

# GRAVEL ROAD CONSTRUCTION

Two Economical Methods Described by an Expert.

## VERY LITTLE SAND NEEDED.

Screened Gravel is the Most Suitable Material to Use—Winter Treatment Considered the Cheaper—Advice on the Mending of Highways.

Representative William W. Cocker of Long Island, who has built several gravel roads and has found them very satisfactory, tells how they can be constructed economically.

"To the minds of most people," he says, "when we speak of a gravel road comes the idea of coarse sand, such as they have seen dumped on the road from time to time and frequently in such quantities that it did not mix properly with the loam, and hence there was a soft, sandy road, which is the worst road in the world for hauling heavy loads over. What I mean by a gravel road is screened gravel or gravel that may be found in some banks that would be suitable for road construction without screening, but it should not contain over 10 per cent of sand in most instances unless one were to use a very thin coat and over a road that was of very deep bank, when it would be well enough to allow a little larger percentage of sand, but otherwise I prefer it to carry as little sand as possible.

"There are two methods in which this kind of road could be constructed. One is by the formation of a trench, treating it very much as we do a road for macadam and then putting in the gravel about eight inches deep mixed with a little loam or clay, and I believe that now it would be wise to put some tar on the top course. In the construction of this road I would lay it in two courses, provided I were going to use tar in the upper course. There would be some difficulty in getting a gravel road to pack if it were laid in eight inches thick, and it should be done in the winter time unless one



A GRAVEL ROAD.

expects to haul a good deal of water and use a roller. By far the most economical way to build a gravel road is to spread about two inches on the ordinary surface of a road that has been previously cleared of all dead and worn out material that would never pack again and then plow the road and put the gravel on about three or four inches deep and just allow the traffic to work it in and have a man continuously along the road for two or three weeks with a rake to fill in the ruts and pick out any of the too large gravel stones, as the top surface should contain no stones larger than a hickory nut.

"Another method of constructing this road which would be still more economical would be to spread the gravel on in November or December. Spread it over the road about two or three inches deep and repeat during the winter as the traffic works it into the mud. I am assuming now that we have a road that would get muddy in the winter time and one that would have a clay or loam bottom or a large percentage of loam. If we are to deal with a sandy road it will be necessary to put a considerable percentage of clay or loam with the sand prior to the spreading of the gravel. I have built quite a number of pieces of road in this manner, by putting the gravel on during the winter, and they have been very satisfactory.

"One of the greatest difficulties with a great many people in mending roads, in my judgment, is that they endeavor to patch up the road instead of plowing it up and letting the whole mass settle at once. Some people have an idea that traffic will make a road level. Traffic will wash down some lumps and some of the coarse gravel, but if the material is not evenly spread or the road not properly graded when it is constructed it will grow worse—that is, more uneven—as time goes on. It is time well spent in the grading of a new road to go over it innumerable times with a road machine in order that the grade may be made perfect in the beginning, and I know of a great many roads in Nassau and Suffolk counties, New York, now which, if they could be plowed up and have a little sand put in some places and a little loam in others, then be thoroughly graded with a road machine and have a little gravel added during the winter, would be good all the year round for wagons or automobiles, and if they were oiled they could be rendered just as dust-proof as a macadam road."

## BRANDENBURG (KY.) WOMEN SUBSCRIBE FOR A GOOD ROAD

Feminine Club Wakes Up to Situation First and Makes Travel Easier.

Everybody is in favor of good roads as an abstract proposition, but when it comes down to the concrete—that is, to sand and gravel—there are differences of opinion. Some Kentuckians there are who declare themselves strongly for good roads, but say they do not know how to go about getting them.

One way to go about it has been exemplified recently by the Federated Women's club of Brandenburg, Ky. The members of that live organization felt the need of a good road from Brandenburg to Weldon, a station on the Louisville, Henderson and St. Louis railroad. Brandenburg has no railroad, and when the citizens of that town go traveling they either take a stagecoach or drive over to Weldon to take the train.

Meade county mud possibly is a few degrees worse than the mud anywhere else in Kentucky. The male citizens of Meade have been handling the mud question in the same way that many other Kentucky counties have been handling it. Mud multiplied by mud produces more mud, but the male citizens of Meade didn't seem to know it.

The women woke up to the situation first, and they determined to "bake" the road from Brandenburg to Weldon. They raised more than \$1,200 by private subscription, and they asked the fiscal court to do the rest. The court came across with an appropriation of \$2,000 as an evidence of good faith. The road will be completed by the end of summer. Next winter it will be possible to travel from Brandenburg to Weldon without breaking a harness or straining a singletree. A wagon will not be a load for a four horse team, and walking will not be an impossibility when a big thaw comes.

### A TIP FOR COUNTIES.

The bond plan is the economical, equitable and intelligent method to provide permanent municipal improvements, and the same can be said of good roads construction. The county which is building roads by special taxes is making a mistake by doing it in a piecemeal fashion when a bond issue by the entire county will provide a lump sum for systematic road building. The plan of voting road bonds by townships is nearly equally as bad, for roads should be constructed by counties in accordance with systematic plans, taking care of all townships and making it decidedly more economical for them than for each township to maintain its own expensive road building service and equipment. This is on the side, but the opportunity is too fine for us to let it slip by without making known the truth to counties which are going to build good roads by some hook or crook. There is the slipshod way and the right way. Don't piddle.—Wilmington (N. C.) Star.

### MODERN ROADMAKING.

Efforts in England to Meet Motor and Trolley Car Traffic.

The following illustrates the efforts in England to meet in roadmaking the conditions imposed by motor and trolley car traffic:

A new and direct roadway is proposed between West Hartlepool and Middlesbrough, near Newcastle, in the county of Northumberland, a direct line of seven and three-fourth miles. In designing the roadway the engineer in charge has given attention to the possible development in both heavy, slow and fast vehicular and motor traffic, each of which demands separate consideration and possibly different methods of road surface treatment.

The plan accordingly provides for a center footpath nine feet in width, on the east side of the footpath a road for motor and light, fast traffic twenty-four feet in width and on the west side of the footpath a road for heavy, slow traffic twenty-two feet in width. This gives a width for highway purposes of fifty-five feet. The plan further shows on the westernmost side of the footpath a width of fourteen feet reserved for light railway or trolley purposes, making a total width of land to be acquired of sixty-nine feet.

A scheme similar to this will doubtless control future roadmaking in England, and existing roads may be reconstructed on a corresponding plan. One of the chief advantages in separating the several kinds of traffic would be in permitting different methods of surfacing the roads to be used and those best adapted to the traffic accommodated. Another advantage would be the lessening of the chances of accidents. A third advantage would be the greater speed permissible to fast traveling.—Consul Walter C. Hamm, Hull, England.

### ALL READ THIS.

Any one having stone he desires to have tested for road building purposes should write to the office of public roads, Washington, for necessary instructions as to how to proceed to secure such tests. The sender will be required to pay all transportation charges, but aside from this tests are made without further cost to the party desiring them.

## SAVAGES OF BOLIVIA.

Aborigines Still Living in the Wood and Stone Age.

Erlend Nordenskiöld in the course of an ethnographic and archaeological exploration of Bolivia in 1908 and 1909 found districts inhabited by Indians who are still living in the age of wood and stone, says the Scientific American. Because of the scarcity of stone in the Chaco region the natives of the banks of the Pichumayo river do not possess even stone implements, but employ bone and hard wood as the material of knives, saws, awls, needles and spades.

The virgin and unexplored forests of the province of Sara are the home of entirely wild and uncivilized Indians, called Siriono, who have no friendly intercourse with their white neighbors. It is not even known whether they form a single tribe or a number of tribes. This part of Bolivia presents the extraordinary phenomenon of natives still living in the stone age within a few miles of places which have been inhabited by white men during several centuries. Nordenskiöld obtained various implements which had been captured in primitive expeditions directed by the whites against the marauding Siriones, but he was not able to come into contact with these interesting aborigines.

## GEARED TURBINES.

System More Economical Than Reciprocating Engines.

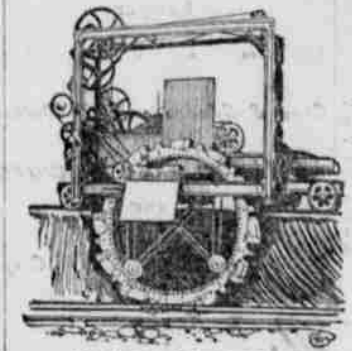
A recent annual report published by a British steam turbine company describes an experiment which may have an important effect on steamships.

A short time ago the company purchased the cargo steamer Vesputian and equipped it with a system of geared turbines for the purpose of ascertaining if any economies could be made as regards fuel, weight and space in comparison with the best types of reciprocating engines which are used in cargo steamers of low speed and great dead weight capacity.

It is now reported that a test has been made with the geared turbines on the measured mile at ordinary rates of sea travel and that a decreased steam consumption of 15 per cent was shown as compared with reciprocating engines, and equally gratifying results were obtained on ordinary sea voyages.—Consolidated Report.

### Clay Digging Machine.

A clay digger used successfully in fairly level clay fields is herewith shown. The excavating wheel has no axle, but revolves upon anti-friction wheels placed just outside its rim. As the excavating wheel revolves, each bucket cuts off a slice of earth and



DIGGING CLAY IN TERRACES.

dump it on to a belt conveyor near the top. The illustration shows the excavator as used where the clay is worked in terraces five feet high. The cars, into which the clay falls from the digger, run on a track on the terrace below the digger. When the clay pit is not deep and the clay is solid and hard the machine is run on wheels as a traction engine.

### Improved Plate Holder.

The walls of dining rooms are often adorned with plates of rare porcelain, which are commonly attached to the wall by means of strips of tin, the ends of which are bent over the edges of the plates and detract from the ornamental effect. A new plate hanger in which this defect is obviated has three strips of tin, terminated by neat little gilded hooks, which are the only parts of the device that are visible from in front. The strips of tin pass through three slits in a small plate of tin, behind the porcelain plate, and are bent over the edges of the slits to hold them securely in place. The same strips may be used for plates of different sizes by bending them at different points. The tin plate carries a ring, which may be slipped over a hook attached to the wall.

## Houses For Rent.

7-room semi-modern, \$15.  
7-room water and lights, \$15.  
4-room, water, \$9.  
3-room, \$8.  
3-room, \$7.  
2-29 CHAS. F. CONDART.

### A Supplementary Statement.

An aspiring pugilist went on for a preliminary bout at one of the athletic clubs not long ago. As he pulled on his gloves he beckoned the referee over and asked him to make an announcement. The referee obliged. "Kid Blinks desires me to say," he shouted, "that this is his first appearance in any ring."



The pair of fighters fiddled for a moment, and then Kid Blinks' antagonist slipped one over. THE OBLIGING REFEREE. Kid Blinks fell so hard that he fairly splashed. The referee began to count him out, but the intelligent Mr. Blinks looked up and whispered something to him. The obliging referee turned and addressed the audience. "Mr. Blinks," said he, "wishes me to supplement his statement of a moment ago. This is also his last appearance in any ring."—Cincinnati Times-Star.

### What the Books Cost Him.

When Colonel Robert G. Ingersoll was living in Peoria he was called upon one day by General John A. Logan. The colonel was upstairs at the time, and General Logan was ushered into the library, where on a table were three volumes of Voltaire's works, an edition de luxe representing all that was best in the bookbinder's art. General Logan picked them up one at a time, absorbed in his admiration of their beauties. While so engaged Colonel Ingersoll entered the room.

"Colonel," said the general, holding one of the volumes in his hands, "this is the most magnificent volume I have ever seen. I do not want to seem impertinent, but would you mind telling me what these books cost you?" "Those books," began the colonel, the twinkle in his eye growing brighter at each word, "cost me—the governorship of Illinois."

### Sawmill for Sale or Trade.

10 M capacity, near Sisters. Will give good terms to right man. Inquire at this office. 4-11

Buy your Seed Oats of the Redmond Lumber & Produce Co., Redmond, Oregon. 5-9-31.

### For Rent.

A good dairy or stock ranch: 1000 acres; cuts 250 tons hay; 500 acres under ditch; long lease to right party. For particulars inquire at Journal office. 3-28-11

### Eggs for Hatching.

Partridge Wyandottes, Banded Plymouth Rocks, Golden Laced Wyandottes, Anonas, 15 for \$2. Seabright Bantams, 13 for \$2. Plymouth roosters \$3. All Eastern stock; not related to any Eastern Oregon chickens. Mrs. T. F. McCallister. 3-21

### Took the Gold Medal.

Bliss Native Herb tablets took the gold medal at the Paris Exposition this spring. For sale by RAYMOND CALAVAN, Prineville, Oregon. 4-18-11

### Brown Leghorns

Pure-bred Brown Leghorn eggs, \$1 setting; day-old chicks. Mrs. LELA ZELL, Prineville, Ore. 3-7

### For Sale.

The Vacuum Clothes Washer. No rubbing. Simply put washer in boiler. The steam generated runs it automatically. Price \$6. 4-18-11 Mrs. PEARL BREEDING.

### Will Remain Indefinitely.

Dr. Ida Behrendt, the eyesight specialist, will not be able to leave Prineville for some time to come. Patients are coming in from all parts of the county and she has decided to remain indefinitely. She can be found at Hotel Oregon. 5-16

Redmond Lumber & Produce Co Wholesale and retail hay, grain, flour and feed. Lime and cement. We sell the T. G. Mandt Wagon and Molne farm machinery. 5-9-11

### Money to Loan.

In sums of \$100 to \$1000 on three or five years time. C. F. SMITH, Prineville, Ore. Office with Crook County Abstract Co. 2-29-11

### Notice to the Public.

I will be in Prineville more or less temporarily from now on. Those wishing my attention may inquire at the home of S. E. Hodges. 4-25 Dr. R. D. KIRKENTON.

### Must Sell at Once.

Team young mares, Steel Axle Wagon, Two good Cows, Buggy with Shafts and Tongue, Single and Double Harness, Child's Pony and Two Saddles. NO REASONABLE OFFER REFUSED. 5-9-11 J. S. FOX.

Statement of Resources and Liabilities of

## The First National Bank

Of Prineville, Oregon

At the close of business June 7, 1911

### RESOURCES

Loans and Discounts.....\$294,855.03  
United States Bonds.....12,500.00  
Bank premises, etc.....12,540.12  
Cash & Due from banks.....219,024.04  
\$648,924.19

B. F. Allen, President  
Will Wurzweller, Vice-President

### LIABILITIES

Capital Stock, paid in.....\$ 50,000.00  
Surplus fund, earned.....50,000.00  
Undivided profits, earned.....37,724.56  
Circulation.....8,600.00  
Deposits.....855,099.63  
\$1,481,424.19

T. M. Baldwin, Cashier  
H. Baldwin, Asst. Cashier



## Dairy Cows

I invite letters from any one wanting information, also those wanting to buy high grade or common dairy cows in car lots or less. I buy my cows in the best dairy locality in the Central States where I can always get good common and high grade Holstein, Durham and big Jerseys. Very few dairymen in the extreme West care to sell off a real good dairy cow, so it is necessary to go where the kind of cows most suitable for Oregon dairies can be had plentiful and at reasonable prices. Calves, yearlings and heifers on hand.

I can also furnish Bulls of any breed or grade. Write to

C. P. JUDGE,

5-16 ft

North Portland, Oregon

# Automobiles

## REO THE FIFTH

A powerful 30 h. p. car—2, 4, and 5 passenger, semi-float axles nickle steel, Timpken Bearings, five passenger, fully equipped, \$1,275.00 f. o. b. Portland, self starter \$25.00 extra.

## THE FAMOUS APPERSON

JACKRABBIT CARS.

## STEARNS CARS

Knight-Type Motor.

## PREMIER

The Quality Car

# J. C. ROBINSON

Agent for Crook and Harney Counties.

Madras, - - - Oregon

# "Charter Oak"

We have the exclusive sale of the "Charter Oak" Stoves and Ranges in this vicinity and can therefore make you a good price. We will be glad to have you come in and look our complete line over.

Give Us a Trial. Satisfaction Guaranteed

## Prineville Furniture Exchange

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