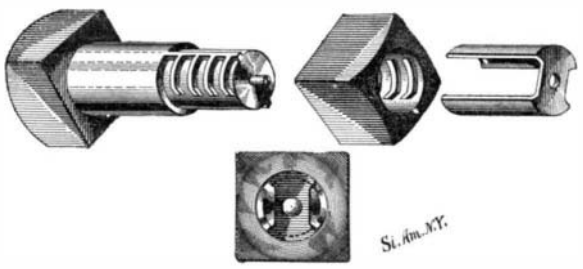
# Patent Department

### A NOVEL NUT-LOCK.

A bolt and nut which differ radically from the ordinary type are shown in the accompanying illustration. Instead of being threaded in the usual manner, the bolt and nut are provided with projections or ribs of



NEW TYPE OF NUT-LOCK.

such shape that the nut may be slipped on to the bolt without turning, and then tightly wedged in place by a quarter turn. The ribs as shown in the illustration are arranged parallel in groups or series on opposite sides of the bolt and nut, and extend over only a portion of their circumferences. When the nut is slipped on, its two series of ribs pass between the series of ribs on the bolt. It will be observed that the ends of the ribs on the bolt bend toward the right, and those on the nut have a bend in the other direction, so that when the nut has been forced home and given a turn to the right, the ribs will engage each other, and due to their bent form will wedge the nut tightly in place. When in this position a key-piece such as shown at the right in the illustration is slipped in between the nut and the shank of the bolt, so that its two parallel arms fit into the space on the bolt between the series of ribs, and prevent the ribs from turning out of their interlocked relation. A small pin projects from the end of the bolt. This passes through an opening in the end of the key-piece, and may be flattened or hammered to form a rivet-like head, thus holding the key in place. A patent for this invention has been obtained by Mr. Thomas McCabe, Jr., of 105 Fourth Avenue, Homestead, Pa.

### IMPROVED PACKING RING.

The ordinary packing ring is dependent entirely upon its elasticity to so tightly engage the wall of a piston or valve cylinder as to resist lateral pressure of the steam. Obviously, any construction which would assist this elastic pressure of the packing material, and make its engagement with the cylinder wall more positive, would be an important and useful improvement. Such a construction may be seen in the accompanying illustration, and a patent for this invention has been granted to Mr. Thomas F. Meehan, 729 Quincy Street, Brooklyn, N. Y.

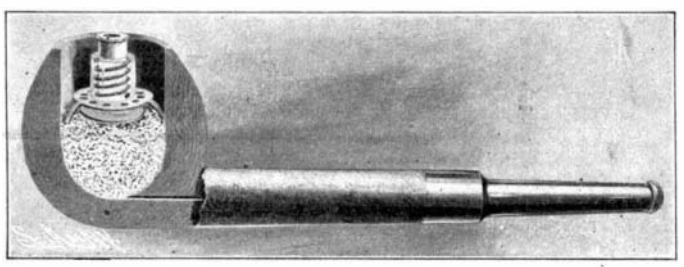
The improvement lies in the provision of annular flanges on the packing rings. These flanges are inclined, and form abutments for steam passing through inclined ports in the ends of the piston. In operation during the piston movement, steam will enter through these ports, and impinging upon the inclined flanges will force the rings out tightly against the cylinder. The rings are preferably used in pairs, one of which is provided with an annular groove or channel, into which an annular rib on the other ring fits. By means of this interlocking connection, the two rings are caused to move as one. In our illustration the figure at the left shows the improved packing ring as applied to a piston of the high-pressure type. It will be observed that the only change in the piston required for fitting on the improved packing ring, is to turn off the edge of the piston flange and the follower ring to an angle corresponding with that of the packing-ring flange, and to bore the necessary steam ports. The figure at the right shows a piston of ordinary type fitted with a double packing, and also a piston valve similarly fitted. The small amount of work necessary on the piston, bull ring, and follower ring to adapt them to the improved form of packing ring will be apparent at a glance. The fact that the new type of packing ring can be so easily applied to an old piston is an important point in its favor.

### Paper File and Index.

A new type of filing cabinet, which is operated by means of index keys, has recently been invented by Thomas J. Johnson, of Norman, Oklahoma Territory. The cabinet drawer is divided into compartments by wire partitions, which are connected with the index keys in such manner that on depression of one of the keys, the partitions of the corresponding compartment will be spread open to permit of readily filing a paper or removing it from the drawer. The papers are all filed on edge. When one compartment is opened, this operation closes the adjoining ones, and effectually prevents erroneous filing. The invention is particularly applicable to the filing of bank checks, a small file being used for distributing checks as these are paid, and a cabinet being provided for filing them away until the pass books are presented for a balance. The file will also be found very useful in many other ways. It is very compact, and requires comparatively little vault room. It may be easily manipulated; the operation is novel and catchy, and its time-saving advantages will be readily appreciated.

### TOBACCO TAMPER AND COVER FOR TOBACCO PIPE.

A recent invention upon which a patent has been obtained by Mr. Joseph S. von Neida, of Sharon Hill, Pa., provides a simple device applicable to a tobacco pipe to prevent the tobacco from flying out of the pipe. It also comprises a movable part, which may be pressed downward with the finger to tamp the tobacco from time to time, so as to keep it burning. The construction of the device and its operation will be understood by a glance at the accompanying illustration. It consists of a perforated disk provided with outwardly-extending spring arms adapted to engage the side walls of the pipe bowl to hold the disk in position. Rising from the center of the disk is a cylinder, and in this a tube is mounted to slide. At the bottom of the tube the tamping disk is secured, and this is normally held in its upper position by a spiral spring in the cylinder which acts on the tube. By pressing down on the top of the tube the tamper disk will be forced down to compress the tobacco, or

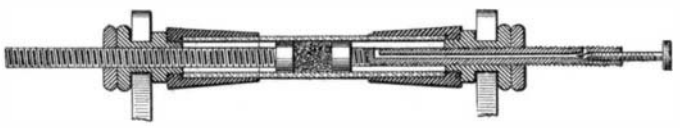


CONVENIENT PIPE-COVER AND TOBACCO TAMPER.

the whole device may be moved down slightly, accommodating itself to the decreasing amount of tobacco as it burns away. The principal advantages of this invention are the fact that the device is very compact and so small that it can be easily carried in the vest pocket, or preferably within the bowl of the pipe when the pipe is not being used, and also that it affords not only a cover to protect the tobacco while burning, but also a convenient means for pressing down the tobacco, which is usually accomplished by the bare finger of the one using the pipe.

### AN IMPROVED CONSTRUCTION FOR COHERERS.

The coherer which is herewith illustrated does not differ in principle or operation from the ordinary instrument used in wireless telegraphy, but in its construction and general arrangement it offers a number of very important improvements. The construction may be described as follows: A glass tube is provided at the ends with hard-rubber caps cemented thereto. Contact terminals are threaded into these caps, and form bearings for the stems of the electrodes, which are screwed into the threaded bores of the contact terminals and secured by lock-nuts. The stem of one of the electrodes is provided with a central channel running longitudinally thereto, and opening at its inner end into the interior of the glass tube. At the outer end of the channel an opening is provided, through which air in the tube may be

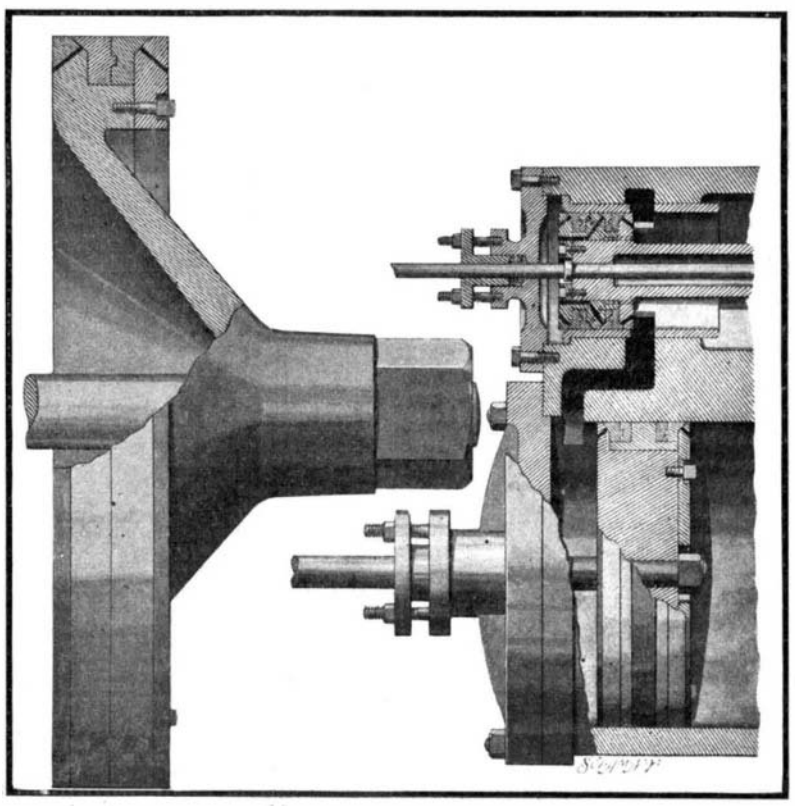


IMPROVED CONSTRUCTION FOR COHERERS.

pumped out to form the necessary vacuum. This opening may be closed by a needle valve screwed into the end of the stem. The contact terminals of the coherer are provided with flat sides, so as to be readily slipped into the contact jaws which form its support. The jaws at opposite ends of the coherer are insulated from each other, and are electrically connected with separate aerials. In operation the usual effect is produced, namely, the Hertzian waves cohere the filings between the electrodes, opening a path for the current of a local circuit which operates the telephone or telegraph. The filings are decohered by a tapper acting on the head of the needle-valve screw.

The principal advantages of the construction are that the air may be easily exhausted from the coherer and the coherer sealed, and that by means of the adjustable feature of the electrodes the coherer may be regulated according to tension and volume of the impulses. By reason of the contact jaws adapted to receive between them the contact terminals of the electrodes, a coherer may be readily slipped into these jaws to place it in circuit, and quickly and easily removed without detaching any of the conductors, thus making it possible to change the coherer while a signal is being received without losing any material part of the message. A patent upon this invention has been granted to Mr. Thomas E. Clark, of 67 to 71 Michigan Avenue, Detroit, Mich.

The United States Postal Department in considering the subject of formally indorsing the nickel-in-the-slot machine by adopting such a device for regular use in the forwarding of special letters. The invention is that of M. B. Mills, of Chicago, Ill., and it is meant to answer the demands of persons who desire to send a special delivery letter and who have not the necessary stamp and who do not want to go to the inconvenience of paying a visit to the post office. It is designed that the slot machines shall be placed in the hotels and public places in the business center of a city, and anyone desiring to make use of the machine has only to drop the coin in the slot, and this operation unlocks a door which permits the letter to be placed inside. As the door is closed the letter receives an impression which tells the number and location of the box and such other information as the postal authorities may have use for. Means are provided to prevent the perpetration of fraud, such as putting in two letters with one dime and depositing counterfeit coins or blanks similar to the coins in weight and shape. The coins fall into a receptacle in the order in which the letters are placed, and there will be no difficulty in determining which particular coin was deposited with each letter. In case two letters are inserted in the box when only one dime has been deposited, only one envelope will receive the impression. These boxes are about to be placed in the city of Washington, D. C., and their operation will be watched with interest by the postal authorities. If they seem to answer the purpose for which they are designed, they will be scattered around all the larger cities of the country.



A STEAM-PRESSED PACKING RING.

The shops of the Allis-Chalmers Company at West Allis, Wis., will be greatly enlarged to make provision for the manufacture of a new engine, making use of the gas generated in blast furnaces, the patent rights for which were recently acquired by the company. Edwin Reynolds, the consulting engineer of the company, says that the invention is a very important one, and while more room is required to turn out these new engines, there will be no need for new special machinery.