

ECONOMY OF ENERGY

Watches Will Now Run on Ball Bearings.

Almost everything that runs at all nowadays runs on ball-bearings. The latest piece of mechanism to use this form of friction-saving is a watch exhibited at the Paris Exposition by a French firm. It is a great success, and bids fair to supersede watches made on the old plan, at least when very fine and durable work is desired.

The bicycle has shown us that axles and pivots that roll on their bearings are better than those that simply rub. It was only natural that watch-makers should seek to profit by these same advantages in their own industry, where, more than in any other business, regularity is absolutely necessary, and where the motive force, whether due to a weight or to a spring, is always relatively feeble. Thus, several years ago, M. Chateau made tower-clocks, with ball-bearings, which allowed a considerable economy of weight.

With the watch, the problem was more complex, for here we have to do only with pivots whose diameter is measured by the tenth of a millimeter, 1-250 inch. M. Leon Gruet has solved the problem, and did it so successfully, that the first ball-bearing watch figured at the Exposition, after taking a bulletin of the first class at the Observatory of Besancon.

This watch is a man's watch of the ordinary size. All its pivots roll on balls of one-half and one-quarter millimeter, 1-50 and 1-100 inch, in diameter, of hard tempered steel, well rounded and polished. Only the movable parts of the escapement, which receive only an extremely feeble motive impulse, are without them.

It would be superfluous to dwell on the skill and patience which M. Gruet must have devoted to the production of such a masterpiece. The execution of the balls alone constituted a conchanism, where the least irregularity might destroy all the advantages inherent in their use.

Besides the general advantages resulting directly from the use of ball-bearings, there are others more special ones which are not less important. It is asserted with reason that the thinness of the pivots is an important factor of precision and considerably lessens the absorption of energy, which must be carefully look-

HER HUSBAND WAS A DRUNKARD

A Lady Who Cures Her Husband of His Drinking Habits Writes of Her Struggle to Save Her Home.

A PATHETIC LETTER.



"I had for a long time been thinking of trying the Tasteless Samaria Prescription treatment on my husband for his drinking habits, but I was afraid he would discover that I was giving him medicine, and the thought unnerved me. I hesitated for nearly a week, but one day when he came home very much intoxicated and his week's salary nearly all spent, I threw off all fear and determined to make an effort to save our home from the ruin I saw coming, at all hazards. I sent for your Tasteless Samaria Prescription, and put it in his coffee as directed next morning and watched and prayed for the result. At noon I gave him more and also at supper. He never suspected a thing, and I then boldly kept right on giving it regularly, as I had discovered something that set every nerve in my my body tingling with hope and happiness, and I could see a bright future spread out before me—a peaceful, happy home, a share in the good things of life, an attentive, loving husband, comforts, and everything else dear to a woman's heart; for my husband had told me that whiskey was vile stuff and he was taking a dislike to it. It was only too true, for before I had given him the full course he had stopped drinking altogether, but I kept giving him the medicine till it was gone, and then sent for another lot, to have on hand if he should relapse, as he had done from promises before. He never has, and I am writing you this letter to tell you how thankful I am. I honestly believe it will cure the worst cases."

SENT FREE TO ALL.—A sample package of Tasteless Samaria Prescription gladly SENT FREE with full particulars in plain, sealed envelope. All letters considered sacredly confidential. Address The Samaria Remedy Co., 33 Jordan street Toronto, Canada.

BACKACHE?

If you have Backache you have Kidney Disease. If you neglect Backache it will develop into something worse—Bright's Disease or Diabetes. There is no use rubbing and doctoring your back. Cure the kidneys. There is only one kidney medicine but it cures Backache every time—

Dodd's Kidney Pills

ed out for in a watch. The result is that at the base of the ordinary cylindrical pivot, which is much weaker than the axle whose end it forms, is a point of danger, and this often determines the fracture of the pivot. With ball-bearings, the cylindrical form may be replaced with the conical. This shape enables us to place circular rows of balls with diameter as small as desired, and avoids completely all danger of breakage at the base of the pivot.

M. Gruet believes that the balls should be as small as possible. He has taken great pains to make balls of the uniform size of one-quarter millimeter, 1-100 inch, in diameter, and he hopes that the expense may be considerably reduced. It will probably be with these miniature balls as it has been with the tiny screws used in watches. These can now be bought at 10 centimes, two cents, a dozen, with diameter of one-quarter millimeter, microscopic pitch, and regularly made head with slit in the middle.

In closing it may be noted that "jewels" of sapphire or other precious stones have no more reason for existence, as they present no advantages over tempered steel. The result is a reduction in the necessary labor of manufacture and in the price.

To sum up, the ball-bearing watch has made its trial trip. Theory and practice agree that it is an advance over its predecessors, and doubtless the public will confirm this judgment.

WOODMAN SPARE THE TREE

There is Health Beneath the Leafy Umbraige.

It is a strange fact that not one of the religions of the world gives a word of warning against the folly of forest destruction, although the ax has turned 5,000,000 square miles of once fertile regions into deserts, and has made one third of the Eastern continent an unfit abode of the human species.

Spain, in the glory of her ancient woodlands, was the Eden of Southern Europe; treeless Spain has become a gehena of poverty and disease. Forest-shaded Sicily begat athletes and philosophers, heroes and merchant princes; Sicily in its present sun-blasted conditions, evolves chiefly bandits, beggars and vermin. The entire coast region of the Mediterranean has been "cleared," with the result of losing four-fifths of its former population and at least nine tenths of its former productiveness.

The same in Southern France, in Portugal, Asia Minor, Mesopotamia, Armenia, Persia and Hindustan.

It might indeed be questioned if all human follies and crimes taken together have caused as much permanent mischief as the insane destruction of nature's safeguards against life-blighting droughts. A land without trees is in as sad a plight as a flayed animal. The New World's wealth of woodlands is the chief guarantee of its prosperity.

Forests of shady leaf-trees mitigate climatic extremes, and there is not the slightest doubt that they attract rain showers. A few hundred square miles of wooded dells in the valley of the Rio de San Pedro, Peru, enjoy an annual average of twenty inches of rain, while in the adjoining desert of Atacama droughts have been known to continue for six years. Ibrahim Pasha's tree plantations in upper Egypt increased the yearly rainfall from nine to fifteen inches. In Italy it has decreased one half; in some districts of Northern Africa, the ancient Numidia, for instance, at least four fifths. Forests shelter insect-de-

stroying birds and prevent the destructive effects of inundations by absorbing rain showers that would pour down from treeless slopes as from a slate roof.

Forest destruction may be responsible for malaria, in many of its forms, owing to the diluvium carried down by the mountain torrents to form pestilential marshes. Among the sanitary equipments of a model dwelling-house shade-trees should rank with the best plumber's contrivances, and a house in a grove is worth twice the rent of a house on a naked hill-side.

There is a theory that sunshine is a microbe killer, nature's chief specific for the cure of germ diseases; but in sparsely wooded Hindustan, sun rays have not prevented the spread of frightful epidemics. They do not check the development of malaria germs in the fens of the Adriatic, nor of typhoid germs in the slums of Southern seaport towns.

Nor would it be easy on that theory to explain the longevity of four backwoodsmen, or of the German forest wardens, who vie in surrounding their cottages with overarching leafy trees. Not a sun ray reaches their houses from May to November; but in winter, when sunshine is really a blessing, the screen opens, or holds its own just enough to mitigate the blasts of the north wind.

Green Ceylon and India Tea which is now being introduced into Canada, in the well known packages of the "Salada" Tea Company, has got one great advantage over Japan Tea; and that is, while it is of the same flavor and the same light coloring liquor, it is very much stronger and absolutely free from adulteration, which practically no Japan tea is. Ceylon Green Tea is sold in the sealed Lead Packets of the "Salada" Tea Company and is always fresh and fragrant as well as healthful.

SIBERIA HAS DEPARTMENT STORES.

Blagovestchensk, in Siberia, is a city of about 40,000 inhabitants. It has many fine buildings, including four or five Greek churches, one of which is a cathedral, and one is in process of construction. Besides a large department store of a German firm, there is a Russian department store which would hold its own in Broadway or Sixth avenue in point of size and equipment. The building is of white stone and stands on one side of the large market square, where daily the country people congregate with their fresh supplies of milk, eggs and butter. The prices may be a little heavier and the variety of stock not so large as in the haunts of our American shoppers, but one cannot help feeling surprised at what can be bought in this faraway part of the world, including a large selection of toys, cameras and photograph supplies.

Hay Fever Serious This Year.

Hay Fever this season appears to be of a very virulent type, developing inflammation of the lungs. Evidently many instances into congestion and Hay Fever should not be trifled with. A most fortunate discovery to this class of sufferers is that marvellous microbe killer, which during the past two years has been found so absolutely certain in all cases of Hay Fever, Asthma, Bronchitis, Catarrh. It is very strange how people will persist in using snuff-injunctments and washes which are not only disgusting to use but are useless. Catarrhology is very pleasant—it is carried by dry air through the most remote air cells to the lungs. It quickly destroys the germs and cures simply because there is nothing left to excite disease. It is to be had from druggists, or the originators, N. C. Polson & Co., Mfg. Chemists, Kingston, Ont., will send it to any address in Canada or United States, post and duty paid, for \$1.00.

A MATTER OF FACT ANALYSIS.

Yes, said the young man with the cold, hard voice, I am sure I love that young woman.

Why?

Because on no other theory can I explain my willingness to skip around from page to page and from margin to margin to find out what she has written in her letters to me.

"What the fool does in the end, the wise man does at the beginning."
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If You Have never experienced the pleasure derived from drinking pure and fragrant tea become acquainted with it at once by asking your grocer for

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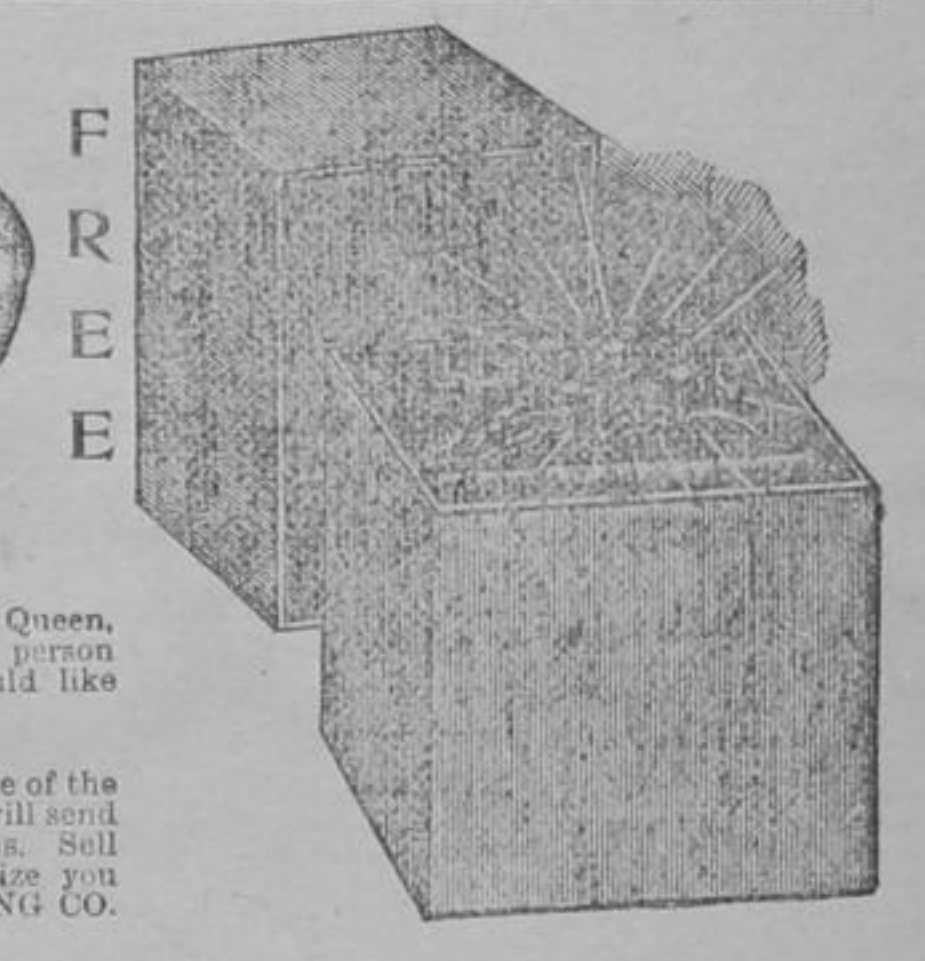
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We have just published a beautiful oil portrait of the Queen, in 16 colors, size 12 x 9, ready for framing. As every person will want one of these magnificent works of art, we would like you to represent us. We give you your choice of 35 VALUABLE PREMIUMS. Some of which are illustrated above for selling 6 or more of the Queen Portraits at 10 cents. Write at once and we will send you a supply. Also our full illustrated sheet of premiums. Sell the portraits, return the money and we will send the prize you select free. THE ROYAL ACADEMY PUBLISHING CO. Department 161. Toronto, Ont.



NO MERE PROBABILITY.

Maria, called out the anxious mother of the family, the clouds look terribly threatening. I'm afraid we are going to have a tornado. You'd better go and wake your father.

I'd rather not, answered the eldest daughter. 'If I call him as early as this there'll be a tornado without any sort of doubt.

\$100 Reward, \$100.

The readers of this paper will be pleased to learn that there is at least one dread disease that science has been able to cure in all its stages and that is Catarrh. Hall's Catarrh Cure is the only positive cure now known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer one Hundred Dollars for any case that it fails to cure. Send for list of testimonials. Address, F. J. CHENEY & CO., Toledo, O. Sold by druggists, 75c. Hall's Family Pills are the best

OFF WITH THE CASH.

After all, appearances don't amount to much.

That's right. It's the disappearances that count most; for instance, the disappearance of a trusted employe frequently amounts to thousands.

HOW HE KNEW.

Jack—I made two calls this afternoon, and I must have left my umbrella at the last place I called.

Tom—How do you know but what you left it at the first place?

Jack—Because that's where I got it.

MONTREAL HOTEL DIRECTORY.

The "Balmoral," Free Bus Am. Plan \$1.50 & up
AVENUE HOUSE McGill—College Avenue Family Hotel rates \$1.50 per day.

AN AWFUL ACCIDENT.

A small girl of 3 years suddenly burst out crying at the dinner table. "Why, Ethel," said her mother, "what is the matter?" "Oh," whined Ethel, "my teeth stepped on my tongue."

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HIS THINK.

He thought he thought great thoughts and thought No other thought a thought; If others ever thought he thought, They thought he thought he thought.

ALL THAT STOPPED HIM.

Mrs. Farmer—Do you know how to handle an ax?

Wearny Wraggs—If I did, lady, I wouldn't do a thing to dat biscuit!

W P C 1045

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