

A COMBINATION DEVICE FOR THE POCKET.

In the accompanying illustration is represented a device, in form resembling a fountain pen, but containing a variety of useful articles besides the ordinary pen and pencil. It has been patented by Fred. W. Bacho, of No. 53 Conti Street, Mobile, Ala. The pencil and penholder slide in and out of the tubular body in the usual way, and a rotary spindle carries a tape extending through a slot, the tape having on it a calendar, foot measure, reference tables, and advertising matter if desired, both sides of the tape being thus utilized. A reversible rubber eraser is held in the outer end of the device, and near this end of the body portion are longitudinal pockets in which may be carried a tooth pick, ear cleaner and nail cleaner, as shown in the small figures. Reversibly fitted to the other end of the device by means of a coupling collar is a block having a whistle at one end and a knife at the other end. All the parts are so assembled that they can be readily placed in position for use, and in practice the whole device need be only about the size of an ordinary fountain pen.



BACHO'S "POCKET COMPANION."

regard to the number and length of cogwheel railways, stating that 70 lines have been built since 1812, and that of these, 17 are in Switzerland, 14 in Germany, 12 in Austria-Hungary, 4 in France, and 3 in Italy, the others being in England, Spain, Greece, Portugal, the United States, South America, Asia and Australia. The total length of these lines is 500 miles, of which 188 are on the Abt system. These lines are worked by 300 locomotives, the heaviest of which weighs 70 tons.

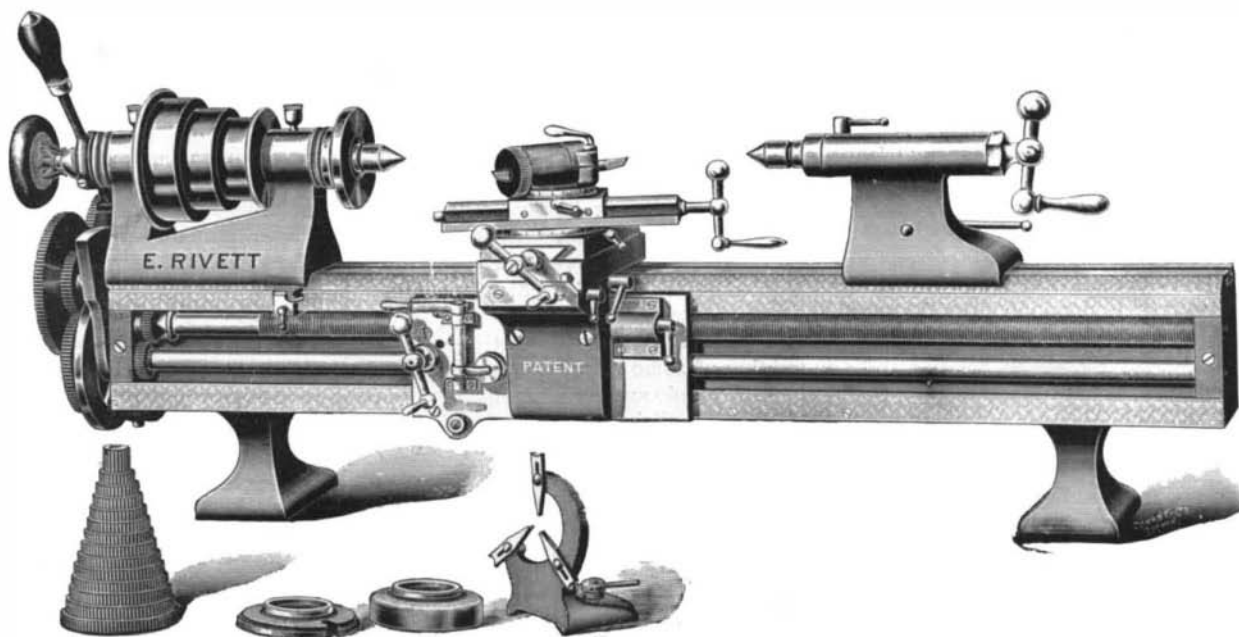
THE RIVETT LATHE.

Nothing delights the heart of the true mechanic more than the examination of a perfect lathe, unless, indeed, it may be the actual possession of one. There are other machines more wonderful, and capable of performing intricate work, and imitating manual operations with remarkable fidelity and great rapidity. But for the lathe, such machines could not exist. The lathe may, therefore, be regarded as the progenitor of all machines. Having a perfect lathe, the machinist can produce anything required in the line of machinery or tools.

As every skilled mechanic knows, there is a vast difference in lathes. Some machines of that name are scarcely suitable for drilling a hole, while others are adapted to the very finest work.

A lathe of the latter class is here illustrated. It is known as the Rivett precision lathe, made by the Faneuil Watch Tool Company, of 474 Washington St., Boston, Mass., under patents of Edward Rivett. This lathe is designed for engineers, tool makers, scientists, electricians, machinists, and model makers.

It was built in response to the demand for an absolutely accurate lathe of small size, but capable of heavy work and having all the conveniences of the larger engine lathes,



EIGHT INCH PRECISION LATHE.

and these points have been faithfully carried out, and various advantages found on no other lathe have been secured. The lathe has automatic long and cross feed, with compound rest, rotary tool post, which is graduated, as are all the other rotary parts, and is furnished with an eccentric elevating device for the tool holder. The carriage has an automatic release from feed, and the compound slide rest is detachable from the carriage by the simple movement of one lever, leaving the carriage free to support the various attachments which may be used upon it.

The tools used in this lathe are made from round steel, and fit the tool post closely, enabling tools to be removed from the post, ground and replaced in precisely the same position with regard to the work that they originally occupied.

The lathe bed is very heavy, with the V's on the side, removed from chips and dirt, and the feed rod and lead screw are likewise on the side between the V's and also protected.

The slide rest is made to attach to a revolving tail stock for milling cutters and work of this description, the form to be milled being held in the tool post, the working cutter being rigidly and steadily held in the live spindle.

The traverse miller consists of a heavily built milling head mounted in a turret and fitting on the lathe carriage, being there secured by the simple lever movement characteristic of all the lathe parts, and when so mounted the lathe becomes a milling machine for all descriptions of tap, reamer, grooving, channeling and fluting work, cutting keyways as fine as a cutter can be made to stand the wear, or up to the size of a three inch shaft.

The turret raises and lowers the spindle, and also swings to any angle, enabling spiral work to be done with great facility.

A slotting attachment, consisting of a small shaper head, is mounted on the cross slide of the lathe. It is very useful to all mechanics having small internal slotting, keyseating and work of this description to do. With this attachment any keyway may be put in a hole, from three inches to the smallest, in a very short time, the time depending upon the kind of metal being worked.

The lathe is also furnished attachments by which it is converted into a screw machine of the first order, having the latest and best drawing-in bar, diamond ground split chucks, six hole turret, cut-off and forming slide, and all that is found in the regular commercial screw machines.

There is also a taper screw cutting attachment, by which any taper may be turned and threaded, up to an angle of sixty degrees. This taper attachment uses the same change gears as the regular lead screw of the lathe.

Besides the above, the lathe is fitted with a grinder for internal and external grinding and diamond lapping, and a traverse grinder to grind up reamers from the traverse milling head following the work of the traverse milling cutter.

Accuracy has been the aim of Mr. Rivett. The lathe is finished in all parts with the most scrupulous care, the work of the scraper and diamond being everywhere shown. The bearings are of hardened steel. All surfaces and fittings are polished and scraped, no paint being used.

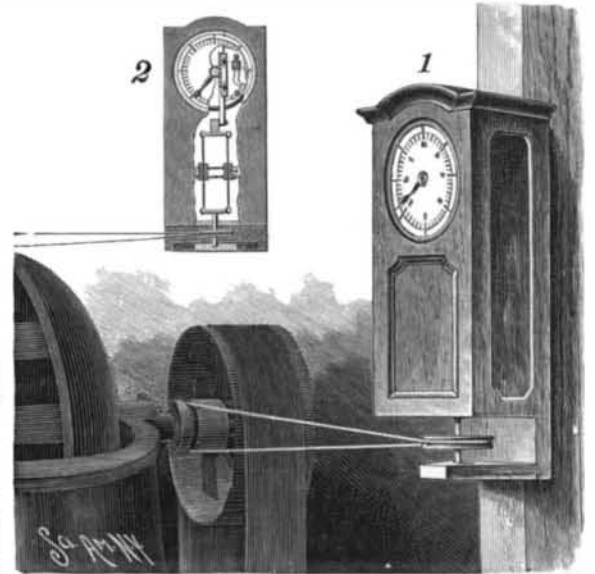
Printed Copies of Patents.

Early this month the House of Representatives passed a bill (House bill No. 6,195) which is intended to reduce the highest price the Commissioner of Patents may ask for printed copies of patents from fifty cents to ten cents. Should the bill become a law as expected, the cost of copies of patents will be very much less than formerly. Such a result is greatly to be desired, inasmuch as it will enable attorneys or inventors, in

making investigations, to secure a large number of copies in given lines at moderate cost, and at the same time help reduce the great stock of printed copies on hand in the Patent Office. How fast copies accumulate there can be imagined when it is stated that on the average one hundred and two copies of each patent are printed. Regarding the probable effect of the bill the Commissioner of patents thinks that it will take out of the office a considerable amount of material which might better be in the hands of the public, since much useful information would thereby be disseminated as regards the industrial arts, while the receipts of the government from this source are likely to be materially increased.

A NEW SPEED MEASURE AND ALARM.

A means of indicating the speed of a desired revolving part, and sounding an alarm when an excessive speed is reached, is shown in the engraving, and has been patented by Gustavus E. Kastengren, of No. 400 Bay Street, San Francisco, Cal. It is designed for vessels, cars, and other vehicles, as well as engines, dynamos and machinery, and has also been adapted for marine use, on both steam and sailing vessels. Fig. 1 illustrates the application of the improvement, Fig. 2 being a front elevation, partly in section. On



KASTENGREN'S SPEED MEASURE AND ALARM.

the upper end of a short shaft connected by belt with the revolving part whose speed is to be indicated is a cross piece forming part of a weight governor, the cross piece being pivotally connected at its ends by two spring bands with the ends of an upper arm, rotating loosely on a pivot pin on the lower end of a rack sliding in bearings in the casing. Weights are adjustably held by set screws on the spring bands, opposite weights being connected by coiled springs, and as the weights are moved outward by centrifugal force when the governor is actuated the rack is pulled downward, moving a pinion in mesh with it on a shaft carrying a pointer indicating on a graduated dial. On the shaft is also a second indicating wheel, serving likewise as a fly wheel, this wheel being marked on its peripheral surface, and its graduations being read through a glass in the top of the casing. An adjustable bar on the rack is adapted to move in contact with a spring by which, when excessive speed is attained by the revolving part, a lever will be swung to make contact with contact plates connecting a battery with an alarm, whereby an alarm will be sounded. In adapting the device for marine use, a screw propeller such as is used in connection with the patent log may be connected by a practically non-torsional metallic cord to the governor, when the rate of speed will be constantly indicated.

Otto of Rose Industry.

In 1890 the rose plantations in Eastern Roumelia covered an area of 2,698 hectares, or 6,664 acres, the yield in that year being 4,167 kilos. of otto, or only about 3¼ pounds per acre. The existence of the plantations seems to be compromised by the fall which the prices of the essence are yearly experiencing. The majority of the growers are so much discouraged with it that some of them intend to retire from the industry altogether.