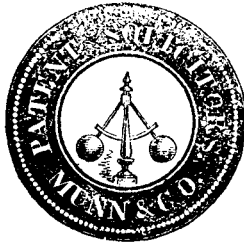


adopt the style of binding used on the old series, i. e., heavy board sides, covered with marble paper and morocco backs and corners. Believing that the latter style of binding will better please a large portion of our readers, we shall commence on the expiration of this present volume to bind the sheets sent to us for the purpose in heavy board sides, covered with marble paper and leather backs and corners. The price of binding in the above style will be 75 cents. We shall be unable hereafter to furnish covers to the trade, but will be happy to receive orders for binding at the publication office, 37 Park Row New York.

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MESSRS. MUNN & CO., PROPRIETORS OF THE SCIENTIFIC AMERICAN, continue to solicit patents in the United States and all foreign countries, on the most reasonable terms. They also attend to various other departments of business pertaining to patents, such as Extensions, Appeals before the United States Court. Interferences, Opinions relative to Infringements, &c. The long experience Messrs. MUNN & Co. have had in preparing Specifications and Drawings, has rendered them perfectly conversant with the mode of doing business at the United States Patent Office, and with the greater part of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.



United States Patent Office, and with the greater part of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

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 it to us, with a full description, for advice. The points of novelty are carefully examined, and a written reply, corresponding with the facts, is promptly sent free of charge. Address MUNN & CO., No. 37 Park Row, New York.

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The service 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 person. Many thousands such examinations have been made through this office. Address MUNN & CO., No. 37 Park Row, New York.

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 consists, for the Patent Office. These should be securely packed, the inventor's name marked on them and sent, with the Government fees, by express. The express charge should be pre-paid. 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.

The revised 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—

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The law abolishes discrimination in fees required of foreigners, excepting natives of such countries as discriminate against citizens of the United States—thus allowing Austrian, French, Belgian, English, Russian, Spanish and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (but in cases of designs) on the above terms. Foreigners cannot secure their inventions by filing a caveat; to citizens only is this privilege accorded.

During the last seventeen 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 at least TWENTY 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.

CAVEATS.

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, printed in English and German, is furnished gratis on application by mail. Address MUNN & CO., No. 37 Park Row, New York.

ASSIGNMENTS OF PATENTS.

Assignments of patents, and agreements between patentees and manufacturers are 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 inventors or patentees 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.

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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 story of the case, inclosing the official letters, &c.

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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 the Scientific American Patent Agency, No. 37 Park Row, New York.

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 there.

Circulars of information concerning the proper course to be pursued in obtaining patents in foreign countries through our Agency, the requirements of different Government Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park Row, New York, or any of our branch offices.



H. S., of Philadelphia.—The cause of roaring and vibrating in steam boilers, after they are fired up and before all the water is heated to the boiling point, is fully illustrated and described on pages 254 and 262, Vol. XII (old series) of the SCIENTIFIC AMERICAN. You can witness the same phenomenon in an open boiler called a "boiling keel," in most cloth bleachworks and calico-printing establishments.

M. R., of Conn.—The method of making oxygen gas from nitrate of soda, to which you refer, as described in the SCIENTIFIC AMERICAN, is not ours, but Mr. Webster's. The gas is not sufficiently pure to be used for inhaling into the lungs. A good galvanic battery is the best agent you can use to actuate an electro-magnet in moving the traveling weight to which you refer.

D. B. T., of Ohio.—Night glasses to be worn on the face are not patentable under such an application, but if you have made an improvement in their construction to adapt them to such a purpose you can secure a patent. In many cases they might be useful to persons traveling at night.

W. H. G., of Mass.—Wooden-soled shoes are manufactured at Chicopee, Mass. The invention has been patented in this country and Europe; and a description will be found on page 378, Vol. IV (new series) of the SCIENTIFIC AMERICAN.

J. H. C., of N. H.—We perhaps misunderstand your inquiry. You ask how to prepare a copper solution to use with Smees' battery, and then state that you have tried without success to precipitate it after dissolving it in nitric acid, using both acids and alkalies in the experiments. The sulphate of copper may be used in Smees' battery, and the copper in such a solution may be precipitated by adding strips of iron to it. The copper falls down in powder.

C. T., of Pa.—The white cement used for marble and fine brick fronts of buildings is prepared by burning nodules of indurated marl and a species of argillaceous limestone in conical lime-kilns. When properly roasted it is ground to powder and packed in barrels to keep it from moisture. For your special purpose you should purchase a small quantity of it.

J. J. B., of Ill.—Glass is melted and molded into numerous articles, but it does not flow like molten lead. With respect to dropping a ball through a hole extending through the center of our globe, we do not wish to take up any more of our space in discussing the question.

C. H. R., of Philadelphia.—It is perhaps true, as you suspect, that tubercular consumption is produced by a parasitic plant. The subject should be further investigated.

L. L., of Pa.—Tredgold's work is the best on the marine engine, but it is very expensive and has not been re-published in America.

J. B., of Maine.—It is the ammonia in your soap that gives it the offensive odor. You should either omit it in the composition or use an aromatic oil to counteract the unpleasant smell.

F. H. S., of Md.—At some future time we may obtain the desired information for you respecting salt-boiling. At present we have nothing new on the subject.

C. M. W., of N. Y.—The cold air feed-pipe of a furnace should always be smaller than the smoke-pipe, because air expands to double its volume for every 491 degrees of temperature to which it is heated.

J. H., of Ill.—In concentrating cane sugar sirup, the great object is to prevent scorching, which discolors the juice, hence the sirup is concentrated in our refineries in vacuum pans in which it boils at a low temperature. Sheet-iron pans will answer your purpose cheap evaporators, such as those which are used for concentrating maple tree sap. A small quantity of lime water should be mixed with the freshly-expressed juice to prevent fermentation, then it should be evaporated in shallow pans at as low temperature as possible.

B. D. S., of Va.—The size of a turbine wheel depends upon the quantity of water that is to pass through it. Under your five-foot head to drive two run of 4½ feet stones, grinding wheat, the openings of a center-wheel should have an area of 1,200 inches. This also allows for driving all the attendant machinery. About one-twelfth more water is required for grinding corn.

O. C. H., of Conn.—There is no published work devoted to the art of bronzing exclusively. Bronze powders are chiefly imported from Germany.

G. H. C., of Iowa.—Buffalo robes which have become hard may be rendered soft and pliable by treading upon them on a floor, then moistening them with water by the use of a sponge and stretching them out upon boards when they have become uniformly soft. Before they become dry they should receive a coating of tallow, containing about one ounce of bees-wax to the pound. This preparation should be put on the flesh side, moderately warm and in a warm apartment, after which the whole surface should be rubbed hard with a block of wood covered with a piece of leather.

C. D., of Mass.—It is very difficult to temper steel iron springs and small pieces of steel wire equally by first heating them in a mixture of oil and resin, and afterwards tempering by drawing the wire through flame. If, after hardening the wire in the usual manner, you would place it in an oven heated to about 55° Fah., then cool it, you would secure a more equal temper.

T. D. S., of Pa.—The most common black varnish employed for harness consists of thin lac varnish colored with ivory black. It is injurious to the leather as it tends to make it hard and brittle. The best way to treat leather harness, we think, is to polish it first with good common blacking, then coat it with a composition consisting of one pound of tallow, one ounce of beeswax and about one-fourth of an ounce of gum-lac or common resin in powder. Apply it warm, but not too hot.

G. C., of Conn.—We advise you to send us an advertisement of your needle, for publication in our paper. We cannot consent to do gratuitous advertising for any one.

F. H. S., of Baltimore.—We cannot attend to the business of introducing your invention to the notice of the Post-office Department. Our time is so completely absorbed that we cannot attend to such negotiations.

G. G., of Md.—Valves of similar character to what you describe have been applied to steam engines. The old four-way cock described in the histories of the steam engine and used more than half a century ago is an example. It is possible, however, that there may be useful novelty in the construction of your valve and that it may be patentable, but of this we cannot judge without drawings.

F. G. W., of C. E.—We have already given all the information in our possession respecting the composition for making artificial teeth.

Money Received

At the Scientific American Office, on account of Patent Office business, from Wednesday, February 4, to Wednesday February 11, 1863:—

- G. W. C., of Ill., \$15; D. C. G., of Pa., \$40; H. B. M., of N. Y., \$10; L. H. O., of N. Y., \$25; J. A. B., of Ohio, \$15; T. J. P., of Ohio, \$25; H. G. H., of Ind., \$15; W. W., of Mich., \$15; P. L. S., of Pa., \$15; E. R., of Mass., \$15; S. & P., of N. Y., \$15; L. R., of N. Y., \$28; M. N. K., of Iowa, \$20; V. & W., of Iowa, \$20; B. F. A., of Iowa, \$20; G. & P., of N. Y., \$20; D. K., of Pa., \$20; J. T., of N. Y., \$15; L. W. T., of N. Y., \$15; G. D. H., of Ill., \$20; G. C. R., of N. Y., \$15; M. F. G. of N. J., \$15; W. T. E., of N. J., \$25; D. C. S., of Conn., \$15; E. K. B., of Conn., \$15; E. E., of Ill., \$15; V. P., of Mass., \$15; U. P., of Conn., \$25; K. G., of Ind., \$15; J. M. S., of Cal., \$10; S. C. K., of Mass., \$15; A. H. P., of Iowa, \$15; J. W., of Mass., \$15; A. L., of N. J., \$25; S. M. S., of Iowa, \$15; P. C. S., of N. Y., \$250; F. H. B., of N. Y., \$40; J. D., of Ill., \$15; G. & M., of N. Y., \$44; I. C., of Ill., \$45; D. M. D., of N. Y., \$20; J. F. R., of I. I., \$15; N. D. B., of N. Y., \$40; N. F. B., of Pa., \$20; F. P. S., of N. Y., \$15; R. S., of N. Y., \$25; U. H. S., of Ill., \$25; M. A. J., of Mass., \$15; N. A., of Conn., \$60; G. W. A., of Conn., \$12; P. & P., of Ill., \$40; J. V. M., of Mich., \$20; M. M. of Pa., \$150; T. & J., of N. Y., \$25; J. P. E., of Pa., \$25; L. G. K., of Conn., \$15; N. A. & W., of Conn., \$15; E. D., of Mich., \$25; W. H., of R. I., \$20; R. M., of N. Y., \$40; J. V. M., of Mich., \$20; J. H., of Ill., \$20; R. G., of N. Y., \$15; V. & O., of Pa., \$20; D. B. H., of N. Y., \$20; E. B. R., of N. Y., \$20; E. H., of Cal., \$100; N. D. B., of N. Y., \$25; A. P., of N. Y., \$26; T. S., of Conn., \$46.

Persons having remitted money to this office will please to examine the above list to see that their initials appear in it, and if they have not received an acknowledgment by mail, and their initials are not to be found in this list, they will please notify us immediately, and inform us the amount, and how it was sent, whether by mail or express.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from Wednesday, February 4, to Wednesday, February 11 1863:—

- L. B., of N. Y.; G. & M., of N. Y.; G. W. A., of Mass.; L. H. O., of N. Y.; W. T. E., of N. J.; J. P. E., of Pa.; T. S., of Conn.; R. S., of N. Y.; R. M., of N. Y.; T. J. P., of Ohio; W. P., of Mass.; A. L., of N. J.; M. N. K., of Iowa; E. D., of Mich.; N. D. B., of N. Y.; G. R., of Ky.; U. P., of Conn.; D. C. G., of Pa.; N. S., of Iowa; A. W. J., of N. Y.; A. P., of N. Y.

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RARE CHANCE.—MANUFACTURING RIGHTS IN the Nonpareil Washing Machine, patented Sept. 1861. This is the only efficient Washing Machine before the public. It is simple, durable and prominently a labor and clothes saver. In Government hospitals, into which it is being extensively introduced, in educational institutions and private families, unqualified success has thus far attended its use; and the proprietors feel warranted in believing that it must supersede any and all Washing Machines, whether hand or power, at present in the market. Patterns for all the parts, wood-work and castings of the machines will be furnished. Further particulars and terms for the right to manufacture and sell, for not less territory than a State, may be procured from OAKLEY & KEATING, 73 South street, New York. 3 3m

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TO PHOTOGRAPHERS.—IMPROVED PHOTOGRAPHIC Camera, Patented March 25, 1862, by A. B. WILSON (Patentee of the Wheeler and Wilson Sewing Machine), adapted to all photographic work; such as Landscapes, Stereoscopic Views, Carte Visites, Ambrotypes, &c. Can be used by amateurs and others from printed directions. Send for a circular. Address A. B. WILSON, Waterbury, Conn. 164*

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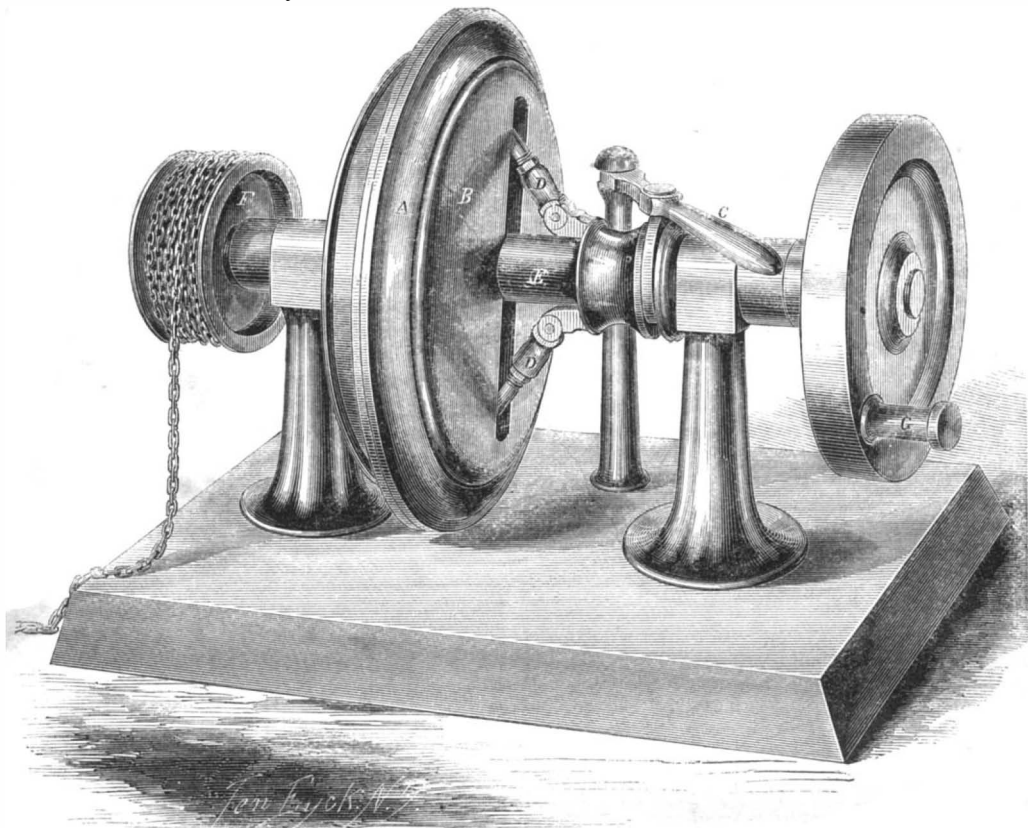
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Mason's Patent Frictional Clutch.

In very many mechanical operations it is necessary to provide some means whereby power can be suddenly transmitted or arrested in its progress; or where the application of any exerted force can be increased or diminished in its intensity at will. We illustrate herewith an ingenious combination of some of the mechanical powers to effect the object alluded to. The two metal disks, A and B, are connected with each other internally by sliding plates, which are V-shaped on their outward ends (shown at A', Fig. 2), and fitted accurately to a recess of an

arm in place when the whole machine revolves. The nuts, a', are provided to alter the pressure of the frictional plates, H. The center, L, takes into a recess formed for it in the end of the shaft opposite to it, tending, when in place, to preserve the continuity of the shafting unbroken. The dotted lines show the position of the several parts when they are not in contact with the main disk, A. It will be seen that when the lever connected with clutch or coupling is thrown over so that the lever is at right angles with the shaft, the edges of the sliding plates are pressed outwardly by the arms and thrown into

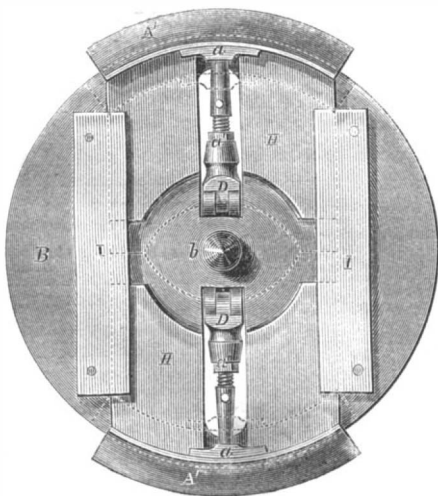
Fig. 1



MASON'S PATENT FRICTIONAL CLUTCH.

opposite character turned out of the internal circumference of the disk A. These plates are thrown into connection with the grooves just mentioned by the lever C, and the toggle joints D. The latter are connected with the lever by the coupling sliding on the shaft E. The drum, F, is connected with the chain to the work operated on, and the power is applied to overcome the resistance at the crank-pin, G. Fig. 2

Fig. 2



shows a plan of the sliding plates and the manner of their attachment to the toggles more fully. In this view, the slotted disk, B, has the sliding plates, H, connected to the toggles heretofore mentioned. The dotted lines show clearly the lap of the guide-plates, I, and the relative positions of the same with reference to the frictional sliding plates, H. Upon the inside of these plates will be seen a small block, a', where the end of the toggle arms terminate in the ball joints; this block is also slotted and retains the

forcible contact with the groove to which they are fitted. The power being then applied to the crank-pin, revolves the whole machine as if it were one piece. When the lever is thrown back so that it forms an oblique angle with the shaft, the drum alone revolves, and the engine, or whatever moves the gearing, is stationary. As we have remarked previously, these machines are very useful, and when properly made, extremely efficient; we can endorse the philosophical and mechanical principles embraced in this machine as peculiarly applicable for the purpose. They are applied for drawing cars up inclined planes, for hoisting purposes, and might be adopted with good results on small propellers. This invention was patented on Feb. 25th, 1862, by Wm. Mason, of Providence, R. I., and further information can be had by addressing him at that place.

Elder Flower Ointment and Oil.

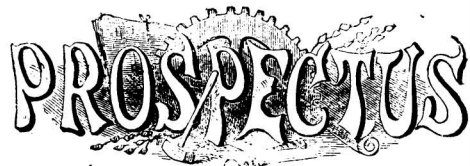
In the London "Pharmacopœia" the flowers are directed to be boiled with the lard in making unguentum sambuci. By this process the odor of the flowers is entirely destroyed and the ointment acquires an empyreumatic smell from the action of heat on the flowers. To obviate this result, and to make an ointment possessing the pleasant odor of elder flowers, I beg to suggest the following process, which I have found effectual:—

Melt the lard at the lowest possible temperature at which it assumes the fluid form and introduce into it as many flowers as the melted lard will cover. Macerate them at the above temperature for twelve hours, and then strain off the lard through a piece of linen without the least pressure; repeat this operation three or four times. By this means an ointment will be made, when the lard is cold, which represents that which the college really intend it should be.

The oil of elder flowers requires no heat for its preparation, and is prepared precisely as the ointment, with the exception of the heat, as the only

object of its use is to obtain the menstruum in a fluid form, and besides, its employment on any other ground is objectionable, especially as it volatilizes the odorous principle of the flowers.—*Septimus Piessé.*

PENNSYLVANIA CENTRAL RAILROAD.—From the annual report of this railroad for the last year we learn that its total earnings amounted to \$10,304,290; and its total working expenses to \$5,431,072. It is 358 miles in length from Philadelphia to Pittsburgh. The total number of passengers carried over it during the year was 1,143,418; the number of tons of freight transported upon it was 2,223,051, including 835,146 tons of coal.



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