

WHEEL ADJUSTMENTS.

Directions For Repairing Loose Automobile Bearings.

There are certain operations more or less ordinary about the overhauling of an automobile, which nevertheless if not attended to will cause a lot of trouble, says Blacksmith and Wheelwright. Among this class of operations may be included the care which it is necessary to take of the wheels and their parts and attachments, and one or two notes of a practical nature concerning these may be permitted.

Very often there will develop in the front road wheels of a car a certain amount of play due to wear which manifests itself in a slight "wobbling" of the wheels while they are running. If the wheels were jacked up, and then taken hold of by the spokes and worked backwards and forwards the play will be distinctly felt. In cases where the wheels are provided with a plain brass bearing the most probable cause of the play is due to wear on the washers which takes the bearing, as will be seen from the polished surface of the rim, round the bearing. The trouble can therefore be cured by taking off the wheel and turning out the washers. These are in most cases about one-eighth inch thick on the bearing part, and about one-quarter inch on the inside part; this is where the play can be taken up.

In order to carry out this piece of work, the washer should be put in a lathe and turned out sufficiently on the inside part to take up the play. Care, however, must be taken not to take off so much metal from the washer as to make the wheels run tight. It will generally be found that this simple operation will make the wheels run without play, but should it not do so the trouble must then be sought for in the brass bearing itself. If this is worn the only satisfactory way of getting rid of the play is to renew the brass. It should be remembered in getting the wheel on again to use plenty of grease.

Some of these front wheels, however, have in place of the brass bush and washers, a method of fitting consisting of ball bearings and cones. Should the play occur on such wheels the method of procedure is slightly different.

The first thing to do is to take off the wheel cap and clean off the grease, and then take out the split pin which secures the nut and cones. The castle nut should be removed, and it should then be found that the cone will come out and the wheel should slide off the axle, and the bearings with it. These bearings should then be carefully cleaned and examined to see if any of them are broken. If they are all right they should be fitted into the wheel again and the latter fixed into position. The adjustable cone should then be screwed up, care being taken so to see that the cone is not brought up too tight as to prevent the wheel from revolving. It may possibly be found that when the cone and the castle nut have been screwed up there is room for a thin washer between the cone and the nut. This should be inserted, for if this is not done it will be found that the slot in the nut and the split pin hole in the axle will not come into proper position. When the adjustment has been made satisfactorily the wheel cap should be filled up with grease and screwed on, and this operation should be repeated until the lubricant can be seen oozing out of the other side of the wheel.

Phosphate Lands Reserved.

A mineral resource of the public domain that is of great potential value is the rock phosphate of Idaho, Wyoming, Utah, Montana and Florida. In the discovery and classification of the lands containing it the geological survey has contributed notably to the welfare of the farming interests, for phosphate is a necessary plant food, being indeed equal to potash as a fertilizer. The world's supply of phosphate rock is very meager, but fortunately the largest known deposits have been recently discovered in the public land states. As a result of geologic examinations 2,611,140 acres of phosphate land now stand withdrawn, awaiting legislation to safeguard them from speculation or monopolization.

Bronzing Cast Iron.

A German paper gives the following process of bronzing cast iron without covering it with a metal. Thoroughly cleanse the metal and rub it smooth. Apply evenly a coat of sweet or olive oil and heat the iron, being careful that the temperature does not rise high enough to burn the oil. Just as the oil is about to decompose the cast iron will absorb oxygen, and this forms upon the surface a brown oxide skin, which holds securely, and is so hard that it will admit of a hard polish, thus giving it the appearance of bronze.

Prostituted Concrete.

When concrete has been frostbitten before final setting it is very apt to develop defects that call for its removal or repair, says the Concrete World. The following method of repairing such concrete has proved successful: Chip off with a pick or other suitable tool the concrete which has been affected by frost and then thoroughly wash the exposed surface with water, using a stiff scrubbing brush, until entirely clean. A one to three solution of muriatic acid is then applied with a brush, and the surface is again washed. As soon as possible after this is done a very wet mixture of new concrete is applied. Where the old surface has been thoroughly cleaned, and the new concrete kept damp for a week, it bonds nicely with the old surface, making it appear as solid as if the entire mass had been placed at the same time.

EXHIBITION COOPS.

The exhibitor at shows and fairs generally finds show coops necessary, as some of these do not coop the birds, and if one can show fowls in his own cages he can make them more attractive. They are not in danger of contracting disease and vermin from old coops. They may also be shipped in their own coops and thus will not be handled by strangers. They are needed for training show birds, to accustom them to confinement at shows, for



Photo by C. M. Barnitz.

OLD STYLE SHOW COOP.

drying off after washing and for the confinement of the finished bird till date of show.

At some plants where show birds are sold there is an exhibition room lined with coops, where specimens are shown off before prospective buyers.

The buyer thus may inspect fowls at close range, and the seller can have some birds always trained and conditioned and is more apt to make a sale.

There are many good coops on the market, and we present an old and new style for inspection.

The old style coop is generally covered with muslin, except floor and



Photo by C. M. Barnitz.

NEW STYLE SHOW COOP.

front, and is objectionable for its drop door, which is hard on fingers and feathers. The new style opens full height, the wide door makes it easy to clean and to remove bird, and hardwood slats put no rust on the plumage and are close, so fowls cannot put their heads through. The front, top and back are hinged for folding, and the back is double, so that it may be made slat or solid, as is necessary.

FEATHERS AND EGGSHELLS.

A great enemy to English poultry is the rook, whose relative, the crow, keeps up the family reputation in this country. The crow is death on eggs, young turkeys and chicks. Now, if you don't believe this don't curtail the turkey's nest in the wood with pine boughs and watch how quick Jim Crow gobbles the eggs.

The summer school for instruction in poultry culture at the Connecticut Agricultural college, Storrs, Conn., was held this year from July 5 to July 28. This college offered the first summer course in 1906, and the movement was a success from the start. The charge is nominal.

After extended experiments the Oregon agricultural station advises that it is not profitable to keep the large breeds for eggs. They do take longer to come to laying maturity and are certainly greater hatchers than Leghorns, but some strains of Langshans are wonderful layers, and for capons the Braham can't be beat.

A friend writes us, "I didn't make much on my chickens this year, but I've got my health back, thank God!" We print that cheering line for those who are despondent over poor health, who feel the wear and tear of life's treadmill. Get out into the sweet, pure country air, friend. Get into the sunshine. Get close to nature. That's the best tonic to take.

Bacteria not only enter the egg if exposed after laying, but may easily enter the egg in the process of formation, as the oviduct of the hen has a free opening at its upper end to the peritoneal cavity and at the terminal opens into the cloaca, where the intestine and kidneys empty. Bacteria may easily enter both of these passages and get mixed in the egg contents.

A story comes from California of a wealthy widow who believed in the transmigration of souls and concluded that her husband's soul had entered into a bantam rooster. On her death she directed the servants to care well for their master (the bantam) and will ed him her estate. The relatives had an indignation meeting and were discussing a contest of the will when the nearest of kin simply took that bantam, wrung its neck and inherited the whole property quick as a wink.

C. M. Barnitz

SMALL ENGINE, BIG HELP.

Performs Manifold Duties on Farm From Spraying to Churning.

Aside from using the gasoline engine for pumping water the farmer must consider that it can be harnessed to a hose, with which he may sprinkle the lawn, flower beds, truck patch and garden, especially in case the weather turns extremely dry and hot. One sprinkling at a critical period might save a whole season's work from being thrown away.

Its use as a sprayer for destroying pests in the poultry house can readily be seen, and as it is portable it can be used in applying fly repellent to live stock, spraying the potato patch and orchard trees. It can also be used to lay the disagreeable dust in the lots near the house and barns.

With the hose attachment the pump engine can be used in cleaning out filthy hog troughs and foul water tanks, and the muddy wagon and automobile can be more thoroughly and quickly cleaned off by it than by any other method, while the overworked housewife will find it a great labor saver, especially in scalding out the milk and cream cans after using it for churning butter.

A BIRD OF A ROOSTER.

Owner Refused \$2,000 For Him at Madison Square Garden Show.

Some idea of the value of a well bred bird is derived from the fact that after exhibiting the champion Barred Plymouth Rock male at the Madison Square Garden show Mr. Bright, the owner, refused an offer of \$2,000 for him. Questioned as to the truth of this report by the Country Gentleman, Mr. Bright said: "I was offered that sum sure enough and was rather startled myself—so much so that I was tempted to ask the one who made it with what kind of money he intended to pay me. I knew that it had taken me thirty years to produce this bird and that if I wished to continue to improve my stock I could not afford to part with him, so I refused the offer."

"I may have been foolish and I may not. At any rate, in eighteen months we sold \$3,500 worth of birds and eggs produced by the yard of which this male was the head." Nine males, of which this one was the sire, sold for \$109 each, and the eggs sold for \$25 for thirteen.

TWO WHEEL FODDER RACK.

Easily Made at Home and Can Be Handled by One Man and Horse.

Here is a rack that is used for hauling corn fodder, straw and many other things. Only two wheels are used. These may be mower wheels. They should be about one foot back of the center of the rack, so that the front end will stay down on runners. Bore a hole through the 2 by 8 side pieces



WAGON BACK FOR FODDER.

for axle. To keep fodder from resting on wheels make two simple wheel houses, as illustrated.

This rack's low down and one man can load it easier than two can a high wheeled wagon. It is easy to pull, since the horses are hitched low and take weight off runners. For ordinary use no tongue is necessary, though it would be required if the rack were used on icy or steep hills.

CHEAP FERTILIZER.

Save the droppings from the poultry house. Fertilizer of equal value if bought on the market will cost you \$30 or more a ton. For the easier gathering and handling of this fertilizer a platform of boards should be placed under the roosts. This platform should be scraped clean at least twice a week.

Orchard and Garden.

Unleached wood ashes sown broadcast in the orchard will prove beneficial.

Those who have large apple orchards are fortunate if they have evaporators for drying windfall apples. This is a good way to utilize unsalable fruit and thus add to the profits of the orchard.

The garden teaches us valuable lessons on intensive farming. In it high fertility and good cultivation make a small area produce large crops. Why not adopt this system in field crops? Enlarge the pasture, reduce the feed and add to your profits.

Now some lettuce now and you may get some plants fit to use before winter or at least some plants that you can plant out in frames or the greenhouse a month later and have lettuce for Thanksgiving and Christmas. Sow a little patch of rape and perhaps rye near your chicken yard for pasture in open days during December and in early spring.

With currants and gooseberries fall is better than spring pruning. Commence as soon as the leaves have partially fallen, trimming out all drooping branches to encourage an upright growth. After the bush is trimmed and all grass, roots and weeds removed mound up a little, covering all exposed rootlets. This operation serves as a fall hoeing and is much easier done then than in the spring, when the grass and weeds have more strongly fastened their roots in the ground.

OH, YOU PUNKIN PIE!

There be coconut an' mince pie,
There be custard pie an' cherry,
Shoody, raisin, lemon, rhubarb,
Apple, peach an' huckleberry.

But, oh, yum, yum, there be punkin—
Yaller punkin pie, be gosh!
My Marlar jist kin make 'em
Out of them there airy squash!

When she says: "Bill, git a punkin;
Wash 'er at the water spout;
We must have some punkin custard;
I jist 'Hallalayer!' shout.

How I love to watch her make 'em,
Her plump arms to the elbow,
Smilin', laughin' an' a-jokin',
Rollin' out the rich pie dough!

Then she pours in that sweet punkin,
Spiced an' mixed with rich sweet milk,
Crimps the border like the ruffie
On her party bright green silk.

Don't them punkins jist smell lovely
Bakin' in that oven hot?
Don't they git a bully brown on?
Ain't they great to hit the spot?

Oh, Jehoshaphat, I hustle
When Marlar cries: "Come, Bill!
Them there punkin pies is cool now!
Git the knife an' eat your fill!"

Oh, go way, you Waldorf-Astor
An' you Stratford Believe!
My Marlar at pie bakin'
Knocks the stuffin' out of you.

C. M. BARNITZ.

KURIOS FROM KORRESPONDENTS.

Q. I find the eggs in the front of my incubator heat about right, while those in the rear are not hot enough. How may I remedy this? A. Elevate the tray in the rear with a wedge.

Q. What time is required to hatch eggs from a duck that is a cross of Pekin and Muscovy? As Pekin eggs hatch in four weeks and Muscovy in five, I am puzzled to know when to expect eggs from the cross to hatch in my incubator. A. Thirty-two days generally.

Q. I have been reading so much of "rots" and "spots," please define. A. When an egg is candled, if decay has begun, the bacterial development shows a small dark spot. That's a "spot." If this growth continues the egg becomes opaque, and that's your "rot."

Q. Do you consider that caponizing causes suffering? A. It must cause but little, for a fowl will eat during or immediately after the operation.

Q. Should White and Brown Leghorns have about the same length of leg, and how many points does the standard require for their combs? A. White Leghorns are higher on the leg. A five point comb for both varieties is demanded.

Q. Are eggs cheaper in Canada than in the United States, and what duties are paid? A. Last winter eggs averaged 4 cents higher per dozen in Canada. Eggs entering Canada are taxed 3 cents per dozen duty, and eggs shipped into the United States are taxed 5 cents per dozen.

Q. What breed of chickens is most popular in the New England states? A. The Rhode Island Red, it is said.

Q. How can I stop the bleeding of a cock's comb when injured and spur when cut down? A. We cover comb with cobwebs or soft feathers. Some smear with hot iron or cover with flour. Touch spur with burning match, and the flame will cause blood and horn to form a cement that closes the outlet.

FEATHERS AND EGGSHELLS.

The penguin, perhaps the greatest layer of the wild fowls is declared to be the progenitor of the Indian Runner duck, the egg machine of the duck tribe.

When dry picking if the birds are not stuck right the feathers will not loosen, the bird will not bleed properly, and as a result the bloody carcass brings a low price.

When eggs under hens aren't tested you run the risk of a rot being broken over the rest and spoiling them. If the hen breaks a rot and it is smeared on a newly hatched chick, that chick's name is Dennis.

We aren't hearing so much nowadays about those \$10,000 and \$20,000 hens that were advertised. Have they all gone to a premature grave, or have their owners discovered that they made a laughingstock of themselves before the people.

Sugar barrels are good receptacles for packing poultry. They are clean, cheap and have no smell. They hold about 300 pounds, and the dressed fowls should be packed breast down and shipped the day after killing if not packed in ice.

Egg farmers at Cape Colony, South Africa, do not have to compete with an egg trust, but with the penguins, which lay vast quantities of eggs on the South African coast and its islands. These eggs are shipped to London, where they sell for 60 cents per dozen.

Egg producers are ruining their brain machinery overtime to make the American hen lay more eggs and are doing it, but at the same time the hen is turning out infertile eggs to beat the band. The past season was one of poor hatches, and phenomenal laying is the chief cause.

Mrs. Frank Metcalf of California has the distinction of being the only American woman who has originated a new breed of poultry. Her breed, the Buckeyes, is a composite of Plymouth Rock, Buff Cochin, Black Breasted Red Game and Indian Game and is a bird built in particular for pounds of fine, fancy meat and eggs.

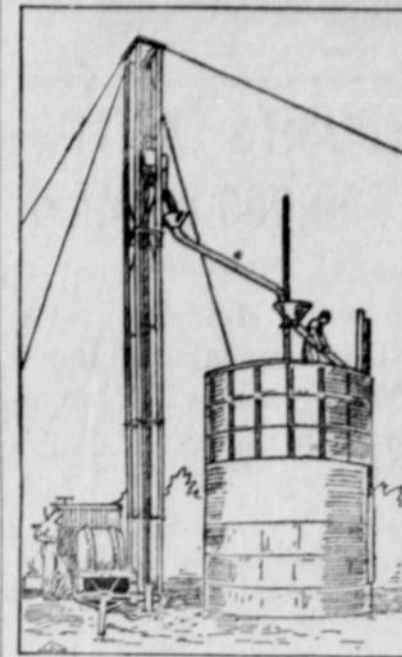
In the case of a Florida firm against the Southern Express company for charging an exorbitant rate on eggs in cases the Interstate commerce commission compelled the express company to make a reduction of 22 per cent. Many fanciers have ceased to ship eggs for hatching on account of the excessive express charges and rough handling.

C. M. Barnitz

ELEVATOR FOR CONCRETE.

Ingenious Device For Pouring Liquid Mixture into Silo Forms.

An interesting elevator outfit for pouring liquid concrete into the forms used in silo construction is shown in the accompanying illustration. A receptacle containing the concrete is drawn up the tower to the required height and discharges into a funnel at the end of a section of pipe, which



CONCRETE POURING ELEVATOR.

in turn, discharges into a second funnel slidably mounted on a shaft placed upright in the center of the silo. The second funnel, with its piping, is revolvable about the shaft, so that the operator may direct the discharge into the forms at any point in the circle. The concrete mixture is located at the base of the elevator in such position as to discharge direct into the elevating receptacle.—Popular Mechanics.

New Wood Jointing Machine.

A demonstration of the Linderman woodworking machine has just been given at Newark, England. The machine is designed to utilize waste strips of wood by converting them into boards of any desired width, with dovetailed glued joints. It is provided with two endless beds, traveling from each end toward the center, where they meet. The stock is automatically fed into each end of the machine; in transit toward the center it is dovetailed and glued, and as the pieces of wood reach the center they are united and automatically discharged as the joint is completed. In this way coffin boards, door panels, table tops, etc., may be worked up from narrow lengths and odd widths of wood. No glue is deposited on the outside of the boards, and the machine can be readily adjusted to deal with different lengths of material. The rate of feed varies from thirty-five to seventy feet a minute, according to the class of timber dealt with. The machine will joint a rough or sawed edge, and the boards may be of any width from one and one-half inches.—Consular Report.

Cement For Celluloid Articles.

Several formulae have been proposed for pasting celluloid articles. One which is found serviceable is the following: Prepare a mixture of three parts of alcohol and four parts of ether and keep this in a well stoppered bottle. When two surfaces of celluloid are to be placed together wet them thoroughly with this mixture and repeat the operation until the substance has become softened and then press them together for twenty-four hours. Another solution which may be used is one containing one part of camphor in four parts of alcohol, to which one part of shellac resin is added. This cement must be applied hot.—Le Temps.

Gasoline Street Car Experiment.

An experiment in the propulsion of street cars by the gasoline engine, which should afford valuable data for comparison with the cost of electricity operation, is being made on a stretch of line in England. The experimental car, with a capacity of thirty-seven passengers, is driven by a fifty-five horse power gasoline engine. In a comparison of cost the gasoline car has the advantage that there are no fixed charges for the overhead or underground equipment for transmission of the power. The economy of a good gasoline engine should compare favorably with that of a central steam electric plant.

Pens of Tantalum.

Some very interesting tests have been made by German scientists. The tantalum metal was cut, formed and split like an ordinary steel pen. Then the points were bent, ground, shaped and hardened by a special hardening process, which was found to greatly prolong the life of the pens. Comparative tests were made between steel, gold and tantalum pen points on six miles of paper, and the results showed the hardened tantalum pen to be far superior to the others. The chemical tests showed these pens to be proof against the attacks of ink.

Platinum Known to Egyptians.

It was not long ago that a German savant, when in Egypt, was examining the contents of a tomb ascribed to an Egyptian queen of the seventh century before Christ. Among articles of use and adornment he came across a plate which at first he took to be silver; but on closer investigation this turned out to be platinum, probably from alluvial deposits washed down from the upper Nile in times of flood. Since then other discoveries have led to the conclusion that the metal was known to the Egyptians and esteemed for its useful properties.

Farm and Garden

IMPROVE THE STATE FAIR.

Scope Can Be Enlarged and Great Influences Increased.

State fair entrances are the wide open doors of splendid opportunity. Beyond these magnetic thresholds under roof and sky is assembled a bewildering maze of useful things grown and manufactured by the conquering hand of man. And thousands of expectant folk enter therein, shorn of the worries and troubles of everyday life at home, says the Breeders' Gazette.

With a sharpened curiosity, a fickle mood of alternating levity and gravity, an unstudied resolve to learn and enjoy, an instinctive exercise of all the senses, they talk, listen, wonder and tarry. This is the fine work of effective rest, a renewal of emotions, the birth of ideas, the seeding of thought.

Much depends on the quality and condition of the seed bed which the visitant exposes to the broadcasting sower. State fairs, with all their facilities for scattering, fertilizing and covering, cannot bring forth a crop where there is no hospitable soil. Water runs off the oily sheen of a duck's back; a dull mind never cuts into the milk of the cocoon.

A thousand valuable gifts are showered upon him, but if his mind is not studded with upturned hooks all slip off.

Some eager, vital people go home from a fair pleasantly burdened with the gist of its message; others return without even a lasting impression. Such unfortunates remind one of the dusty old professor whose depth of penetration had charmed one of his students and disgusted another. Said the first: "He can go down deeper into the wells of philosophy and"—here the second interrupted, saying, "had come up drier than any man I have ever known." At state fairs everybody fairly tumbles into the clear, fresh wells of opportunity, but only a small percentage emerge with a thorough saturation.

We are compelled to deal with things as we find them, but we have no right to leave them unimproved. Our good old forefathers have vouchsafed to us various useful and beautiful works. Many are well grown and strong; others are young, wobbly and



BUSY SCENE AT TYPICAL ENTRANCE.

weak, depending on us for their development into a larger and nobler stature. Among our prized inheritances are state fairs. Of these some are well advanced toward a maturity that accords with the spirit and temper of these wondrous times; others have been underfed, until they are dwarfed in parts and overgrown in others.

Criticism is of value even when it amounts to monotonous flav picking, but it is far more acceptable when accompanied by a constructive program containing practical ideas and workable suggestions. All man made institutions are more or less imperfect. Granted that our state fairs are not what thoughtful men would have them be, what are their proposals for improvement? How may their scope be enlarged and their influence vitalized? What is the most important business of a state fair? What is or should be the demand of the farmer upon it? Are not many of the recent economic developments in agriculture ignored or at the best only meagerly recognized by the fairs? Are there not many opportunities for distinctive educational services to which little or no attention is given? Is it not time to brush away the trash and chaff which weaken or cover up the useful, nutritious grain that lies in the primary object of a state fair and to concentrate its energies in a steady, persistent effort to make it irresistibly and comprehensively instructive to farmers and breeders? Henceforth why should not an agricultural state fair be strictly agricultural, true to name and technical object, dignified in its content, devoid of spectacular honeycomb and the rubbish of contaminating concessionaires, standing solidly upon the rock of our basal industry, its hammer striking the one red hot iron of educational purpose?

Water Your Plants Well.

Keep potted plants well watered. Many persons will pour a little water on a plant, enough to soak an inch or two, and wonder that the plants do not grow. The trouble is that the growing part of the plant receives no nourishment. Plants should be watered every day, and in such a way that the roots get plenty of moisture. The soil should be rich.