

## Science and Art.

## History of Reaping Machines.—No. 30.

On page 254, Sci. Am., Vol. 10, will be found the claim of the re-issued patent of Palmer & Williams—original date, July, 1851—whose reaper was illustrated on page 248. They informed us of the original specification being defective. In the list of claims last week (date, 18th April,) are four for improvements granted to E. B. Forbush, of Buffalo, N. Y. They relate to strengthening the platform and the formation of a second angle in the brace bar of the guard fingers. On the same day a patent was granted to Philo Sylva, of Elgin, Ill., for a method of hanging the sickle stock. Also two claims to Jarvis Case, of Springfield, Ohio.

In the list of claims this week, is one to Jearum Atkins, of Chicago, Ill., inventor of the automatic raker. There are two patents granted to Abner Whiteley, of Springfield, Ohio,—one embracing no less than ten claims, thus showing that the great number of patents which had been previously issued, did not cover all things.

This closes the list of patents granted for harvesting machines (reapers and mowers) up to the present day.

The fifty-nine figures which we have presented, illustrative of different machines, proclaim one fact, viz., that the most simple is the most effective, and most esteemed reaper. Our farmers want simple, strong, (but not clumsy,) and easily repaired implements; no others will answer.

The earliest power reaping machines were rotary in their action. So far as we can learn there is not one rotary reaper now in use in our country. Do the reciprocating cutting reapers, therefore, embrace a superior cutting action? We do not think they are more simple; nor can we see that they operate upon a more correct cutting principle, for the mowing cut by the hand scythe describes the segment of a circle. The fact, however, is patent, that reciprocating reapers alone have been successful.

The reel and the reciprocating cutter were embraced in Ogle's English machine, of 1822, [page 64 Sci. Am.] so that these two features of reaping machines are not of recent date.

It would appear that the application of guard fingers to the cutters was the great improvement which first made such machines successful in our country. Mr. Manning, of Plainfield, N. J., was the first who applied guard fingers to his cutters, and made the latter spear-shaped. His guard fingers, however, were only single. We never hear his name mentioned in connection with reapers, and yet, if any single man deserves credit for improvements in such machines, we think he does. We trust we have rescued, in this history of reapers, his name from oblivion.

The first American patent for a reaper was granted to R. French and J. T. Hawkins, of New Jersey, in 1803: it was a rotary reaper; Obed Hussey, of Baltimore, was the first who added a second set of guard fingers to the cutter—a great improvement. His machines are still held to be excellent, and every successful one is indebted to him for what he added to such machines.

Of the great number of machines which we have illustrated, many devices, apart from the main cutting parts, have been patented; these being required to render them more perfect in action. But it cannot be denied that much ado has been made by some manufacturers of reapers about some exceedingly insignificant devices. Patents have been granted for reapers embracing cutting, thrashing, and winnowing, at one continuous operation on the field. Such machines we never expect to see in successful operation. They are complex, and besides, the grain, when cut, is not generally in a fit state for thrashing and screening. It wants to be cut and left some days to *harden the gum*.

It has also been attempted to construct a reaper that would rake, bind, and deliver the grain in bunches, to be merely set up in stooks. If such a machine could be made

very simple, it would be a grand thing for farmers; but a great number of different movements require complex gearing; we therefore think that such a machine will not be easily produced.

Every reaping machine should be convertible into a mower. Few farmers can afford to keep two different machines. The gearing should be adapted to run the knife faster for mowing grass than cutting grain, because the grass is softer and finer, and will be cut easier with a quick than a slow motion. The knives should be hung and set, so as they can be easily sharpened without shifting them. The cutters should always be kept in good order; sharp knives are not easily fouled; they also cut cleaner, and are much easier on the team than dull knives. Fifty questions might be answered respecting the successful action of reaping machines, by four words, "keep your cutters sharp."

It need not excite any wonder, if some errors have been committed in presenting this history of reaping machines. We have endeavored to have everything strictly correct, but owing to the great number of names and dates presented, some errors, but not many, have been made. Our object has been to present a *true* history: we have cheerfully corrected every error that has been pointed out to us. Our thanks are due to quite a number of patentees who furnished us with their patents, to illustrate and point out their particular improvements. A number sent us advertising cuts and hand-bill descriptions of their machines, which we could not publish.

FOREIGN REAPERS—For information and illustration of foreign reaping machines, except Ogle's we are indebted to Bennet Woodcroft, Esq., of the London Patent Office. The Government Report on this subject, of which he is the author, does him great credit. We, in the name of American inventors and farmers, present him with their thanks and respectful acknowledgment, for his useful labors in this branch of mechanical science.

We do not think that we are at the end of improvements on Reapers yet; we intend to give close attention to such machines, to add what may have been omitted, and publish from time to time, everything we learn that is new and useful respecting them.

ERRATUM—The page of the claim of A. Whiteley, of Ohio, in last week's Sci. Am., is given 266, it should be 246.

## Deodorizing Putrid Matter for Manure.

Among the various substances proposed to disinfect excrements, and at the same time to fix and retain their valuable constituents, some, as sulphuric and muriatic acids, expel sulphuretted hydrogen, and are therefore objectionable; others, as the metallic salts, may themselves be injurious to plants. Boussingault proposed chloride of magnesium, which would form the difficultly soluble ammonia phosphate of magnesia. Calloud proposes the mother-waters of salines, containing salts of lime and magnesia, together with charcoal. While the former would form phosphates of slow solubility, the coal absorbs the noxious gases, and by its porosity also oxidizes sulphuretted ammonium into sulphate of ammonia.

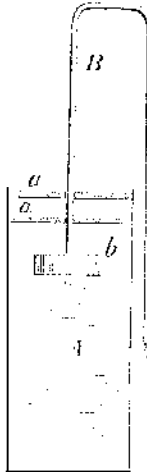
To deodorize human excrements, the best material is probably the pyrolignate of iron, the free acid of which has been previously neutralized by a base (ashes, lime, &c.)

To prevent the escape of disagreeable and perhaps noxious gases from decomposing animal matter, and to convert it into good manure, E. Brown recommends (Lond. Journ. Arts) pouring into a privy a dilute solution of sulphate, muriate, or pyrolignate of iron, or muriate of manganese (from the manufacture of bleaching salt,) stirring up, then covering it with a good absorbent (75 pts. wood-ash, and 25 pts. saw-dust, bone-powder, &c.) and closing the building for 10 minutes.—Thus freed from odor, it may be transported to a poudrette building, where it is mixed with 15-20 per cent. of a drying powder, such as dry muck, dried, and packed.

Blood may be rendered inodorous and incapable of putrefaction by adding to it a so-

lution of chloride of iron or of manganese, which unites with and coagulates the albuminous matter, and then drying it alone, or mixing with absorbents and drying it.

## Beautiful Philosophical Experiment.



The great Ctesibins, of ancient fame, invented those wonderful Clepsydre, or water-clocks, and so delighted the Romans, that he was elevated to the highest posts of honor which a monarch could bestow. Yet those highly-wrought pieces of mechanism, costing millions of dollars, did not produce as uniform movements as a simple tube and vessel of water may be made to do. By combining the syphon and Barker's Mill, or the re-active force of water, we have the result of which I speak.

Take a tall narrow vessel, A, and fit two pieces of wood, a, a, across the inside. Bore holes through the pieces, so that they will be in the center of the vessel, and one above the other. Bend a small tube of any material which bends readily into a syphon, B, keeping the legs straight, with two right angles at the top. Next turn the end of the longest outward, so that the bent part will correspond with the line of a circle, the shortest leg being the center. When the syphon is properly placed, the bent end is horizontal. Put the short leg loosely down through the holes in the pieces, after which push it tightly half an inch through a cork, b, large enough to float and sustain the syphon. The long leg will now be on the outside of the vessel.

Pour clean water into the vessel until the cork nearly touches the cross piece. Charge the syphon by suction and it will commence revolving rapidly around the vessel, continuing as long as any water remains, provided the inner leg is long enough. The movement is surprisingly accurate. This experiment I believe is an original one.

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Rockton, Ill.

## How to turn a White Dahlia Blue.

I have been told, but never have tried the experiment, by a celebrated cultivator of dahlias in Belgium, that he will be able, in the course of a year or two, to produce a blue one, by keeping constantly watered the root of a white one with a solution of sulphate of iron. The sulphate of iron turns hydrangeas blue, and why not other white flowers as well? Of course the solution must be very weak when used.—[Gardeners' Chronicle.

## Sewing Gloves by Machinery.

Gloversville, Fulton Co., N. Y., is the seat of the American glove and leather mitten manufacture. Hitherto these gloves have all been given out cut, in parcels, and have been sewn in the houses by females, for so much per dozen. This system is about to be changed, we understand, by the introduction of sewing machines, and the adoption of the factory system. It would afford us more pleasure to hear of the sewing machines being substituted for hand labor with the simple domestic system of piece work maintained.

## Rapid Churning.

The Vermont State Banner, Bennington, states that the churn of E. Gore, of that place, churned butter from the cream in 35 seconds.

## Another Weapon of War.

The *Bee* says that a gentleman in Ipswich has invented a machine which is capable of throwing, with great force, one hundred cannon balls in a minute; and this without the use of powder or any other explosive agent. Centrifugal motion is the principle by which the power is obtained, and the inventor is confident that the instrument would be very efficacious in repelling assaults, defending forts, and in throwing red hot shot at a vessel or into a town.—[Worcester Telegraph.

[The above motion must be very effective for shooting round the corners of streets; but it is the first time we have heard centrifugal motion called a principle. Has this shooting machine anything to do with the centrifugal force engine which was to propel steamships across the Atlantic for less than nothing, and which ended in nothing, but cost many persons in this city, and elsewhere, more than they like to acknowledge?

## LITERARY NOTICES.

THE NATIONAL MAGAZINE—The May number of this Magazine contains an illustrated article from Irving's last volume, and quite a host of other articles. Published by Carlton & Phillips, 200 Mulberry street, N. Y.

OLD BLACKWOOD—The last number (April) of famous old "Ebony," contains the "Story of the Campaign," continued, which is the most correct account of the war in the Crimea; "Published Notes on Canada, and North West America," are well written; "Psychological Inquiries" is another article, which we recommend to the attention of phrenologists. Published by Leonard Scott & Co., 54 Gold street, New York.

PUTNAM'S MONTHLY—The May number of this able magazine does credit to its new publishers, Messrs. Dix & Edwards, No. 10 Park Place. The first article is on Geology, which contains some curious speculations. It contains 17 original articles on other subjects, with the usual editorial criticism.

DICKENS' HOUSEHOLD WORDS—The May number of this journal, also published by Messrs. Dix & Edwards, likewise does them honor. It is a re-publication of perhaps the ablest European periodical of light literature. Its articles are always rich and racy.

NATURE, ORIGIN AND CURE OF TUBERCULAR OR SCROFULOUS DISEASE—This is a work by John Foudry, M. D., Professor in the Eclectic Medical College, of Pennsylvania. It also includes a manual for the application of electro-magnetism. Published by W. C. & J. Neff, 3½ South Seventh street, Philadelphia.



## Inventors, and Manufacturers

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