Improved Implement for Opening Cans.

The want of a perfectly efficient, handy, and light tool for opening tin cans containing fruits, vegetables, etc., has been long felt. The practice of preserving fruits, meats, etc., in this manner has become general, and something of this kind is needed in almost every house.

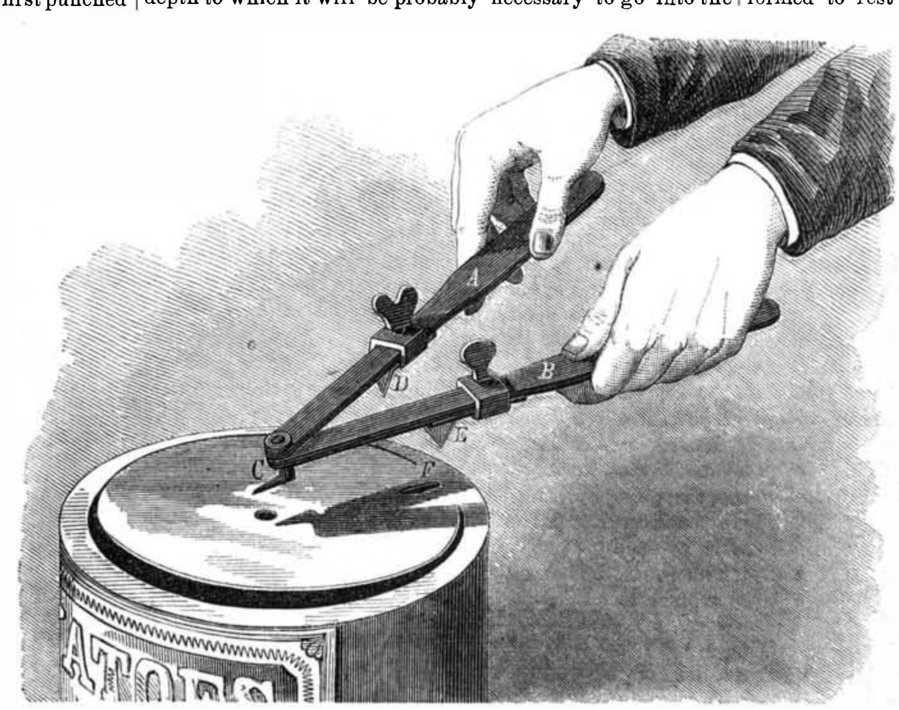
The engraving tells its own tale. The instrument consists of two small levers, A and B, pivoted together at C. The pivot, C, is bent at right angles, and made sharp to act as a center punch.

Two blades, D and E, are held by clips and set screws to these levers, one blade being set at right angles to the other, These blades are adjustable to different diameters of cans.

In use the instrument is seized with both hands in the manner shown in the engraving, the center, C, is first punched vertically through the top of the can. The handles are then brought to a horizontal position, and the blade, E, is thrust through the tin, making a radial cut, shown at F. The center, C, and the blade, E, now hold the can from turning, while the lever, A, is made to perform a complete revolution, carrying with it the blade, D, and cutting out the top in a remarkably neat manner.

There is no liability of the can's turning, as in the case with many instruments made for this purpose, and thus a great annoyance is completely obviated.

Patented through the Scientific American Patent Agency, Oct. 19, 1869, by W. M. Bleakley, whom address for further information at Verplank, N. Y



BLEAKLEY'S CAN OPENER.

Steam on Common Roads.

In England, steam begins to be used on the common roads. A gentleman writes to the *Times* stating that he has received a visit in the dead of the night from a friend, who with four members of his family arrived in a steam wagonette. The reason for selecting that unearthly time for the visit was the existence of a law forbidding the use of steam carriages on the public thoroughfares except between the hours of ten at night and six in the morning, also limiting them to a speed of two miles an hour, and requiring them to be preceded by a man sixty yards in advance bearing a red flag. The writer suggests that these precautions are unnecessary, and that steam locomotives should be allowed the use of the roads at all hours, with no other precaution than a limitation of speed to twelve miles an hour. On this the *Pall Mall Gazette* remarks:

"If steam wagonettes are coming into general use, we earnestly hope that there may be some modification of the law referred to, but only for the sake of the visited. We are all delighted to receive morning visits from our friends, but there are cases in which we should be more delighted to be let alone, and we tremble to think what will be the effect of a host of visitors arriving in the early hours of the morning in steam wagonettes at the rate of two miles an hour, preceded by heralds with red flags. Why not transfer these restrictions from steam carriages to wagons, which are the cause of most of our street accidents? It would be an admirable plan to limit the speed of these vehicles and insist on their being preceded by a signal of danger."

The New York and Brooklyn Bridge.

The contract for building the caisson or foundation work of the bridge on the Brooklyn side has been awarded to the firm of Webb & Bell, of Greenpoint. The cost, with the necessary timbers, is to be about $200,000. The work is to be commenced immediately under the general superintendence of Mr William C. Kingsley, of the firm of Kingsley & Keeney. The central part of the tower on the Brooklyn side will be located at the upper slip of the Fulton Ferry. All the woodwork of the old docks and piers will be torn up, and every thing removed to low water tide. The bottom of the river will then be excavated to a depth of 22 feet below high tide, until a level area is obtained for the reception of the caisson. The dimensions of the caisson, the space to be thus cleared and leveled, is 170 feet long by 102 feet extending out into the river toward New York. The 102 feet front of the caisson, facing that city, will be on a level with the bulk head line as established by the Harbor Commissioners. The mass of large boulders with which the bottom of the river is believed to abound will be removed by blasting, and the pieces removed by powerful dredging machines. Experiments which have been made on the quicksand bed of the East River, while excavating a dry dock, prove its bearing power to be ten tuns per square foot. By Mr. Roebling's plan, it is proposed to rest upon this bed a weight of only four tuns per square foot. The weight of each tower is to be somewhat over 75,000 tuns. To distribute this vast weight so that no part of the pressure on the base shall be over four tuns per foot, it has been decided that the area of the foundation shall be 170 feet long by 102 feet broad. This area will be composed of huge timbers resting on the sand, and bearing the masonry work of the tower upon it. The timber will be 20 feet thick, and this vast mass of 20 feet by 170 by 102 will be securely bolted into one solid frame, so that the weight of the tower above can never deflect in the slightest degree at any point. The caisson, when launched, will draw 17 feet of water. It will be 170 feet long, 102 feet wide, and 15 feet deep, with a top five feet thick, and sides of a thickness tapering from 9 feet at the top to a foot below. The time required to build it will be about four months. As soon as it has been set afloat it will sink to within eighteen inches of the surface of the water and when the proper time arrives it will be towed down to the ferry and placed in position ready for being submerged. This is to be accomplished by building on the top of the caisson successive layers of timber and concrete to a hight of 20 feet. The weight of the caisson with this 20 feet of timber and cement above the "air chamber," will be 11,000 tuns.

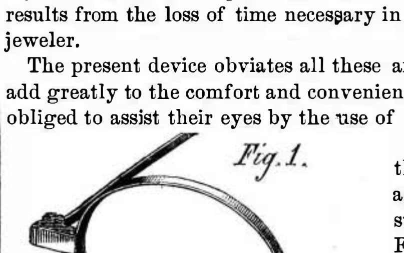
The material excavated is hoisted from the "air chamber" through two water shafts by means of dredges, and as it is raised the caisson sinks, being uniformly undermined round the four edges and throughout its whole extent. As the caisson thus gradually sinks the mason work, inclosed in a cofferdam, is in progress on the top of the timber, thus adding the necessary weight. Access is had to this "air chamber" by means of two air shafts three feet in diameter. The depth to which it will be probably necessary to go into the bed of the river, will be about 55 feet below high water mark, so that all the timber of the foundation will be inclosed in the sand and other material through which an excavation has been made.

IMPROVEMENT IN FRAMES FOR SPECTACLES AND EYE GLASSES.

Some of our readers will be much interested in the simple but valuable improvement illustrated in the accompanying engravings. Many of them have been annoyed by glasses coming out of the frames, and have been sorely bothered in the absence of proper implements to replace them.

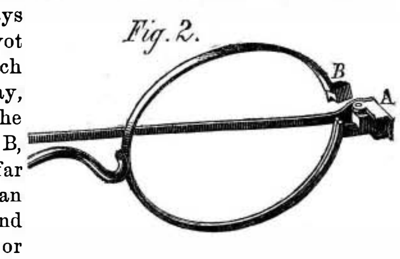
In the case of spectacles with spring frames, should the spring chance to break, it is difficult for people under ordinary circumstances to repair them, and much annoyance often results from the loss of time necessary in sending them to a jeweler.

The present device obviates all these annoyances, and will add greatly to the comfort and convenience of those who are obliged to assist their eyes by the use of glasses.



Figs. 1 and 2 show the improvement as applied to the old style of spectacles; Fig. 1 exhibits the rim which holds the glass closed, and Fig. 2 the same unclasped for the insertion of a glass.

Where the two ends of the rim meet, Fig. 2, one is grooved to receive a slight rib upon the other which fits into it. A clasp, A, which plays upon the same pivot as that upon which the side bows play, when closed over the end of the rim, B, holds it in place far more securely than the old screw, and may be opened or closed with the utmost facility.



A person purchasing spectacles with this method of putting in the glasses, may provide himself with an extra glass or two, and at once replace a broken one for himself, or by sending the number to the makers he may obtain a glass to correspond and insert it himself without the slightest trouble.

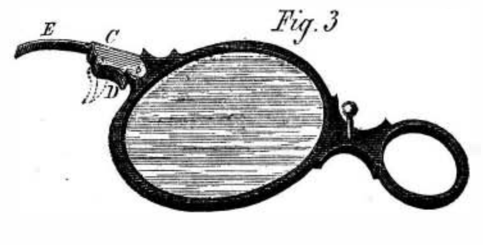


Fig. 3 shows an improved method of attaching the springs to eye glasses. A small metallic clasp, C, is riveted to the rim. To this clasp is pivoted a small lever eccentric, D.

This lever eccentric, when opened into the position shown by the dotted lines, releases the spring, E, which is not pierced for rivets, as such springs have hitherto been. When the eccentric is closed it holds the spring securely, and the liability of the spring to break at the point where it is riveted in the form heretofore employed is obviated, the spring being as strong in one place as another. Should it break, however, at the point of junction, the eccentric may be opened by the thumb nail, the end of the spring reinserted, and the glasses can then again be used, the only inconvenience being a slight shortening of the spring, scarcely perceptible to the wearer.

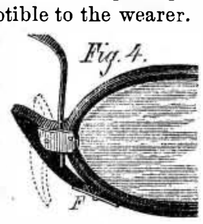


Fig. 4 is an application of the same principle to another form of frames for spring glasses, the lever eccentric being in this case identical with the piece formed to rest against the side of the nose. The manner in which the spring is clasped is sufficiently well shown to render description unnecessary; the dotted outline showing the position of the lever eccentric when open; this eccentric when closed being held from opening by a small metallic button, F.

The advantages claimed for this improvement, and which we are satisfied are fully attained, are very much greater convenience to the wearer, the ready insertion and interchangeability of glasses, greater strength, without any decrease in grace and lightness, as the addition of the clasp gives scope for ornament rather than otherwise, and the easy replacing of the glasses, or the springs when broken, *without tools.*

We have been much pleased with this improvement, and the inventor informs us that it is intended to make standard size glasses, so that glasses may be sent by mail to replace such as may be broken, all the required information being the number of the glass to be replaced. This will prove a great convenience to those at a distance, and will save much trouble.

Jewelers and others who keep spectacles for sale will also find this form of bows a great convenience, as, when a peculiar style of frame pleases a purchaser, and the glasses are not right, an interchange of glasses is but the work of a few seconds, which may be done as well at the show case as the work bench.

Patented through Scientific American Patent Agency, Oct 19, 1869. For further information, address the patentees, Louis Black & Co., Detroit, Mich.

Coal and Coal Mines.

Dr. Hill, of Queen's College, Birmingham, England, in a recent lecture on the "Chemistry of the Mine," made some interesting remarks on coal and coal mines. He said:

"The history of these formations was most interesting. Their age must be very great, as they have never been found with any traces of human remains. The principal animal forms were of a much lower type, consisting of snails, fish, reptiles, and insects. The impressions they have left, and the skeletons of them which remain, show that they were of a similar character to what are now known as "horsetails" pines, resembling the *Arancaria* of gardens, ferns, club mosses and a sort of palm. These were all of great size, the ferns branching to a hight of 50 feet; and the club mosses, now insignificant, were then 60 or 70 feet high. Taking into consideration the gigantic dimensions of the different plants, and the branched character of the ferns—such as only grow in hot climates—led them to conclude that England must at one time have had a tropical climate. A period when such rapidly growing and enormous plants of unlimited number existed is thus seen to have been highly favorable to the formation of those immense stores of vegetable matter—which may have been like peat beds, or carried on by river currents to their present beds—forming coal. There was no doubt but that coal was changed wood, such change being due to moisture, heat and pressure. They might look upon wood as carbon, hydrogen, and oxygen. As soon as a plant died it began to decay, and then the three elements entered into new combinations to form compounds which did not exist in the original wood. One part of the carbon entered into combination with part of the oxygen to form carbonic acid; another part combined with some of the hydrogen to form carbureted hydrogen, or "fire-damp;" while the remaining carbon, having no more oxygen or hydrogen to combine with, remains and constitutes black coal. If there were enough oxygen and hydrogen in the wood to combine with all the carbon, probably it would have been entirely removed by the same process, and there would have been no coal measures. Anthracite coal was that which had advanced furthest, and was most completely carbonized. They could easily understand after that how it was that coal had been formed, and also how carbureted hydrogen, the dangerous "fire-damp," was generated and confined in fissures in the coal, where there had been no outlet into the air. Fortunately it did not often appear among them. Coal was found at almost all elevations, from 8,000 feet above the level of the sea to 1,800 below it, as at Whitehaven, where, in addition to its depth, it is worked under the bed of the ocean for nearly a mile. It is, therefore, nearly certain that there are immense stores of coal existing at depths and in positions which render them inaccessible. Carbonic acid, known to the miners as choke-damp, is produced when carbon is burned with a sufficient amount of air or oxygen."

THE Crown Prince of Prussia is said to have invented a new apparatus for the manufacture of vinegar.