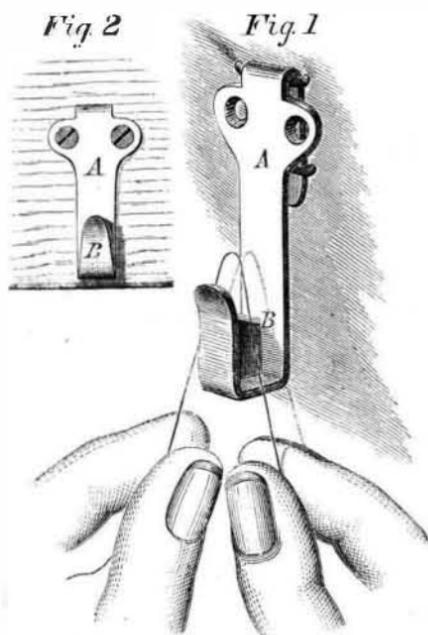


**THREAD CUTTER.**

Our engraving illustrates a very simple device intended to replace scissors in the cutting of thread while sewing, and for use on counters for cutting twine, etc., in the tying of packages. Fig. 1 shows it attached to a lady's dress, and Fig. 2 shows it attached to a counter. When fastened to the dress, it is secured by sewing, or by a hook formed for that purpose on the upper end. Screws are used to fasten it to the counter.



It consists of a metal hook, A, formed as shown, with a small blade, B, the vertical sides of which fit in recesses formed in the bent part of the hook, and are held there by the springing together of the opposite sides of the hook. By springing the hook open slightly, the blade is easily removed for sharpening. The upper and cutting edge of the blade is inclined backwards, as shown, so that the thread slides along over the edge of the cutter, and is thus more easily severed than if pulled straight down over the edge. The implement may be attached to the waist of the dress of the operator.

To avoid using the scissors, which necessitates the releasing of the work with one hand, ladies have very generally adopted the injurious process of biting off threads. This practice damages the teeth, and ought never to be employed. The device herewith presented will enable the thread to be severed without releasing the work, and thus obviate the bad habit alluded to.

Patented through the Scientific American Patent Agency, by J. J. Henry, assignor to Henry & Williams, corner Pearl and Baltimore streets, Baltimore, Md., whom address for further information.

**APPARATUS FOR CARBURETING HYDROGEN GAS.**

Jacob Ambuhl, of Morristown, N. J., has invented an apparatus for carbureting hydrogen gas. A tank in which the hydrogen gas is generated, of a capacity which depends upon the amount of gas to be supplied, or, in other words, to the number of burners to be supported, has a top plate or cover connected with the top of the tank by a rubber connection, so that the cover may yield to, or raised by, the pressure of the gas which is forced out by the weight of the cover.

From a hook attached to the cover is suspended a wooden basket to receive iron filings or turnings. The bottom of the basket is perforated to allow water or dilute sulphuric acid contained in the tank to have free access to the iron contained in the basket. Beneath the perforated bottom is placed a close bottom to receive any small pieces of iron that may drop through the holes in the upper bottom, in order to prevent pieces from dropping to the bottom of the tank.

The tank is filled and emptied through a stop cock as may be required, and is provided with a glass gage pipe, in which the water or acid stands at the same height as in the tank, so that it may be conveniently seen when the tank has been sufficiently supplied.

The hydrogen gas passes from the generator to the carbureter through a pipe connected with the tank by a three-way cock; one of its openings being connected with the tank, the second with the pipe, and the third being left free; and so arranged as to point towards a stand attached to the cover and holding a platinum sponge.

When the tank has been charged, the cock is so adjusted that the air in the tank and the hydrogen gas, as generated, may escape through the open way or branch, and impinge upon the platinum sponge, which will become red hot when the air has all escaped from the tank and pure hydrogen is escaping. The cock is then adjusted to cause the hydrogen to pass through the pipe to the carbureter.

The body of the carbureter is formed of a series of ten, more or less, shallow rectangular pans, set parallel with each other, securely soldered together, and filled with granulated charcoal. The pans have openings formed through them, near the ends of their upper sides, and the first pan or compartment is connected by a short return pipe with the second pan or compartment. The first compartment is filled with granulated charcoal and soda, and with this compartment is connected the pipe leading to the generator. The carbureter is supplied with gasoline or other suitable light hydrocarbon oil, which passes through the middle part of

the pans near one end, through a pipe perforated with numerous holes, opening into all the pans except the first one.

The hydrogen enters the first compartment, is purified by the soda, and passes thence into and circulates through all the compartments, where it becomes carbureted, and escapes from the last compartment into a pipe, through which it passes to the burners.

Any water that may form in the first compartment, or any surplus oil that may remain in the other pans or compartments may be drawn off through suitable cocks.

**IMPROVEMENT IN STOCK CARS.**

George Washington Fox, of Laramie Territory of Wyoming, has invented a new and useful improvement in stock cars, which will, we think, commend itself to stock shippers, and as a sanitary benefit to the public at large.

The invention provides for the better transporting of beef cattle, from the western prairies, mountains, and valleys, to the seaboard markets, without suffering, or having to unload or reload them, thereby delivering them to the markets in a sound, healthy condition.

The invention will be valuable, also, for shipping horses or mules. Water buckets or troughs are supplied by hose, connected with a tank, the hose connecting with pipes to receive and conduct the water through the car, and connecting with sections of pipe or hose to conduct the water to the troughs.

The timbers for the roof are framed together, so that the rafters and the cross pieces form openings for doors on the roof, one half of which are over a loft floor, and one half over a feed rack, giving space to reach the provender and fill the feed racks from the top of the car, over which openings are made through the floor of the provender space at the top of the car.

A pipe extends from the bottom of each trough or bucket, down through the floor, with a cock at the end to hold the water, or to draw off the surplus water in freezing weather. The water is forced to each trough or bucket at the same time, by the pressure of water in the tank with which the hose is to be connected at the stations.

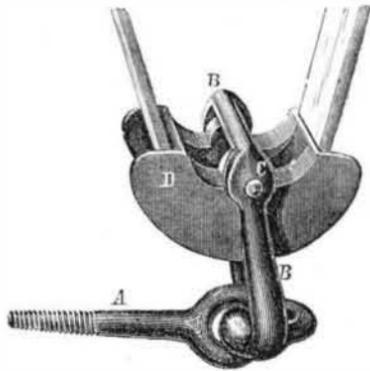
Wire nettings are employed to keep out sparks of fire, and flies during warm weather, while affording the required ventilation.

The partitions between the stalls are made of hard wood plank, the ends of which slide in the grooves of the posts. The partitions have a hand hole at either end, by which they can be removed without entering the car by using the pike hooks, one man being at each side of the car to place a pike hook in the hand hole, raise the partition to the top of post, and take it out of the groove at the niche for that purpose.

Gentle stock may be loaded in this car all at one door, by having the partitions down, and putting them up as the animals are led to their places; they may be unloaded in the same manner, by taking the partitions down as they are led out. In shipping valuable stock, every alternate partition may be taken out, thus giving them double stalls. Wild, ferocious stock can be put through the doors in their respective stalls, after which there is no need of entering the car to take care of them. In unloading ferocious animals, it is necessary to use the pike hooks and remove the partitions, held by the posts, for letting out two animals at a time, each passing out at the door the other came in at, or passing nearly directly forward through the car, instead of backing them out; the next are led out in the same manner, and so on to the last.

**REAT'S IMPROVED DESIGN FOR NECK-YOKE RING AND SLIDE.**

The design shown in our engraving possesses advantages over the old style ring, which will appear on reference to the engraving, in connection with the accompanying description.



The part, A, screws into the end of the neck yoke, in the usual manner. The ring, B, is made of an elongated angular shape, as shown, and has pivoted to it, at C, a slide, D. This slide is made with a broad surface, upon which the breast strap draws; the method of pivoting allowing any ordinary motion of the ring to take place without any sliding of the strap on the ring and consequent wear. The strap is, moreover, kept smooth and flat on the slide, which also adds to its durability.

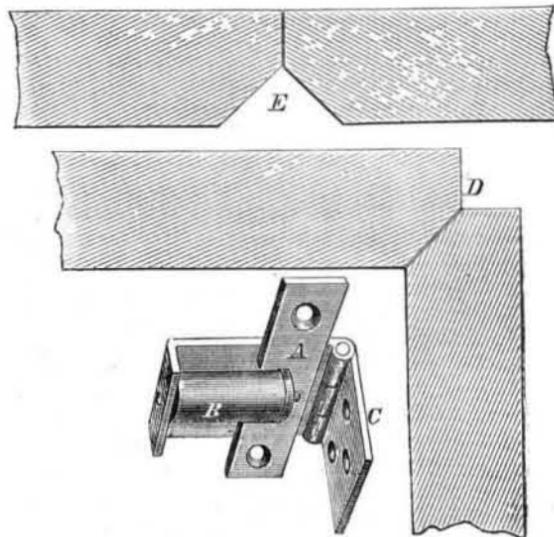
Patented, August 9th, 1870, through the Scientific American Patent Agency, by Robert L. Reat, of Charleston, Ill., whom address for state, county, or other rights.

THE recent dry weather has had the effect of producing such a demand for hose pipe that the New York Belting and Packing Company find it difficult to supply the demand although they turn out over one mile a day.

**HIRE'S PATENT TABLE HINGE.**

Our engraving represents an improvement, patented April 25, 1871. It consists of a wrought or malleable cast iron hinge for table leaves. One end, C, is of the same size and shape as the hinge now in use, and is screwed to the leaf in the same manner; the other part, A, is fastened to its place by a cast iron plate, and slides on a gum or spiral spring, B, as shown.

The joint is made by cutting down a square bevel on the table and leaf, thus entirely doing away with the knuckle, the only troublesome and expensive part of the table as now made, and the only part that gets out of order. The cost of



the hinges over those of the old style is trifling, and the bevel can be worked and the hinge put on, thereby completing the joint, in a very few minutes, by any ordinary mechanic. The positions of the joint when the leaf is dropped and extended are respectively shown at D and E.

For rights, or other information, apply to Hires, Ringo & Co., Columbus, Ky.

**PLOWING AND CULTIVATION OF CROPS BY STEAM. IMPROVEMENTS WANTED.**

We publish in another column an interesting description, by Horace Greeley, Esq. of the practical operation of steam power in agriculture, as now worked in Louisiana, near New Orleans. Mr. Greeley is at present travelling in the South, and his letters to the *Tribune* contain much useful information.

The importance of steam in plowing is well illustrated in the example which Mr. Greeley describes, whereby the furrows are turned to a depth of two feet, when before, without steam, a depth of six inches only was attainable. The practical result of the steam plowing is 2,000 pounds of sugar per acre, against 800 pounds by mule plowing.

He shows that an equally important gain results from the use of steam in the cultivation of the crops.

The general adoption of steam for the purposes of agriculture would add incredibly to the wealth of the nation. If it works so well and profitably in the hands of the colored laborers of the South, we see no reason why it may not be adopted with equal success in all parts of the country. But it is clear that the mechanism needs to be simplified and reduced in cost.

We call the attention of our readers to the subject in the hope that it may be carefully examined and studied. A great and important field for invention is here opened for the ingenious. Steam plows, steam seed planters, steam cultivators, and steam harvesters, are wanted everywhere. But our farmers must have small, strong, simple, and reliable machines.

**What is a Carat?**

The carat is an imaginary weight, that expresses the fineness of gold, or the proportion of pure gold in a mass of metal; thus, an ounce of gold is divided into 24 carats, and gold of 22 carats fine is gold of which 22 parts out of 24 are pure, the other two parts being silver, copper, or other metal; the weight of 4 grains, used by jewelers in weighing precious stones and pearls, is sometimes called diamond weight—the carat consisting of 4 nominal grains, a little lighter than 4 grains troy, or  $7\frac{1}{8}$  carat grains being equal to 72 grains troy. The term or weight *carat* derives its name from a bean, the fruit of an Abyssinian tree, called *kua-ra*. This bean, from the time of its being gathered varies very little in its weight, and seems to have been, from a very remote period, used as a weight for gold in Africa. In India also the bean is used as a weight for gems and pearls.

**ARTESIAN WELL.**—Great trouble and expense has heretofore been experienced by the Union Pacific in supplying their stations and cars in the alkaline district with water. The extent of territory from Rawlins to Green river—136 miles—had to be provided for entirely by water transported in cars. Mr. T. E. Sickels, the General Superintendent, was of the opinion that purer water might be had if a well were sunk deep enough, and a recent experiment has justified his view. The *Omaha Daily Herald*, May 10, '71 says it has a specimen of soft, pure water, from a well which has been sunk 350 feet deep, at Point of Rocks. This is 805 miles west of Omaha, and is in the heart of the alkali district. The supply of water is plentiful, and it rises to within eleven feet from the top of the well.