

**Improvement in Machines for Harvesting Cane or Corn.**

This corn cutter is a simple rectangular frame, on which are mounted the working parts of the machine. The whole is supported by two wheels, one a large driving wheel seen in front with the usual projections on its periphery, and the other a small wheel turning on a stud in the cutter bar. The cutting mechanism consists of two rotary knives, one driven by beveled gears on the shaft just in front of the driver shaft, the other turning free, and both being mounted on the cutter bar between the outer small supporting wheel and the frame. Between these cutters and the frame is a reel, on a nearly upright shaft which is driven by a worm on the forward shaft by means of a worm pinion, intended for bringing the stalks up to the action of the cutters. A corrugated roller driven by a belt from the front shaft serves to guide the stalks to a platform in its rear which receives the butt ends of the stalks as they are cut, the top ends of the stalks being received on an arm connected to a rock shaft on the rear portion of the machine. This rod with the platform sustains and collects the stalks until a sufficient number are collected to make a bundle, when the pressure of the driver's foot on the lever in front depresses the receiver and allows the rear ends of the stalks to drop to the ground when they are discharged ready for binding or carrying away in bundles. A weighted lever attached to the rock shaft brings the supporting rod back to position as soon as the pressure of the foot is withdrawn and the apparatus is ready for the reception of another bundle of stalks.

The inventor says: "Experience has demonstrated that in corn harvesters, as heretofore constructed, the point of the supporting arm, as it was thrown back into position for receiving the stalks, would become entangled with them and throw them into the gearing of the machine. To obviate this difficulty I extend the rear end of the support over the inside bar of the frame where it engages, by means of a stud and friction roller with a fixed grooved cam, attached to the bar, having at the upper end a rubber spring which permits the friction roller to pass it, but will not allow it to return by the upper track, but forces it down the lower track, by which means the point of the supporting arm is made to incline downward when discharging and is raised up and over the bundle upon its return to its first position." The inclination forward of the shaft carrying the reel and the downward inclination of the arms tend to bring the stalks to the action of the cutters and to raise the stalks if bent. The machine took the first premium at the Ohio State Fair in 1867.

Patented Oct. 9, 1866, and May 5, 1868 by J. F. Winchell, who has assigned his interest to the Champion Corn and Cane Harvesting Company. Address for further particulars either J. F. Winchell, Pres't, Geo. C. Steele, Treas., or Levi A. Simons, Sec'y., Box 425, Springfield Ohio.

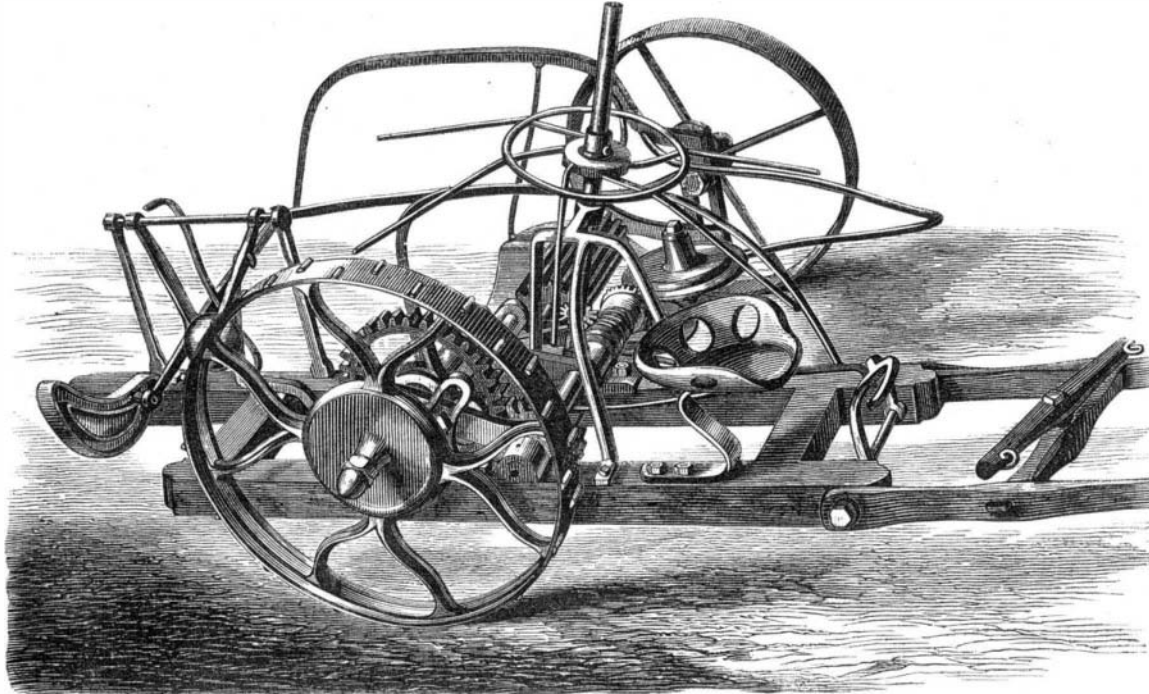
**Device for Preventing the Escape of Sparks.**

Where other fuel than anthracite is used, more or less of the debris of combustion—the unconsumed portions—is carried off with the smoke, and appears at the top of the chimney, fouling the surrounding atmosphere with dense clouds of dark vapor, or, as lively sparks, endangering all combustible materials around. The attachment of wire gauze to the top of the chimney is not always effectual, and it has been long desired that furnaces, burning light fuel, could be so contrived as to prevent these dangerous eruptions of ignited substances, and not only diminish chances of fire from this source, but conserve the fuel thus wasted. These objects are attempted in the device seen in the accompanying engraving.

Under the boiler, A,—an ordinary return flue, horizontal boiler—is the grate, B, there being, just beyond the first bridge wall, a pipe, C, extending across the boiler and furnished with a register at either end to govern the admission of atmospheric air. The pipe is perforated on its top, and partially around its upperside by small holes for the emission of the air to mingle its oxygen with the gases, ready to be inflamed. One or more wells, D and E, are sunk inside the brick work, forming the under flue or space, just back of the well that contains the atmospheric pipe, into which are suspended plates or pendant partitions, slightly curved forward at their lower ends for the purpose of arresting the solid components of combustion and depositing the heavier or less volatile par-

ticles. These pendant partitions may be made either of plate iron or of fire brick, as may be desired. One or more may be used, but, from experience, it has been found that one is enough on ordinary stationary engines. More may be required on steamboats and steamships, and on locomotives; to all of which this device is believed to be well adapted.

The products of combustion, in their passage from the fire-box to the chimney, come in collision with the drop partitions, impinging against the plates, the lighter portions being carried off by the current of the draft, and the heavier particles falling to the bottom of the well, from which they

**WINCHELL'S PATENTED CORN HARVESTING MACHINE.**

may be removed by the doors opening on the side of the wells. The inventor says, that after a trial of fifteen months he found but little debris in the bottom of the well, most of the fuel—the volatile portions—being consumed, and no show of sparks from the chimney, although the fuel used was mostly cottonwood, pitch pine, willow, and cotton seed and "motes," all light and inflammable fuel.

Patented through the Scientific American Patent Agency, June 2, 1868, by N. L. Carpenter, Natchez, Miss., who may be addressed for State or Territorial Rights, or any other information desired.

**WATERING STREETS AND SIDEWALKS.**

We have long been convinced that the practice of deluging uncleaned streets and sidewalks, not merely sprinkling them, is deleterious to the public health, and we are gratified that the matter has been brought to the attention of our Board of Health. A few days ago Dr. Stephen Smith called the attention of this body to the practice, stating that the rapid evaporation of the moisture carried with it into the atmosphere a large amount of poisonous organic matter calculated to breed disease. He suggested the use in the street-sprinklers of suitable disinfectants. Street-filth is far less deleterious when dry than when moist during the extreme heat of the summer months. Sprinkling furnishes one of the two conditions that are absolutely necessary before decomposition can take place, namely, moisture.

We would go a little further and suggest the rigid enforcement of the ordinance against the deposition of garbage, or

the streets. If they keep their back-yards, front areas, gutters, and a cross section of the street clean in front of their premises, the public authorities should see to the rest and give the people clean and cool streets. Even, however, if not watered, cleanly swept streets will prevent noxious exhalations and contribute to the comfort while they secure the health of the residents. A slight sprinkling of carbolic acid or of chloride of lime on the streets would aid in the work of disinfection.

**Earthquake Waves.**

An earthquake wave which followed the recent eruption in the Sandwich Islands, was transmitted to the Pacific coast and recorded on the government self-registering tide gauges at San Francisco and Astoria, in about five hours. On the 23d of December, 1854, a similar wave was transmitted from the coast of Japan to the Golden Gate in twelve hours and thirty-eight minutes. It will be recollected that this earthquake wave caused the wreck of the Russian frigate *Diana* in the port of Simoda, and great loss of life.

These facts, which are derived from the best authority, convey a very impressive idea of the tremendous power required to disturb the whole body of an ocean, for a distance of from three to five thousand miles, by a movement distinct from its ordinary tidal swing. It will be seen that the revulsion of the great tidal wave at Hawaii reached this coast, distant over two thousand miles, in five hours, and was observed along a stretch of shore

over thirteen geographical degrees in length.

These earthquake waves appear to have moved with a velocity of about 400 miles an hour; a speed which suggests the possibility of a more rapid means of transit over the waves than mankind possesses. Here is an opportunity for inventors. On land we move along almost equal with the bird; but the fishes sport under the prows of our fleetest vessels and laugh at our efforts to overtake them.

**SHOULD A FARMER BE MORE THAN A FARMER?**

We think he should. He should be a mechanic as well; should know something more than

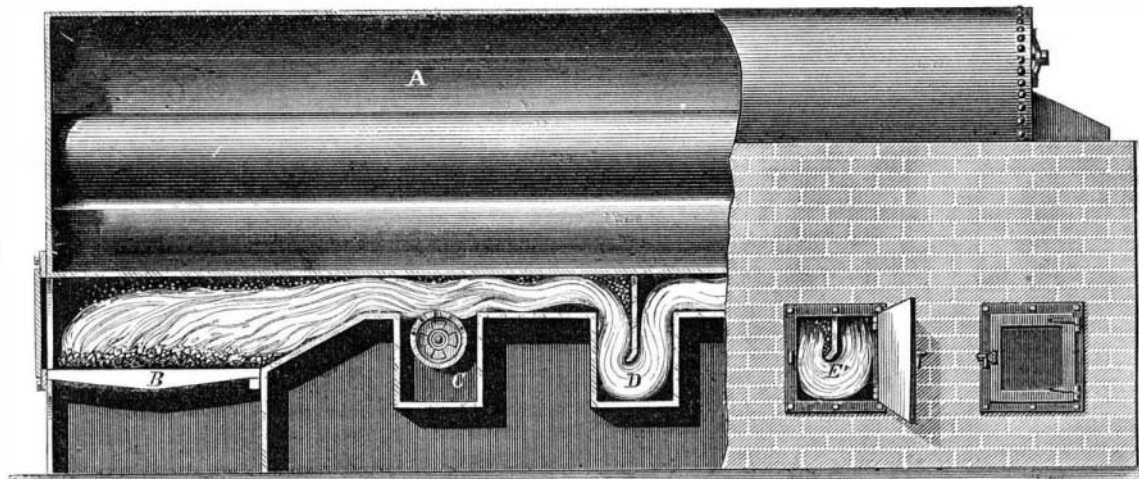
To plow and to sow,  
To reap and to mow.

He needs the ability to repair his tools; to understand how to keep his implements in proper condition without being entirely dependent on the blacksmith or machinist, to be able to do carpentering work, to patch and mend harnesses, to mend his tin ware, and do many other jobs which the denizens of towns and cities find it more convenient to turn over to those who make these repairs a specialty. He should have a room fitted for a workshop, with foot lathe and small forge, and all the appliances, on a small scale, of a combined machinist and carpenter shop. Working with these tools is a pleasant employment on stormy days when out-door labor is interdicted, and in evenings.

**Trial of Mowing Machines.**

A large gathering of farmers assembled on the 12th of June, at Winchester, to witness a trial of English and American mowing machines, instituted

by the Hampshire Agricultural Society. Seven machines, each drawn by a pair of horses, competed for the prizes. Mr. Wood, jun., who was over from America, and Mr. Cranstone, represented the machine of Walter A. Wood. The American Clipper mower was exhibited by the Reading Iron Works Company. Mr. Phillips, from Grantham, had charge of Messrs. Hornsby's Paragon mower. The partner of Mr. Samuelson, of Banbury, managed the Eclipse machine. Mr. Kearsley, of Ripon, was also a competitor. Mr. James Howard, of Bedford, entered the list for the first time with Messrs. Howard's new British mower. After the machines had gone a few rounds, it was evident to

**CARPENTER'S IMPROVEMENT IN STEAM BOILERS.**

decaying vegetable or animal matter in the street. It is the practice on all streets inhabited by people who have any knowledge of the effects of decaying organic matter when exposed to the sun's rays, to carefully sweep the walks in front of their premises, and the street to nearly its centre every morning; the rest, that of collecting and removing the sweepings, are considered the business of the city authorities. The street being cleaned, a light sprinkling once or twice a day would effectually keep down the dust, and insure comfort and health: but cleanliness, not moisture, is what is needed and can be secured by the city authorities seconding the united individual exertions of residents on

the spectators that the first prize would fall either to Wood's American or Howard's British mower. At the completion of the plots the judges selected the two latter as the best, and ordered a second trial between them. The work of both was so perfect that the judge had great difficulty in coming to a decision. However, as the Americans finished the work in a few minutes less time, they placed Wood's first, and Howard's second, giving Messrs. Burgess and Key the third prize.—*London Artisan.*

**STEEL RAILS.**—A portion of the Philadelphia, Wilmington, and Baltimore Railroad is now being relaid with steel rails.