Popular Science

NEW AERIAL MOTOR.

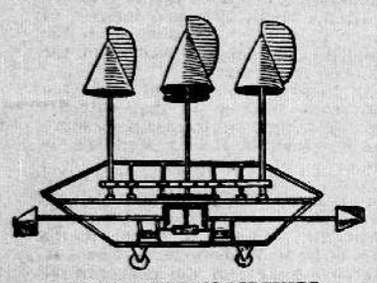
European Aeronauts Claim That It Is Constructed on the Most Plausible Theory.

European aeronauts are just now talking a great deal of a very novel airship, which has been constructed by MM. Filippi, of Bizerta, and Macler, of Tunis, and are wondering whether it will really do all that they claim for it. They maintain boldly that their airship can be uplifted and made to move in any desired direction by means of atmospheric pressure.

"Our balloon," they say, "will be entirely at our command after the atmosphere has been artificially rarefied in front of it."

Their invention in no way resembles an ordinary balloon. It is shaped like a skiff, on which are several masts. On the summit of each mast is a cone, and this is surmounted by a small wing. A machine causes the cone to turn, and their rotation, it is said, is bound to create an impulse under the airship which will necessarily send it upward. In the front and rear of the skiff there are also revolving cones, which are designed to rarefy the air and thus prevent the balloon from stopping.

That this is a most plausible theory all scientists admit, but some of them insist that no balloon constructed on this principle will ever be able to travel through the air. Thus M. Henri de Parville says: "MM. Filippi and Macler are merely wasting their time. A dozen years ago M. Puskas, a well-known scientist, came and told me that he had at last invented a perfect balloon. I asked him what the principle was and he said atmospheric pressure. I pointed out many objections to it, but he went ahead, and in a short time he had



THE LATEST IN AIRSHIPS.

built a 90-foot balloon, at a cost of 350,000 francs.

"He was then more enthusiastic than ever, but somehow he never succeeded in getting his balloon off the ground, and he died in Vienna without accomplishing his object. Now, this Puskas balloon was designed on exactly the same principles as the one constructed by Messrs. Filippi and Macler."

"The idea is certainly ingenious," says M. A. de Cunha, "but at the same time this would be a very dangerous airship, for the reason that a machine is used for the purpose of keeping it in the air and in motion, and if this machine were to break a calamity would certainly occur."

Others, on the contrary, are confident that the new airship will travel speedily and safely through the air, and both they and those who disagree with them are waiting anxiously for the first test of the airship, which will be made near Paris at an early date.

A PLANT THAT COUGHS.

The Eutada, a Tropical Vine, Sneezes Violently When Brought in Contact with Dust.

It is now well known that the sharp and broad distinction formerly made between animals and plants does not conform to the facts. The cells of plants, like those of animals, are differentiated in functions and are grouped to form special organs of nutrition, respiration, excretion—even for the perception of light. The sensitive plant (Mimosa) has a well-developed sense of touch.

A certain tissue in the leaves of plants performs the functions of a liver.

The respiration of plants is especially interesting. On the under side of leaves and on green stems are millions of microscopic mouths, each of which is opened and closed by two movable lips. These openings are the terminations of passages which are filled with water, vapor, air and other gases, produced by the chemical changes which accompany growth.

The vine called the coughing bean (Eutada tussiens) is a native of moist, tropical regions.

By accidental transportation of its seeds it has gradually spread to much less congenial spots, especially railroad embankments, where it endures drought very well, though its growth is stunted. But there is one thing which it cannot stand, and that is dust. When the breathing pores become choked by dust the gases accumulate within the leaf for a time and then are forcibly expelled in an audible paroxysm of coughing and sneezing, which makes the leaf tremble violently. At the same time the whole plant becomes red in the face, so to speak, through the sinking in of the green chlorophyll grains and the appearance of particles of red coloring matter on the surface.

The Eutada is sometimes cultivated as a house plant. Sweeping the room is very apt to set the poor plant a-coughing, to the intense astonishment of persons who are unfamiliar with its peculiarities.

DISTEMPER IN DOGS.

Coccus of the Disease Has Recently Been Isolated and Vaccination Is Now Quite an Fait.

Vaccination of dogs as a preventive of distemper has just been announced in England by Dr. Copeman. He recently isolated the coccus of distemper and through experiments with the cultivated germs has prepared a vaccine that renders animals immune from the contagion.

Dr. Copeman discovered that the laboratory cocci, injected into a dog, was universally fatal. But when treated with diluted carbolic acid at a temperature of 60 degrees centigrade the vac-

VACCINATING A DOG.

cine so prepared made animals immune from distemper in any contact.

This discovery has been recognized as of great value in England. At the same time Dr. Copeman has not had a chance to prove how long this immunity may last, and dog breeders all over the world are to be brought to try the vaccine with an eye to its lasting effect.

This discovery is interesting from a pathological point of view from the fact that long ago the disease was classed as a variola and an inoculation of cowpox was proved to be ineffectual against it.

From the time of Aristotle canine distemper has been recognized. In 1028 it almost wiped out the dogs of Bohemia. France suffered from it in 1740, and before the century ended nearly every part of Europe had felt the scourge. It exists in nearly every part of Europe to-day.

Time and again in recent years unsuccessful efforts have been made to find the germ of the distemper. Now that it is found it does not show marked variations from several other well-known micrococci.

FREEZING BACTERIA.

Fresh Experiments Prove That Long Continued Cold Will Destroy Even the Liveliest of Them.

Within the last year or two some interesting experiments have been conducted in England, with the purpose of ascertaining the effect of extreme cold on the vitality of various kinds of bacteria. The tests were made with liquid air and liquid hydrogen, by means of which temperatures were obtained 300 to 400 degrees below zero. In the majority of instances the microbes withstood this amazing chill and on thawing out exhibited signs of life.

In these experiments, however, the cold was applied for only a very short time, a few minutes or a few hours. A different class of tests has just been reported to a bacteriological congress by Dr. W. H. Park, of the New York health board. He employed only typhoid bacilli, but in order to make the investigation more thorough he took specimens which he had cultivated from 20 different cases of disease. Thus any inequality in their hardiness was guarded against. The particular feature of this scheme was not the severity of the cold, but its duration. Having prepared a lot of tubes containing his culture, Dr. Park reduced them all to a temperature of 23 degrees Fahrenheit, only a little below freezing, and kept them there. Then at intervals he would remove a tube and examine the bacilli.

At the end of 3½ days he found 42 per cent. of the microbes in the first tube alive. In a week all but 14 per cent. were dead in another. In two weeks only 7½ per cent. survived, in three, 0.4; in five, 0.11, and in seven, 0.9. The percentage diminished as time went on, until in 22 weeks, or fully five months, all of the bacilli were dead. The tube opened after 18 weeks was the last to show any life left. It thus appears that a long winter will usually kill typhoid bacilli, even if it is not a severe one.

Fast Trolley Car Service.

In Philadelphia a fast trolley car is being tested. It takes newspapers in the early morning to Chestnut Hill, 14¾ miles away. It runs at a rate of 35 miles an hour, including a stop at least every three-quarters of a mile. Occasionally it has run a mile in a minute and an eighth and it has made the entire distance in 25 minutes, including stops, which is the same time as the express trains make for the same distance. It maintains its schedule time regularly, but on one occasion it was late ten minutes, owing to the wreck of a hay wagon which was on the road.

Curious Test for Deafness.

A novel and curious test for deafness or approaching deafness has just been described by a Paris specialist. If the handle of a vibrating tuning fork be applied to the knee or other bony portion of the human frame the sound cannot be heard by the person who possesses an unimpaired ear, but if the ear be attacked by disease, then the note can be heard distinctly.

THE DOMESTIC REALM.

A Batch of Suggestions Pertaining to Matters for the Housewife's Consideration.

A word about skim milk. This much-abused food product is yet of the highest value. Paradoxical as it may seem, a quart of skim milk is more valuable as food than a quart of whole milk. Cream is pure fat, and is not a muscle, bone or flesh builder—it is simply a heat-producer; the skim milk contains all the protein, the really valuable part of the milk. If, therefore, the cream, which is one-sixth of the whole milk, is taken out and replaced by one-sixth of a quart of skim milk, there is more protein to the quart of skim milk than to the whole milk. Prof. W. O. Atwater, one of the highest authorities on food products, and the United States government expert, states that the sale of skim milk should be encouraged, or at least permitted. Of course it should be sold for what it is. A cheap and wholesome food product is found in it, and one, too, it may be added, that is sometimes more digestible than the whole milk, as cream disagrees with many persons, says the New York Post.

Flowers for the dinner board should not be of a heavily scented variety. The lovely narcissus, attractive as it is in the spring, is too fragrant for use in the centerpiece. Daffodils are to be preferred, or tulips, either equally well telling the story of coming summer. Some varieties of carnations, as well, carry almost too rich a perfume. The large double white and pinkish white veined with red, and the dark red that is fairly black in some of its petals, are none too fragrant, and a bowl of them, assorted or massed in a single variety, is one of the most effective of dinner pieces.

A delicious pineapple pudding serves the fruit cooked, in which way it is sometimes preferred, though fresh pineapple at its best can hardly be excelled. For the pudding a firm but fully ripe pine should be pared and cut into slices half an inch thick. Cut these slices into tiny rounds, and line a small round mold, bottom and sides. Put into a saucepan a quarter pound of butter, same of sugar and rice flour; work together, and add a half a pint of hot milk; stir until boiling and stand aside to cool. When cold, add first the yolks of three eggs, and when well mixed stir in carefully the whites, well beaten. Turn this mixture into the mold and steam one hour. Serve with a liquid pudding sauce.

Now that the French earthenware biggins are produced at a price that brings them within reach of everybody, no breakfast table should be without one. They can be bought in the size for the average family for as little as 85 cents, and $1.25 buys one big enough to serve a large household. The suggestion already made in this department, to fit a disk of blotting paper over the perforated bottom of the upper vessel, should not be disregarded. One large sheet of blotting paper, desk size, will make 60 disks for the biggin. Their use saves one-third of the coffee, and, percolated through one, the liquid is beautifully clear.

WERE ALL AG'IN HIM.

Old Man Who Was in Doubt as to a Stranger's Sincerity Gets Another Rate.

"Do you think," said the old man, as he halted at the corner grocery and toyed with a basket of clothespins, "that any person in this town has my happiness at heart?"

"No, sir," promptly replied the grocer, relates the Chicago Chronicle.

"Do you think that a cock-eyed man who never saw me until yesterday can be unselfishly interested in my future?"

"Not by a jugful."

"In offering to introduce me to a widow and try to bring about a marriage he would probably be guided by sordid motives, you think?"

"Certainly I do."

"Having secured my $25, he wouldn't care whether my future years were full of bliss or wretchedness, would he?"

"Not by a durned sight."

"Grocer, I thank you!" feelingly exclaimed the old man, as he turned from the clothespins to cranberries and let a handful dribble through his fingers. "While I am a stranger to you, you seem to have my welfare at heart."

"Yes, I have. I'd like to sell you a box of wagon grease for a quarter."

"But what use could I make of it?"

"Use it to soak your head in."

Water-Lilies Are Easily Grown.

All that is needed to grow water lilies is a tub, sunlight from six to eight hours a day, some rich garden soil and a little water. The easiest way to grow them is from seed, and the prettiest varieties are the African, or Zanzibar; they are purple, blue and red. To sow them take a common bowl and half fill with finely sifted soil packed down level and hard. On the surface scatter the seed evenly and cover with not over a quarter of an inch of fine sand; then very gently fill the bowl with water so as not to disturb nor wash away the sand. Place where the water will be kept at a temperature of about 80 degrees. In two weeks they will be ready for transplanting.—Ladies' Home Journal.

Disagreeable Lodgers.

You are never quite conscious of how many disagreeable lodgers there are in that many-chambered mansion you call your "self" until anger or envy or hate knocks at the door—and, presto! out come trooping such a lot of unhappy creatures—rancor and uncharitableness, and suspicion, and all unkindness, a perfect army of enemies to peace and happiness.—Helen Watterson Moody, in Ladies' Home Journal.

HIS WIFE WANTED TO KNOW.

She Thought There Was a Mystery About Her Husband's Return of His Wages.

There is no lack of chivalry in saying that some men have wives who rule the roost. Jones has one of this kind, and is responsible for what follows, says the Detroit Free Press.

"The night of pay day last week I had $25 in my pocket, aside from what I spent with a few of the fellows who had been chums in my time of single blessedness. I confess that my memory was a little treacherous by the time I reached home, but next morning I was scared white when I shoved my hand in the pocket where I supposed the money to be to find none there. I did more talking that morning than I ever did in the same stretch of time before in order to keep my wife's mind off the money, for she always demanded it. I succeeded, made my escape and hurried down town.

"I got a day off, hunted up Brown, told him my predicament, and induced him to lend me the $25 so that I could make good when I went home.

"'Here, my dear,' I said as naturally as I could at the supper table, 'is the money. I carelessly forgot it this morning. You'll find it all there.' She looked at me rather curiously, but said nothing. She was sort of suppressed all evening, and put a chilly quietus on all my genial attempts at conversation. Next morning she was dressed for the street, and informed me that she was going to the store with me.

"'Why, my dear?' I gasped.

"'Simply to ascertain what wages you are getting. I took that $25 out of your pocket yesterday morning while you were sleeping like a log. You promptly came up with another $25, and now I'm going to find out how long and for what amount you've been cheating me. You'll find I'm no child, Jones, and not what you men call a sucker.'

"I couldn't stop her, even when I told the whole truth. I lost another half day, and when the evidence was all in she told Brown that if he ever loaned me another cent without a written permit from her, she'd send him to the house of correction."

FOR FEMININE WEAR.

Fresh Fancies in the Department of Dress for the Coming Season.

Boleros are becoming shorter with every season. The newest is little more than a detached yoke over a deep girdle or corselet. It may be of almost any material, however delicate, a beauty recently seen being of white mousseline de soie, with incrustations of lace leaves, says the New York Tribune.

A handsome tailored costume of black cloth has a tight fitting coat with full basque. The revers are faced with crimson panne, and the sleeves are cut into tabs at the elbow, each tab piped with the crimson. The undersleeve is of embroidered mull, which reappears in a small chemisette at the neck opening. A necktie of crimson velvet ribbon, with long jeweled ends, gives additional brilliance.

It is asserted that white serge is to be freely used for summer tailored gowns, and that the thin woolen fabrics in white will be generally employed for dressy gowns until extreme heat drives women to muslins.

Black and white combinations are characteristic of the new styles. Some charming gowns of white muslin have narrow ruffles, edged with ruchings of black, reaching almost to the waist. White sashes edged with black accompany these, and the only touch of color permitted is a chou of blue, red or pink on the bodice.

White organdie and mousseline de soie, closely plaited, are made into exquisite blouses, with narrow silk or velvet ribbon for decoration. These blouses have rather small bishop sleeves.

The outer garment of silk, popular many years ago and tentatively introduced last year, seems to have established itself among the accepted fashions. Long and short cloaks, jaunty jackets and evening wraps are made of peau de soie, taffeta and a heavy corded silk, much like the old-time ottoman.

To Prevent Fading.

For the children's blouses with the dark collars the best thing is to wash them the first time thoroughly in cold water, then rinse well in two or three cold waters to get all soap out, throwing a handful of salt into the last rinsing water to fix the colors. Subsequently the blouses may be washed as usual, but never omit the salt in the last rinsing water. The great thing is to wash, rinse, dry and iron (on the wrong side) as quickly as possible, for lying about wet has a most disastrous effect on blue drill. It is greatly a question of quick, careful washing.—St. Louis Republic.

Asparagus Croquettes.

Mash together equal quantities of mashed potatoes and cooked asparagus, season to taste, moisten with thick cream sauce, add half as much bread crumbs as potatoes were used and turn into a shallow buttered dish to get cold. Then form into croquettes, dip in slightly beaten egg, roll in bread crumbs and fry in smoking hot fat. Drain on unglazed paper and serve at once.—Home Magazine.

Sponge Drops.

Three eggs, one cupful of sugar, one heaping cupful of flour sifted with one-half teaspoonful of soda and one teaspoonful of cream of tartar, flavor to taste, add a pinch of salt; beat until very light; drop from a spoon, or bake in tiny gem tins as quickly as possible.—People's Home Journal.

Live Stock

CHEAP FODDER CUTTER.

Homemade Machine Which, According to Its Inventor, Does Most Excellent Work.

Fig. 1 is the knife. The handle (a) is made of a two by four inch scantling and 3½ feet long. The blade (b) is made of a piece of steel procured at the hardware or iron store 15 inches long three inches wide and one-quarter inch thick, but three-sixteenths of an inch might do. The manner of setting the blade is sufficiently explained by the figures.

Fig. 2 is a side view of the box and frame. The box is made of boards one foot wide and 3½ feet long. By putting the bottom board between the side boards the inner measure of the box is 12 inches wide by 11 inches

Fig. 1

FODDER CUTTER KNIFE.

deep. Across the top of the front end of the box there is nailed a board (b) 12 inches wide, and underneath it, inside of the box, is an inclined board, as indicated by dotted line, which forms the mouth and throat of the machine. This helps greatly to hold the fodder in place for cutting. The legs, made of 1¼ by 2½ inch stuff, stand with their edges to the box and are 3½ feet high; bottom of box, 2½ feet from the floor. The supports (s, s) are nailed firmly to the legs, and the box is nailed both to the

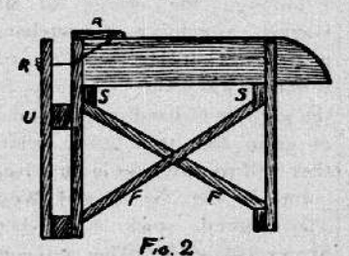


Fig. 2

SIDE VIEW OF BOX.

supports and to the leg which, with the braces (f, f) make the machine firm and strong. The support under the front end extends four inches to the right to hold the upright pieces (u) in place, between which the end of the knife handle is held. There are also two other upright pieces (r, r), one in front of each of the front legs, which are adjustable to crowd the blade of the knife up close to the mouth of the machine.

Fig. 3 is a front view. The cross-

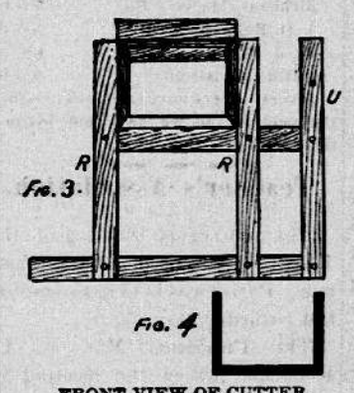


Fig. 3.

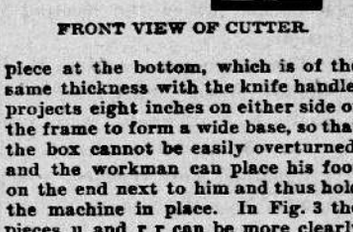


Fig. 4

FRONT VIEW OF CUTTER.

piece at the bottom, which is of the same thickness with the knife handle, projects eight inches on either side of the frame to form a wide base, so that the box cannot be easily overturned, and the workman can place his foot on the end next to him and thus hold the machine in place. In Fig. 3 the pieces u and r r can be more clearly seen.

Fig. 4 is a bit of steel, shaped up with a square, smooth face for the knife to cut against, and is so nicely set in the mouth of the box as to form a smooth surface so that stalks will not catch against it when feeding them through to the knife. The blade, of course, is made with a beveled edge, and set so as to cut like a pair of shears.

My cutter cost me, all told, besides my own labor, not more than two dollars, and does more work and does it more easily than any of the cheaper machines on the market, says the Ohio Farmer writer who describes the foregoing.

How to Build Pig Troughs.

A swine-raiser says: In fattening pigs they should have the trough room in length, not in depth. The pig troughs I see around the country seem many of them to have been constructed with the object of affording bath accommodations for their pigs; so deep and wide that the pigs take headers right into them. The room should be in length, not in depth, for all kinds of pigs, and the troughs should be kept clean. Pigs have the reputation of being filthy animals, but a pig will keep itself clean if it gets instruction in that way for a week, and a good example.

Sheep as Weed Destroyers.

Sheep are excellent destroyers of weeds. They will eat certain weeds that cattle will not accept, and they graze very close to the ground, preferring the young plants that are just appearing above the surface. They consequently give weeds no opportunity to grow. Even thistles will succumb if the land is given up to sheep, provided the thistles are first cut down, so as to allow new growth for the sheep.

PRESERVE YOUR HORSE.

Careless Inattention Kills Many Valuable Animals Years and Years Before Their Time.

Many farm horses are killed each year by thoughtless owners. They would not take their lives as butchers would, nor would they purposely take their lives by intentional cruelty. By careless inattention the work is done, and many men are guilty of the charge of killing off good horses if the matter could be definitely traced. Poor treatment when disease attacks the vital parts of a horse is a source of much fatality among horses. Lack of judgment under circumstances relating to the care of horses when they are out of condition is another. The lack of proper knowledge of the effect of different foods for horses under peculiar conditions may be added to the list. A great many causes might be given, but it is unnecessary to repeat them here. The horse owner who will give the subject any thought can figure out more ways than one in which the lives of those faithful animals may be shortened or lengthened. There are very few horses worn out. The most of them die from some cause or other, and these causes are what horsemen want to look after if they want their horse to live to a green old age. It is easier to preserve horses than to procure them. Barring accidents, a sound horse should be as good at 20 as at any other age, yet we find but few that are old that are able to do a full day's work without great fatigue. You must study the care of your horses if you would preserve them.—Drovers' Journal.

WEIGHT OF FLEECE.

Sheep Kept on the Western Ranges Carry More Wool Than Those Raised in the East.

On the western ranges sheep are grown more cheaply than in any other part of the country, and doubtless as cheaply as in any country in the world, but the sheep there carry heavier fleeces than elsewhere in this country, says Farm, Stock and Home. In the New England states fleeces average from five to six pounds each; in New York and Pennsylvania, less than six pounds; while Ohio, Michigan and Indiana average a little over 6½ pounds, but the western states and territories quickly bring up the average. Iowa's fleece weighs 6.9; Minnesota's 6.7; Kansas, 7.1; Montana, 7.3; Wyoming and Washington, 7.9 each; Idaho, 7.8, and Oregon, 7.5. It looks as though those western regions were well adapted to the sheep industry in more ways than one.

The bureau of animal industry reports that sheep scab has become much reduced during the past year. The bureau has inspectors stationed throughout all the sheep raising regions and at railroad points in order to discover diseased sheep and prevent their gaining access to the large stock yards. Sheep owners have been encouraged to dip their sheep, and the bureau thinks that a few more years of active work will result in the practical eradication of the parasite causing scab.

FEEDING PEN GATE.

Where Any Great Number of Pigs Are Kept a Device Like This One Is Almost Indispensable.

When there are any great number of pigs fed in the same pen it is invariably the rule that the larger pigs get the greater share of the feed, and in consequence they grow better and the smaller, less active pigs get less feed and are jostled about and fall farther and farther behind. By using

GATE FOR FEEDING PEN.

a gate, made as portrayed, in the feeding pen, the large, strong pigs will be hindered in no way from getting their share, and the smaller ones will be given an equal chance, or better. The gate (c) is fastened to the lifting lever (b), which is held at the desired height, admitting the desired sized pig by a pin (a), through the posts and through the lever. The lower hole admits the smaller pigs, but the larger sized cannot squeeze under. When the little pigs have satisfied themselves, lift the gate another hole and admit the next grade, and so on. In this way the smaller pigs will not become stunted by being crowded away from the feeding trough or floor. —J. L. Irwin, in Farm and Home.

HELPFUL SHEEP NOTES.

Breeding ewes are in strong demand all over the country.

The effects of good breeding are wholly neutralized unless they are supported by good feeding.

Never in the history of the industry has there been so great a demand for small sheep ranches as at present.

The shepherd who procures a pure-bred ram simply possesses a possibility which he is to avail himself of in the best manner.

It is not wise to leave salt to be eaten to excess by sheep. It is sure to be taken too freely, unless it is in the form of rock salt, which is licked and so swallowed slowly and safely. Too freely eaten it becomes a purgative and causes excessive thirst, which leads the sheep to drink too much water.—Rural World.