The Habit of Self-Control.

If there is one habit which, above all others, is deserving of cultivation, it is that of *self-control*. In fact it includes so much that is of value and importance in life, that it may almost be said that, in proportion to its power, does the man obtain his manhood and the woman her womanhood. The ability to identify self with the highest parts of our nature, and to bring all the lower parts into subjection, or rather to draw them all upwards into harmony with the best that we know, is the one central power which supplies vitality to all the rest. How to develop this in the child may well absorb the energy of every parent; how to cultivate it in himself may well employ the wisdom and enthusiasm of every youth. Yet it is no mysterious or complicated path that leads to this goal. The habit of self-control is but the accumulation of continued acts of self-denial for a worthy object; it is but the repeated authority of the reason over the impulses, of the judgment over the inclinations, of the sense of duty over the desires. He who has acquired this habit, who can govern himself intelligently, without painful effort, and without any fear of revolt from his appetites and passions, has within him the source of all real power and of all true happiness. The force and energy which he has put forth day by day, and hour by hour, is not exhausted, nor even diminished; on the contrary it has increased by use, and has become stronger and keener by exercise; and, although it has already completed its work in the past, it is still his well-tried, true, and powerful weapon for future conflicts in higher regions.—*Phila. Public Ledger.*

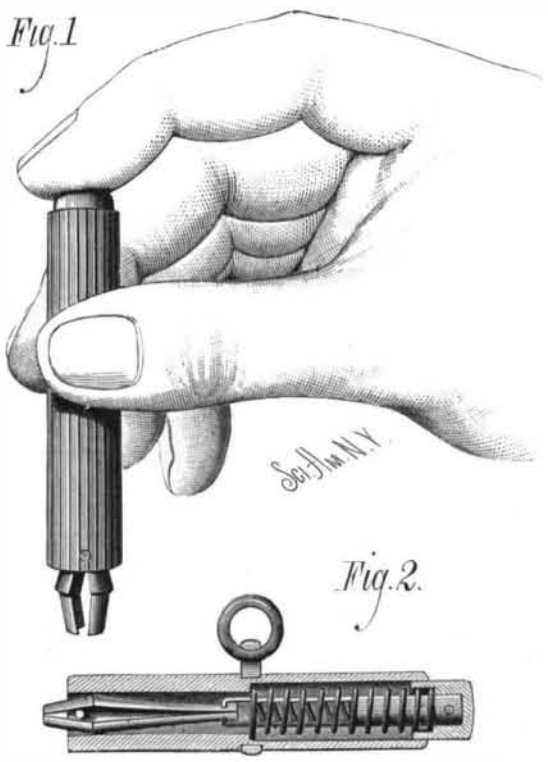
SELF-ADJUSTING WATCH KEY.

With few exceptions no article is more universally used than the watch key, and it is singular that an article even as simple as this should have been used for centuries without some improvement. It is only recently that any real improvement has been made in this direction. Our engraving represents an adjustable key—one that will wind any watch—which is manufactured by Messrs. J. S. Birch & Co., 38 Dey street, New York.

The engraving shows the construction and manner of using this key so clearly that scarcely a word of explanation is required. The instrument consists essentially of a pair of griping jaws held in the forked end of a spindle arranged to slide in the tube. The end of the spindle is attached to a cap, which slides in the tube and is pressed by a spiral spring resting on a shoulder in the tube. The tendency of the jaws is to spring apart, so that when the cap is pressed downward, so as to project the jaws from the tube, they are separated more or less. While in this position they are placed on the arbor to be turned, the cap is then released, and the jaws clamp themselves tightly on the arbor. The jaws are prevented from twisting or turning in the tube by a pin passing transversely through the tube between the jaws.

As to the usefulness of this invention it is only necessary to say that the key will fit any watch, and will not only answer the purpose of winding and setting the watch, but it will fit the abors perfectly, thus avoiding the wear of these parts, a thing unavoidable when common keys are used.

This key is absolutely proof against the danger of conveying dust to the movement. By springing the jaws open all



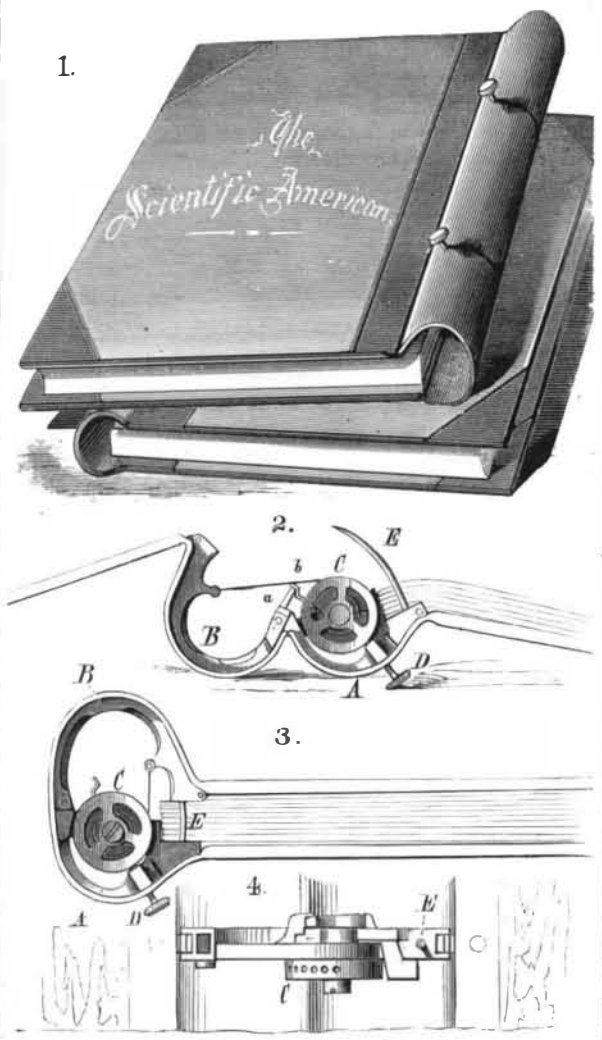
BIRCH'S SELF-ADJUSTING WATCH KEY.

accumulations in the pipe or jaws of the key are at once expelled. All the adjustable parts are made of the best tempered steel, and the shells are substantially mounted in a large variety of ornamental designs (some 37 in number), which render them appropriate and attractive charms to be worn on watch chains.

Full particulars may be obtained by addressing the sole manufacturers as above.

A NOVEL BINDER.

The engraving shows a new binder for binding newspapers, pamphlets, letters, bills, etc., recently patented by Mr. William Keenan, of 79 St. George street, Toronto, Ontario, Canada. Fig. 1 is a perspective view representing the exterior of the binder; Fig. 2 is an end view showing the back



KEENAN'S BINDER.

of the binder open and ready to receive papers; Fig. 3 is an end view showing the back closed, and Fig. 4 is a detail view of the fastening mechanism.

The binder has two covers connected by a back of leather, and also by jointed metallic frames, A B. The part, B, of each frame has a cam, *a*, which is engaged by a spring, *b*, on the part, A, when the binder is opened to receive a paper, and holds it open while the paper is being placed on the curved needles, E. The two parts of the jointed frames are drawn together as the binder is closed by springs in the drum, C, turning on a stud projecting from the part, A, of the jointed frame. The drum carries a band or piece of watch spring, which is attached to the opposite half of the frame, and serves to draw the two parts together. The part, B, is made hollow to receive the needle, E, and a milled screw, D, passes through the frame and enters one of several small cavities in a rim attached to the drum, C, to keep it from turning.

The articles to be filed are placed upon the curved needles when the device is arranged as shown in Fig. 2; then by closing the two halves of the back the spring, *b*, is released from the cam, *a*, and the spring in the drum, C, holds the binder closed. To secure it still more firmly the screw, D, may be brought into use.

It will be seen that no thread is used in this binder and that threading is consequently avoided. The covers may be opened wide and will be flat, and the papers can be easily referred to and read.

American Machines in England.

In his recent address before the Institution of Mechanical Engineers, President Cowper said:

"Sewing machines ought to be made here, and I urged English makers, years since, to go in thoroughly for making every part accurately and by machinery, so as to fit together at once without 'fitting;' but I could not get this carried out, and now sewing machines come from America literally by millions, though labor is dearer, metal is dearer, and there are upwards of 3,000 miles of carriage against them. But 'machine manufacture' is cheaper and better than 'hand making.'

"In gun making I counseled some of the Birmingham makers, years before they did anything in the matter, that they would actually lose their trade if they did not adopt good machinery to manufacture every part exact to size; and at last, when the government had the means of doing most of the work, they did adopt machinery, but many years too late.

"Then with regard to common pumps, they are now imported from America by thousands, and are sold here, without being commonly known to be American; clocks and watches also come in immense numbers, some of them very cheap and common, while others are very well made.

"Another trade, nearer perhaps to most of us, is that of rolled iron girders, which, I am sorry to say, are coming by hundreds and thousands from Belgium; indeed, almost every house that is now built in London with rolled iron girders is supplied from Belgium. These things should not be; we have iron in plenty, and labor in abundance, but we want special machines, schemed as fast as they are wanted, to fit the work properly, and turn it out accurately in large quantities; and we should show more enterprise in adopting a good 'new thing,' which I am sorry to say is what some of our old-fashioned manufacturers are slow to do, often little knowing how they damage the trade they are in by not adopting the best known process."

DE LOCHT'S PANTELEPHONE.

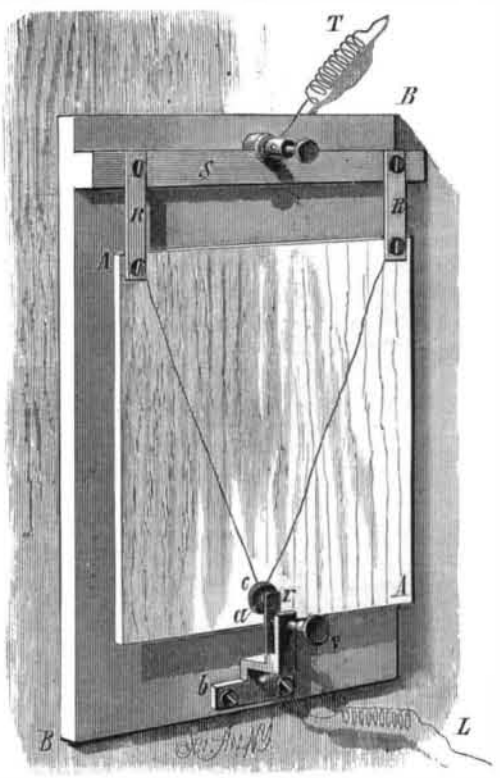
Leon de Locht, Mining Engineer and Professor at the College of Mining, Mont St. Martin 49, Liege, Belgium, after several years' experimenting with a view of overcoming the defects of the best telephones in use, and after the invention of one or two forms of apparatus, which have been the subject of patents in various countries, has finally perfected an instrument which he calls the pantelephone.

This apparatus is a microphonic transmitter which is sensitive to sonorous vibrations emanating at a great distance. It is capable of transmitting words spoken at forty-five feet from the apparatus to a distance of several miles through the medium of receiving telephones. The pantelephone, which is extremely simple, is composed essentially of a movable plate carrying a carbon contact, which presses against a disk of carbon or metal—silver or platinum.

Referring to the accompanying cut, the plate is seen figured at AA. It may be of aluminum, sheet iron, steel, brass, mica, cork, or of any substance whatever that is capable of being formed into plates of large superficial area, while at the same time possessing the requisite amount of lightness. It is preferable that its form should be rectangular, fifteen centimeters square in size, and, when made of metal, two to three tenths of a millimeter in thickness. It should be as inflexible as possible, and not liable to bend out of shape through the influences of temperature and humidity. It is suspended by two small very flexible steel springs, R R, from a support, S, which is perfectly straight and stands out from the fixed plate, B B, forming the framework of the apparatus. To the middle of the lower end of the plate is riveted or soldered a small carbon disk, *c*, which, when the apparatus is in a vertical position, rests against a small piece of silver or platinum fastened to the end of a short and somewhat inflexible spring, *r*, the latter being fixed by means of a screw, *v*, to the copper support, *b b*. By means of a thumb screw, V, passing through the support, the contact of the carbon, *c*, with the piece, *a*, may be regulated at pleasure.

The pantelephone is placed in the circuit of a voltaic pile in such a way, for example, that the current entering at L, proceeds to the support, *b b*, and from thence through the spring, *r*, to the contact, *a*, then to the carbon, *c*, and through the plate, A A, to the springs, R R, and leaves the apparatus at T.

There are other and secondary details of construction, by means of which the inventor is enabled to so regulate the apparatus as to insure of the greatest sensitiveness and of the best possible performance. There are certain arrangements employed, too, to deaden and stop all noises which might arise from tremors of the earth, or from the shaking of the wall to which the apparatus is attached. It is claimed that the pantelephone, when once properly regulated, is not liable to get out of order; and, moreover, that the expense



DE LOCHT'S PANTELEPHONE.

attending the use of the system is insignificant, since the apparatus under proper conditions requires for its making only the electromotive force of a single voltaic couple. The instrument transmits all sounds, articulate or inarticulate, which reach it, through the medium of either solids or the air. It is inclosed in a box (which may be made as ornamental as desired) in such a way that its sensitiveness to sonorous vibrations is in no way impaired.