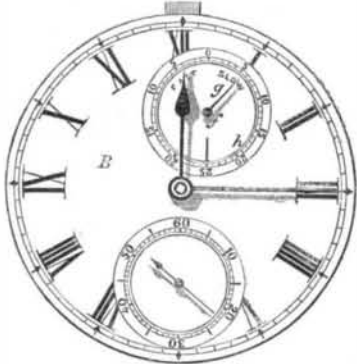


GORDON'S WATCH REGULATOR.

The part of a watch which regulates the speed of the movement is the balance wheel. It is arranged to swing with an oscillating motion, making part of a revolution in one direction, and then turning back in the other direction, being equivalent to a pendulum, which, from the discovery of Galileo, has been found to be the most accurate of all mechanical measures of time. The balance wheel is connected with the escapement and with the gears in such manner that it is thrown around alternately in either direction at each release of the escapement; and it is prevented from turning entirely around by a delicate hair-spring, which is connected with its axle. The number of its oscillations in a given time depends principally upon the size of the balance wheel; but these may be varied slightly by altering the length of the hair-spring, or that portion of it which is

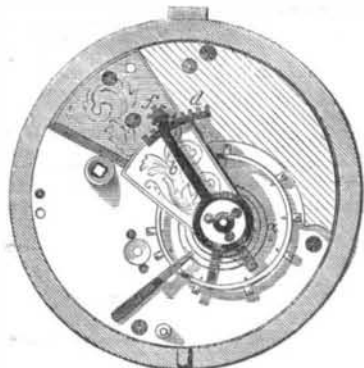
Fig. 1



in action. This is done by passing it, near the end which is fastened to the solid parts of the watch, between two stud pins placed in a position diagonal to its length, so that they bend it a trifle, and thus gripe it and prevent it from acting. These pins are set in a broad lever, called a "regulator," pivoted at one end so that, by turning the lever on its fulcrum, the pins are slipped along the hair-spring, and thus vary the length of the portion which is free to act upon the balance wheel.

The annexed cuts illustrate an improvement in the mode of moving the regulator, by which it may be done with remarkable accuracy and convenience. The end of

Fig. 2



the regulator, *d* (Fig. 2), is furnished with a rack, *b*, which gears into a delicate pinion, *f*, and the axis of this pinion passes through the parts to the front of the watch (Fig. 1), where it is mounted with the index, *g*, turning on a dial plate. It will be seen that, by turning the index, *g*, in either direction, the regulator, *d*, may be moved with very great delicacy; the gears being finer than those shown in the cut—indeed, too fine to be shown plainly in this style of print. After the watch is made and regulated, the index, *g*, is placed upon its axle, pointing at *o*; it is then turned half round the circle, and the number of seconds an hour which this varies the speed of the watch is noted; thus the distance through which it is necessary to move the index in order to vary the running of the watch one second an hour is ascertained, when the circle is divided accordingly. The index may be placed either on the dial plate of the watch or in a recess in the back of the inner case. This arrangement permits the regulating of the watch without opening it, and thus avoids the necessity of exposing its delicate mechanism to becoming foul with dust.

An application for a patent for this invention has been made (through the Scientific American Patent Agency) by John Gordon, of New London, Conn., who will be

pleased to reply to all inquiries in relation to it which may be addressed to him at that place.

BRYANT'S IMPROVED JOURNAL-BOX.

The friction of axles in their bearings would rapidly wear them out were they not left very hard, and this leaves them so brittle that where there is great jar, as in the case of supporting railroad cars, they are very liable to break. This, besides the general desirableness of diminishing friction and saving of lubricating material, has led to many plans for interposing rollers between the axles of shafts and the journal-boxes, but these plans to the present time have been found objectionable in practice, and have not been used to any considerable extent. We here illustrate a new anti-friction journal-box, to which we can see, *a priori*, no objections, but whether any will develop themselves in practice can, of course, only be determined by trial. It is an important improvement, if upon testing it practically, it proves to answer the purpose.

The wheels or disks, *B B*, are rigidly secured to the axle, *A*, and the collar, *C*, also revolves with the axle. The rollers, *ddd*, have their bearings in rings, *ee*, which are let into grooves in the insides of the disks, *B B*, into which grooves they fit loosely, so as not to be carried around in the rotations of the axle. The collar, *C*, has a semi-cylindrical elevation, *ii*, around its middle, and the rollers, *ddd*, are grooved in the middle to prevent their pressing upon this elevation.

Fig. 2

Fig. 3

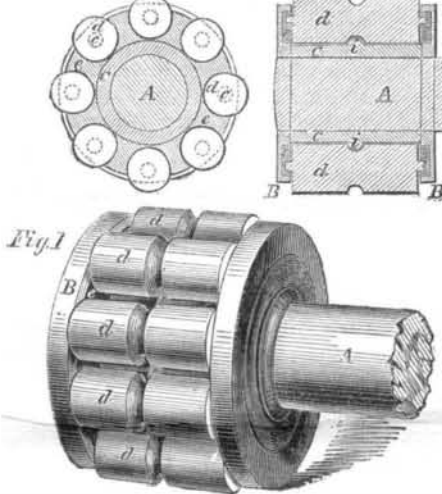


Fig. 1

It will be seen that by this arrangement the axle is absolutely relieved from all friction, as the rollers run upon the collar, *C*, which may be case-hardened or made of steel, permitting the axle to be reduced to such temper as will give it the greatest strength and toughness.

The smooth surface of the central base obviates a serious objection heretofore encountered by journal-boxes of this class—that is, the jarring motion and rattling noise. The crowding of the rollers against each other is also absolutely prevented by hanging them in the rings on axles.

The patent for this invention was ordered to be issued Dec. 17, 1859, and filed in the confidential archives of the Patent Office to enable the inventor to secure patents in foreign countries. Persons desiring further information in relation to it may address the inventor, J. Bryant, M. D., at No. 8 Clinton-street, Brooklyn, N. Y.

CAMELS versus MULES.—The introduction of camels into the southern States has been attended with great success. At a recent plowing match in Montgomery, Ala., the strength of the camel, compared with that of the mule, was tested. The result in this particular case was decidedly in favor of the camel; but whether or not it is more serviceable for plantation purposes can hardly be decided as yet.

LEMON PRESERVE.—An excellent substitute for jam may be made as follows:—One pound of powdered loaf sugar, a quarter of a pound of fresh butter, six eggs, leaving out the whites of two of them; adding the juice and rind of three fine lemons. Put the ingredients into a saucepan, and stir the whole gently over a slow fire until it becomes as thick as honey. Put it into small jars, and keep it in a cool, dry place.



INVENTORS, MACHINISTS, MILLWRIGHTS, AND MANUFACTURERS.

The SCIENTIFIC AMERICAN is a paper peculiarly adapted to all persons engaged in these pursuits, while to the Farmer, House-keeper, and Man-of-Science, it will be found of equal interest and use.

A NEW VOLUME COMMENCED JANUARY, 2, 1860.

The SCIENTIFIC AMERICAN has been published FOR THIRTY YEARS, and has the largest circulation of any journal of its class in the world. It is indispensable to the Inventor and Patentee; each number containing a complete official list of the claims of all the patents issued each week at the United States Patent Office, besides elaborate notices of the most important inventions, many of which are accompanied with engravings executed in the highest degree of perfection.

To the Mechanic and Manufacturer the SCIENTIFIC AMERICAN is important, as every number treats of matters pertaining to their business, and as often as may be deemed necessary a column or two on the metal and lumber markets will be given; thus comprising, in a useful, practical, scientific paper a Price Current which can be relied upon.

The SCIENTIFIC AMERICAN is published weekly in a form suitable for binding, each number containing sixteen pages of letter-press, with numerous illustrations, making a yearly volume of 832 pages of useful matter not contained in any other paper.

Terms.

To mail subscribers: Two Dollars a Year, or One Dollar for Six Months. One Dollar pays for one complete volume of 416 pages; two volumes comprise one year. The volumes commence on the first of January and July.

Club Rates.

Five Copies, for Six Months.....	\$4
Ten Copies, for Six Months.....	\$8
Ten Copies, for Twelve Months.....	\$15
Fifteen Copies, for Twelve Months.....	\$22
Twenty Copies, for Twelve Months.....	\$28

For all clubs of Twenty and over, the yearly subscription is only \$1 40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Southern, Western, and Canadian money or Post-office stamps taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription to pre-pay postage.

When persons order the SCIENTIFIC AMERICAN they should be careful to give the name of the Post-office, County, and State to which they wish the paper sent. And when they change their residence, and wish the paper changed accordingly, they should state the name of the Post-office where they have been receiving it, and that where they wish it sent in future.

IMPORTANT TO INVENTORS.—NEW ARRANGEMENT.

THE GREAT AMERICAN AND FOREIGN PATENT AGENCY.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, are happy to announce the engagement of Hon. JUDGE MASON, formerly Commissioner of Patents, as associate counsel with them in the prosecution of their extensive patent business. This connection renders their facilities still more ample than they have ever previously been for procuring Letters Patent, and attending to the various other departments of business pertaining to patents, such as Extensions, Appeals before the United States Court, Interferences, Opinions relative to Infringements, &c., &c. The long experience Messrs. MUNN & Co. have had in preparing Specifications and Drawings, extending over a period of fourteen years, 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.

Consultation may be had with the firm, between NINE and FOUR o'clock, daily, at their PRINCIPAL OFFICE, No. 37 PARK ROW, NEW YORK. We have also established a BRANCH OFFICE in the CITY OF WASHINGTON, on the corner of F and SEVENTH STREETS, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at their office.

They are very extensively engaged in the preparation and securing of Patents in the various European countries. For the transaction of this business they have Offices at Nos. 66 Chancery Lane, London; 39 Boulevard St. Martin, Paris; and 26 Rue de la Loi, Brussels. We think we may 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 there.

A pamphlet of information concerning the proper course to be pursued in obtaining Patents through their Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the Principal Office or either of the Branches. They also furnish a Circular of Information about Foreign Patents.

The annexed letters from the last two Commissioners of Patents we commend to the perusal of all persons interested in obtaining Patents:—

Messrs. MUNN & Co.:—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly,

CHAS. MASON.
Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:—

Messrs. MUNN & Co.:—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements. Very respectfully,

Your obedient servant, J. HOLT.

Communications and remittances should be addressed to

MUNN & CO.,

Publishers, No. 37 Park-row, New-York.