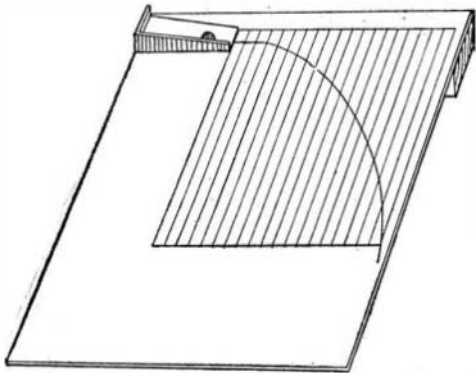




#### LAWS OF FALLING BODIES.

A unique device for illustrating the laws of uniformly accelerated motion, composition of motions, trajectories, etc., has been recently brought out by John C. Packard, Science Master, High School, Brookline, Mass. A steel ball, one inch in diameter, placed at the top



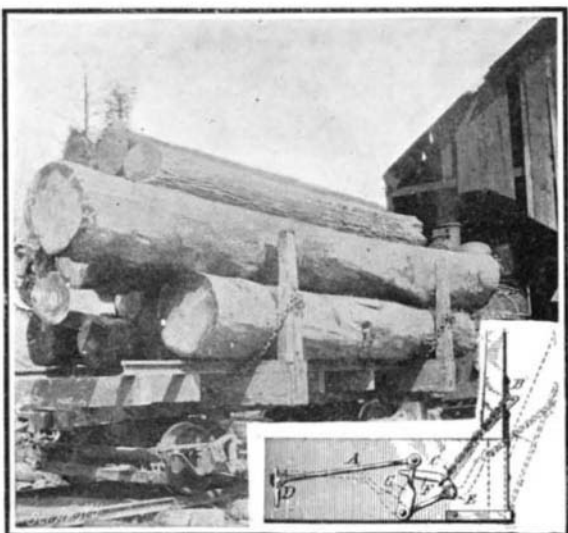
DEVICE ILLUSTRATING LAWS OF FALLING BODIES.

of an inclined plane of wood or of plate glass, is given an initial velocity at right angles to the slope of the plane, by being compelled to roll down an auxiliary incline behind a ledge, and is then allowed to roll down the plane. The path of the ball being the resultant of uniform and uniformly accelerated motion is, of course, a parabola. To secure a tracing of this curve, a piece of co-ordinate paper is secured to the plane, and a piece of soft carbon paper of the same size is placed over it. The ball, in rolling over the transfer sheet, leaves its mark upon the co-ordinate paper. Any number of duplicates can be made by repeating the experiment under precisely similar conditions, or the curve may be varied at will by changing the incline of the principal plane, the auxiliary plane, or both. Measurements made upon the curve thus traced will readily reveal the laws of uniformly accelerated motion, and the fundamental principles underlying the phenomena of falling bodies.

A pendulum attachment, not shown in the illustration, may be used to determine the value of the time interval in seconds if desired.

#### A SAFETY TRIP FOR LOGGING CARS.

Logging cars or trucks as usually constructed comprise a bed or platform with removable stakes at the sides for holding the logs in place. The stakes are commonly held in upright position by means of stake chains, and when it is desired to unload the car, these chains are released, permitting the stakes to swing outward and the logs to roll off. In order to avoid any danger to the operator when releasing the stake chains, Mr. Joseph W. Gray, of Evenwood, W. Va., has invented a safety trip of simple design, which is illustrated in the accompanying engraving. As shown more clearly in the detail view, the trip mechanism is operated by the rod *A*. The stake carries a hook *B*, over which the chain passes. The latter is made fast to the car body at one side of the stake, and at the other side it is hooked over a finger *F*, hinged to the bolt *E*. A lever *G*, also hinged to the car body, is formed with an eye adapted to receive the end of the finger *F* while it is holding the chain *C*. The rod *A*, which is connected to the end of lever *G*, serves to move the latter into or out of engagement with the finger *F*. When in engagement with this finger, the rod is locked by securing its outer end on the pin *D*. This pin is formed of two members, one of which is



A SAFETY TRIP FOR LOGGING CARS.

fixed on the car body, and the other is hinged on the fixed member, so that after the rod has been passed over the pin, the hinged member may be moved at right angles to the fixed member, as illustrated, and thus prevent the operating rod from accidentally slipping off. When it is desired to release the chain *C*, the hinged member is moved into alignment with the fixed member, the rod *A* is slipped off the pin and drawn back to the position shown by dotted lines, withdrawing the lever *G* from engagement with the finger *F*, and permitting the chain to slip off the finger. The stake will then swing outward under pressure of the logs carried by the car.

#### Brief Notes Concerning Inventions.

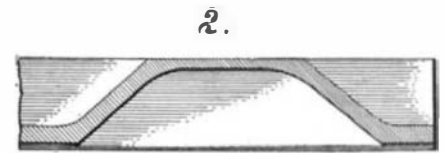
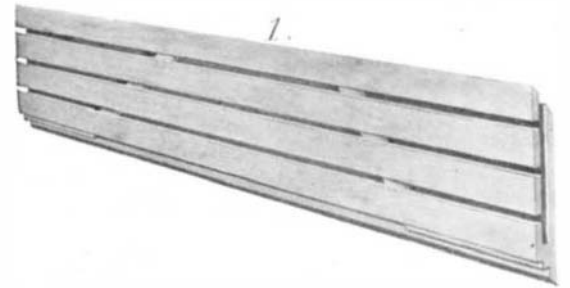
The sectional bookcase was a success from the start and it was not long before the principle was utilized in the manufacture of filing cabinets and other similar devices. Now the idea has just been seized upon by a designer of showcases and it is one which will be welcomed by many store keepers. A merchant entering on a new line as an experiment is enabled to purchase two or three units which will meet his immediate needs and not represent any great investment of money and by the addition of another unit or two he can increase the capacity of the pyramid as he desires. These cases offer ample means of protecting delicate goods from dust or from undue handling on the part of prospective customers and at the same time the contents are easily accessible. The base of the show case pyramid consists of a rather heavy piece containing one or two drawers. On top of this may be placed one or more smaller units each fitted with a glass front of the disappearing type. The latter being raised and pushed out of the way reveals two tray-like drawers which may be pulled forward for the display of the contents. As a variation on this, another style consists of a single deep compartment which is particularly suitable for topping the pyramid.

Certain recent improvements have been made in the interlocking tile. Heretofore, the clay tile has been handicapped by the fact that it was made only in red, which restricted its use where architects were endeavoring to follow a color scheme to which this color did not lend itself. Recently this drawback has been removed by the manufacture of these tiles in several different shades and colors, principally green, buff, and brown, and this alone will greatly enlarge their field of usefulness. Another important advance has been the manufacture of glass tiles, and by their use it is possible to put a transparent roof on a factory, studio, or other structure where plenty of light or an overhead light is desired. In this capacity the glass tile has already been successfully used as a substitute for the skylight, particularly in the covering of factories and workshops. In such establishments where fumes are constantly arising, the life of the skylight is quite short, for the reason that the metal work used in skylights quickly deteriorates and must be renewed frequently. In some cases it lasts but three years. With the use of the glass tile a superior light may be secured without the necessity of any break in the roof whatever. The tiles are here used in conjunction with the clay tiles, the transparent ones being inserted wherever desired and in any design. It is claimed that a skylight of any size or shape may be replaced with glass tiles, and the same amount of illumination will be obtained from one-quarter of the area of the old skylight. This is due to the fact that the shape of the tiles causes them to act as prisms and thereby greatly increase the amount of light transmitted. Tiles for roofing were first introduced about fifteen years ago and have proven to be durable and desirable in every particular. They cost about the same as slate, but last much longer.

#### SHEATHING LATH.

Illustrated in the accompanying engraving is a combination of sheathing and laths adapted for plaster or stucco work on walls or ceilings, which is so constructed as to offer the least possible obstruction to the plaster keys and a maximum of bearing or locking surface. The laths and sheathing are formed integral but are separated from each other by means of diagonal ribs. The article is formed from a board of suitable thickness, in the edges of which, at opposite sides, saws are introduced to produce kerfs. The opposite kerfs do not meet but are arranged to leave the diagonal ribs, as shown in the sectional view. The laths are now formed by running saw kerfs from end to end of the material at its inner face, these kerfs being equally spaced and of uniform width. The upper and lower edges of the article are oppositely beveled, so that abutting sections will be effectively interlocked. It will be observed that by this means, each lath, although connected to the sheathing by the diagonal ribs, is yet largely independent of this connection, so that there is less liability of obstructing the plaster keys than when ordinary laths are employed. Each lath is capable of being practically surrounded on all sides by plaster and, owing to their uniform and

regular spacing, the laths offer a much better surface on which the plaster may be laid. In ordinary work, plaster is often forced between and back of the laths to such an extent as to fall down and be of no service. The uniform spacing of the laths in the present construction obviates such a waste of material. A greater solidity is given to the wall by reason of the strong and compact combination of the two thicknesses of wood alternating with the plaster. Furthermore, the

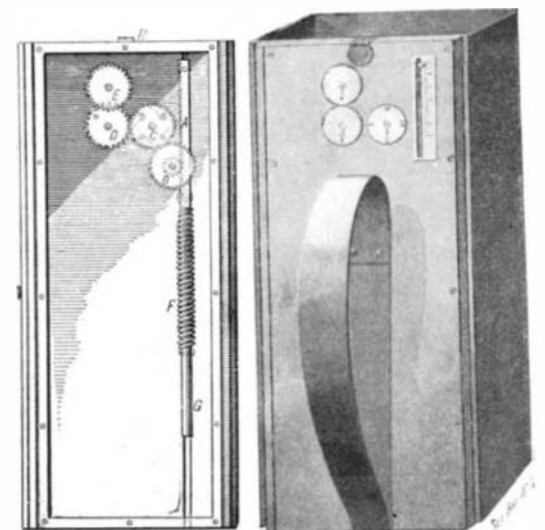


SHEATHING LATH.

completed wall will present a more even plastered surface, together with a strong combination of heat and cold resistance. The inventor of this improved sheathing lath is Mr. Eugene S. Crull, of Sedalia, Mo.

#### IMPROVED MEASURE FOR FOAMING LIQUIDS.

While it is the universal custom to sell beer by measure, yet with the ordinary measures neither the customer nor the dealer knows just how much liquor is being dealt out, owing to its excessive foaming. However, a new type of measure has just been invented, which aims to overcome this defect by indicating the weight of the liquor contained in the vessel. Furthermore, a dial is provided on which the price of the measured quantity of beer is indicated, while other dials serve to keep a permanent register of the amount of sales. The improved measure comprises two principal parts, namely, a measuring vessel and a casing connected therewith, in which the weighing and computing mechanism is housed. The measuring vessel is secured by a bracket to the rod *G*, which at its upper end is formed with a rack *A*. A coil spring *F* serves to connect the rod *G* with the chamber. The rack *A* meshes with a pinion carried by the gear *B*, while the latter engages a gear *C*. The gear *C* carries a series of dogs, as indicated by dotted lines, which engage the teeth of the gear *D*. The latter is formed with a pin, which at each revolution moves the gear *E* through a measured distance. The handle of the measure is attached to the casing, and the latter normally supports the measuring vessel by means of a latch which is controlled by the trip *H*. In use, after the measure has been filled with liquor, the trip *H* is pressed to release the latch, whereupon the weight of the liquor causes the rack *G* to move downward in the casing against the pressure of the spring *F*. This causes the gears to rotate in proportion to the weight of the liquor. The exact weight is indicated by a pointer on the rack, which travels over a scale. The gear *C* operates a dial which indicates the price of the measured liquor, while the gears *D* and *E* are also operated to add this price to the totals of the previous sales. After the liquor has been poured out all the parts return to normal position, with the exception of gears *D* and *E*, which remain idle owing to the fact that the dogs on gear *C* are inactive when the latter gear is returning to its normal position. The inventor of this improved liquid measure is Mr. Frank W. Havlicek, of Twin Falls, Idaho.



IMPROVED MEASURE FOR FOAMING LIQUIDS.