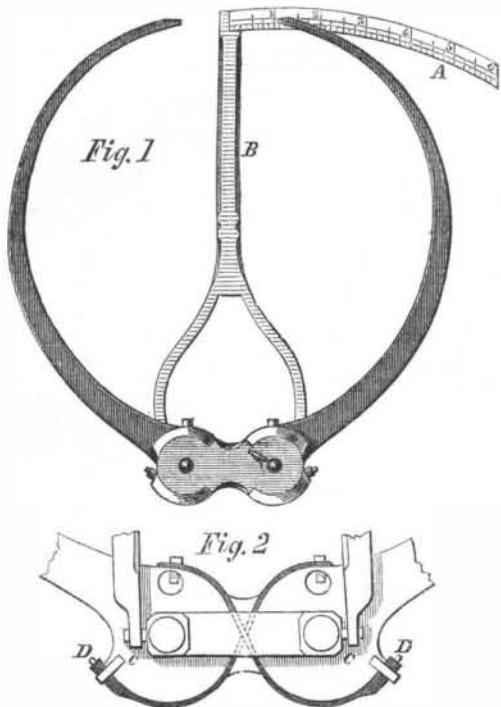


SUTTON'S IMPROVED CALIPERS.

The annexed cut illustrates a contrivance for attaching a scale to calipers for the purpose of measuring either the whole or half of the opening or separation of the legs, and thus indicating the diameter or radius of the object embraced by them.

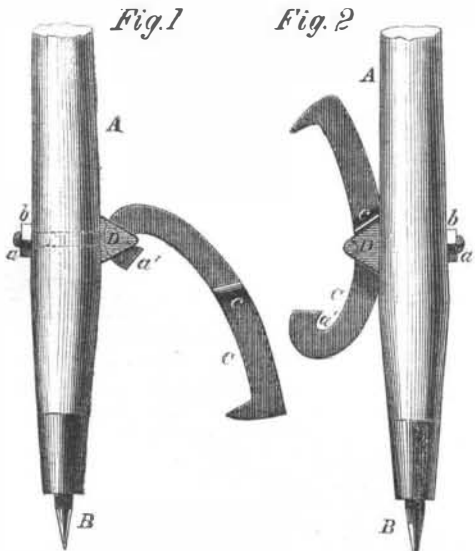


The scale, A, Fig. 1 is attached to the arm, B, which is connected by pivots, c c, to the fulcrum of the calipers, so that it may be turned out of the way when the implement is applied to an object, and then turned back against the end of the leg to measure the extent of the opening. For the sake of compactness the scale is applied to only one leg, the distance of which it measures from the middle, or point of meeting. To secure the opening of both legs precisely an equal distance from the middle, steel springs or straps are passed around the hubs of the arms, crossing each other in the manner shown in Fig. 2. These straps are provided each with a screw nut, d d, for drawing them perfectly tight and for adjusting the legs to the middle of the bar, B, before beginning the use of the implement.

The patent for this invention was issued Jan. 3, 1860, and persons desiring further information in relation to it may address the inventor, Charles D. Sutton, at Kensico, N. Y.

IMPROVED CANT HOOK.

In handling heavy logs two implements are universally used, the lever and the cant hook. The latter, though exceedingly useful in rolling logs, is so awkward for any other purpose, that it is employed only for this; the long hook, swinging about loosely, being too much in the way except when it is grasping the log in the manner in



which it is designed. The inconvenience of very frequently laying aside one implement and finding another, has led to the invention which we here illustrate, the object of which is to combine both tools in one. This is accomplished by attaching the hook to the lever in such a

manner that the hold may be quickly removed from the end to the middle of the hook, which is then held by the side of the lever, comparatively out of the way.

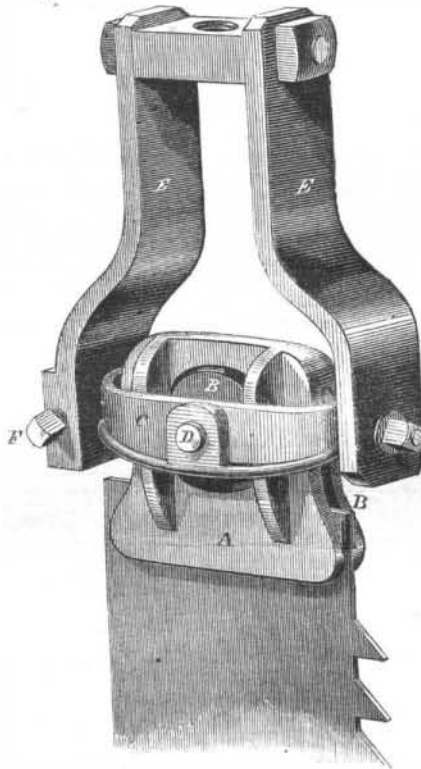
The lever, A, is made of the usual form, with the socket and spike, B, at its end, and the hook, C, is attached to it by means of the bolt, a, which has the slot, D, through its head. The hook, sliding loosely through this slot, is held by the bend, a', at its end, when in use, and by the projections, c, in the middle, when not in use; when in the latter position being comparatively out of the way, and permitting the lever, A, to be used conveniently as an ordinary lever.

The patent for this invention was obtained, through the Scientific American Patent Agency, Jan. 3, 1860, and persons desiring further information in relation to it will please address the inventor, Peter Hinds, or W. Van Name (who is an equal owner in the patent), at Cedar Run, Pa.

IMPROVED SAW BUCKLE.

The annexed engraving represents an improvement in buckles which are employed in fastening reciprocating saws into their frames.

It consists of two cast iron plates, A and B, which are secured into the iron hoop, C, by the pin, d. The upper portion of the plate, A, extends over the plate, B, while



a projection from the plate, B, passes through a slot in the plate, A, thus allowing the jaws of the plates to open sufficiently to receive the saw. On the inner sides of the lower ends of these are projections passing across the whole width of the jaws; the projections rising up to form a sort of dovetail joint. The saw has firmly riveted on each side, across its end, a strap or ledge of iron, shaped to fit the projections on the inner sides of the jaws. The hoop, C, is secured between the straps, E E, by pivots or pins at each side, one of which pivots is in a movable block or journal-box, which may be adjusted in the strap, E, by means of two set screws, one of which, f, is shown in the cut. By this arrangement it will be seen that the saw is strained equally throughout its whole width, and can be very readily adjusted to the line of its work.

The patent for this invention was obtained, through the Scientific American Patent Agency, March 15, 1859, and persons desiring further information in relation to it will please address the inventor, A. Crosby, at Fredonia, N. Y.

EXPLOSION IN A COAL OIL WORKS.—An explosion recently took place at the Aladdin Oil Works, in Armstrong county, Pa., caused by one of the foremen placing an open light, which he carried in his hand, in the vapor arising from the oil in one of the tanks. No explosion can take place with any oil until once it is evaporated and becomes gas, then mixes with the atmosphere. The vapor of any oil, when it becomes saturated with oxygen, is more explosive than gunpowder.

THE BRITISH COTTON TRADE.

The cotton manufactures of Great Britain are gigantic in their proportions, and their growth has been wonderfully rapid. At present there are 500,000 persons employed in the cotton factories, and it has been estimated that there are 4,000,000 persons in that country dependent on the cotton trade for their subsistence. Lancashire is the chief seat of this great business. One century ago its population was 300,000; now it contains 2,800,000 inhabitants. This great increase exceeds that of any other equal surface, perhaps, in the world, and is entirely due to the development of the cotton manufacture. In 1858 there were in England and Scotland (the United Kingdom) 2,300 factories, running 36,000,000 spindles and 300,000 looms, by 100,000 horse-power. The amount of capital invested in it is estimated to be £60,000,000 (about \$300,000,000). The quantity of cotton imported into England in 1859 was 1,181,800,000 lbs., which at 12 cents per lb., amounts to \$141,816,000. The total number of bales was 2,829,110, of which no less than 2,086,341 were furnished from America; that is, out of every seven pounds received in England, five came from the United States. India furnished 500,000 hales; Egypt, 100,000; South America, 124,000; and about 8,000 bales came from various other countries. The value of the manufactured cotton goods sent from Great Britain annually is very great. In 1859 it amounted to £47,920,000 (about \$239,600,000), which was equal in value to one-third of the entire exports (woolens, metals, &c.) of the United Kingdom. No less than \$120,000,000 of cotton manufactures are consumed annually in Great Britain itself, independent of the export, thus showing how much the value of the raw product is increased by the manufacturing operations, all of which are dependent on a proper supply of cotton from America.

ONE OF THE MYSTERIES.

MESSERS. EDITORS:—When sugar is struck with any hard substance in a dark room it emits a light. Will some of your scientific readers try this experiment and describe the nature and cause of this light, as it is not generally known. R. J. S.

Providence, Ky, March 9, 1860.

MECHANICS, INVENTORS, MILLWRIGHTS, AND MANUFACTURERS.

The SCIENTIFIC AMERICAN is a paper peculiarly adapted to all persons engaged in these pursuits, while to the Farmer, House-keeper, and Man-of-Science, it will be found of equal interest and use.

The SCIENTIFIC AMERICAN has been published FOURTEEN YEARS, and has the largest circulation of any journal of its class in the world. It is indispensable to the Inventor and Patentee; each number containing a complete official list of the claims of all the patents issued each week at the United States Patent Office, besides elaborate notices of the most important inventions, many of which are accompanied with engravings executed in the highest degree of perfection.

To the Mechanic and Manufacturer the SCIENTIFIC AMERICAN is important, as every number treats of matters pertaining to their business, and as often as may be deemed necessary a column or two on the metal and lumber markets will be given; thus comprising, in a useful, practical, scientific paper a Price Current which can be relied upon.

The SCIENTIFIC AMERICAN is published weekly in a form suitable for binding, each number containing sixteen pages of letter-press, with numerous illustrations, making a yearly volume of 882 pages of useful matter not contained in any other paper.

Terms.

To mail subscribers: Two Dollars a Year, or One Dollar for Six Months. One Dollar pays for one complete volume of 416 pages; two volumes comprise one year. The volumes commence on the first of JANUARY and JULY.

Club Rates.

Five Copies, for Six Months.....	\$4
Ten Copies, for Six Months.....	\$8
Ten Copies, for Twelve Months.....	\$15
Fifteen Copies, for Twelve Months.....	\$22
Twenty Copies, for Twelve Months.....	\$28

For all clubs of Twenty and over, the yearly subscription is only \$1 40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Southern, Western, and Canadian money or Post-office stamps taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription to pre-pay postage.

When persons order the SCIENTIFIC AMERICAN they should be careful to give the name of the Post-office, County, and State to which they wish the paper sent. And when they change their residence, and wish their paper changed accordingly, they should state the name of the Post-office where they have been receiving it, and that where they wish it sent in future.

MUNN & CO.
Publishers, No. 37 Park-row, New York.