Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME IX.] NEW-YORK JUNE 17, 1854. [NUMBER 40.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY,
At 128 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

Agents.

Federhen & Co., Boston.
Stokes & Bro., Philadelphia.
Cook, Kinney & Co., San Francisco.
Le Count & Strong, San Fran.
Avery Bellford & Co., London
S. G. Courtenay, Charleston,
H. Taylor, Baltimore, Md.
Dexter & Bro. New York
B. Dawson, Montreal, C.E
M. Boullemet, Mobile, Ala
E. W. Wiley, New Orleans
E. G. Fuller, Halifax, N. S
M. M. Gardissal & Co. Paris
S. W. Pease, Cincinnati, O

Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS—$2 a-year :—$1 in advance and the remainder in six months.

Improvement in Seed Planters.

The annexed engravings represent the Seed Planter, of Samuel Witherow, of Gettysburg, Pa., (with his recent improvement,) for which a patent was granted on the 18th of January last year, to him and his son, Wm. H. Witherow.

Figure 1 is a perspective view, and figure 2 is a horizontal view of the hopper and cylinder. The same letters refer to similar parts on the two figures.

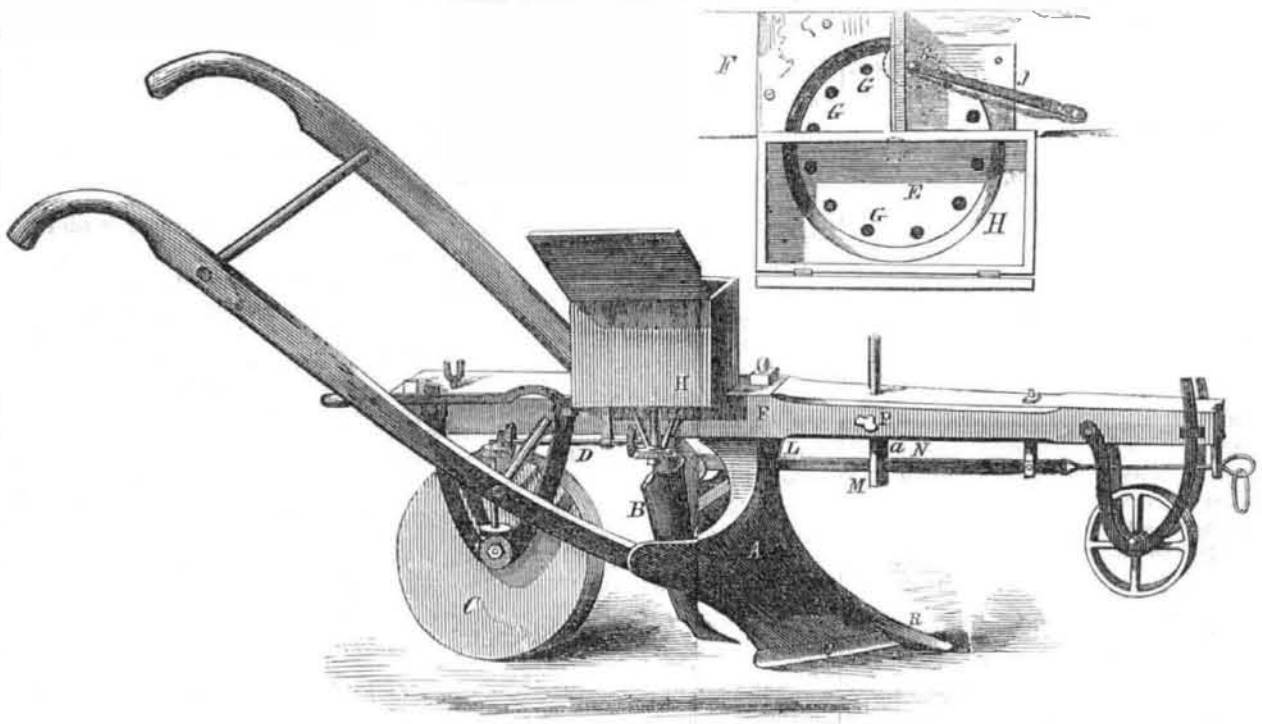
The nature of the improvement relates to two parts. 1st. The manner of regulating the seeding tube and supporting the drag bar to which it is attached, by passing the latter through a slot in the mold board. 2d. The new improved feature relates to placing the main seed box at the side of the beam to cover one-half of the seed disk, so as always to expose six or seven holes to the seed, and combining this with a gauge spring to prevent any of the seed from being carried round edgewise and broken and thereby rendered useless.

The mold board, A, is double, and has a share adapted to it accordingly, dividing the furrow, and throwing the earth equally on both sides of the mold board. The share has also two wings, Q, to correspond with the mold board having the point, R, in the center thereof. The mold board, share, wings, and point, may be constructed in any suitable manner or form, and of any size required. The corn or other grain to be planted, is conveyed to the furrow in the ground, immediately behind the mold board through a tube, B. This is followed by a roller, C, which is connected to the beam by two semi-circular irons, through which the gudgeons of the roller upon which it revolves extend. The progress of the planter puts the roller, C, in motion, and which in turn operates the seeding cylinder, E, by means of the cranks, D, (there being one on each side of the planter) or by any other well known means of gearing.

The seeding cylinder, E, may be of any suitable size, and is let into the beam, F, about one half of its diameter. There are circular holes or cells, G, in said cylinder, to take in the corn or other grain, and which may be made adjustable in size, by the usual method of inserting a screw which can be raised or lowered at pleasure; and as the cylinder revolves it conveys the grain from the hopper, H, down into the tube, B, and from thence it passes into the ground. These cells may be such in number as to drop the grain at any desired intervals.

The drag bar, N, is attached by one of its ends to the clevis bolt and passes through an opening, *a*, in the adjustable hanger, M, which passes up through the beam, and may be raised or lowered at pleasure for adjusting the seeding tube, B, and held firmly, when adjusted, by the set screw, P. Through the neck of the mold board is cut a slot, L, through which the drag bar, N, also passes, and which gives it lateral strength and support, and to the rear end of the bar, N, is secured the seeding tube, B, in any well-known manner, to prevent it from breaking when any obstacle presents itself to it.

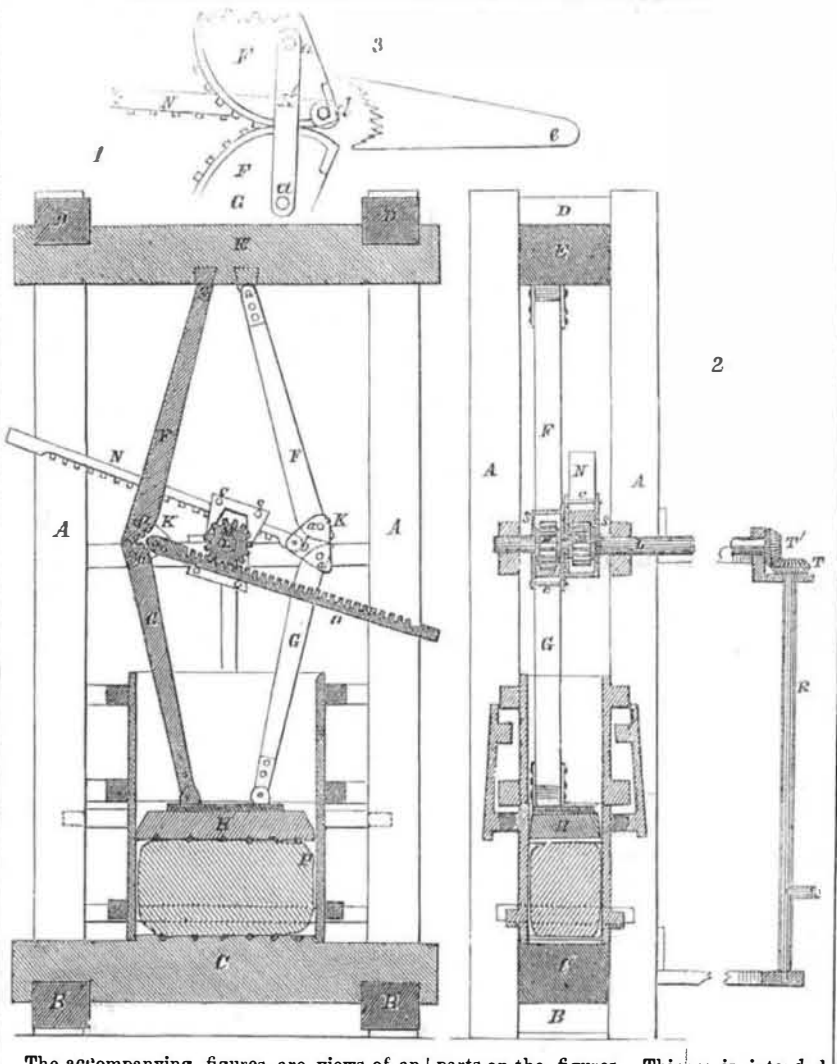
Fgure 1. WITHEROW'S SEED PLANTER. Figure 2.



The hopper, H, is placed at one side of the beam, and covers one-half of the disk, E, one-quarter of which runs out and is exposed so as to show how the seed feeds in. The hopper fits closely to the top of the evolving grain cylinder, and as this cylinder revolves it is carried under the plate and sprig gauge, B J. When a hole, G, with a grain of seed in it arrives above, B, it drops down into the furrow. It is a simple and good seed planter.

More information may be obtained by letter addressed to the patentee at Gettysburg.

IMPROVED COTTON AND HAY PRESS.



The accompanying figures are views of an improvement in Cotton and Hay Presses, &c., by E. L. Snow, and E. S. Hoadley, of East Hampton, Mass., who have taken measures to secure a patent.

Figures 1 and 2 are vertical sections of the press, taken at right angles to each other, and fig. 3 is a view showing a modified arrangement of levers. Similar letters indicate like parts on the figures. This press is intended principally to be used for pressing cotton on plantations, and has therefore been constructed with a view to great simplicity and durability in every particular. The nature of the improvement consists in a new mode of combining, constructing, arranging and operating a series of toggle-levers.

A A are upright posts of timber; B B are cross girders mortised to the posts near the bottom, and supporting the bed, C. D D are cross girders similar to B B, but placed near the top of the machine to receive the upward pressure upon the head, E. F G and F′ G′, in figs. 1 and 2, are two pairs of levers of wood or iron, one of each pair of which is connected with the top timber, E, and the other with the platen or follower, H, which slides in the box, P, of the press. The ends of the two levers of each pair work in contact, and are in the form of arcs of circles, and they are connected together by triangular plates, K (one on each side,) and bolts, *a a*, which pass through the levers and plates at the points from which the arcs at the ends of the levers are struck. The arc-formed ends of the levers are made broad in order to give them a good bearing upon each other, and as they roll in contact there is very little friction. The face of one arc has teeth upon it which enter recesses on the face of the other, and thus prevent the possibility of slipping. The two pairs of levers are so arranged that vertical motion is given to the follower of the press by drawing the two pairs towards each other; a horizontal shaft, L, which turns in suitable fixed bearings on the frame-work, occupies a position between them. This shaft carries two pinions, M M, which gear with two toothed rack bars, N and O, one end of each of which is placed between one pair of the triangular plates, K K, and attached by a bolt, *b*, and the other end is left free. The racks are kept in gear with their respective pinions by means of light frames, S S, whose side pieces fit easily to the shaft, L, and which have pins, *c c*, reaching across the backs of the racks. These pins. *c c*, should be furnished with friction rollers. By giving rotary motion to the shaft, L, the pinions will be caused either to draw the jointed ends of the levers towards each other, or force them apart according to the direction of the rotation of the shaft. It will be understood that the two racks and both pairs of levers could not be arranged to work in the same plane without too much curtailing the length of the racks, and therefore they are arranged side by side to allow the racks belonging to one pair of levers to pass the other pair.

The shaft, L, may have the necessary rotary motion to operate the press communicated by any suitable means. We have represented for that purpose a vertical shaft, R, which carries a bevel wheel, T, gearing with another bevel wheel, T′ on the shaft, L.

Instead of connecting the levers by the triangular pieces, K K, as shown in figs. 1 and 2, they may be connected by links, K′, as shown in fig. 3, and the rack bar may be attached to the extremity of the lever by a bolt, *d*.

The principle of operation of these levers is the same as that of the ordinary toggle joint, but the manner of constructing the joint gives it the advantage of greater strength and almost entirely obviates the friction. The manner of applying the power shown in figure 3, gives the advantage of an increased leverage. The increase being equal to the difference in distance between *e a* and *e d*, the point, *e*, being where the lever is attached to the head or follower of the press.

More information may be obtained by letter addressed to the inventors, at East Hampton, Mass., or to Columbus, Ga., where the inventors are engaged in putting up presses to order.

Flax Industry.—No. 9.

If it had been proposed to write a history of the flax industry of the civilized world at the epoch when Napoleon offered a reward of a million of francs for the invention of the best machine for spinning flax, it is hardly probable that England would have merited a notice, yet the manufacture of flax in this country, dating, as it were, only from yesterday, has already exceeded and almost destroyed the trade and manufactures of those countries where the culture and preparation of flax has been a peculiar and favorite branch of industry from a remote antiquity.

The record of British legislation for the encouragement and protection of this branch of industry forms a curious chapter in the history of political economy, affording, as it does, such marked examples of the aim and influence of special legislation for particular objects to the exclusion or detriment of other and foreign interests. We pass over without further notice the different enactments and legislative measures, previous to the year 1700, and only specify the total amount of money expended by government from 1700 to 1777, for the encouragement of the flax industry. The premiums paid under different ordinances during this period of seventy-seven years, on thread and woven cloth, amounted to £1,295,560 sterling. In the year 1777 alone, during a period of considerable commercial embarrassment, while England was engaged in the struggle with the American colonies, the premiums amounted to $167,000, an enormous bounty, when we consider the limited extent of the business at that period.

The encouragement given assumed different forms according to the time and particular circumstances. In some cases the premiums were money, in others spinning wheels, reels, and warp beams were distributed. In Ireland, at one time, there were distributed gratuitously by Act of Parliament, ten thousand spinning wheels, and persons were also appointed to give instruction in the methods of perfecting and improving the fabrication of thread and cloth. In 1832 the bounty awarded on the exportation of linen thread, amounted to £300,000 sterling, and for some years previous had varied from fifteen to twenty-five per cent. of the value of the products exported, the scale of bounty sliding with the value of the manufactured material. In addition also to the bounties paid to the agriculturist for the growth of flax, and the premiums upon the exportation of thread, the British Government further encouraged the flax industry by high protective duties, levied upon all foreign manufactures composed of flax in whole or part. In 1840, before the rise of the free-trade theories, the following duties were established:—On linen thread 25 per cent. *ad valorem*; on woven goods other than canvas, or duck, 40 per cent. *ad valorem*; on canvas, 30 per cent. *ad valorem*.

At this period the manufacture of flax had attained to such a footing in England that a number of immense establishments were in operation, some of which had paid their original cost in a few years after their commencement, and all were in a most prosperous condition. At this time a few of the old enactments for the encouragement of the business were abolished as no longer necessary, but to make up for these innovations, and to keep up the monopoly of machine spinning, the law prohibiting the exportation of linen machinery, was still maintained, with such penalties imposed by Act of Parliament, as find no analogy except among the most barbarous and uncivilized nations. It is indeed a fact not generally known, that in England as recently as 1840, the penalty for the exportation of linen machinery was the same as for murder, burglary in the first degree, and arson. Since 1840 these restrictions and penalties have been abolished, and the duty on nearly every description of linen goods made uniform, viz., about 10 per cent. *ad valorem*.

Notwithstanding the prosperous condition of the linen business in Great Britain, government does not in the least relax its encouragement and protection when needed. The Blue Books of Parliament abound in information yearly, designed to increase the general amount of information on this subject. Private enterprize also emulates and outstrips the efforts of the government. Among other societies for the encouragement of the flax industry, one has been formed for the promotion of the same in India, especially in the Province of Bengal, and an expenditure of $50,000 has been voted as the first effort in this direction. This society in a published prospectus states that the soil of India is admirably adapted to the cultivation of flax, and that the crop is an annually increasing one, even without the encouragement. The exportation of flax seed from India commenced about the year 1845, when a single firm exported 3,000 casks. In 1850 the exportation exceeded 15,000 casks. The prospectus of the Society further states "that throughout the flax growing districts of India, from two to three crops of flax per annum, can be raised; and when it is considered that in British India millions of fertile acres remain uncultivated, that the price of labor is merely nominal (the average wages of a common laborer being less than $1,25 per month, out of which he feeds and clothes himself) and that the growth and preparation of flax is in a great measure the result of hand labor, it will be very strange if India, aided by British capital, shall not be able in a few years to surpass the whole world in the production of flax."

Another Society is established at Belfast, Ireland, under the name of "The Royal Society for the Promotion and Improvement of the Growth of Flax in Ireland." Another Society is known as the "National Flax Association," and various local and smaller associations are organized in almost every section of the Kingdom. At the time when the exportation of machinery was prohibited by government, a society was also formed for the express purpose of aiding the authorities in enforcing the law, and so effectual were these measures, that while previous to the formation of this society, machinery could be taken out by contract with certain parties for 30 per cent. of its value, afterwards the same contrabandists would not attempt its exportion for a less price than 80 per cent. of its value. Notwithstanding, some machinery was exported to France, and placed in successful operation at d'Essonne, but no sooner were the products of this single establishment offered the market, than by a combined movement the prices of the English linens of the same description were reduced in the same market to a lower rate, obviously with the intention of strangling the enterprize in its commencement.

It was by such means as we have indicated, aided by the low price of iron, fuel, and labor, and also by the great mechanical skill of the educated operatives, and the energy of the capitalists, that the flax industry of Great Britain has been enabled to attain the position which enables it to command and control the markets of the rest of the world.

Railroad Statistics.

On page 301, in a notice of the Annual Report of the State Engineer, New York, we stated that there were only fifteen miles of railroad in operation in this State, in 1836, and that probably there were no more than 60 miles in operation on our continent. A correspondent since, suggested that there was much more than sixty miles in operation then, but could not state how many. The following statistics, by request, have been kindly furnished by Mr. Poor, Editor of the "American Railroad Journal," and afford the correct data in every particular. All of these roads were no doubt operated by locomotives in 1836, but on some of them horses alone were employed when they went into operation, such as the Mauch Chunk, in 1827.

MESSRS. MUNN & Co.:—*Gents.*—In reply to your note of yesterday, it gives me much pleasure to state the following statistical facts in reference to the opening of some of our earliest railway enterprises.

The Quincy Railroad, Mass., and the Mauch Chunk, Penn., were opened in 1827. In 1832, sixty miles of the Baltimore and Ohio Railroad were in operation, twenty miles of the Charleston and Hamburg (S. C. R.R.), and twelve miles of the Albany and Schenectady; making in all 107 miles in operation in 1832.

Annexed please find a list of such roads as were opened previous to 1836. It will be observed that some of them have since been abandoned.

NAME.	YEAR OPENED.	MILES.
Philadelphia and Columbia, Pa.	1834.	82
Alleghany Portage,	" "	36
West Chester,	" "	9
Philadelphia and Trenton,	" 1833	30
Mauch Chunk,	" 1827	9
Room Run,	" 1833	5
Little Schuylkill,	" 1831	23
Schuylkill Valley,	" 1830	10
Mill Creek,	" "	5
Mount Carbon,	" 1831	7
West Branch,	" "	18
Carbondale,	" 1829	16
Pine Grove,	" 1830	4
Lykens Valley,	" "	17
Total in Pennsylvania,		271
Chesterfield R.R.,	1831	13
Petersburg and Roanoake,	1833	60
Charleston and Hamburg,	"	136
Boston and Lowell,	1835	26
Quincy,	1829	4
Boston and Worcester,	1835	45
Boston and Providence,	"	42
Ponchartrain,	1831	4
Lexington and Ohio,	1835	33
Paterson and Hudson,	1834	14
Camden and Amboy,	1835	61
Camden and Woodbury,	1833	7
New Castle and Frenchtown,	1832	16
Baltimore and Ohio,	1834	85
Washington Branch,	1835	30
Westminster Branch,	1832	10
Albany and Schenectady,	1834	16
Total,		873

In the course of the year 1836, there were 232 miles more of roads opened in the United States; but as you wished to know the distance in operation in May of that year, I do not include them in the foregoing schedule.

I am, very truly,

H. V. POOR.

Am. R.R. Journal Office, New York, June 7th, 1854.

Anti-Chlorine.

MESSRS. EDITORS—I perceive by your issue of the 13th ult., page 277, under the head "Roch's Anti-chlorine," that you labor under a misconception. As its name imports, anti-chlorine (sulphide of sodium) is not used as a substitute for chlorine, but to decompose it; for which purpose it is used instead of sulphuric acid, to what advantage I decline expressing an opinion. Its action, I believe, is according to the following formula:—Cl. Ca. + So^2 Na.=So^2Ca. and Cl. Na. Chloride of lime to sulphide of sodium, produce sulphide of lime and chloride of sodium.

I am sorry to observe that you contribute to the somewhat popular prejudice of the injuriousness of chlorine to textile fabrics. It is groundless, as in the hands of skillful workmen they suffer *less* than when bleached in the sun. I have been unable to appreciate the injury done by the proper use of chlorine. E. M.

Providence, R. I., June 3rd, 1854.

[We assure our correspondent that our object, as it always is, was a good one, in directing attention to faulty bleached muslins. We practically know, that with care, muslins can be chlorine bleached with as little injury to the fabrics as grass bleached, but it is also true that a great deal of the common bleached muslins have been injured—carelessly we have no doubt. The popular prejudice to which our correspondent refers, is not baseless; if it were, we would contribute to combat it. We hope our bleachers will act wisely in the matter, and exercise more care with their *sours* and washings in conducting their processes.

Influence of Machinery on Civilization.

The annexed eloquent extract is from the "Philadelphia Daily Ledger,"—a paper always able and uniformly correct:—

"The influence of these reforms on civilization cannot be estimated too highly. The old prejudice against machinery, which never had any hold on men of real intelligence, is now disappearing even from the minds of the most ignorant. Everywhere the great truth is being acknowledged, that the influence of machinery is to elevate the condition of the human race, by substituting skilled labor and directing talent for mere executive work. In other words, men are elevated, so far forth, from machines to makers and controllers of machines. The higher qualities of their nature are being called into exercise. Instead of going the same unvaried round of labor for generation after generation, like a blind horse forever traveling the narrow circuit of a mill, they are throwing the burden of all mere mechanical work on machinery, subjecting the dull and inanimate forces of nature to their will, and making iron and steel submissive agents. If the reforms, already made in this direction, afford any criterion for the future, the time will come eventually, when nearly all that is irksome in labor will be avoided, and then that part of the curse pronounced on Adam at least be alleviated.

Yet this aspect of the influence of machinery and civilization, though the most important, is precisely the one least regarded. It is far more common to hear the cheapening effects of machinery extolled than to have these enfranchising and elevating influences pointed out. We do not deny that the placing of cotton goods within the reach of the poorest, has materially improved the physical condition of the human race, and therefore indirectly refined and enlightened mankind. But this is only the ultimate, not the proximate result. Nor is it without alloy. And to a certain extent the effect of machinery in this direction is enervating and sensualizing. It advances civilization in its physical aspect, but not in its moral, intellectual, and religious ones. It fosters less the spiritual and mental part of humanity than that baser part which is 'of the earth, earthy.' But machinery, regarded as a means to banish man's slavery to toil, by substituting brain-work for the labor of the hand, is the high road to that fuller and more perfect development of society, which poets have painted, philosophers predicted, and revelation, it is believed by many, expressly promised."

Lasting Effects of Heat.

The French, during the time their army remained under Bonaparte in the Holy Land, constructed two very large ovens in the castle of Tiberias. Two years had elapsed at the time of our arrival since they had set fire to their granary; and it was considered a miracle by the inhabitants of Tiberias, that the combustion was not yet extinguished. We visited the place, and perceived that whenever the ashes of the burned corn were stirred by thrusting a stick among them, sparks were even then glowing throughout the heap, and a piece of wood being left there became charred. The heat in those vaulted chambers where the corn had been destroyed was still very great.—[Clarke's Travels.