

tric was at right angles with the crank, as it is. Individuals can set their doubts at rest on this point by looking at any locomotive, horizontal or vertical engine. The illustration of the beam engine is not a happy one, for with a long toe cut-off the lead, or what amounts to it, the travel of the toe before it touches the lifter is so great that the throw of the eccentric is nearly with the crank; but for this lead the steam eccentric would be where the exhaust eccentric on the other shaft opposite it is nearly at right angles with the crank.

We also said in the article on "How to set a Slide Valve," that levers made no difference in the relative positions of the crank and eccentric. This assertion has been criticised by correspondents, but, unless our eyes deceive us, it is quite correct, for we have taken pains since writing that article to examine working drawings of oscillating engines with poppet valves, side lever engines, steple engines, locomotives and table engines, and we find that, with but one exception, where the valve is worked by a rack and pinion, the diagrams published are correct as regards the relative position of the crank and eccentric.—Eds.

RECENT AMERICAN PATENTS.

The following are some of the most important improvements for which Letters Patent were issued from the United States Patent Office last week; the claims may be found in the official list:—

Machine for Refitting Stop Valves.—The valves of that class commonly known under the term of "globe valves," are usually made with conical valves secured to a screw spindle and fitting into a conical seat. If a valve of this class becomes leaky, the only way to refit the same, heretofore, has been by re-grinding, or, if that operation was insufficient or too slow, by unscrewing the stop valve from its connecting pipes and sending it to the shop, where it would be refitted in the turning lathe or with the proper tools. Either of these operations causes much loss of time and money. A simple and effective device, by which the operation of refitting said stop valves could be carried out in a short time, and without disconnecting the valves from the pipes, has been a desideratum which will be hailed with delight by everybody who is troubled with leaky valves. The device which forms the subject matter of the present invention, and which is intended to fill the want above pointed out, consists of two parts—one for refitting the valves and the other for refitting the seats. The former consists of a conical concave mill made in the precise form which the valve is to have, and provided with a yielding internal center, in combination with suitable bearings, two for said concave mill and one or more for an adjustable center, in such a manner that by removing the valve from the seat and placing it between the adjustable and the yielding center it is at once in the proper position to be acted upon by the concave mill, and a few revolutions of said concave mill, imparted to it by an ordinary ratchet brace, or any other suitable means, produce the desired effect on the valve and bring it in the requisite shape to fit into its seat. The part for refitting the seats consists of a conical mill or reamer with a cylindrical stem, to be used in combination with a guide, which is made to take the place of the stuffing box and nut through which the valve spindle passes, in such a manner that by removing said box with the valve and valve spindle, and inserting therefor the conical mill and its guide, a few revolutions given to said mill will bring the seat in the proper shape, the whole operation being performed without removing the stop valve from its connecting pipes. The inventor of the above device is Samuel Wing, of Monson, Mass. Geo. R. Topliff, of 60 Pine street, New York (joint assignee), may be addressed for further information.

Adding Machine.—This invention consists in the employment of a revolving disk, marked on its rim with a series of figures, commencing at 1 and ending at 100, or any other figure, and provided with cavities to receive a pin, by means of which said disk can be rotated, and with a helical or cam groove in its face, to operate in combination with a stationary abutment, and with a hinged index and stationary dial, marked with figures from 1 to 100 near its circumference, and with other figures, from 1 to 16, more or less, on the sides of a segmental slot in

which the index plays, in such a manner that by inserting a pin in one of the cavities opposite to any desirable figure on the circumference of the dial the revolving disk can be turned on its axis for a distance equivalent to the figure which was opposite the respective cavity, and, at the same time, the index moves in the cam groove, and the figure in question is registered; and, by repeating the operation with the same or other figures, such figures are added up and the sum registered on the dial and disk. T. T. Strode, of Mortonville, Pa., is the inventor.

Safety Valve for Steam Boilers.—This invention consists in operating two or more valves on the same lever, said valves being held closed by the action of a weight or spring, in such a manner that when the pressure of the steam rises beyond the desired point the several valves open simultaneously, and the combined areas of the openings thereby obtained for the escape of the steam is greater than that of a safety valve of the ordinary construction; the invention consists, also, in an adjustable fulcrum, applied in combination with the lever, from which two or more valves are operated, and with a weight or spring holding said valves closed against the action of the steam in such a manner that the time when the steam blows off is regulated by shifting the fulcrum instead of by a change in the power exerted by the spring or weight to hold the valves in their seats. S. G. Barker, of Dunmore, Pa., is the inventor.

Calendar Clock.—This invention consists in a reciprocating or oscillating slide, marked with the names of the months, commencing with March and ending with February, and provided with openings opposite to said names, and with a projection which bears on a wheel, the face of which is marked with figures, from 1 to 31, to indicate the days of the months, and which is provided with eleven concentric grooves and oblique channels leading from the periphery of the wheel to the first groove, from the first groove to the second, and so forth, in such a manner that whenever the projection of the movable slide comes opposite to one of these channels said slide drops or moves and a new name of a month is brought in view, and opposite to the figures on the rim of the month wheel. The time when the slide changes from one groove to the other is determined by the position of the communicating channels, which corresponds to the number of days of the different months. T. T. Strode, of Mortonville, Pa., is the inventor.

Machine for Rounding and Polishing Balls, Etc.—This invention consists of a machine composed of four, more or less, longitudinally sliding rotary mandrels, radiating from a common center, and provided with chucks at their inner ends, in combination with suitable mechanism to force these chucks alternately up against the ball to be turned or ground, and with a milling tool or grinding wheel, in such a manner that two of the chucks will clamp the ball at a time, and the ball is thereby turned in either direction, while the grinding wheel or milling tool is held in contact with the surface of the ball by means of one or more screws or by an adjustable weight. The force with which the grinding wheel or tool is forced against the surface of the ball can thus be regulated at pleasure. The position of the revolving chucks, and the time when the same grasp the ball, are governed by a double cam and by weights or springs, and said chucks are so shaped that they grasp the general surface of the ball, and that cavities and projections occurring on the surface of said ball will not be able to disturb the correct central position of the same. John L. Knowlton, of Philadelphia, Pa., is the inventor.

Padlock.—This invention relates to a padlock of that class in which the shackle engages or locks itself when forced down into the lock. The invention consists in a novel means for throwing the shackle out of the lock when liberated from a catch and bolt which holds or locks it, and for retaining or holding the catch and bolt, when the shackle is out from the lock, in proper position to receive the shackle when the latter is pressed or forced into the lock. The invention further consists in a novel arrangement of the means aforesaid with the catch, which operates in connection with the bolt for locking or securing the shackle. H. Jackson, of New York City, is the inventor.

Lock.—This invention relates to a lock for pianofortes, sewing-machine cases, and articles generally

having hinged lids. The invention consists in the employment of two bolts of segment form, provided with shanks and connected with a tumbler in such a manner that the bolts will, as the tumbler is operated through the medium of a key, work in the path of a circle in and out from the lock case, in order to lock or unlock the article to which the lock is applied. E. L. Gaylord, of Terryville, Conn., is the inventor.

Drills for Oil and Other Wells.—This invention consists in making a drill, for boring wells, of fast and movable cutters combined together in onestock, in such a way that the movable cutter will be the leading cutter, and, after it has made its stroke, will receive a blow on its end from the descent of the fast cutters, thereby driving it past them into the rock. Elias Baker, of Pittsburgh, Pa., is the inventor.

Method of Cutting-out Buttons from Ivory, Bone, Etc.—This invention consists in a novel method of cutting buttons from ivory, bone, vegetable ivory wood and other substances. In the art to which this invention belongs, as now conducted, buttons are cut out of plates or disks of the material used, by placing the disks in a lathe and bringing up against them, on each side, cutters of the proper shape, which cut out and separate the buttons from the said material. That portion of the material which is left after the separation of the button was accounted as waste. This is especially true of the manufacture of vegetable ivory into buttons. This substance comes in pieces of small diameter, not great enough to furnish the ordinary-sized buttons for coats and other articles of apparel, and yet so much larger than one button as to leave a great part of the material unused. The object is to utilize this waste portion of the material, which is accomplished by cutting out therefrom one or more rings at the same operation which produces the button. Charles H. Bassett, of Birmingham, Conn., is the inventor. Assigned to The Birmingham Button Company, of same place. New York office, No. 102 Duane street.

A Fire-arms Commission.

Mr. Erskine S. Allin, master armorer at the armory in Springfield, has been commissioned by the War Department to visit the various arsenals in England, France and Switzerland, and to be present at trials of breech-loading fire-arms soon to take place in England and Switzerland. Here he will visit Ghent, Antwerp, Brussels and Liege, the town where the famous Belgian rifles are made, next Paris and other cities in France, and finally Switzerland. The rifle trial in the latter country will begin September 2d, probably at Geneva, and will be open to competitors from all over the world, a prize of \$5,000 being offered for the best breech-loader, besides the sum which the Swiss government will pay for the patent right of the gun. Mr. Allin will return to London so as to be present at a government trial of breech-loading rifles in that city, September 30th. On his return, about three months hence, he will make a report to the Department of the result of his observations. Our Government could not well have selected a more suitable agent than Mr. Allin for this purpose, as he is admirably qualified for it by his long connection with the armory in its practical workings, and his well-known mechanical ability. B. De Gotal, teacher of languages, and for some time a clerk at the armory, will accompany Mr. Allin as interpreter.—*Springfield (Mass.) Republican.*

An Oil Well Destroyed.

Well No. 19, United States Farm, on Pit Hole Creek, was destroyed by fire about seven o'clock P. M. on the 3d inst. The well was finished that day, and was flowing about two hundred barrels, and no tanks being up the oil was allowed to flow on the ground. Some twenty persons were standing in and around the derrick, some of whom it is feared were unable to escape, for the ground for forty feet around was one sheet of flame in a moment. Three men are known to be seriously burned, and only saved their lives by jumping into the creek. The well is still flowing and burning.

THE Pittsfield (Mass.) *Eagle* says the work on the east end of the Hoosac tunnel is progressing at the rate of sixteen feet a day into the solid rock of the mountain.

Improved Barrel Roller.

This engraving illustrates an improved apparatus for rolling barrels, and its form and application can be seen at a glance.

It may be described as a pair of tongs with disks, A, revolving loosely on the outer ends, the disks of such size as to easily enter within the chine of the barrel. The tongs are so made that the barrel may turn without rubbing when the disks are not exactly in center. The opening between the handles is such that the natural fall of the arms, in pushing or pulling, will press the disks against the barrel head, so that the heavier the load is the more securely will it be held. In using this tool, it is not necessary to insert the disks within the chine, but if they are run up along side, so as to be nearly inserted, and then pressed together, at the same time pushing or pulling, one half revolution of the barrel will throw them into place. When on the barrel the tongs and barrel form a combination similar to a common wheelbarrow, but the device is much more easily handled than a wheelbarrow carrying the same load.

Any person who has ever rolled a heavy barrel, especially down hill where the strength is used to retard, instead of to hasten it, will see at once how readily one barrel can be guided, held back, or pushed forward by the aid of this machine. Many severe injuries have been caused by the carelessness, and sometimes by unavoidable accident, of persons rolling heavy casks down declivities, where it is necessary for them to stoop over in very uncomfortable positions, and use heavy leather gloves to retard the speed of the barrels. In such cases, a tool of this kind would be much more efficient, for the user could bring his whole strength into action, instead of a part of it only, as in the former case. The heaviest casks, requiring the services of several men, can be handled with ease by this machine by attaching a rope to the handles so that a number of men can take hold. In such a case as rolling down a wharf and then up a gang plank, when the cask reaches and rests at the lowest point, the apparatus can be just turned over and the same men that let it down can pull it up again. In short, there is no case of barrel-rolling in which it is not superior to hand labor. This apparatus was patented April 25, 1865, through the Scientific American Patent Agency, by Henry W. Stephenson of Cincinnati, Ohio, who holds it for sale, in whole or part, to suit applicants. Any person desiring information will address him as above.

LITTLE'S FRUIT GATHERER.

The device illustrated by this engraving is for gathering apples, peaches, pears and other fruit, which generally hang so high as to make it necessary to climb the tree or use some device by which the fruit may be reached from the ground.

No better description of this fruit gatherer can be given than to call it a semicircular rake; A being the teeth thereof, and B the head in which they are inserted. An extensible rod, C, which can be made longer or shorter, to which this rake is attached, enables it to be raised to the highest part of any fruit tree. The fruit is detached from the tree by a raking motion, in clusters or singly, and when severed falls into a long pouch, D, from one of the pockets of which it can be received into the hand. When the rod, C, is extended, the lower pocket, E, is used, but when the fruit is gathered close at hand, the pouch is shortened, so to speak, by a cord, G, which is tied tightly around it between the two pockets. To preserve the length to which the rod, C, is adjusted, a set screw, H, is employed, and I, is an adjustable slide to which the lower end of the pouch is attached. Sometimes, owing to the position

of the fruit and other circumstances, the knife, J, which encircles the teeth, constitutes an important accessory to the latter in severing or breaking the stems of the fruit; and for the same purpose the knives, K, may be called into requisition. The upper end of the pouch, E, is held open to receive the fruit, by the metallic strip or retainer, L.

Owing to the simplicity of the device it can be constructed with little difficulty, and manufactured at little expense.

**STEPHENSON'S BARREL ROLLER.**

A patent for the invention was granted March 21, 1865, to James A. Little, of Danville, Hendricks County, Indiana; by addressing him, any desired information can be had.



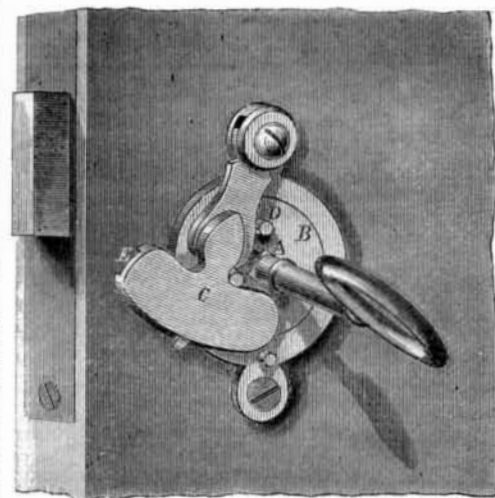
A FINE piece of carpeting, measuring 14 feet by 20, the first of the kind manufactured in Austria, has just been placed in the Museum at Vienna. It presents a map of the railways of Central Europe, and was produced at Prague.

DESAUSSES'S LOCK PROTECTOR.

Travelers sojourning in hotels have awakened in the morning to the unpleasant consciousness of the fact that their pockets had been rifled in the night; and this in spite of the lock on the door. Skillful thieves take advantage of the small end of the key which protrudes through the hole, and by using a peculiar pair of nippers, grip the end so that they are able to turn the key and enter the room; when the key is not in the lock the latter is picked with a skeleton key.

It is to foil burglars who use forceps that this device has been invented.

It consists in forming the key with a square shank,



as at A, and in a plate, B, which fits this shank. This plate works in a recess so that it turns easily in any direction when the door is to be locked, but is held fast by the hasp, C, when the same is vertical, or in such position that the pins, D, fall into a groove, E, in the hasp. When this occurs the key can not be turned from the outside by any contrivance whatever. Thus there is a double lock on the apartment; the door is locked by a key and the key itself is locked.

This device can be applied to the cheapest, as well as to the most costly lock, and can be constructed of four pieces of cast iron, or made ornamental if desired. A patent is now pending through the Scientific American Patent Agency, by J. H. Desausse. For further information address A. B. Justice, No. 14 North Fifth street, Philadelphia, who has the patent for sale.

A LUXURIOUS CHAIR.

We have had a very curious chair in our office for some days past, and it is one of the most comfortable and unique things of the kind we have seen. The seat is composed of sections of india-rubber tubes strung on fancy-colored cords; the back also is so made, and the sensation experienced is delightful. The greatest benefit, however, is derived from the elasticity of the rubber. This gives an easy, springing support to the person, impossible to describe, but not at all difficult to endure. The chair is lighter than those made with springs, is much cooler in summer, and seems in all respects a desirable and useful novelty. It is a fact that all men are not built on the same model, but with this piece of furniture it matters little how fearfully and wonderfully they are made, for this elastic seat supports every part of the person that touches it at once, and does not rest one set of muscles at the expense of another set.

There are also couches, lounges and other articles made on this principle, and for the reasons above set forth they must prove exceedingly comfortable. These articles of furniture are made by the patentee, Mr. Hector Hyves, No. 45 Mercer street, New York.

SOME of the Hartford capitalists have brought out the Weed Sewing Machine Company, of Nashua, N. H., and have formed a new joint stock company with a capital of \$200,000 for the manufacture of the machine at Hartford.

MR. HOLLOWAY'S successor to the office of Commissioner of Patents has not yet been announced. There are rival claimants.