

## New Inventions.

## Recent Foreign Inventions.

**RAILWAY AXLES**—Mr. G. M. Miller, C. E., of Dublin, Ireland, has patented some improvements in axles and axle boxes of engines and carriages in use on railways, which consist, first, in fitting the cylindrical journals of axles with one collar only instead of two, in order to reduce the friction. Second, in constructing axle boxes so that the main portion of the same, and the step or bearing for the axle journal, can be removed without lifting the carriage off the wheels. For this purpose the lower part of the axle box is made to open at the top, in order to receive the step or bearing, and that portion of the box which forms the upper grease chamber or hopper.

**HATS**—John Blair, of Glasgow, North Britain, has obtained a patent for constructing hat bodies in such a manner as to form a thin space between the interior surface and the outside of the hat, at the part where the hat fits on the head, such space communicating by perforations with the interior of the hat about the upper part of the head, to provide for ventilation. This is a pretty good idea in manufacturing hats. Who among our hat makers will be the first to carry it out into practice?

**MOSAIC RUGS**—F. Crossley, M. P. for Halifax, England, has obtained a patent for placing a thick pile carpet on the back or underside of mosaic rugs. These beautiful rugs have their separate colored pieces pasted with a solvent of india rubber; the backing of a thick pile of carpet for which Mr. Crossley has taken out a patent, renders the india rubber solvent less susceptible of becoming stiff in cold weather, because it is thus placed between woolen substances, which are very good non-conductors.

## Sawing Logs.

The accompanying engravings represent a method of sawing logs by their own weight in descending a bluff, precipice, or incline, for which a patent was granted to Francis A. Wolff, of Ripley, Tippah Co., Miss., on the 8th of May, 1855.

Fig. 1 is a side elevation of the mill, to carry out the object stated, and fig. 2 is a front elevation. Similar letters refer to like parts.

The nature of the invention consists in an arrangement of machinery whereby the weight of one or more logs of timber, when attached to an endless chain or chains, is made to propel a gang of circular saws while the log or logs are descending a bluff or valley; the invention being adapted to sections of country where bluffs are common.

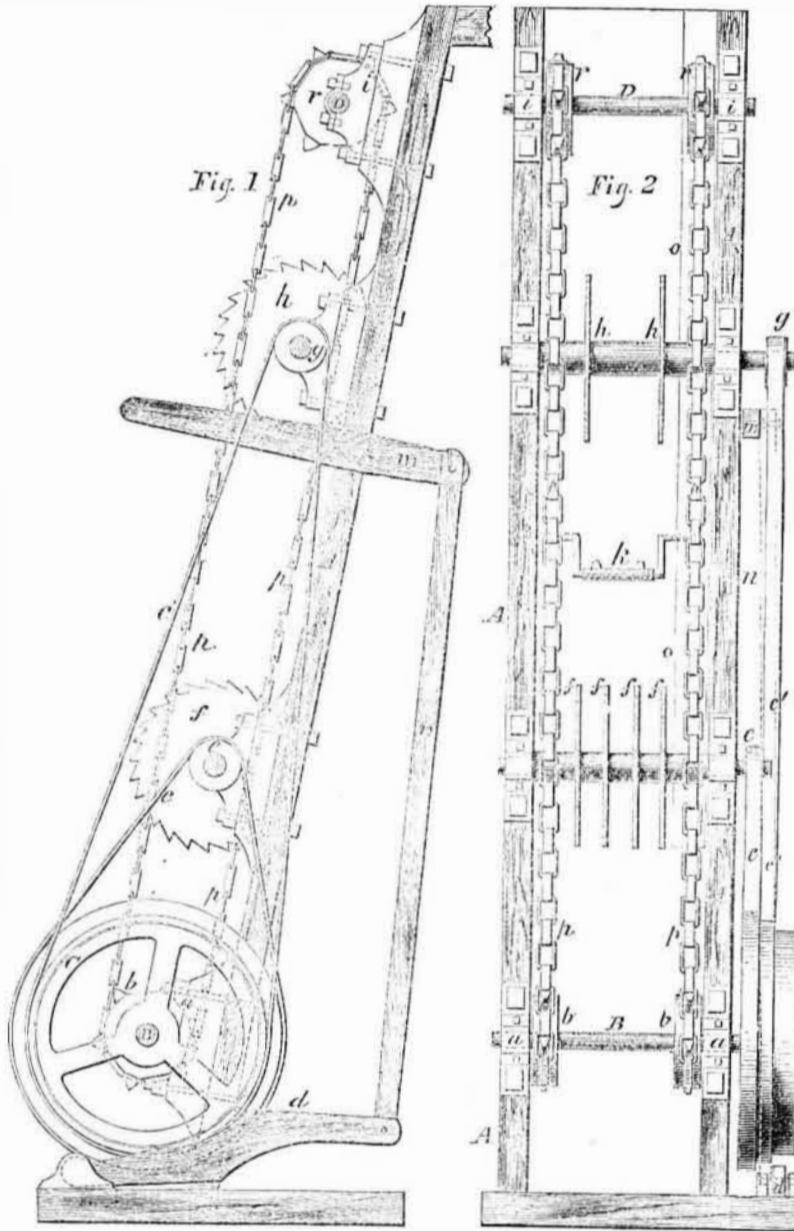
A represents a framing erected on the side of the bluff, and leaning against it at an angle of elevation of about 75 or 80 degs. At a convenient distance from the bottom of this framing is a horizontal shaft, B, supported in journal boxes, *a a*, secured to the frame. Fast on this shaft are two chain wheels, *b b*, between the journals, one near each; they are made with teeth or prongs, which enter every alternate link of the chain, the intermediate links being flat, rest upon the part of the periphery of the wheel between the prongs. At one end of this shaft, outside of the journal, is a large band wheel, sufficiently wide on the face for the two bands, *c c'*, to run on it, side by side, and a further breadth of the same or smaller diameter, for the friction brake, *d*, to bear against for the purpose of stopping the saws at pleasure. The band, *c*, passes over a pulley, *e*, on the axis of a gang of saws, *f f*, fixed at suitable distances apart to saw the log into boards of the desired thickness. The band, *c'*, extends over the pulley, *g*, on the axis of a pair of saws, *h h*, set at about the same distance apart as the two outer ones in the gang before alluded to. Above these saws at the upper end of the framing, A, is another horizontal shaft, D, also supported in journal boxes, *i i*, secured to the frame, and likewise having two chain wheels, *r r*, fast on it, corresponding, and in line with those on the shaft, B. Around these chain wheels on the two shafts, D D, are two endless chains, *p p*, to which the logs are attached by suitable dogs, *k*, suspended in the links thereof. *m* is a lever, and *n* a connecting rod, for operating the brake, *d*, when it is desired to stop the saws. The back

of the frame, A, between the bluff and the saws, is planked up to form a bearing for the logs to slide against in their descent. Between the frame and saws at one side is a guide or gauge, *o*, to guide the log in a direct line to the saws, and against which the logs incline, by a slight inclination of the chains towards that side, or they may be borne against it by a spring and friction rollers on the opposite side. If found in practice that a single driving wheel would have to be inconveniently large to give sufficient speed to the saws, a counter shaft may be used with a pulley and wheel on

it, of such size as may be found necessary to give the required speed.

In operating this mill, the log must be first slightly slabbled on one side to prevent its rolling on the ways, it is then lowered down in any convenient manner, till the top end of it is about level with the upper chain wheels. It is then secured to the endless chains by the dog, *k*, near the top; its weight now being borne by the endless chains, *p p*, puts the saws in motion. In descending, the upper saws, *h h*, take a slab off each side. When the dog by which it is held comes nearly down to the saws,

## SAWING A LOG BY ITS OWN WEIGHT.



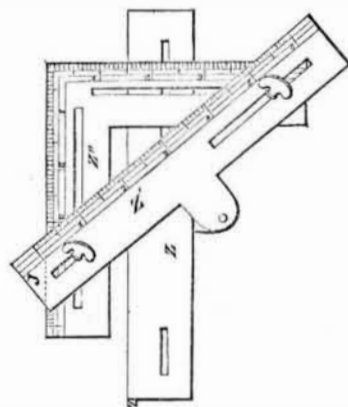
another dog is attached below, and the weight taken off the upper one, so that it may be removed. As soon as the log is clear of the upper saws, the mill is stopped by the friction brake, *d*, applied to the wheel. The log is then turned on its side, and secured at its upper end to the chains as before, and another log attached above, as at first, and the saws again put in motion. The lower log is then ripped into boards by the gang of saws, *f f*, whilst the upper log is being slabbled on two sides, as in the first case. When the saws are about half way through the log, it may be supported by running a straight bar of iron through the links of the chains, beneath the log, and the dog above the saws removed, so that the weight of the boards remains on the chains, to assist in driving the saws until they reach the lower chain wheels, when the carrying bar is drawn from under them in passing round the chain wheels.

The power applied in this manner to the sawing of logs will be according to the height of the hill on which the mill is erected. The power can also be transmitted to operate a grist or other mill, if the bluff is of considerable altitude, and affords more power than is required for sawing the logs. When all the timber in one locality is sawn up, this mill may be taken to pieces to put up at another wooded hill. The inventor believes it will supersede water saw mills, which are usually placed in unhealthy localities, especially in warm climates. He believes that when once a

mill of this kind is put up on a large scale, 'it will soon find its way over our diversified country, and be carried ultimately to the Alps, the Pyrenees, and the mountains of Norway.' To any person or company that will fully test the practicability of this mill on a large scale, he is ready to afford them patent rights on the most liberal terms.

More information may be obtained by letter addressed to Mr. Wolff, at Ripley, Miss.

## Mechanic's Companion.



The accompanying figure is a view of an instrument bearing the above name, designed for a square, scale, level, and bevel—very diversified uses—for which a patent was granted to Josiah Shanklin, on the 4th of October, last year.

Z Z' Z'' are three blades or pieces; Z'' is of the form of a common square graduated in inches and parts of an inch, from 1 to 5—or more—beginning at the corner or right angle and extending each way. At or near the middle of each of the blades is a groove about a quarter of an inch wide, cut parallel with the outer edges, as shown. On the opposite side (not seen) of the square, degrees are marked. Z' is a blade about 7 inches long; the upper edge is spaced out in inches and parts of an inch, and it has a slot on each side, to correspond with those in Z''. The left hand groove is shorter than the other, but they may be made of equal length. On the under edge of this piece there is a tongue about an inch long and three-fourths of an inch wide. Z is another blade; it corresponds with Z' in every respect excepting the graduated edge; and a flange which it has on its upper edge, which serves for a rest when applied to a piece of timber. This blade is so made that both sides will be perfectly balanced when suspended by the pivot joint by which it is united to Z'. A thumb screw working in a nut on the back side, is inserted through each groove as shown. When the instrument is used for a bevel, one of the screws is tightened, so that the square may turn upon it. When used for a level, the thumb screws are taken out, and the under cross piece, Z, with the flange upon it, is allowed to hang loosely—the square and the upper piece being screwed together, as shown in the figure. When thus adjusted, the under cross piece, Z, serves for the level, the degrees being marked on the under side of the square. If found more convenient, the corners of the upper cross piece may be clipped off, and in this respect be very convenient for masons and carpenters.

The claim of the patent is for the combination of the three blades with the grooves and thumb screws constructed and arranged in such a manner as shown, so that the instrument may be used for a square, bevel, level, and scale, for braces, stair cases, &c., &c. and for a great number of other purposes, so apparent to mechanics, that it has been termed "the Mechanic's Companion" by its inventor. It may be made of wood or metal, as may be found most convenient. These instruments are manufactured by E. Bless & Co, Newark, N. J., from whom more information respecting it may be obtained by letter.

## Spark Arrester Patent.

On the 12th of February, 1842, W. C. Grimes, of Philadelphia, obtained a patent for an improved spark arrester. The patentee has applied to the Patent Office for its extension seven years from the 12th of next February.—The petition is ordered to be heard on the 28th of January next, at the Patent Office, and all objections to it must be set forth in writing, and sent to the Commissioner of Patents at least 20 days before the hearing.

## Patent Laws.

Before we were aware of it, our last edition of the Patent Laws was quite exhausted.—Until we have a new edition printed, we shall be obliged to send the official (Patent Office) edition to those ordering, in lieu of our own. When our edition is ready we shall send copies to those who have remitted for it, even if a copy of the official edition has been sent. So all who have paid for them will, eventually, get their shillings worth in the very article ordered.

## Acclimating Animals.

The Zoological Society of Acclimation, in France, has been the means of doing wonders in this line already, and has now commenced operations on a flock of Angora goats. Such a society would do a great deal of good in our own country. It would be far wiser for our agricultural societies to offer prizes for acclimating useful foreign animals than for successful feats of female equestrianism.

The inmates of the various prisons, hospitals, asylums, workhouses, and almshouses of the city of New York, number seven thousand souls. The annual expense of their maintenance is six hundred and fifty thousand dollars—a little short of one hundred dollars a year for each individual.