

MISSOURI'S GREATEST INVENTION

The Split-Log Road-Drag Has Revolutionized Road Building in "Show Me" and Will in Webfoot

The split-log road-drag that is making Missouri famous, has come to Oregon, and threatens to revolutionize the whole system of dirt road building in this state. Costing no more than a good jack knife, and so simple that a boy of 12 years can operate it, it yet works such marvels that one must see to believe.

Missouri is the mother of this marvelously simple invention, and D. Ward the inventor. In this state County Judge Scott, of this city, has taken it up, and has become fully as enthusiastic over its prospects as the most optimistic of its admirers in the "show me" state.

The idea of the promoters of the road dragging theory is, to induce each farmer to drag the road in front of his place. Though the theory first originated in Missouri, it has rapidly spread all over the whole country, and the motto everywhere is, "From your own front gate to your neighbor's front gate toward town."

The greatest difficulty that is to be encountered is to overcome the skepticism of the farmer and convince him that the drag will do what is claimed for it. Its very simplicity is its greatest foe. Every one who has tried it in this vicinity is loud in its praises. John Jefferson, on the Silverton road, Harris, in district No. 21, and John Hunt, on a side road near Rosedale, have all experimented with the drag, and have become enthusiasts.

The Missouri state board of agriculture has issued a bulletin in which Mr. King describes the drag, its results, and gives some rules for its use and construction. Judge Scott has sent a copy of this bulletin to each road supervisor in the county, with the request that they construct drags and follow the instructions closely. He has also distributed sixty of the bulletins among the farmers in different parts of the county, with the request that they give it some attention.

The following quotations are from this bulletin: "The great problem in Missouri for many years to come will be the maintenance of dirt roads. It has been conclusively demonstrated in a number of counties in this state that the dirt roads can be maintained in first class condition for some eight to

ten months and in passable condition for the remainder of the year at an expense of not to exceed \$4 to \$6 per mile."

HON. DAVID DE ARMOND, MEMBER OF CONGRESS 6TH MO. DISTRICT ENDORSES THE DRAG.

"Once last summer in going out into the country a few miles from my home my attention was arrested by a sample bit of dragged work. A heavy rain had fallen recently, and much of the way the road was bad, but at one point, for a distance of half a mile the road was as good as a dirt road can be. The reason was evident. This stretch of road had experienced the magic influence of the drag. One could determine almost to an inch where the man with the drag began and where he quit. In front of his premises the road was excellent, while upon either side, with the natural conditions the same, the road was bad." (Signed)

DAVID DE ARMOND, THE MAYOR OF ONAWA, IOWA, SAYS THE DRAG WILL REVOLUTIONIZE THE METHOD OF CARING FOR EARTH ROADS.

"It gives me pleasure to comply with your request for a statement of the work of the King drag. About a month ago I received word that the Northwestern Railway would bring D. Ward King to our city. I had heard Mr. King at St. Louis and when I received the railroad poster, I immediately made a drag, building it precisely as directed. I finished it before noon, and put it to work at one o'clock on a single block of our main street. The soil is gumbo and the street was almost impassable, the mud being hub deep in some places. We put the drag right on to mud and kept it going. At five o'clock, just four hours after beginning to use the drag, wagons loaded with forty hundred (4000) of baled hay were being drawn over the block and were making scarcely a perceptible rut. But when they went over the crossing the wheels again sunk nearly to the hubs in mud. I had a good deal of faith in the drag from what I had heard and read, but I was not prepared for such an astonishing change as was made. Our people are all thoroughly convinced that the drag will

be proven by Ohio. Here we see a wealthy state, one hundred years old, with unlimited quantities of rock and gravel and yet with only fifty per cent of her roads macadamized. It is proven inadequate by the eager manner in which the home of the Plymouth Fathers and other Atlantic states are seeking an inexpensive way to remedy their impassible muddy highways. That road dragging solves the problem is not denied by any who have given it a careful test. The statements made by the advocates of road dragging are not based on visionary theories but on actual results obtained by actual work. The writer has cared for half a mile of

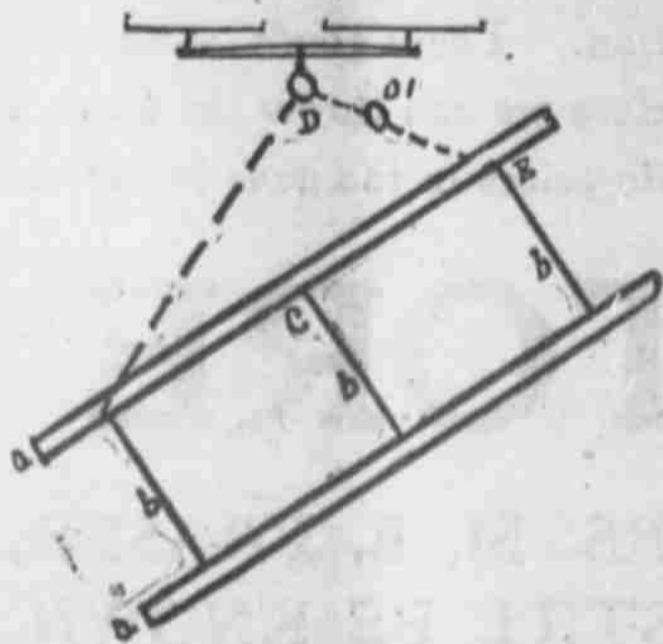
revolutionize the method of caring for earth roads." (Signed)

HENRY HARLOW, Mayor.
A Great Problem.—The depth of the mud road problem I have appreciated for many years, but a realization of its other proportions came to me only within the year. When I heard Ohio confess the fifty per cent of her public highways are still of soil; when Massachusetts editors, almost in sight of the Hub of the universe asked to reproduce my speeches; when the most prominent good road advocate in Iowa speaking from a rostrum I had just left, announced that Iowans would have reached the height of their ambition if they could secure a stone surface on fifteen per cent of their roadways; then did I begin to comprehend the immensity and endlessness of this struggle between civilization and an imperfect system of earth road management. Do we recognize it as a fact that many generations to come will be confronted with this problem? It has been handed down to us from the ages. And until this "Missouri Idea" of road dragging was developed, the only answer was "surface the road with stone or gravel." That this answer has been inadequate is

road with a drag for the last nine years.

The results that follow persistent dragging of the roads after each wet spell cannot be pictured with words. I met Hon. S. H. Prather, vice-president of the State Board of Agriculture, of Tarkio, recently in St. Joseph and as we shook hands he said: "I did not take much stock in your dragging idea at first, but I'll tell you, you can not talk long enough or hard enough to a man to make him believe what it will do. The only way for him to comprehend it is to build a drag and use it."

WORST ROADS BECOME BEST.
When talking with road men in the river bottoms, they invariably bewail the lack of drainage, while the clay hill folks envy the river men because they have no washes. Both classes are quick to say: "If we lived on the black soil of the prairie we would have some faith in dragging, but here—" and words fall them. Now the truth of the matter is that either clay or gumbo will make a more substantial road than the soft prairie soil. The self-same characteristics that make clay or gumbo so hard to get into good order, after it once gets exceedingly bad will operate to keep



The Split Log Drag.

it from getting into bad order after it is once put into exceedingly good order. It stays good just as tenaciously under good methods as it stays bad under bad methods. By the way, a clay hill, a little over a half mile south of my house is the best piece of road of which I know, taking into account the short time it has been dragged. Before it was dragged, it was noted far and near as a tough proposition. At present it is good, even in bad weather.

Padding.—Marvelous is the only word that in any measure describes the result secured by continuous dragging. So wonderful was the hardness of the road and the persistent manner in which it seemed to defy bad weather that I for years searched for some adequate explanation. At last I have concluded that the greatest factor is the manipulation of the puddled earth while it is moist. Not only is earth in this condition water proof, but it bakes hard as a brick. It may also be well to observe the action of the split-log drag in this connection. Now a grader or even a single plank scraper shod with iron or even the front slab of the log when it is shod will have a cutting action with a tendency to leave the soil at the surface of the road roughened and slightly lifted up. This condition is not favorable for shedding rain. But the split-log drag (with only the front slab shod), leaves the surface in a vastly different condition because the hind slab, not being shod, becomes polished and as it is drawn over, the moist soil smoothes and smears and packs. This is better understood by some persons when the word "cement" is used instead of puddled. Numerous practical road draggers have expressed to me their appreciation of this cementing effect, and asserts that to this effect, in combination with the grade secured and the smooth surface, is due these marvelous results.

The most difficult part of road dragging is getting at it. All the rest is so simple that one learns it in the doing. The first noticeable effect is the smoothing of the road surface and his in time allows the rain and snow water to flow off, and encourages the distribution of travel over the road from side to side.

HOW TO USE THE DRAG.
Don't drive too fast.
Don't walk; get on the drag and ride.
Don't wait for your neighbors to take hold; they may be waiting for you.
Don't wait for the big grader to come and shape up your road. All you can do first will help to make the work of the grader permanent.
Don't be particular about material. With an ax and a two-inch sugar almost any kind of a log can be made into a drag. The one I used for several years is a box elder.
Don't try to drag with one piece;

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use two. One will scoop out the hollows in the road and deepen them. When two are used the one keeps the other up; and in a month or so the hollows will have filled and become level and hard like the balance of the road.

ROAD DRAGGING CATECHISM.
Would it not be better to plow the road before dragging?

No. Plowing gives a soft foundation. Plowing the middle of the road is a relic of the old dump scraper days.

What do you do where there are deep ruts in the road?
Drag them. If you drag when the surface is quite loose and soft you will be surprised how soon they will disappear.

How do you get the dirt to the middle of the road?
By hauling the drag slantwise with the end that is toward the center of the road a little to the rear of the other end.

But suppose the road is too narrow? First drag the wheel tracks. After three or four rains or wet spells, plow a shallow furrow outside the dragged part. Spread this over the road with the drag. Only plow one furrow. You may plow another furrow after the next rain. At each plowing, you widen the road bed two feet.

How many horses do you use?
Two generally; Three if it is as handy. Four when breaking colts. A good solid team in the center and a colt on each side. Two men on the drag, one to drive, the other to control the colts.

How do you drain the road?
If the earth is pushed to the middle of the road continually the road will drain itself.

Why not make the drag out of plank?
You can, and do good work. Mr. Charles Hill of Mexico, Mo., (quoted elsewhere) uses one made of three

hard wood two by fours. But the split log is best. The plank drag is not so stiff and quivers and bounces.

Why not make the drag of heavy sawed timber, say 6x8 or 8x10?
Because they have a tendency to slip over the bumps. The log is better than the plank because it is more rigid and better than heavy timbers because its thin, tapering edge scrapes more surely.

Don't you grade up the road first?
No. The grading is done with the drag, gradually. By so doing the road is solid all the time and is built on a solid foundation.

At what angle do you haul the drag?
A safe answer is 45 degrees, or in common parlance, exactly quartering. But bear in mind that the proper angle of a drag like the proper tension of a sewing machine depends somewhat on circumstances. The angle of the drag will need to be varied as the soil is moist or dry and as the surface is more or less convex. These slight changes can be made by the driver walking in one direction or the other on the drag.

What does it cost to drag a mile of road a year?
The cost is variously estimated at from \$1.00 to \$3.00.

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