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# BIG TEAMS ON ILLINOIS FARMS

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UNIVERSITY OF ILLINOIS  
COLLEGE OF AGRICULTURE AND  
AGRICULTURAL EXPERIMENT STATION

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## Farmers Like Tandem Hitches

**H**ORSES are the only source of field power on many farms in Illinois, and the problem of using them to the best advantage is one which the College of Agriculture is interested in helping farmers to solve. Even on those farms where horse and mechanical power are combined for field purposes, costs can be substantially reduced by modern methods of hitching the horses. Economy has been secured by using tandem hitches which eliminate the side draft of plows, and also by combining from four to twelve horses into one team.

Many big teams are now being used as a result of men learning to drive a number of horses with only two lines. Five and six-horse teams are used on grain binders, five to eight on gang plows, six on harrows, six on disks with harrows attached, eight on three-bottom plows and on tandem disks, sometimes with harrows attached, and eight on two disks lapping one-half or two disks side by side. Eight horses are also used on combine harvester-threshers. Ten to twelve horses are seen pulling four-bottom plows or two plows fastened together.

Estimates of farm advisers indicate that last year one out of every six farmers in Illinois worked at least one team in front of another for plowing and other field work. The total for the state was about 34,000 farmers who thus were increasing greatly their efficiency in the field. About 5,700 of these farmers were using larger hitches than they had used two years before. This marks a great change from conditions existing a few years ago, when the usual outfit for plowing, disking, and harrowing was a team of four horses abreast.

# Four Horses Tandem Mean More Power

An extra acre a day is plowed by those Illinois farmers who have discarded the old four-abreast hitch for gang plows, and now work two horses in front of the other two. The new plan saves about 20 percent of the power which previously was lost in side draft; it is easier on the horses, and the plow does better work as well as more of it. Sometimes in farm demonstrations two gang plows have been used on the same land, one team working two-and-two and the other four abreast. In every case the horses strung out in pairs have walked



**Four Horses With a Talkington Hitch on a Sulky  
Plow in Alfalfa Sod**

straighter and worked more quietly with less crowding and worry and have kept cooler than the horses hitched abreast.

The four-horse team shown above and the Talkington eveners on page 5 have the line of draft about right for a single sulky plow or a two-bottom gang. The horses are spread well apart to give plenty of air, wagon doubletrees being used for the leaders. Last year when low black prairie ground was exceedingly hard some farmers found that their gang plows did poor work. Accordingly they used 16-inch sulky plows with four horses hitched two-and-two and did a fine job of plowing. In localities where 16-inch walking plows and sulky plows still are common, this four-horse hitch is a great improvement over three abreast, especially for plowing alfalfa sod or plowing sweet clover in the spring.

## Four Horses Keep Cooler in Pairs



These Mules Have Plenty of Room and There Is No Side Draft

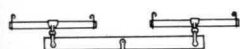
Besides saving power, the hitch with four horses in pairs gives each horse more room and keeps them cooler. This kind of hitch for gang plows is a favorite with Raymond Folkrod, Adams county; John Bonnet, Irwin Edgerton, and Leo Murray, Jo Daviess county; Bert Edwards, Lake county; Albert Oelze, McLean county; John Hubly, Mason county; A. L. Robison, Tazewell county; and many others.

Mr. Robison decided twelve years ago that four horses working two-and-two on a gang plow would readily turn an acre a day more than they would when hitched four abreast, and so he has continued to use this efficient outfit.

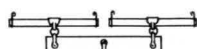
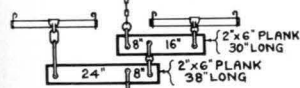
John Hubly tried this strung-out hitch with his four-mule teams in 1926, as shown above. He says, "Four mules hitched tandem (two-and-two) on a two-bottom gang plow will cover 6 acres per 10-hour day with ease. Hitched abreast they cannot cover more than  $4\frac{1}{2}$  or 5 acres because they must be rested, cooled, and quieted. With labor as high as it is, I do not want to have men sitting around resting the mules when they might be turning ground."

On hillsides John Bonnet keeps both leaders on the land when the plow is turning the dirt down-hill, and he thus makes the front plow of his gang take a full width of furrow all the time. With lines on the two leaders and buck ropes to control the other two horses, any driver can make each horse pull his share.

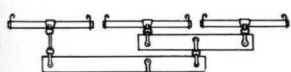
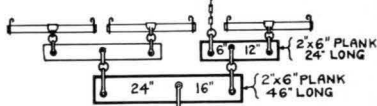
# Few Extra Parts for Big Hitches



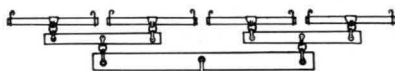
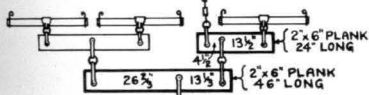
4 horses



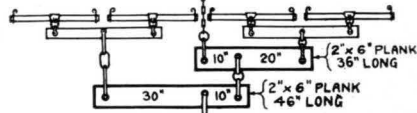
5 horses



6 horses



8 horses



Talkington eveners for four different teams are shown above. The special parts are indicated by the heavier lines. The four-, five-, and six-horse hitches are good for a two-bottom gang; the eight-horse team can be used for a three-bottom plow, a tandem disk, or other large implement. The five-horse evener is changed to the six-horse by boring additional middle holes.

## Eveners Are Made on the Farm

Simple and satisfactory eveners for big teams can be made in a short time by any farmer. Regular farm eveners always are used for the lead teams. The other single trees and doubletrees also are standard equipment. Ordinary clevises and links connect the parts of the eveners. A common log chain is used to extend forward to the lead team because it is more flexible than a drawbar, is more easily adjusted, and allows snapping the buck ropes in at any convenient link.

The double-lever evener, known in the West as the Talkington hitch, is adapted for use with any number of horses. The short ends of the eveners keep a little lower than the long ends. Thus the two parts of the evener do not rub or bind, and a similar angle of traces is maintained for all the horses. The principle on which this hitch operates is easily understood. Many Illinois farmers have voted their preference for this type of hitch.

The diagrams on page 5 show in heavy lines the special parts needed for simple Talkington eveners with 4 to 8 horses. The proportions should be maintained as shown even when longer dimensions are needed for spreading the horses. These eveners should be made of 2-by-6-inch or 2-by-8-inch hardwood. The lengths indicated allow the end holes to come 3 inches from the ends of the eveners. A bolt thru each end of an evener plank is a good thing to prevent splitting. Use clevises and connecting links of such lengths that the singletrees of the rear horses are all in line.

The five-, six-, and eight-horse eveners all have a plank 46 inches long with the end holes 40 inches apart. One piece of plank can be used interchangeably for all three hitches by boring holes for the plow clevis in the three different locations.

The materials needed for eveners for four horses on a plow are: one 2-by-6-inch hardwood plank 30 inches long; one 2-by-6-inch hardwood plank 38 inches long; 1 wagon doubletree complete for the leaders; 2 singletrees with center rings; 7 clevises (one should fit the wagon doubletree); 1 clevis ring; and 1 common log chain.

Five horses require: one 2-by-6-inch hardwood plank 24 inches long and one 46 inches long; 2 plow doubletrees complete; 1 short singletree with center ring; 8 clevises, 2 clevis rings; and 1 common log chain. For six horses the same materials are used as for five except that a three-horse evener is used instead of the doubletree for the lead team. By comparing these lists with the diagrams anyone can easily choose the materials needed for the larger hitches.

## Five Horses Popular for Gangs



Five-Horse Team With Talkington Hitch

The five-horse team has obvious advantages for the common 14-inch two-bottom gang plow in heavy prairie land where the power of the extra horse is needed. The plow clevis is attached very nearly upon the true line of draft, the horses are not crowded, and they seldom need resting. More and more farmers are adopting this hitch. They drive the outfit with one pair of lines and usually plow 5 to 6 acres a day.

Most five-horse teams used for plowing in Illinois are arranged with one pair in front of the other three horses, as shown here, because it is easier to select two good leaders than three and two respond more promptly to each pull on the lines.

Fine results with five-horse teams on gang plows are reported by Ray Crowe, Christian county; Louis Hug, Leo Rehkamper, Louis Walther, Wm. Rantz and Fred Conrad, Clinton county; Frank Gerhard, Montgomery county; Earl Shonhart, Pike county; W. S. Miles, Sangamon county; Elvin T. Goddard, Warren county, and others. Instances are related of five-horse teams plowing twice as much a day as four horses abreast in an adjoining field. This difference was attributed to the combined effect of the horses walking faster and having to be stopped less frequently to rest or to permit trash to be cleaned out of the plow. Trash bothers much more when the four-abreast hitch is used, with its resulting side draft, than when the horses are hitched tandem.

## Six Horses Farm a Quarter Section



The Six-Horse Team of Ray Strauss, Winnebago County

The prairie counties of Illinois average about six work horses or mules to a quarter-section farm. One man working them all in a six-horse team can do all of the plowing, disking, and harrowing on such a farm. In a rotation of corn, corn, small grain, and clover, the use of a six-horse team instead of four saves about two weeks' time in the spring, and this is important about the middle of May when it is time the corn was planted. The use of these big teams fits into the present-day effort of many Illinois farmers to make the quarter-section a one-man farm.

The six-horse team working three-and-three speeds up a gang plow to about six acres a day. This is the favorite outfit for plowing on the farms of Earl Putnam, Adams county; Arthur Bachert and W. E. Riegel, Champaign county; W. G. Azkmann and George Kampwerth, Clinton county; Jesse Barnes, Greene county; W. C. Disosway and Warren Martin, Iroquois county; Clifford Shanks, Lake county; Walter Thorson, La Salle county; Warren Moffet, Macoupin county; George Sutton and Willard Conley, McLean county; A. F. Davis, Moultrie county; Ben Zimmerman, St. Clair county; A. D. Nelson, Vermilion county; Ray Strauss, Merrill Gale, and Olin Eddie, Winnebago county; and a great many others.

Chas. Hoffman, McLean county, reported that in the wet spring of 1926, with six horses on a gang plow, he turned 60 acres of land in 8½ days, averaging 7 acres a day.

Many farmers have been working two horses in front of the other four, but that arrangement keeps the plow clevis too far from the furrow, allowing considerable loss of power in side draft. It also keeps the rear horses crowded together too closely.



## Six Horses Keep Gang Going

Six horses on a common gang plow are not too many when the weather is hot and the ground is hard. The six Percheron mares shown in the picture below pulled a 28-inch gang plow during the hottest weather last fall, turning furrows 8 inches deep in dry, hard prairie land. The horses walked straight ahead steadily and had plenty of space between each other. They seldom were stopped to rest. The Talkington hitch shown on page 5 was used. It is perhaps the most satisfactory simple six-horse hitch. It does have a little pull to one



Hot Weather and Hard Ground Do Not Stop Big Teams

side on the lead team, but this is slight because of the considerable distance from the collars to the rear end of their draft chain.

The front cover shows another University of Illinois six-horse team plowing in the spring with a section of harrow attached. The outfit plowed 6 acres a day and harrowed it twice at the one operation.

L. H. Raffety, Greene county, who uses this six-horse hitch for his plowing commends it for convenience and efficiency. He attaches a harrow to the plow. Ray Strauss, Winnebago county, used this hitch on a common gang plow in a field adjoining the Burritt picnic grounds one summer. He used buck ropes and drove the six horses with one pair of lines. Hundreds of farmers studied and praised his outfit.

## Talkington Hitch With Six

In the six-horse outfit shown here the evener plank next to the plow has 48 inches between the end holes, with the middle hole 32 inches from one end hole and 16 inches from the other. The other piece of the evener is the same as shown on page 5. This longer evener has a little side draft but it gives the big horses more room, and with the 32-inch singletrees the traces do not chafe the sides of the horses as they do with standard 28-inch singletrees. Dimensions for any evener can be changed as may be desired, provided the proportions are kept the same.



The Talkington Hitch Is Easy on Horses

The outer ends of the Talkington evener are naturally held high, thus raising the line of draft on the rear horses and preventing sore necks and shoulders.

Men who become accustomed to plowing with six horses hitched with three in front of three commonly use the same arrangement when they put six on a disk, a grain binder, or a combine harvester-thresher.

## Six Horses on Disks and Binders



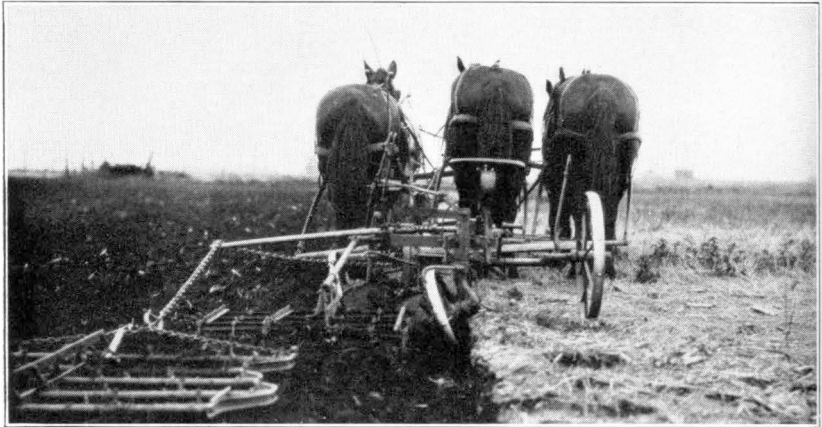
Two Horses in Front of Four Make a Satisfactory Disking Team for T. J. Culbertson, Effingham County

In this six-horse hitch lines are used on the leaders and buck ropes on the others. Such a team is easy to drive, turns handily, and is under better control than a team of six abreast. The harrow is attached by a chain to the stub tongue of the disk.

Six horses abreast are worked on disks and harrows by more and more Illinois farmers each year. That is an efficient arrangement for such work, but the driving is more difficult and not so safe on disks as it is with two horses in front of the other four or three horses in front of three and the whole outfit controlled with only two lines on the leaders.

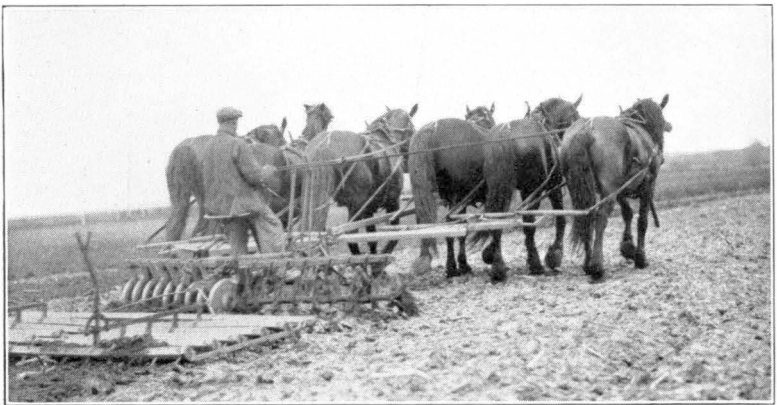
Those who use the five- or six-horse tandem hitch on their grain binders are pleased with the speed and efficiency secured. Chris Gerber, Livingston county, tried five on his binder when cutting oats. He had lines only on the leaders, the others being tied in and bucked back. The five stood the work so well that he worked them steadily to cut 80 acres of grain instead of changing teams as he always had done in former years. Last year one Champaign county farmer used six horses hitched tandem three-and-three on his 8-foot binder and reported that there was a real economy in using the larger team.

## Other Six-Horse Outfits



Four Can Plow, Six Can Plow and Harrow

L. G. Van Valey, Champaign county, prepared a good seed bed at one operation with a six-horse team, a gang plow, and two sections of harrow which harrowed the ground four times at once.



Four Can Disk, Six Can Disk and Harrow

The chain from the harrow is attached to the stub tongue of the disk. Driving six abreast with four lines is not so easy nor so safe as driving two in front of the other four (page 11) or three in front of three, using only two lines (page 10).

## Eight Horses Pull Three-Bottom Plow

Eight horses make a compact and efficient team when worked four-and-four and driven with only one pair of lines. Such a team can be used to advantage on a three-bottom plow, a tandem disk, a disk with a weighted harrow attached, two disks fastened together, a combine harvester-thresher, or other heavy implement.



Eight Horses on a Three-Bottom Plow at the University

There are three-bottom plows which are made to use with horses, and they do satisfactory work. In a demonstration at the farm of Ted Reeder, Douglas county, the visiting farmers saw a three-bottom plow drawn by eight horses turning 8 acres a day. This outfit has been used for the past nine years. The horses require very little control from the driver, but walk along steadily in correct positions. Mr. Reeder farms 250 acres, his brother Ralph farms 280 acres, and their father farms 420 acres. They are all "strong" for horses which turn farm-grown grain and cheap forage into power.

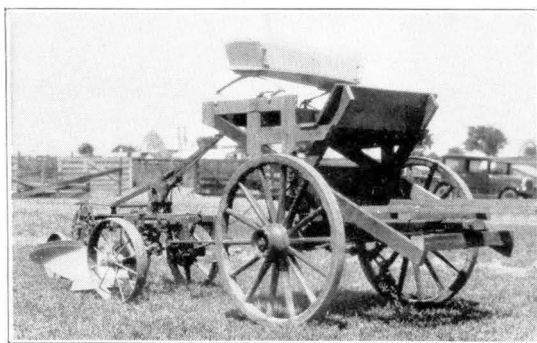
## Eight Horses Speed Work

W. S. Corsa, Greene county, uses two eight-horse teams with the Talkington type of eveners. During oat seeding each outfit handles a tandem disk. The extra speed enables Mr. Corsa to put in his oat crop during the first few days of suitable weather. Then if it rains he doesn't have to worry.

Chris S. Gerber, Livingston county, uses an eight-horse team with the Talkington hitch to put in his oats. He uses two 9-foot disks side by side, cutting a swath 18 feet wide and stirring 4 acres an hour. Then the eight-horse team pulls a harrow 36 feet wide and covers 10 acres an hour.

Col. George G. Seaman, Christian county, and C. J. Drury, Morgan county, pull their combine harvester-threshers with eight-horse teams.

Most of the eight-horse teams in Illinois are worked four-and-four. The horses are crowded rather closely on a three-bottom plow. Such an arrangement on a two-bottom plow results in considerable side draft and scarcely enough space for one horse to walk easily between the draw chain and the tongue. A hitch such as shown on page 21 with two horses in front, followed by two ranks of three each, makes a good eight-horse outfit for plowing and allows plenty of space between horses.



The Hind Gears of a Wagon Make a Good Truck for a Tractor Plow

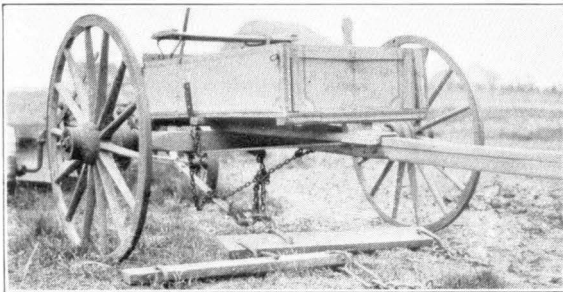
The above arrangement furnishes an elevated seat for the driver and also guides the plow when it is out of the ground. The tongue has been placed 3 feet from the right wheel, which runs in the furrow.

## Truck is Handy With Eight



Line-Up for Eight-Horse Outfit on Farm of W. S. Corsa, Greene County

The tongue is 3 feet from the right wheel of the truck, which is made from the hind wheels and axle of an old wagon and serves to guide the tractor plow and to furnish a seat for the driver. One horse walks between the tongue and the furrow.



Truck Used With a Four-Bottom Tractor Plow

The wagon axle was replaced by a long axle with the wheels 6 feet apart. The doubletrees have been removed to show only the Talkington evener. The team pulls directly on the plow. A short chain fastened to the middle of the axle pulls the truck. The chain attached to each end of the axle guides the plow.

## Plow Hitches for Eight



Eight-Mule Team of Amos Anderson, La Salle County

Mr. Anderson works an eight-mule team with a long four-horse evener next to the plow and a pulley attached to each end. Four mules are equalized, two against two, over each pulley. Wm. Freitag, Tazewell county, uses a similar evener for eight horses.

Flies, heat, sweet-clover roots, and dry, hard, gumbo ground were no obstacles to C. P. Griffiths, Hancock county, in plowing in early September with eight horses and a tractor plow. He made his truck, his eveners, and his buck ropes according to information mailed to him from the University, spending only \$2.50 upon new materials.

The elevated seat which is provided on a truck is a distinct convenience for the driver. When the seat is low as it is on the plow, the driver commonly stands up much of the time. That is both tiresome and conducive to accidents.

The harrow attached to a plow gives timely seed bed preparation and, when the plow is lifted out of the ground, the harrow holds the plow back so that it does not run up against the team. This is especially useful when going down hill.

F. P. Hornback, Menard county, uses Talkington eveners on the end of the drawbar of a tractor plow without any truck and so do M. G. Lambert, Hancock county, George Williams, Peoria county, and others. More skill is required in turning when there is no truck, and there is more trouble from the plow lurching forward when it is lifted out of the ground. In this case a section of harrow attached to the plow is very desirable.



## Eight Horses on Disks



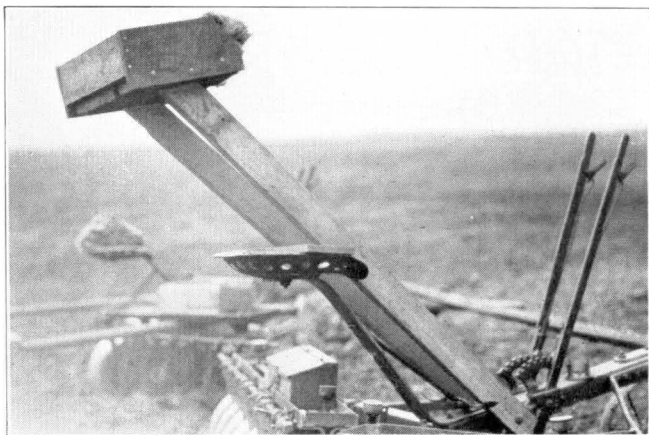
Eight Horses are Efficient on a Tandem Disk on Farm of Col. George G. Seaman, Christian County



Eight Horses and Two Disks Lapping One-Half on Farm of F. S. Turnure, Boone County

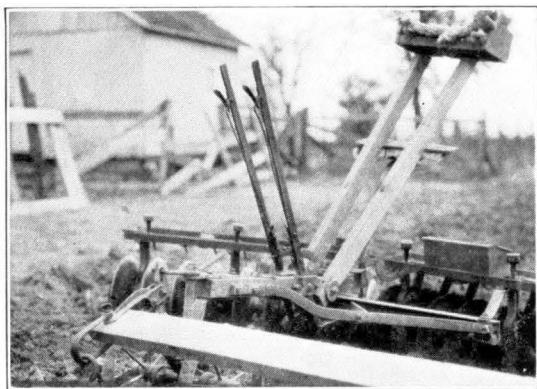
Four horses, working two-and-two, are hitched to each end of a long evener, which in turn fits into the clevis of the front disk. A clevis equally near the other end of the evener carries a chain or cable which passes thru a ring at the left end of the front disk frame and extends back to the rear disk. A diagonal chain from the front disk steadies the rear disk on the turns, which should be made to the left.

## Arranging Two Disks With Eight



Two Disks Are Easily Fastened Together

An elevated seat is a convenience with a big team, and is safe on some implements. On a disk it is not safe on rough land. This seat is 5 feet above the ground.



Clevis Arrangement for Disking Stalks  
With Two Disks

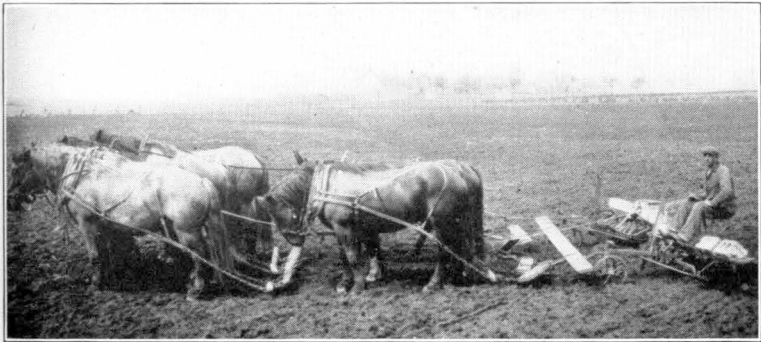
A plank in the clevises of the two disks spaces them the right distance apart. In diskings stalks four horses work two-and-two directly in front of each disk, and all are driven as one eight-horse team.

## Eight Horses Disk Six Stalk Rows



Eight Horses With Two Disks Cutting Six Stalk Rows at a Time

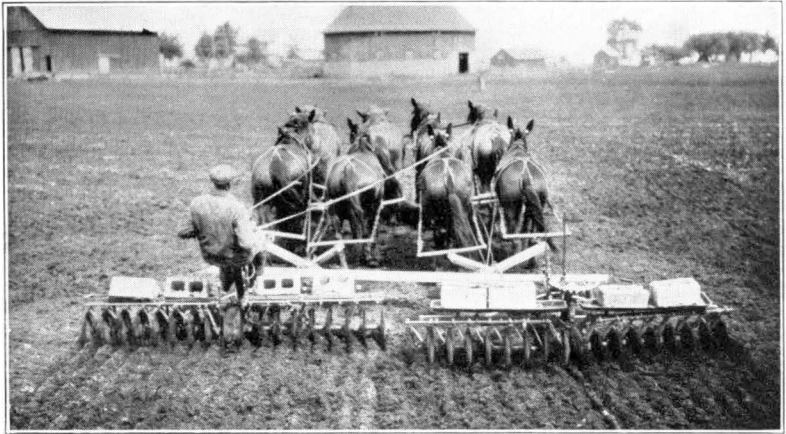
The horses work two-and-two directly in front of each disk with no horses walking in the middle space of the six stalk rows. This outfit disked 40 to 50 acres a day.



Details of Arrangement With Two Disks on Plowed Ground

The clevises for the teams are set in a short distance from the disk clevises so that the eight horses work in a compact team. These horses have halter bits but no bridles. All are driven with two lines. The disks are easily separated to pass thru gateways.

## Eight Horses Disk Forty Acres in a Day



An Eight-Horse Team With Two Disks

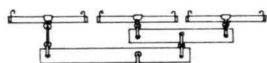
A plank spaces the disks. Two four-horse teams working two-and-two are driven with two lines as one eight-horse team. The outfit disks 40 acres a day. Chris Gerber, Livingston county, listed 11 neighbors who use such outfits.



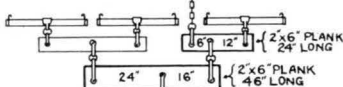
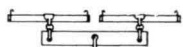
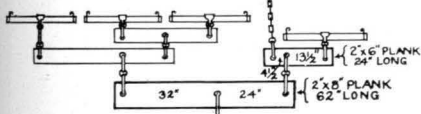
A Ten-Horse Outfit Which Disks 50 Acres a Day

This team of Chris Gerber's consists of two five-horse teams placed two in front of three with Talkington eveners. It is driven by the hired man as one ten-horse team.

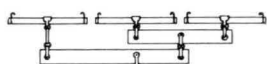
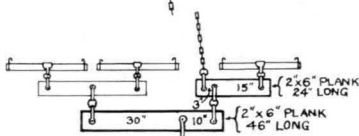
# Eveners for the Larger Teams



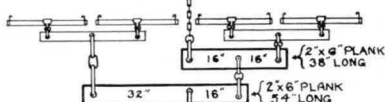
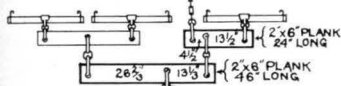
7 horses



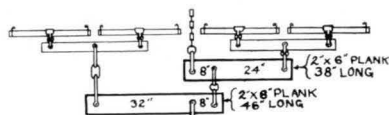
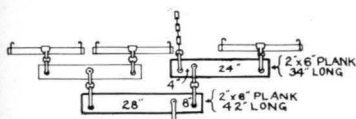
8 horses



9 horses



10 horses



Seven horses are sometimes used on a two- or three-bottom plow. Eight work to good advantage, as shown above, on a two-bottom plow in very hard ground. Nine are sometimes used on a three-bottom plow. Note that in any Talkington evener the length of one end in inches multiplied by the number of horses working on that end is equal to the length of the other end in inches multiplied by the number of horses working on it.

## Ten-Horse Team Pulls Two Gangs



A Ten-Horse Team With Two Gangs Turning and Harrowing  
Four 14-Inch Furrows

The doubletree for the lead pair is long so that one horse walks in the furrow; the draw chains pass in the middle of the four-horse teams.



Details of Arrangement of Two Gangs With Ten Horses

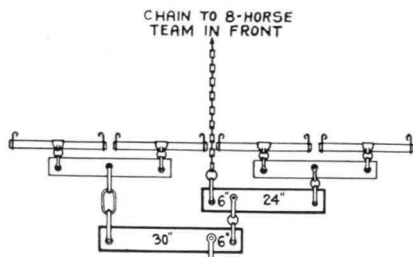
This simple arrangement was designed and is used by J. E. Calkin, Iroquois county, who farms 240 acres with 10 horses and almost no hired help. An evener with 28 inches between the end holes has the plows attached to the ends and the team to the middle. Two diagonal chains keep the plows from see-sawing. This plan gives a more compact hitch than a V-chain hitch for the team, which would accomplish the same result. A gang and a sulky plow can be combined similarly.

# Twelve Horses Plow Twelve Acres



Twelve Horses Handle a Four-Bottom Plow

A farmer who has as many as 12 horses can cut costs by working them all in one team, plowing and harrowing 12 acres a day in the spring. This is the conclusion of Chris Gerber, Livingston county, who farms a half-section of land with 14 horses. Mr. Gerber uses the Talkington type of hitch and drives with one pair of lines on the leaders. The other horses are tied in and bucked back. This system has long been used in the far West with much larger teams.



Extra Parts for the Twelve-Horse Hitch  
Added Behind the Eight-Horse  
Outfit Shown on Page 5

The hind gears of a wagon are used for a truck to guide a four-bottom plow. The tongue is bolted to the coupling pole, and is midway between the wheels. With the four-bottom plow this keeps both truck wheels up on the land all the time. The driver carries a pail of pebbles with which to touch up the leaders if they get slow, but he seldom has to throw at them.

# Advantages of Big Teams

## More Team Work Means Less Pasture Play

The principal factor in cheapening the cost of horse labor is keeping the horses busy every day at the necessary farm work. One man with a big hitch can work at one time all the horses which are kept on the average farm. In the past many an Illinois farmer has worked only four horses on a plow or other tillage implement and has rested the team much of the time, while right across the fence perhaps, in his own pasture, several of his other horses have rested all the time. "More horses on the plow and fewer in the pasture," is a good slogan.

Fred Rising, Champaign county, has had four men working his teams, totaling 26 horses and mules, on 800 acres of prairie land. In the spring they plowed 400 acres for corn using one eight-horse team on a plow with three 14-inch bottoms, seven horses on a plow with three 12-inch bottoms, and a six- and a five-horse team each on a two-bottom gang plow. The outfits included 9 green colts, 9 mares with young foals and only 8 hardened horses. All the field work on this farm averaging over 30 acres to the horse, was done with these horses and mules.

## Each Horse Plows About an Acre a Day

When the heat is not excessive, nor the ground very hard and dry, each horse in a big team plows about an acre a day, sometimes more. The advantage of the extra horses has been evident in field demonstrations when a two-bottom gang plow has been pulled successively by four abreast, then two-and-two, two-and-three, and three-and-three. With each change, and with each additional horse, the outfit has moved along at a perceptibly faster gait. There is evident economy in putting on enough horses so that they can keep going.

## Plenty of Power for Emergencies

Pulling contests show that a horse can deliver 8 or 10 or even 12 horsepower for a short time. This accounts for the fact that a big team seems to have plenty of power for any emergency, such as a hillside or a soft spot in the field. This is a great advantage on some farms. The success of big teams in a neighborhood encourages farmers who have only five or six horses to combine them into one team for economical and efficient work with such implements as they already have on hand.



# Advantages of Big Teams

## A Good Place to Train Colts

Colts learn quickly to do the usual work in a big team. Chris Gerber's 12-horse team included 1 two-year-old, 2 three-year-olds, 1 four-year-old, and 8 seasoned horses. Fred Rising's 26 head, working in four teams, included 9 green colts.

Col. George G. Seaman's first eight-horse team had five westerns, three of which were colts. He writes, "We find that these big hitches are an ideal place to teach a horse to pull and to behave himself." It is a good plan to hitch a nervous colt with a steady horse to a wagon once or twice before putting the youngster into a big team. It is important to teach colts to walk rapidly but not to jog to keep up. If a colt is allowed to become very tired, he is likely to get the habit of lagging back. This is especially true of mules.

## Horses Keep Going Ahead in Fly Time

In fly time a horse is bound to pick up his feet and stamp. If the load is too heavy and the horse must be rested, he just marks time—and perhaps gets over a trace. When he stamps his foot while working he must set it down one step ahead and he makes progress with the work. That is the secret of successful work with a big team in fly time. Hitch in enough horses so that they can keep going ahead and not just marking time.

## Big Hitches Are Easy on Horses

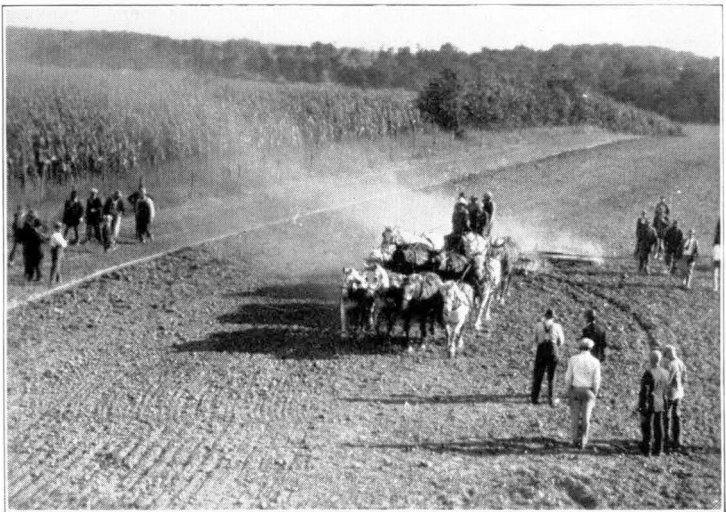
It is easier on a horse to keep going with a reasonable load for 10 hours a day than to pull very hard part of the time and rest part of the time, as happens when the team is overloaded. Farmers report that when using plenty of horses they get more work done for each horse and keep the shoulders in better shape. Fred Rising plowed 400 acres and did the other spring work on an 800-acre farm with 26 horses and mules, working in units of five to eight head, and he had no sore shoulders among his horses.

Horses seem to like working in a big team. They keep in their places surprisingly well. Slow horses do better when following others. These facts which farmers have observed correspond with the well-known instinct of horses and mules to stick to their herd and to follow the leader.

## Home-Grown Feeds Supply Power

The present tendency to grow more legumes for the good of the land provides also good pasture for teams. In the summer, pasture at night and on idle days helps much to keep down the cost of feeding teams, and the horses are more comfortable and keep cleaner.

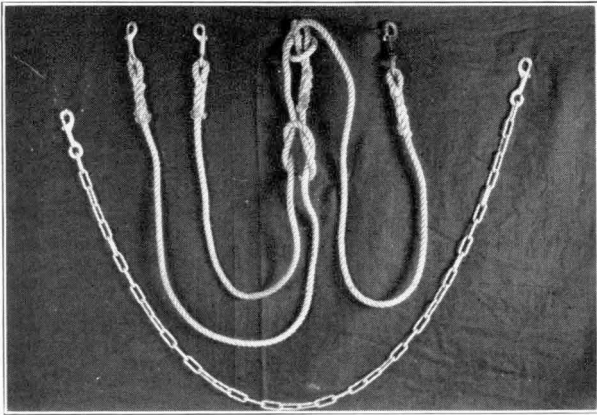
In winter the principal feed on many farms is cheap straw from the stacks and unsalable roughage gathered by the horses from fence rows, meadows, and stalk fields. A small feed of clover or other legume hay once a day is a fine thing for horses that are gleaning the fields and strawstacks for a living; it helps to maintain their health, vigor, and flesh. Then with a little grain late in the winter the horses may be conditioned quickly for work. Farmers report very low costs for keeping teams in this way when idle. M. G. Lambert, Hancock county, figures that the increase in crops from the manure is worth half the cost of the feed for the teams.



Neighbors Gathered to See 12 Horses Double-Disking and Harrowing at One Operation on the Farm of H. C. Johnston, Henry County

The team is driven with two lines and is pulling a tandem disk and three sections of harrow, preparing a seed bed for wheat. At the other end of this field there was a steep grade but the team took the load up easily.

## Details of Buck Rope and Tie Chain

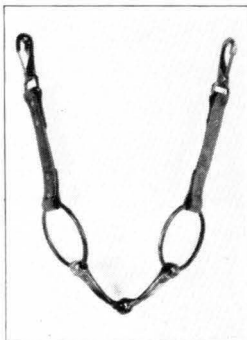


A Homemade Buck Rope and Tie Chain

The adjustable loops in the rope are loosened to show details. Two pieces of  $\frac{1}{2}$ -inch rope are used, one 8 feet long and one 9 feet. The 8-foot piece has a small snap spliced into each end. These two snaps are snapped into the opposite bit rings of the horse. The 9-foot piece has a 4-inch loop spliced in one end and in the other end a snap which will open about one-half inch so as to snap into the log chain on which the lead horses pull. An adjustable loop is made before knotting the two ropes together as shown.

### Halter Bits Save Time in Harnessing and Hitching

This bit is snapped into the upper rings of the halter. If short halters are used on long-headed horses, the bit may be attached to the lower rings of the halter with two short double snaps. In the stable,



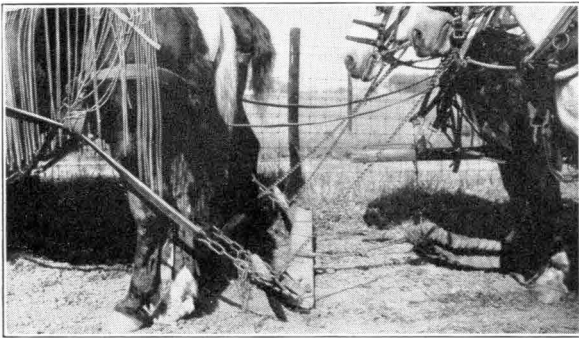
the bit is unsnapped on the left side, dropped from the mouth, and snapped up again with the bit behind the chin. This scheme saves both time and bridles and is very satisfactory.

## Using Buck Ropes and Tie Chains



Showing How Buck Ropes Are Attached

Each horse behind the leaders is held back by a buck rope which is snapped into the two rings of the bit. The furrow horse and the middle horse each have the large snap of the buck rope snapped into the log chain with which the three lead horses are attached to the Talkington evener. The left horse has its buck rope snapped into the trace of the next horse. This general plan is used in all big teams. The buck ropes are adjusted to make the horses keep the desired spaces between each other.



Each Horse Behind the Leaders Is Led in Position by a Tie Chain  $4\frac{1}{2}$  to 5 Feet Long

The chain is snapped short for a lazy horse, and the buck rope is left slack. A fast horse is allowed a slack chain but a tight buck rope.

## Big Teams Easily Managed



Horses in Big Teams Turn With Tight Traces

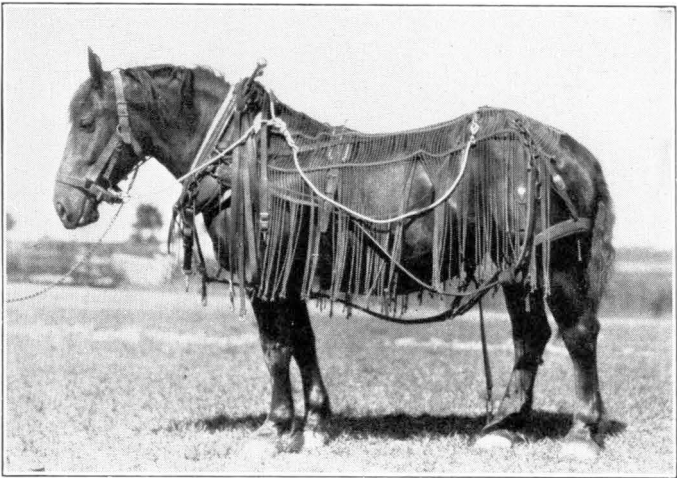
In turning a big team with two lines the leaders are required to keep their traces tight and to come around slowly. This keeps the traces tight on all of the horses and it is seldom that a trace comes unhooked. Of course it is desirable to use singletrees with good hooks.



A Team of Ten Without Bridles

This hired man uses halter bits on all of the horses and has lines only on the outside leaders. The team pulls two 9-foot disks stirring 50 acres a day.

## Saving Time in Harnessing



The Time-Saving Halter Bit in Use

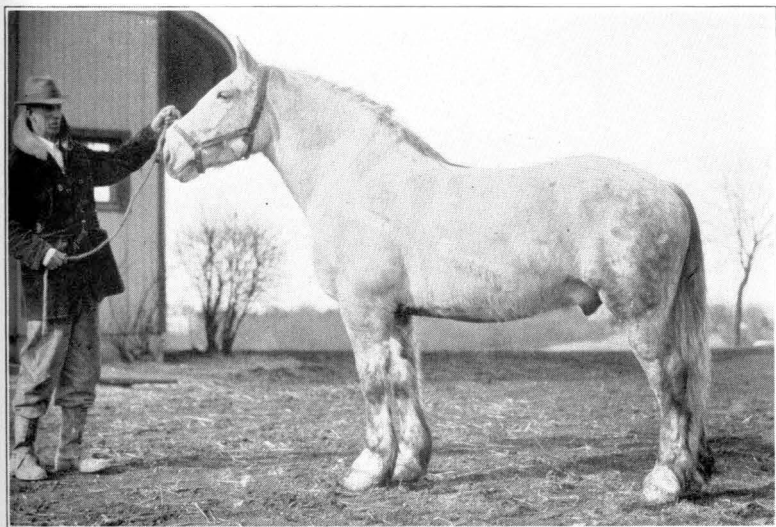
Snaps instead of buckles save time in harnessing. There are several types of quick hame-fasteners. The halter bit illustrated here saves more time than any other one item, and it saves the wear on bridles. The bit ring on each side is fastened to the halter by means of a snap. The buck rope is snapped to the harness when unhitching.

Time is saved if the water trough can be located in a small lot adjoining the barn so that the horses cannot scatter about when the driver is snapping them together.

There is little time for currying when one man works a large number of horses. The important thing is to keep the shoulders and neck and the collar clean. Chris Gerber turns his 12 horses out at night into a small grass lot, where they roll. He does very little currying. John Hubly clips his mules about April 10 each year. This beats pulling the winter coat off with a currycomb.

Six years ago Amos Anderson, La Salle county, began working an eight-mule team. On the day of a demonstration at his farm the mules were still in the barn when he left the dinner table at one o'clock. Without aid from anyone he watered the mules, hitched them, and was plowing at 1:25 o'clock in a field 120 rods from the barn. He did not know that he was being timed. He uses halter bits, which save much time.

## Selecting the Leaders



Good Leaders Are Born, Not Made, But Training Helps

This wide-awake, energetic, active horse has shown himself a calm, dependable, and safe leader in a twelve-horse team. He combines the build and quality of a true draft horse. He is a grade Percheron, stands 16 hands  $1\frac{1}{2}$  inches high, has a heart girth of  $83\frac{1}{2}$  inches, and weighs 1,750 pounds.

The best lead horses are calm but energetic, quiet but quick. Mares and stallions that are active and alert but kind may be expected to produce colts that learn to walk up well without the use of the whip. Mares can work most of the time and still raise colts. Carl Stewart, Warren county, farms 385 acres of heavy black prairie land in the usual crops with 12 to 13 horses that raise 4 to 9 foals a year besides. He uses six- and eight-horse teams and two men do most of the work.

The fastest stepping horses that are steady and dependable should be put in the lead team. If more than two horses are in the lead, the fastest walking pair should be on the outside, since horses that are inclined to lag usually keep up better when hitched between free-stepping mates. The best place for colts and outlaws is on the outside in the rear team. The best place for a lazy horse is in the middle of the rear team.

## A Good Farm Horse and the Best Puller in Illinois in 1929



This horse and his mate, nearly as good a puller, set the state record at a lift of 3,100 pounds 27½ feet. He is powerful, durable, an easy keeper, calm but energetic, quiet but quick; height, 16 hands 1 inch; depth of chest, one-half of height; heart girth, 86 inches; weight, 1,700 pounds. He is a grade Percheron gelding, nine years old, and works on the farm of E. J. Longley, Mercer county.