

## NEW INVENTIONS.

## Machinery for Dressing Flax.

E. L. Norfolk, of Salem, Mass., has taken measures to secure a patent for various improvements in machinery for dressing flax. To effect the operation of separating, cleaning, and drawing out the fibres, the inventor uses one or more toothed cylinders, similar to the breaking or heckling cylinders used in flax mills. They are placed singly between a pair of feeding and a pair of drawing rollers and are made to revolve at a greater speed than the former; they are, moreover, so arranged that their teeth will draw the fibres forward in the direction of these same feed rollers. It is possible to employ this combination of cylinders and rollers so multiplied and arranged that "doubling" may be performed repeatedly in the same machine, and the operations of drawing and heckling practiced after every doubling. The mechanism employed effects the various requisite processes with an extraordinary degree of perfection and rapidity, especially by separating the feed which supplies the machine in the first instance, and then by drawing and afterwards doubling repeatedly. The "sliver" thus produced is comparatively uniform as to thickness, but to make it more perfect, it is necessary to equalize as much as possible the feed from each set of rollers, which end is attained by attaching a trunk to each set, which is placed in close proximity before the rollers, and open at the back and front, to allow a free passage to the flax. A movable mouth-piece is attached to each trunk, and the whole is so arranged that any increase or decrease in the quantity of feed will cause an inversely corresponding decrease or increase in the distance of the said movements.

## Sediment in Boilers.

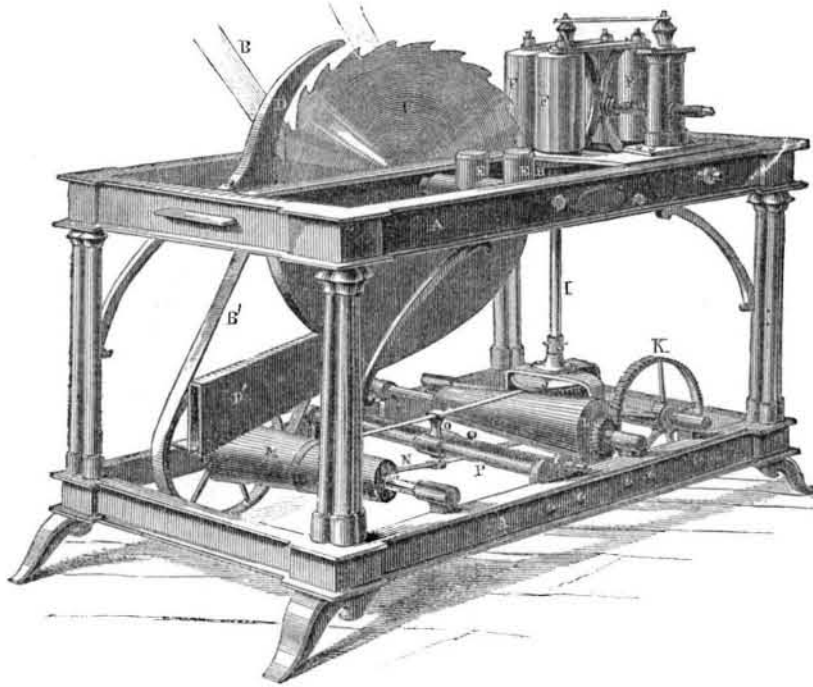
The above is one of the material disadvantages in steam boilers, to obviate which an improved apparatus has been lately invented by Samuel B. Howd, of Syracuse, N. Y., who has taken measures to secure a patent. This invention is intended to keep the boiler clear from sediment and mud, an accumulation of which, as every one knows, is exceedingly detrimental to its efficiency. The idea followed out in this plan is to excite a continual circulating current, which will carry the mud into a receptacle, whence it can be withdrawn at will. The manner in which this end is attained is to allow no communication between the water chamber and the steam chamber, except through a cylinder, so that when the boiler is in operation the water chamber and cylinder, will be filled with water and the constant upward current caused by the steam rising through the water, will enable the latter to flow over the cylinder into the steam chamber, in which the level will be always below that in the cylinder. This is occasioned from the circumstance that, instead of an upward, there is always a downward current, which is caused by the water flowing back through two tubes. The impurities brought to the top of the cylinder by the upward tendency of the steam, will thus flow over and be carried by the downward current through the tubes into the mud receptacle, where by greater specific gravity, the sediment will sink to the bottom. The mud receiver is formed in the water-space by means of a partition that extends from the front of the boiler to nearly the back, leaving only an opening at that part, to permit the upward flow of the water.

## Replacing Railroad Cars.

Measures to secure a patent for a new and improved apparatus for replacing railroad cars upon the track have been taken by Lucian B. Flanders, of Dunkirk, N. Y. It is necessary to observe that this is a contrivance intended to supersede the use of the ordinary jack, for replacing cars when run off the rails, and is far superior to the present inefficient mode. The apparatus employed can be as easily carried as the jack, and is adjusted for use in a moment of time. It consists of two iron pieces which the inventor terms flanges, and which are placed one upon each rail, their construction being such that they clasp these latter, and are thus held firm.

Each flange has, at the end an inclined plane so that the wheels coming in contact with the lower part of these planes can be moved up along them, and in order that they may take the proper direction a guide is so placed as to be operated by one of the wheels while it is moved forward. The apparatus will be found efficient for replacing the car on the rail no matter in what position the car may happen to be placed after running off the track.

## IMPROVEMENTS IN SAWING MACHINES.



The annexed engraving is a perspective view of an improvement in Sawing Machinery, invented by Pearson Crosby, of Fredonia, N. Y., to whom a patent was granted for the same in April, 1851, but which has not yet been brought prominently before the public. The nature of the invention consists in making a circular saw with both faces convex, so that it will present a thin edge, where the teeth are cut, to avoid waste of the lumber, and reduce the resistance in cutting, and be gradually thicker towards the shaft to give the requisite thickness, to prevent "buckling" and insure a steady motion at the periphery, when this is combined with a fixed gauge placed near the periphery of the saw on that side of the shaft opposite to where the lumber is presented to the teeth, so that the said gauge shall separate or spread the two parts of the planks, while they are being sawed, and thus prevent them from binding against the faces of the saw.

A is a neat strong saw frame; B is the driving belt communicating from the shaft of a steam engine or water wheel. It gives rotation to the shaft of the saw, C. D is the fixed bevelled gauge; B' is a belt running from a small pulley on the spindle of the saw around a pulley on the shaft of the cone pulley, M. N is a belt running from the cone pulley to the one, L. O is a shipper for moving the said belt from the least diameter of M to its greatest, and vice versa, so as to vary the speed of the cone pulley, L. The shipper slides on a rod, P, and is moved when required

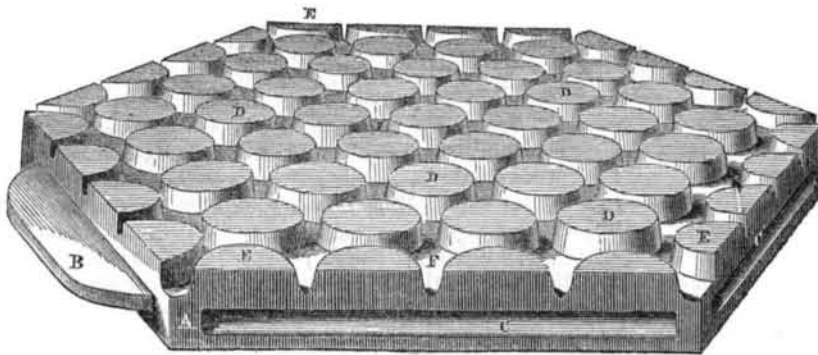
by turning the screw, Q. The pulley, L, has a pinion on its spindle which gears into the wheel, K, and moves it. On the shaft of said wheel is a bevel pinion (unseen) which gears into the bevel wheel, J, and gives motion to the vertical shaft, I, on the upper end of which is a cog wheel, which meshes into similar wheels on the base of the spindles of the back feed rollers, F F. These rollers take in the planks at the front, F' F'. There is a knuckle or loose collar at the neck of spindle, I, to allow for the vibration of the feed rollers for planks having irregularities. The feed roller can also be set further from, or nearer to, one another, for thick and thin planks—there are slots in the bottom plate to allow the spindles of said rollers to be so moved, and the screw, G, working in the side plate of the roller frame, graduates the play of said rollers. D' is a trunk to carry off the saw-dust. The screw, G, has a spring on it of sufficient tension to allow the rollers to play, and yet bend out the warpings in a plank, and insure its presentation in a proper manner to the edge of the saw, so that the part of the plank slit will be of equal and uniform thickness.

The following is the claim of this patent, viz. :—

"Making the saw with both faces convex when combined with the guide, D." This is a very excellent combination for slitting planks by a circular saw, and must commend itself to all concerned.

More information may be obtained by letter addressed to the patentee.

## CAST-IRON PAVEMENTS.



To supersede the ordinary Russ paving for streets, a new arrangement by means of cast-iron blocks has been invented by L. Colwell, of New York City, who has taken measures to secure a patent. The above engraving is a perspective view of one of the blocks forming a section of the paving and displays the structure and arrangement of this new method. Each of these blocks is six-sided, being in shape a regular hexagon, so that they are easily fitted one to another.

A represents one of these six sides with a

mortice or groove, C, let into it, into which fits a projection corresponding to the tongue, B, of another block, and in similar manner the tongue B, fits into a groove or mortice let into the side of another block corresponding to the groove, C. Of these grooves and tongues there are three to each block, which thus make up the six sides; F is the iron plate on which there are several projections, D D, of a suitable size, as shown in the figure, and which, on the under side, are hollow, E E are semi-projections of the same kind

along the sides of each block, so that when one block is fitted to another, a similar series of these said semi-projections unite with the others to form the same shape as in those already described. A pavement of this sort has many advantages over both wood and stone; in the first place it forms a more compact mass, as from the arrangement of mortices and grooves a block cannot possibly be disarranged from its place; then, in addition to the greater durability, the expense would be much less, for even when worn out the old material would be worth at least 50 per cent. of the original cost, and could be re-cast for the same purpose again. Moreover, the construction is so simple that no preparatory labor is required previously to laying the blocks, as is the case with every description of paving material now employed. All that is required to be done before laying the blocks, is merely to level the earth when the blocks are forced down, and thus imbedded in it without any need of all those preliminary steps which were required in the other plans of paving, and which form so great an item in the cost.

Contrast this with the Russ pavement, and the saving to the city would be incalculably vast. The expense for laying the Russ pavement is \$6 per square yard, and the consequent inconvenience of stopping up the thoroughfare almost as detrimental to the traffic as the pecuniary outlay is large. Our principal streets, particularly Broadway, are for one-half the year entirely useless for the purposes of transit in some part or other of their length, and we absolutely despair of ever seeing them well-paved. We therefore hail with satisfaction any improvement upon our present method which cannot be too much decried, as a most clumsy, unscientific, and costly mode of procedure. We have no doubt that iron will yet be generally used for paving the streets, not only of our own cities, but also those of London, Paris, and other capitals of European countries.

Further information may be obtained of Messrs. Colwell & Co., West 27th st, near Eleventh Avenue, N. Y.

## Improved Journal Box.

Measures to secure a patent for an improved journal box have been taken by George Pierce, of Norwich, Ct. This is an invention intended to prevent the over-heating of the journals of shafts and axles, by insuring to the bearings an ample and constant supply of oil, a point which all practical men know is often sadly neglected, though no machinery can work with ease when the journals are not well lubricated. In this instance the journal box is inserted within a fountain or reservoir of semi-cylindrical shape, containing the oil, which is conveyed to the journal and box by a conductor of cotton—flanges on both sides of the journal box, fitting over the sides of the fountain, serve to prevent the escape of the oil. By this arrangement, should the journal become hot, it will evidently effect its own cure, from the heat rendering the oil more fluid.

## New Steering Apparatus.

An improved apparatus of the above kind has been lately invented by Andrew Lee, of Millville, N. J., who has taken measures to secure a patent. It differs from the ordinary arrangement, as employed on board of ships, in the use of geared wheels, which are so constructed as to make the rudder more efficient in steering a vessel. The great desideratum, in this part of a ship, is to communicate the motion of the steering wheel to the rudder in such a manner that the latter shall move at the turning of the wheel as rapidly as possible. To effect this purpose, the inventor uses a spur wheel fixed to the shaft of the steering wheel, which gears into a pinion at the end of a drum on which the tiller rope is wound. From the fact of the spur wheel being much larger than the pinion, a more rapid motion is conveyed to the latter, and consequently to the drum on which it is fixed, so that the tiller is made to operate more quickly than it could possibly do by the usual steering apparatus.

The Russian law grants patents on the sole condition that the inventions, whether indigenous or foreign, have never been made known in that country.