

COMBINED LOCK AND REVERSIBLE LATCH.

The engraving shows an improved reversible lock of simple and novel construction, adapted to a wide field of combinations and changes. It is small and compact in form, and arranged by a peculiar method of operation to be practically non-pickable.

Fig. 1 is a plan view with the top plate or cover taken off. Fig. 2 is a plan view, with the tumblers, wards, and the slotted or toothed plates removed. Fig. 3 shows the tumblers and wards.

The case or frame, A, in which the lock mechanism is inclosed, is provided with a removable top or plate. The door bolt, B, serves the twofold purpose of bolt and door latch, its yoke-shaped shank, B', extending beyond the hub, C, through which the knob spindle passes, and having its inner walls provided with projecting abutments, with which lugs, formed, on the hub, C, engage, operating, when the hub is turned, to reciprocate the door bolt, B, and lock or unlock the door.

A spring-pressed dog bolt, D, is secured by pivot to a block, C', attached to the bottom plate of the case frame, the dog bolt being operated by the rotating tumblers to engage the abutment, d', situated in the forward portion of the yoke shank, and lock the door bolt, each of the rotating tumblers being provided with a cam face, which, when simultaneously presented to the lower face of the dog bolt, will allow it to drop and release its engagement with abutment, d', and unlock the door bolt. A spiral spring presses the toe or point of the dog bolt down upon the tumblers. A spiral spring, interposed between the rear face of the door bolt and a thin bearing plate held between two flanges formed in the forward portion of the socket block, F, has the twofold function of throwing the locking bolt forward when it has been withdrawn, and of holding the toothed plate, E', which is fitted in a vertical slot in the socket block in engagement with the tumblers, G.

The tumblers, G, are, in this instance, provided with two peripheral slots at points directly opposite each other, the slots engaging with the spring-pressed toothed plate, E', and having one or more cam faces with which the toe or point of the dog bolt, D, engages, each tumbler being also perforated for the reception of the lock key, K. Between these tumblers, which in this combination are arranged in pairs, a series of twin wards are interposed, which are called the right and left hand wards, according to their position. These wards, I I' (shown in the detail views), are each provided with an outwardly projecting arm. These tumblers and wards may be easily disposed in a variety of different arrangements and combinations, and arranged to fit several different keys accompanying each lock, each of which is adapted to fit the lock in one of its different combinations. The owner thereof may, therefore, by removing the cover or plate of the lock and redispersing the wards and tumblers to act with the different keys, have in effect several locks; or in the event of losing a key he may change the combination to another key, and obtain a lock which the lost key will not open, without the trouble and expense of buying a new lock or getting a new key made.

The key, after being inserted in the key hole, slips easily by the first pair of tumblers, and its further progress is arrested by the projecting left-hand ward. However, by exerting a slight pressure the wedge-shaped point of the key will operate to force the ward back by overcoming the tension of the spring, which presses the toothed plate, E', in engagement with the tumblers and allows the key to pass the next pair of tumblers, the next obstructing ward being forced back in the same manner as the first, and so on through the series, the tension of all of the wards being removed when any one has been moved back. As before described, the laterally projecting arm of the left-hand ward, I, is received in and extends to the bottom of a slot in the toothed plate, E', which latter has engagement with the peripheral slots of the tumblers. It will therefore happen that when the ward is forced inwardly by the ribbed key it will overcome the tensional force of the spring and carry the tooth plate back flush, and thus release its engagement with the slots in the tumblers, which may now be rotated to the right or left, to present the cam faces of the tumblers to the dog bolt, D, allowing it to fall and release its engagement with the abutment, d'.

This lock was recently patented by Mr. E. A. Kimball, of Champaign, Ill.

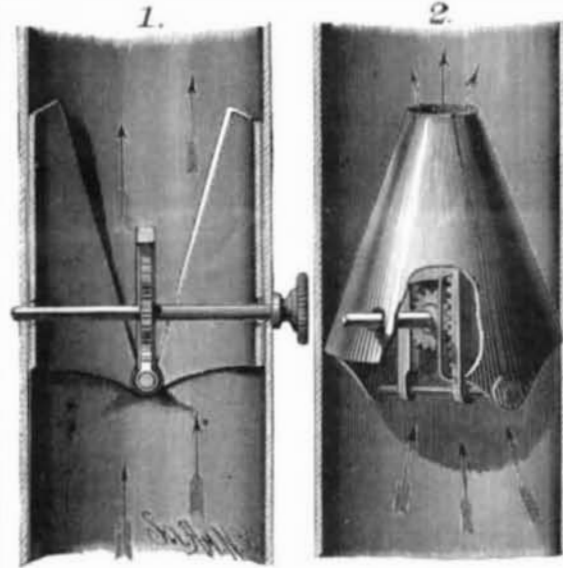
Ultramarine Papers.

According to a writer in the *Pharmaceutische Zeitung* a room covered with a paper in which ultramarine has been largely used was found to have an unpleasant odor of sulphureted hydrogen, the source of which long escaped detection. It was ultimately found that the ultramarine in the design was being gradually decomposed by the alum forming an ingredient in the paperhanger's paste. Leaving on

one side the possible injury to the health of the inmates, the tarnishing of silver, brass, etc., a design in which ultramarine occurs, bears the germs of its own destruction. If any chrome yellows, lead whites, etc., are present, they will be blackened just in proportion as the ultramarine fades. Of course all white lead paints, or indeed other colors into which lead enters, will turn grim at the same time.

IMPROVED DAMPER.

The engraving shows an improved damper for stoves and furnaces, recently patented by Mr. Nathan Picot, of 986 Lorain street, Cleveland, Ohio. It consists of a truncated



PICOT'S DAMPER FOR STOVES AND FURNACES.

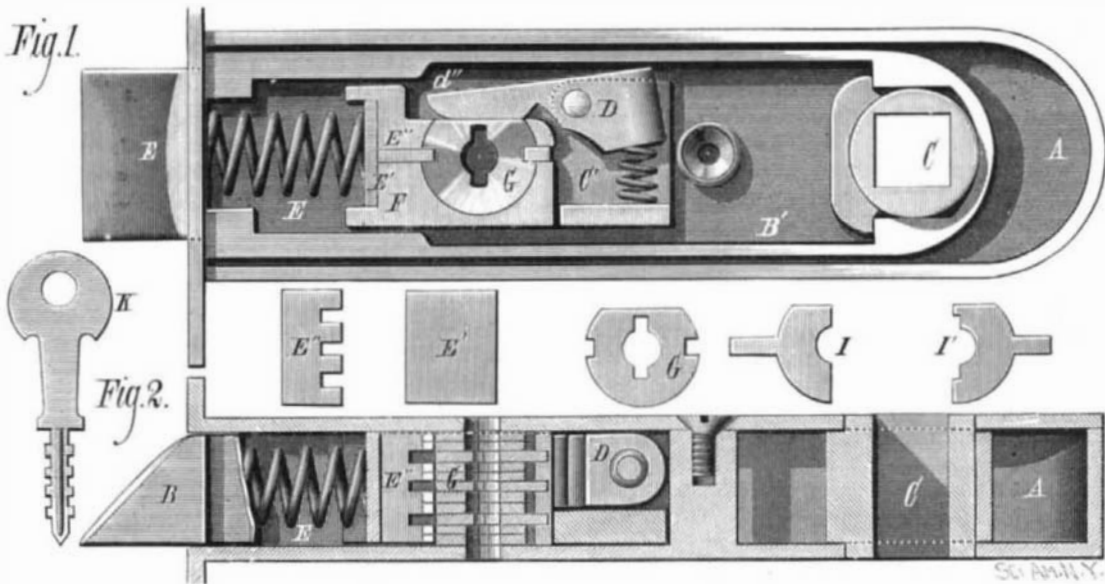
hollow cone divided vertically and hinged together upon a rod which extends across its base. This rod carries a rack, also a guide for a pinion placed on a spindle extending transversely through the cone above the rod referred to and at right angles to it. This spindle extends through the stove pipe, and is provided with a knob or wheel by which it may be turned. By turning the knob in one direction the rack and rod are thrown down, closing the two parts of the cone together, as shown in Figure 1. By turning the knob in the opposite direction, the two halves of the cone are thrown apart, as shown in Figure 2.

The inventor claims that this damper effects a saving of a large percentage of fuel; that it is impossible to close it so as to cause gas to escape from the stove; and that it affords a complete control over the fire.

One Million Lines to the Inch.

Mr. G. Fasoldt says, in a letter to the *American Journal of Microscopy*:

I have ruled plates up to 1,000,000 lines to the inch, one



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of which was purchased by the United States Government at Washington.

These plates show lines truly and fairly ruled, as far as lenses are able to resolve, and above this point the spectral appearance of the bands in regular succeeding colors (when examined as an opaque object) shows, beyond doubt, that each band contains fairly ruled lines up to the 1,000,000 band.

I do not believe that I will ever attempt to rule higher than 1,000,000 lines per inch, as from my practical experience and judgment, I have concluded that that is the limit of ruling.

RECENT INVENTIONS.

Printers of book, news, and jobwork of any kind will do well to examine the very simple and efficient galley foot lock patented by Mr. William J. Adams, of Philadelphia, Pa. This device consists of two parts, one of which is a right angular bar, having a long arm which extends across the bed of the galley, and a short arm which lies flat against the galley side and is tapered on its inner face. The long

arm of this bar is preferably made extensible to adapt the lock to different widths of galley. The other part of the device is a sliding clamp recessed on its under side and constructed to hug the side piece of the galley and the tapering arm of the bar, upon which it exerts a wedging action, so as to lock the said bar and the foot of the column of type rigidly in place.

Mr. Charles L. Work, of Freeland, Ohio, has patented an improved pillow sham. The invention consists of a pillow sham made of *papier mâché*, or other suitable stiff material, in the form of a pillow with an opening in its back for the insertion of an ordinary pillow. A pillow sham thus constructed is not only cheap, but will keep its shape, and is capable of holding large and small pillows with equal facility.

A coffee cleaner, which would appear to thoroughly perform its work, has been patented by Mr. Abram Wakeman, Jr., of New York city. The object of this invention is to facilitate the removal of dust and other impurities from coffee berries. The invention consists in a combination of two oppositely revolving cylinders, the outer one having spikes and longitudinal ribs on the inside, and the inner cylinder being provided with spikes on the outside, whereby the berries may be introduced between the cylinders, carried up by the ribs, dropped on the spikes of the inner cylinder, and thence thrown against the spikes of the outer cylinder. The berries thus pass back and forth between the spiked shells of the two cylinders, and, by their rubbing against each other and the spikes, have all the dirt rubbed, scraped, and knocked off them before reaching their place of discharge.

An improvement in sofas and lounges having their head or end portions adjustable into different positions, which comprises a very simple and durable adjusting mechanism, has been patented by Mr. Theodore Hofstatter, Jr., of New York city. It consists in a combination with the adjustable head or end of the sofa or lounge, adapted to swing on the main frame, of end-bent latch bars, fulcrumed on the side pieces of said head or end, and made to engage by springs with curved racks on the side rails of the main frame, to hold the head or end in position. These latch bars are released from the racks, when it is required to adjust the head or end, by turning a shaft having cams which act upon the latch bars.

An improved clothes rack has been patented by Mr. William J. McCallen, of Bradford, Pa. The object of the invention is to provide a new and improved device on which a large quantity of clothes can be suspended in a very small space. The invention consists in a series of wires or lines secured to blocks sliding on wires attached to the base of a frame and passing over a roller to the ends of arms of this frame. These blocks are attached to ropes or cords passing over suitable pulleys, and also attached to a ratchet drum, whereby the lines or wires can be raised or lowered, as may be necessary. A clothes drier thus constructed meets all the requirements for which it is designed, and may be made either portable or stationary.

Mr. William H. Jenkins, of Girard, Ill., has patented an improved reach for carriages. In this improvement the reach is fitted with an enlarged metal head, and is fitted to turn within a shouldered metal sleeve secured to the rocker and the axle, said head engaging with the shoulder in the sleeve to unite the reach with the axle. By this construction the axles of a wagon or carriage are free to move up and down when the vehicle is moving over irregularities in the road, without bending the braces or subjecting the reach to tortuous strain and exposing it to breakage.

A very simple and serviceable faucet has been patented by Mr. Thomas J. Loftus, of Sacramento, Cal. The object of the invention is to provide a new and improved combined bung and faucet which

does not project any further from the barrel than any ordinary bung, and is ready for use at all times. The invention consists of a hollow plunger having a threaded front end, and fitting into a tube closed in the rear and which is screwed into the bung-hole. This tube is provided with a series of apertures in its sides, through which the liquids or gases pass into the tube and from thence through the hollow plunger, when the latter is drawn outward, but which apertures are closed by the plunger when it is pushed inward, and secured by slightly screwing it into the tube.

Mr. Charles W. Black, of Cuyahoga Falls, Ohio, has patented a very simple and useful wire stretcher. The invention consists in a novel means for stretching wires, such as are used for farm fences, the same comprising a frame provided with devices for holding it in position on a fence post, and constructed to carry a windlass, which, by the aid of a rope and clamp, serves to stretch the wire taut. Said frame may also be provided with a cam and serrated button for retaining the wire while a second hold is taken with the rope, in case the first operation does not tighten the wire sufficiently.