

RECENT AMERICAN PATENTS.

In engineering we notice an improved sectional boiler by R. Cosslett, Jr., of Bristol, England, which is composed of a number of inclined tubes having connections which alternate in position and insure a complete circulation.

An improved tube fastening for boilers, contrived so that the tubes may be readily inserted and removed, is the invention of Mr. W. H. Walsh, of Fort Worth, Texas. The device appears well calculated to strengthen the boiler.

A mining car truck, the invention of Messrs. W. McGaskill and J. Meinhard, of Virginia City, Nev., is provided with wheels which turn independently, and with self-lubricating axle boxes which exclude dust from the journals.

Among mechanical patents we find a cotton press, by Mr. J. J. Hines, of Savannah, Ga., which consists in a combination of two toggle joints, with a peculiar windlass arranged in relation to the platen, so that the power is advantageously applied to the cotton bale.

Among agricultural inventions we find an improved wheel cultivator by Mr. N. T. Remy, of Brookville, Ind., which is adjustable as to width, and is arranged so that either of the horses attached to the machine may draw in advance of the other without changing the direction of the machine.

Mr. Daniel C. Fosgate, of Rochester, Minn., has invented a sulky plow, the frame of which may be leveled and the plow adjusted by the driver while in his seat.

Another sulky plow, of novel design, devised by Mr. L. Brown, of Wartsburg, Washington Ter., has its plow supported at one side of the sulky, and is provided with a ready means of adjustment.

A new form of rotary churn, invented by Mr. John McAnespey, of Philadelphia, Pa., has its dasher bars so disposed as to render it very effective.

Mr. Thomas P. Williamson, of Golconda, Ill., has patented an Apparatus for Dividing or Colonizing Bees, consisting of two hives, each made in two sections, having vertical movable walls.

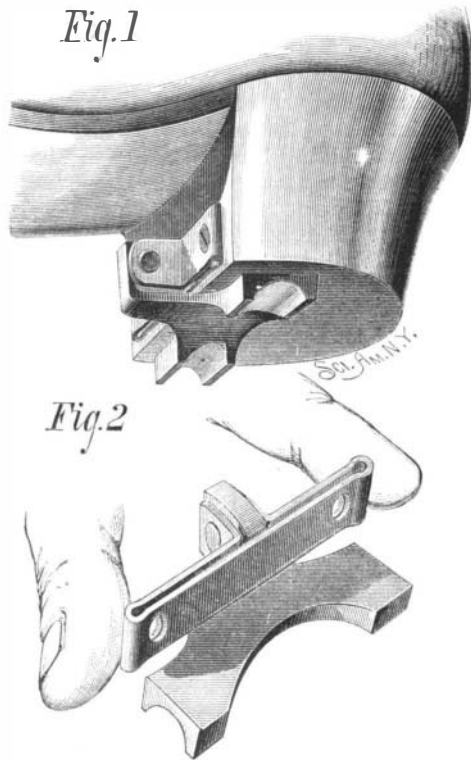
An improved Fence by Mr. Josiah H. Bailey, of Wilmington, Ohio, is cheap, strong, and durable, can be easily and quickly erected or removed. It consists partly of wood and partly of iron; wooden posts are avoided.

Mr. William A. Yeatts, of Little River, Va., has an improvement in Cutters in which the hay and straw are subjected to a shear cut by the reciprocation of the knife or knives in the arc of a circle; the knives cut at every stroke backward and forward.

Mr. J. K. Boswell, of St. Louis, Mo., has a device for heating, cooking, and for drying clothes or fruit. The apparatus has the appearance of a piece of ornamental cabinet furniture, the internal parts being made of metal and the outside of wood.

A NEW ICE CREEPER.

The desirability of an efficient ice creeper is admitted, but the amount of time consumed in attaching and detaching



AUSTIN'S ICE CREEPER.

creepers of the ordinary form is sufficient to prevent their general use.

The accompanying engraving shows an ice creeper that may be folded up against the sole of the boot when not in use, and may be readily unfolded so as to present four points to the surface of the ice.

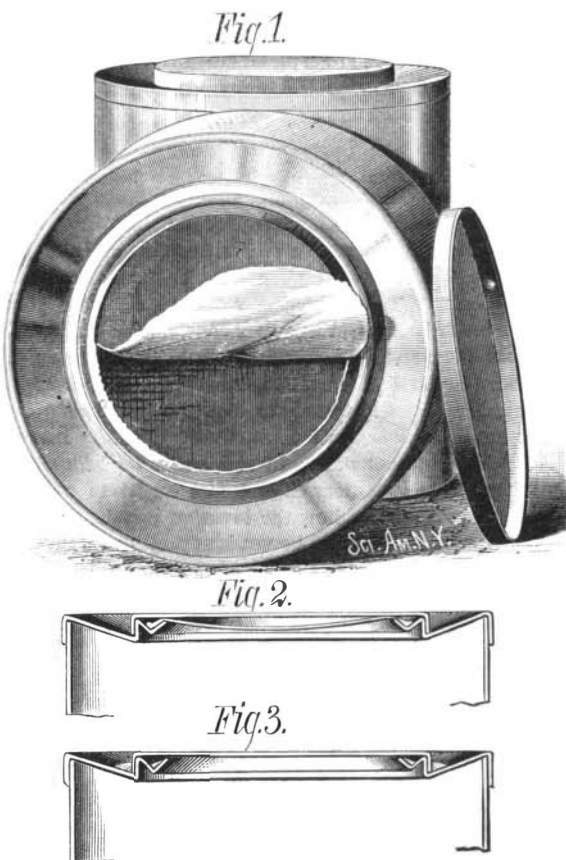
The invention consists in a strip of metal turned upon itself to form a spring, and bent outward, forming ears, between which is pivoted the right angled arm of the plate which carries the spurs.

When the device is in use it is arranged as shown in Fig. 1. When it is not in use the concave surface of the plate is folded up against the narrower portion of the shoe sole.

A patent for this invention was recently granted to Mr. Edward D. Austin, of Erie, Pa.

AN IMPROVED FRUIT CAN.

The improved can shown in the accompanying engraving is the invention of Mr. Edwin Norton, of Chicago, Ill. It is intended for the use of packers of canned goods, and afterward to be used by families, thus saving the cost of new cans, an important item when the amount of money annually expended for the ordinary wax sealing tin cans is considered. The cans used by packers can be used but once, as they are destroyed in opening.



NORTON'S FRUIT CAN.

This can has two caps, the inside one being made of thin tin, which may be readily punctured and cut when the can is opened, and it cuts out smoothly, so that the contents may be readily removed, and the can will be left in good condition for further use. The outer cap adheres by friction, and there is the usual wax groove common to such can tops, which permits of using wax or cement in sealing in the usual way.

For further information address Messrs. Norton Brothers, Chicago, Ill.

The St. Gothard Tunnel.

It has been held that the workings in the Nevada silver mines are the hottest in the world; nor is this remarkable, seeing that the said workings are driven in what may be termed the crust of a recent volcano. If the stories which reach us from the St. Gothard Tunnel be true, the heat in the heading must be even greater than that in the silver mines. The total length now bored is 13,500 yards from both ends. The workmen, we are told, are subjected to such a temperature that "they can wear no clothes whatever. They return to the mouth of the tunnel streaming with perspiration, their faces are yellow and ghastly, they cannot bear the light of the sun, they walk with bent shoulders, and stagger as if carrying burdens too heavy for their strength."

This seems to denote phenomena which deserve attention. In the Nevada mines the temperature is high for very good reasons. In deep mines it is high because the nearer we approach the center of the earth the hotter things get, for reasons not too well explained. But in the St. Gothard tunnel there is no approach to the center of the earth, and the constant escape of cold air from the perforators ought to make the place chilly, rather than the reverse. Can it be that a volcano may be tapped before the tunnel is finished? Speaking seriously, says the *Engineer*, there would appear to be some very great defect in the ventilating arrangements, in consequence of which the lights used exalt the temperature. If it can be shown that the heat is as great as it is said to be, the matter should be investigated by some competent authority, as the results of such an investigation may throw light on certain questions now very obscure.

Dangerous Houses.

Houses that have been empty may become fever breeders when they come to be re-occupied. An English sanitary officer alleges that he has observed typhoid, diphtheria, or other zymotic affections to arise under these circumstances. The cause is supposed to be in the disuse of cisterns, pipes, and drains, the processes of putrefaction going on in the impure air in them, the unobstructed access of this air to the house, while the closure of windows and doors effectually shuts out fresh air. Persons moving from the city to their country homes for the summer, should see that the drains and pipes are in perfect order, that the cellar and closets are cleared of rubbish, and the whole house thoroughly aired before occupying. Carbolic acid used freely in the cellar is a good and cheap disinfectant.

Aerial Telegraphy.

Professor Loomis, of Washington, according to the *New York Tribune*, appears to be still enthusiastically carrying on his experiments in aerial telegraphy in West Virginia. Aerial telegraphy is based on the theory that at certain elevations there is a natural electric current, by taking advantage of which wires may be wholly dispensed with. It is said that he has telegraphed as far as eleven miles by means of kites flown with copper wire. When the kites reached the same altitude or got into the same current, communication by means of an instrument similar to the Morse instrument was easy and perfect, but ceased as soon as one of the kites was lowered. He has built towers on two hills about twenty miles apart, and from the tops of them run up steel rods into the region of the electric current. The Professor announces that he has recently discovered that the telephone can be used for this method of communication as well as telegraphic instruments, and that of late he has done all his talking with his assistant, twenty miles away, by telephone, the connection being aerial only. He claims that he can telegraph across the sea without other wires than those necessary to reach the elevation of the current. There seems no immediate probability, however, of our getting on without poles and wire and ocean cables.

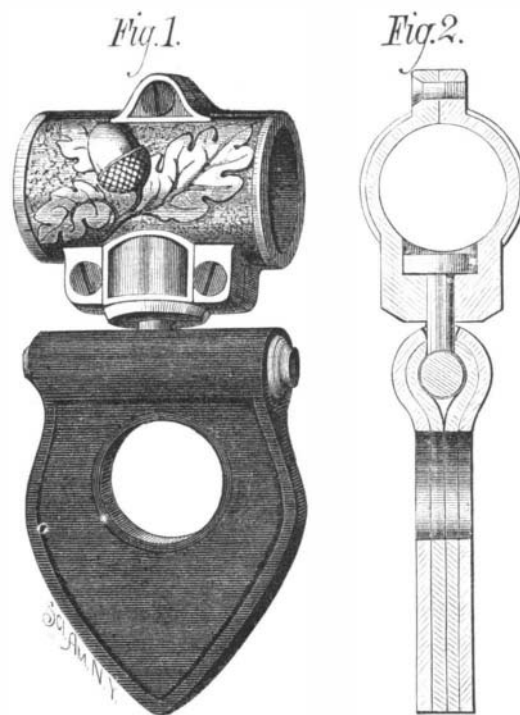
Explosion of Deflagrating Matter.

The author examines into the causes of an explosion by which a M. Zédé had been severely wounded. The latter was endeavoring to find a compound which without exploding should be entirely resolved at the lowest possible temperature into gases and vapors, and which should serve as a motive power. For this purpose he employed a mixture of gun cotton and of nitrate of ammonia. After finding the most suitable proportions he was studying in how far the speed of combustion, very slow in the open air, might be modified under increased pressure. On one occasion, when setting fire to the mixture contained in his apparatus, there occurred a violent explosion, attended by a flash of light. The tube, which had been tested up to fifty atmospheres, was shattered to pieces, and the experimentalist was seriously wounded. It would appear that a slight decrease in the orifice through which the gases escaped had changed the nature of the process from deflagration to detonation.—*M. Dupuy de Lome, in Comptes Rendus.*

AN IMPROVEMENT IN NECK YOKES.

The accompanying engravings represent in perspective and in section a novel neck yoke ring recently patented by Mr. Leopold Biddle, of Knoxville, Iowa.

The sleeve which encircles the neck yoke is made in two parts, fastened together by screws or rivets passed through the projecting ears. In one side of the sleeve there is a socket for receiving the head of a T-shaped iron, around which is placed the leather ring that encircles the pole; an iron or steel ring may be substituted for a leather one if desired, and the sleeve may be made of brass, bronze, or malleable iron.



BIDDLE'S NECK YOKE RING.

This device permits of all necessary movements of the neck yoke, and does not in any way detract from the strength of the yoke.

To Make Fabrics Impermeable to Water.

The Bavarian *Industrie und Gewerbe Blatt* says that M. Von Mallmann, of Paris, has recently taken out a patent for a new process of rendering any woven fabric impermeable to water without affecting its color or impeding the free passage of the air. The process consists in immersing the cloth in a bath composed of water, acetate of alumina, and Iceland moss. The latter article is first boiled in the water and the acetate of alumina afterward added. The fabric is allowed to remain in the solution two or three hours and then taken out and dried.

The Spring Outlook.

The *United States Economist and Dry Goods Reporter* of this city discovers, since the first of January, encouraging business prospects for the future. Values of all kinds of property have been adjusted to a specie basis, and the close of the first month of resumption finds more gold in the National Treasury than at its commencement, although \$25,000,000 have been paid out therefrom. This fact sets at rest the doubts that croakers originated about the failure of the Treasury department to continue to pay gold on demand, and assures the public that honest money is once more triumphant. The excess of our exports over imports for the year 1878 exhibits the gratifying balance of \$305,000,000, with every prospect of being further increased during 1879.

During the first three weeks of January, 1879, 9,000 packages of domestic goods have been exported in excess of the amount shipped from all other ports for the corresponding period of 1878. China, Japan, Mexico, and South America are cultivating with us closer commercial relations, and our cotton fabrics are finding in these countries a widely extended and rapidly growing market. Our breadstuffs and provisions are the chief articles of freight carried by the large fleet of steamers that almost daily leave our seaboard cities for European ports, and the shipments promise to assume such magnitude in the future that larger vessels of immense freight capacity are being constructed to accommodate this growing trade. The trunk lines of railway are being used to their full capacity in transporting the produce of the West to the seaboard, while the elevators in the chief cities of that region are crowded with grain waiting for cars to transport it East.

The recent large advance in railroad bonds and mortgages is an indication of the confidence felt by the public in their security as a permanent investment, while the rise in railway stocks also demonstrates clearly that the effects of the panic are rapidly disappearing, and that a new tide of prosperity awaits the country. Railroads were the first to feel the financial upheaval in 1873, and they also give the first sure indications of a commercial revival. Real estate is improving, and in this city vacant lots that could not have been sold at even a nominal price two years ago, have advanced in some cases 100 per cent within the last six months.

The great drygoods interest, which is larger than that of any other in the land, has before it an encouraging outlook. Prices of cotton and woolen fabrics, both foreign and domestic, are now so low that any change must be upward instead of downward. Merchants cannot lose by the wide fluctuation of values as heretofore. Incompetent and unsound concerns have generally been weeded out, a higher degree of mercantile efficiency and honor is being developed, and the business generally is passing under more systematic methods and control. There are 40,000,000 of people to be clothed, the chief portion of whom have made but limited purchases during the last five years, and now, with better times in view, will become large consumers of all kinds of merchandise. To the capitalist, banker, merchant, manufacturer, artisan, and laborer, there is the sign of a business improvement. It will be slow, but it will be steady and permanent. While Europe is threatened with social and commercial disasters, and distress and suffering prevail through declining trade, in the United States peace and plenty abound, and the business of the entire country is reviving on the solid basis of specie payments. We have had our disasters and trials; they multiplied for a time thick and fast; but having been led by a kind Providence safely through them, we enter upon a higher commercial destiny than we have ever known before.

American Goods at Sheffield.

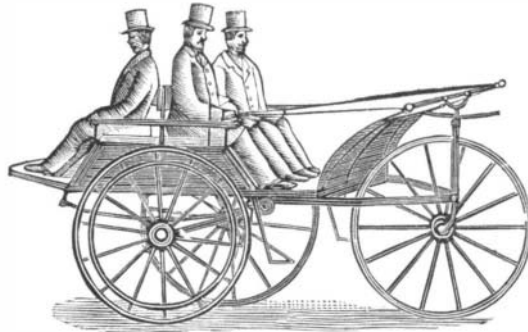
Some time ago we had occasion to call attention to a report by Dr. Webster, United States Consul at Sheffield, touching upon the subject of the sale of American hardwares in the town whence he wrote. The same gentleman has now forwarded a further report to the State Department at Washington, the subject matter of which will, no doubt, prove exceedingly interesting to the manufacturers of the town, as well as to hardware traders throughout the country. The consul states that there was at first a good deal of prejudice against articles of American manufacture, it being alleged that, although they might do well for a time, they would not last. These suspicions, Dr. Webster says, have been proved to be wide of the truth by the testimony of large importers, who have not only done well in the past, but are now doing an increasing business. As a means of furthering the connection, the consul warns his compatriots not to allow the quality of their wares to depreciate, inasmuch as "sharp and intelligent critics are watching our productions," so that American exports must be kept up to the highest standard. Having thus admonished his friends across the Atlantic, Dr. Webster gladdens their hearts by saying that the English people, having been accustomed to articles of a heavy make, will use the American lighter wares if really good.

As an example of the favor which certain imported goods have found of late years, the writer of the report instances the case of American hay forks, which were originally distrusted as being wanting in strength, whereas at the present time they are very much liked. So, at least, Dr. Webster tells us, and he grounds his observations in part on the circumstance that one Sheffield firm has sold over 2,500 dozen of these forks this season, and could have disposed of even more had they possessed the stock. American scythes and scythe-snaths, too, are coming into use, and the worthy consul tells his countrymen that "a large trade in them is looked for next year."

Leaving these generalities, however, the report next deals with specific quantities, and we are shown some of the details of the business done by one firm alone at Sheffield in various American articles. The figures given are so suggestively significant that we reproduce them here for the benefit of those skeptics whose doubts can only be removed by statistical evidence. Says the consul: "The following are some of the articles and quantities sold, viz.: 2,145 dozen locks, 14,676 iron planes, 1,185 dozen boxwood rules, 2,952 dozen hat and coat hooks, 220 dozen hammers, 572 dozen weighing machines, 2,520 screw wrenches, 230 dozen saws, 600 dozen drawer pulls, 1,680 dozen auger bits, 753 axes, 4,000 braces, 2,800 fretwork saws, 20 tons oil stones, 2,400 dozen axle pulleys, 32 dozen scythes, 250 dozen snaths, rakes, glass cutters, etc. Other firms are engaged in the same line of business, the aggregate of whose sales would be several times the above amounts. One dealer has imported goods to the amount of £7,000, consisting, among other things, of locks, spokes and rims, hubs, brackets, augers and bits, bench screws, tailors' shears, sash fasteners, hammer and axle handles, planes, spoke shaves, wrenches, hay forks, axle and frame pulleys." The aggregate value of all these goods would necessarily amount to a very considerable sum, which represents not merely the loss to Sheffield of that value, but of double the total given, inasmuch as not only have the local manufacturers lost trade to that extent, but they have paid so much for the goods from other quarters. Facts of this formidable aspect should furnish ample food for cogitation in the steel and cutlery capital, and ought to cause inquiries to be made as to how the invasion can best be met and repelled. If something be not done pretty soon Sheffield would appear to run the risk of becoming a mere distributing center for American and foreign hardwares, and her own staple industries may possibly fall into comparative desuetude. —*London Ironmonger.*

A NEW STEAM WAGON.

A new style of road vehicle, designed to be propelled by mechanical power, has made its appearance in London, England. The carriage closely resembles an ordinary dog cart; the shafts are very short, and incline together, meeting two feet in front of the dashboard; between them there is a third wheel, working upon an upright shaft, which could be turned by a handle placed the same as that of a bicycle. This handle is worked by reins, in the hands of the driver.

**NEW STEAM WAGON.**

The motive power is obtained by the combustion of benzoline, a small jet of which is admitted into the burner. It is then set on fire, and is completely consumed by a current of air, which, until the machine is in action, is produced by turning the small handle already alluded to. The burner, about the size of an ordinary chimney pot hat, and quite as elegant, is lined by coils of a copper tube containing water; this tube is calculated to bear 2,000 lbs. on the square inch, and in working only receives 60 lbs.; so that practically it is not likely to burst, and, if such an accident did occur, the results would not be serious, as the whole tube only contains a pound of water. The steam generated in this tube passes at one end into the cylinders of a small torpedo engine, which rotates a horizontal shaft; it then passes into a cooler, where it is condensed by the effect of a current of cold air driven against the outside of the vessel by a revolving fan, and the water so produced is forced back into the other end of the tubular boiler by a force pump; hence there is not the slightest escape of steam, nor is there any smoke, as the benzoline is entirely consumed by the current of air. The revolving engine shaft works the driving shaft, not directly, but by the medium of two cones placed side by side, their bases being reversed in position. A figure of 8 band connects the two, and, as it is moved toward the base of one it nears the apex of the other, and thus increases or diminishes the speed of the driving shaft, which is connected with the driving wheel, or off wheel, by an endless band. —*London Field.*

American Cheese in England.

A Somersetshire dairyman, writing from England on American cheese, concludes his communication as follows: "It seems to me that unless there be some stir and a great improvement made in the general average make of our cheese, we must give up cheese making, and quietly allow the American, who is over 3,000 miles distant, has a more difficult climate to contend with, and the extra cost of boxes and carriage, to beat us out of our very boots. Let dairy farmers use their eyes, and they will find this persevering Yankee opponent pushing his cheese into every little shop both in our towns and villages, and even hawking them to our door, while we are holding our cheese because he sells a

better and cheaper article. At two factors' stores in our neighborhood, where I saw the other day a pile of American cheese, I was told they were obliged to have them, as every one was inquiring for them, while my cheese, which I admit are not best, although better than a good many dairies, are not wanted."

American Goods in Australia.

The *Echo*, published at Sydney, tells the Australians that it is enough to set a reflective man thinking to see the almost universal use now being made, in almost every handicraft, of tools of American manufacture. The limit of ingenuity, says the editor, seems to have been reached in England. Such firms as Elkington & Co. are being entirely cast in the shade by the Tiffanys and similar firms of America. If there is any labor-saving, novel, ingenious instrument invented, from a sewing machine to a needle gun, ten to one but it comes from the fertile brain and skillful fashioning hand of some clever American inventor. To leave Edison's marvels alone, look at the wonderful machines now elaborated to save labor in agricultural work. The reaper and binder, and a host of others, will suggest themselves immediately. Our bushmen work with American axes, the very handles being of a new Yankee pattern. We ride in American buggies, lounge in American chairs, and get weighed in American weighing machines. American inventions for domestic purposes—from the washing, wringing, potato and apple paring, churning, and other housework machines, down to the latest dodge, a self-weighing cheese knife, are the wonder and delight of our housewives. In the workshop their marvelous self-adjusting planes, screws, chisels, and splendid tools of all kinds are entirely ousting the old-fashioned productions of Sheffield. It is high time technical education and schools of design were established, or Yankee ingenuity will entirely beat us out of the market. As one of their own writers puts it: "One of the principal reasons for the success of the American manufacturers abroad is the adaptability of American mechanics. They are not only thoroughly competent to make anything that is required, but they can also design tools for any conceivable purpose. They can make machinery for any work whatever, and they are always ready to learn. They do not think that theirs is the only way in which a thing can be done. It is the versatility of American mechanics that pushes their products on the foreign market."

Australian Competition.

At a recent meeting in Melbourne of the principal Australian meat preserving company, it was stated by Sir Samuel Wilson that the meat then in course of packing in the tins cost "a farthing less than nothing per sheep;" or, in other words, that the sums realized from the sale of the skins and tallow were sufficient to cover, or rather more than cover, the original prime cost of the animals. It follows that the cost of the tins in which the meat is packed, and the expenses attending its cooking and shipment, are the only charges which the preserved meat has to bear.

Commenting on these facts the *British Farmer's Gazette* remarks that "American preserved meats have lately been running the Australian produce very close in the English markets; but the invention of machinery which enables twenty-four tins to be packed in Melbourne in the same time in which one tin is filled by hand in Chicago ought to enable our colonial brethren to distance all competition."

Is it true that Melbourne is so far ahead of Chicago in the use of machinery? If so, our American inventors will have to lend a hand. It will not do to be beaten so easily.

The Ice Crop of the Hudson.

The ice crop of the Upper Mississippi is very great, and the same is true of other northern rivers from Minnesota to Maine; but the probability is that more ice is taken from the Hudson than from any other stream or body of water, not only in the United States, but in all the world. The harvest this year has been the most successful ever known, both as regards quantity and quality. The total capacity of the ice houses along the Hudson exceeds 2,000,000 tons. These have been filled to overflowing with ice of the finest kind, and upward of a million tons in addition have been stocked for early consumption.

During the gathering time over 10,000 men, nearly 2,000 boys, 900 horses, and 100 steam engines, were employed in getting in the crop. The pay of the harvesters has ranged from \$1 to \$1.75 a day. The season began the first week in January, and continued throughout the month.

Original Advice for Drinkers.

Barkeepers in this city pay on an average \$2 per gallon for whisky. One gallon contains an average of sixty-five drinks, and at 10 cents a drink, the poor man pays \$6.50 per gallon for his whisky. In other words, he pays \$2 for the whisky and \$4.50 to a man for handing it over the bar. Make your wife your barkeeper. Lend her two dollars to buy a gallon of whisky for a beginning, and every time you want a drink, go to her and pay 10 cents for it. By the time you have drunk a gallon she will have \$6.50, or enough money to refund the \$2 borrowed of you, to pay for another gallon of liquor, and have a balance of \$2.50. She will be able to conduct future operations on her own capital, and when you become an inebriate, unable to support yourself, shunned and despised by all respectable persons, your wife will have enough money to keep you until you get ready to fill a drunkard's grave.—*Lecture of C. T. Campbell at Maysville, Ky.*