

**Straw Thrashing in California.**

The San Francisco *Alta* describes the process by which most of the wheat of California is thrashed by steam, usually the day it is cut.

The sickle is set on a level with the bottom of the lowest heads of grain, so as to take off no more of the straw than is necessary. From the platform behind the sickle the grain is carried by an endless apron or elevator into a wagon driven alongside the header; and this wagon, relieved by another at short intervals, transports the grain to the thrashing machine, which is not infrequently moved from one point of the field to another, so as to be near the header. Or, if the thrashing is to be done after the cutting, the header wagons throw their loads into piles, very different from the stacks carefully built of sheaves in those climes where rain is frequent in summer, and where the thrashing may be delayed until late in the fall. The management of the steam thrashing machine is usually the exclusive business during July, August, and September of its owner. If the machine is one of the ordinary size, he expects to thrash about 1,660 bushels—100,000 pounds—in a day; that is, if the crop is heavy and the circumstances favorable. He employs a dozen men, who are ordinarily boarded by the farmer, and he receives from 5 to 8 cents per bushel for thrashing. His total daily expenses may be \$60, and his average gross receipts twice as much per day. He gets his pay on the basis of the weight of the grain as sacked, and the more soil, gravel, cheat, and other material that should be included, the greater his profit. If he thrashes the grain directly from the header wagon, there is little opportunity to get gravel in; but if the grain is fed to the thrashing machine from a pile on the ground, many shovelfuls containing as much soil as grain are fed into the machine. The foreign buyers complain to the shippers of the gravel, and the shippers to the farmers; but the remedy does not appear near at hand, for the evil is part of a complicated system. The thrasher may have \$3,000 invested in his machine, wagons, horses, and tools needed for traveling and working; and as he hires and manages a dozen men, and has but a short season of thrashing, he must make a good profit. The business demands much skill in the control of machinery and men, and great care to prevent fires and accidents, so that the average profit is not unreasonably large. The charge for thrashing is low, because the farmers generally have preferred that the work should be done with haste rather than with care.

**A NEW VELOCIPEDE.**

The engraving shows an improved velocipede more especially designed for the use of children. It is propelled by the hands, and may be steered by either the feet or hands. The body of the velocipede is preferably made in the form of a horse, but it may be made in a variety of other shapes, such as that of a carriage body, a chair, etc. The rear portion of the body is supported upon two wheels placed on axles, A, which are entirely independent of each other, and carry at their inner ends spur wheels, B, which are connected by endless chains with spur wheels on two independent shafts, C, journaled in the neck of the horse, and provided with hand cranks by which they may be turned.

The forward portion of the velocipede body is supported by a caster wheel, whose shank, D, is jointed and provided with an arc-shaped slot, having a notch at each end for receiving a transverse bolt passing through the pintle of the caster wheel. By means of this device the axle of the caster wheel may be placed as shown in Fig. 1, or it may be placed directly under the pintle, as shown in Fig. 3, when the wheel will be turned in the operation of steering by means of a foot lever or tiller pivoted under the body of the horse. This lever carries a strap which passes around a drum or pulley on the pintle of the caster. When the strap is not in use it may be hooked up out of the way. The arrangement of the working parts may be seen in Fig. 2, which is a partial plan view with the figure of the horse removed.

This invention will be appreciated by the youngsters, and will make a pleasing change after using the velocipede propelled by the feet, and with this machine the arms and chest will be developed.

It will be noticed that the rear or driving wheels are driven independently, and that one may be driven faster or slower than the other to steer the machine.

This invention was recently patented by Mr. Alfred Vick, of Mount Carmel, Conn., and will be manufactured and introduced by the "American Cyclepede Co." For further information address Theo. J. Harbach, 809 Filbert street, Philadelphia, Pa.

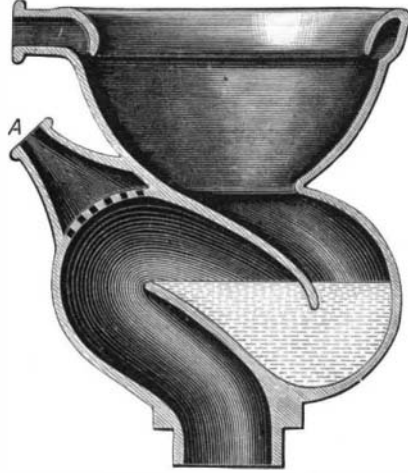
**Banana Fiber.**

Mr. Thomas J. Spear, of New Orleans, has been experimenting for many years with Southern plants with a view to their utilization in the manufacture of paper. The banana, he thinks, is the most valuable, as it grows with

great rapidity, is nearly all fiber, never requires replanting after once a start has been made on a piece of ground, enriches the soil, and needs no cultivation. All that is required to do with it is to let it grow until frost, then cut and strip out the fiber. The plant grows to the height of ten or fifteen feet, and an acre planted in banana plants would yield eight or ten tons of fiber, out of which a paper equal, he thinks, to linen or hemp can be made.

**IMPROVED CLOSETS.**

The "complete" sanitary closet manufactured by Messrs. C. Winn & Co., Birmingham, is of a most simple and reliable character. It is made entirely of one piece of earthen-



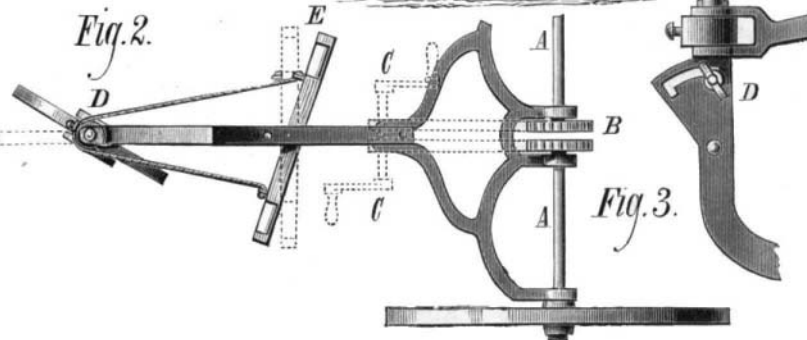
**IMPROVED CLOSETS.**

ware, and a reference to the accompanying sectional illustration clearly explains the arrangement. It is trapped above the floor line, is narrowest at the inlet, rendering stoppage scarcely possible. At the apex of this trap a deodorizing chamber is provided, to be filled with charcoal in connection with the ventilating outlet, A. The area of the closet for solid matter is very small, and there are no spaces where soil can in any way lodge or accumulate. The flushing apparatus, which, it will be understood, is an independent pump, having no connection with the closet except by the inlet pipe, is of the best known kind, and the force of water is concentrated where most required. After use, the whole of the water, soil, etc., passes from sight. We understand these closets are giving great satisfaction wherever fixed. This firm also make another on the same principle,

*Fig. 1.*



*Fig. 2.*



**VICK'S CYCLEPEDE.**

called a slop closet, having a strong grating over the outlet, which prevents the loss of anything thrown in by accident.

**Give the Boys Tools.**

Almost all boys are naturally mechanics. The constructive and imitative faculties are developed, in part, at a very early age. All boys are not capable of being developed into good, practical, working mechanics, but most of them show

their bent that way. There are few cases in which the boy has no competent idea of the production of a fabricated result from inorganic material, but such cases are rare. Given the proper encouragement and the means, and many boys whose mechanical aptness is allowed to run to waste, or is diverted from its natural course, would become good workmen, useful, producing members of the industrial community.

The mechanical boy ought to have a shop of his own. Let it be the attic, or an unused room, or a place in the barn or the woodshed. Give him a place and tools. Let him have a good pocket knife, gimlets, chisels, gouges, planes, cutting nippers, saws, a foot rule, and material to work. Let the boy have a chance. If he is a mechanic it will come out, and he will do himself credit. If he fails he is to follow some calling that does not demand mechanical skill.—*Boston Journal of Commerce.*

**MISCELLANEOUS INVENTIONS.**

An improved oil can top, which is so constructed that the oil that drips from the spout is returned into the can, has been patented by Mr. John R. Bennett, of Nunda, N. Y. The invention consists of a valve plug attached to a lever pivoted on the bottom plate of the spout, which closes a drip hole in an annular drip cup at the bottom of the spout when the lever is depressed.

An improvement in car brakes has been patented by Mr. Christian Ammarell, of East New York, N. Y. The object of the invention is to operate a car brake by a single spring and to lock the main lever of a car brake.

Mr. Stephen D. Field, of New York city, has patented a mechanical means for vibrating the tongue of a telegraph sounder or relay, and actuate the same by increase and decrease of current, or by making and breaking the circuit. The invention consists in a tongue fitted to vibrate between fixed points by the action of clockwork or other motive power, the clockwork being fitted with a brake that is operated by an electro-magnet in the line, so as to check and release the power, and thereby cause the vibration of the tongue.

An improvement in wire lathing has been patented by Mr. William Brennan, of New York city. The object of this invention is to support wire lathing in ceilings in such a manner as to leave no air spaces between the beams and the mortar; such spaces, in case of fire, serve as draught flues, and thus cause the fire to spread rapidly, and increase the difficulty of controlling the fire.

Mr. Felice Tocci, of New York city, has patented a book case that can be folded and its depth greatly lessened, thus enabling it to be packed in a much smaller space than when it is in use. It may be carried through narrow spaces where an ordinary case will not pass.

Mr. William Wilmington, of Toledo, O., has patented a car wheel chill formed with a solid body portion, and having an annular chamber located in its flange face, inclosed by an inner wall, formed in one piece with the metal inclosing the other sides of the chamber, and same shape as the adjacent contour of the flange of the wheel.

Mr. Jacob F. Weitzel, of Galveston, Tex., has patented an improvement upon that form of vegetable grater or slicer in which a tapering bucket or receptacle is made largest at the top, and is combined with a concentric and cone-shaped grater or slicer whose baser rests close to the bottom edge of the bucket, and which cone-shaped grater or slicer is arranged to revolve and act upon the fruit or vegetables which wedge themselves by gravity down into the annular space. It consists in making the cone-shaped slicer or grater in oblate or elongated form in cross section, to improve the cutting action, and in combining the conical cutter and the reversely tapering bucket with a subjacent detachable pan carrying a spider frame with a socket to receive the end of the spindle of the cone-shaped cutter.

An improvement in car coupling has been patented by Mr. Charles H. Shippee, of Wickford, R. I. The object of the invention is to furnish automatic couplings of simple construction, having but few parts, strongly and durably fitted, and adapted for connection with the couplings now in use. The inventor makes use of a coupling and drawbar formed at its outer end with a swinging hook of peculiar construction, and fitted to slide end wise upon a block attached to the king bolt of the truck.

Mr. Carl J. Renz, of Hudson, N. Y., has invented an improved portable or pocket instrument or mould for use of travelers and others for making cigarettes neatly and expeditiously. It consists of a bed piece having a lengthwise groove and two compressing lids, which are hinged at the respective sides of said groove, and one of them provided with an extension consisting of a metal plate whose curve or conformation is similar to the groove in the bed piece, so that when the lids are closed the tobacco will be compressed in the paper envelope or wrapper.

An improved shoe-blacking machine, patented by Mr.

Pierre Audoye, of Bordeaux, France, has a series of circular brushes for cleaning, applying blacking, and polishing, and a treadle for imparting rotary motion to the same. The improvement relates particularly to the means for applying blacking to one of the brushes.

An improved horse collar has recently been patented by Mr. Fletcher C. Scott, of Fincastle, Va. This invention is an improvement in the class of horse collars in which the hames and collar proper are permanently attached to each other. The inventor forms the collar proper of a soft stuffed inner portion and an outer leather plate, which is comparatively stiff and forms the ornamental face of the collar, and also covers and protects said inner part. The collar is divided at top and bottom, and to each of the two parts thus formed is attached an iron hame, the same being inserted and secured between the outer covering plate and the inner or stuffed portion. Both the hames and the parts of the divided collar proper are connected at top and bottom by means of straps, so that they may be adjusted together to adapt the collar as a whole to necks of animals of different sizes.

A car coupling so constructed as to couple the cars automatically as they are run together, couple cars of different heights, and connect the cars securely, while giving them the necessary play for passing around the curves, has been patented by Messrs. Franklin A. Morand, of Cheyenne, and Joseph Edwards, of Hays city, Kan.

An improvement in fastenings for two handled fans, so constructed as to fasten the handles when the fans are opened and when they are closed, and which, while fastening the handles, will have a projecting loop to allow the fan to be hung, has been patented by Mr. Max Rubin, of New York city.

Messrs. Minard M. Smith and John Hassall, of New York, N. Y., have patented an improved fastener to be secured to the sides of the front opening of a glove for the purpose of keeping said opening closed, and the glove thereby close about the wrist of the wearer. The invention consists of two narrow flat strips of steel or other metal curved flatwise to conform with the hollow of the hand, and pivoted together at their enlarged circular ends, which are so fashioned that they lock together at the closed or fully open point.

Mr. Andrew McLean, of Jersey City, N. J., has patented an improved loom for weaving gauze fabrics. The invention consists in a novel combination of devices which cannot be fully described without engravings.

An improved bottle stopper, patented by Mr. James J. Allison, of Nelson, Ill., consists of a piece of spring wire that is bent double in the middle, forming an eye, and has its ends bent outward and down again to form two open side loops with free ends, whereby a double spring is obtained.

An improved snap hook, which does not require a spring to operate it and is simple and effective, has been patented by Mr. William Grassick, of Lucknow, Ontario, Canada. The invention consists of a curved U-shaped hook having an inner second hook at the bottom, and having a latch arm pivoted to the end for preventing the ring or staple from slipping out of the hook.

#### THE STEAMER ANTHRACITE.

Just at present steam and naval engineers in this vicinity are deeply interested in the application of high pressure steam to marine engines, an exhibition of the practicability of the system as developed by Mr. Perkins, of England, having been given by the Anthracite, the smallest steamer that ever crossed the ocean; and what seems anomalous is the fact that her boilers carry a larger pressure than any other steamer, while the engine power is developed by the smallest consumption of coal per horse power.

By invitation of Major George Deane, who represents Mr. Perkins in this country, we recently took a trip down the Bay and up the East River on this little steamer. She is not built for speed, but for economy. Her average speed is  $7\frac{1}{2}$  knots per hour. The engines are compound, having three cylinders, respectively 8, 16, and 23 inches in diameter, the stroke being 15 inches.

The small cylinder cuts off at  $\frac{5}{8}$  of the stroke when working normally, the intermediate cylinder at  $\frac{3}{4}$ , the larger one at  $\frac{1}{2}$ .

The smaller and intermediate cylinders are arranged one above the other, and their pistons are attached to a common rod. The piston of the larger cylinder is connected with a separate crank.

The several pistons are provided with packing rings made of a metal invented by Mr. Perkins. The cylinders are never lubricated, yet the rings wear smoothly and are said to be very durable.

The engines are of 86 indicated H. P., and the boiler, which has only about 5 by 6 feet base, and a height of 8 feet, contains but 80 gallons of water, and consumes but 100 lb. of coal per hour. The screw is about 5 feet in diameter, and makes from 120 to 140 revolutions per minute.

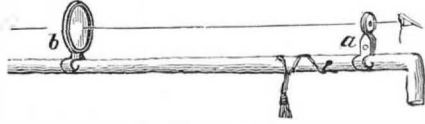
The water, which must be pure, is used over and over again, and the waste, which is very slight, is supplied from fresh water carried on board. The steam pressure ranges from 350 to 500 lb. per square inch. The whistle is blown

by a small supplementary boiler using salt water and receiving its heat from a coil connected with the main boiler.

We expect to give an engraving of the anthracite, together with some further particulars in our next issue.

#### NOVEL SPY-GLASS.

The spy-glass shown in the annexed cut is an invention of Mr. Theo. Geiger, of Stuttgart. Its construction is based upon the principles of Galileo's telescope, and it consists of a concave eye-lens and a convex object-glass, arranged so that the optical axis of both lenses are in a right line. In view of the increased focus of the object-glass, necessitating



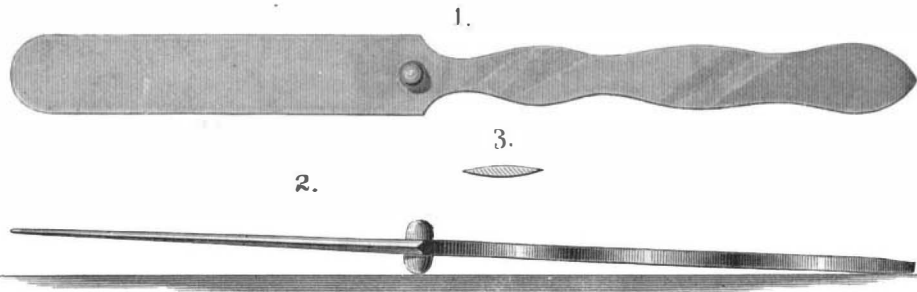
A NOVEL SPY-GLASS.

a greater space between the two lenses, the magnifying power is much greater than that of ordinary field-glasses. The eye lens, *a*, is attached to a cane near the handle of the cane by means of spring clamps, and the object glass is fastened to the cane in a like manner at *b*. The two lenses are 18 to 28 inches apart. The object-glass is focused by moving it backward or forward. The lenses may be used without a cane by simply holding them in the hands a suitable distance apart. In the latter form it is especially adapted for military purposes.

#### NEW TABLE KNIFE.

The table knife shown in the annexed engraving is a decided improvement over the knife now in general use. It is not only more shapely and more convenient to use, but in its manufacture little if any forging is done, it being made from thin metal, from which it is merely stamped into form. The grinding, polishing, and burnishing are easily and quickly done, as the knife has a smooth, flat surface from one end to the other, which makes it possible to do this part of the work by fixed machinery, thus saving a great deal of hand labor. The stud is put in after the knife is polished. It has two cutting edges instead of one, so that the user always finds his knife right side up; and, of course, two cutting edges will wear twice as long as one. It is lighter by one half than any of the other solid knives.

It is symmetrical and well balanced, and is more readily



COX'S IMPROVED TABLE KNIFE.

and agreeably handled than other forms of table knife. It is grasped by the hand and finger, and all of the pressure is exerted upon the handle, and never upon the blade.

Fig. 1 in the engraving is a side view of the knife; Fig. 2, a transverse section through the middle of the blade, showing the two cutting edges; and Fig. 3 is an edge view, showing the position the knife assumes when resting on the table.

This novel and useful invention was patented July 13, 1880. For further information, apply to the patentee, Mr. Arthur W. Cox, Auburn, Androscoggin Co., Maine.

#### The Concord School of Philosophy.

The second year's term of the Concord Summer School of Philosophy began July 12. Nearly fifty adult pupils and lecturers were present, among them many notable scholars, authors, and teachers. This is one of the most remarkable educational institutions of the day, a revival of the ancient Greek academy modified by the peculiar conditions, needs, and developments of the nineteenth century as displayed in the higher levels of American speculative thought.

In our issue of July 10, in describing a novel corn sled we gave the inventor's name incorrectly. It should have been William H. Woods, Elizabeth, Pa.

#### THE MAN WHO RAN THE FIRST LOCOMOTIVE IN AMERICA.

At the recent commencement exercises of Stevens Institute, Hoboken, N. J., one of the interesting features was the extempore remarks made by Horatio Allen, who was introduced to the audience by Prof. Morton as the Nestor of American engineers.

Among other things, he said that the first locomotive brought to this country was purchased by himself for the Delaware and Hudson Canal Company. This engine, the first to draw a railway train on this continent, was run for the first time on the road connecting the Lackawanna coal

fields with tide water by way of the Delaware and Hudson Canal. It was the first road of any consequence to adopt locomotive power.

Mr. Allen gave a graphic description of the scene; how he mounted the engine alone, placed his hand boldly upon the lever of the throttle, and pulled the valve wide open, resolved, if he went down, to go manfully. He took an honest pride in being able to present to the audience the man who owned the hand that opened the valve of the first locomotive on the continent, and who took the first ride on the first railroad. This experimental trip was made at Honesdale, Pa., August 8, 1829.

#### BRICK TEA.

In a recent report on the trade of Kin Kiang, China, some interesting facts are given in regard to the manufacture of and traffic in a product known as "brick tea." The quantity of this kind of tea exported from Kin Kiang during one year has amounted to 681,333 pounds. There are three kinds of brick tea made. The first, or largest kind, is a cake of coarse green tea, which weighs, when thoroughly dried, about three and a half pounds, and is about one foot long by seven inches wide. These cakes are made in a wooden mould while wet, and compressed by a lever press and afterward dried. This is all done by hand labor, and affords employment to a large number of coolies. When dried, each cake is wrapped in paper and packed in strong baskets, each containing thirty-six cakes. The cost of this tea per basket is about \$6.75, and the annual exportation amounts to from 15,000 to 20,000 baskets. The tea is sent from Kin Kiang to Tientsin, from whence it goes overland through Mongolia for consumption among the inhabitants of West and Northwest Siberia, in the province of Kazan, on the Volga, and by the Kirghis and other Scythian tribes. A cake of tea of the same form, but of a much commoner quality, costing about \$5.25, made by the Chinese at Yang-lon-tung, in Hupeh, is largely consumed in Mongolia. There being no copper currency in that country the Chinese bankers in Mongolia keep stores of this brick tea and issue it as a monetary medium.

The second kind of brick tea is of a finer quality, each cake weighing  $1\frac{1}{2}$  pound, and being  $8\frac{1}{4}$  inches long by  $5\frac{1}{4}$  inches wide. It is packed in baskets, each containing 80 or 90, and costs about \$8.25 per basket. This kind is consumed in West and Southwest Siberia, at Kazan, and on the Amoor.

The third kind of brick tea is made of black tea dust, each cake weighing  $2\frac{1}{4}$  pounds, and being  $8\frac{1}{2}$  inches long by 6 inches wide. It is packed in baskets containing 64 cakes each, and costs about \$8 per basket. It is consumed throughout Siberia and in Eastern European Russia by the peasantry. It is made into cakes at Foochow, Kin Kang, and Hangkow. The yearly exportation from the three places is about 100,000 baskets. It is stated that at Hangkow there are now four brick tea factories, two of which employ steam power. The employment of steam instead of hand presses will ultimately cheapen the cost of

production, and at the same time a more satisfactory article will be placed on the market. Brick tea made in the old manner was not pressed sufficiently hard to enable it to successfully resist the rough treatment it received en route, and frequently reached its destination in a broken and crumbling condition, which detracted from its value, buyers laying considerable stress on its hardness and perfection.

#### American Philological Association.

The Twelfth Annual Convention of the American Philological Association was held in Philadelphia, July 13-15. The attendance was fair, and a number of valuable papers were read. Professor L. R. Packard, of Yale, was elected President for the ensuing year. The other officers chosen were: Vice-presidents: Prof. Fred. D. Allen, of Harvard, and Prof. M. W. Humphries, of Vanderbilt University, Nashville, Tenn. Secretary and Curator: Prof. Chas. B. Lanman, of Harvard. Treasurer: Chas. J. Buckingham, Poughkeepsie, N. Y. Executive Committee: Dr. W. C. Cattell, President of Lafayette College, Easton, Pa.; Basil C. Gildersleeve, Professor of Greek, Johns Hopkins University, Baltimore; William W. Goodman, Professor of Greek, Yale College; Dr. J. Hammond, of Hartford, Conn.; and Wm. D. Whitney, Professor of Comparative Philology, Yale College. Next year's meeting will be at Cleveland, O.

#### California Vineyards.

The average of vines in California is officially rated at about 60,000 acres, and it is thought that from six to eight thousand acres more will be planted to vines this year. If the entire grape crop were made into wine the yield in ordinary years would exceed 25,000,000 gallons. The actual wine product during the past five years has ranged between 4,000,000 and 6,000,000 gallons, the smallest yield falling in 1878. The possible yield in wine is lessened by the large distillation into brandies (about 250,000 gallons a year) the production of sweet wines, the consumption of grapes for table use and export to the Eastern States, and finally by the manufacture of raisins. The wine yield this coming year is expected to be very large, perhaps 10,000,000 gallons.