

**NEW PROTRACTOR.**

A useful instrument for the use of draughtsmen and mechanics is represented in Figs. 1, 2, and 3 in the accompanying engraving. It may be employed as a protractor, triangle rule, centrolinead, bevel, rafter and brace scale, etc. It consists of two straight rules connected by a curved slide, so that they may be closed together or opened out on a straight line, so that any angle, up to one hundred and eighty degrees, can be laid off. The two straight rules, A B, have one edge beveled and graduated. The graduations run from the inner ends of the rules outward, and both rules are of the same length along their beveled edge.

A curved slide, C, which forms nearly three fourths of a circle, is secured to the rule, B, and has upon its face graduations suitable for the laying out of angles. The curved piece runs through a dovetailed opening in the rule, A, through which it moves freely. A curved guide, D, projects from the rule, A, for receiving the slide, C, and it has an opening through the top so that the graduations on the curved slide may be readily seen. At one side of the opening there is a scale corresponding to the scale on the curved slide. By means of these scales the two rules may be adjusted at any desired angle, and when so adjusted the slide, C, may be clamped by the binding screw, E.

The rule, A, has an apertured extension, F, which is designed to slide along a graduated rule or straight edge, and it has a point, G, one side of which is straight and forms a line with the inner end of the rule, B, and serves as an indicator to measure off distances on a rule when parallel lines are drawn at certain distances from each other. Address the patentee, Mr. F. L. Cook, Fairfield, Iowa.

**Arsenic.**

According to the London *Mining Journal* a great deal of poison can be had for a very little money in England. It says, a parcel of arsenic, about 10 tons in weight, was sold at South Wheal Crofty, recently, when the private buyer offered. £4 4s. 6d. per ton; the Cornwall Arsenic Company, £4 7s. 9d.; and the English Arsenic Company, £5 0s. 9d.; which is about 15s. per ton advance on previous prices.

**TRUE TIME REGULATOR.**

Ordinary clocks have been made to indicate only the mean time, according to which—were the velocity of the earth uniform—the sun should pass the meridian always at twelve o'clock. This would be the case if the sun were always in the extended equatorial plane; but the sun being in the plane of the ecliptic, and as the orbital velocity of the earth varies with different seasons, the time at which the sun really passes the meridian occurs sometimes before and sometimes after twelve o'clock at noon, with an irregularly increasing or decreasing variation, the greatest difference between the true solar time and mean time being about 16 minutes and 45 seconds.

It is impossible to indicate the true time by means of an ordinary clock, as it must be automatically regulated to run faster or slower, according to the diurnal difference between mean and true time.

The velocity of a clock being proportionate to the number of oscillations of the pendulum in a given time, and these being dependent on the length of the pendulum, it is obvious that the regulation of the clock may be accomplished by automatically changing the length of the pendulum of an accurate mean-time clock according to the equation of time.

The accompanying engraving represents a simple and ingenious device for effecting the required change in the length of the pendulum. It is the invention of Francisco José Martins, of the city of Para, Brazil. Fig. 1 is a rear view of a clock having the improvement applied. Fig. 2 represents the pendulum slide in detail, and Fig. 3 represents a section of the graduated disk.

The rear view, Fig. 1. of a clock of the usual construction, excepting that it has a disk, A, at the back, which is connected with the train, so that it is rotated once in four years. This disk has formed on its edge a series of cams which engage the slide, B, to which the pendulum spring is attached. The cams on the periphery of the disk, A, are so proportioned as to raise or lower the pendulum the proper

distance, and thus change its length for every moment of time, and the disk is divided into four year spaces, so as to include leap year, months, and days. The pendulum spring slides through a bifurcated stud, C, as it is raised or lowered by the action of the disk to compensate for the difference between mean and true time, and cause the clock to keep true time. It is believed by the inventor that this improvement will effect an entire revolution in clocks.

For further particulars concerning the invention address the inventor, P. O. Box 4,775, New York city.

**A Milk Test.**

It is difficult to find milk in this city pure enough to determine the experiment, but a German paper gives a very simple test for watered milk. A well polished knitting

To be practicable, it must be a part and parcel of the machine, and easily managed. Another desideratum is its price. It should not be so extravagant that it costs more than the sewing machine, else it will not become popular, even though fitting the requirements of the user.

**New Mechanical Inventions.**

Mr. Oliver S. Presbrey, of Port Henry, N. Y., is the inventor of an improved Apparatus which may be used for Hoisting Purposes in various situations, but is more particularly intended for use in mines and quarries, and in other situations where a number of drums are employed at the same time and for the same kind of work.

Mr. Thomas Camp, of Covington, Ga., has patented an improved Cotton Condenser, in which perforated rotating cylinders and suction fans are employed for removing dirt and other foreign substances from cotton as it is delivered from the gin; and rolls are combined with the cylinders for the purpose of condensing or compressing the fibers of the cotton, and thereby forming it into a continuous sheet or wad of nearly uniform thickness.

An improved Wrench has been patented by Mr. August Beck, of New York city. This invention consists in a split ring or friction strap, having at one side of the split an arm that is pivoted in a lever handle, and having at the other side of the split an inclined plane, which is acted on by a pin in a short double arm that projects from the lever handle. The split ring is fitted to any object which it is desired to turn, such as a drill stock, or a bushing adapted to the heads and nuts of bolts. A forward movement of the hand lever brings the pin into engagement with the inclined plane, and thus contracts the ring, when a further forward movement results in turning the object to which the split ring is fitted.

Mr. John S. Birch, of Orange, N. J., has patented an improved Wrench, which is simple and convenient. The jaws adjust themselves to the object to be turned, and are not liable to slip off. It will hold a nut after it has been screwed off, and it has several other points of advantage.

An improved Faucet has been patented by Mr. Eugene Duchamp, of St. Martinville, La. The invention consists in a cylindrical pipe having a valve seat and side nozzle, and through its side an inclined slot sided by a stop flange, in combination with a cylindrical slide valve having a handle projecting through the said slot, said handle being surrounded by an oval sliding and turning sleeve, which serves as a bolt to lock it against the said stop flange.

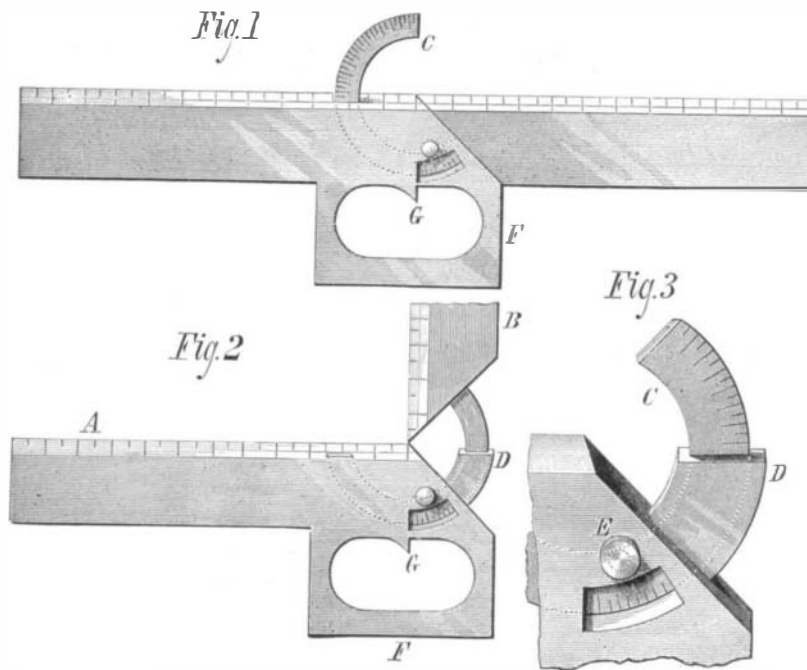
An improved Saw Sharpener has been patented by Mr. T. H. McCray, of Evansville, Ind. This is an improvement in the class of sawsharpening and gumming machines in which a small emery wheel is mounted adjustably upon a standard adapted to be clamped to the saw frame.

Mr. James M. Fate, of Webster City, Iowa, has patented an improved Bucket Pump that may be worked effectively with slow motion without any loss of power or leaking. It consists of a revolving reel, an endless chain made of connected and pivoted buckets, and a trough extending crosswise in the reel below the center of the same, for taking up and conducting off the water.

An improvement in Hoes has been patented by Mr. Joseph N. Parker, of Vineland, N. J. The object of this invention is to improve the common field and garden hoe so that, with little additional expense, its practical utility and value may be doubled without interfering in the least with the common working of the hoe. By a small addition to the hoe it may be used as a scraper, rake, or cutter for pulling out all large or fine weeds by the roots, or for cutting the weeds on the principle of a mowing machine knife, or sickle.

**Recent Inventions.**

An improvement in Photo-Mechanical Printing has been patented by Mr. Johann Baptist Obernetter, of Munich, Bavaria. This invention has reference to an improvement in the art or process of preparing photographic plates for printing by mechanical means with common lithographic inks and presses, so that transparent or non transparent plates may be employed, and in the prints the half tones

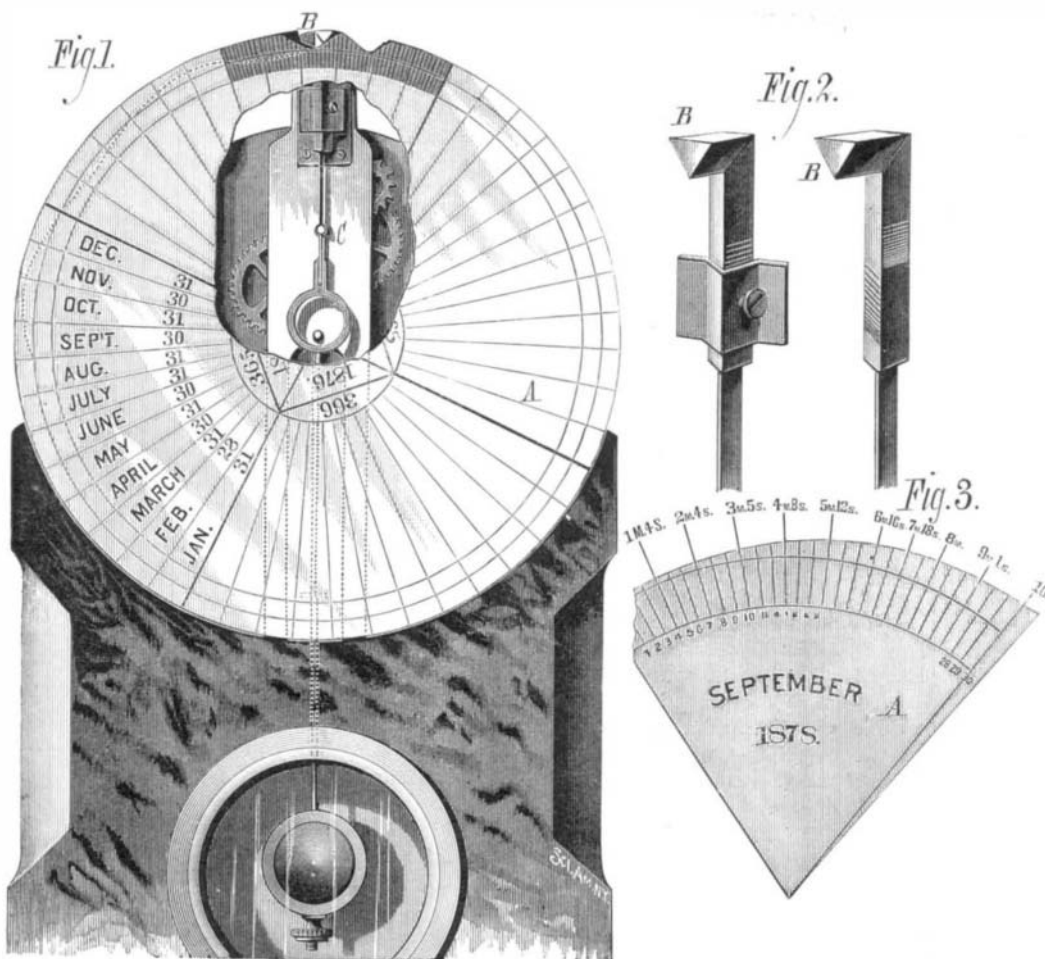


**COOK'S PROTRACTOR.**

needle is dipped into a deep vessel of milk, and immediately withdrawn in an upright position. If the sample is pure, some of the fluid will hang to the needle; but if water has been added to the milk, even in small proportions, the fluid will not adhere to the needle.

**The Want of a Sewing Machine Motor.**

The *Sewing Machine Journal* says that a practical motor for driving sewing machines is the article most wanted. Not a week passes, says the editor, that we do not have one or more inquiries for a motive power that can be applied to the family sewing machine. The last we had was from St.



**MARTINS' TRUE TIME REGULATOR.**

Petersburg, Russia, while about the same time came the inquiry from Mexico. We have heard of some motors that promised wonders; but they have died out, and are forgotten. Then there is the water motor, electricity, and steam—in a small way—all of which have their objections.