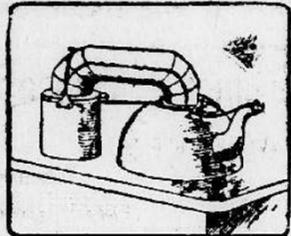


Popular Science

Household Distilling Apparatus.
Here is the invention of a Colorado woman for furnishing distilled water for household use. A commendable purpose, owing to the conditions of the water furnished in many of the cities and towns of this country. The apparatus is intended for use in connection with a common tea kettle and tin pail, and is not, therefore, in itself very expensive, comprising only a section of tubing, with connecting devices at either end to fit the kettle and pail. The collar on one end of the pipe is provided with clamps to engage the edges of the opening in the kettle, and the opposite end has a flat collar, which rests on the edge of



the receiving vessel. There is also a plug to fit in the spout of the kettle, thus affording but one exit for the steam—namely, through the pipe and into the pail. It is obvious that, in passing through this pipe, the steam will condense and form in drops on the inner surface of the pipe and pail, falling there to the bottom of the latter. To disengage the condenser from the kettle it is only necessary to turn the clamps and detach the connecting rod, but the inventor states that the connection between the vessels is rigid enough to permit water to be poured from the kettle without interfering with the receiver. The inventor of this apparatus is Emma Jester, of Pueblo, Colo.

Improved Flywheels.

The importance of designing flywheels so as to offer the least possible resistance to the air has been lately shown. In tests at a Nuernburg electric station, a flywheel driven at ninety-five revolutions per minute by engines of 450 horse-power was found to require about fifteen horse-power to keep it in motion, and this was reduced about 5.7 horse-power by covering the channeled arms with sheet iron. The saving of 12 per cent of the power of the engines was equivalent to about \$270 a year. In another test the result was even more surprising, and a 630 horse-power engine showed a saving of thirty horse-power or 4.8 per cent of the total, when a suitable flywheel covering was used to lessen the friction.

Book, Tray or Embroidery Holder.

The invention shown in the accompanying drawing has other uses besides that for which it is being utilized by the young lady being provided, in addition to the embroidery hoops, with a tray bookholder and writing outfit. The object is to produce a device which can be attached to a chair, table or bed rail, with an adjusting clamp to support the frame in a convenient position for embroidering, reading, writing or for any work for which a tray may be used. In the picture, the embroidery frame, consisting of the two usual interlocking hoops, may be tilted at any desired angle or rotated to bring any portion of the pattern nearer the operator. The tray provided has a flange on one edge to support a book, which can be elevated until in a convenient position for the eyes, and is attached to the fixed ring by three spring clips triangularly mounted on the tray. For kitchen use this invention can be made to support a strainer or dish, and will be especially useful when looking over berries to hold an extra



receptacle adjacent for receiving the cleaned fruit. The inventor is N. G. Vosler of Fort Collins, Colo.

The Earth's Available Coal.

The available coal yet stored in the earth in Germany is estimated by Professor Ferdinand Fischer of Göttingen, at 160,000,000,000 tons; in England, only 81,500,000,000 tons; in Belgium, Austria-Hungary and France, about 17,000,000,000 tons each. The store of Russia is but imperfectly known. North America can produce 684,000,000,000 tons and Baron von Richthofen has stated that China has a supply nearly as great. Japan, Borneo and New South Wales have considerable coal; Africa an unknown quantity. Germany's coal should last another thousand years, but England's supply will begin to show signs of exhaustion within fifty years. In the United States the pro-

duction has increased from about 6,200,000 tons and in 1891 to nearly 45,000,000 tons in 1901.

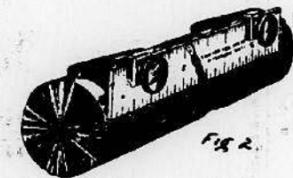
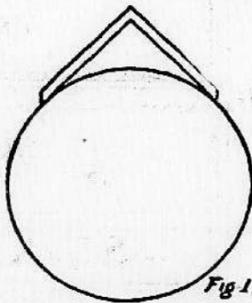
Liquid Fuel.

The oil regions discovered in Borneo furnished during the last year more than 100,000 tons of petroleum for export. The Dutch steamship company uses this combustible on its vessels; the Hamburg-American line has lately built four steamers using liquid fuel; the North German Lloyd has two steamers of the kind; the East Asiatic company of Copenhagen has two; the China Mutual company has three. The advantages of liquid fuel are: Economy of work; there are no ashes to be got rid of, no fires to be raked, no considerable labor of any kind, no dirt caused by soot and cinders; no smoke, if the combustion is properly regulated; no ash; economy of storage, as the fuel can be kept in the double bottom of the ship and in other spaces now useless; no rust to be feared in these spaces; weight for weight oil is more effective than coal.

A New Key-Seat Rule.

The old-fashioned method of laying off a keyseat in a shaft was to do it by a tool called, in the expressive vernacular of the shop, a "hog trough." This was a little piece of steel, shaped if it is true, just like a hog trough, without ends. One can readily see that this sort of a tool, laid upside down on a shaft, would touch the shaft only on its four outer edges, and that if these were marked with a steel needle, or "scriber," to quote the shop language again, that the lines so marked would be parallel to the axis of the shaft; also that if a key way were cut to those lines that it would be theoretically correct, as will appear from the accompanying line cut, Figure 1.

The simpler tool now in the market is shown in Figure 2. Here the ordinary inch scale is used, but is set in two blocks and held in place by thumb screws. It can readily be seen that if the little blocks are of uniform



dimensions, and if the distance from the bottom of the block to the top of the little slot into which the inch scale or rule fits, to be the same that the rule will perform the parallel with the axis of the shaft, and a line "scribed" off from it will be a correct line for a key way.

New Type of Fossil Man.

M. Verneau has lately described a new type of fossil man discovered in a cave near Mentone, Italy. In this same cave M. Riviere discovered, in 1874 at a depth of 27-10 metres the skeletons of two young children. The new find was at a depth of 73 metres and consists of two skeletons of adults—an old woman and a young man. Their stature was small 1.57 and 1.55 meters respectively; that is about 52 inches. The type is one not so far found in the Quaternary, namely the negroid. At a depth of 7 metres, that is somewhat higher than the present find, Villeneuve found a skeleton of large size, 1.9-10 meters, of the Cro-Magnon type. At the greatest depth of the cave M. Verneau found rude implements of limestone, rarely of flint, belonging to the age of reindeer.

Deaths by Lightning.

From 1890 to 1900 the United States Weather Bureau printed statistics of losses of life by lightning. The work is now discontinued. During the year 1900, 713 persons were killed by lightning; of this number 291 persons were killed in the open, 158 in houses, 57 under trees and 50 in barns. The circumstances of 151 death are not known. During the same year 973 persons were more or less injured by lightning strokes. On the average, it is probable that from 700 to 800 lives are annually lost through injuries from lightning in the United States. The greatest number of injuries occur in the Middle Atlantic States, the fewest in the Pacific states.

Looks For Another Planet.

The last discovered and most distant of great planets, Neptune, extended the solar system more than 1,000 million miles. Prof. George Forbes is seeking an even more distant planet, so confidently that he has actually named it Victoria, and he expects that it will be found about 10,000 million miles from the sun.

HAS NO USE FOR TOBACCO



Bishop Nicholson of the Protestant Episcopal diocese of Milwaukee has issued a pronouncement advising against the use of tobacco, in which he says the weed has never done any good to spiritual or physical man, but untold evil, and that if it be true Sir Walter Raleigh brought the first tobacco to England it is a pity his ship did not go to the bottom of the sea. The bishop's manifesto has created much comment.

Sixty-Seven Years a Lawyer.

Albert W. Paine of Bangor, Me., has just completed his sixty-seventh year of practice at the Penobscot bar, having been admitted in the spring of 1835, one year after the incorporation of Bangor as a city and fifteen years after Maine became a state. He is probably the oldest lawyer in point of continuous practice in New England, if not in the country. He will be 90 years old on Aug. 16 and is still in sound bodily health, his only infirmity being a slight deafness.

New Trouble for Boston.

Many people in the suburbs of Boston have required the services of physicians on account of being poisoned by the larvae of the brown-tail moth, which now infest the shade and fruit trees throughout Malden. The poisoning from the caterpillar is caused by its dropping from a tree on a person's skin. The fuzz with which the caterpillar is covered enters the pores and makes a painful and irritating rash, which sometimes spreads to all parts of the body.

WIFE OF IRISH LEADER

Mrs. T. P. O'Connor, the American wife of the famous Irish parliamentarian and journalist, was once a resident of Texas and last year emerged from basking in the light of her husband's fame to shed a little light of her own. She made her debut in the world of letters with a play she called "A Lady From Texas," and although it was not considered at once a masterpiece and did not make a great stir in the world, still it

was accorded considerable space in the public prints and was judged a clever portrayal of the life of a Texas woman. Since the first play was produced Mrs. O'Connor went on tour with it and is now preparing a comedy which will be produced later. American critics were especially severe with "A Lady From Texas," as in it Mrs. O'Connor took occasion to caricature American women unmercifully.



Triumph of Vegetarians.

Vegetarians hold that meat is poisonous, and condemn it severely in every possible way. Water forms 75 per cent of its composition, they claim, and what gives it its flavor is the principle of active poison in it. Venous blood, they say, is admitted to be poisonous, and it is this blood in meat that causes it to taste pleasantly. To prove their claim they state that meats, washed clean of its venous blood has no taste whatever, and no one will eat it. "Eat vegetables, fruits and grains," says the vegetarians, "if you would be healthy. Join our ranks, for one-third of the world's inhabitants belong to us already—the millions of Buddhists are with us, their creed forbidding them to kill any living thing. Tolstoy is a vegetarian, and Thoreau was one also, while in the past our fold included Adam, Plato, Voltaire, Benjamin Franklin, and a thousand other immortal names."

In the Mad-Dog Days.

If dogs could speak in human language, very few of them would ever go mad, either actually or in the imagination of persons. If a dog could stop you in the street, and say: "Please, sir, will you give me a drink of water?" there would be few cases of actual rabies, and fewer cases of imaginary rabies. "But, as long as the dog cannot do that, why not anticipate his needs, and therefore conserve not only to his own benefits, but our own safety, by providing public drinking fountains for him? We do so for the horses; but, as a rule, these are too high for the dogs to use. As a matter of fact, the drinking-places provided for the horses are altogether too few. There should be many more of them; says the Buffalo Times, and each one should be constructed so as to include a smaller reservoir, near enough to the ground to permit even a "little yellow dog" to drink therefrom.

Home and Fashion

Chic Gown.
A charming afternoon gown is of chestnut tone of voile, embroidered in pale tan. The bodice is slightly swathed across the front, caught at the side with a big gold buckle, beneath which are two long loops of pale tan Liberty satin ribbon, and with ends depending nearly to the border of the skirt. The neck is filled in with pale tan chiffon. On the left side of the bust is a spray of leaf bows in soft shades of cream and brown. The skirt is cut with a fro-frou flare, each seam being strapped with Louisine silk the same hue as the fabric. At the border of the skirt are three rows of the strapping.

New Chain Barette.
Still another improvement has been introduced into the little gold pin which is intended to collect and hold fast at the back of the head the soft, short, uneven strands of hair. A barette is supposed to be more useful made after the new pattern now being introduced. The gold bar of the barette is somewhat longer than last year's model. From the two ends swing a loop of gold chain, very fine, and it is supposed to support the uneven strands of hair and so keep them in stricter confinement. As a matter of fact, the fine gold chain is added as a matter of ornament.

Jacket of Black Taffeta.

This charming little jacket is of black taffeta tucked in clusters and perforated in a small, neat design showing the white satin lining. It is fashioned with a novel basque or skirt which appears only at the side and back, and the large collar is of embroidered batiste over a still larger collar of embroidered taffeta. The sleeves are very wide and flaring at the wrist and have double turned back cuffs of taffeta and batiste. A belt of



folded taffeta completes the jacket, which is a model for spring wear. All the tucks are stitched with Corticelli sewing silk.

A novel feature for blouse jackets as well as for Eton skirt jackets and dressy garments in general is the jabot vest effect. It has been stated that some of the foremost Paris houses will accentuate the drooping

shoulder effect both in waists and in outdoor garments. Quite a feature in jackets is the long coat collar, of taffeta which are variously enhanced with large collars and revers of lace or of ribbon-run embroidered lines.

A Decidedly Novel Sleeve.
This gown combines all the new features of the current mode. The



Eton has loose fronts that open over a vest embroidered with beige and pale blue Corticelli Filo silk, similar embroidery adorning the deep pelerine collar. The sleeve is decidedly novel and deserves special mention. It is cut with a point edged with a band of stitched voile and is completed with a kind of under sleeve of cream liberty silk formed into puffs with straps of beige velvet. Beige velvet ribbon in a darker shade adorns both the jacket and skirt. The latter shows the fashionable sheath effect and in addition to the velvet a trimming of straps in inverted scallops stitched with Corticelli silk.

The new skirts are fitted closely at the hips but flare very much indeed below the knees. A great many skirts with hip yokes are shown, either of shirring, tucking or tiny bands, joined with a fancy open stitch. Some very attractive skirt models in sheer materials are laid in narrow box-plaits from the waist to the knees and below that there is a prettily shaped flounce with insertions of cream lace and a garniture of narrow gathered ribbon.

Little Hints.

Parisiennes will not desert the becoming Eton jacket.

Trails shortened at the back are shown on many new skirts.

Blouses are prettier and daintier than ever and invariably they are made so by means of the fine handiwork put upon them.

The wide-brimmed hat drooping in front and at the back, with loops and ends for a finish, will be worn in mid-summer with the muslin gowns.

Dark, rich brown and crimson cloth gowns, with a very deep border, like that of a cashmere shawl, set on the skirt or overskirt, are in high favor with exclusive Frenchwomen.

TWO GOWNS FROM PARIS.



The first gown is of white nun's veiling made up over pale green silk and trimmed with a beautiful embroidery spangled with gold paillettes. The embroidery trims the bottom of the skirt and outlines a sort of hip yoke below, while at the sides and back the skirt is slightly plaited or gathered.

The front and back of the bodice are made with groups of fine plaits alternating with box-plaits. The yoke is trimmed with rows of fagoting, giving the effect of a square yoke bordered with the embroidery. The full sleeves are also trimmed with the embroidery and gathered into deep cuffs ornamented with fagoting. The crushed collar and girdle are of rose

pink silk, the former ornamented in front with a gold buckle.

The other gown is of very pale blue silk. The skirt is finished at the bottom with a narrow flounce, headed by a rich embroidery in which dark red velvet ribbon is run. From this embroidery, bands of the same extend upward to the girdle, forming panels.

The bodice is trimmed at the top yoke-fashion and on each side of the front with the embroidery. In that on the fronts is run with velvet ribbon, the ends finished with gold tips. The collar and plastron are of tulle gipure and the draped girdle is of the silk. The sleeves, made with a large puff at the bottom, are trimmed at the top and bottom with the embroidery.