HOW GRAIN IS STORED IN NEW YORK.

The influence exerted by the agricultural interest upon the prosperity of the United States can hardly be over-estimated. No other branch of industry has attained such gigantic proportions in so short a time, or wields at present such power for the welfare of the country.

The rise of the great cities of the West, the increased exports, with the corresponding influx of wealth, are each, to a great degree, due to the impulse of agriculture. Chicago, that marvel of progress, is, in itself, a power exerting more of authority on the world's destinies than many a German principality. The unparalleled growth of that city has been owing neither to her manufactures nor foreign commerce, but solely to agriculture and the commerce created by it. A comparison of her grain shipments during the past twenty-eight years, with the increase of wealth and population for the same period, furnishes substantial proof of the above assertion. From less than one hundred bushels in 1838, her exports now exceed fifty-one millions annually. In her position as the converging point through which pass the results of the industry of the entire West, she maintains her proud station, without a rival, as the largest primary grain depot of the world.

When we include the other great cities interested in the grain trade—Milwaukee, St. Louis, Cincinnati, Cleveland, Buffalo, and New York—we obtain a proper estimate of the vast importance of the agriculture of the United States, which not only supplies our own population, but furnishes, in addition, an almostinexhaustible granary for other nations.

The largest port of shipment, as also the largest receiving depot on the Eastern coast, is New York. Through this channel flows the great part of an immense supply onits way to market, either for home consumption or foreign exportation.

During the year ending September 1st, forty millions of bushels of grain were received in this city, of which sixteen millions were exported to England and the Continent. The storage and re-shipment of so large a quantity of grain has caused the erection of immense storehouses in New York and vicinity. We lately visited a model institution of this kind—the United States Elevator and Stores—situated at the foot of Degraw street, Brooklyn, and as the result of our inspection, present the following description:—

The elevator tower is upon the wharf fronting the East River, where there is a depth of water sufficient to float the largest vessels. Here are moored the barges freighted with grain as they arrive from the canals, and ships that are to receive the precious cargo and carry it all over the world. Into the holds of the barges is lowered an endless chain of buckets, properly mounted, technically called the "leg." Power and motion are then imparted by a steam engine, and the unloading proceeds. Raised in this manner from the vessel to a great hight, the grain is emptied into a receiver holding 1,800 bushels. From this receiver it falls upon the scales, where any quantity is easily and conveniently weighed. Raised still higher, having been screened and blown, it is easily reshipped if desired, being allowed to run down through tubes into the ships at the wharf.

When designed for storing, the grain is carried from the scales by the "screw conveyor," a distance of one hundred and seventy-five feet to the main building or storehouse.

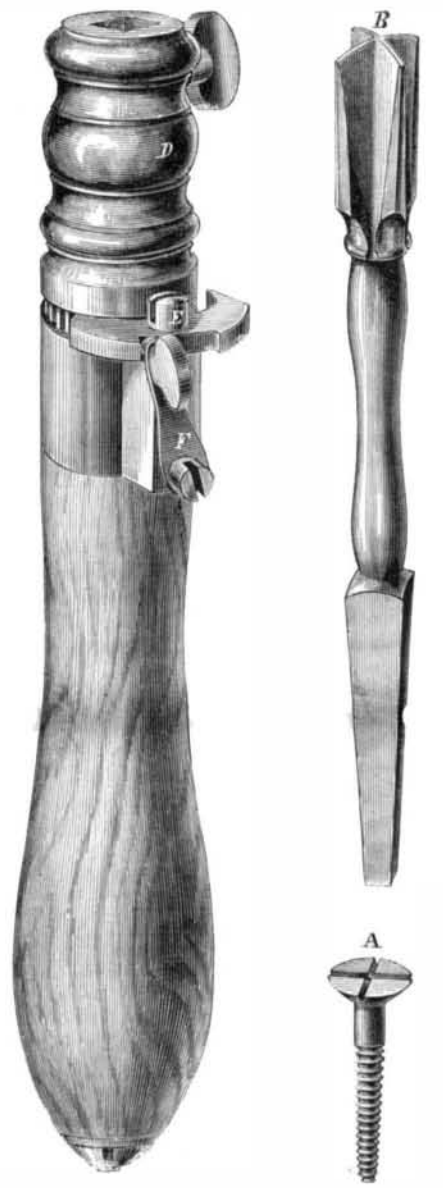
The storehouse is constructed on a new and ingenious plan, for which patents were secured to D. D. Badger, Esq., of this city, through the Scientific American Agency. Ninety-two cylindrical iron tanks, forty-two feet in length, each holding five thousand bushels, placed side by side, occupy the entire building. The intervening spaces between the cylinders, called "angles," have each a capacity for the storage of fourteen hundred bushels, giving a total accommodation for nearly half-a-million bushels. Over the center tank is placed a large receiver, connected to the main building by the "conveyor." From this general receiver, adjustable disbursing pipes are arranged so as to empty into any particular tank or angle, at the pleasure of the operator. By opening a valve in the bottom of each tank the grain may be discharged upon the first floor, and again elevated, if needed, for shipment.

The merits of this mode of storage over that commonly employed are apparent. The building is perfectly fire-proof, and the grain is stored in ninety-two immense iron safes. Economy of space, time, and expense, are other advantages. Under the common method, from eight to ten men are employed in unloading and trimming a cargo. This new plan requires but one man, and the work is performed in a more expeditious and satisfactory manner.

Our reporter is under great obligations to Mr. H. R. Westcott for attentions during our inspection of the establishment.

EVERSOL'S SCREW DRIVER.

The necessity of slipping the hand on the screw-driver, when driving home a screw, and the danger



of splitting the head of the screw when the friction is great, has led to the improvement illustrated in the engraving. If the blade of the common driver does not fit exactly the slot in the screw head, the bearing of the blade is on two opposite corners of the head, the weakest part of the screw, so that not unfrequently the beveled head flies off, breaking at the slot.

The object of this invention is to give a larger contact surface, and double the points of bearing between the driver and the screw; and at the same time to furnish a driver having but one motion. It will be easily understood by the engraving. A is a screw, with cross slots in the head, giving at least four points of frictional contact. B is the blade of the driver, quartered to fit the doubleslots. It is inserted and secured into the handle, C, as an ordinary bit into a brace. The socket, D, has a shank extending through and rotating in the handle. Connected with the socket, is a ratchet wheel, the teeth, like those of a common gear, which, with the socket and blade, is rotated by means of a pawl pivoted at E, to a knob, or lug, on the ferrule. This pawl turns the socket either to the right or left, as the spring, F, is moved to the one side or the other of the pivot, so that the motion of the hand in turning the handle one way or the other, operates to drive or remove the screw without removing the hand. A familiar illustration of the double pawl can be seen on almost any power planer in a machine shop.

Patented through the Scientific American Patent Agency, Aug. 14, 1866, by Cyrus Eversol, St. Louis, Mo., whom address for further information.

Steam as a Motor.

A correspondent, A. J. H., writes on the navigation of the air, insisting that all that is required to make it a permanent success is a proper motor, which will combine the necessary power with the requisite lightness, and says that steam is that motor. He claims to have made a rivetless boiler, which will bear a pressure of from 1,000 to 3,000 pounds per square inch.

By thus condensing an enormous power he believes aerostation is an accomplished fact, or, at least, is possible. We cannot agree with him that steam, however much super-heated, is adapted to the purpose. The weight of water, fuel, and machinery, to say nothing of the boiler, will be found to be too great, when compared with the mass to be moved in a fluid like air, to have much margin for available power. What is needed, not only for aerostation, but for other purposes, is an entirely new motor, which shall dispense with the weight of a boiler with its necessary appurtenances. The capacity of ships for freight is greatly reduced by the tunnage absorbed by the engines, boilers, and fuel. Machinery we must have to transmit the power from the generator to the element upon which, or through which, the ship moves. But the generator of the steam engine is cumbrous, heavy, and exacting in its demands. That a new motor will, in time, be contrived, without these drawbacks, we have no doubt; but until it is done we have but little faith in economic and successful navigation of the air.

A New Cement.

A late number of the London *Engineer* announces a new cement of great value, which is introduced under the euphonious title "The zopissa iron cement," which, it is claimed, is capable of joining any two solid substances, however dissimilar. Wood, brick, iron, stone, or glass, can be inseparably united with equal facility. A series of experiments witnessed by the *Engineer*, gave the following results:—

Plates of glass were firmly joined, edge to edge; ordinary bottles stuck upon the wall resisted all attempts at separation, till the stone yielded. Champagne bottles cemented bottom to bottom sustained a weight of two hundred and fifty pounds. Two bricks remained joined under a tension of three hundred and twenty-five pounds, till the brick itself fractured, but the cement remained firm. Brick work cemented with this has the solidity of a granite slab.

With paper treated with this preparation in solution, the inventor has made air and water-tight tubes, ammunition cases, coffins, and even constructed a house, one story and a-half in hight, perfectly wind and water-tight, which he now has on exhibition.

Of the constitution of this cement, or the expense of manufacturing it, the *Engineer* makes no intimations.

Imperishable Gut Cord and Belt.

The breaking of the cords of window weights is so frequent that it becomes a chronic annoyance. The manufacture of strong cord of gut has lately been commenced in Williamsburgh by Edward G. Vyse, 33 Grand st., which we can recommend to the attention of builders, house owners, and operators of machinery. The cord is made of gut or raw hide, and will last for sash weights a lifetime. For small round belts also its duration will be much greater than belts made of any other substance. The increased cost bears no sort of proportion to its increased durability.

GOLD has been found in Somers, Mass., specimens of the ore showing, by assaying, over ten ounces or $222,67 per tun.