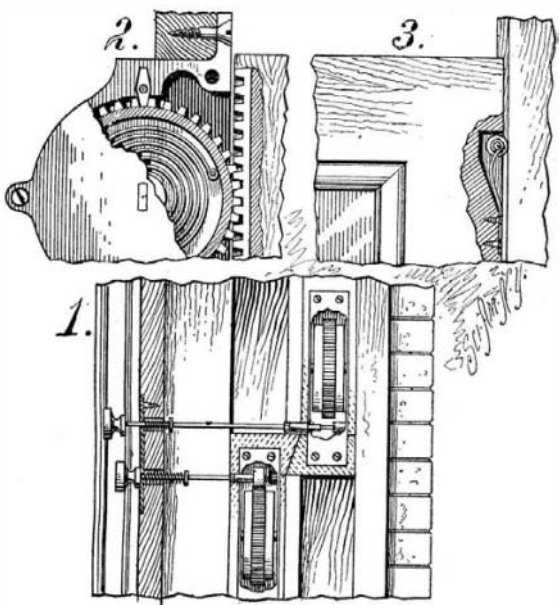


AN IMPROVED WINDOW RAISING AND LOCKING DEVICE.

An ingenious window raising and locking device has been recently invented by Mr. Archibald Nesbett of the Fuller Construction Company, of New York, and Mr. Frans Bruno, of Brooklyn, which possesses all the merits of the several parts heretofore necessary to operate the sash in double-hung windows, besides being more economical. The device combines in itself that of sash weights, chain, pulleys, locks and lifts, and does away with the necessity for box frames with weight pockets. It can be attached in a fraction of the time usually required to hang a pair of sash, and is very simple and efficient in operation.

It is often desirable to lock a window sash open sufficient to permit ventilation, and yet be secure from intrusion of burglars and sneak thieves. This can be accomplished with this device, as it provides for absolutely locking either or both sash in any desired position.

The accompanying engraving illustrates the mechanism of the invention. In the pulley stile of the window is a drum, very similar to that of an ordinary pulley, which incloses a coil spring, one end of which is attached to a fixed shaft on which the drum revolves; the other end is secured to the drum. The drum is provided with gear teeth which engage a rack in the sash, as shown in Fig. 2. This is applied to both sash, and when a sash is moved to a closed



AN IMPROVED WINDOW RAISING AND LOCKING DEVICE.

position, it winds up the spring and is held in position with the lock; when the lock is released the sash automatically raises. To lock the sashes, a key is provided for each sash; this operates the lock which fits between the teeth in the drum and is held in a locking position by a spiral spring, but it may be withdrawn and by half a turn prevented from slipping back into engagement with the teeth, as shown in Fig. 1.

The entire device, when installed, is invisible, except the small keys which are exposed on the turn at the party rail.

Considering the economy, simplicity of operation, and efficiency, the device should readily recommend itself.

Patents as a Factor in Manufacturing Business.

Under this heading, in the September number of the Engineering Magazine, Edwin J. Prindle, of the New York bar, furnishes some very useful information in untechnical language for the benefit of business men. The value of a patent as the best and most effective means for controlling competition is strongly emphasized. The United Shoe Machinery Company, the Westinghouse Air Brake Company, and others are cited as corporations whose commanding position is dependent largely upon patents, and the Bell Telephone Company is quoted as a corporation which, even though it is not now dependent upon patents to any great extent, yet controls the situation, owing to the fact that it was permitted to locate itself and obtain a practical monopoly in many cities during the seventeen years in which its principal patent was active. "Patents are the only legal form of absolute monopoly," says Mr. Prindle, "and they are absolute so far as they go. In a recent decision the court said, 'Within his domain the patentee is Czar. The people must take the invention on the terms he dictates, or let it alone for seventeen years. This is a necessity from the nature of the grant. Cries of restraint of trade and impairment of the freedom of sales are unavailing, because for the promotion of the useful arts the constitution and statutes authorize this very monopoly.' The possession of suitable patents is,

therefore, of great importance to the manufacturer. On the other hand, it is equally important to the manufacturer whose competitor has patents, to understand what limitations, if any, there are to his competitor's advantage, and how, if at all, a counter-advantage may be gained." Considerable confusion is apt to arise in the minds of laymen as to what constitutes a patentable invention. There are four classes of inventions for which patents are granted, namely, arts, machines, manufactures, and compositions of matter. An art may be any process or series of operations for accomplishing a physical or chemical result; for instance, the casting of car wheels, in which a jet of molten metal enters the mold in a tangential direction, producing a whirling motion which causes sound metal to float to the rim of the wheel, thus preventing cinders and bubbles from occurring in the rim. The patentability of the process is not affected by the fact that no new mechanism may be required. It is at this point that the manufacturer is often misled into thinking that there is no patentable invention present.

"A machine is any assemblage of mechanical elements having a law of action of its own." The definition covers a jack knife as well as a steam engine.

An article of manufacture is anything made by hand that is not an art, machine, or composition of matter; for instance, a safety pin, tooth brush, etc.

Composition of matter is any mixture or combination of chemical elements, such as calcium carbide from which acetylene is made, acetylene itself, a soap, or a tool steel.

"A new combination of old elements may be patentable, if it produces a new or improved result, or an old result in a new way. A new form of an element of a combination that is old, as a whole, may be patentable. Improvements and attachments on old machines may be patentable. A new use of an old device, or machine or process, may be patentable, if the new use is so different from the old use as not to be obvious to an ordinary skilled workman in the art.

"The grant of a patent purports to give the inventor the right to make, use, and sell the invention; but in legal effect it really gives him only the exclusive right to prevent others from making, using, and selling the invention. If his invention happens to embody the principle of some invention that is covered by a previous patent, the owner of the previous patent can prevent the making, using, and selling of any embodiment of the later invention using the earlier principle, and the later patentee must either make terms with the earlier patentee, or wait until the earlier patent is dead. But the later patentee can prevent the earlier patentee or anyone else from using the later invention during the life of the later patent."

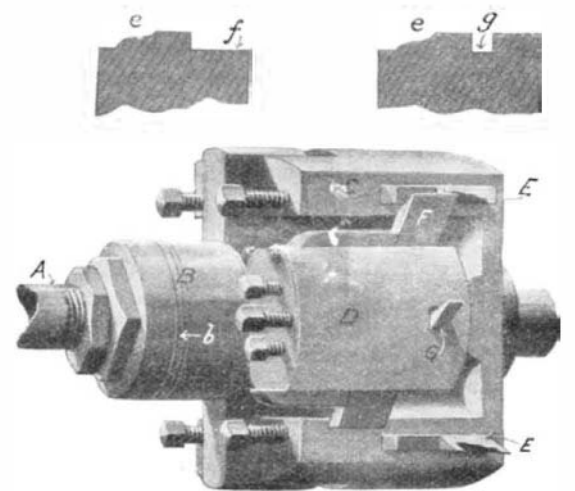
Regarding the claims of a patent, Mr. Prindle says that there is no piece of English composition that is more generally misunderstood, yet the general nature of the claim is not beyond the comprehension of the layman. A strange thing about a claim is that the more it says, the less it means. Suppose the claim to be a bill of sale giving title to cattle on a large Texas ranch. "If it gives title to all the short-horn Durham steers having one white forefoot and three red feet, the purchaser would get very few cattle. If, however, the bill of sale gave title to all the live stock on the ranch, the purchaser would not only get all the short-horn steers with only one white foot, but he would get all the steers of every description and all the heifers, bulls, horses, and pigs that there might be there. The mistake arises from supposing the best form of claim to be a detailed description of the particular embodiment of the invention shown in the patent, when it should be a description of every class of machines which embodies the principle of the invention, whether or not the details not essential to that principle are copied. In other words, the claim is not a list of elements whose virtue is greater the larger the number of elements enumerated; but it is the description of a class of combinations of elements, and the fewer elements stated the larger the class of machines is likely to be in which that combination of elements is found.

"The Supreme Court of the United States has said that the claim of a patent is one of the most difficult pieces of English composition to write. It is often thought that the particular wording of a patent is not important, the skill required being in enforcing the patent in court; but it must now be clear that there is great opportunity for skill and foresight in drawing the patent. A well-drawn patent may make plain sailing in court, while a poorly-drawn patent often has a hole in it through which serious competition can escape."

Exports of coal and coke from the United States in 1905 aggregated over \$31,000,000 in value, against \$11,000,000 for 1895, a decade earlier. The United States holds third place among the nations as an exporter of coal, and first place as a producer.

AN IMPROVED CUTTER HEAD.

Pictured in the accompanying engraving is an improved cutter head of the type adapted for the making of window sash. The principal features of the invention consist in the convenient arrangement of the cutting blades or plows and in the provision of means for adjusting the head, so that both stiles and rails of sash of various widths may be cut. Our engraving illustrates in section the form of window rail and stile made by the cutter. The cutter head comprises an arbor A, on which is mounted the member C. This member, at one end, abuts against a collar, while the opposite end has the form of a sleeve or tubular projection, on which the member B is mounted. The latter is formed with a transverse bar adapted to engage slots in the face of member C. A cap and a series of washers bear against the outer end of member B, and a pair of set nuts threaded on to the shaft against the cap serve to hold the two members in relative position. The member C is laterally slotted at opposite sides to receive the plows L. These are held securely by gibs, which are pressed against the blades by means of set screws. Projecting from opposite sides of the member B are a pair of auxiliary heads D, which are slotted to receive the plows F. The latter are also held by gibs and set screws. The plows are mounted diagonally, so that their cutting edges will partly overlie the cutting edges of the plows E. The heads D also carry the plows G, which overlie the plows E. It will be observed that the plows E are channeled, so that their cutting edges have the form of the usual window moldings. In use the cutter head is mounted in the machine in the ordinary way, and rotated. The plows E will then cut away the rails or stiles to the form e, while the plows F and G will cut the rabbet f of the rail; or, if the plows F are withdrawn somewhat, they will smooth off the side bar of the stile, while the plow G will cut the glass and putty groove g. In stock sizes of sash the molded portion is commonly of the



AN IMPROVED CUTTER HEAD.

same thickness for all, while the thickness of the center bar, rabbet, and side bar varies. In order to allow for these variations, the washers b may be added to or removed, and similar washers added to or removed from the space between the members B and C, thus adjusting the plows F and G with respect to the plows E. A patent on this improved cutter head has recently been granted to Mr. Monroe Button, of Fort Plain, N. Y.

Government Investigation of Rodent Epidemics.

It is well known that many species of rodents which live in colonies, such as prairie dogs, spermophiles, field mice, and rats, are subject at irregular intervals to microbic diseases in the nature of epidemics, which greatly reduce their numbers. The Department of Agriculture desires to be informed of the presence of such epidemics, with a view to conducting investigations regarding the isolation and preservation of the microbe for use in destroying mammals injurious to agriculture. The Department, therefore, requests that it be informed where possible by those noticing such epidemic diseases among the wild animals of the character specified, now or at any future time. Such diseases are usually indicated by the presence of numerous sick or dead animals. The investigations on these lines should prove of great value to agriculturists throughout the country, and it is to be hoped that farmers and ranchers will take sufficient interest in these proceedings to supply the Department with whatever information it is in their power to forward regarding the question.

Attention has been called to the fact that in evaporating gold or silver solution in a porcelain basin, a considerable amount of gold or silver may be absorbed by the porcelain itself. In the manufacture of chloride of gold it is customary to grind up all of the porcelain evaporating basins, from which some of the deficiency is recovered.