## 

## Improved Brawing Instrumenta

 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 a 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 perspec tive view, and fig. 2 a sectional elevation showing the mechanism for moving the instrument.
A is a slide, the bottom of which project 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 bet ter frictional combination with the paper. 0 is a trigger hinged to the top of the rule at $a_{2}$ 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, $\mathrm{A}^{\prime}$, as shown. The trigger being thus alternately pressed and reonsed, 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 of of each line by the dividers, in order to rende 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, $\mathrm{A}^{\prime}$ 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 convenientl ocated.
Fig. 3 shows the application of the im provement just described to a T-square, with the addition of a self-acting attachmen which alters the space between the lines ruled This is useful in all kinds of linear shading as for example in drawing cylinders or col umns. The mechanism for moving the rul is substantially the same as that just described the slide, A, being placed in front so as to res on the edge of the drawing-board. The al teration 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 fol lower, 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 thuscommence 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 w
eatness.
gain, suppose a builder has to furnish the umber plan for a floor, the size of the joists is
the different timbers is likewise the samethen 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 dranghtsman is enabled to do double -so the dranghtsman is enabled to do double the same throughout, and the distance between can be no variation in the movements of the

## IMPROVED DRAWING INSTRUMENTS.



T-square. The mechanical draurhtsman is bolt, where he has to represent a thread, and often called on to shade a section of some part where he has now to move his square or triof a building, or machine; with a brush and angle by the eye, or waste hours after hours nk it would be disfigured, while aline s'a ading in measuring the size of the thread for a small would be an ornament to the drawing; but it number of screws, which, with this appara is so very difficult to give the line shading a tus can be finished in as many minutes. In uniform appearance that most draughtsmen drawing machines, where a part is shown in have abandoned it altogether. The square, section, line shading is at once the only shawith the aforenamed apparatus attached to it will make line shading more handy and economical than any other. The same ink used or common lines can be used for shading.

For machinists and draughtsmen this improvement is quite indispensable; there is a all for such an instrument in every screw or ply 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 whif fletree. This is done by filling the clip piece A, with rubber or other elastic substance, the bolt, B, which connects the whifletrees, 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 ignificant,
important.
The second improvement relates to the construction of the fifth wheel, the upper sec tion of which, E , is made with lips, so as to cover the lower section, F. A washer of
leather is introduced between the two surf ces, 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, $\mathrm{J} \mathrm{J}^{\prime}$, 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, $\mathrm{J} \mathrm{J}^{\prime}$, and they are so closely fitted
that no dust can enter. The durability, tight ness, and safety of the king bolt is thus great y 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., fo further information. Patented July 29, 1856

## Improved Nautical Instrument.

We havelately examined an ingenious instrument by Ralph Reeder, of Cincinnati, whic combines three important uses : first, it exhibits to the eye, at a glance, the local variation of the magnetic needle, with unerring certain ty. Second, it exhibits the oltitude of th suin, 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 dificult to con vey a good idea of its construction. It ap pears to be a practically useful invention, des tined to render important assistance in navigation. It is based upon strictly scientific principles. Mr. Reeder has been engaged upon this invention for about twenty year and has at last conquered every obstacle.

## The Sclentifle American

A new volume of this useful and admirably conducted weekly will commence on the 13 th 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 de scriptions of patented discoveries cover th 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. Phila delphia, which is the great manufacturing center of the country, should take at least te thousand copies of this important work.
[Our friends, Messrs. Wallace \& Fletche 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 Scientif ic American.

## Ice by Machinery.

The Cleveland, Ohio, Herald states that there is a machine at the Cuyahoga Works, in that city, which makes a tun 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 tun.

## Franklin Insticute Exhibition.

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

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

Revenue of British Railronds.
The total income of railroads in Great Britain for the first six months of the present yea amounted to $49,940,490$.

SFLENDID PRIZES.-PAID IN CABH. The Proprietors of the Scientific American will pay, in Cash, the following splendid Prizes for the largest Lists of Subscribers sent in bee the prese time and the first of January, 1857, to wit

> For the 2nd largest List,
> For the 3rd largest List,
> For the 4th largest List,
> For the 5th largest List,
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> For the 9th largest List,
> For the 10 th laraest List,
> For the 11 th largest List,
> For the 12 h laricst List,
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erent Post Offices. The cash will be paid to the order of the successf
Junuary, 1857 .

