TO RUN FOR KEEPS

Keeley's Motor Must Take a Back Seat Now.

A CLOCK THAT GOES FOREVER

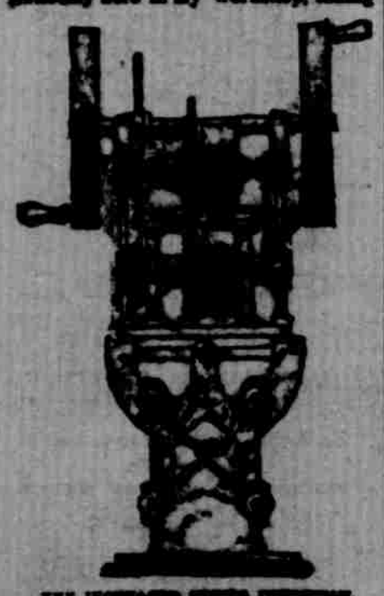
A New York Merchant Secures Patents on a Spring Motor Which is Almost Perpetual Motion.

No one would take Mr. Sigismund B. Wertmann for a great inventor, and yet for twenty years this well-known New York merchant has been laboring assiduously and unremittingly in perfecting an idea which now promises to rival the most wonderful advances made in electrical engineering. I visited him at his laboratory in his magnificent Seventy-ninth street mansion and found in him anything but the typical inventor.

"This week," said he, "has been my recreation, and now that the final patents have been granted I believe I can talk with freedom on the subject. You know that for centuries the minds of mechanical engineers have been busied solving the amount of power that could be conserved in a steel spring. They have made innumerable estimates and tests but the difficulty seemed always to have been that only sufficient power could be gained for use in watch, clock and other light movements, and even in these instances the expenditure of the power they found they were able to get out of a spring was of comparatively small duration.

"For instance, when an effort was made in Philadelphia to apply a spring motor to a street car system there the engineers soon found their power was not sufficient at any time to get a car up more than twenty miles on a small grade. In fact, engineers of the present day have devoted most of their time to steam, electric and pneumatic motive power and have allowed the spring idea to remain quiescent, hoping for development in that field by a future generation.

"I have worked quietly and unostentatiously here in my workshop, taking



THE INCORRIGIBLE SPRING INVENTOR.

[Upper part shows it with knickerbocker lower part is open showing of four spring brackets with detailed adjustment to set of trains and several springs.]

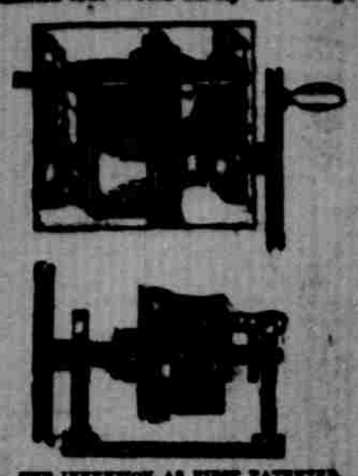
enough time as I could from my business, and if the verdict of the scientists who have viewed my invention is to be taken as a criterion I can say that I have solved the spring motor problem. The nature of my invention is a mechanical movement designed to utilize the power of a coiled steel spring for operating or running clocks or other machines and taking its first power from another power or simply transmitting it then to the operating mechanism. The object of my invention is to obtain, under the unwinding of a spiral spring, an increased number of revolutions of the spring axle or shaft. These revolutions are from six to a hundred times the number of revolutions performed in the first winding. The invention comprises in a mechanical movement a prime moving wheel adapted to be actuated by the spring, another wheel fast to the spring arbor or shaft and of different diameter, either larger or smaller than the prime moving wheel, and a compound wheel or transmitting device operating in connection with the prime moving wheel and the fast wheel, so that the power of the spring is transmitted through the prime moving wheel and the compound wheel to the fast wheel and axle.

"In adapting the spring motor to the propulsion of machinery there is a tendency for the spring to uncoil rapidly and break. I overcome this objection by combining an automatically operating clutch with a loose wheel forming a part of the differential gear between the spring axle or shaft and a counter-shaft. In my first invention I employed a single primary axle, a coiled spring, a drum which contained the spring and to which it was loosely mounted on the axle, a shaft parallel with the axle, differential gearing on the axle, and the counter shaft with two primary wheels loose on the axle. One of these primary wheels is rigid with the drum, and an automatic clutch mechanism operating in connection with the gearing to free the axle from the influence of the spring when the drum has attained its maximum of speed enables me to secure an increased number of rotations of the axle and shaft on the uncoiling of the spring.

"In the invention just granted I aim to secure the multiplied number of rotations of the axle and power shaft as the springs uncoil to a still greater degree. A still further object is to partially rewind each spring of a series of springs at each turn of the power shaft by temporarily arresting the uncoiling of each spring and utilizing the power of the acting springs of the series to partially rewind the spring so arrested, thus insuring a longer operation of the movement.

"With these ends in view the invention consists in the combination, with a series of axles (two or more), each having a spring and a drum, a single power shaft common to all the spring axles and differential gearing between the power shaft and each spring axle, of mechanism which temporarily arrests in succession each one of the spring axles during a complete turn of the power shaft, and which permits the acting springs to partially rewind the spring on the axle so arrested."

In his studies on spring motors Mr. Wertmann has come across some very queer ideas. He was telling me inclusively of the proposition of a Paris engineer who had an idea that he could prevent railway disasters by use of the spring idea. He proposed to construct a steel spring which, when placed in front of an engine, would take upon itself all the momentum of a colliding engine and leave the train absolutely intact. When it came to estimating as to the amount of steel to be used for the purpose it was found that several million tons would hardly be enough



THE INVENTION AS FIRST PATENTED.

to effectually resist the tremendous energy of a moving giant engine.

"My invention as now perfected when applied to clocks will enable them to run for several years. On heavier machinery my idea is simply to increase the number of springs, adjusting all of them with these clutches and cams as they are arranged in the final patent granted me. Elevators could be run for days by means of this conserved energy, and there is no question in my mind but that the power can now be successfully applied to street cars and to the heaviest kind of machinery. It took me years to overcome the capacity of a spring to break. In fact, that was my main difficulty, and it was not until I applied what you might call the brake of the machine, the clutches, that I succeeded, and now you see there is absolutely no danger of a break in any of the springs I have used."

With this Mr. Wertmann began a test of the four-spring machine, and its power of conserving energy seemed indefinite. By the application of his brakes he made the spring coil as he pleased, giving it renewed energy each time and stopping it just when he pleased, then again renewing it, when it would have gone on indefinitely until the element of friction would have made further conservation impossible. It certainly is a marvelous machine and Mr. Wertmann deserves to rank among the leading inventors of the age.

He himself is a man of medium height, with exceedingly intellectual features, a stockily-built frame, and still young enough to improve vastly on his great idea. He has in his workshop several machines which he seems to run with ease through his new motor. One of these is an Edison phonograph, and he demonstrated to me that, as far as applied motive power was concerned, the spring motor was certainly superior in this instance to electricity. But one

THE INVENTOR, S. B. WERTMANN.

thing the public will undoubtedly thank Mr. Wertmann for—now that his great principle is to be applied, and that is—that clocks will no longer have to be wound up except on January 1 every leap year.

DAVID WECHSLER.

His Visible Means of Support.

An Atlanta paper relates an instance that took place in the police court recently in that city. A woman who had been begging in the streets was brought up as a vagrant for the third time, but on account of the repeated offence was sentenced for thirty days. Whereupon she begged earnestly that she might be released, as she had a large family to support, and what would her husband and children do if she was sent up. The judge expressed incredulity as to her having a husband, when a man stepped forward and vouched for her as his wife, and said if the judge would only let her off he would see that she worked in the future and supported her family. The judge distinguished himself by replying that he would let the woman go and send the man up for six months as a vagrant, since he had no visible means of support. The man was marched out, muttering: "No visible means of support? Good Lord! Ain't my wife in court?"—Chicago Tribune.

OUR GEOLOGICAL SURVEY.

When Completed Its Record Will Be Interesting and Invaluable.

The geological survey is one of the great agencies for scientific research organized by the general government. In the prosecution of its work several hundred men, with their assistants, are engaged, composed of experts in the various branches of knowledge relating to the subject. Rapidly the whole area of the United States is being examined by their trained eyes and submitted to the test of the crucible and the microscope. The continent is under process of dissection, and the characteristics of its anatomy are being revealed. With unerring fidelity the rock-leaved bible of geology is being translated from the language of nature—recorded in formations, fossils, crystals and chemical elements and illustrated in many a mountain form, in many a billowy hill, in many a cliff, in many a valley, prairie, plain and plateau—into printed tomes and charts.

When this translation is completed and the structure of the continent is explained, says a writer in the Chautauquan, when the origin of its rocks is revealed, and its treasury of minerals set forth, a body of useful knowledge and a library of philosophic grandeur will be given to the people worthy of the greatest efforts of the greatest nation.

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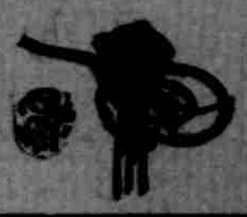

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