Scientific American.

A JOURNAL OF PRACTICAL INFORMATION IN ART, SCIENCE, MECHANICS, AGRICULTURE, CHEMISTRY, AND MANUFACTURES.

VOL. IV.---NO. 12. NEW YORK, MARCH 23, 1861. NEW SERIES.

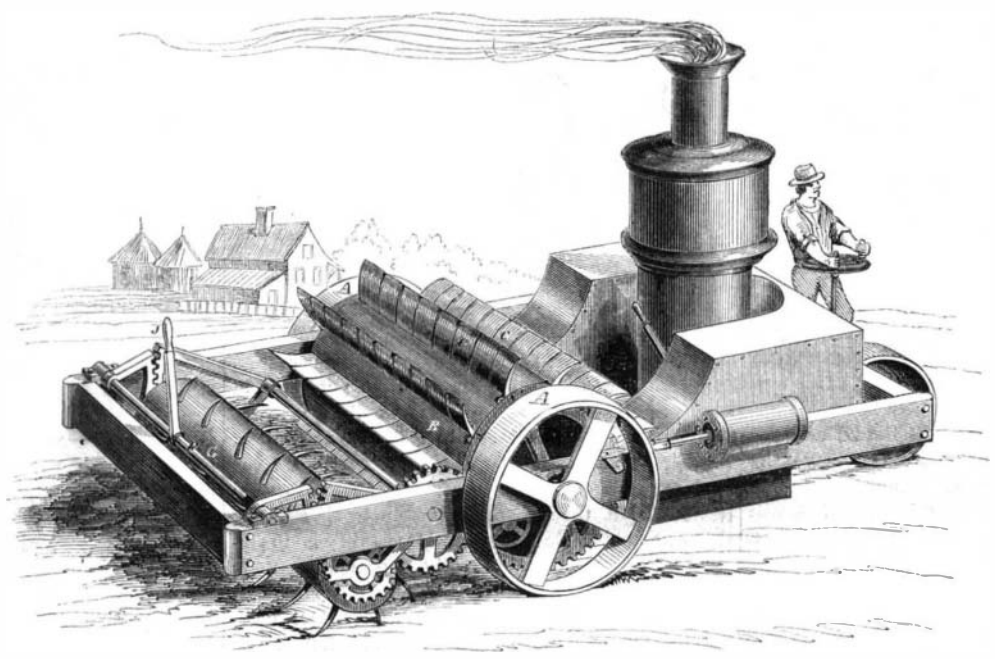
Light for Animals.

A correspondent of the *Homestead*, in an article on fattening hogs, gives the following advice:—"One more important item of advice, and that is, locate your pen where your hogs can have the benefit of light. I don't mean merely daylight, but the full, bright light of the sun; it will add to their cheerful contentment, as it does to the human species, and physiologists declare that, other things being equal, families who occupy apartments in the sunny side of dwellings are the most healthy and happy. Although the comparison may, to sensitive nerves, appear odious, still it is beyond our power or province to change the established laws of Nature. I never knew of a hog, or any other animal, kept under the north side of a barn or other building where the darkness is never penetrated by the sun's rays, and where the animal was employed as the scavenger for other animals, to be sleek-looking, fat, clean or quiet. I have seen many a pen where the mud and offal was two or three feet deep, and no place of retreat left for the poor occupants upon a higher spot, excepting the bed floor, and that unfurnished by straw." The rays of the sun have a very powerful effect in modifying the functions of both animal and vegetable life. Many plants require a strong light, that they may perfect their organizations; others less; but few plants ever come to perfection without a full supply of light; common observation proves this. The potato growing in a cellar is colorless, fragile and worthless. The apple growing on the inside of the tree is often green, tasteless and imperfect, and the peach that has not been kissed by the rays of the sun has not that high flavor requisite to its perfection. Without the sun, the leaves could never decompose carbonic acid from the air and assimilate its oxygen. With animals, the same is true. The sun does as much toward painting roses on the cheek as does a bracing air. The skin of those persons exposed freely to the light performs its functions vigorously, while that of those too much shaded is feeble and easily disturbed. Physicians assert that people living on the shaded side of streets in towns are more liable to sickness and less vigorous than those living on the side influenced by the sun. We have often noticed that children reared in shaded and damp situations were scrofulous, imperfectly developed and deficient in vitality. Rooms in which the sun never shines are gloomy and unpleasant.

THE formula of water, according to recent discoveries, must soon be changed from HO to H_2O.

Improved Rotary Spader and Pulverizer.

The object of the invention here illustrated is to introduce the great advantages of the rotary motion into mechanism for cultivating the earth, none of the various plans heretofore proposed for this purpose having come into general use. The principal feature of this invention consists in the combination of revolving spades with scraping plates to remove the earth from the spades as they rise from the ground.



WADSWORTH'S ROTARY SPADER AND PULVERIZER.

Fig. 1 of the annexed cuts represents a perspective view of the machine, propelled by steam, and Fig. 2 is a longitudinal vertical section of the principal parts. To the axle of the large supporting wheels, A A, is rigidly secured the long drum, B, from the periphery of which the spades, C C, project in rows extending across the machine. As the machinery is propelled forward, the spades are pressed into the ground, and, if the soil is adhesive, they commence their ascent with loads of it upon their upper sides. To secure the removal of the earth from the spades, scraping plates, E E (Fig. 2), are arranged between the several rows of spades, these plates being hinged to the drum at one edge, so that the other edge may swing outward, and thus scrape the soil from the spades. Upon the ends of the plates, E E, are firmly fastened the cam plates, D D, which come in contact, as the spades leave the ground, with the friction wheels, F, and are thus pressed outward, carrying the scraping plates with them. The plates, E E, fall back upon the drum by their own gravity, and as the spades are forced into the soil these plates yield upward to the pressure of the earth. The drum, B, is so connected with the frame that it may be raised or lowered to adjust the penetration of the spades to any depth desired.

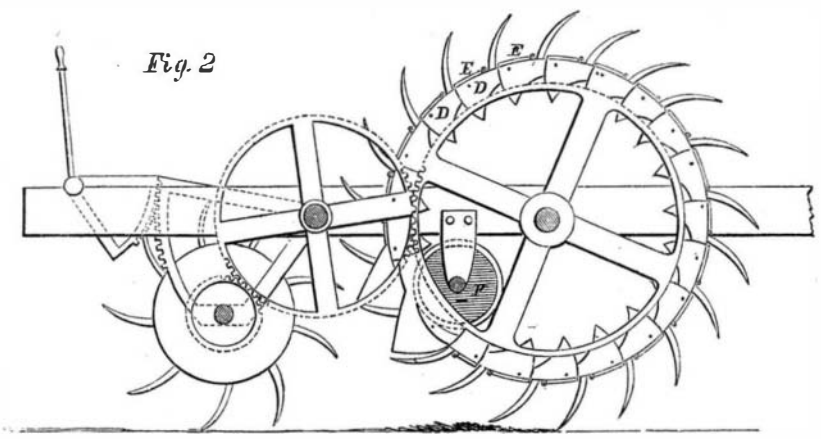


Fig. 2

A second feature in this invention is the combination, with the other parts, of a toothed revolving drum for finely pulverizing the ground in cases where this may be desirable. This drum, G, suitably provided with iron or steel teeth, is connected by gearing with the driving wheels, so as to receive a rotary motion in a direction opposite to that of the cylinder which carries the spades. The axis of the drum, G, has its bearings in a toothed segment, which is concentric with the gear wheel, H, and this segment meshes into a similar one on the rockshaft, I; so that by turning down the lever, I, the drum, G, can be lifted clear off the ground, and thus thrown out of operation when it is not needed. The machine may be propelled by either animal or steam power as may be deemed best.

Application for a patent for this invention has been made through the Scientific American Patent Agency, and further information in relation to it may be obtained by addressing the inventor, W. Wadsworth, at San Francisco, Cal.

DESERVED PRIZE.—M. de Montigny, who introduced into France the oak of Mantchouria, on the leaves of which silk worms feed, and also the ignaure, sorgho and bamboo, has received the order of a Medal of Honor from the Society of Acclimation. The medal is to be executed by M. Dubois, who has designed all the medals in gold, silver and bronze which the society distributes annually. On one side of the medal is to be the portrait of M. de Montigny, and on the other an appropriate inscription, surrounded by a wreath of leaves of the oak and the plants brought to France by him.

UNINFLAMMABLE FABRICS.—A patent has been taken out in England by M. J. Latta, for the employment of the sulphate, carbonate, or chloride of magnesia, mixed with starch, for muslin and linen, so as to render them uninflammable after being dressed. One part of any of these substances is mixed with three parts (by weight) of the starch; these proportions answer well.