

it may be applied; and it consists in a certain system and arrangement of a sliding sleeve, arms, links and balls, in combination with a spring or springs, for producing centrepetal force, whereby the desired result is obtained.]

DESIGNS.

1,548.—Henry Hebbard, of New York City, Design for Spoon or Fork Handles.

EXTENSIONS.

5,459.—Robert Hillson, of Albany, N. Y., for Improvement in Hot-Air Furnaces. Patented Feb. 29, 1848 :

I claim, first, The invention of a grate with a hemispherical or conical projection or boss rising upward in the center thereof; the part of the grate outside of said boss being flat, as an improvement upon former grates, which are either flat or hemispherical or hemicylindrical both the flat part and the projecting part of my grate being grated.

Second, I claim the use of the circular rim which rests upon a circular opening in the bed plate and moves circularly thereon, and upon which the grate hangs by pivots resting on sockets in the rim, as above described, as an improvement upon the former made by which the grate rested by its sockets immediately on the bed plate.

Third, I claim the manner described of dumping the grate by means of the cross bars and handles and the ways or projections for the cross bars to move upon, the grate being suspended in the manner set forth.

Fourth, I claim the separate air chamber marked A, Fig. 1, constructed against the side of the lower cylinder which may be extended to the top of the upper cylinder, for the purpose of heating an adjoining room, as described.

Fifth, I claim the connecting of the part of the furnace below the fire, by means of a conduit and air passage and pipe with the room to be heated, so as to draw from that room solely the air for the support of the fire, for the purpose of creating a draft into that room of the hot air from the furnace, as described.

Sixth, I do not claim the cylindrical box or drum, called the hot-air circular, and represented in Fig. 5, nor do I claim the smoke circular represented in Fig. 6; but I claim the combination of this smoke circular with this cylindrical box or drum, in the manner and for the purposes described.

PATENTS FOR SEVENTEEN YEARS.



The new Patent Laws enacted by Congress on the 2d of March, 1861, are now in full force, and prove to be of great benefit to all parties who are concerned in new inventions.

The duration of patents granted under the new act is prolonged to SEVENTEEN years, and the government fee required on filing an application for a patent is reduced from \$30 down to \$15. Other changes in the fees are also made as follows :—

On filing each Caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$15
On issuing each original Patent.....	\$20
On appeal to Commissioner of Patents.....	\$20
On application for Re-issue.....	\$30
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing Disclaimer.....	\$10
On filing application for Design, three and a half years.....	\$10
On filing application for Design, seven years.....	\$15
On filing application for Design, fourteen years.....	\$30

The law abolishes discrimination in fees required of foreigners, excepting reference to such countries as discriminate against citizens of the United States—thus allowing English, French, Belgian, Austrian, Russian, Spanish, and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (except in cases of designs) on the above terms.

During the last sixteen years, the business of procuring Patents for new inventions in the United States and all foreign countries has been conducted by Messrs. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN; and as an evidence of the confidence reposed in our Agency by the Inventors throughout the country, we would state that we have acted as agents for more than FIFTEEN THOUSAND Inventors! In fact, the publishers of this paper have become identified with the whole brotherhood of Inventors and Patentees at home and abroad. Thousands of Inventors for whom we have taken out Patents have addressed to us most flattering testimonials for the services we have rendered them, and the wealth which has inured to the Inventors whose Patents were secured through this Office, and afterward illustrated in the SCIENTIFIC AMERICAN, would amount to many millions of dollars! We would state that we never had a more efficient corps of Draughtsmen and Specification Writers than are employed at present in our extensive Offices, and we are prepared to attend to Patent business of all kinds in the quickest time and on the most liberal terms.

The Examination of Inventions.

Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit to us, with a full description, for advice. The points of novelty are carefully examined, and a reply written corresponding with the facts, free of charge. Address MUNN & CO., No. 37 Park-row, New York.

Preliminary Examinations at the Patent Office.

The advice we render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there, but is an opinion based upon what knowledge we may acquire of a similar invention from the records in our Home Office. But for a fee of \$5, accompanied with a model or drawing and description, we have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a Patent &c., made up and mailed to the Inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through our Branch Office, corner of F and Seventh-streets, Washington, by experienced and competent persons. More than 5,000 such examinations have been made through this office during the past three years. Address MUNN & CO., No. 37 Park-row, N. Y.

How to Make an Application for a Patent.

Every applicant for a Patent must furnish a model of his invention. If susceptible of one; or if the invention is a chemical production, he must furnish samples of the ingredients of which his composition

inventor's name marked on them, and sent, with the government fees by express. The express charge should be prepaid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by draft on New York, payable to the order of Munn & Co. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank bills by mail, having the letter registered by the postmaster. Address MUNN & Co. No. 37 Park-row, New York.

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Persons desiring to file a Caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention. The government fee for a Caveat, under the new law, is \$10. A pamphlet of advice regarding applications for Patents and Caveats, in English and German, furnished gratis on application by mail. Address MUNN & CO., No. 37 Park-row, New York.

Foreign Patents.

We are very extensively engaged in the preparation and securing of Patents in the various European countries. For the transaction of this business, we have offices at Nos. 66 Chancery-lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of Patents to Inventors. Any one can take out a Patent here.

Circulars of information concerning the proper course to be pursued in obtaining Patents in foreign countries through our Agency, the requirements of different Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park-row, New York, or either of our Branch Offices.

Rejected Applications.

We are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of our Washington Agency to the Patent Office affords us rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Our success in the prosecution of rejected cases has been very great. The principal portion of our charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted are invited to correspond with us on the subject, giving a brief history of the case, inclosing the official letters, &c.

Assignments of Patents.

The assignment of Patents, and agreements between Patentees and manufacturers, carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park-row, New York.

It would require many columns to detail all the ways in which the Inventor or Patentee may be served at our offices. We cordially invite all who have anything to do with Patent property or inventions to call at our extensive offices, No. 37 Park-row, New York, where any questions regarding the rights of Patentees, will be cheerfully answered.

Communications and remittances by mail, and models by express (prepaid), should be addressed to MUNN & CO., No. 37 Park-row, New York.



C. H. J., of Ohio.—If there was a hole directly through the diameter of the earth and a ball were dropped into it at the surface, were it not for the resistance of the air the ball would pass through to the surface on the other side, and then return; continuing to oscillate forever. But in consequence of the resistance of the air, the oscillations would gradually diminish in extent, and the ball would finally rest at the center.

J. B., of Mich.—We are not aware that Mr. Chadwick's pamphlet on Education has been published in this country; but D. Appleton & Co., or any of our leading booksellers, would import a copy for you. We believe that a republication of it in the U. S. would prove profitable.

S. B. B., of Pa.—After your patent has expired you can prosecute all parties who had previously used it.

E. E. S., of Mich.—The idea of casting types into words is not new. Small words have been cast in this manner but printers do not like them for some reason.

T. H. K., of N. Y.—We are not acquainted with the method employed by Prof. Percy for uniting phosphorus with copper and making an alloy.

D. B. W., of N. Y.—There is no good work published so far as we know on graining, varnishing, polishing and painting in general. We have not heard of the Cosmopolitan Art Association, for a long period.

W. D., of Iowa.—The target you send us is a very excellent one indeed and shows that you have some sharpshooters still left in your place. We will hang it up in our office for the curious to look at, but shall omit its publication.

J. H. B., of C. W.—The brass coloring which you have observed on the head of Sheffield axes, &c., is produced with lacquer, which is simply lac varnish colored with turmeric.

J. R. T., of Cuba.—There have been various constructions of apparatus for raising water by the direct pressure of steam, and we do not discover any patentable novelty in that described in your letter, which can doubtless be made to repeat the process as you suggest. We think it possible that the cut-off could be operated by a float. Practice shows all such apparatus to be very inferior to pumps owing to its liability to get out of order.

P. S., of Pa.—We have no positive knowledge of the composition of the fulminates used in the Prussian needle cartridges but suppose it is nearly the same as is used for percussion caps with perhaps a little more chlorate of potash. The composition for caps is fulminating mercury 3 parts; chlorate of potash 5 parts; sulphur 1 part; and powdered glass 1 part.

S. P. B., of Mich.—All soaps are "chemical soaps."

The particular article to which you refer for cleansing greasy waste contains an excess of alkali. It is made by adding to dissolved hard soap, or common soft soap, caustic alkali made by dissolving soda in water, and adding thereto an equal weight of slacked lime, then stirring the two together, allowing the lime to settle and afterward pouring the clear liquor among the soap. One pound of soda is sufficient for two gallons of soap. Such soaps have been called "labor saving." They answer very well for greasy waste and coarse cotton articles, but should not be used for fine linen goods because the strong alkali tends to render them yellow in appearance.

F. & R., of Conn.—Water will flow from an opening in the side of a flume with the same velocity that a body would have at the level of the opening falling from the level of the surface. This velocity is equal to the square root of the product of the height multiplied by 64.33, and for one foot is equal to 8.02 feet per second. The area of your opening 24 inches long by 2½ inches wide, is 60 square inches, but under this low head through so large an opening, only about ⅓ of the theoretical quantity of the water would issue, owing to the contraction of the vein, 40 square inches is 0.28 square feet, which multiplied by 8.02 gives 2.24 cubic feet per second, or 135 cubic feet per minute. A cubic foot of water weighs 62½ lbs. so that you have 8,432 lbs. per minute, which falling 7 feet gives 59,024 foot pounds per minute, and this divided by 33,000 lbs.—one-horse power—shows the power of your water 1.788 horse-power. A pretty good over-shot wheel will yield about 60 per cent of the power of the water, making 1.07, or just about one-horse power. These data will enable any one having a knowledge of the simple rules of arithmetic to make the other calculations that you require. The reduction from the theoretical flow varies with the size and altitude of the openings, and all these elements must be known in order to make an accurate calculation. In order to obtain the same quantity of water under a one-foot head as you obtain under a 9-foot head through a gate of 200 square inches, the gate opening will have to be ten times as large or 2,000 square inches.

G. R. C., of Mich.—The best mortar for laying fire brick in a furnace, is fire-clay reduced to a proper consistency with water. The clay used for making porcelain also answers very well.

R. A., of Pa.—So far as our observation has extended, we have not noticed any loss of the power of steam when conveyed from the boiler to the cylinder by a crooked pipe. We have not, however, made such observations on a steam pipe as long "as 200 feet." We think you will find some reduction of the pressure of steam after being conveyed such a distance, if the pipe has several elbows on it. This will show a loss of power.

SPECIAL NOTICE—FOREIGN PATENT.—The population of Great Britain, is 30,000,000; of France, 35,000,000; Belgium, 5,000,000; Austria, 40,000,000; Prussia, 20,000,000; and Russia, 60,000,000. Patents may be secured by American citizens in all of these countries. Now is the time, while business is dull at home, to take advantage of these immense foreign fields. Mechanical improvements of all kinds are always in demand in Europe. There will never be a better time than the present to take patents abroad. We have reliable business connections with the principal capitals of Europe. Nearly all of the patents secured in foreign countries by Americans are obtained through our agency. Address Munn & Co., 37 Park row, New York. Circulars about foreign patents furnished free.

Money Received

At the Scientific American Office on account of Patent Office business, during one week preceding Wednesday, March 12, 1862:—

- A. McG., of N. Y., \$35; J. D. C., of Conn., \$20; J. S., of N. Y., \$45; R. G., of N. Y., \$20; C. C. C., of Iowa, \$25; J. A. L., of N. Y., \$25; C. and F., of Iowa, \$25; S. S. T., of Cal., \$62; J. Z., of Ill., \$25; T and D., of Nevada Ter., \$30; L. F. L., of Ill., \$25; W. S., of N. J., \$10; H. and M., of N. Y., \$10; A. L. W., of Mass., \$115; J. G., of R. I., \$10; W. H. C., of N. Y., \$25; C. C., of Ill., \$25; E. Y., of N. Y., \$25; S. A. B., of Conn., \$45; W. E. B., of R. I., \$25; A. C. McQ., of Ill., \$15; W. H. P., of N. Y., \$25; J. O. F., of N. Y., \$25; M. La P. and V., of N. Y., \$25; O. R. B., of N. Y., \$20; E. G., of Mass., \$45; E. C. H., of N. Y., \$15; G. H., of N. Y., \$25; J. P., of N. Y., \$60; H. T. P., of Conn., \$35; C. and A., of Conn., \$15; A. B., of Conn., \$40; A. C., of N. Y., \$25; T. Y. and others, of Pa., \$10; E. B., of Cal., \$15; S. S., of Mass., \$15; E. F. B., of Conn., \$25; S. H., of Ind., \$25; A. B., of N. Y., \$15; R. T. H., of Mass., \$25; O. N., of N. Y., \$15; L. H., of Ill., \$25; P. L. K., of Ill., \$20; A. J., of Iowa, \$15; W. B. W., of Mass., \$15; G. H., of N. Y., \$25; H. S., of N. Y., \$25; J. M., of N. Y., \$25; C. E. B., of Conn., \$20; W. H. R., of N. Y., \$55; C. H. P., of N. Y., \$15; C. F. B., of Conn., \$10; J. B., of Cal., \$25; A. N. P., of Ill., \$10; W. B. B., of Ill., \$25; J. B. R., of N. Y., \$275; J. P. A., of Ill., \$15; G. T., of Mass., \$15; A. and F., of Me., \$28; A. G. B., of Conn., \$30; F. G., of Mich., \$15; J. W. K., of Mich., \$25; E. C. F., of Mass., \$28; H. T. P., of Conn., \$100; G. N. C., of Conn., \$25; G. A. L., of N. Y., \$280; J. R. A., of Pa., \$40; A. A. D., of N. J., \$15; C. H. B., of Mass., \$15; W. B., of L. I., \$10; C. S., of N. Y., \$25; J. S. T., of N. Y., \$10.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from March 5 to Wednesday, March 12, 1862:—

- W. H. R., of N. Y.; G. H., of N. Y.; C. and F., of Iowa; J. B., of N. Y.; H. S., of N. Y.; A. C., of N. Y.; J. H. T., of Switzerland; E. F. B., of N. Y.; A. B., of Conn.; L. H., of Ill.; J. G. Sr., of R. I.; R. T. H., of Mass.; J. M., of N. Y.; E. H., of N. Y.; D. R. W., of Wis.; C. S., of N. Y.; H. T. P., of Conn.; C. C. C., of Iowa; L. F. L., of Ill.; A. N. P., of Ill.; M. La P. and V., of N. Y.; C. H. B., of Mass.; C. C., of Ill.; R. G., of N. Y.; J. W. K., of Mich.; E. F. B., of Conn.; W. H. P., of N. Y.; W. B. B., of Ill.; J. A. L., of N. Y.; J. O. F., of N. Y.; J. Z., of Ill.; J. S. T., of N. Y.; A. and F., of Me.; G. N. C., of Conn.; W. E. B., of R. I.; S. H., of Ind.; C. F., of Wis.

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