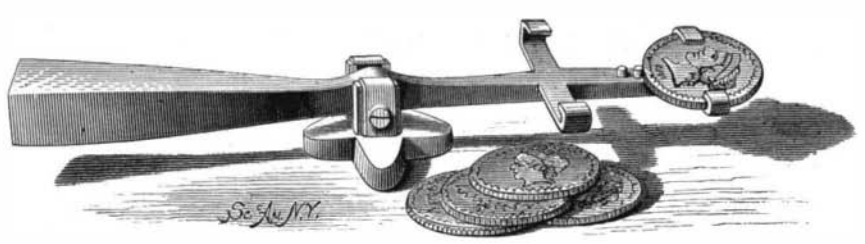
A RELIABLE TEST FOR GOLD AND SILVER COIN.

The steady increase of gold and silver coin coming into circulation has tempted the manufacturers of counterfeit money into active operation, and the amount of spurious metal already in use is very great. The ingenuity of these sharpers is not confined to counterfeiting alone, as they have commenced the practice of another and far more dangerous fraud in the stealing of gold from the genuine coinage now in circulation. This is done by the "sweating" process in the electroplating bath. A double eagle ($20) may, for example, be considerably reduced in weight by this operation. Yet the coin still remains quite perfect in appearance, and none but a practical expert would hesitate to take it. It is hardly necessary to point out the value of a simple, quick, and reliable means of detecting these frauds. The acid test is useless, and as some of the counterfeits are full weight, the ordinary scales are liable to deceive if used as a test. The specific gravity of gold and silver being much greater than that of base metal, a counterfeit must be either lighter in weight or larger in size than the genuine coin, and a scale capable of accurately weighing and measuring the coin is a true and reliable test. Such a scale is herewith illustrated.

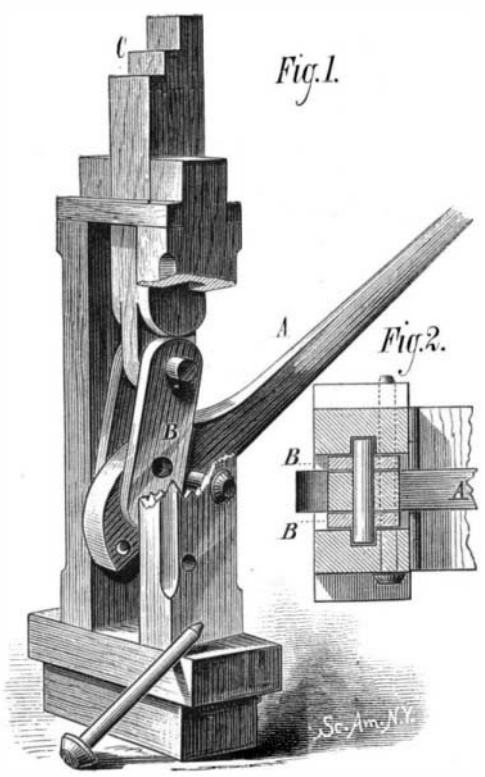
It consists in a balance lever made of hard brass, which works on a knife edged steel pivot similar to an ordinary scale beam. The operating arm of the lever is provided with gauges and adjusting stops, formed and placed in such a manner that by a single movement or application of the coin the three essential tests of weight, diameter, and thickness are made instantly. The gauge has the form of an open slot made just large enough to admit good coin. The size of the coin is tested by the gauge as it enters, and when the coin touches the stop it is tested in weight by the lever. A counterfeit of the proper weight will not enter the gauge. A counterfeit that does enter will not move the lever. The form and position of the stop are of such convenience that it does double duty: holding the coin at a certain point on the lever while being weighed, and affording a remarkably quick and easy means of accurately adjusting the instrument. This adjustment is so fine that the gold test is sensitive to the one fifth part of a grain. The instrument can be made to test any coin or any number of coins, automatically throwing out the good and holding the bad. The apparatus is now in use at the United States Treasury in Washington and at the mint in Philadelphia. The inventor has received written testimonials from the Treasury experts which speak very highly of the reliability and accuracy of the device. It is very neat in appearance, strong and simple in construction, and it cannot get out of order. Patented by P. Doherty, June, 19, 1877. For further information address the patentee, at 621 Fisher street, Philadelphia, or 92 East Tenth street, New York city.



MACHINE FOR TESTING GOLD AND SILVER COIN.

IMPROVED WAGON JACK.

The invention herewith illustrated is a new jack, which may be used for lifting wagons, etc., without change of pin, or to press cheese, hay, apples, etc. Its lever may be of any length, so that no stooping is required in operating it, and it may be easily and quickly adjusted. It consists of the cam lever, A, which is pivoted eccentrically to its fulcrum

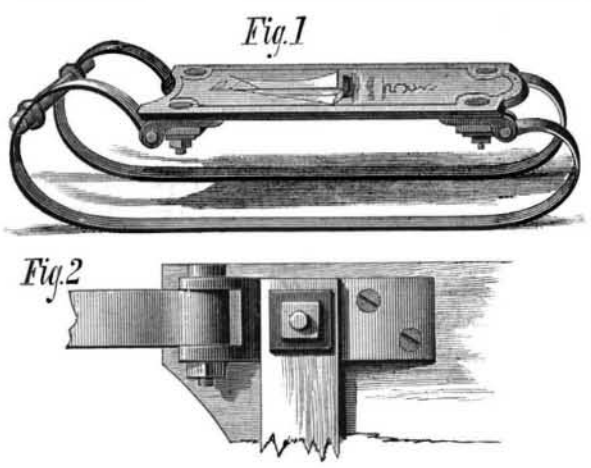


SMITH'S IMPROVED WAGON JACK.

pin to two links, B, that are again pivoted at their upper ends to a lifting post, C. The latter is guided in the standards by means of interior grooves, into which the pivot pin of the links and post is extended, as shown in the sectional view, Fig. 2, and also by the cross straps of the standard. The upper end of post, C, is step shaped, so as to bear on the axles or other objects. The side standards are provided with a series of holes at both sides, which receive the pivot pin through apertures in the cam lever according to the height to which the same is set for the object to be raised. When the post is elevated to the required height by the lever, it is retained by the post, links, and lever locking each other by coming into line. The object is lowered by swinging the cam lever down. Patented March 19, 1878. For further information address the inventor, Mr. Simeon Smith, Deersville, Harrison county, Ohio.

IMPROVED SLED.

We illustrate herewith a new and simple bob-sled, the improvement in which is found in the runners, which consist of carriage springs attached to the platform by clips, as shown in Fig. 2. The latter are secured by bolts and nuts passing through the crossbars and platform. The arrangement is so plain from the illustration that further description is unnecessary. The device is strong, easily and inexpensively made, and will tend to make the sled run easier. For further information address the inventor, Mr. Theodore Graether, No. 36 Prospect street, Rochester, N. Y.



GRAETHER'S IMPROVED SLED.

A Japanese Bronze Foundry.

A visitor to a leading Japanese bronze foundry describes it as comprising a number of long, low, open sheds, in which everything is in confusion—the artistic, charming disorder of a studio. The products of this foundry are now wholly made by casting, the proprietor not sharing the sentimental enthusiasm of those who prefer archaic methods and crude work to the finer results of improved facilities. Most of the work is done to order. The customer decides on a subject and communicates his wishes to the designer, who makes a sketch on paper and a trial figure in wax. This, as amended and approved by the patron, is completed by the artist as he sits patiently before his brazier, touching the plastic wax with skillful, delicate strokes. The model is then pressed into fine clay, which adapts itself to every line. The metal is then poured in, allowed to cool, the mould is broken and cleaned away, the rough bronze filed and given a luster, and the casting is ready for delivery. Many of the best articles showed the influence of foreign ideas, and were none the worse for it. They comprised vases, braziers, candlesticks, dragons, warriors, lobsters, crabs, frogs, and many other designs. The prices for the nicer ware ranged from thirty to one hundred dollars. Sections of a thousand dollar vase, of tasteful design and exquisite workmanship, were strown about the floor.

Sounding the South Atlantic.

Commander W. S. Schley, of the U. S. steamer Essex, reports to the Secretary of the Navy that he has successfully run a line of soundings from St. Paul de Loando, Africa, to Cape Frio, Brazil, *via* St. Helena, which report is accompanied with the track chart, with soundings marked thereon, and a profile of the ocean bottom.

The greatest depth found between Africa and St. Helena was 3,063 fathoms, or 18,376 feet, and between St. Helena and Brazil the greatest depth was 3,284 fathoms, or 19,704 feet (nearly 3¾ miles). The soundings taken eastward and westward of St. Helena exhibit, in profile, that that island stands almost perpendicular in nearly 12,000 feet of water. After leaving the coast of Africa there is an abrupt descent of 900 fathoms in the first sixty miles from that coast, deepening up to 3,000 fathoms in a distance of about 700 miles, from whence to St. Helena gradual reductions in depth occur, and an entire change in the character of the bottom from mud to coral, rock, and sand.

The soundings were taken by means of pianoforte wire, with the machine originally designed by Sir William Thompson, but improved by Captain Belknap, of the U. S. navy, who first used it in sounding across the Pacific Ocean, in 1873–4.

New Agricultural Inventions.

Mr. S. S. Terwilleger, of Tie Siding, Wyoming Ter., has invented an improved Sulky Scraper for grading roads and for similar uses. The scraper is in one solid piece, and is suspended at the front to the axle by hinged straps and at the rear to a curved lever which holds it in position for carrying or discharging the load.

A detachable Thumb Rest for Sheep Shears, invented by Mr. J. Richardson, Jr., of Pomona, Cal., is intended to afford a good bearing for the thumb, protecting it; and it consists of a concave plate formed on a shank adapted to fit the grasping portion of the shears, to which it is secured by a cord.

Mr. J. Rabenberg, of Breckinridge, Mo., has invented a very complete Incubating Apparatus, for the artificial hatching of the eggs of hens and other fowl. It is a case provided with drawers, in which, on layers of bran, oats, or similar material, to prevent injury and admit air, the eggs are placed. The case has a metallic bottom, beneath which are lamps or stoves, and the direct heat is screened from the eggs by deflectors; while a thermometer, suitably placed, indicates the temperature.

An Artificial Chicken Mother has also been provided by the same inventor, which shelters the newly hatched chicks from the sun, wind, and rain, and furnishes a snug and warm place for them, under which they can retire as under the wings of a mother hen.

Mr. John Wilz, of Santa Cruz. Cal., has made an improvement in Pruning Shears, enabling them to be used conveniently for the removal of branches from the higher parts of trees. The shears are carried at the end of a pole, and the movable blade is worked by a spring and pivoted lever, which latter is operated by a cord and pulley.

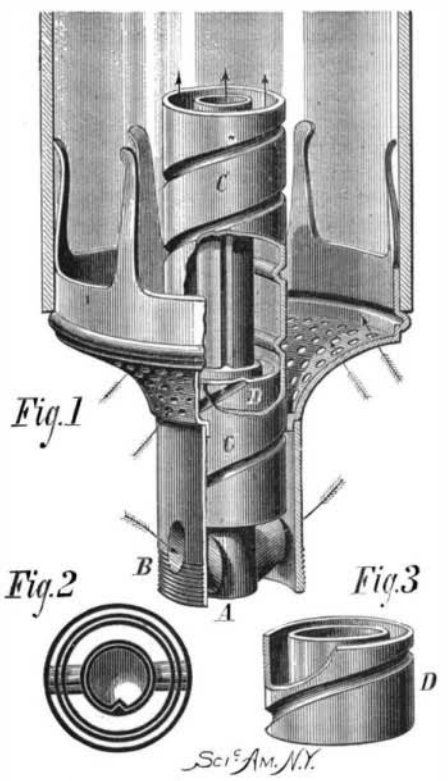
A simple Fence, which may be easily put up and quickly taken apart for transportation, has been invented by Mr. M. S. Zimmerman, of Indian Spring District, Md. The post sections extend only to the ground or to a base piece, and are clamped together near both ends, two pointed drive stakes being forced between the post and lower clamp, and thence into the ground.

Mr. F. M. Meyer, of Shannondale, Mo., has invented a Machine for Setting Tobacco Plants. It is operated by hand, and closely imitates the movements of the latter, pushing the root of the plant into the ground the proper distance and tamping the earth about it.

An improved Hand Scraper, invented by Mr. L. F. A. Legouge, of St. Georges-la-Trétoire, France, is made with a blade having a convex cutting edge, which is notched so as to form teeth, thus forming a convenient weeding tool.

IMPROVED ARGAND LAMP BURNER.

The improved burner herewith illustrated is claimed to be the only one applicable to the common lamp which uses the true cylindrical wick, raised or lowered by a metal carrier in such a manner that the burning edge is always true. The central air tube, A, of the burner, is closed at its lower end, and connected by lateral pipes, B, to the stationary supporting tube which is screwed into the lamp. C is a threaded pipe, to which the chimney supporter and shield are attached, the latter (not shown in the engraving) serving to conduct



LUNGREN'S ARGAND LAMP BURNER.