AMERICAN INDUSTRIES.

[*Continued from first page.*]

and keys itself into it in the same way as mortar is put on and holds itself to the laths in finishing the interior of a house.

The application of this plastic non-conductor was first made directly to the surfaces of boilers, tubes, etc., and this method is still followed to a great extent where the tubes are small, or only limited surfaces are to be covered, and the expansion and contraction from differing temperatures will not be too great. The covering after it is put on has not a metallic hardness and firmness, so that its elasticity is sufficient for purposes of this kind, while it may also be colored, grained, varnished, and finished, so as to make an exposed steam pipe in a room accord in appearance with the character of the place, when this is desirable. It is also sufficiently oleaginous to prevent the oxidation of surfaces to which it is applied, and thus acts as a preserver of boiler and piping.

The "air space" covering, the patent for which became the property of the company in 1875, undoubtedly affords a better non-conducting covering than that made by the application of the plastic material directly to the surfaces to be protected. In this way a dead air chamber is made, so that the air surrounding the heated surfaces must be of an equal temperature with them, and any amount of expansion and contraction cannot affect the durability of the covering. For large surfaces it is usually put on in two coats, a rough and a finishing coat, as plasterers make a wall, when it may be painted or otherwise ornamented as desired.

The first non-conducting coverings used were made of wood, hair felt, paper, etc., but these, owing to their combustible nature, had to be constantly renewed. The felt coverings, also, being of a spongy nature, absorbed any moisture in their vicinity, thus not only destroying the fibers of the felt, but from their direct contact speedily corroding the metal surfaces they surrounded. Cements and compositions of fire-clay, asbestos, etc., were next used, but these, on large surfaces, not being able to withstand the expansion and contraction of the metals on which they were plastered, would crack and fall off. In many cases, also, the cements were so dense as to act as conductors of heat rather than the opposite. The "air space" method has none of these objections, the confined, dead air making the best non-conductor possible, while the frame holds the covering solidly under any possible amount of expansion and contraction. Under this plan of attaching the covering to a framework removed from the heated surfaces, hair felt, compositions, and cements, other than those containing asbestos, may also be used to advantage, as they cannot bring moisture to the metal to corrode it, and will not crack off from expansion and contraction, so that a much lighter covering will in this way be more effective than the heavy coats formerly used when applied directly on the surfaces.

The number of "test" trials to which the "air space" method of covering steam pipes, boilers, etc., has been subjected is very great, and they have extended over several years, in all cases amply proving everything that the company claim for it. This method was chosen as the best by the Commissioners and Chief Engineer of Machinery Hall at the Centennial Exhibition, and the company in this way covered all the pipes there and in the Annexes. In one of the tests made, where the "air space" method was brought into competition with their own surface covering and the coverings of other firms, under the most carefully guarded conditions, the "air space" method proved its superiority so decidedly as to distance all competitors. The trial was made by suspending a thermometer in an air-tight box, with a glass face through which its register could be observed, and running the steam pipes, protected by the various coverings to be tested, through this box; each test occupied an hour, the box being closed, for the commencement of the trial, when the temperature of 97° had been reached. In the cases where coverings of the pipes other than the "air space" was used, the temperature, with 10 pounds steam pressure, ran up to from 102° to 105° within 30 minutes, but with the "air space" covering the temperature could not be got up to over 90° in the open box, and with the box closed and the application of 14 pounds of steam reached only 94° after an hour's trial.

Many tests have been made as between steam surfaces covered and similar surfaces without any covering, but a noticeable one is mentioned in an account of some experiments by J. C. Hoadley on the economic effect of applying the Chalmers-Spence covering to a locomotive boiler, published in the *Journal of the Franklin Institute*, April, 1877, of which the following is a summary:

Steam Pressure.	Per cent Radiation, Boiler Uncovered.	Per cent Radiation, Boiler Covered.	Ratio of Saving by Covering.
130 to 140 lb. per square inch	13·7	5 8	42 2
120 " 130 " " " "	13·3	5·3	40·4
110 " 120 " " " "	12·9	5 7	44·3
100 " 110 " " " "	12·8	5·7	44·8
90 " 100 " " " "	11	4·9	44 8
80 " 90 " " " "	10·7	4·3	40·5
70 " 80 " " " "	10·2	4·3	42·2
60 " 70 " " " "	11·3	4·5	40
50 " 60 " " " "	10 6	4·6	43·8

The advantages of these coverings in the practical working of steam engines, and in manufacturing establishments where a great amount of coal is consumed, are shown in a marked diminution in the amount of fuel used, or a greatly increased steam pressure, or both.

This system not only saves the great loss of power which always attends the working of an engine when a portion of the steam has been condensed, which often occurs where an engine is run at a distance from the boiler, but it so helps to keep stored up the heat from the fires that a materially increased steam pressure is the invariable accompaniment of its adoption, so that, while it may not go far in aiding us to obtain in working power that theoretical value of coal for which all engineers are striving, its great economy in the way of saving the power which every one acknowledges is easily possible cannot be denied.

Besides owning the "air space" improvement, the company are manufacturers of various non-conducting compositions, hair felt, etc., and asbestos mill board, round packing, sheathing, wicking, and other articles of this class. They have factories at New York and Pittsburg, their New York office being at No. 40 John street, and they apply their improvements in every part of the country. The officers of the company are: John Roach, President; Geo. E. Weed, Treasurer; and R. H. Martin, Secretary and General Manager.

American Inventions Abroad.

A correspondent signing himself "Old Inventor," in the *Industrial Record*, published in London, calls attention to the alarming extent American inventions and machines are being introduced into England. Referring to the letter the editor quotes therefrom and comments as follows:

"In another column we publish a communication from an 'Old Inventor,' calling attention to the remarkably flourishing trade being carried on here in inventions, not of English origin, but of American production. 'Go where you will in London, American "notions," large and small, meet you at every turn—English inventions nowhere.' This is, no doubt, the case. We want no better evidence of the effect of the patent systems of the two countries. The smallness of the charges for a patent in the United States enables almost every inventor to protect his discovery, and to quickly find a market for it if it have any value, while the extortionate charges of the English tariff prevent all but a few from obtaining that protection which patent laws were designed to afford.

"But an 'Old Inventor' does not regard our scandalously bad patent laws as the only disadvantage which the British inventor suffers in comparison with his American rival. He finds in our moneyed and commercial classes a short-sighted disregard of the important services of inventors never characteristic of the same classes in America. 'Not only are her patent laws conceived and enforced for the encouragement and protection of inventors, but her capitalists and manufacturing classes are ever ready to assist inventors to develop and utilize their conceptions.' In the United States, 'let it be known,' he says, 'that an improvement has been discovered in machinery, a use found for a waste material, a new process devised in any industry, and the inventor has no difficulty in finding a market for his discovery.' Such, he adds, is not the case here. 'Let a man approach a manufacturer with a project for economizing labor, cheapening an article he is producing, or invite his attention to a new enterprise altogether, and he will be met with indifference, if not with suspicion, and dismissed as a "crazy inventor." Let him seek the assistance of a private capitalist, and he will fare no better. Rarely will he meet with sympathy or favor. Millions will be forthcoming in this country for any rotten foreign loan but to invest in a patent is a "risky speculation."'

"It must be acknowledged," says the editor, "that there is much truth in these remarks. If America has wanted money for any particularly rotten financial scheme, she has generally been able to get it here, but she has meanwhile been very careful to invest her own capital in the extension of her industries and the development of the inventive faculties and ingenuity of her citizens. We have by no means shown the same sagacity. But we think that the apathy and indifference to the claims of inventors which have distinguished us in the past, and must still, to some extent, be charged against us, are disappearing, and a more enlightened and enterprising spirit prevailing. But it has not been for lack of assistance and capital that the number of inventions lately taken up is not even larger than it is. The fault has been in too many cases with the inventors themselves. The value they put upon their own inventions is frequently very exaggerated, not to say absurd, and they defeat their own ends by the immoderation of their demands. When an inventor is content to rest his claim on the proved value of his invention, capital can generally be found to assist him, except where the invention is frivolous or manifestly worthless. If inventors would only bear this in mind, inventions of English production would be more frequently found in our markets and we should have less to fear from the formidable rivalry of America."

An Arctic Voyage Closed.

The unlucky Gulnare, of the Howgate Expedition, has returned to Newfoundland. The highest point reached was Disco Island, which the Gulnare reached August 9, badly battered by a storm. Two weeks were spent in repairing and taking in a half supply of coal. The return voyage was made mostly by sail, reaching St. John, September 24. Dr. Pavy, the naturalist, remained in Greenland to pursue his researches in natural history.

NEW INVENTIONS.

Mr. Benjamin Goodyear, of Carlisle, Pa., has patented a simple and inexpensive detachable bail or handle for crocks, that may instantly be applied or removed therefrom. The invention consists, essentially, of a stout wire bail in the shape of a figure 8, and having a curved clamp on each end, so that the said clamps shall be in a horizontal plane and with their concave faces opposite each other, so that when the clamps are applied to the opposite sides of a crock or other object, they will grasp the crock with a pressure dependent upon the upward pull exerted on the upper loop forming the handle of the device.

An improved faucet for dispensing mineral waters has been patented by Mr. John Collins, of Brooklyn, N. Y. The object of this invention is to furnish faucets for mineral water fountains, so constructed that the water can be introduced into the glasses without losing its sparkle.

Mr. Charles L. Bates, of New York City, has patented a gong bell, constructed so as to give a heavy blow with a short stroke. It can be adjusted for use as a right hand or a left hand bell, as may be required.

An improved wagon for gaseous liquid fountains has been patented by Mr. John Collins, of Brooklyn, N. Y. The object of this invention is to furnish wagons for gaseous liquid fountains, so constructed that the fountains will be securely held in place during transportation, and can be easily, quickly, and conveniently secured and released.

An improved berry basket holder has been patented by Mr. William J. Robinson, of Howlett Hill, N. Y. The object of this invention is to provide a simple device for holding a basket while picking berries, so that the berries shall not be spilled.

In the ordinary method of treating frozen paraffine oil for the separation of the oil from the wax, the frozen paraffine is inclosed in small cloths and folded and laid on plates in tiers of from twenty to twenty-five packages, and by the time the press is filled the frozen oil becomes warm, and consequently the crystallized wax melts and runs out as a liquid with the oil, and when the press is run down the wax in the cloths still contains oils, which renders it necessary for the wax itself to be again folded in cloths and again submitted to the action of the press, which process involves considerable labor, time, and waste of wax; and the wax is by this process rarely completely freed from the oil, while the oil always contains some wax, which injures the lubricating qualities of the oil. Mr. Herman Neahous, of Sharpsburg, Pa., has patented a process and apparatus that are free from the imperfections of the old method, and will make a thorough separation of the wax and oil, and do it economically.

Mr. Christian Heinzerling, of Biedenkopf, Germany, has patented a process of tawing hides for the purpose of adapting them to the uses of leather, which consists in first subjecting the raw hides to a solution of alum and zinc dust for the purpose of depositing amorphous alumina in the same, then to a solution of one of the chromic alkalies mixed with alum, or its described equivalent, and chloride of sodium, then fixing these in the hides by the chloride of barium, or its described equivalent, and finally greasing or fatting the hides.

How to Preserve a Carriage.

Mr. Starey, a prominent carriage manufacturer, of Nottingham, England, in a series of useful hints on their preservation, says that a carriage should be kept in an air tight coach house, with a moderate amount of light, otherwise the colors will be destroyed. There should be no communication between the stables and the coach house. The manure heap or pit should also be kept as far away as possible. Ammonia cracks varnish and fades the colors both of painting and lining. A carriage should never, under any circumstances, be put away dirty. In washing a carriage, keep out of the sun, and have the lever end of the "setts" covered with leather. Use plenty of water, which apply (where practicable) with a hose or syringe, taking care that the water is not driven into the body to the injury of the lining. When forced water is not attainable, use for the body a large soft sponge. This, when saturated, squeeze over the panels, and by the flow down of the water the dirt will soften and harmlessly run off, then finish with a soft chamois leather and oil silk handkerchief. The same remarks apply to the underworks and wheels, except that when the mud is well soaked, a soft mop, free from any hard substance in the head, may be used. Never use a "spoke brush," which, in conjunction with the grit from the road, acts like sandpaper on the varnish, scratching it, and of course effectually removing all gloss. Never allow water to dry itself on the carriage, as it invariably leaves stains. Be careful to grease the bearings of the fore-carriage so as to allow it to turn freely. Examine a carriage occasionally, and whenever a bolt or slip appears to be getting loose, tighten it up with a wrench, and always have little repairs done at once. Never draw out or back a carriage into a coach house with the horses attached, as more accidents occur from this than from any other cause. Headed, known here as top, carriages should never stand with the head down, and aprons of every kind should be frequently unfolded or they will soon spoil.

A carrier pigeon belonging to John C. Haines, of Tom's River, N. J., flew recently the distance of 36 miles in an air line in twenty-four minutes. Ten other pigeons released at the same moment reached home a minute later than their leader.

The Post Glacial History of the Peninsula of Boston.

The geological history of the site of Boston, Mass., since the glacial epoch, is described as follows by Professor Shaler, in the history of the city called out by the 250th anniversary of its settlement:

"After the ice had lain for an unknown period over this region, climatal changes caused it to shrink away slowly, and by stages, until it disappeared altogether. As it disappeared it left a very deep mass of waste, which was distributed in an irregular way over the surface, at some places much deeper than at others. At many points this depth exceeded 100 feet. As the surface of the land lay over 100 feet below the present level in the district of Massachusetts Bay when the sea began to leave the shore, the sea had free access to this incoherent mass of *débris*, and began rapidly to wash it away We can still see a part of this work of destruction of the glacial beds in the marine erosion going on about the islands and headlands in the harbor and bay. The same sort of work went on about the glacial beds, at the height of 100 feet or more above the present tide line. During this period of re-elevation, the greater part of the drift deposits of the region about Boston was worked over by the water. Where the gravel happened to lie upon a ridge of rock that formed, as it were, a pedestal for it, it generally remained as an island above the surface of the water. As the land seems to have risen pretty rapidly when the ice burden was taken off, probably on account of this very relief from its load, the sea did not have time to sweep away the whole of these islands of glacial waste. Many of them survive in the form of low, symmetrical bow-shaped hills. Parker's Hill, Corey's Hill, Aspinwall, and the other hills on the south side of Charles River, Powderhorn, and other hills in Chelsea and Winthrop, are conspicuously beautiful specimens of this structure. Of this nature were also the three hills that occupied the peninsula of Boston, known as Sentry or Beacon, Fort, and Copp's Hills. Whenever an open cut is driven through these hills, we find in the center a solid mass of pebbles and clay, all confusedly intermingled, without any distinct trace of bedding. This mass, termed by geologists till or bowlder clay, is the waste of the glacier, lying just where it dropped when the ice in which it was bedded ceased to move, and melted on the ground where it lay. All around these hills, with their central core of till, there are sheets of sand, clay, and gravel, which have been washed from the original mass, and worked over by the tides and rivers. This reworked bowlder clay constitutes by far the larger part of the dry lowland surface about Boston; all the flat lands above the level of the swamps which lay about the base of the three principal hills of old Boston—lands on which the town first grew—were composed of the bedded sands and gravel derived from the waste of the old bowlder clay. These terraces of sand and gravel from the reassorted bowlder clay make up by far the greater part of the low-lying arable lands of Eastern Massachusetts; and of this nature are about all the lands first used for town sites and tillage by the colonists—notwithstanding the soil they afford is not as rich nor as enduring as the soils upon the unchanged bowlder clay. The reason these terrace deposits were the most sought for town sites and cultivation is that they were the only tracts of land above the level of the swamps that were free from large bowlders. Over all the unchanged drift these large bowlders were originally so abundant that it was a very laborious work to clear the land for cultivation; but on these terraces of stratified drift there were never bowlders enough to render them difficult of cultivation. The result was that the first colonists sought this class of lands. One of the advantages of the neighborhood of Boston was the large area of these terrace deposits found there. There was an area of 15,000 or 20,000 acres within seven or eight miles of the town that could have been quickly brought under the plow, and which was very extensively cultivated before the bowlder-covered hills began to be tilled."

Practical Value of Science.

BY PROFESSOR S. H. TROWBRIDGE, IN "THE ADVANCE."

Our obligations to the branch of physics are almost unlimited, but we will mention only two or three applications of a single agent in this wide field. It would seem to roll back the world into the dark ages to take from it now the benefits of electricity in its multiplied and yet rapidly multiplying applications.

It seems incredible, from our present standpoint, that so short time ago, in our congressional halls, the electric telegraph was almost ridiculed and voted into oblivion, from which it could never rise. When a bill was presented appropriating $30,000 to be expended, under the direction of the Postmaster General, in a series of experiments to test the merits of Morse's electro-magnetic telegraph, one member moved an amendment requiring half the appropriation to be used for the encouragement of mesmerism. Another proposed to include Millerism in the benefits of the appropriation; others to appropriate part of the sum to a telegraph to the moon. And when the bill came to a final vote, this was so close that a change of three votes would doubtless have left us till this day without the benefits of the telegraph. After his invention was in working order, and transmitting messages between Baltimore and Washington, Mr. Morse offered it to Congress, to be attached to the Post Office Department, for the sum of $100,000. But it was declined, on the statement of the Postmaster General, who reported that, while the invention was "an agent vastly superior to any other ever devised by the genius of man," he was not satisfied that "under any rate of postage that could be adopted its revenue could be made to equal its expenditures." By this short-sighted want of appreciation of science, the United States government deprived itself of a source of revenue sufficient, doubtless, to liquidate the entire national debt in a single decade.

The application of electricity, now attracting world-wide attention, enjoys a vastly more hearty reception than did the telegraph. The *telephone* is constructed on the principle of the human ear. It consists of an elastic diaphragm, to receive vibrations of air from the human voice or from other sources, so connected with the wires of a battery (or even with wires without a battery) as to communicate the same vibrations in every respect to another membrane or diaphragm situated at a distance. The two diaphragms of a telephone in distant places correspond, in every practical sense, to the two membranes of the human ear, and the connecting wire to the chain of bones between the two membranes. Probably no invention has come more rapidly into popular favor. Already many thousands of them are in practical use in this country and abroad. "It is employed as a means of communication between counting room and factory, merchant's residence and the office, publishing house and printing office, and, in short, wherever oral communication is desired between persons separated by any distance beyond the ordinary reach of the human voice."

The speaking phonograph is also copied from the human ear. The vibrating diaphragm, in this case, has a stylus connected with it, which impresses the peculiarities of vibration, due to any particular sound, upon a roll of tin foil arranged to receive the impression. By reversing the process, the indentations and prominences of the tin foil cause the stylus to fall and rise, which results in vibrations of the membrane, and these reproduce the original sound. These impressed sheets of tin foil may be preserved or mailed to any part of the world, and by putting them into a similar instrument, may be made to reproduce the pitch, tone, and quality of the original sound thousands of miles or of years distant. By this instrument, voice may be phonographed, as the face is photographed and we may listen to the veritable voice of the dead, or preserve for future comparison the voice of a person from the first infant prattle and the manly utterances of mature life even to the feeble speech of old age. Public speeches and songs may thus be preserved and delivered indefinitely or till the tin foil wears out. In public libraries may be preserved languages of different nationalities spoken from century to century "with all the peculiarities of pronunciation, dialect, and brogue."

Correspondence.

A New Safety Sail Boat.

To the Editor of the Scientific American:

"Don't trust yourself in that craft; you'll be overboard sure." Such was the warning of a professional boatman at the barge office on the Battery, as I stepped upon a frail boat on a "fresh" afternoon. I think I know something of boats myself, and but that I knew this one to be provided with means intended to overcome the very danger against which the honest boatman warned me, I should have more than hesitated. But the pursuit of science must be deterred by no dangers, and, moreover, my pursuit in this instance was in behalf of the whole world, as represented by the SCIENTIFIC AMERICAN.

The Jane was an especially dangerous-looking craft, 18 or 20 feet long, whose bottom and deck formed the sharp V-shaped edge which proclaim an entire want of bearing power, while her immense sails, main and jib, were ample for a boat of twice her dimensions. Her captain was a New Zealander, whose motions were the reverse of safety-inspiring. My own conception of the care needful under the existing circumstances had no place with him, and, but for entire faith in my ability to swim, I should never have ventured.

As the Jane shot beyond the pier head, her huge sails were struck by a blast more than sufficient for instant destruction. Involuntarily I made ready for an impromptu bath, and the boatman tauntingly called out, "What'd I tell ye?" but *only the mast yielded*. The boat came to her bearings and moved on as steadily as though impelled by the mildest zephyr. The triumph was already complete; but more was to come. Presently we were in a large seaway, and, with our good speed, a large inflow of sea water over the low and sharp bow was a matter of course. In that, also, I was agreeably disappointed. The boat, instead of carrying the weight of the wind and being thus forced *through* the sea, rose to it and she glided easily *over*. Again it was the mast that yielded—yielded to the motion of the boat as easily as before it yielded to the force of the blast. The surplus force of wind, instead of racking the boat and making misery for her passengers, was simply "spilled" over the top of the sail. The motion was free from the thumps and jars usual under the same circumstances.

How all this was accomplished may be difficult of explanation without the aid of an engraving. Instead of being "stepped" in the usual way, the mast was held in a rocking shaft at the deck, and to the keel, on either side, springs were attached, having their opposite ends secured under the deck. Thus the mast, in the absence of pressure, remained upright, but under pressure yielded on either side. The amount of pressure needful to compel this yielding was regulated by nuts and screw on a guide rod inside the springs. A second pair of springs, placed longitudinally under the deck, were connected by pulleys with the shrouds, and these aided to stiffen the mast while they yielded to its movements under pressure.

For pleasure boats this spring mast is a great addition. It not only insures safety, but gives an ease of motion which cannot but prove especially delightful to those who are timid upon the water. More than this, it permits an unvarying course for the boat, and thus avoids the checks and delays inseparable from "luffing," as also the necessity of unusual skill and care in the management of even a "crank" vessel in a "flowy" wind. M. S. B.

New York, October, 1880.

[The invention, a practical trial of which is above described, is that of Mr. John McLeod, Hill's Pavilion, Flushing, N. Y. A patent has been allowed. It appears to be a really valuable and practical improvement.—EDS. SCI. AM.]

An Opening for Two New Articles of Manufacture.

To the Editor of the Scientific American:

I. In the Southern States 1,500,000 baskets are required for the harvesting of the cotton crop. These baskets are made of oak splits, and, except with extraordinary care, they last but one season, and are then thrown away. They require an expenditure on the part of planters of nearly $2,000,000 annually. Is it not possible that a basket may be made of iron, either wire or ribbons, which would last several seasons? The ribbons or splits might be made of some cheap quality of steel so as to be elastic, and if they could be made to weigh not more than 15 to 20 pounds each, and not to cost more than $2.00 to 2.50, they might prove a great success.

II. A great expense and trouble to the poorer people of the South is on account of cabin chimneys. On plantations and farms at a distance from cities, brick chimneys are so expensive as to compel owners of cabins to content themselves with stick and mud chimneys, which cost about $5.00 each, and which, if they do not burn up in the meantime, certainly fall down within a few years. A good substantial dirt chimney may be built up as far as the throat above the fireplace, but the shaft of the chimney, built of small sticks and daubed with mud, last but a brief time, and are always dangerous from fire. I would suggest to the manufacturers of concrete wares that a chimney stack with a flaring bottom (to sit on the dirt built jamb) might be constructed at a price which would commend it to the wants of thousands and tens of thousands of tenants of log cabins and cheap frame houses in this country. The form should be a square tube, 10 to 16 feet long, 16 to 18 inches square, flaring at the bottom to a size of 16x36 inches.

If there is any difficulty in this form, the flared portion and the stack might be constructed in different pieces, like joints of piping, with flanges to fit into each other. Here is certainly a great opening for industry in a new channel.

J. B. C.

Nodina, Ark., September 14.

AGRICULTURAL INVENTIONS.

Mr. Samuel E. Licklider, of Everett, Mo., has patented an improvement in the class of live stock feeders consisting of combined hay racks and mangers. The feature of novelty is the construction of the rack or hay receptacle and its arrangement relative to the manger.

Mr. Theodore C. H. Krüger, of San Marcos, Texas, has patented a machine for planting corn or cotton, that may be attached to almost any kind of plow. It is simple in construction, easily repaired by an ordinary blacksmith, and may be used for planting where stumps and rocks would interfere with the operation of machines of ordinary construction.

Big Farms on the Pacific Coast.

The "Mammoth Farm," of the Blacklock Wheat Growing Company of Washington Territory, comprises 60,000 acres of wheat land, of which 25,000 acres are fenced. Ground has been broken for a crop which is expected to foot up between 300,000 and 400,000 bushels.

Another large farm is that of Dr. Hugh J. Glenn, of California. It is in the Sacramento Valley, and comprises 65,000 acres, of which 45,000 acres were in wheat this year. The owner had provided 350,000 sacks, each holding 140 pounds, but at last reports they promised to be unequal to the task of holding the crop. Dr. Glenn has his own machine shops, blacksmith shops, saw and planing mills, etc. He manufactures his own wagons, separators, headers, harrows, and nearly all the machinery and implements used. He has employed 50 men in seeding and 150 in harvest, 200 head of horses and mules; 55 grain headers and other wagons, 150 sets of harness, 12 twelve-foot headers, 5 sulky hay rakes, 12 eight-mule cultivators, 4 Gem seed sowers, 8 Buckeye drills, 8 mowers, 1 forty-eight inch separator, 36 feet long and 13½ feet high, with a capacity of 10 bushels per minute; 1 forty-inch separator, 36 feet long; 2 forty-feet elevators for self-feeder, 1 steam barley or feed mill, and 2 twenty horse power engines. The forty-eight inch separator thrashed, on the 8th of August, 1879, 5,779 bushels of wheat.

RAPID TELEGRAPHING.—A political speech, of about sixteen thousand words, and occupying four hours in the delivery, was telegraphed to Cincinnati, from this city, September 24, in five hours and five minutes, by one operator on one wire. He used the Phillips system of steno-telegraphy.