

New Inventions.

Protection of Horses against Flies.

In view of the miseries attending the best cared-for horses at this season of the year, it behooves all who can in any manner alleviate them, or in any manner add to the comfort of this noble animal, to take the largest possible field, and seize every opportunity for the spreading of his benign influence. We therefore lay before our readers an old method of protecting horses against flies, which has been again brought to mind by the *Irish Farmer's Gazette*, and which is, in substance, as follows:—

"Previous to taking the horse out of the stable, sponge him well with a decoction of laurel leaves about the head, loins, and other sensitive parts. The decoction is made by boiling the leaves in water for a considerable time, and being poisonous, it should be kept carefully when not desired to be used."

This is said to be a preventive to his being stung and annoyed with horse-flies. A late statement in the *Moniteur d'Agriculture*, of Paris, reminds its readers that M. de Serre, the famous French agriculturalist, ascertained that a decoction of the leaves of the walnut tree, applied to horses and other animals as a wash, will be found complete protection against the sting of all insects. These are simple remedies for a serious annoyance, and we would recommend their immediate trial.

New Water Wheel.

The invention which the accompanying illustration depicts, and the following description elucidates, enables the wheel to be raised and lowered as circumstances may require, and the water can be directed into the buckets, at any point of the wheel within the range of its adjustment. The buckets are also peculiarly constructed, so as to obtain a large percentage of power, and the whole wheel is simple and economical.

Fig. 1 is a perspective view of the wheel, Fig. 2 is a detached perspective view of a bucket, and Fig. 3 is a section of the same.

A represents a circular cast-iron plate, which is fitted loosely on a vertical shaft, B, which has a square base, so that the wheel and shaft will rotate together, and the plate be allowed to rise and fall on the shaft. On the lower part of B an inverted conical hub is formed, and through the plate, A, four screws, b, pass vertically, the lower ends of the screws resting on the conical hub. The shaft, B, is stepped into a crossbar on the frame, c, and the upper end has its bearing in a crossbar, d. The upper surface of A has radial grooves in it to receive the arms, e, and they project far enough from the periphery of A to hold the buckets, C. These buckets are of cast-iron, and are of peculiar form, which is better seen in Figs. 2 and 3. The buckets are formed each of two parts, one part receiving the percussive force of the water, and the other part receives the force from the gravity as it leaves the bucket. The upper part, f, of the buckets are formed of a top piece, g, a back, h, and side, i, and a bottom-piece, j; the top piece, g, and side, i, project from the back, h, so as to form the angles with it, and the bottom piece, j, only extends about half-way across the bucket, a space, k, being allowed, which space forms the orifice of the lower part, l, of the bucket. The lower parts, l, are of scoop form, the bottoms being inclined at about an angle of 45°. The outer edge of the back, h, of each bucket has an eye, m, through which the arm, e, passes, and the front edge of the side, i, is notched to receive the arm of the bucket immediately before it. Each bucket, therefore, serves as a bearing for the arm immediately before it, and each bucket is bolted to its arm by bolts, a. The plate, A, and buckets, C, are covered by a plate, D represents the sluice through which the water passes to the wheel, and E is a cylindrical case in which the wheel is fitted. The sluice, D, is made to communicate with the case, E,

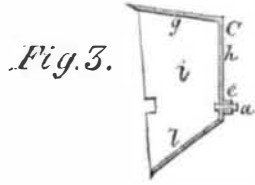
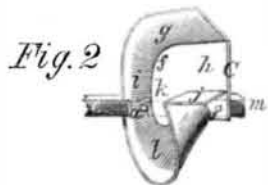
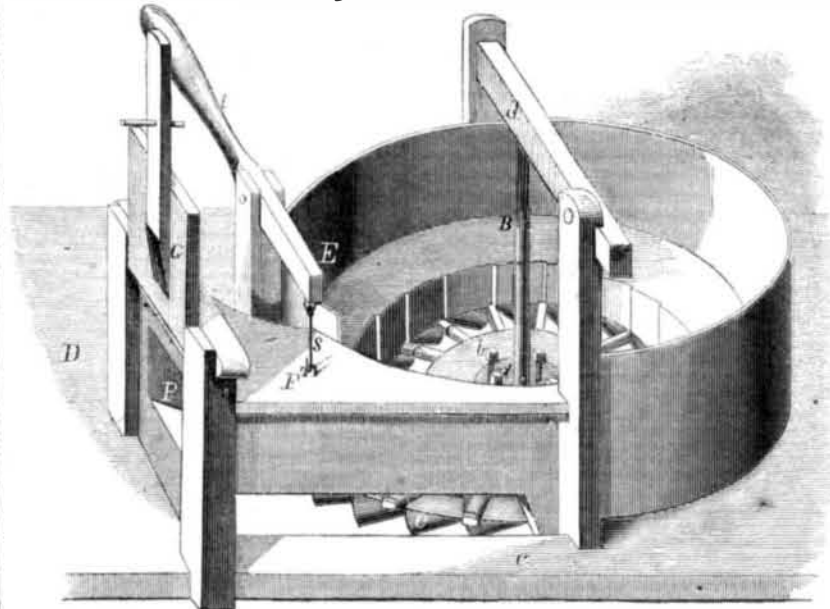
by means of an adjustable mouth, F P, which can be raised up and down by lever, t, and link, s. G is a sluice gate that regulates the quantity of water.

The operation is as follows:—The wheel may be raised or lowered within its case, E, by the adjusting of the screws, b, and the

water is directed properly into the buckets, C, at whatever height the wheel may be placed by adjusting the mouth, F, by moving the lever, t. The wheel, therefore, may be adjusted according to the height of the water, so that an uniform fall may be obtained. The water first acts against the upper parts, f, of

CUSTER'S IMPROVED WATER WHEEL.

Fig. 1.

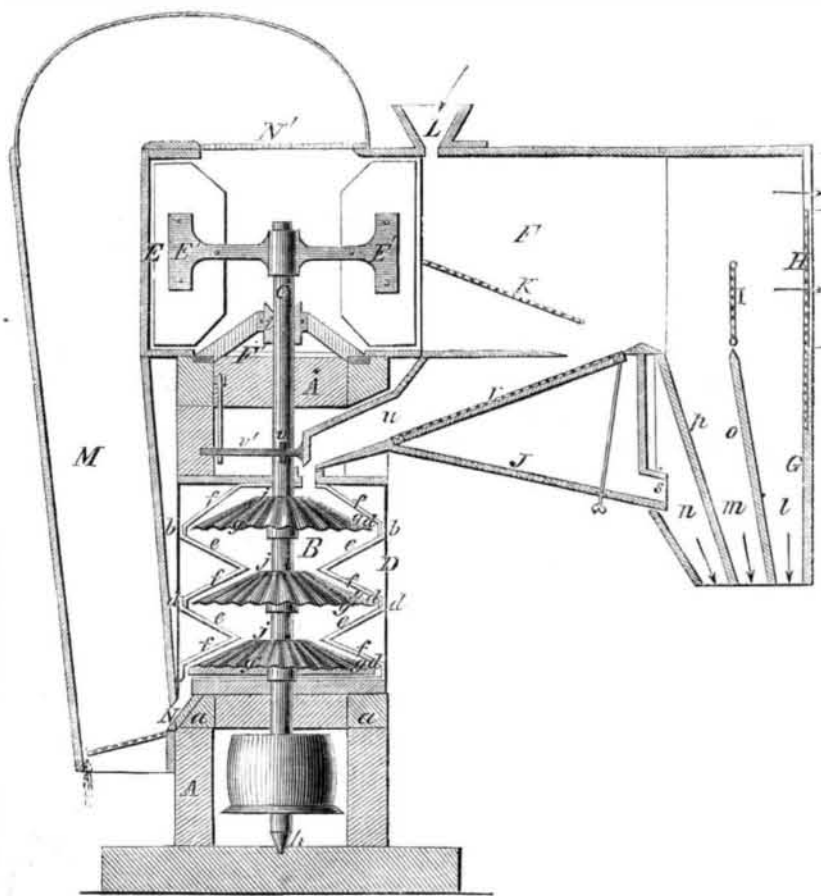


the buckets, by impact and in passing down into the lower parts, l, of the buckets, and out from them a force is obtained by the weight or gravity of the water, and owing to the form of the buckets, as shown, the water is allowed to pass very directly through the buckets, so that there is but little power lost by friction. The buckets by being attached by arms to the

center plate, arranged as shown, it renders the construction of the whole extremely simple, and susceptible of being readily repaired in case of a bucket being broken.

It is the invention of John Custer, of Findlay, Ohio, from whom any further information can be obtained. A patent was granted May 5, 1858.

DONEHOO'S SMUT MACHINE.



The object of this invention is to combine in one machine the great requisites which are essential to clean wheat from all foreign substances before grinding, namely, a capability of separating all lighter foreign substances by blast; separating by screening all

such foreign material that will not pass off by the blast; depriving the grain of all smut which may not have been blown off before arriving at the scouring cylinder, and lastly, depriving the wheat by a light suction, of dust, as fast as it passes from the scouring cylin-

der, without lifting and interfering with its discharge. How these points are attained will be seen by the following description, reference being made to the illustration, which is a vertical longitudinal section of the invention.

A is the frame of the machine, and B is the scouring chamber, supported by the cross-pieces, a a. This chamber is formed of a series of chambers matched together as seen at b, and the castings are of such a shape as is indicated by f e d, the surface of e being plain, while that of f is fluted to correspond with the flutings, g, on the conical scouring plates, j, that revolve within the chambers, d e f, by being supported on and attached to the central vertical shaft, C. The chambers and scouring plates are encased by an outer cylinder, D. By thus forming the scouring plates conical, and the chambers to match, the grain is subjected to a very large scouring surface, retarded in its progress, and its gravity still made available to assist in its escape as fast as acted upon.

E is the fan cylinder, within which the fan, E', arranged on the shaft, C, rotates. The fan case terminates in a horizontal blast spout, F, which gradually flares laterally as it reaches its discharge end. F' are two valves at the bottom of the fan case for admitting more or less air to the fan, accordingly as it is desired to have the strength of the blast. G is the vertical spout for separating the various qualities of screenings from one another; it is placed in the end of the blast spout, and is closed at top, but open to a certain extent on the other sides; its lower end is divided into three passages, l m n, by means of partitions, o o. H I are two sliding screw gates formed partly of wire gauze, and they are made adjustable, and serve for separating the different qualities of screenings from one another, as soon as the wheat is separated therefrom, and by having them adjustable they can be regulated in height to suit the specific gravity of different kinds of wheat. J is the shoe which receives the wheat as it falls through the blast from the wire gauze chute, K, of the hopper, L. This shoe is formed of two inclines, r s, r being of wire gauze and hinged at u, and capable of adjustment by a set screw, and the other incline, s, allowing the cockle that falls through r to pass into the spout, G. The advantage of having this incline adjustable is that it can be made more or less inclined to suit the amount of cockle in the wheat, the greater quantity of cockle requiring a less incline in order that the wheat may remain longer in contact with the incline, so as to separate the whole of it. Another advantage is, that, the shoe itself does not require adjusting, and consequently the space between the fan case and the scouring chamber does not require to be great, in order to allow for adjustment. The vibration of the shoe is effected by means of a cam, v, on the driving shaft, this projection striking the rod, v', in the revolution of the shaft. M is a suction spout, leading up from near the bottom of the frame to the fan case, and communicating with the scouring chamber by a passage, N, and with the fan chamber by a passage, N'. In the opening, N', is a valve which regulates the draft through the spout, and thus avoids the lifting up of the grain through the spout by too great suction. At the bottom of the spout, there is, as usual, an inclined wire gauze screen or chute for the grain to pass over in its discharge, and so be deprived of its dust just before leaving the machine.

This most perfect smut machine is the invention of Daniel M. Donehoo, of Hookstown, Pa., who will be happy to furnish any further particulars of the machine or other business. It was patented March 16, 1858.

AGRICULTURAL EXHIBITION.—The Agricultural Association of Upper Canada holds its annual exhibition at Toronto on the four days included between Sept. 28 and Oct. 1. On the list of prizes which we have received, there is this remark, "Open to all Canada." Why not be liberal, and open your prize list to all America?