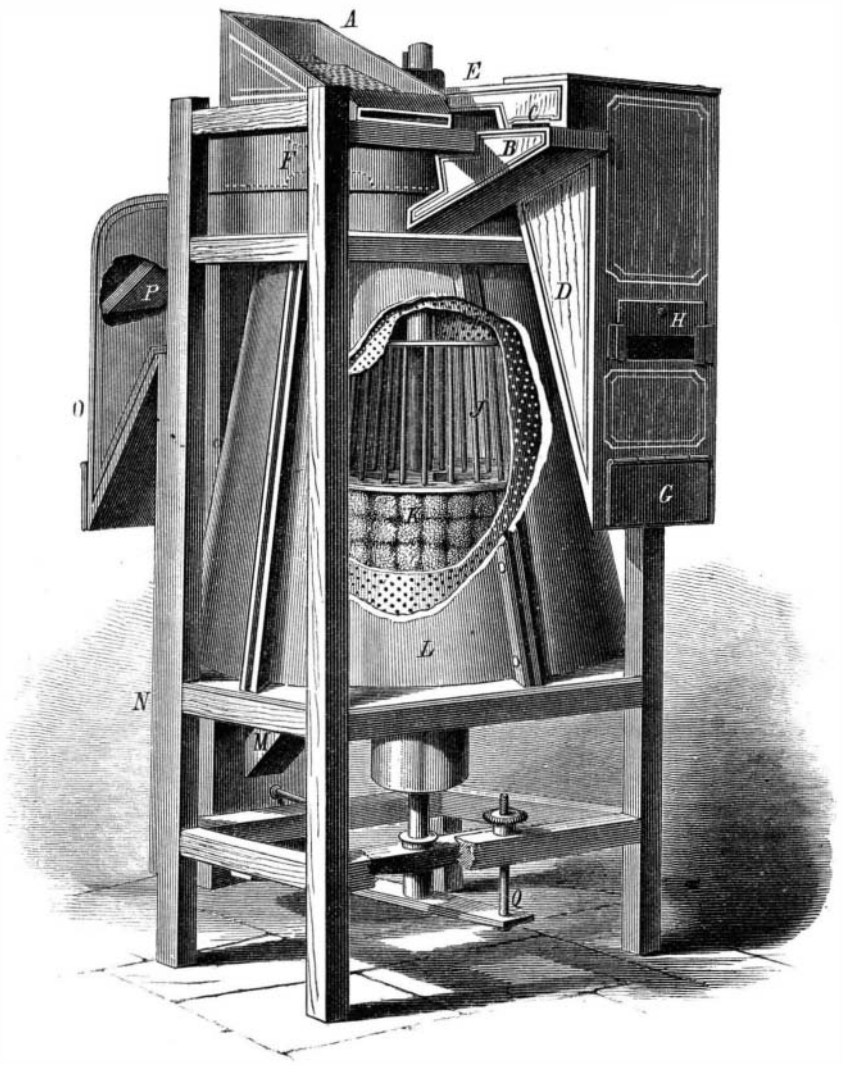
IMPROVED GRAIN CLEANER.

In the accompanying engraving is represented a new machine for removing smut and other impurities from grain. The material is subjected to an air blast while passing to the scouring device, and to another current afterward, while a third current jackets the scourer and effectually removes the dust, etc., which the rotating brushes and drum rods take from the grain. The scouring apparatus is tapered in order to render the passage and to grain slower, and so to keep it for a longer time under the cleansing process. The grain is discharged from the screen, A, into the leg or spout, C, and thence passes to the spout, B, which conducts it to the scourer. While in the upper portion of the spout, it is subjected to an upward current of air from fan, F (dotted lines) which escapes through the openings where the spout, C, discharges into B, and lifts the dust, smut, and light screenings. The dust passes through E to the fan, while the heavier screenings enter a vacuum chamber, D, and are removed through the aperture at G. At H is a valve which serves to regulate the admission of air to the chamber. Ths scourer has a perforated case, I, and an open upper head so that the grain can pass to the rods which form the drum, J. Below the latter is a series of revolving brushes, K. The object of tapering both brush and scourer, as shown, has already been stated. Outside of the perforated case is a close case, L, the space between the two acting as a dust space, and is traversed by air currents also generated by the fan, F. This draft removes the impurities loosened by the scourer and brushes. It enters through passages at the bottom, provided with suitable regulating devices, and escapes through openings above.

The grain then passes off through spout, M, into the suction conduit. N, and finally into the stock hopper or bin, while the screenings pass up the conduit, N, into the vacuum chamber, O, and escape at a lower opening in the same. During the passage of the grain through N, it is once more subjected to a strong air blast in order to remove the heavier impurities, and the strength of the current is regulated by means of the valve, P.

The screen, A, is operated by an eccentric on the main shaft, and an adjustable yoke is provided to regulate its action. This arrangement is so contrived as to allow the shaft to be raised by the adjustable stop bearers, Q, for adjusting the brush as the latter wears away. The entire apparatus is run by a single belt, and is simply and easily adjusted.

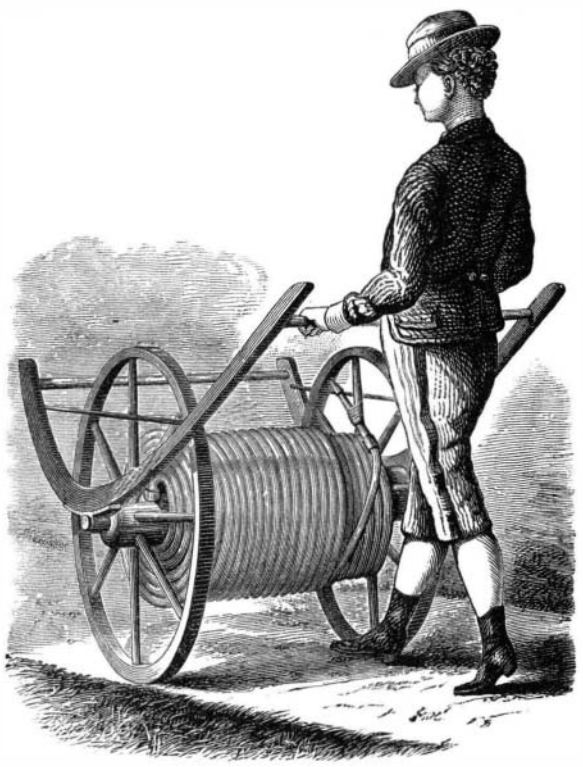
The invention combines a large number of useful improvements, and is doubtless an efficient and valuable machine. Patented February 29, 1876, through the Scientific American Patent Agency. For further particulars address the Johnson Grain Cleaner Company, Foreston, Ogle county, Ill.



JOHNSON'S GRAIN CLEANER.

MILLER'S IMPROVED HOSE CARRIAGE.

We illustrate herewith a simple form of hose carriage,



adapted to carrying hose from point to point for watering gardens, washing sidewalks or carriages, extinguishing fires, and many other purposes. The invention is so plainly shown in the engraving that little explanation is needed. It consists of a reel journaled in the curved frame, the rear bar of which serves as a handle. When disposed as represented, with a coil of 200 feet of hose, it can be moved by a child, and forms a very light, useful, and convenient carriage. On arriving at the spot where the hose is to be used, the whole apparatus is turned upside down, when the ends of the frame rest on the ground, and the wheels are lifted clear, so that their axle becomes a reel from which the hose is readily unwound. Several of our manufacturing establishments have one or two of these carriages on each floor of their buildings, ready for immediate use in case of fire. About a farm where gardens and lawns are to be watered and outbuildings protected from fire, this apparatus will be found of especial convenience.

Patented September 21, 1875. For further particulars address the manufacturer, Mr. Joseph A. Miller, Jr., Providence, R. I.

Improved Process for Silvering Glass.

Up to 1840 mirrors were silvered exclusively by means of an amalgam, a process most destructive to the workmen employed. An important step was effected by an English chemist, Drayton, who conceived the idea of coating mirrors with a thin layer of silver, obtained by reducing an ammoniacal solution of nitrate of silver by means of highly oxidisable essential oils. This process was subsequently modified by several chemists, but only became really practical when M. Petitjean substituted tartaric acid for the reducing agents formerly employed. The glass to be silvered is laid upon a horizontal cast iron table heated to 104° Fah. The surface is well cleaned, and solutions of silver and of tartaric acid, suitably diluted, are poured upon it. The liquid, in consequence of a well known effect of capillarity, does not flow over the edges, forming a layer a fraction of an inch in thickness. In twenty minutes the silver begins to be deposited on the glass, and in an hour and a quarter the process is complete. The liquid is poured off, the glass washed with distilled water, dried, and covered with a varnish to preserve the silver from friction. The advantages are evident. Mercury with its sanitary evils is suppressed; there is a gain in point of cost, as 60 to 75 grains of silver, costing about 20 cents, suffice for 10·75 square feet, which, under the old system, would require 1½ lbs. of tin and the same weight of murcury A few hours suffice to finish a glass on the new system, while the old process required twelve days as a minimum. On the other hand, the glasses thus silvered have a more yellowish tint; portions of the pellicle of silver sometimes become detached, especially if exposed to the direct action of the sun, and despite the protecting varnish the silver is sometimes blackened by sulphuretted hydrogen. M. Lenoir has happily succeeded in overcoming these defects by a process alike simple and free from objections on sanitary grounds. The glass, silvered as above, is washed, and then sprinkled with a dilute solution of the double cyanide of mercury and potassium. The silver displaces a part of the mercury and enters into solution, while the rest of the silver forms an amalgam whiter and much more adhesive to glass than pure silver. The transformation is instantaneous. The amount of mercury fixed does not exceed 5 to 6 per cent. The glass thus prepared is free from the yellowish tint of pure silver. It is also less attacked by sulphur vapors and the rays of the sun, in which last request it is superior to mirrors silvered by the old process.—*Bulletin de la Société d'Encouragement pour l'Industrie Nationale.*

Gold Mining in the Black Hills.

Colonel Dodge has published a small work on the Black Hills region, describing the physical features of the country, the soil, timber, climate, etc., and giving much information respecting the precious metals supposed to be deposited there. There is gold in the hills, no doubt, but how much is yet a question. The author thinks it is no place for poor men The mining is of such a nature that it requires capital to carry it on profitably.

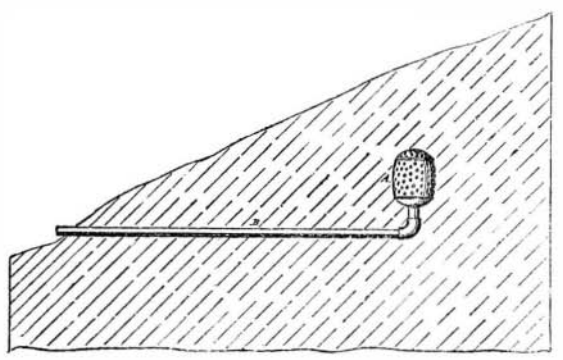
"It has passed into a proverb that 'placer' mining is the poor man's diggings, while 'quartz' mining is only for the rich. Placer mining in the Black Hills will not pay the poor man, unless he be a 'heathen Chinee.' He may make a little money by securing a claim, selling it out to a man or company who has capital to buy up many claims, then looking for and securing another claim with the same intention and result. This is a poor and precarious foundation on which to base a living. No man can make more than the barest wages by pan-working a single claim in the Black Hills. The placer mines, as well as the quartz mines, are here only for the rich man, and I would advise no poor man to go into the hills with the expectation of making money by mining for himself. Of course, he may be fortunate enough to strike rich diggings and do well; but as a general rule, he will make more money as day laborer for some wealthy man or company than he possibly can by working for himself on a single claim. The reports of the enormous wealth of the placer mines in the Black Hills are the most barefaced fabrications, got up by miners who wish to sell their claims. Money is to be made here by men who have sufficient capital to buy up many claims along a creek, sufficient to warrant the expense of dams, ditches, and all works necessary for hydraulic mining. If they have already the means of comfortable livelihood, poor men had better stay at home, unless prepared to work on wages. All this is said on the supposition that the Black Hills will, sooner or later, be opened to the miner. Under present circumstances, in addition to the disadvantages mentioned, he is liable at any moment to be arrested by the troops and sent from the hills a prisoner."

Culture of Asparagus.

W. H. Noble gives, in the *Gardener's Monthly*, an account of a garden lover who planted on good, level soil an asparagus bed of some 12 by 20 feet. When its growth became strong, he year by year covered it with some two or three inches of good rich mold. Up through this shot the stalks and crept the roots. The method was followed up every season, with the result of larger growth and product, till the bed became an oblong mound of some 2 or 3 feet in hight, and a perfect wonder in the quality and quantity of asparagus furnished for the table. That yearly blanket of soil was, my friend thinks, the only culture or enrichment given. The bed was never dug with fork or spade.

IMPROVED METHOD OF OBTAINING WATER.

A new plan of obtaining water, in rolling prairie lands where a porous soil rests upon a bed of clay or other formation which resists the downward passage of moisture, has been patented through the Scientific American Patent Agency (February 8, 1876), by Mr. Augustus Byram, of Atchison, Kansas.



The engraving herewith given shows a section of a side hill or prairie roll, with the device for collecting water in position.

A perforated case, A, of metal or other suitable material, is set in the ground at the depth of five feet, more or less, where the soil is moist, with a pipe, B, extending out to the surface of the ground in a horizontal direction, or with a slight downward inclination. With this arrangement the water in the soil will collect in the hollow case, and will flow out through a pipe, and may be received in a trough or other convenient receptacle. The water, the inventor claims, forms natural courses heading to the case, and will have a continuous flow. This will enable farmers in Kansas and in other States where the land is of a similar formation to obtain a supply for watering their stock, and for irrigating purposes, without the trouble and expense of digging deep wells and pumping up the water with windmills or other mechanism.