

## New Inventions.

## Machinery for Washing Ores.

R. Edwards, of Eagle River, Mich., has invented an improved machine for washing ores, for which he has taken measures to secure a patent. The machine consists of an obtuse conical basin suspended from a ring, which ring hangs loosely around a vertical shaft, which, by its revolutions, actuates a pair of rollers, one of which traverses a stationary circular rack, and the other as it passes around elevates in succession the different sides of the ring, and consequently of the suspended basin. Over the centre of the basin, and attached to the revolving vertical shaft is placed a hopper, in which the crushed ore or other substance to be washed, is placed. The outlet of the hopper being on the same side of the shaft with the elevating rollers, the ore constantly falls upon the elevated side of the basin. It is a very good invention.

## Improved Paddle Wheel.

A. M. Glover, of Walterboro, S. C., has invented an improved paddle wheel, for which he has applied for a patent. This improvement consists in the employment of a float concave laterally to the wheel, but straight in a direction radial to the axis, and also in arranging the floats in such a manner as will prevent more than one float, or a portion of two equivalent in their propulsive effect to one, from being submerged at a time. The advantages claimed are a greater propelling effect by saving the power uselessly expended in driving a number of floats through the water at the same time, and also the removal of the jar caused by the concussion of the ordinary floats.

## Improvement in Converting Motion in Planing Machinery, &amp;c.

James Pine, of Hoosick, N. Y., has invented a new mode of converting circular into reciprocating motion, especially adapted to planing machinery. The invention consists in a new arrangement of a disc, stud, and other devices, by means of which, when the machinery has passed over the fixed bed, and arrived at one end, a bevel wheel is thrown out of gear with one, and into gear with another corresponding wheel, by means of which the motion is reversed, and it is made to pass back again over the stationary bed. The inventor has taken measures to secure a patent upon his invention.

## Anti-Friction Journal.

Lewis Smith, a worthy mechanic of Brooklyn, has shown us an anti-friction journal which he thinks would supercede all others if once introduced. This journal does not run in a box, but is made hollow and after having been partially filled with lard or some other lubricator is placed against a pivot, and bears upon this and a friction collar. The plug or pivot is also surrounded with a ring of india rubber or other suitable substance to prevent the escape of the lubricating material. We should think it well adapted for certain kinds of bearings.

## Improved Excavator.

Francis Murphy, of Dixon, Ill., has invented and applied for a patent upon an improved excavator for use upon railroads and other public works. This improvement consists of a share or scraper, which loosens the earth and raises it sufficiently to enable it to be received upon an endless apron, by which it is carried up to the required height, and may be deposited directly from this or carried by another endless apron to the side of the machine. We can see no reason why it should not perform the duties required of it.

## Improved Cutter Stock for Planing Machines.

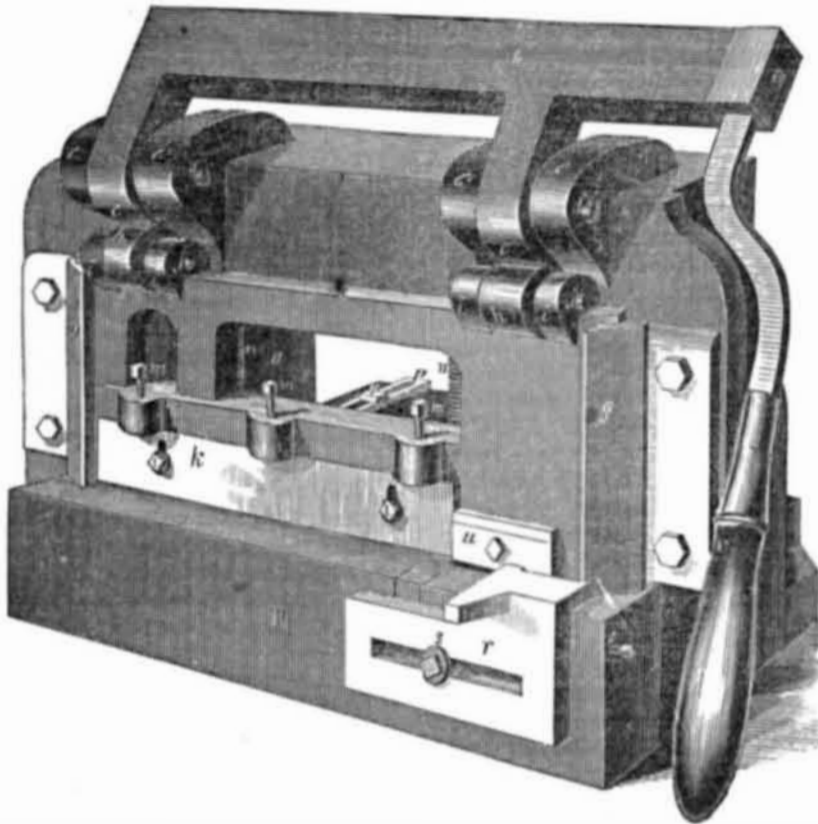
Joseph Osgood, of Brockport, N. Y., has invented a cutter stock for planing machines, and has applied for a patent upon his invention. It consists in the employment of an elastic face attached to the stock and arranged so as to bear upon the board and prevent the cutters from obtaining too much feed, said elastic face yielding so as to allow any sliver to pass from the cutting edge of one knife to that of the next, thus preventing the board from being marred, as is too often the case in planing machines.

## New Mode of Hanging Saws.

L. & M. Taylor, of Jordan, Wis., have invented a new mode of hanging saws, which is certainly sufficiently novel. The saw is perforated with holes at regular distances throughout its entire length, and four rollers, two at the top

and two at the bottom of the saw, are fitted with studs, which mesh into these holes, and serve at once for straining, guiding, and propelling the saw. An alternate motion is of course communicated to the rollers. The inventors have applied for a patent.

## MACHINE FOR SCORING AND CUTTING PAPER BOXES.



The annexed engraving is a perspective view of a machine for cutting out the corners and securing the edges of paper for boxes, for which a patent was granted Dec. 4th, 1850, to Andrew Dennison, of Brunswick, Me.

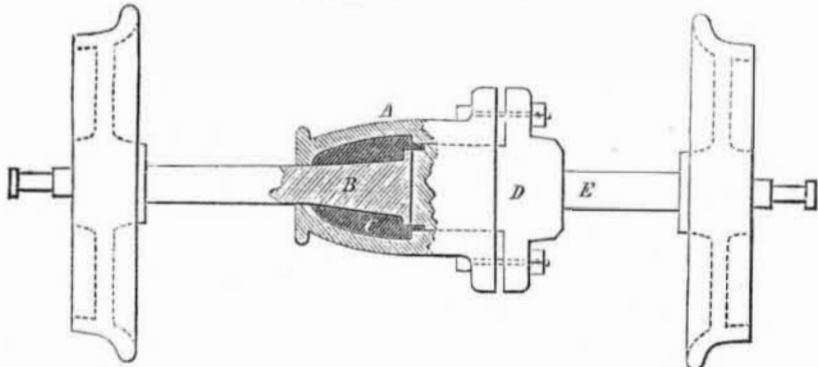
*a a* is a substantial frame; *B* is the bed plate; *b* is a rocker beam at the upper extremity of the frame; it has two cams, *c c*, projecting from the under side. This beam is hung to the frame by the pins, *d d*, passing through the cams and into the ears, *e e*, on the frame. Below the cams is a slide, *f*, fitted to play up and down in the guides, *g g*, and at the upper extremity of the slide directly under each cam, there is a friction roller, *h*, inserted in the ears, *i i*, on the slide and made to turn on the pin, *j*. At the lower extremity of the slide is a knife, *k*, secured firmly to the slide by the bolts, *l*. Directly above the knife are the set screws, *m*, to set the knife in the proper position to cut the depth required. At one end of the knife is a die, *n*, with two cutters at right angles with each other, one being on a direct line with the knife. There is a square hole the exact size of the die cut through the bed plate directly under said die, which allows the die to drop into it; *p* is a gauge at the back of the knife, secured by bolts, *q*, and made to move back and

forth according to the size of box to be cut.—In front of the die is another gauge, *r*, at right angles with *p*; it is secured to the bed plate by the bolt, *s*, is adjustable by the set screw, *t*, to accommodate the size of box required to be cut, and is made to move back and forth; *u u* are spiral springs to throw up the slide. The paper board to be cut, being first made square, is laid against the gauges, then by a simple vibration of the lever, *F*, the cams by acting upon the friction rollers, press the knife and die against the paper board, the die passes through the paper, and cuts a square piece out of the corner, while the knife cuts only half way through the pasteboard, which is then turned a quarter round and another corner cut out and the side marked by the knife, and so on, until the four corners of the paper, or pasteboard, are cut out, when it is in proper form for making a box. The improvement is applicable to the cutting out the corners of the paper or pasteboard, for any size of boxes.

The claim is "the combination of the knife and die, in the manner substantially as described," and the improvement is both simple and effective for the purpose set forth.

This machine is on exhibition at the Crystal Palace.

## DENNEY'S CAR AXLE.



The annexed engraving is a front view partly in section, of a car axle, invented by S. L. Denney, of Christiana, Lancaster Co., Pa. The object of this axle is to give to each wheel an independent motion to allow the wheels of cars to accommodate themselves to the curvatures of tracks. One of these axles is on exhibition in the Crystal Palace.

*A* is the connecting box, in which the coned end of the axle, *B*, revolves; *C* is a space fitted

with composition metal, forming a bearing for the axle. That part of the connection, *D*, which acts as a follower against the end of axle *B*, is shrunk fast on the end of axle *E*, and is secured in the connecting box by screw bolts passing through the flanges of both. The surface of axle *B*, at the end, and the connecting follower, *D*, are so large as not to wear perceptibly. The coned shape of the axle prevents it from becoming so tight by screwing up the bolts, as

not to turn readily when operated upon by the friction caused by the wheels in turning a curve. The objections to a connected axle for two wheels is the liability to wear uneven, get loose and become useless after being in use some time. Mr. Denny has devoted much attention to this subject, and an illustrated description of one formerly invented by him was published in No. 2, Vol. 3, "Scientific American." He has been forced to the conclusion that a connected axle to answer all purposes, and remain strong and durable, can be made, and the above represented one he believes will answer all demands.—The advantages claimed for this axle are durability, strength, a saving of tracks on curves, a saving of motive power now wasted on rigid axles in passing curves, which is often the cause of torsion, breaking of axles, and consequent danger of life and property. Any improvement in car axles which will be the means of increasing safety and lessening expense, should meet with attention from our railway companies. To determine this, protracted and fair experiments are necessary. We believe that all railroad corporations should devote a certain amount of money every year to rational experiments under the superintendence of their scientific and skillful superintending engineers. Many of them do this, and that to their credit.

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

## Submarine Telegraph.

T. P. Shaffner, Secretary of the American Telegraph Association, called upon us last week and showed us a section of the telegraph cable which he has laid across the bed of the Ohio river, at Paducah, Ky. We described this cable on page 400, Vol. 8, "Scientific American," and must give Mr. Shaffner great credit for constructing such an excellent submarine conductor. Some of the European telegraph companies are ahead of ours in respect to submarine telegraphing. This is no doubt owing to England being an island, and the focus of telegraphic enterprise in Europe. Thus for example, there is one submarine telegraph line across the channel to France, another to Ireland, and a third to Holland. This latter, we believe, is the longest submarine cable in the world; it traverses no less than 100 miles of the German Ocean. A short time ago the King of Holland made a speech at the Hague, on the opening of the States General Assembly, which was translated, sent to England, and published in less than two hours afterwards. We have seen it stated in a number of our exchanges, that R. Stephenson, the celebrated engineer, while in this country, recently, made the assertion, when conversing about an Atlantic telegraph line, "it had been discovered that when a double wire was used on a line, instead of a single one, the electric current could be sent, without any sensible diminution of force, to any distance." This, so far as our knowledge extends, is destitute of any foundation in fact.

## Engineers' Railway Clock.

John N. Robertson, of Columbus, S. C., proposes a time table clock for engineers on locomotives, which is worthy of attention as a most useful improvement. He has sent us a diagram of this "time piece" with a folding dial, on the outside circle of which, on one side is the time table of the Charlotte and South Carolina Railroad, for the up, and on the other side a like time table for the down trains. The distances between the stations are laid out on the outer circles, and the hands of the clock point to the hours and minutes which are laid out on an inner circle. The clock is to be made perfectly tight and secured to the locomotive in front of the engineer. It may be regulated and locked by the local superintendents, which will prevent disasters arising from a difference of time in the different watches of the conductors or engineers. By such a clock the engineer will know at a glance the rate at which he should run his engine to arrive at the exact time at every station.

The "Arm Pad" illustrated in our last number may be had of L. Stockwell & Co., 86 Nassau street. Communications should also be addressed to them.

Daniel B. Martin, late engineer in the Collins' line of steamships, has been appointed Engineer in Chief of the Navy.