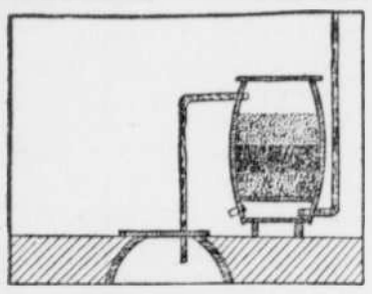
Economical Cistern Filter.

A practical filter is necessary for the cistern. One may be constructed of any good, sound oak barrel, as shown in the illustration herewith. One head is removed and several holes bored in it. It is then dropped inside and forms a false bottom, as shown, leaving a clear space between it and the bottom or head proper. Six or seven inches of coarse gravel or broken stone are next placed on the false bottom, and on this stone a layer of charcoal six or seven inches thick is placed, and on the charcoal a second layer of stone or gravel. In all it should be about eighteen or twenty inches thick. The water enters the



FILTER MADE OF A BARREL.

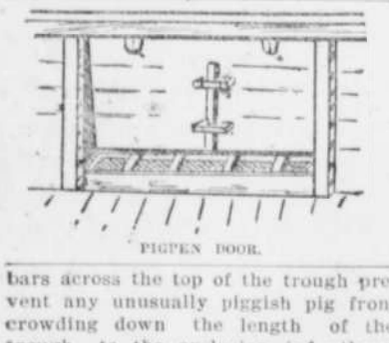
barrel at the bottom between the head and the false bottom through the regular down spout, which is clearly illustrated. It passed up through the gravel and charcoal and out at the top through a second pipe which leads to the cistern. The top layer of stone may be improved on by filling the voids between the stone with sand. The sand is covered with cheesecloth stretched on a wire and the cloth and wire held in place with one or two stones. A small wooden plug or faucet is placed at the lower end of the barrel to drain same after a rain or when washing out the filter. Give the barrel two or three coats of paint, provide a close fitting cover and your filter will do the work just as well as any twenty-five dollar filter in the land.

Unique Door for the Pigpen.

A very convenient way of feeding pigs was observed in the swinehouse of a prominent breeder, an arrangement that made the tridaily feedings a matter of so little difficulty that a child could place the feed before a pen of unruly noses.

The front of each pen was hinged at the top, swinging downward against the farther sides of the uprights, as here shown, the weight of the door being sufficient to hold it in place. On the front of the door is a vertical bar with a pin through the top, as here shown. This is held in place by two wooden blocks notched out to admit of the bars sliding up and down, the blocks being bolted to the door. If desired the home blacksmith could easily shape a piece of iron to perform the same duty.

At feeding time the bar is lifted and the door swung in past the trough, directly beneath. Then the bar is dropped, thus holding the door back of the trough. This keeps the hungry mob on the other side of the door while the feeder takes his time to clean the trough, if need be, and to pour in the feed. A few transverse



PIGPEN DOOR.

bars across the top of the trough prevent any unusually piggish pig from crowding down the length of the trough to the exclusion of others. When ready to admit the pigs to the feed the bar is lifted and the door drops to its usual position. Any farmer can make such a device, all that is required, besides the lumber that would have to be used in any case, being the hinges.

Keeping Tab on Hens.

It is a good plan to watch for the hens that are laying and those that are not. Those that are not laying these days should be disposed of, for they take away what profit the busy ones make. The eggs from the persistent layers should be used for hatching purposes, so that a better strain of laying hens may be obtained for next season. It is only by careful watching and observation that the busy hens can be told from the drones. —Agricultural Epitomist.

Disposition of Breeders.

In breeding profitable horses care should be taken to select animals known to possess desirable qualities. Vicious mares should not be bred. Every year bad dispositioned horses send quite a number of persons to premature graves and cripple others, while the material damage they do is quite considerable.

Coal Tar Remedy for Mange.

For itch or mange, rubbing of tail or mane, wash thoroughly with warm soft water and soap, then rub in with brush a proper strength of coal tar dip used on sheep and dogs. Scrub every three or four days until cured. Disinfect stalls and harness also or you never will get rid of the nest

Farmed Lands.

An exhaustive census investigation of farm interests throughout the United States showed that in the last ten years the total number of farms has increased 18 per cent. In the older States, from Ohio eastward, there has been going on for twenty years a tendency toward the amalgamation of farms distant from market into larger holdings. There are now almost three times as many farms as in 1870, and an unprecedented increase in the value of farm lands and live stock is the even more momentous fact revealed by this inquiry. The land in farms, with their buildings, improvements and live stock, is to-day almost $30,000,000,000, a gain of 44 per cent in ten years. Present values are two and one-half times the farm values of thirty years ago. In the North Central States the increase in the value of farms is 43 per cent; in the South Central States, 58 per cent; in the North Atlantic, 13 per cent, and in the South Atlantic, 3/ per cent.

Keeping Milk Utensils Clean.

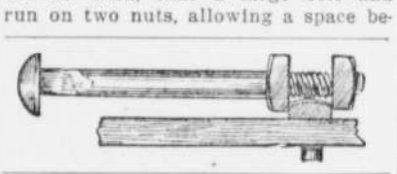
Discard the dishcloth and the dishtowel when the milk utensils are being washed. Wash them in warm water first, with plenty of some washing compound, and use a brush to do the work, but never a rag. Get into every part of them, after which rinse off with clean warm water, and then either put them in boiling water or pour boiling water over them. Stand the parts up so they will drain and use no cloth to wipe them. The hot surface will dry them quickly, and they will be clean. Leave the parts in a sunshiny place if possible.

Testing Poultry for the Table.

Some experts in choosing poultry for the table depend upon testing the breastbone, but sometimes dealers break this on purpose, then you are out. In a young chicken or goose the cartilage in the breastbone will bend easily. If the bird is a year old it will be brittle, and in an old fowl will break before it will bend to any amount. To make this test, take the end of the breastbone farthest from the head and make the attempt to bend it to one side. If it is young it will bend easily to either side.

Substitute for a Wrench.

If in need of a wrench and one is not at hand, take a large bolt and run on two nuts, allowing a space be-



tween them to fit over the nut to be turned. This will make a serviceable wrench, a substitute that will prove very beneficial in case of an emergency.—Thos. L. Parker, in Popular Mechanics.

Easily Made Fire Kindler.

Put about a gallon measure full o. sawdust that has been well saturated with kerosene into a deep tray. Add enough melted rosin to stiffen the entire amount when it is cold. When cold, says Popular Mechanics, this mixture can be cut into squares and put away until ready for use. Put one square of the kindler into the fireplace of a stove and place the fuel on top. A hot fire will be produced in a short time after the lighting.

Beef and Dairy Cattle.

When a dairyman has faced the actual practice of selling cows from his herd for beef he will not feel encouraged over the outlook of combining beef and dairy qualities in the same herd. There is a popular prejudice against eating beef from an old, played out dairy cow, and there is no advantage in trying to combine the two qualities in one animal.

Grain Ration for Colts.

An experienced horseman has found equal parts of corn and oats ground together to be one of the best grain rations for growing colts. It furnishes elements needed for the production of fat, bone and muscle. Adding bran or linseed meal to the ration aids very much in keeping the bowels regular and avoids constipation, and in this way lessens the liability of disease.

Dynamiting Holes for Planting

Tree planters advocate dynamiting holes for the planting of fruit trees. When there is an impervious hardpan they advise the digging of the hole deep enough for the tree, then placing a small stick of dynamite in the hardpan and the explosion will loosen up the ground so that the roots of the trees may take deeper hold in the soil.

Useful Little Suggestions.

A dirty collar often makes a sore shoulder.

Are rabbits and mice skinning your young trees?

Cheap harness often proves an expensive instrument.

The most perfect milk can be quickly and easily spoiled.

It will cost no more per pound to grow a colt than a calf.

A little axle grease applied where it belongs saves horseflesh.

Unthrashed cow pea hay, well cured, ranks among the best of dairy feed.

Successful hog raisers will always have clover alfalfa pastures for their animals.

Everybody is in danger of having a poor stand of corn unless the seed is tested.

We do not need manure nor commercial fertilizer on our orchards as much as light cultivation and perfect care.

If you cultivate your orchard, see that the ground is kept finely mulched, in order to preserve the moisture the trees should have.

THE SEVEN AGES OF MOTHERHOOD.

Oh, mother, that I could do for thee
The things thou hast done for me;
That I could pay back a thousandth part
Of the love thou bearest me;

That I could give the strength I hold,
Now that thou growest old;
That I could strengthen thy feeble step
And let not thy hand grow cold!

Oh, mother, that I could give to thee,
Now that thou canst not see—
That I could give back the sight, my dear,
That thou hast given me!

Oh, mother, that I could give to thee,
Now that thou leavest me—
Oh, mother, that I could give to thee
The life thou hast given me!
—John B. Gruelle in the Detroit Times.

Science and Invention

An acre of 12-inch ice usually will provide a harvest of 1,000 tons.

During 1909 the patent office issued 33,514 patents, while 22,328 expired.

Fifty thousand tons of soot are taken from London's chimneys each year.

Venezuela has nearly 5,000 miles of telegraph lines with nearly 200 offices.

Each of Germany's four new Dreadnoughts will require a crew of 1,000 men.

Not many years ago only natural indigo was known, but already the manufacture of artificial indigo has reached a point where it has threatened ruin to many of the cultivators of the indigo plant in India. Nevertheless, the superiority of the natural product in some respects has induced continued investigation of improved methods of cultivation and preparation. It is now predicted that a new era of prosperity for the natural indigo industry it at hand. The introduction of Java-Natal indigo is said to have reduced the expenses of cultivation, and to have increased the production one-half. It is predicted that in the future it will cost less to produce natural indigo than the synthetic dye. Science has played a part on both sides in this competition.

Comparative immunity for a hundred years seems to have made the French forgetful of the danger to their great capital from sudden floods in the River Seine. But the lesson taught this year will evidently have important consequences. It is suggested, among other things, that a large channel be constructed to lead off the flood-waters from a point above the city to a junction with the regular channel below the city limits. The cost of this is reckoned at, at least, $20,000,000. But Paris lies in a great basin, and the proposed cut-off would not save some of the suburbs from inundation. Another suggested solution is to construct in the higher valleys, through which the Seine and its two principal tributaries, the Yonne and the Marne, flow, great reservoirs, to be filled in times of flood. This water, it is argued, would be useful for irrigation purposes, as it could be distributed at will any time after the inundation had ceased. It is probable, also that local protection will be secured by means of higher embankments within the city.

During 1910 it is expected that strenuous efforts will be made to improve the already great efficiency of the gas-engine. Although this form of engine enjoyed a triumph in 1909 through the achievements of the aeroplanes, yet it is pointed out that its old rival, the steam engine, at the same time greatly advanced in fuel economy, achieving a thermal efficiency of 19 per cent, a figure hitherto associated with gas rather than with steam engine tests. It has recently been discovered that, owing to erroneous assumptions, the gas engine has not been credited with having approached as close to the theoretic limit of thermal efficiency attainable by the prevailing four-stroke cycle as it really has approached. Thus it has been shown that a gas engine which by the old standard of efficiency was supposed to have attained 30 points out of a possible 50, has really attained 30 out of a possible 35. This leaves so little room for improvement that experimenters are turning their attention to radical changes in the method of operation which will afford a larger margin for advance.

A HUMAN HOOPSNAKE.

William Gordon, 10 years old, of Clinton, N. J., saw a picture of a human hoopsnake on a circus poster and he stole into the hayloft when his brother Sanford and his sister Belle went to the Sunday school. There wasn't much hay in the loft, and the boy, after a few preliminary stunts in the hand-springing line, buckled his heels to the back of his neck with a strap and began to roll around in imitation of a hoopsnake. On the third lap William inadvertently rolled across a corner of the hatchway and almost went through. He bumped his ribs on the edges of the opening in the loft. That scared him and made him very tired. When he tried to unbuckle his legs from his neck he found he was too near exhaustion to loose the strap. He rolled up near a window opening toward the farm house and tried to shout for help, but his voice was all in and the hoarse squeak could not be heard ten yards away. In a panic the boy decided on a desperate measure. He rolled himself over to the head of the stairs, and then, closing his eyes, let himself go bumpety-bump to the bottom. He had such momentum he rolled right on out through the door of the barn and over between the legs of Ketchup and Solferino, the team of horses the elder Gordon was hitching up. Gordon gave a shout of astonishment, yanked the human hoopsnake out of danger and cut the strap with his knife. Then he laid the young hopeful across his knee and fanned him with a shingle until the boy had no other pain save that.

NOVEL FRENCH CLOCKS.

Of Wonderful Mechanism, They Tell Many Things Besides the Time.

The clock of Lyons cathedral is a wonderful piece of mechanism and the legend describing it is as follows, an exchange says: The clock crows, the bell sounds the hours, the little bells, the "Sancte Spiritus," the angel opens the gate to salute the Virgin Mary. The two heads of the lions move the eyes and tongue. The astrolabe shows the hours in its degree and the movement of the moon. Moreover, the perpetual calendar shows all the days of the year, the feast days and the bissextile. The hour at which the chimes are complete are 5 and 6 o'clock in the morning, midday and 1 and 2 o'clock in the afternoon. The chimes at the other hours are restricted so as not to interfere with the cathedral services.

Complicated indeed is the clock of Beauvais cathedral. It is said to be composed of 92,000 separate pieces on the fifty-two dial plates, the hour, the day, the week and the month; the rising and setting of the sun, phases of the moon, the tides, the time in the principal capitals of the world, together with a series of terrestrial and astronomical evolutions. The framework is of carved oak, eight meters by five meters, or 26 by 16½ feet.

When the clock strikes all the "edifice" seems in movement. The designer wished to depict the "Last Judgment." This wonderful work recalls the work of Strasburg and is of modern construction. It is the work of a Beauvasian, M. Verite, who was in the engineering department of th Nord Railway. He died in 1887.

Electricity Wins Washing Race.

At the recent electrical show in Chicago electricity won a very pretty race with hand labor to see who could wash the most clothes in a given time.

Five pretty girls, operating new types of electric washing machines and motor-driven wringers, raced with six ladies of pronounced color who did their work by the world-old hand method, using the old fashioned wash tubs, wash boards and hand wringers. The girls started the electric motors to work on the clothes and spent the most of their time laughing and chatting with the visitors while the machines ran themselves. The colored women worked as hard as ever they could, for if they washed half as many clothes as the girls and electricity did they were to get one hundred dollars. The suds flew fast and furious about the colored girls but when time was called they had not washed a third as many clothes as their contemporaries did, so they lost the prize, but were handsomely rewarded for their honest work, demonstrating the vast difference between ancient and modern laundry methods.

Force of Habit.

First Policeman—What did the suffragette say when you were arresting her?

Second Policeman—Said something about "presenting her compliments and regretting that she had made a previous engagement."—Harper's Bazar.

And They Are Obeyed.

"What are unwritten laws, pa?"

"Your mother's, my son; she always speaks them."—New York Press.

The flora of Switzerland is peculiarly adapted to bee culture, and it is estimated that 100,000,000 pounds of honey are made in that country each year.

The man who deserves success and goes after it usually gets it