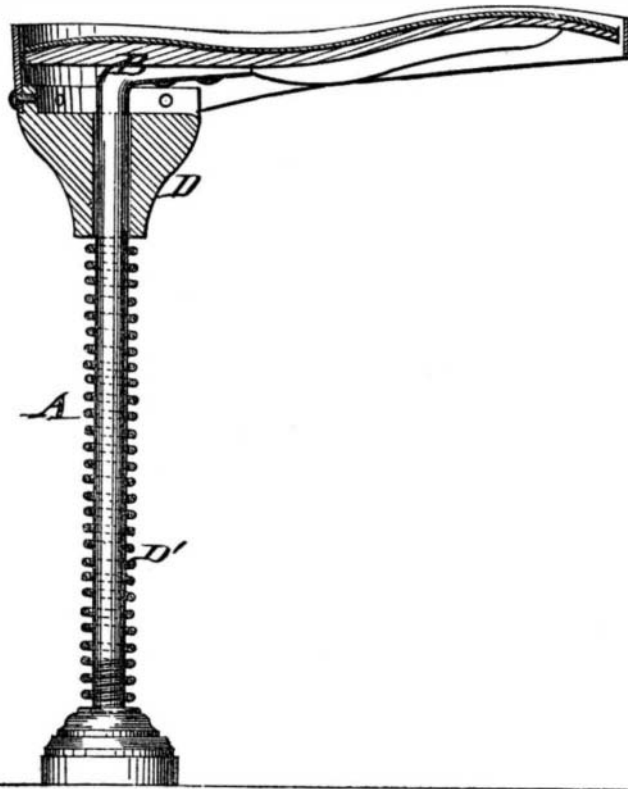


**IMPROVED APPARATUS FOR LINING INSOLES OF BOOTS.**

Mr. Charles Monahan, of St. John, N. B., proposes to apply the linings of boots and shoes in a quick and perfect manner by an improved machine, which we illustrate herewith.

There is an upright post, to the top part of which the last, B, is securely attached. A metallic guard, C, extends around the last, and is attached to a support, D, that slides on the upright stand. The support, D, and guard, C, are forced in upward direction, to project above the last, by a strong spiral spring, D'. The pasted lining is placed bottom upward on the last, and prevented from sticking to the boot by the guard, while the boot is drawn over the last. The guard is kept in position by its spring until the boot is in position to be pressed on the last. The boot forces the guard down, and presses the lining firmly on the insole of the sole, so that it sticks to the same in an even manner. The boot is then taken off, a new lining placed on the last, and the next boot brought down. This invention was patented through the Scientific American Patent Agency, July 4, 1876.

road of 47 miles is easy, there only being about two miles of up grade from the mines to Spanish Fork city. The rest of the way is down the cañon on an incline averaging 66 feet to the mile. The highest altitude on the road is the summit of the cañon, which is about 7,750 feet above the level of the



**APPARATUS FOR LINING INSOLES OF BOOTS.**

**Powder for Producing Ozone.**

"In order to produce artificial ozone, Mr. Lender makes use of equal parts of peroxide of manganese, permanganate of potassium, and oxalic acid. When this mixture is placed in contact with water, ozone is quickly generated. For a room of medium size, two teaspoonfuls of this powder, placed in a dish and occasionally diluted with water, would be sufficient. The ozone develops itself; it disinfects the surrounding air without producing cough."

The attention of the writer was called to the above article as it appeared in the Philadelphia Medical and Surgical Journal, under date of May 20, 1876. For the purpose intended, it is certainly one of the best of the published formulæ, but, on account of the danger attending its manipulation, should be used with extreme caution. A prescription with these proportions was taken to an apothecary, who inadvertently used a mortar in mixing it, with the result of an immediate explosion, which would have been attended with disastrous consequences except for the smallness of the quantity employed.

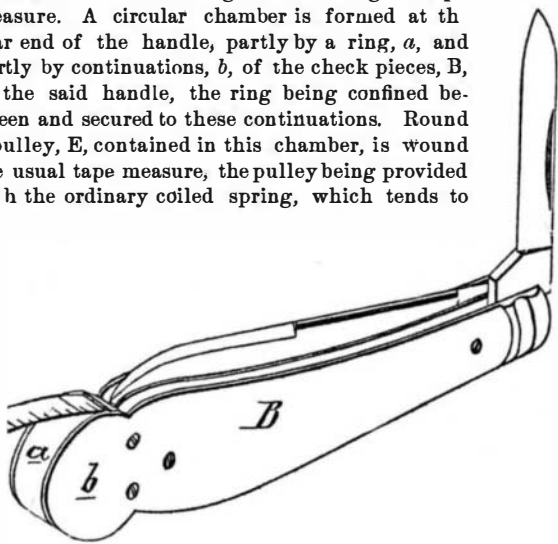
In mixing these ingredients, trituration should not be used at all, but they should be cautiously mixed with a spatula in small quantities; and even then, if they should have been reduced to a fine powder, they cannot be mixed without danger, as the mixture is liable to explode at the moment of contact.

Apothecaries who are not deficient in knowledge are sometimes deficient in caution, and articles published in reliable journals are copied and used without hesitation, and the compounder or dispenser is brought into unlooked-for and unexpected difficulties.

The above article is written solely with a view of placing druggists and physicians on their guard in using or dispensing a dangerous compound.—John L. Davis, in American Journal of Pharmacy.

**COMBINED KNIFE AND TAPE LINE.**

Mr. Glover S. Hastings, of Unionville, Conn., has patented (July 27, 1875), a combined pocket knife and tape measure, so constructed that the handle of the pocket knife is made available as a casing for containing the tape measure. A circular chamber is formed at the rear end of the handle, partly by a ring, a, and partly by continuations, b, of the check pieces, B, of the said handle, the ring being confined between and secured to these continuations. Round a pulley, E, contained in this chamber, is wound the usual tape measure, the pulley being provided with the ordinary coiled spring, which tends to



maintain the graduated tape within the chamber in a manner too well known to need description.

**New Coal Fields in Utah.**

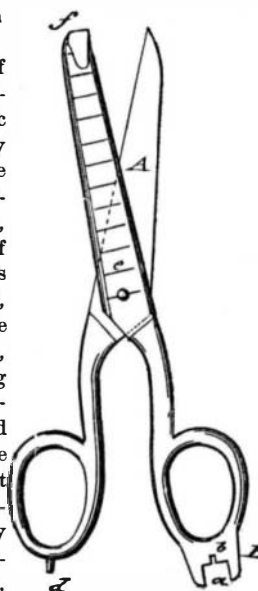
Professor J. E. Clayton has returned from an extended visit to the coal fields in Wasatch county, Utah, and gives us some interesting and valuable information in relation thereto: "The coal mines are the first of the extensive series that stretch south through San Pete county. They are situated in Pleasant Valley, and are reached by going 40 miles due east from Spanish Fork station up the cañon to the summit, and thence south seven miles to the south end of the valley, making a total distance of about 105 miles from Salt Lake city, 58 of which are by rail. The wagon

sea. Pleasant Valley is at the head waters of Price's river, which ultimately flows into the Colorado, and is about four or five miles long by two or three in width. At its lower end, numerous cañons put into the valley; and at the base of the hills around these, the coal shows in a semicircle west and east around the valley for six or eight miles. Two, and in some places three, beds show one above the other; the principal one, the Hutchings, being 32 feet in thickness and lying horizontally on the east side of the valley and trending to the south east. The region is cretaceous sandstone, and the Hutchings shows a foot wall of light gray sandstone with a yellowish gray sandstone roof. In the neighborhood is but very little shale, there being no shale seams whatever in the coal bed. No iron is visible, although higher up in the mountains is seen ferruginous sandstone, which, however, indicates nothing permanent. About one half of the bed of coal is of an excellent coking variety, the specimens we saw, though made in a primitive manner, being equal to the best imported. The coal beds are at an altitude of about 7,550 feet.

The surrounding hills have fine pine timber in sufficient quantity for local purposes, while an abundance of water is close by. Considerable importance can be attached to these coal fields for their accessibility, their great extent, and the coking qualities of their product.—Salt Lake Weekly Miner.

**NEW COMBINATION TOOL FOR SEWING MACHINES.**

We illustrate herewith an ingenious arrangement of all the tools, used in the care and adjustment of sewing machines, in a single implement. It is the invention of Clara A. Rogers, of New Orleans, La., and was patented through the Scientific American Patent Agency, July 11, 1876. The tools combined are a scissors, wrench, needle straightening device, throat plate mover, screwdriver, and measure. One of the handle parts of the scissors is provided with an extension, B, that has a square recess, a, for the purpose of serving as a wrench, the stocks of the scissors serving as handles. The recess, a, is further provided with a short and narrow slot, b, which serves for the purpose of straightening bent needles. The other scissors handle has an extension pin, d, by which the throat plate of the machine, whether of glass or metal, may be readily moved without the use of a separate tool. One or both stocks of the scissors may be graduated to form an inch or other measure, e, which is very handy, as the scissors are at any moment available; and the end of the broader stock is made tapering to form a screwdriver. The whole forms an exceedingly convenient and useful tool.



SILVER discoveries have been made in the vicinity of Arthur's Landing, on the north shore of Lake Superior, about 200 miles northeast of Duluth. A miner dropped down upon some crumbled quartz containing native silver. The rock is expected to yield \$3,500 or \$5,000 per ton

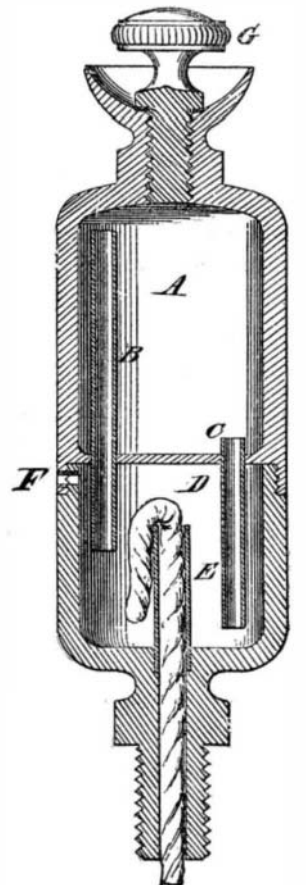
**What a British Centennial Judge Thinks of Us.**

The London Times, of August 14, gives unusual prominence to a letter written by an English judge at the Centennial, which the Philadelphia Ledger copies, and of which it also gives the substance in an editorial as follows. Captain Galton, the judge, says that he saw enough there to convince him that American manufactures had been making remarkable strides during the past twenty years. Captain Galton is one of the engineers appointed by the British Board of Trade to survey railways and other public works before they are opened for public traffic; and he was a British judge in the group of railway appliances, and immediately upon his return home he penned this letter. He had previously visited this country twenty years ago, and during the interval we all know that American manufacturing progress has been remarkable. He speaks of the great advance in our industries as shown by the growth in the amount of coal mined, and says that our higher wages, compared with England, are counterbalanced by the use of machinery to an extent much exceeding that generally in use in England. Observing the substitution of steel for iron rails on our railways, he candidly remarks that the new rails are almost all made in the United States, and that it is not probable that England will be called upon much longer to supply us with rails. He goes further, and, speaking of general manufactures, says England can no longer expect to get a market for her manufactures in the United States, but she must be prepared to find our manufacturers competing with her in every market to which they have access. Mr. Galton bluntly tells the Times that England should appreciate her true position in this matter, and he closes by urging all Englishmen to visit Philadelphia, where they can see the development of American industry, and meet the leading manufacturers as well as the most prominent Americans of all classes.

**A NEW OIL CUP.**

Mr. Ezra B. High, of Reading, Pa., has patented (July 4, 1876) through the Scientific American Patent Agency a novel improvement in oil cups, which we illustrate herewith. The object is to furnish a constant and uniform supply of oil to the bearing at all times. The cup is made in two parts, A, D, which are screwed together.

The upper part, or reservoir, A, receives a screw plug, G, so fitted as to be airtight. The lower part or distributing chamber, D, is made with a perforated screw stem, to be screwed into the journal or shaft box, and in the upper end of the perforation of which is secured a small tube, E, to receive the siphon wick by which the oil is carried to the journal to be lubricated. In the bottom of the reservoir, A, are secured two tubes, B, C. The upper end of the tube, B, rises nearly to the top of the reservoir, A, and its lower end extends down into the distributing chamber, D, so far as to be below the end of the tube, E. The upper end of the tube, C, rises a little above the bottom, a', of the reservoir, A, so that any sediment that may be in the oil will settle upon the bottom of said reservoir, and cannot flow through the tube, C, into the distributing chamber, D. The lower end of the tube, C, may be bent up into such a position that a plug may be inserted in it through the air hole or vent, F, to prevent the oil from flowing down through the tube, C, when the reservoir, A, is being filled. With this construction the oil will flow down through the tube, C, into the distributing chamber, D, until the lower end of the tube, A, is covered, which will prevent the entrance of any more air into the reservoir, A, and will stop the flow of the oil until enough oil has been carried out by the siphon wick to again uncover the lower end of the tube, B, and allow air to again pass up through the tube, B. In this way the oil will be kept at about the same level in the distributing chamber, D, so that the siphon wick may carry it out in a uniform quantity. Air, to supply the place of the distributed oil, enters through the vent, F.



As at present worked, the gold and silver mines of Japan do not appear to be of much value. Iron ore is abundant and the mines are rich. Magnetic ore in sand and lump is most commonly used. Lead is extracted in many provinces, but in a faulty manner and in small quantities. Some of the ores are very rich. Tin is reported to be found in two localities, and the quicksilver mines are not worked