb.	20 @ 21	19 @ 20
Gold.	2 16	2 30

FARMERS' CLUB.

The Farmers' Club of the American Institute held its regular weekly meeting at its Room at the Cooper Institute, on Tuesday afternoon, Nov. 29, the President, N. C. Ely, Esq., in the chair.

EMIGRATION TO MARYLAND.

The President read a letter from W. Bayard, Esq., of Maryland, in reply to an invitation from the Club, saying that he would be present at the next meeting, on Tuesday, December 6th, and would explain the advantages and disadvantages of Maryland as a place for immigration and settlement by Northern farmers.

OSAGE ORANGE HEDGES.

Solon Robinson read a letter from S. W. Noble, of Leroy, Ill., saying that though the tops of the Osage orange are occasionally killed by extreme cold in the winter, the roots are not injured, and the freezing does not impair in the least the effectiveness of the hedge. **The roots throw up fresh sprouts, and the old stalks stand as a perfect fence till the new sprouts are grown.**

THE BEST EARLY POTATO.

Mr. Carpenter gave it as his opinion, from extensive experience, that the Early Cottage is far the best and most profitable early potato.

CEDAR BIRDS.

Dr. Trimble, being called up, stated that the bird which eats such large quantities of canker-worms is the cedar bird, and that is what he called it before—not the reed bird. Besides the name of cedar bird, it is also called the cherry bird, the canker bird and the wax wing.

Dr. Trimble continued, "Mr. Chairman, I also said that the Baltimore oriole eats the curculio, and that I had found the head of one of these insects in the crop of a reed bird. I have here an agricultural paper in which the editor says that he does not believe that I know what a curculio is. I have wintered and summered with the curculio for the last 25 years. I have studied its habits, examined its structure, written upon it; I have probably killed more of the insects than all of the rest of the inhabitants of the United States. The curculio has a very large eye, containing, as nearly as I have been able to count under the microscope, 147 lenses. There is no other species of this class of wevils the eye of which has very nearly the same number of lenses. Some have very few, and some a great many more. Now, I found in the crop of a bobolink the proboscis and eyes of an insect that resembles the proboscis and eyes of the curculio. On bringing the eye into the focus of the microscope, I found that it contained 147 hexagonal lenses, and I think I am justified in stating that, at all events, one reed bird has eaten one curculio."

Many other subjects were discussed, but we select only the above.

The *Country Gentleman* says that scraping the horns of oxen on the inside will make them curve outward, or *vice versa*.



ISSUED FROM THE UNITED STATES PATENT-OFFICE

FOR THE WEEK ENDING NOVEMBER 29, 1864.

Reported Officially for the Scientific American.

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.

45,214.—Apparatus for amalgamating Gold and Silver. Henry N. Adams, New York City:

I claim, first, Amalgamating gold and silver contained in pulverized ores, tailings, or other metalliciferous material, by means of quicksilver brought in contact therewith in the condition of vapor, under a mode of operation, substantially such as above set forth.

Second, The discharge of the distilled vapor of quicksilver from a still, and auriferous or argentiferous quantity or substances containing gold or silver in a pulverized state from a hopper into a rotary or oscillating and inclined cylinder or chamber, which is fed in a continuous stream with the said quartz or material from the said hopper, by means of the rotating or oscillating motion of the said cylinder or chamber, substantially in the manner and for the purpose set forth.

Third, The combination of the apparatus for supplying the retort with quicksilver with the retort, substantially in the manner and for the purpose specified.

Fourth, The combination and connection of the retort and the revolving or oscillating cylinder and chamber, by means of the worm, R, through which the distilled vapor of mercury is discharged from the retort with the said revolving cylinder or chamber, in the manner and for the purpose herein named.

Fifth, The stationary hopper, O, in combination with the rotating or oscillating cylinder or chamber, L, substantially in the manner and for the purpose mentioned.

Sixth, The partition of said hopper, O, with its aperture and plug, Q, in combination with said hopper, in the manner and for the purpose described.

Seventh, The stuffing-box, N, in combination with the feeding end of the rotating or oscillating cylinder or chamber through which it passes, and in which it works, substantially in the manner and for the purposes set forth.

Eighth, The surrounding jacket pipe, a, in combination with that part of the worm which passes through the hopper, in the method and for the object designated.

Ninth, The mode of sealing the upper or feeding end of the rotating or oscillating cylinder or chamber by plunging it directly into the pulverized quartz or gold or silver bearing substance contained in the hopper and allowing it to revolve out matter, substantially in the manner and for the object specified.

Tenth, The revolving or oscillating motion of the cylinder or chamber, the feeding end of which moves in the pulverized matter to be amalgamated, for agitating and drawing the said pulverized substance into and through the said cylinder or chamber, in a continuous and equable stream, in the manner and for the purpose mentioned.

Eleventh, The widening and projecting outwardly of the feeding end of the rotating or oscillating chamber by means of arms or the like, to form a larger circle than the said cylinder or chamber in its revolution or oscillation in the pulverized ore contained in the hopper to stir up and throw into the said cylinder or chamber the said pulverized auriferous or argentiferous substance, substantially in the manner described.

Twelfth, The combination of the receiving elutriating pan with the revolving cylinder or chamber or its equivalent, whether moving or stationary, when the said cylinder or chamber, either revolving or stationary, is discharging into said pan gold or silver bearing quartz or ore in a pulverized state, which has been treated or amalgamated with the distilled vapor of quicksilver, and when at the same time the pan is supplied with the grinding and mashing drags, K, or an equivalent crushing device, by which apparatus the said pan becomes substantially an arastra, and shown substantially in Fig. 1, in combination with any auriferous or argentiferous pulverized ore discharged from an amalgamator, in which it has been amalgamated with the distilled vapor of quicksilver to grind and mash and work over the said mass and separate from it the fine dewy particles of quicksilver condensed through it, and collect them into a liquid state to be used over again, all substantially in the manner and for the purposes hereinbefore set forth.

Thirteenth, The use of the drags, K, to grind the amalgamated mass and work out of it the fine particles of quicksilver, disseminated through it when the said fine particles result from the condensation of the distilled vapor of that metal.

Fourteenth, The use of the shaft and cog wheels, or any equivalent device, by which the rotating shaft when attached by a belt or its equivalent to the driving power, shall move both the rotating cylinder or chamber and the drags, K, or their equivalent, substantially in the manner and for the purposes specified.

Fifteenth, The use of a rotating or oscillating conveyor for turning the over and exposing the ore to the vaporized quicksilver during its passage through it, substantially as above set forth.

Sixteenth, Connecting the discharging end of the conveyor, L, at or near the bottom of the arastra so that the water may reach up therein and around it in the jacket pipe, J, and act on the descending vapor of the quicksilver as a condenser in the revolving or oscillating conveyor, substantially as and for the purpose above described.

Seventeenth, Making the joint which connects the conveyor with the arastra, and sustaining the lower end of the conveyor by means of a pipe, J, extending from the arastra, which permits the rotation of the conveyor in water and prevents the escape of the vapor of quicksilver from its lower end, substantially as described.

45,215.—Cigar-holder.—Louis Auguste, New York City:

I claim the application to a smoking tube, A, of a tubular socket, r, with perforated partition, g, and cap, h, and applied to the mouth piece, e, the whole constructed and arranged substantially as herein set forth.

[This invention consists in the employment of a removable sponge holder arranged in the interior of the cigar-holder and provided with a perforated partition and cup, in such a manner that said sponge holder will not obstruct the draught, and that it can be readily detached from the cigar-holder, and the sponge can be removed and cleaned without disturbing the other parts of the cigar-holder, and by these means a sponge saturated with camphor or other suitable material can be kept in contact with the smoke and any desired flavor can be given to the same.]

45,216.—Grubbing Machine.—Cortland Ball, Augusta, Mich.:

I claim the combination of the axle, A, wheels, B B, nuts, a a b b, toothed rings, c, lever, D, suspended pawl, E, slide brace, G, G', the eye bolts, F F' on the peripheries of the wheels, B B', and the chain, H, all constructed, arranged and connected as herein shown and described.

[This is one of the most powerful and quickly operated machines for the purpose that we have seen. If any body wants a first rate grubbing or root-raising machine, we advise them to address the inventor of the above.]