

## New Inventions.

## Improvement in Rock Drills.

By Edwin G. Dunham, of Portland, Conn. This invention consists in arranging a horizontal ring-plate loosely on the drill rod, which plate is operated by means of a lifter, in such a manner that it will be caused to incline slightly during the raising of the drill bar, and consequently to bite upon said bar and hold it firmly until it is raised to the position desired, and then again to assume nearly a horizontal position and allow the drill bar to fall. The plate falls with the bar, but slides upward as the hole increases in depth. The friction of the plate upon the drill bar, and the force of the blow, are increased by a spring, which is bent by the plate in its upward motion, and thus accelerates the downward stroke. Another similar friction plate is upon the bar for lifting and holding it entirely out of the hole.

## Corn and Cob Mill.

F. M. Killgore, of Athens, Tennessee, has invented and applied for a patent upon an improvement in mills for grinding corn. The invention consists in having a cylinder provided with radial V-shaped teeth, said teeth forming circles or rings upon the cylinder, placed side by side, the edges of the teeth of every alternate ring being in a line between the edges of the teeth of its adjoining rings. The teeth of the cylinder run in V-shaped grooves in a concave, the grooves being corrugated or toothed in a direction tangential with a circle somewhat smaller in diameter than that of the cylinder. The teeth of the grooves in the concave are so placed that the edges of the teeth in every alternate groove, are in a line between the edges of the teeth in the adjoining grooves.

## Improvement in Pianofortes.

Albert T. Corliss, of Portland, Me., has applied for a patent upon an improvement in pianos, which he denominates the "Swell-Mute Attachment." The object of this invention is to hold the tone of the instrument in more perfect subjection to the performer, and to produce effects on the piano corresponding with the effects produced by the swell of the organ. It consists in the employment of clamps so arranged within the instrument, and controlled by suitable mechanism, that the performer can at pleasure cause them to press upon both sides of the bridge and hold it in such a manner as to control the vibration of the sounding-board and thus regulate the tone.

## Improvement in Seed Planters.

Jarvis Case, of Selma, Ohio, has invented and taken measures to secure, by letters patent, an improved seed planter. The nature of the invention consists in the employment of two slides connected together and operated simultaneously; one is placed at the top and the other at the bottom of the conveyor spout. The slides are also operated in a peculiar manner. This enables the seed to be dropped directly in the hill or furrow without being affected by the motion of the machine.

## Improved Journal Box.

George H. Hoagland, of Susquehanna, Pa., has applied for a patent upon a new journal box, the object of which is the more effectual exclusion of dust and dirt. What is claimed as new is the construction of the journal box of a single piece or casting, and providing at its outer end a collar having an elliptical bore, and a flange, to which is secured a strip of leather, which fits around the axle. The inner or opposite end of the box is provided with a flange, which fits within a circular ledge on the inner side of the wheel, packing being employed between them if necessary.

## Improved Fly Trap.

David & Samuel K. Flanders, of Parishville, N. Y., have invented a new fly trap, on which they have applied for a patent; a circular disc, having its upper surface divided into four sections by curved ledges, is rotated by clock-work, and as each of the compartments formed by these ledges is brought under a glass cover, it is swept by a wiper, and all the flies attracted

by molasses or other substance, are swept into a vessel of water. It is a very ingenious fly-trap.

## Protection for Carriage Springs.

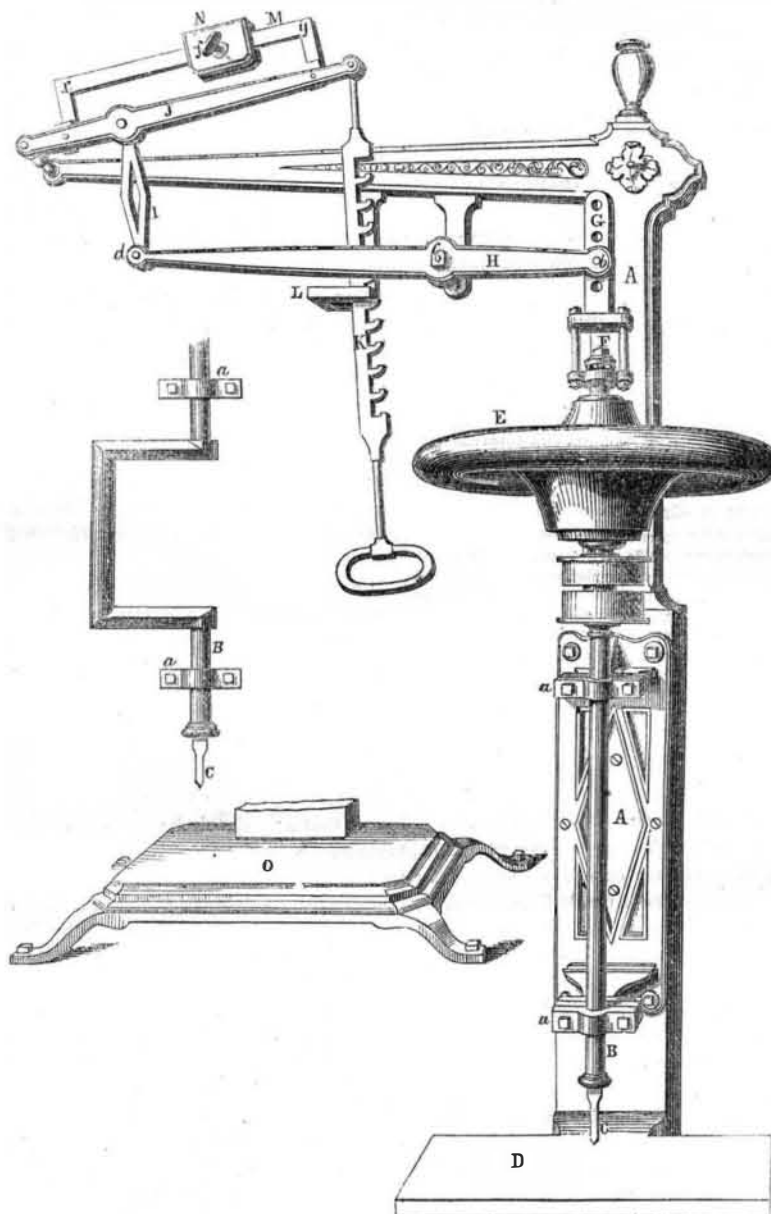
Wm. N. Reed, of Lancaster, Wis., has invented a method of protecting from breaking the elliptical springs of carriages. It consists in the employment of a vertical rod, which passes down through the bottom of the wagon, sand-board, spring, and axle, for the purpose of bracing the spring and preventing it from bending backward or forward, right or left—the said rod securing all the parts together while it keeps the elliptical spring upright, and thus re-

moves one great cause of breaking. The inventor has applied for a patent.

## Furnace for Steam Boilers.

G. W. Cotton, of St. Louis, Mo., has invented an ingenious improvement in furnaces for steam boilers. The nature of the invention consists in having T-shaped bars suspended on pivots, with their upper edges serrated and fitting in each other. These bars, at one end, are attached to a connecting-rod which is actuated by a crank outside the furnace, so that all that is necessary to stir the fire is to turn this crank. The inventor has applied for a patent.

## SELF-FEEDING METAL DRILL.



The engraving presented on this page is an illustration of a drill, for which a patent was granted to Warren Lyon, of this city, September 20, of the present year. The novelty of the implement consists in having a weight attached to the arbor of the drill, for the purpose of giving the requisite pressure, and in having a system of levers and a counterpoise connected to the upper part of the arbor, for the purpose of elevating it and graduating the pressure communicated to the drill by the weight upon the arbor.

A represents a standard, to which is attached the bearings, *a a*, through which the arbor, B, plays loosely. In the lower end of B is fixed the drill, C, working toward the bed-plate, D. On the upper end of the arbor, B, is attached a weight, E, in the form of a balance wheel, which is of sufficient size to give the requisite pressure to the drill. To the upper end of the arbor there is attached by the swivel, F, a small upright, G, to which is secured by a pivot, *b*, one end of a lever, H, having its fulcrum at *c*; the opposite end of the lever is attached by a small connecting rod, I, to a lever, J, having its fulcrum at *d*. The inner end of the lever, J, has a rack-bar, K, suspended from it, which passes through a slot in the end of an arm, L. On the upper surface of the lever, J, there is secured a horizontal rod, M, on which a counterpoise, N, slides. This counterpoise may be

secured firmly to the rod, M, at any desired point by a set screw, *f*.

The article to be drilled is placed upon the bed-plate, D, and the drill, C, bears upon it with sufficient pressure to give the necessary feed owing to the weight, E. The pressure is always regular, hence the drill is not as liable to be broken as where there is an irregular feed. Where it is necessary to withdraw the drill from the work, the rack bar, K, is drawn downward and made to catch on the front side of the recess, at L, through which it plays, the drill is thus suspended until the work is shifted, the rack-bar is then freed from the recess, and the drill is allowed to descend.

By properly adjusting the counterpoise, N, the pressure upon the drill may be graduated as desired. The motion may be communicated by a belt upon the fast and loose pulley upon the arbor, or this may be removed, and the crank substituted. O is the base of the machine, secured to the floor as shown in the engraving.

For further information address the patentee, No. 8 Christopher street, where one may be seen in operation.

## New Watch Escapement.

John Devlin, of Philadelphia, has applied for a patent upon an improved escapement for watches. The invention consists in the use of

a fork, having its two prongs in different planes, attached to the lever now in common use or otherwise attached to the pallets, and which alternately acts, and is actuated by two ruby pins which are attached, one above the other, to the axis of the balance, and are parallel with the same.

## Cooking Stove Improvement.

It would be a decided improvement, we think, to have common large cooking stoves made with two grates—the present ones made in two parts—instead of having each in one piece. There should be a division plate between the two, so as to divide the fire boxes—making two fire-places. The division plate may be made of cast-iron, and hollow, so as to let a current of air pass through to keep it cool; or it may be of fire-brick.

The advantages of dividing the fire are these:—one fire may be covered up and kept *alive* all night, and the other suffered to go out so as to have all the ashes cold, and ready to be cleaned out next morning. The small fire maintained on the one side will keep a kettle warm all night, and provide hot water for an early breakfast next morning. This plan of grates would also have the advantage of using only one fire, when the weather was moderately warm—when a large fire would be too hot—and of using the two fires when the weather was very cold. It may be said "that the fire in any common coal stove, can be maintained all night, and there is therefore no necessity for dividing the grate." A coal fire, however, will not burn well in common stoves, unless the grate is cleaned out every twenty-four hours, therefore a double grate affords the means of doing this, and at the same time without suffering "the fire to grow cold on the hearth." We only speak of large cooking stoves; the small sizes have not furnace space for the working of a double grate, and a central plate, but the large ones certainly have enough of room for the improvement.

## Hats versus Heads.

When the public, in their enthusiasm for Kossuth and Hungary, adopted the Hungarian style of hat, we ventured to hope that the reign of stove-pipes was ended—that the enjoyment of the ease and comfort which they gave would cause such a dislike to the barbarous "beavers" that people *would* wear them, and set foreign fashions at defiance. But we were mistaken, for the people go about wearing stew-kettles on their heads, with as much complacency as ever, and we suppose we shall have to submit to the usual amount of headaches without a murmur, for fashion has so decreed. Who will take the lead and get up a "Kosta Hat," or a "Mitchel Hat," or a hat of any name, that will be easy to wear and healthy to the scalp?—Where is Genin or Knox?

## Hot Air Again.

A correspondent inquires of us why it would not be judicious to fill the spaces around the pipes in the cooler of Ericsson's new engine with cold air in its passage from the pumps to the heater, instead of water. It is somewhat surprising that after all which has been said upon this subject it should yet be such a stumbling block. To make it plain. Suppose that two pistons should be placed in a single cylinder and the air between them should be heated, would it not act equally upon both pistons? Most certainly, yet this is the very principle involved in any attempt to use the heat over again by transferring it from the exhaust to the cold air, for this must be done between the piston of the air-pump and the piston of the cylinder, so that all the expansive force of the heat acts just as much against the air pump as the cylinder piston, and all that is gained in the latter is required to be exerted upon the former. It seems to us that this is so plain that a child might comprehend it, yet we behold civil engineers of the highest pretension continually overlooking it!

Stockholders of railroads are liable for damages in the use of patented articles or machines on their railroads. A case of this kind was decided by Judge Nelson, on the first inst., in this city, a more full account of which we shall present next week.