THE SIMPLE INVENTION WHICH

Sweden is the Great Match Maker-Each Person Uses Eight a Day-

Every man, woman and child in Europe and America, taking the average, uses eight matches every day in the

Does it not seem wonderful when one considers the enormous number of matches which, at that rate, the civilized world uses each year to light its fires, its pipes and cigars and other things which require igniting for purposes of every-day convenience? The very notion of getting on without them seems so absurd that one does not realize that it is only within the last sixty years that they have been procurable. How marvelously cheap they are, too! In fact, there is no product of human manufacture that better illustrates the expense saving advantages of machinery. When one machine will turn out 15,000,000 matches in ten hours, why should not mankind regard the phenomenon of fire as too commonplace to be worthy of serious consideration.

Sweden is the great match maker of the world, but the industry is conducted on an enormous scale in the United States and other countries. The wood used is chiefly pine, white or yellow. Timber for the purpose is cut out in blecks fifteen inches long-long enough to make seven matches. After being freed from the bark the blocks are put into a machine resembling a turning lathe, with a fixed cutting tool by which a continuous strip of veneer is turned off precisely the thickness of a match. While this is being done small knives separate the sheet of veneer into seven bands so that seven long ribbons are produced, the width of each just the length of the match that is to be.

Next these ribbons are fed more than one hundred of them at a time into another machine, though first they are cut into six-foot lengths and the knotty parts are removed. This lafter contrivance chops them into match sticks at the rate of thousands a minute, which are afterwards dried in heated drums that revolve. The sticks thus prepared are then sifted to remove all splinters, and the same apparatus that accomplishes this purpose arranges them parallel so as care of their money. to be conveniently bundled. Finally they are dipped in combustible mixtures, and, although this performance is so elaborate as to render a detailed description undesirable, it is performed with as much quickness as the process which went before. From the felled tree to the finished lucifers all is done by machinery, the boxing only being executed by hand.

It was in 1805 that the notion of that year a French professor introduced on the home of a poor widow. for the purpose a small bottle of asbestos, saturated with strong sulphuric acid, be introduced when a light was wanted. When the wooden splint thus prepared was brought in contact with the acid in the bottle ignition followed.

them very desirable for household use. when equal parts of sulphur and phospoked into the tube and a particle of mixture withdrawn on the end of it. On exposure to the air the substance caught fire spontaneously.

The first really practicable friction matches were made by an English apothecary named Walker in 1827. He coated splints of cardboard with sulphur and tipped them with a mixture of sulphate of antimony, chlorate of potash and gum. Each box, holding eighty-four matches and sold for twenty-five cents, contained also a folded piece of glass paper, which was to be pressed together while the match was drawn through it. Three years later another ingenious person named Jones, in London, patented the idea of making a small roll of paper, soaked with chlorate of potash and sugar at one end, with a thin glass globule filled with strong sulphuric acid attached at the same point. When the sulphuric acid was liberated by pinching the globule it acted upon the chlorate of potash and sugar so as to produce fire.

It was not until 1833 that the phor-

phorus friction match was first introduced on a commercial scale, and improve-ments rapidly followed, which have produced the fire-making article as it is sold by the billions of boxes to-day. For a long time the phosphorus, which has always been the most important ingredient, was found a perilous thing to deal with. It occasioned multitudinous accidents, and was also the cause of widespread disease in the factories. This complaint was of a most dreadful character, causing decay of the jawbones of operatives; but it has been found that ventilation and cleanliness do away with it. Owing to the danger of fires from the explosion of matches, the "safety" variety has grown much in favor of late years, the phosphorus necessary for ignition being hours. This weight—a small one com-combined with the mixture applied to the surface of the box, instead of forming is eighteen times their own. In carrypart of the tipping substance of the splints themselves.

Wax matches, so-called, are manufactured chiefly in Italy and Great Britain. They are made by drawing strands of fine cotton thread, twenty or thirty at a time, through melted stearine, with a small admixture of paraffine. The wax hardens quickly upon the threads and the long tapers thus produced are smoothed and rounded by pulling them through iron plates perforated with holes of the desired size. Finally, the tapers are cut into match lengths and dipped. In France the making of matches is a monopoly of the Government, which farms out the privilege at a large figure, the result being that it costs much more tured chiefly in Italy and Great Britain.

MATCH MANUFACTURING, to strike a light in that country than it does elsewhere.

When it is considered how old the world's civilization is, it seems surprising that man should have only so very recently learned how to make fire easily. The primitive flint-and-steel method is but of the last generation, and that does not appear so very far ahead of friction with wood. It is not astonishing, on the whole, that savages should commonly suppose that fire really exists in wood and stone, since it is from those every day materials that they procure a portion of Prometheus's precious theft from heaven .- Washington Star.

WISE WORDS.

Little troubles kill little men.

People live for what they hope for. People who think low are sure to live

A lie can be told without saying a

Sometimes a good well has a very poor Self-conceit is harder to cure than

There is nothing meaner anywhere

It takes fire to bring out the fragrance

of the incense. How easy it is to feel big in the pres-

ence of a dwarf. It is the cowardly dog who is always showing his teeth.

It is human nature to hate people who show us that we are little.

All the philosophy in the world has never made anybody better. To find pleasure in wicked thoughts is

as wicked as to commit wicked deeds. The man who has learned to love people he doesn't like is on the right

The love that never speaks until it does it on a gravestone doesn't mean

There can be no greater torture than to be conscious of imperfections in our-

Romance is one thing, but making an honest living and paying your debts is

More men would be rich if they were not afraid to trust their wives with the It won't help your own crop any to

sit on the fence and count the weeds in your neighbor's field. Lifting on somebody else's burden is

make your own lighter. The best way to get rid of the blues is to try to push the clouds away from the

the best thing in the world to do to

windows of other people. "Blessed are the merciful." Don't chemical matches was first conceived. In forget that when you have a mortgage

Life is real, life is earnest, but with the thermometer at ninety-eight degrees into which little sticks of wood coated in the shade it is a great deal easier to with sulphur and tipped with a mixture sit still than it is to go out in the sun of chlorate of potash and sugar, were to and say so .- Indianapolis (Ind.) Bum's

Water Too Much for a Mob.

Right in San Francisco to-day lives a In the same year matches tipped with man who was a ringleader of a mob in lumps of phosphorus seem to have been Tucson, Arizona, that was foiled in a known, but they caught fire too readily most peculiar way in an attempt to lynch by spontaneous combustion to render a prisoner who was charged with murdering a prospector. Court was in session An improvement was introduced in 1823, at the time and the prisoner was confined in a cell in the Tucson court house, phorus were melted together in a glass through the main entrace of which was tube, which was securely corked. When the only way of access to the jail from a light was desired a small stick was the street. An adjournment had been taken for the day and, as it happened, the only man left at the court house was the janitor, a slow, methodical old fellow amed Hand. Rumors had been circulated for several days that an attempt would be made to lyach the prisoner referred to, but as no demonstrations had been made the sheriff had grown careless, and had removed the guard. Just about the dusk of the evening in question, the old janitor, who was enjoying a smoke on the court house steps, saw a mob approaching, and in an instant realized its meaning. Slowly removing his pipe from his mouth, he laid it carefully aside and stepped into the cerridor of the building. A section of fire hose stood near, and deliberately unreeling it, he screwed it on to the hydrant and adjusted the nozzle. He stood there in readiness, and when the leader of the mob reached the doorway he turned the water on full force. Owing to the great elevation of the reservoir the pressure is enormous, and the stream as it struck the leader staggered him. He hesitated and turned to face his companions. That settled it, and before they could recover from their surprise every man in the mob was drenched from head to foot. The stream seemed to increase in force and volume, and one after another the wouldbe lynchers fled. In five minutes not one of them could be seen in any direction, and when the sheriff put in an appearance old Hand had reeled up the hose and was again seated on the steps smoking away as if nothing had happened .- San Francisco Call.

Strength of Men and Auts.

An ant three-eighths of an inch long, carrying a burden of one-sixth of a grain, moves at the rate of one mile in eleven ing this weight they compare with a man 54 feet high, weighing 140 pounds, carrying a ton and a half of lead from St. Louis to Jefferson City and back again in twenty-two and a half hours.—
St. Louis Republic.

THE FARM AND GARDEN.

EDUCATION OF HORSES.

Horses can be educated to the extent of their understanding as children, and can be easily damaged or ruined by bad management. We believe that the dif-ference found in horses, as between vicious habits and reliability, comes much more from the different management of men than from the variance of natural disposition in animals. Horses with high mettle are more easily educated than those of less or dull spirits, and more susceptible to ill training, and consequently, may be made good or bad, according to the education they receive. -The Horse.

TRAP FOR NIGHT-FLYING INSECTS.

A trap for night-flying insects can be made as follows: Remove the top and bottom from a barrel, and then smear it well with tar. Across one end nail a strip of wood, to this fasten a cord, so that the barrel may be hung where desired. It should hang from two to three feet from the ground, and a large pan or tub should be placed beneath. In the evening suspend a lighted lantern from the strip, lowering it about to the centre of the barrel. By using thirty of these traps, the injurious insects were almost exterminated in a large orchard and garden .- New York Observer.

POTASH IN POTATOES.

The New Jersey Agricultural Experiment Station has tested the influence of some mineral fertilizers on the character of the potatoes treated with them. The experiments gave the following conclusions: First, that it pays to use commercial fertilizers for potatoes; second, the best results being secured when they are used with barn manure; third, when prices are the same sulphate of potash has no advantage over muriate. Trials were made to test the quality for the table, and to ascertain if any difference could be discovered in the cooked tuber. All being dry and mealy, the chemists of the stalion were unanimous in their choice of those grown after the sulphate of potash; and persons entirely unacquainted with the facts selected without hesitation those grown where sulphate of potash entered largely into the composition of the fertilizers .- Country Gentleman.

HOW TO DRY HERRS.

Many of the plants and roots growing wild, as well as those that are cultivated, bave well known medicinal properties, which are often found very useful, and make them worth gathering and preserving until a time of need. For some reason, however, people nowadays are far more neglectful in attending to this in its proper season than formerly. That such plants have not lost their value is abundantly shown in the fact that year. scarcely one can be named that is not for sale in the drug stores or by dealers in medicinal and other herbs. By gathering them yearly, families living in the country can always have a supply of their own with the assurance that they have not lost their virtues by age.

Most plants are best gathered for preservation when in flower and full leaf, and before the juices have hardened into tough fibre—certainly before frost. It is better to dry them in the shade in a current of dry air than by exposure to the sun or in a drying-house. The green color should be preserved as well as possible, as also the aromatic qualities, both of which will be unfavorably affected by too rapid drying in the hot sun or by artificial heat. The same method of drying applies to roots, and both plants and roots after the curing should be stored in a dry place until wanted .-- New York World.

DUCKS AS BUG DESTROYERS.

E. H. Kern, Mankato, Kan., has sent the following letter to the Department of providing adpports, as they may be of Entomology at Washington: I notice in Vol. 3 of "Insect Life," "Bird Enemies of Potato Beetle." I wish to add my experience in that line. Several years ago my potato field was almost ruined because I could not use Paris green, as my stock was in danger from and a blackberry a blackberry—is a A large pond of water attracted study for scientists. about twenty of my neighbor's ducks to its shore. I never did fancy ducks very much, and I told him so. He said he would give them to me if I would care for them, as he could not keep them at home. The next morning I went down to the pond at sunrise to try and drive said ducks in a pen. I saw a very cur-ious sight. Headed by an old drake, the twenty ducks were waddling off in a bee-line for my potato-field. I crawled into some bushes and awaited developments. As they came to the end of the rows they seemed to deploy right and left, and such a shoveling of bugs I never beheld. They meant business, and for fully one-half hour did they continue until every duck was filled up to its bill with worms. Then they went for that pond, and I went for their owner and paid him \$1 for the entire bunch—this being all he would accept. When I re-turned every duck seemed to be trying to outdo its fellow in noise. This expedition was repeated about 4 P. M. and kept up until every bug went under. I have tried these ducks and others since, and find they all like them and seem to get fat on potato bugs. I have been an ardent sportsman all my life and never saw quail at the bugs in this western once. By the use of the finger at first

GROWING FODDER CORN.

A great improvement in methods of growing corn fodder has been made within the last thirty years. Once it was always called "sowed corn," and these words implied the lack of cultivation which all sowed crops get. Any farmer knows that corn, more than other crop, requires cultivation and a good deal of it to get any grain. It equally needs cultilies, rhododendrons and clematis. to get any grain. It equally needs cultivation to produce fodder worth anything. The thin white stalks which thickly sowed corn produces are poor feed, and while cows will eat them, yet if they give much milk they must take fat from their reserve stores to put into

it. When drills came into use it soon became easier to distribute drilled corn in straight rows, wide enough apart for cultivation. This produces large, juicy and sweet stalks and some nubbins of ears. If the fodder corn has no nubbins on it something is wrong; either the land is too poor, or more probably the seed has been drilled in too thickly.

Rich, sweet stalks are of no less importance in making ensilage. The richer the material put into the silo, the better will be the product. In fact, by putting in only nearly mature corn the fermentation can be kept down so as to produce a sweeter ensilage, and one that has lost a smaller proportion of its nutritive value than the sour, rotten stuff, originally poor, that comes out almost worthless, and has to be generally supplemented with grain to make a living ration. It is possible to put so much richness into fodder corn ensilage that no grain, or only at most a little bran or wheat middlings, will be needed to supplement it. In giving corn room enough to spread out and begin earing a greater weight of stalks can be grown by thick sowing, especially when midsummer droughts cut and sear the sown corn so that it can barely get into tassel, and is merely a mass of nutritious leaves .- Boston Culti-

FARM AND GARDEN NOTES.

Relieve the overloaded trees of fruit. Have horses collars open at the bot-

Veterinary dentistry is a growing bus-

Strawberry plants require plenty of One filthy cesspool may make a whole

family sick. The bees garner what would otherwise

go to waste. There is too much plowing and scrap-

Whitewash now every two weeks-it, will keep houses, run and roots free from

ing in "working on the road."

Every fruit grower ought to raise a a few bees, and so should every grain

White specks in butter can be traced to a temperature too high or to skimming

Follow the bee's example and in your care of honey and comb don't let anything go to waste. Move quietly among your chickens;

they are a timid set and do not admire boisterous company. The ideal place for an apiary is where the bees can get plenty of blooms, spring,

summer and autumn. Remember, pasturing takes five acres to each cow for six months; soiling feeds a cow from one acre for a whole

Provide a good dust-box to head off vermin during the warm months. A half pound of powdered sulpur added to it will help wonderfully.

In disposing of eggs in market separate the kinds, as they appear more uniform and attract quicker than if all sizes and shades are mixed up.

If you want a first-class price for your honey use the best white poplar sections ship in six pound crates, and carefully remove all the bee glue from the sections so that the comb will look spick and

When cucumbers are planted place some brush near the hills so that the vines can climb on the brush for support. In this manner the young cucum bers intended for picking can be more easily picked.

Do not be afraid to plant more peas for a late supply. If the fall-growing varieties are used it will do but little injury if they fall over. Do not be deterred from planting because of the difficulty

One of the mysteries of nature as seen in fruit is realized in the delicate differences in flavor. The combination and proportion of ingredients that make a certain flavor-that make a peach a peach

It helps the grass crop, blue grass, or timothy, to harrow the fields every spring and loosen the surface of the sods. The grass roots take a deeper hold and the herbage flourishes accordingly. Besides harrowing breaks up and spreads the droppings of animals left during the

Young pigs pastured in orchards will do good service in destroying insects; those for early market should be given a meal of slop daily. Chickens should be guarded against hawks, owls, rats and other enemies. · Give them plenty of range, however, and provide good nesting places.

No matter how well a peach orchard may be fertilized, if grass is permitted to grow around the trees they will not thrive. There is always a deeper green color to the leaves of trees that are kept clear of grass, even if no fertilizer is applied, compared with trees that are not properly worked. The cultivator should be used in the peach orchard frequently and the ground kept loose.

To have the least trouble with a young calf never let it suck its mother, or, if it has sucked before finding, remove at in a pail of milk suitably warmed the calf will harn to drink. If the calf is to be fattened continue to let it suck the finger in the milk as long as it will. The calf gets the milk more slowly that way, and mixes more saliva with it.

Says a florist: "Were I restricted in



Every one suffers from Catarrh in the Head. Those who don't have it suffer from those who do. It's a disease you can't keep to yourself.

Here are some of the symptoms: Headache, obstruction of nose, discharges falling into throat, sometimes profuse, watery, and acrid, at others, thick, tenacious, mucous, purulent, bloody, putrid, and offensive; eyes weak, ringing in ears, deafness; offensive breath; smell and taste impaired, and general debility. But only a few of these likely to be present at once.

The cure for it-for Catarrh itself, and all the troubles that come from it—a perfect and permanent cure, is Dr. Sage's Catarrh Remedy. The worst cases yield to its mild, soothing, cleansing and healing properties. A record of 25 years has proved that to its proprietors -and they're willing to prove it to you.

They do it in this way: If they can't cure your Catarrh, no matter how bad your case, or of how long standing, they'll pay you \$500 in eash. Can you have better proof of the healing power of a medicine?



From the "Pacific Journal." "A great invention has been made by Dr. Tutt of New York. He has produced

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August Flower'

Mrs. Sarah M. Black of Seneca. Mo., during the past two years has been affected with Neuralgia of the Head, Stomach and Womb, and writes: "My rood did not seem to strengthen me at all and my appetite was very variable. My face was yellow, my head dull, and I had such pains in my left side. In the morning when I got up I would have a flow of mucus in the mouth, and a bad, bitter taste. Sometimes my breath became short, and I had such queer, tumbling, palpitating sensations around the heart. I ached all day under the shoulder blades, in the left side, and down the back of my limbs. It seemed to be worse in the wet, cold weather of Winter and Spring; and whenever the spells came on, my feet and hands would turn cold, and I could get no sleep at all. I tried everywhere, and got no relief before using August Flower Then the change came. It has done me a wonderful deal of good during the time I have taken it and is working a complete cure."

G. G. GRFFT: Cole Man'fr, Woodbary, N.J.



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"IGNORANCE of the law excuses no man," and ignorance is no excuse for a dirty house or greasy kitchen. Better clean them in the old way than not at all; but the modern and sensible way is to use SAPOLIO on paint, on floors, on windows, on pots and pans, and even on statuary. To be ignorant of the uses of SAPOLIO is to be behind the age.

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