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

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## LIBERAL PRIZES OFFERED FOR LAMP IMPROVEMENTS.



WE present, herewith, the design of an antique lamp, which resembles the modern gravy dish now so common on our tables. We have no account of any mechanical

contrivance of more ancient date than this for burning oil; and even as concerns this, the facts as to who was its original inventor, and what country had the honor of his birth, are mysteries which probably no Layard or Rawlinson will ever bring to light. That it did good service in its day and generation, no one can doubt; and its inventor—could his name be known—would be entitled to an honorable association with those who have won distinction in the fields of invention. The ancients were accustomed to ornament this species of lamp with a great variety of artistic designs; apart from this, it possesses no merit (except that of age) above the lamp now used by the Esquimaux to light his snow hut. The old English kitchen-lamp was the next improvement upon the antique. The beak was removed from the body of the lamp, and a tube was attached, extending some distance from it, in order to prevent the shadow cast by the flame from interfering with its illuminating power.

No great advance was made towards improving the oil lamp till 1789, when a Frenchman—Aimé Argand—took a step in the right direction and made an improvement which bears his name. He employed two metallic cylinders, one within the other; the space between them containing a cylindrical wick and a quantity of oil. The oil vessels surrounds the burner at some distance, and supplies this annular space by a tube. He also employed a chimney for exciting an artificial draft. This lamp is now so well known that a more minute description is not necessary. There is an immense variety of lamps now in use, and great ingenuity has been displayed in the application to them of physical and chemical laws. Since the improvement of Argand a great many inventions have been made for burning fish and lard oils; but of late years, or since the introduction of camphene and other burning fluids, and especially coal and cotton seed oils, inventive genius has been turned to the best contrivances for burning the latter class of oils, and the number of patents is legion. Several of these patents have been a source of great profit to their projectors. It seems, however, that the current of invention is about to be turned once more to whale oil, as will be seen by reference to an advertisement published in another column. A committee headed by Hon. Joseph Grinnell, and composed of the most respectable merchants of New Bedford (Mass.)—a place famous for the extent of its whale fisheries—are resolved not to yield to the rapid encroachments made upon their cherished interests by the introduction of new illuminating agents. There are whales enough in the sea, and there are ships and men enough to go out and capture them; but something more is wanted to give importance to the business, viz., the inventor; for with all our boasted natural advantages, no one is more necessary to their proper development; and the pecuniary inducement held forth in the advertisement alluded to is one step taken on the right road to success. It will be seen that the offered prizes amount to \$4,500, and should (as we doubt not they will) attract the attention and stimulate the inventive genius of many of our readers. The time for receiving the improvements which will be offered in competition for the prizes

is set down for August 30th; and it is one of the conditions of the award, that the improvements be secured by Letters Patent. In this connection we volunteer a single word of advice to those who enter this "ring," to contend for the "champion's belt" in bloodless strife. Keep a careful record of your experiments by sketches and descriptions; and make oath to the date of your inventions; so that, in case conflicting questions about the right of priority should arise, you will be able to prove your date without the need of an attorney's services to worm out the facts in the case. Inventors are oftentimes—indeed they are generally—quite careless in this respect, and sometimes lose valuable patents for want of evidence to support their claims, which could have readily been prepared at the very time when the invention was first made.

## A WORD TO OUR FRIENDS

The reader of the daily or weekly newspaper seldom takes into consideration the vast expenditure of time money and mental labor required to render it a success—indeed, these things can only be fully known to those upon whom falls the responsibility of their management. The sheet of paper which you now hold in your hand, before receiving the printed impression, costs only a trifle; but the aggregate cost of the paper for one edition of this journal, issued weekly, during one year, is nearly \$30,000. The reader may infer from this that, when we undertook the enlargement of the SCIENTIFIC AMERICAN, one year ago, we did not enter upon it without considerable hesitation and anxiety for the future. The enlargement once made, there was no retreat; all we had to do then, as the soldier would say, was to "face the music." At that time we saw the certainty of a large increase in our expenditure, with no positive knowledge that our subscription list would increase in a ratio corresponding to the outlay.

We have now had a fair trial of our project throughout one year; our readers also, have had a chance to judge of the value of our exertions in their behalf; and hence, it is to them that we now address a few words. We are glad to say that, although our expenses during the past year have exceeded (by several thousands of dollars) the amount that we had anticipated, yet we consider ourselves well paid for this vastly increased outlay. We never worked harder in our lives to please our readers, and have never before expended so much time and money upon the paper as during the year past. These facts are fully evidenced by the greatly increased amount of original matter which we have published since the enlarged series commenced. The Editor-in-chief has had the constant aid of able assistants; and since the 1st of January, Judge Mason has frequently contributed able and valuable articles upon patents and patent law questions, in which our readers are more or less interested. Not only this, but we have had special reports of such transactions of scientific and mechanical societies as have transpired during the year, and which we believed would interest our readers.

On the first of July next we shall begin a new volume (the third of the "New Series") with unabated zeal. We feel our personal responsibility to our readers, and although a little relaxation from our heavy cares is very grateful, yet the "chair editorial" is seldom vacant. We cannot without doing injustice to our readers, transfer the responsibility of this position to other hands. Whether upon the rail-car or the steamboat, or at our post of duty, the interests of the SCIENTIFIC AMERICAN are never far from us. We have committed ourselves to the work of developing and pushing forward the prosperity of our common country—north, south, east, and west; and we intend to "keep on the harness," believing in the sound maxim that "it is better to wear out than to rust out." Our labors are not unappreciated; and we are grateful to our readers for it. We also owe many thanks to our courteous cotemporaries, all over the Union, for many friendly notices which have helped our circulation very materially, we doubt not.

The SCIENTIFIC AMERICAN has now a solid, influential circulation of about thirty thousand copies per week; besides a very large exchange list. In addition to this, the proprietors of this journal have under their charge the most extensive Patent Agency in the world. The advantages of this department to the journal are apparent—it draws from all sources the fruits of American and European genius, which are weekly illustrated in its

columns; thus enabling us to spread out before our readers a complete original summary of the progress of invention and discovery. In direct connection with the paper and the Patent Department, 25 persons are employed in the capacity of editors, specification-writers and draughtsmen; while the printing and clerical force of the office numbers 22 persons. With this large and efficient force we shall enter upon the sixteenth year of our labors in connection with this journal; and we rely confidently upon our friends to sustain us. We commend to them the perusal of our new prospectus, published in another column, and we hope they will all endeavor, as heretofore, to enlarge the list of our subscribers.

## OBJECTS OF INTEREST IN THE CENTRAL PARK.

One of the best places in the world to study geology is among the rocks of the Central Park in this city. One leaf in the record of the unmeasured ages is there laid open for the perusal of all who have learned the language in which it is written. The rocks which are in process of formation at the present time are of various kinds—lava which is being thrown out from volcanoes, deltas which are being formed at the mouths of rivers, salts which are being thrown-up by boiling springs, and sediment which is being deposited at the bottoms of lakes and seas. The last is in progress on by far the most extensive scale, and it constitutes the principal portion of all modern rocks, and indeed of all rocks, old and new. The modern formations occur in beds of very various extent, from the sediment which lines the bottom of a duck pond to the telegraphic plateau which stretches from the coast of Newfoundland to that of Ireland, and this is the case with the formations of all ages.

In all cases the rocks upon which the modern formations rest (and which of course must have been formed previously) are of somewhat different character from those which are now being deposited. In some of these the strata are horizontal, and in others they are bent and inclined at all angles by the tremendous power of the internal fires of the earth which heaved up the mountains from the bottom of the sea. In some cases the modern formations lie flat upon the sides of the earlier rocks, and in others they rest upon their upturned edges, and of course it is easy, by observing their positions in relation to each other, to determine the relative periods of their deposit.

The modern alluvial rocks are full of organic remains; and as we go down in the series we find the species, both of plants and animals, becoming less and less numerous, and less like the plants and animals now living upon the earth. The lowest rocks of all—such as granite—contain no organic remains, nor are they stratified, but they have a homogeneous crystalline structure. First above these primary rocks is a class of rocks the structure of which is both stratified and crystalline; and it is the general opinion of geologists that they were first deposited beneath the water, and then crystallized by the action of the heat. This change in their form has given them the name of metamorphic rocks. It is to this class of rocks that the very coarse gneiss (or stratified granite) of the Central Park belongs; therefore it is one of the earliest pages in the geological record, and it would weary the imagination to attempt to conceive of the immense period which has passed away since this formation was slowly deposited in successive layers on the bottom of the sea.

The mineralogist, too, will find the Central Park a fine field for exploration. The crystals of the gneiss are so large that fine specimens of mica, quartz and feldspar may be obtained, and some portions of the rock are almost filled with garnets.

We learn that the old arsenal in the park is to be appropriated to the use of the Lyceum of Natural History; and when these naturalists get their cabinet opened, the student will find it easy to turn from his shelves and books, and apply his lessons directly to the interpretation of nature. In this connection we have much pleasure in stating that a zoological society, composed of the most active men of our city, has been formed for the purpose of gathering at the great Central Park a superb collection of living animals and birds. This project ought not to fail, as its success will insure the existence of one of the most attractive features appertaining to this gigantic enterprise.

A few months ago the municipal authorities of Hamburg, in Germany, offered to forward a number of swans

to our civic corporation, as a gift designed to add another feature of beauty to the many already exhibited in the Central Park. The offer was accepted; the swans recently completed their Atlantic voyage; and on the morning of the 28th ult., the cages containing the birds were conveyed to the edge of the skating pond and opened. On catching a glimpse of the element in which they naturally love to sport, and of which they had been deprived since their departure from Germany, the swans eagerly rushed from their cages, and, entering the water, were soon floating majestically on its surface. At present their plumage is quite soiled—a result due, probably, to “a life on the ocean wave;” doubtless, it will soon regain its pristine purity, now that the birds have the free use of their favorite element. The swans are ten in number—five male and five female; they occupy the lower portion of the pond, while a number of beautiful white ducks occupy the upper portion.

#### AXES WITHOUT EYES.

The reading public of the United States has been entertained, at John Bull's expense, with a story about an English engineer who was so “stuffy” about his prejudices against American axes, that he sent to England a model of an ax of his own, with orders for some thousands “of that exact pattern.” He did not think it necessary to cut an eye in the model, presuming that would be taken for granted as left to the maker to form in the usual way. The arrival of the large invoice of axes without eyes, and consequently useless, was duly chronicled and laughed at by a Montreal paper, from which we copied it; and from us most of the papers in the Union passed the tale around. The story has afforded so much fun to millions of our people, that it is not without some misgivings of the soundness of that philosophy which makes the exposure of untruth the highest virtue, that we prick the bubble and let out the gas.

We are advised by the officers of the Grand Trunk Railway, for whose use the tools were said to be ordered, that the whole story is a fabrication; and its object, probably, was to see if Yankee ingenuity would not contrive some use for axes without eyes, and bring “bids” accordingly. The fabricator of the *canard* was not disappointed in his expectation. Our Philadelphia friends are now manufacturing improved axes and other handled tools without eyes, under a patent obtained through the Scientific American Patent Agency, and which was described on page 268 of the present volume of the SCIENTIFIC AMERICAN; and their application to Montreal for the eyeless axes has revealed the hoax. Moreover, the Yankees will probably yet show “our Canadian cousins” that the truly scientific way to make picks and axes is without eyes.

**THE NEW PATENT BILL PASSED THE SENATE.**—On the 26th ult., on motion of Senator Bigler, (the new Patent Bill (a full copy of which we published, with editorial comments, on page 146 of the present volume of the SCIENTIFIC AMERICAN) was taken up and passed. That clause of the bill against which we contended—the abridgement of the right of appeal from the decision of the Commissioner—was (on motion of Senator Hale) stricken out. On motion also of the same senator, the power to appoint the Examiners-in-chief was taken from the Commissioner and lodged with the President, by and with the advice and consent of the Senate. Before this bill can become a law, it must pass the House, and receive the signature of the President. We may have occasion to refer to the bill again in our next issue.

**ANOTHER COAL MINE EXPLOSION—VENTILATION.**—An explosion of fire-damp took place at Stanton's mines, near Wilkesbarre, Pa., on the afternoon of the 31st ult. Three persons were killed, and one severely injured. Had this mine been properly ventilated, no such accident would have occurred. We take this opportunity of directing attention to an important article on this subject on another page, in which a description is given of the method of mine-ventilation by the steam jet.

The present volume of the SCIENTIFIC AMERICAN will close in two weeks from this date, and we hope those of our subscribers whose terms expire with this volume will be prompt in remitting their subscriptions for the next one; not only this, but that they will exert themselves to form a club, and thus avail themselves of our liberal clubbing rates.

#### WEEKLY SUMMARY OF INVENTIONS

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page:—

##### WOOL-BURRING PROCESS.

In the wool obtained from South America, variously known as “Buenos Ayres,” and “South American,” there is almost invariably a burr of a peculiar character, all attempts at whose entire removal by machinery have hitherto resulted unsuccessfully, and the consequence has been that this wool, though otherwise of excellent quality, has only been used in the textile manufactures for goods greatly inferior to what would be made from wool of similar quality grown in the United States. The difficulty of removing the burr has arisen from its being composed of a rather brittle spirally-arranged bearded fiber, and when the wool has been subjected to the action of ordinary burring, picking, carding, or combing machinery, without previous preparation, this fiber has been liable to be unwound, and broken and distributed among the wool, to which its beard then clings with such tenacity that no picking or carding operation will remove it. This invention is more especially directed to the removal of the peculiar kind of burr above-mentioned; and to this end the nature thereof consists in subjecting the wool to a sufficient pressure, by passing it between loaded rollers or by any other suitable means, to so compress the burrs as to destroy their fibrous structure. This being done, the ordinary processes of picking, combing, or carding, or either of them, subsequently performed on the wool will either throw the burrs out entire, or cause them to crumble and fall out in dust or small pieces. The inventor of this improvement is Charles L. Harding, of Winooski Falls, Vt.

##### GOVERNOR.

The object of this invention is so to apply the governor in connection with the throttle or regulating valve that the necessary movement of the said valve may be imparted to it by the rotary motion of the governor, and not directly by the act of the change of the planes of revolution thereof, that such a movement may be effected very quickly, and that as soon as it has been effected the governor shall detach itself from the valve and remain detached therefrom till further action becomes necessary to regulate the engine or motor. The credit of this contrivance is due to George W. Rains, of Newburgh, N. Y.

##### SECURING TUBES IN TUBE SHEETS.

The object of this invention is so to apply copper or other soft metal in making the joints between iron tubes and the tube sheets in locomotive and other boilers, as to obtain cheaply all the advantages to be derived from its use, that is to say, the making of the joint perfectly tight, without exposing it to the action of the cinders passing through the tubes and thereby rendering it liable to be cut or worn out; and to this end the invention consists in fitting the exteriors of the terminal portions of the iron tubes with ferules of copper or other soft metal, so applied as to be interposed between the iron tubes and the sheets, and thereby to enable the joints to be made tight by caulking, but to be protected by the tubes. This improvement was designed by S. I. Hayes, of Chicago, Ill.

##### HEATERS.

The object of this invention is to employ steam for warming buildings at a pressure as much below that of the atmosphere, or as little above it as may be desirable, and at the same time to obtain an equal distribution of the steam to all parts of a heater or radiator; thereby obtaining a very considerable range of temperature in the use of water as a warming medium, and a uniformity of temperature of all parts of the warming surface; and to this end this invention consists in the admission of the steam to the heater or radiator by means of numerous perforations, very fine slits or other narrow openings so arranged as to deliver it into the heater or radiator at or very near the bottom thereof, and at all parts of its horizontal area, in very thin jets or streams, or, in other words, in a minutely divided state, by which its uniform diffusion throughout all parts of the interior and over all parts of the warming surfaces is obtained. This device has been patented to Lewis W. Leeds and Calvert Vaux, of this city.

##### SKATE ATTACHMENT.

This invention consists in an improved method of operating the sole and heel clamps so as to forcibly contract or expand them, either simultaneously or alternately, at one operation, and by a screw rod which passes through two straps or slotted plates, to which plates the clamping bars or plates are attached so that as the rod is turned the clamps on the sole plate will be made to approach or recede from each other by the slotted plate, and the action of the oblique or V-shaped slots on pins projecting from the clamps, and so also with the heel clamps after the forward clamps are tightened up. The patentee of this invention is John Lovatt, of Newark, N. J.

##### BARK MILL.

The object of this invention is to obtain a grinding mill by which damp or wet bark may be ground with facility, and in a perfect manner. There are many forms of bark mills which will grind, expeditiously and well, dry bark, but which will, when fed with wet or damp bark, become choked and clogged causing much trouble and delay, besides working very inefficiently, this difficulty is obviated by employing rotary burrs and stationary grates arranged in a novel way, and also in using in connection therewith breakers arranged to operate conjointly with the burrs and grates to effect the desired end. William Tansley, of Salisbury, N. Y., is the inventor.

##### DUMB-BELLS.

This invention consists in constructing the balls of any suitable number of sections, each of which may be secured together by a rod passing through the axis of the same, and connecting the two balls or nests of sections forming the balls together; and it consists in connecting the hemi-spherical or semi-spheroidal shells together in such a manner that each pair of shells may be brought together and made to form a perfect dumb-bell, or so that the outer shell may be filled up with one, two, or more smaller ones, and the whole confined in place; the balls being thus made up of large and small shells the lightest weight is obtained by using only the empty shells, while the weight may be gradually increased by filling-up the shells, one by one, with the sections. This improvement was designed by D. F. Savage, of Boston, Mass.

##### FIRE-ESCAPE.

Among the large number of fire-escapes which have recently been patented, the subject of this invention is one of the most effective, simplest and readiest means to save persons or articles from a burning building. It consists simply of a rope drawn through an S-shaped tube or wound around a pivot, or otherwise so arranged that the portion of the rope on the interior of said tube, or on the outside of said pivot, causes a retardation of the downward motion of the latter, which retardation is adjusted by the strain exerted on the rope, so that persons or articles attached to said tube or to said pivot can be lowered either by the agency of the descending persons themselves or by the agency of persons on the ground, with any desired velocity. This escape is of peculiar value for hotels or other buildings in which a large number of people dwell together, and it has been successfully tried in several hotels in this city. The credit of this invention is due to Albin Warth, of No. 19 Duane-street, this city, who obtained a patent for the same through the Scientific American Patent Agency.

##### ATTACHING BOWS TO KEYS.

In the construction of iron keys for locks, ornamental bows are frequently attached; the same being cast of brass or other metal that may be readily electro-plated, and forming an economical ornament. These bows have hitherto been most generally attached to keys by casting them on the ends of the arbors; but the contact of the melted metal with the iron causes the castings to be “blown” in many cases, thereby greatly deteriorating the work, and commercially reducing them in value. The brazing of the bows to the arbor, which might be done, would be attended with too much cost, as considerable manipulation would be required to perform the work. E. L. Gaylord, of Terryville, Conn., has patented a mode of attaching key bows, which consists in “upsetting” the metal of the bows around a head or knob on the end of the arbor, whereby not only a firm and secure connection is obtained, but one that may be more expeditiously made than hitherto.