

BOB SLED FOR HEAVY WORK

One Shown in Illustration Has Advantage of Turning Short Corners With Big Load.

In reply to a query for a plan and description of a bob sled, suitable for hauling wood, fodder and other heavy work, the Country Gentleman makes the following reply:

The following account of a bob sled was sent us years ago by D. H. Raymond; he used it for years for logging, and it has the advantage that it will turn short corners and enable a team to draw one-fourth more than any other sled.

The tongue is not set stiff, but is fastened to the nose-piece with two clevises—one on the tongue, and one on the cross-piece, making a sort of universal joint, permitting it to turn at right angles, and allowing the team to turn half around without moving the load, and to clear trees and logs.

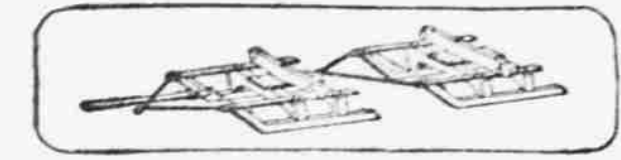


Fig. 1—Chain Bob Sleds.

The draft-chain being entirely independent of the tongue, the latter may be made light. If used much on the road, it should be heavier, and set stiff.

The bobs are coupled together with a forked cable chain in place of a reach, with a grab-hook on each end, and a ring in the center. This ring is put into a clevis at the rear end of the saddle-plank of the front bob, the other ends of the chain to rings on the nose of the rear bob. The rings are large enough for the chain to double through, so as to let them out or draw them together, and by which logs of any length from 8 to 25 feet may be placed equally on both. The rings, properly put on, cannot catch a tree or brush; and the chains playing up and down, permit the rear bob to go over the roughest ground, logs or brush.

The shoes of the runners are made of the hardest dry wood, sawed slightly across the grain, so as to wear with it. They will last a whole winter. The lower figure in Fig. 2 shows how they

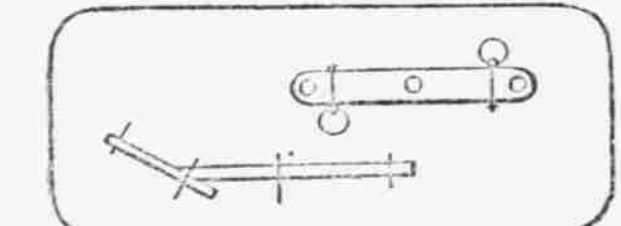


Fig. 2—Sled Shoe and Bolster.

are put on. The bolster of the rear bob is 4 by 5 inches. The bolt heads which fasten it should be "let in," so as to be out of the way. The bolster of the forward bob is shown in the upper figure of Fig. 2, and has rings to bind the load. The saddle-plank, on the front bob, should be 2 1/2 inches thick and a foot wide, to support the king-bolt and whole load.

FUNCTIONS OF TILE DRAINS

Farmer Cannot Afford to Wait on Nature and Must Provide Artificial Means of Drainage.

Drainage is the limiting factor on many farms where the hand of man has not assisted nature in the removal of free soil water, says Farm Press. Nature has furnished us with a surface drainage system in our rivers, creeks and rivulets. In some places she has provided subterranean drainage in sand and gravel subsoil. If allowed to take its time, the water would follow small passage ways to some natural outlet, but the agriculturist cannot wait. Where the soil is underlaid with a heavy clay, hardpan, sand or limestone rock, it is necessary for man to assist nature. He resorts to digging a trench from two and one-half to three feet in depth, above the impervious stratum, and place therein a tile drain. This tile rapidly carries away the free water that rises to or above the stratum of hard clay or rock.

The function of the drain is not so much to remove water as it passes downward as it is to carry it away as it rises to the tile level. A good crop is dependent upon a large root system. Since one root system of the plant will not develop in free soil water, the shallow laying of the drain tile means a small crop. Deep laying of the tile provides a large feeding area for the roots of a big crop. Deep drainage and frequent shallow cultivation smile at droughts.

Saving the Harness. Aside from the bad appearance which uncared for harness presents, it has a habit of suddenly giving out at important moments, and this makes trouble and much loss. If not kept in good condition harness becomes hard and very uncomfortable to the horses, and when in that condition cracks and warps, rendering it in a short time unfit for use. All this trouble can be easily avoided if you will give your harness a little attention.

Preserving Timbers. To preserve timbers from dry rot and decay paint the timbers with crude carbolic acid, giving them several coats—for timbers that are placed in damp places soak in all the wood will take. This will prolong the life of the wood for many years.

Hens Relish Cinders. Hens will eat a great quantity of coal cinders and they are very good for them. Try putting a load in the chicken yard and watch the result.

NITROGEN IS OF IMPORTANCE

Large Sums of Money Are Expended Yearly for Fertilizers Containing This Element.

One of the most important plant and tree foods is nitrogen. Large sums of money are spent every year by farmers and fruit growers for fertilizers containing this element. The air we breathe is the greatest known storehouse of nitrogen, but the nitrogen in the air is not in a form which can be directly used by the plants. It can, however, be converted into a usable form by the action of soil bacteria—those microscopic organisms which exist in soils and materially affect the growth of crops. Cultivation brings these soil bacteria into direct contact with the air from which they take the nitrogen and convert it into food for the adjacent plants and trees. Without cultivation this beneficial activity of these minute organisms is greatly restricted, and consequently uncultivated orchards are not as well supplied with the food materials required for the prolific production of fruit of the best quality. Cultivation, too, keeps in the moisture of the soil, and give the rain and sun a chance to produce the best results.

LIVE STOCK MEANS SUCCESS

No Better Place for Farmer to Market Corn and Roughage Than to Give to Animals.

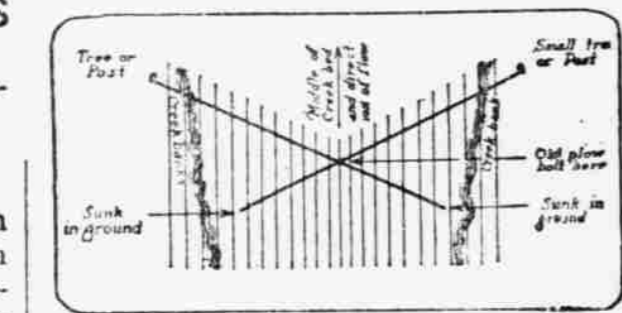
On nearly every farm live stock raising is merely a side line where it should be the main thing. There is no place where the farmer can market his corn and roughage so profitably as feeding it to good live stock. The market is right at home in the feed lot, and no long hauls to town are necessary. If a farmer can feed his 60-cent corn to good hogs which will pay him 80 cents for it, does he not make an advance on the price of his corn and a profit in the fertility returned to the soil, as well as a saving of expense in hauling? Breeding pure-bred live stock is a business which should be entered gradually and retired from reluctantly. Improving the common stock a little each year will lead up to the pure-bred business. There can exist no permanent system of agriculture without live stock and, on high-priced land, pure-bred stock is the only kind to have.

FLOODGATE IS VERY SIMPLE

Missouri Man Has One Arranged on Plan of Railway Stock Guard—It Costs Little.

In describing a simple and successful floodgate H. S. Terrell of Saline county, Missouri, writes the Breeder's Gazette as follows:

My floodgate is made on the plan of a railway stock guard. We start by using two small logs or poles extending down the creek as shown, the lower ends sunk in the creek bed and the upper ends resting against trees or



A Missouri Flood Gate.

posts. We put a three-quarter inch bolt through where they cross. For slats use old rails, poles or 2 by 4 of good material spiked to the logs. Then the job is done.

The best of it is it stays put. There is no cost to speak of at the start and no trouble afterwards wading around in the mud cleaning it and getting it stock-proof again. The middle being lowest, the main current naturally stays there and so all logs, stumps and trash of any kind go right on down the stream.

POULTRY NOTES

If the flock is not culled every year it will deteriorate rapidly. Attention to detail often means success in the poultry business.

The merits of the scratching shed are shown during bad weather. The incubator should be in readiness before it is time to start it.

Overcrowding is one of the worst and most frequent mistakes made by poultrymen.

Allow chickens of all sizes a good dust bath. They enjoy it, from the smallest to the largest.

Dry mash, charcoal and grit can be fed in a box covered with half-inch poultry netting, without waste.

Don't keep unsightly or crippled chickens, even though they have been valuable birds in their day.

Some tell the sex of the guinea fowl by its wattles. Those of the male are double the size of the female.

Some of the causes of roup are sudden and extreme changes in temperature, damp houses and draughts.

A good poultryman is industrious, not easily discouraged, filled with pluck and grit and full of ambition.

Have your fowls so tame that you can go among them without causing fright. You will get better egg production.

Excited men and women make excited birds, and that has a bad effect on the egg-producing mechanism of the birds.

Do not put males in adjoining pens with only netting between them. Have a twelve-inch board at the bottom of each partition.

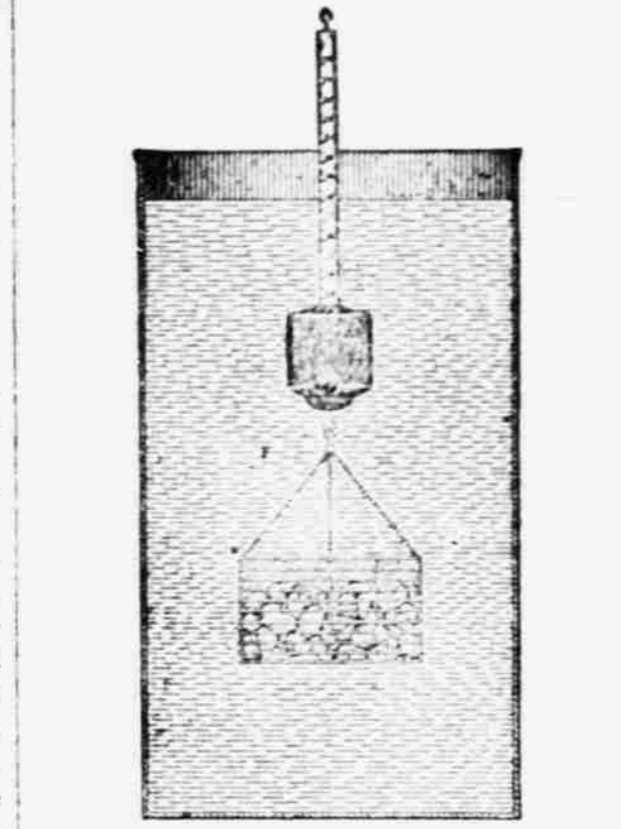
ALCOHOL FROM POTATO CULLS

'Denatured' Liquid Suitable for Manufacture of Varnish and Other Commercial Articles.

(BY A. O. WENTE.)

Alcohol is a substance produced by the fermentation of sugar. In practice there are two possible sources of sugar for this purpose: First, plants naturally containing sugar ready to be converted into alcohol by simple fermentation, such as sugar cane, sugar beets, sorghum, fruits, etc.; second, materials containing starch which may be changed into sugar by the action of malt or acids and then fermented, such as potatoes, grains, etc. Alcohol has been and is now being made from sawdust, but as the processes employed are trade secrets this material will not be discussed.

The so-called "denatured alcohol" is prepared by the addition of such ingredients as will make the alcohol unfit for drinking purposes. It is used extensively in the manufacture of varnish, explosives, chemicals, and many other commercial articles. It



Apparatus for Determining the Starch Contents of Potatoes.

may also be used in various household appliances, both for lighting and heating purposes with much more safety than either kerosene or gasoline. Its cost previous to the enactment of laws making it tax-free was such as to prevent its use in engines and motors, consequently very little was done toward their adaptation to its use. It is, however, being successfully used in both stationary and traction engines in other countries where it can be had at a moderate price, and under similar conditions of economic manufacture would undoubtedly be so used in this country.

Potatoes have been successfully used as a source of cheap alcohol in other countries and conditions in this country indicate that large quantities of potato culls with the necessary starch content are available for this purpose at a price which would permit of the profitable manufacture of alcohol therefrom. Experimental work of the agricultural department distillery has shown how potatoes can be economically handled and practical instructions in the method of manufacture can now be given. This work has been done in a small distillery such as would be suitable for large farms or communities of farmers working in co-operation. Farmers may, if they so desire, obtain from the government data which will enable them to convert frosted or inferior grades of potatoes into a source of revenue, as it has been shown by experiments that these may be made into alcohol at a fair profit.

The percentage of starch in potatoes may be easily determined by means of a specially prepared instrument. An average sample of the potatoes is washed and thoroughly dried. Exactly ten pounds are placed in the wire basket (one potato may be cut if necessary to get the exact weight). The instrument with the basket attached is floated in a tank containing clear water at 53.5 degrees Fahrenheit. The stem is so graduated that the percentage of the starch can be read directly from it. Potatoes average from 14 to 20 per cent of starch and one pound of starch in practice yields about 0.071 gallon of absolute alcohol, or 0.079 gallon of denatured alcohol at 180 degrees proof. One hundred pounds of an average grade of potatoes containing 17 per cent of starch would yield approximately 1.3 gallons of denatured alcohol.

Sulky Plows.

Many farmers have the mistaken idea that sulky plows are not for rock soils. It is on such soils that we find their economy the greatest. Only the driver is required and the weight of the plow holds the share to its work where often three men—one at the beam—would not be able to do half the work of the sulky nor nearly as well. Their draft will be from 5 to 10 per cent greater than that of the walking plow, dependent upon the skill in adjusting the center of draft right.

Care of Hives.

When the hives are well distributed in a certain space their inmates may be more easily handled. It seems to improve their disposition, especially if there are some trees or shrubs about it. Robbing is not so prevalent, either, and the absence of that always helps to make bees better natured.

Care of Water Trough.

Try putting a pinch of coppers in the watering trough once or twice a month. Better still, scrub out the trough and spray thoroughly with a coppers solution.

FOWLS REQUIRE GREEN FOOD

Turnips, Cabbage, Beets and All Such Furnish Change That Is Appreciated by All Birds.

During the spring, summer and fall it is not difficult to supply a variety of green food for the fowls, as any kind of tender growing vegetation is relished by them, but when cold weather sets in, it is very different, and things must be set aside during the fall season.

Turnips, cabbage, beets and all such make good food and furnish a grateful change, which the fowls appreciate.

The scraps and peelings may be fed raw, or they may be put in a pot on back of the stove and allowed to cook gently during the day, and then thickened at night with equal parts of cornmeal and wheat bran, and to be fed next morning as a mash, using care not to give too much, as when the fowls are satisfied they will stand about and refuse to scratch and take sufficient exercise.

SOME COMMON HEN DISEASES

Treatment Prescribed for Several Kinds of Ailments—Sickly Birds Should Be Isolated.

All diseased birds should be isolated.

Colds and Roup—Disinfect the drinking water as follows: To each gallon of water add the amount of potassium permanganate that will remain on the surface of a dime.

Chickenpox—Apply a touch of iodine and carbolated vaseline to each sore.

Gapes—New ground and vigorous cultivation will very often remedy this trouble.

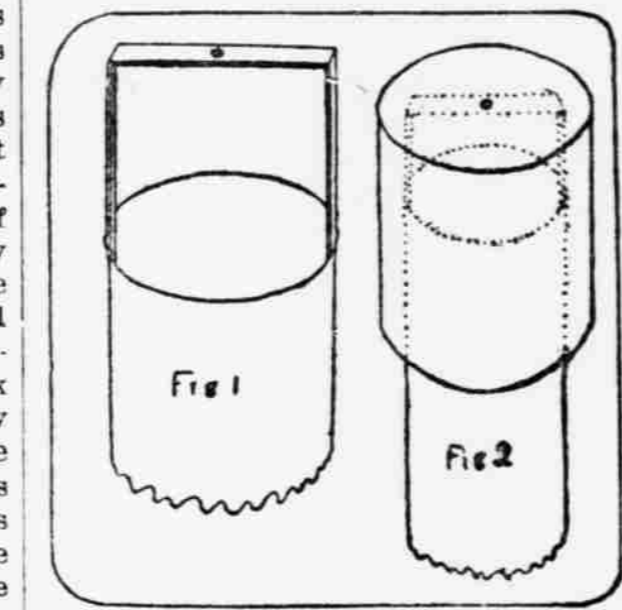
Scaly Legs—Apply vaseline to the affected parts, and after twenty-four hours soak in warm, soapy water. Repeat treatment until cured.

Diarrhoea in Hens—Low grade wheat flour or middlings is good for this trouble.

VENTILATOR KEEPS OUT RAIN

Device for Use in Building or Cave May Be Constructed From Joint of Stovepipe.

It is often desirable to have a building or cave well ventilated, and still have it so that no rain can enter through the ventilator. Such a ventilator may be constructed from a joint of stovepipe and a can, which is at least an inch larger in diameter than the stovepipe it is to cover, and several inches high. A brace, made from a piece of strap iron, should be constructed as illustrated in Fig. 1



Rainproof Ventilator.

and riveted to the sides of the pipe, says the Iowa Homestead. The can is then slipped over this and riveted through its bottom to the brace. Have the lower edge of the can about four inches below the upper edge of the stovepipe; this should leave a space of a couple of inches between the bottom of the can and the top edge of the stovepipe, to allow for the free circulation of air as shown in Fig. 2.

GARDEN and FARM NOTES

Filth and health are arch enemies.

Recklessness is a short road to failure.

The garden acre should be the best on the farm.

Cut the cost of production by using machinery wherever you can.

The thing that counts is to make every foot of land a producer.

Thanks to scientific methods, the drudgery of farm life is being forced back into the limbo of time.

It doesn't cost any more to be cleanly than otherwise. And there's more profit and satisfaction in it, too.

Scientific farming has joined hands with practical farming in the great work of feeding the nation and the world.

Water containing sufficient mineral to be detected by the naked eye is unfit for either man or beast to take into the body.

The manure that is taken from the barn yard to the field is out of the way before spring work and it makes a great improvement in the farm surroundings.

Root crops, such as parsnips, beets, and carrots, may be prevented from shriveling in the winter if they are covered slightly with dry sand in the bin or box.

A plump, heavy kernel will produce a stronger plant and nourish it better than a shrunken, light one, or than one which has size without proportionate weight.

The farming business is getting to be a big proposition. Farm life of today means more than the daily round of chores, with the long, idle winter spent reading the almanac.

LEARNING TEXTURE OF SOIL

Interesting and Valuable Experiment May Be Made by Use of Three Old Discarded Cans.

If any one wishes to prove to himself how much more water some soils will hold than others, let him take three tomato cans of the same size. With a nail punch a half dozen holes in the bottom of each. Then fill all three cans, one with sand, one with still clay and the other with a rich loam soil well filled with humus.

If such soil as the last cannot be had, then fill the can with the dark, rich top soil from the woods lot, after scraping away the leaves and other coarse materials. Pack the soil in all of them down solid, and put in all they will hold. Put these cans of soil in some place where they will dry out thoroughly. A good place is in the kitchen behind the stove.

When they are all well dried, pour a half pint of water slowly over the top of each can of soil. Repeat this, putting the same amount of water on each soil, until the water begins to trickle from the holes in the bottom of the cans.

The water will begin to run from the can containing sand first, and if this can be placed so that the water can be caught and measured it can be told how much less water this sand will hold than the clay soil, and by the same method it may be seen how much more water the soil full of humus will hold than even a heavy clay soil devoid of humus.

LOSS OF FEBRUARY LITTER

Wisconsin Swine Breeder Makes Failure by Feeding Corn Meal to Youngsters Too Soon.

A Wisconsin swine breeder, in an endeavor to get his pigs in market condition as early as possible in the fall, had several sows farrow in February. The sows and young ones were confined in small breeding pens in a large barn which was kept warm by steam heat.

The little pigs grew lustily, but the breeder began feeding them corn meal before they were weaned. This fattening food, in connection with the lack of exercise, not only disabled the sows but brought the youngsters down with the thumps. The litter was almost a total loss.

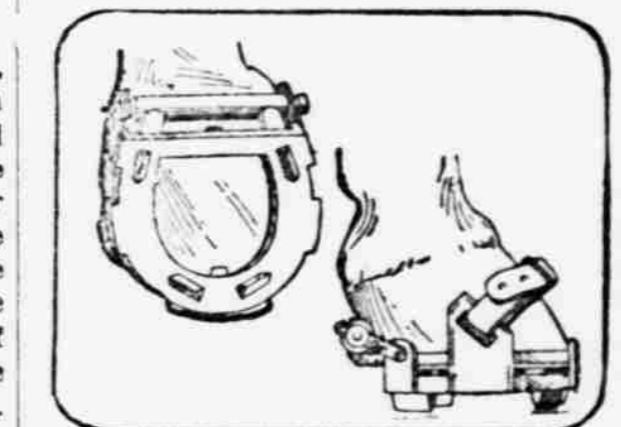
This loss might easily have been prevented. Had the little pigs been provided with a large, roomy pen and bred to take exercise, and had they been fed on nitrogenous foods rather than corn, they would have entered the spring pasture in fair condition or summer gains, not as good, perhaps as the later farrowed litters, but good enough to justify the extra trouble retained in raising them.

If a swine breeder cannot provide early litters with warm accommodations and an exercising place it would be cheaper in the end to kill them as soon as born.

EMERGENCY SHOE FOR HORSE

Underpinning Made of Composition of Aluminum Claimed to Be Improvement for Cities.

The emergency horseshoe shown in the illustration is claimed to be an improvement over the ordinary type of rough-shod shoe for icy surfaces, as the frame holding the calks is



Emergency Horseshoe.

made of a composition of aluminum, giving unusual lightness. The calks which are interchangeable and may be sharpened, are made of drop-force steel.

LIVE STOCK NOTES

A good Shropshire flock should average nine to ten pounds of wool.

Do not attempt to winter more sheep than can be done without crowding.

Many good, careful farmers find it practical to hog off some of their corn.

The use of silage for sheep feeding purposes has been tried out to a limited extent.

Keep the hogs quiet, clean and comfortable if you expect the best gain from the food supplied.

Be sure the flock has plenty of fresh water. If the sheep drink from springs, keep the approaches dry.

Select steers with short legs, for short legs decrease the amount of offal and increase the killing percentage.

If from a well-nourished dam and a healthy strain of animals the pigs rarely need attention at farrowing time.

Hogs should not as a rule be turned into more corn at one time than they can eat up clean in two or three weeks.

As a general proposition it may be said that the sow that has pigs before she is a year old will disappoint her owner.

Get a pure bred sire of some kind of this season. Start to make a specialty of chores, with the long, idle winter spent reading the almanac.

THE HAPPINESS OF GIVING.

"It seems to me that Mrs. Willis doesn't look very well," young Mrs. Willis's caller said out in the hall, as she glanced back at the old lady who sat listlessly by the window.

"I don't know what is the matter with her," young Mrs. Willis answered, with a touch of impatience in her voice. "I'm sure nobody could be kinder to his mother than Fred is; she has the sunniest bed-room, and we always try to have her old friends in whenever she wants to see them. Of course it must be hard to give up her own home after she has been mistress of it for over forty years, but what else can we do?"

As the caller went down the steps the postman came up. There was only one letter, and that was for old Mrs. Willis. Her daughter-in-law handed it to her and then went off about some household task. When she came back, fifteen minutes later, old Mrs. Willis, excited and eager, was trying on her bonnet.

"I've got to go down-town, Julia," she said. "I'll be back in time for dinner."

She came back at exactly 4 o'clock. Her bonnet had slipped to one side and there was a tired flush on her face, but her arms were full of bundles and her eyes were sparkling joyously.

"I've got you those towels you wanted, Julia," she announced, "and there's a box of preserved ginger for Fred—you didn't know he loved it, did you? And that's a handkerchief for Norah, and the rest are little things for other people."

"But—I don't understand," Julia stammered.

Old Mrs. Willis lifted her shining face. "If that isn't like me to forget to tell you! Why, 'twas an old debt I'd forgotten about—ten dollars—that came to-day from Mary Dodson. Think of it—ten dollars all my own to spend as I pleased! My, but I had a good time! I've got three dollars left, and I'm going to give Lyddy Baker a treat to-morrow!"

Julia's eyes met her husband's with sudden comprehension. Three years without a dollar of her own with which to give any one a treat—mother, to whom giving had been the very breath of life!

"Oh," Julia cried, under her breath, "how could we—how could we!"—Exchange.

The best perfection of a religious man is to do common things in a perfect manner. A constant fidelity in small things is a great and heroic virtue.—S. Bonaventura.

Man Coughs and Breaks Ribs.

After a frightful coughing spell a man in Neenah, Wis., felt terrible pains in his side and his doctor found two ribs had been broken. What agony Dr. King's New Discovery would have saved him. A few teaspoonful ends a late cough, while persistent use routs obstinate coughs, expels stubborn colds or heals weak, sore lungs. "I feel sure it's a God-send to humanity," writes Mrs. Elme Morton, Columbia, Mo., "for I believe I would have consumption to-day if I had not used this great remedy." Its guaranteed to satisfy, and you can get a free trial bottle, or 50 cent or \$1.00 size at all druggists.

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NOTICE OF SALE OF LAND.

By virtue of the power and authority given in a mortgage deed executed on the 12th day of July, 1910, by L. F. Stewart and wife to J. J. Reynolds, recorded in the Register of Deeds office, Wake County, in Book 258, at page 246, I will offer for sale at the court-house door in Raleigh, N. C., on Monday, November 4, 1912, the following piece or parcel of land situate in Buckhorn Township, Wake County, bounded as follows: On the east by Henderson Barker and the south by J. J. Hackney and the west by Sarah Clark and the north by Deb Evans, containing thirty acres more or less.

Terms cash. J. J. REYNOLDS, Mortgagee.

C. M. BERNARD, Attorney.

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Dear Sir:—Please send me information as to how I can become a student by spare time study without leaving my present work until I am qualified.

My name is..... Street and No..... Town and State.....