

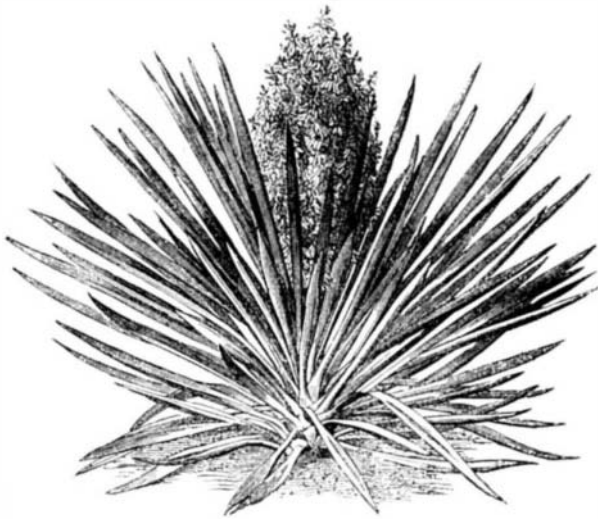
THE CONE-BERRIED SOLANUM.

Among the plants suitable for indoor cultivation, those which bear berries are generally considered to be the most ornamental. Among the solanums, which are very much sought after for this purpose, the subject of our illustration is likely to become a general favorite. There are several varieties of this species in cultivation, which differ from each other in size and in form of the berries; but the conical berry of the *solanum capsicastrum* is somewhat of a novelty. A correspondent of the *English Garden*, from the pages of which we select our engraving, states that a plant of this variety, about 1 foot high and 1 foot in diameter, was recently seen profusely covered with these berries, which are, when mature, of a bright orange color. It is one of a batch raised from seed sown in March. The seedlings were potted out; and about the last week in May, they were planted out on a western border. Here they received no attention, except occasional waterings until the autumn, when, just before the berries commenced to color, they were carefully lifted, and potted in 32-sized pots. They soon formed new roots, having been kept in a close atmosphere for a few days after lifting; and at Christmas, the plant, from a portion of which the accompanying illustration was prepared, was loaded with berries, handsome both in shape and color. We have no doubt that this variety, when better known, will be generally cultivated.

TWO BEAUTIFUL YUCCAS.

The yucca family of shrubs are all, we believe, indigenous to this country; and they are now being much cultivated in Europe, and are highly valued for the boldness and vigorous growth of their foliage, and their ornamental appearance when in blossom. There are many varieties of them, some of which we have heretofore illustrated; but we believe that the two specimens here presented are little known to the general public.

The *yucca Treculeana* was first brought from Texas in 1850, and is much cultivated in France, whither it was first imported by Mr. Trecul, after whom it is named. It forms a very stout stem, and the fully developed leaves are from



YUCCA TRECULEANA.

3 to 4½ feet long by 2 to 2½ inches broad, dark green on both sides, with a hard, sharp point, and very fine regular teeth. The inflorescence of this species is an exceedingly dense, many branched panicle, not much overtopping the nearly erect upper leaves. A warm sheltered situation should be selected for it. It will be seen that this plant is one of the most remarkable of its kind as regards general appearance and the size to which its leaves attain. The flower stem, which rises up to a height of 3 feet or more, consists of a mass of branchlets about 18 inches in length, bearing multitudes of cream-colored flowers, shining as if glazed.

Our second specimen is the *yucca gloriosa* of Linnæus; and it has well been styled the most majestic and beautiful of the genus. It has been known in Europe since the end of the sixteenth century; and it was, when first found on our coast (from Florida to North Carolina), about 2 feet or rather more in height. It is now, however, by no means uncommon to see these plants reach as high as 10 or 15 feet, in favorable situations; sometimes, indeed, it stands when in blossom as high as 20 feet, the blossom with its stalk attaining 6 feet. This species flowers freely in sunny situations, after it has reached a certain age; but plants from suckers are usually some years before they flower. The trunk branches after flowering, and it is not unusual to see old specimens many times branched, forming very heavy heads, which should be supported. It is very variable, though, perhaps, not more so than the other species of the genus, but its varieties are better known. The ordinary form or type has upwards of 100 leaves in a dense tuft, 24 to 30 inches long, and 3 inches broad at the middle, narrowed in luxuriant specimens gradually upwards to a brown sharp point, and downwards to 1½ to 1 inch above the base; it is green or slightly glaucous when young, very rigid, even the outer older ones remaining erect; face, concave, with longitudinal folds; margin, entire, with a distinct brown line; panicle, 3 to 6 feet long, according to the vigor of the plant, not downy or hairy; flowers, large, among the handsomest of the genus, almost globular or goblet-shaped, when the petals are incurved; petals, oblong, narrowed into a point at the top, from 2½ to 3 inches deep, the inner ones from 1 to 1½



SOLANUM CAPSICASTRUM.

inches broad, the outer ones narrower, and distinctly banded, or more or less tinged, with bright red down the back; or sometimes the flowers are almost a pure white, seedlings varying much in this respect.

Chinese Method of Welding.

The *Ironmonger* says that Mr. Balestier, who went on a mission to the East, describes the Chinese method of welding cracked ironwares by cementing them with cast iron while in a liquid state. In a cast iron pan, which Mr. B. required to be welded, the operator commenced by breaking the edges of the fracture slightly with a hammer, so as to enlarge the fissures, after which the fractured parts were placed, and held in their natural positions by means of wooden braces. The pan being ready, crucibles, made of clay, were laid in charcoal and ignited in a small portable sheet iron furnace, with bellows working horizontally. As soon as the pieces of cast iron with which the crucibles were charged were fixed, it was poured on a layer of partly charred husks of rough rice, or paddy, previously spread on a thickly doubled cloth, the object of which is to prevent the sudden cooling and hardening of the liquid metal. While in the liquid state, it is quickly conveyed to the fractured part under the vessel, and forced up with a jerk into the enlarged fissures, while a paper rubber was passed over the protruding liquid inside of the vessel, making a strong, substantial, and neat operation.

Two Bee Questions Answered.

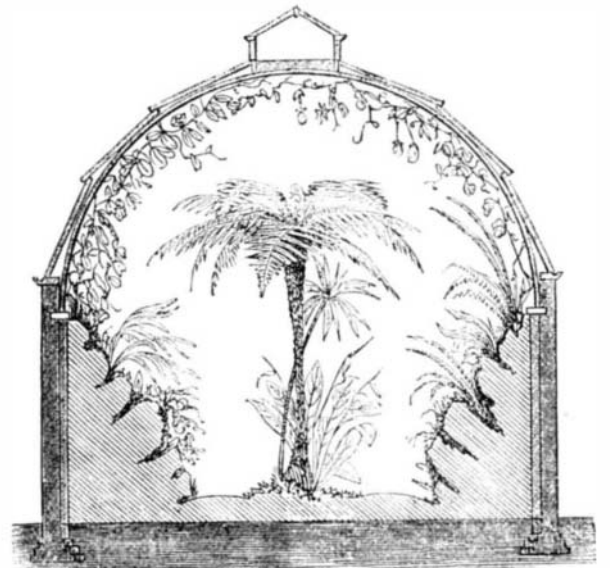
A couple of vexed questions about bees were recently answered by Professor C. V. Riley, at a bee keepers' council in St. Louis. The first query was: Do bees make or gather honey? The Professor says they make it. Thus does Science proclaim that the venerable Dr. Watt was wrong when he

asserted that the busy bee "gathers honey all the day from every opening flower." The nectar lying in flowers never would become honey, says Professor Riley, no matter how manipulated by the hands and minds of men; but it is taken up by the bees and passed through a state of semi-digestion and excretion, resulting in the manufacture of what is called honey, yet still retaining in part the flavor or perfume of the flowers, by which we determine one kind of honey from another. Professor Riley's views were corroborated by a paper read by a botanist and chemist of Louisiana, describing the process of change undergone by nectar in the stomach of the bee, in order to become honey.

The second question is an interesting one to fruit raisers, as it involves the mooted point of whether bees do or do not injure fruit. Professor Riley, on being appealed to, produced an illustration of the order of hymenoptera, stating that the mouth of the bee is the most complicated structure in insect anatomy. Its construction, however, is the same as that of the wasp, and no one denies that the wasp is capable of destroying fruit. The Professor thought beekeepers were prejudiced against the idea of such power in the possession of a bee, but it is true. Still, while being capable of injuring fruit, the bees rarely do so except in seasons of severe drought and when urged by necessity. This fact is no derogation to the usefulness of the insect, for the exercise of its power as a pollinizer is of undoubted value to the orchardist, even with all its depredations upon fruit.

A NEW FORM OF FERNERY.

We publish herewith an engraving showing a cross section of a new form of fern house, recently erected in Scotland by Messrs. Boyd, of Paisley. The arrangement is so well shown in the illustration that but little description is necessary. The building here shown is of large size, 30 feet high in the center, and 60 feet long; but the plan can of course be adapted to circumstances. In this case strong brick walls are carried up both sides and at one end, from which the rockwork slopes irregularly down on either side, forming a miniature ravine with a water all,



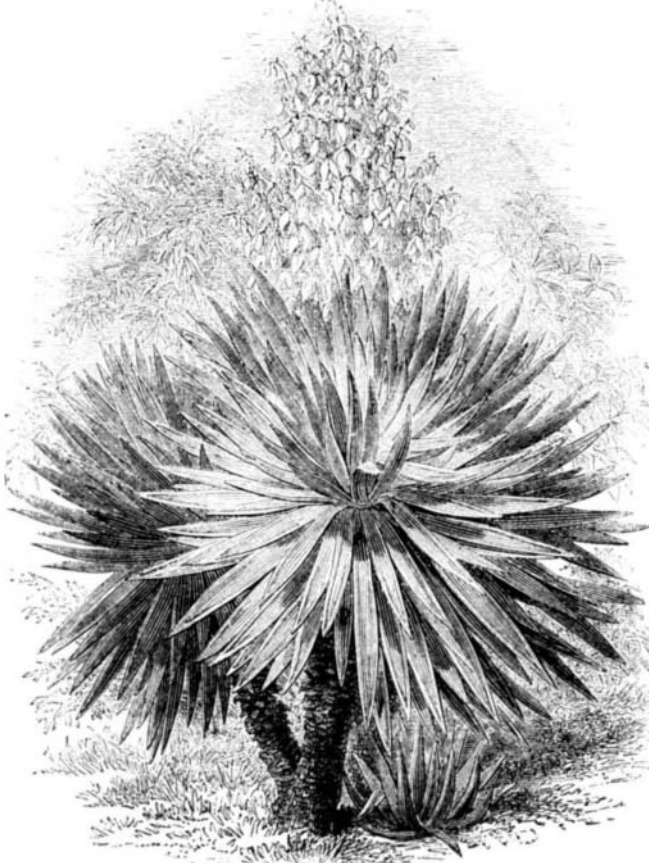
the stream meandering round the crags and among the stately tree ferns. The building is covered by a glass roof, supported by strong iron girders, and the interior is left without a single pillar or tie rod, leaving the space wholly to the ferns and rockwork.

Useful Recipes for the Shop, the Household, and the Farm.

A correspondent of the *Ohio Farmer* gives the following method of making a simple corn marker: Take a plank 7 feet long, 16 inches wide, and 1½ inches thick. Pin this on three blocks, 5 by 8 inches thick and 16 inches long, putting one block at each end and one in the middle. With this length the marker is easily turned at the ends. For a tongue, get a smooth tough pole, and fasten it to the center of the plank in such a way that, when the team is hitched up, the marker will stand level. Now take a lath, 1 by 2 inches thick and 10½ feet long. Drive a staple into the plank at each end of the marker and one in the middle. Pass the lath through one outside staple and the end just through the center staple. Fasten a chain to the outer end, and the marker is completed. The chain marks where the middle block or marker must follow the next time across. The lath must be shifted at each end so as to keep the chain on the unmarked land. When using it, stand on the middle of the plank and keep the tongue directly over the chain mark. If the first mark was made straight, all the rest will be so, and equally distant apart. If desired, the lath may be fastened to the middle of the plank with a bolt, so that it can be turned from side to side without lifting. Secure it in position by another bolt, passed through the lath and plank, near the ends of the lather.

It has recently been found by experiment at Cornell University that, as farmers generally know, by sprouting garden seeds before sowing there is a gain of three or four days in the time of ripening.

For plating iron, steel, brass, lead, and zinc with tin, the following has recently been proposed. Prepare a solution of perchloride of tin by passing chlorine through a concentrated solution of salt of tin. Dilute the pro



YUCCA GLORIOSA.

duct with 8 or 10 times its volume of water, and filter if necessary. The article, half scoured with sulphuric acid, is to be polished with sand and the scratch brush, then washed with water, and hung by a zinc wire for 10 or 15 minutes in the perchloride of tin solution. Afterwards take it out, rub it with the scratch brush, dry it, and polish it.

If brooms are wet with boiling suds once a week, they will become very tough, will not cut a carpet, and will last much longer. A handful or so of salt sprinkled on a carpet will carry the dust along with it and make the carpet look bright and clean. A very dusty carpet may be cleaned by dipping the broom in cold water, shaking off all the drops, and sweeping a yard or so at a time. Wash the broom and repeat until the entire carpet has been swept.

The following compound is said greatly to facilitate the washing of clothes. Dissolve 2 lbs. of bar soap in about 3 gallons of water as hot as the hand can bear. Add 1 tablespoonful of turpentine, and 3 of liquid ammonia. Stir, and steep the clothes in this for three hours, keeping the vessel tightly covered. Then wash the clothes in the usual way. The soap and water may be used a second time, in which case a teaspoonful of turpentine and the same amount of ammonia must be added. This treatment is calculated to save much labor in cleansing summer clothes stained by fruit, etc.

Very durable and neat mats for floors can be made from old coffee sacks. A piece of the bagging of suitable size is bound with some dark fabric and secured to a frame of four laths. By means of a hook of wood or iron, like an enlarged crochet needle, carpet rags are carried through the material so as to skip every other thread and to leave loops half an inch long, the ends, of course, being fastened. Old red flannel can be used to make tasteful borders.

A new and simple blowpipe consists of two large jars connected near the bottom by a piece of rubber tubing. One is filled with water and put on a shelf above the table on which the other stands. The water passes into the latter, and, in doing so, forces the air out through a stopper and piece of tubing into the blowpipe, which is supported separately. With jars of 1 gallon capacity and a blowpipe with an orifice of 0.016 inch, a steady air current of 10 minutes' duration is obtained; and to keep it up, one has merely to transpose the jars.

A compound of grease and zinc filings is found to be an excellent preventive against rust for iron bolts inserted in wood. It is used to line the bolt hole.

Pulverized anthracite coal, spread on the soil to the depth of half an inch, is said to have a remarkable effect in brightening the colors of flowers of potted plants.

To keep striping pencils in good shape and ready for use, grease them with tallow from a candle and spread the hair straight on a piece of glass; keep them preserved from dust.

A good bronze paint for iron is made of ivory black, 1 oz., chrome yellow, 1 oz., chrome green, 2 lbs. Mix with raw linseed oil, adding a little japan to dry it. This gives a fine bronze green. If desired, gold bronze may be put on the prominent parts of the object when the paint is not quite dry, the powder being rubbed in with a piece of plush.

A weak solution of cyanide of potassium cleans gold lace well.

To prepare skins for fur, mix bran and soft water sufficient to cover the skins. Immerse the latter and keep them covered for 24 hours; then remove, wash clean, and carefully scrape off all flesh. To 1 gallon of water (hot) add 1 lb. of alum and $\frac{1}{2}$ lb. of salt. When dissolved and cool enough to admit entrance of the hand, immerse the skins for 24 hours, dry in the shade, and rub. Stir the liquor again, immerse the skins for 24 hours, dry, and rub as before, immerse for 24 hours in oatmeal and warm water, partially dry in the shade, and finally rub until entirely dry. This leaves the skin like white leather, and fit for immediate use.

Never dilute varnish with turpentine, as it kills the gloss. If too thick, warm it by the stove or place the cup on a warm iron.

To bend amber, drop it into hot beeswax. After it has been immersed for a few minutes, remove it, and, holding it before the fire, bend it to the desired shape.

AGRICULTURAL MACHINERY.

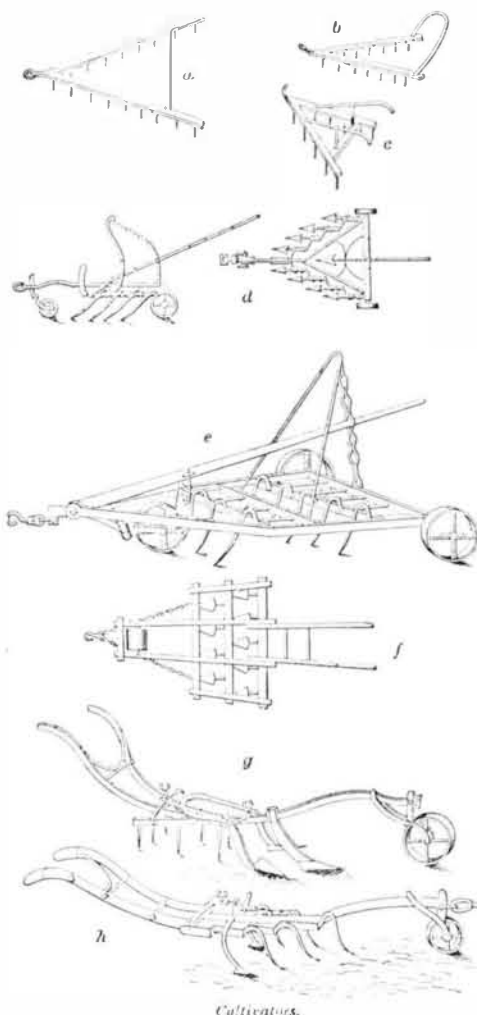
We extract from Knight's "New Mechanical Dictionary," this week, a series of engravings of various agricultural implements, which doubtless will prove of timely interest to farmers. In Fig. 1 are represented several forms of

CULTIVATORS,

under which heading may be included harrows, grubbers, drags, shovel plows, and like implements. The A-shaped harrow, *a*, is well adapted for new ground and in fields where there are occasional obstructions. The rear corners may be readily raised by a hooked stick, so as to allow it to pass a stump without swerving the team. Better still is a bow of hickory, as shown at *b*. Another mode of affixing handles is exhibited at *c*. Wilkie, of Teddington, Scotland, was the inventor of the cultivator proper; he devised the plurality of shares, the expanding frame, and the caster wheel. His cultivator is shown at *d*. The share frame is so suspended from the traction frame as to be raised bodily, by a parallel movement, by means of a single lever at the rear. The teeth are prongs curved to enter the soil obliquely. Finlayson's cultivator, *e, f*, is made of iron, and the prongs are arranged on parallel transverse bars of the frame, which is supported on a caster wheel in front and two wheels at the rear. The depth of tilth is regulated by a lever, which is connected to the carriage of the caster wheel so as to raise the apex of the frame when the lever is depressed, and con-

versely. Wilkie's horse hoe and drill harrow, *g*, has a central fixed share and adjustable side shares, which are expanded or contracted according to the state of the crop or the

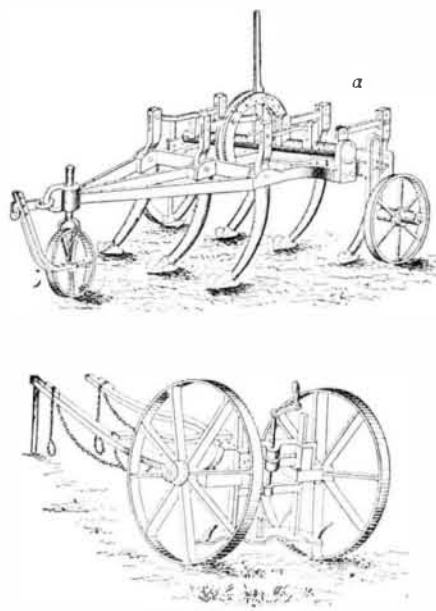
Fig. 1.



Cultivators.

width of the balk. Following the shares is a frame with harrow teeth. Either the share or the harrow teeth may be removed, and the remainder used separately. The depth is adjusted by the caster wheel in front. *h* shows another form, somewhat modified. In Fig. 2, *a* is Colman's cultivator, and

Fig. 2.



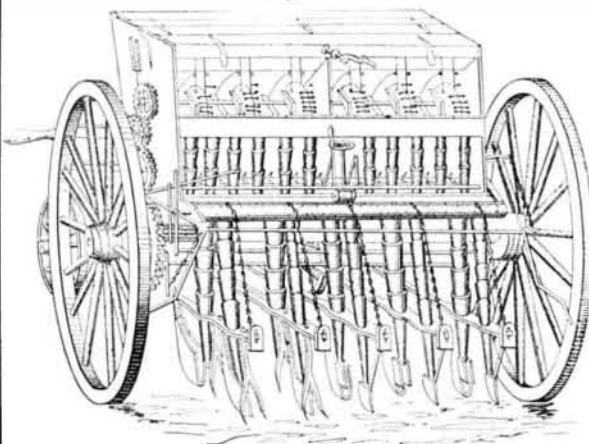
English Cultivators.

that below it is known as a skim cultivator with a long, curved, flat share, whose depth is regulated by a crank and screw.

GRAIN DRILLS

were invented by the Chinese, ages ago. Their machine is

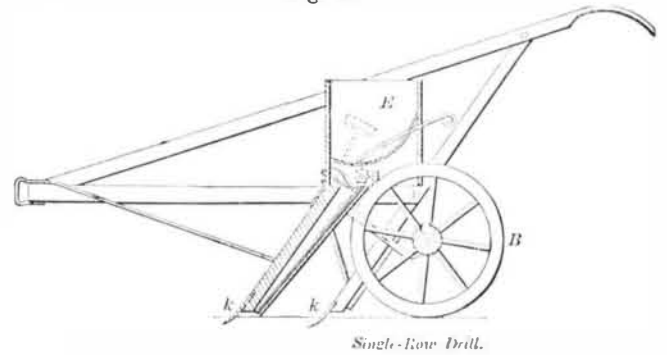
Fig. 3.



nothing more than a wheelbarrow with a hopper for the seed and three spouts by which the seed reaches the ground; it thus drills three rows at a time. Fig. 3 is an English grain drill, adapted for performing all the various operations of

seeding and manuring the land. All kinds of grain and seeds may be deposited at any required distances apart and at any depth, either with or without manure. The machines are constructed of various widths and made to deposit the seed in rows from 6 to 15 in number. Fig. 4 is a form of hand drill, mounted upon a stock resembling that of a single shovel plow. Forward is a hollow tube shod with a share and leading the grain from the box. *E* A share following turns

Fig. 4.



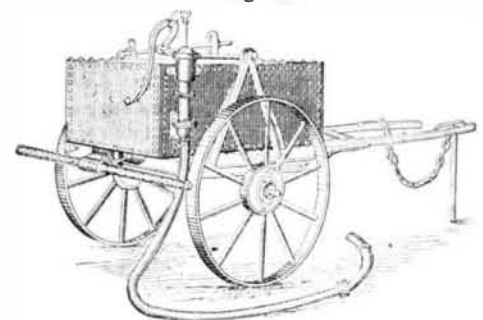
Single-Row Drill.

a furrow upon the sown grain, and the wheel, *B*, following, compacts the soil upon the seed. Fig. 5 is a

LIQUID MANURE CART,

which consists of a tank on wheels for the conveyance of liquid manure, to a field, for distribution. It is made of boiler iron, riveted, and is filled by means of a portable pump

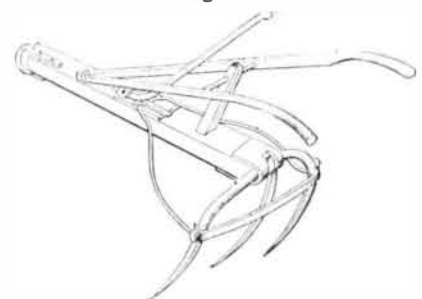
Fig. 5.



Liquid-Manure Cart.

and hose, shown in position. The tank is hung upon centers so as to remain level on inclined ground. Fig. 6 is a manure drag, an implement with hooked tines for hauling manure over the surface of the ground. It is guided by rear

Fig. 6.



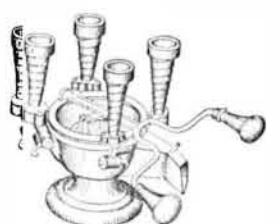
Manure-Drag.

handles, and a lever is provided, to hold the tines in action or release them at will. *A*

MECHANICAL COW MILKER

is represented in Fig. 7. This is constructed on the principle of the breast pump, with cups for the several teats. The elastic cups communicate with the conical chamber of the diaphragm pump, the piston of which is worked by the handles. The milk is discharged by a spout into a pail beneath. Fig. 8 is a

Fig. 7.



Cow-Milker.

HAY ELEVATOR AND CONVEYER by which hay, lifted by the horse fork, is conveyed to distant parts of a barn or mow. It consists of a carriage traveling on a fixed rope and resting on rollers as shown. To one portion of the carriage is affixed the standing part of the hoisting rope, which passes down through

Fig. 8.



Hay Elevator and Conveyor.

a pulley attached to the fork, and then to another pulley on the carriage. A guide line is also attached to the lower pulley. The fork, full of hay, is first hoisted to a suitable distance, and then, by slackening the guide line, continued pulling on the hoisting rope draws the carriage along the fixed rope to the desired point of unloading.

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