

New Inventions.

Improved Drawing Instruments.

Our engraving illustrates an improvement which is designed to facilitate draughtsmen in the ruling of parallel lines. It consists in a device for moving the rule over the surface of the paper, the arrangement being such that the instrument traverses a certain distance at each pressure of a trigger. Parallel lines are thus ruled with great rapidity and exactitude. There is also an arrangement for graduating the distance between the lines, which is highly useful in parallel shading.

Figs. 1 and 2 illustrate a triangular rule, for ruling parallel lines, fig. 1 being a perspective view, and fig. 2 a sectional elevation, showing the mechanism for moving the instrument.

A is a slide, the bottom of which projects through a slot in the rule, B, and rests on the surface of the paper. The bottom of A is covered with india rubber so as to form a better frictional combination with the paper. C is a trigger hinged to the top of the rule at a, and connected by means of an inclined rod, D, with the top of A. When trigger C is pushed down, the slide, A, is pressed firmly upon the paper, and held, serving as a fulcrum, the inclined rod, D, acting as a lever to carry the rule forward.

The rule thus moved being held by the finger from slipping back, the trigger is released, and the slide, A, is brought back to its first position by means of a spiral spring, E, which is attached at one end, A', as shown. The trigger being thus alternately pressed and released, the rule is caused to travel over the paper, step by step, and the lines drawn by its edge, will all be equi-distant from each other. The great convenience of this improvement will be apparent when it is remembered that the ordinary method requires the pricking off of each line by the dividers, in order to render them accurate.

The space between the lines is changed by means of the cam button, G, which may be turned against the end of the slide, A' so as to regulate the distance moved by the rule at pleasure. A', it will be observed, projects up through the top surface of the rule, in order to meet cam G, which is conveniently located.

Fig. 3 shows the application of the improvement just described to a T-square, with the addition of a self-acting attachment, which alters the space between the lines ruled. This is useful in all kinds of linear shading, as for example in drawing cylinders or columns. The mechanism for moving the rule is substantially the same as that just described, the slide, A, being placed in front so as to rest on the edge of the drawing-board. The alteration in the space between the lines is accomplished by having the cam, G, (figure 3,) made in the form shown, the slide, A, being connected with another slide, H, having a follower, I, which bears against the surface of G. J is a rod attached to cam G, and K another rod, through one end of which J slides; the other end of K is furnished with a pin button, L, which is affixed to the surface of the board, and remains stationary. When the trigger, C, is pressed, the square advances, and in consequence of rod, K, being fixed at one end, rod J moves and turns cam G; and the cam, G, acting on the follower, H, the rule can only move further or less, according to the configurations of the cam. The lines ruled may thus commence very fine and gradually widen, as desired, and vice versa.

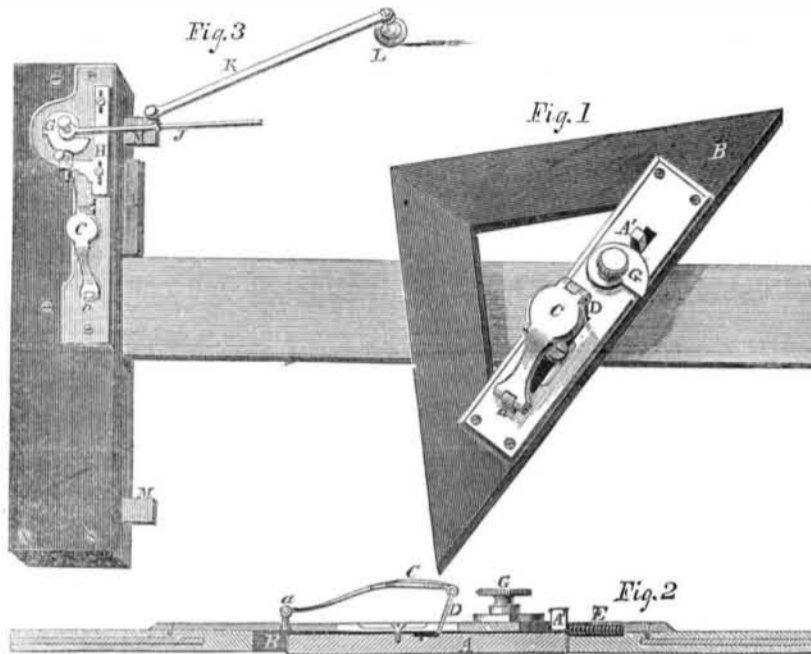
To illustrate the uses of this improvement, let us suppose we have a number of window frames with sash, &c., to be laid out. The right position of the window frame is given, and we want to finish up the window. Let us suppose the engraving is made three-eighths by one foot, and the frames are ten by six inches wide, then set the square so as to move three-tenth inches, and bring the edge to the already given point; draw one line, say the inside one of the window; give the trigger, C, a pressure, which will move it three-sixteenths of an inch, then draw the second or outside line, and so on until it is completed.

This saves at least one half of the time it would take to do the same in the old manner, and does the work better, because the square will move just such a distance, consequently the lines will present a uniform character, and give the whole an appearance of accuracy and neatness.

Again, suppose a builder has to furnish the lumber plan for a floor, the size of the joists is the same throughout, and the distance between

the different timbers is likewise the same—then we would set the square so as to move by each pressure the size of the joists, and one space, then draw a line, and mark the size of the joists to the first line drawn, repeat the same and you will have all the lines exactly the same distance apart as the first two lines—so the draughtsman is enabled to do double the amount of work, and better, because there can be no variation in the movements of the

IMPROVED DRAWING INSTRUMENTS.



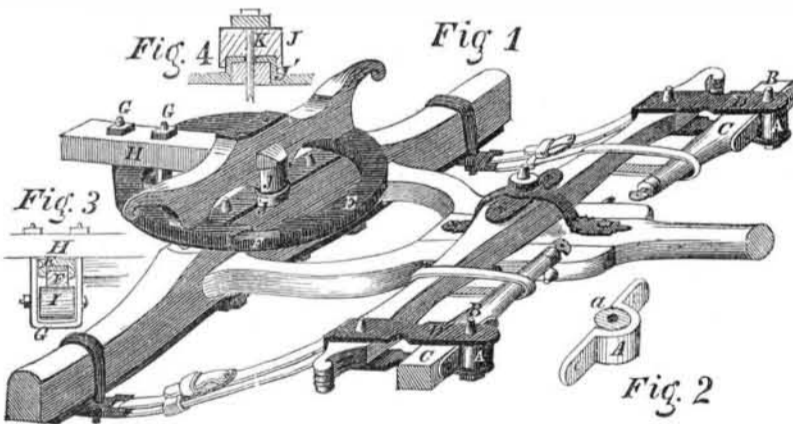
T-square. The mechanical draughtsman is often called on to shade a section of some part of a building, or machine; with a brush and ink it would be disfigured, while a line shading would be an ornament to the drawing; but it is so very difficult to give the line shading a uniform appearance that most draughtsmen have abandoned it altogether. The square, with the aforementioned apparatus attached to it, will make line shading more handy and economical than any other. The same ink used for common lines can be used for shading.

For machinists and draughtsmen this improvement is quite indispensable; there is a call for such an instrument in every screw or

bolt, where he has to represent a thread, and where he has now to move his square or triangle by the eye, or waste hours after hours in measuring the size of the thread for a small number of screws, which, with this apparatus can be finished in as many minutes. In drawing machines, where a part is shown in section, line shading is at once the only shading that will most accurately define the various portions.

The simplicity of the whole arrangement is such as to enable any person to become perfectly familiar with its use in a very short time. Invented by R. Eickmeyer. Patented March 11, 1856. For further information apply to J. T. Bates, 208 Broadway, N. Y., room 10.

IMPROVEMENT IN CARRIAGES.



Improvement in Carriages.

The improvements illustrated in our engraving are the inventions of Mr. Geo. Kenny, of Milford, N. H. They consist, firstly, in a method of preventing all rattling of the whiffletree. This is done by filling the clip piece, A, with rubber or other elastic substance, the bolt, B, which connects the whiffletrees, C, with the hounds, D, passing through the rubber. In fig. 2, which is enlarged, A is the clip piece, and a the rubber. It is obvious that the rubber will not only prevent all noise, but also obviate wearing of the parts. It likewise acts in part as a spring upon the whiffletrees, preventing any unnecessary movement, always keeping them in place, etc. The expense of this improvement, both in first cost and for any subsequent renewal, is quite insignificant, but the advantages secured are important.

The second improvement relates to the construction of the fifth wheel, the upper section of which, E, is made with lips, so as to cover the lower section, F. A washer of

leather is introduced between the two surfaces, and the entrance of dust and dirt is thus prevented. Additional strength is also given by this plan, to the fifth wheel, a good, smooth, easy bearing always preserved, durability increased, etc.

The method of combining the sections of the fifth wheel is also an improvement. It usually consists of a simple loop, G, attached to the reach, for the purpose of holding up the lower section, F. The novelty, here, consists in furnishing the loop, G, with an elastic rubber roller, I, which bears up against the lower side of section F, and keeps it constantly in contact with E. See fig. 3.

The transit or king bolt, K, which unites the body of the vehicle to the front wheels, is generally subjected to great strain, but is here entirely relieved. (See fig. 4.) It passes down through the center of a box, J J', one section of which fits into the other, with a washer between. The strain which commonly falls upon the king bolt is thus sustained by the lips of the box, J J', and they are so closely fitted

that no dust can enter. The durability, tightness, and safety of the king bolt is thus greatly increased.

We have seen certificates from a number of persons who have these improvements in use, and they speak of them in the highest terms of commendation. They are devices which will unquestionably render all vehicles, to which they are applied, safer from accident than they otherwise could be, besides saving time, trouble, and much expense for repairs. Address the inventor as above, or Geo. N. Davis, 152 Congress street, Boston, Mass., for further information. Patented July 29, 1856

Improved Nautical Instrument.

We have lately examined an ingenious instrument by Ralph Reeder, of Cincinnati, which combines three important uses: first, it exhibits to the eye, at a glance, the local variation of the magnetic needle, with unerring certainty. Second, it exhibits the altitude of the sun, and thus enables the mariner readily to compute latitude. It also exhibits the true time, and, by comparison, by the aid of the chronometer, shows the longitude. A chronometer is connected with the instrument. Without drawings it would be difficult to convey a good idea of its construction. It appears to be a practically useful invention, destined to render important assistance in navigation. It is based upon strictly scientific principles. Mr. Reeder has been engaged upon this invention for about twenty years, and has at last conquered every obstacle.

The Scientific American.

A new volume of this useful and admirably conducted weekly will commence on the 13th prox., and we commend it to the attention of every mechanic, inventor, engineer, farmer, man of science, and to every profession. Its illustrations of valuable inventions and descriptions of patented discoveries cover the entire field of ingenuity, both at home and abroad. Its editorials are the result of extended experience, and embody the most practical suggestions in the simplest manner. Philadelphia, which is the great manufacturing center of the country, should take at least ten thousand copies of this important work.

[Our friends, Messrs. Wallace & Fletcher of the Philadelphia Sun, will accept our thanks for the above friendly shake of the hand. We are indebted to many editors throughout the country for their kind notices of the SCIENTIFIC AMERICAN.

Ice by Machinery.

The Cleveland, Ohio, Herald states that there is a machine at the Cuyahoga Works, in that city, which makes a ton of ice per day. The ice is made in cakes of 6 by 12 inches thick, weighing 32 lbs. each. It is also stated that the expense for manufacturing only amounts to \$5 per ton.

Franklin Institute Exhibition.

This Institute will hold its next Annual Exhibition in James' Building, Chestnut st. Philadelphia, during the month of November.

A brilliant meteor recently passed over Webster County, Iowa, illuminating the whole heavens for a few seconds. The source of these meteors is yet a mystery.

Revenue of British Railroads.

The total income of railroads in Great Britain for the first six months of the present year amounted to 49,940,490.

SPLENDID PRIZES.—PAID IN CASH.

The Proprietors of the SCIENTIFIC AMERICAN will pay, in Cash, the following splendid Prizes for the largest Lists of Subscribers sent in between the present time and the first of January, 1857, to wit

For the largest List,	\$200
For the 2nd largest List,	175
For the 3rd largest List,	150
For the 4th largest List,	125
For the 5th largest List,	100
For the 6th largest List,	75
For the 7th largest List,	50
For the 8th largest List,	40
For the 9th largest List,	30
For the 10th largest List,	25
For the 11th largest List,	20
For the 12th largest List,	10

Names can be sent in at different times and from different Post Offices. The cash will be paid to the order of the successful competitor, immediately after the 1st of January, 1857.