

AN EFFICIENT LATCH FOR HEAVY DOORS.

A latch especially adapted for use on heavy and thick doors, such as those of barns and other outbuildings, etc., is shown in the accompanying illustration, and has been patented by Harris M. Whitcomb, of Albany, Ind. It has an oblong metal case with lateral flanges having countersunk holes, for attachment to the inner side of a door by screws, a central lengthwise slot adapting it for the detachable connection of one of the handles that operate the latch bolt. A washer on the outside of the door has a slot corresponding to the slot in the case, and the bolt or latch has an enlarged central slotted portion, one end of the bolt being round and surrounded by a spring, while the other end is square and beveled at its extremity to engage a beveled

required. Armor piercing shells are now being supplied to the navy capable of withstanding the test of passing through a caliber of hard-faced armor quite as well as those of earlier manufacture did that of passing through a caliber of simple steel. A new type of shell, called semi-armor-piercing, has also been developed to meet the modern practice of armoring large portions of heavy ships with armor from 4 inches to 6 inches thick. These shells will carry large bursting charges through half a caliber of armor, and explode after having gone through." It cannot be said that the manufacture of guns in the United States is very rapid. Perhaps it is fast enough, however, to keep pace with the building of their ships. The following quotation from the American Engineer's review of an article on "The Engineer in Naval Warfare" may be of interest in this connection: "The manufacture of guns has been chiefly in the hands of the line officers. This policy has not been productive of good results; for, while the largest rapid-fire guns in our navy are 6 inches—and there are only a few of them—other navies are mounting rapid-fire guns up to and including 8 inch. Other nations are obtaining greater muzzle velocities for nearly all calibers than are derived in our own practice. Other navies have developed wire-wound guns, by which greater strength, less weight, and ultimately less cost and time required for manufacture are attained. Our navy has done nothing in this respect. The army is experimenting with such a

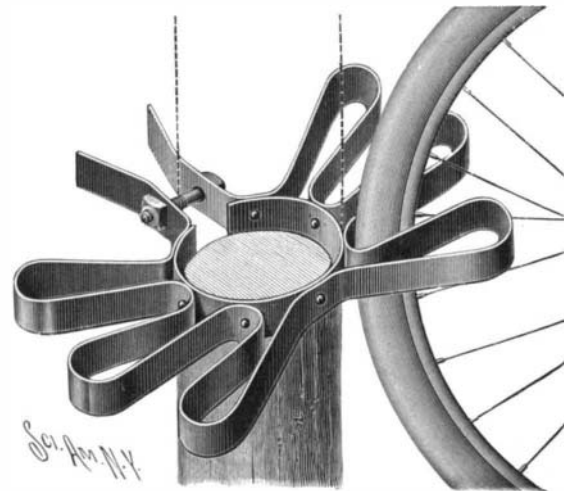
ferably made removable, and may be secured on the under side of the leaf if desired.

Government Crop Report, 1896.

The crop report of the Department of Agriculture says: "The estimates by States and Territories of the area, product and value of the principal cereal crops of the United States for 1896, made by the statistician of the Department of Agriculture, are as follows: Corn area, 8,627,000; product, 2,283,875,000; value, \$491,007,000; yield per acre, 28.2 bushels; farm price per bushel, 21.5c. Winter wheat area, 22,794,000; product, 267,934,000; yield per acre, 11.8 bushels. Spring wheat area, 11,825,000; product, 159,750,000; yield per acre, 13.5 bushels. Total wheat area, 34,619,000; product, 437,684,000; value, \$310,603,000; yield per acre, 12.4 bushels; farm price per bushel, 72.6c. Oats area, 27,566,000; product, 707,346,000; value, \$132,455,000; yield per acre, 25.7 bushels; farm price per bushel, 18.7c. Rye area, 1,831,000; product, 24,369,000; value, \$9,961,000; yield per acre, 13.3 bushels; farm price per bushel, 40.9c. Barley area, 2,951,000; product, 69,695,000; value, \$22,491,000; yield per acre, 23.6 bushels; farm price per bushel, 32.3c. Buckwheat area, 755,000; product, 14,090,000; value, \$5,522,000; yield per acre, 18.7 bushels; farm price per bushel, 39.2c. Potatoes, area, 2,767,000; product, 252,235,000; value, \$72,182,000; yield per acre, 91.1 bushels; farm price per bushel, 28.6c. Hay area, 43,260,000; product, 59,282,000 tons; value, \$388,146,000; yield per acre, 1.37 tons; farm price, \$6.55 per ton. Tobacco area, 595,000 acres; product, 403,004,000 pounds; value, \$24,258,000; yield per acre, 678 pounds; farm price, 6c. per pound."

A SIMPLE BICYCLE HOLDER.

The device shown in the illustration is designed to be readily attached to or removed from a pillar, post, or other convenient standard, and by engaging the tire of the rear wheel of a bicycle with the holder, several machines so held will be separated at the front, so that

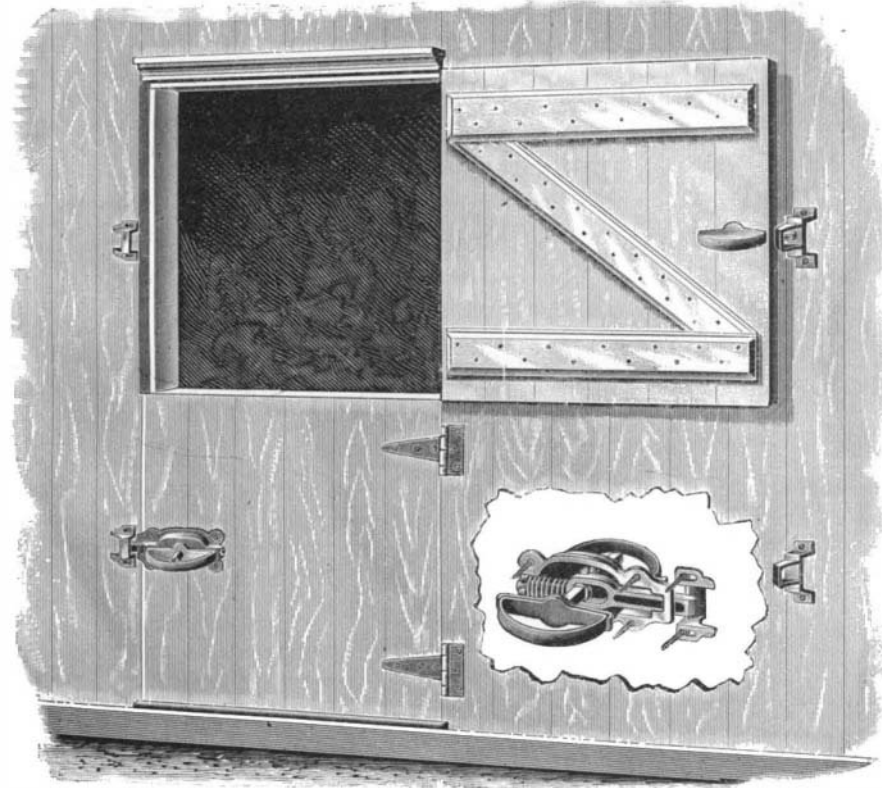


RISDON & POOLE'S BICYCLE HOLDER.

the handle bars of adjacent machines will not interfere. By reversing the device bicycles may be held at different angles to the support, and the holder does not engage the rim or the spokes, avoiding the possibility of injuring the machine. This holder has been patented by Thomas Poole and Edgar S. Risdon, and is being manufactured by Risdon & Poole, No. 19 Jennie Street, Trenton, N. J. The device is made of a strip or band of metal crimped to form alternate loop arms and intervening spaces, the ends of the band being carried outward to form opposing jaws which may be drawn together or toward each other by a bolt and nut. The body of the holder is preferably attached by rivets to a central tie band. The holder may be made with any desired number of loop arms and intervening spaces.

Business Ninety-six Years Ago.

Not only was the field of business enterprise restricted, but the transaction of business within that field was slow and difficult. The merchant kept his own books, or, as he would have said, his own accounts, wrote all his letters with a quill, and when they were written let the ink dry or sprinkled it with sand. There were then no envelopes, no postage stamps, no letter boxes in the street, no collection of the mail. The letter written, the paper was carefully folded, sealed with wax or a wafer, addressed and carried to the post office, where postage was prepaid at rates which would now seem extortionate. To send a letter, which was a single sheet of paper, large or small, from Boston to New York or Philadelphia, cost 15½ cents, and to Washington 25 cents, and this at a time when the purchasing power of a cent was five times what it is at present. To carry a letter from Philadelphia, then the capital of the United States, to Boston and bring back an answer by return mail would have consumed from twelve to eighteen days, according to the season of the year and the weather.—Portland, Me., Board of Trade Journal.



WHITCOMB'S BARN DOOR LATCH.

catch on the door jamb, a similar catch on the casing or wall holding the door open when desired, as shown in the engraving. One of the bow handles is rigidly connected with a rectangular spindle, and the other handle has a hub with a square mortise opening to receive the spindle and lateral arms that engage and operate the latch bolt. The bolt may be disengaged from the catch by seizing and turning either handle, and as the door is swung open the latch bolt automatically engages the catch on the wall. The latch is adapted to doors of different thicknesses, as the spindle of one handle may be readily adjusted in the mortise of the hub of the other handle.

American Institute Fair.

The sixty-ninth fair of the American Institute will be held at Madison Square Garden, from Monday, September 20, to Thursday, November 4, next. The board of trustees has selected Mr. A. Chasseaud to be the managing director of the fair. The institute has established a temporary office in the tower of the Madison Square Garden. The idea of the managing director is to amplify the departments that have been regular features of the American Institute Fair in the past years. He will inaugurate new ways which will add greatly to its scope and usefulness. Especial effort will be made to obtain a representative exhibit of new machinery, inventions and chemical processes. There is no good reason why the fair of the American Institute should not revive the old time interest which was felt in it.

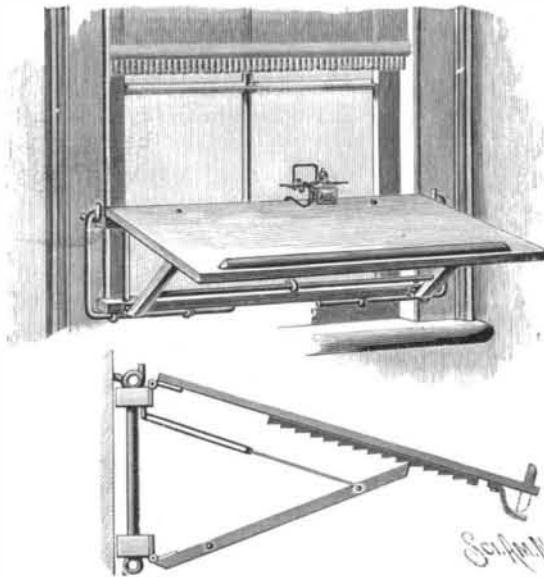
The Manufacture of Guns in the United States.

It is stated in the report of the Secretary of the United States Navy that: "During the past four years 213 guns have been manufactured of all calibers, as follows: seventy 4 inch, seventy-one 5 inch, six 6 inch, forty-five 8 inch, one 10 inch, eight 12 inch, twelve 13 inch. Including the twenty sets of 4 inch, thirty-five sets of 5 inch, fifty sets of 6 inch, and two sets of 8 inch gun forgings, for which contracts have been awarded, we have in course of manufacture at this date 196 guns of all calibers from 4 inches to 13 inches. Of these, sixty-three guns are for the auxiliary naval cruisers, for which an appropriation was made at the last session of Congress. In addition to the above, 100 3 inch field guns, for landing and boat service, are in hand and will be completed in the near future. March 1, 1893, 116 guns of all calibers were mounted aboard ship. At present, including some temporarily landed pending repairs of vessels, there are 366. Our projectiles of all calibers are manufactured by private firms, of which there are at least seven possessing the necessary plant and skill for the manufacture of the various kinds

weapon. We do not say this in a spirit of reflection on our ordnance officers. We all know that private firms, with their facilities for experiment, and with some government encouragement, can always outstrip the governmental shops. Our ordnance will continue to be inferior to that of other nations until private firms in the United States manufacture heavy guns like Armstrong does at Elswick, Krupp at Essen, and Canet at Havre."

A CONVENIENT WINDOW DESK.

A simple form of desk which may be quickly put up at or removed from a side wall, partition or window casing, and regulated to any desired angle, being also adjustable lengthwise to accommodate it to any width of window, is shown in the accompanying illustration, and has been patented by William A. Roos, of No. 512 West Forty-eighth Street, New York City. The leaf is hinged to the upper members of light frame sections, on which are adjustable extension pieces formed of metal rods movable through eyes, the extension pieces being engaged by hooks in the window casing. The leaf is held at any desired angle by hinged arms engaging racks on the under side of the leaf as shown in the sectional view, the arms being connected by cross bars and being yieldingly held against the racks by a spring, which may consist of a simple rubber strap. The inventor has a novel form of inkstand, covered by another patent and especially adapted for use with this desk. The rib on the front edge of the leaf is pre-



ROOS' WINDOW DESK.

Dr. Nansen on the Prevention of Scurvy.

Dr. Nansen, in his lecture at the Albert Hall on "Some Results of the Norwegian Arctic Expedition," among other highly interesting matters touched upon one of great medical interest. We all know the difficulty that has been experienced, and has always to be encountered, on such expeditions, and frequently in those of a military nature, in regard to scurvy, a malady which has hitherto been usually found to occur in Arctic explorations. Dr. Nansen ventured to declare that it was very easy to avoid that disease by taking proper precautions, and he proceeded to relate his experience: "Dr. Torup, professor of physiology at the University of Christiania, had come to the conclusion, after examining the subject, that scurvy must arise from poisoning, caused, in particular, by badly preserved meat and fish. He thought that in the decomposition which takes place in the meat from bad preserving—in salt meat, for instance—there was poisonous matter allied to the so-called ptomaines, which, when constantly partaken of, engendered the malady we call scurvy. Particular attention was paid to this at the time of their equipment, and from their experience and the investigations he had the opportunity of making during the journey, he could entirely subscribe to Torup's opinion in this matter. It was to be hoped that in a near future there would be scientific elucidation of this important point; and it was equally to be hoped that certain means for avoiding this hitherto so fateful sickness might be shown." Whether this supplies a key to the explanation of all the outbreaks of scurvy that have occurred, it would be premature to declare; but it marks a new departure, and is well worthy of further investigation. Meanwhile, we think it may possibly account for some of the outbreaks about which a difference of opinion existed as to whether they were to be entirely explained by the absence of fresh vegetables.—Lancet.

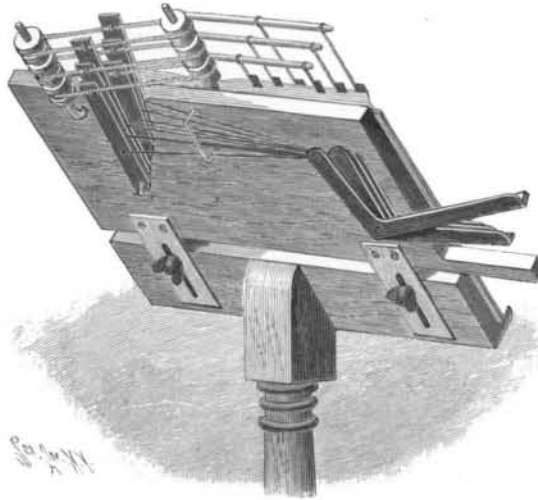
A SHORTHAND TYPEWRITER.

In 1893 there appeared in the SCIENTIFIC AMERICAN an illustration and description of a small typewriter designed especially for rapid work, having but a limited number of keys, arranged to be covered simultaneously by the fingers of both hands, and enabling the operator to make a good and rapid stenographic report on the typewriter itself. The machine was the invention of Mr. G. K. Anderson, of Nos. 97 and 99 Nassau Street, New York, and the accompanying illustration represents an improved machine of the same class, for which a patent has been recently issued to the same inventor. As will be seen, the characters are printed transversely across a continuous strip of paper, a word being printed at one stroke in plain English letters. An ordinary typewriter is handicapped in the matter of speed by the fact that only one key can be struck and only one finger used at a time—nine fingers being always idle. By this invention, the keyboard is so constructed that all the keys can be operated simultaneously. The machine has only sixteen printing keys, arranged in pairs, so that each finger can operate two; hence, sixteen characters can be printed at each stroke, if needed; and by the use of a pair of shift keys at each side of the keyboard, the capacity of each printing key is increased, just as the use of a shift key on the ordinary typewriter enables the operator to print either a small letter or a capital by using or not using the shift. On the Anderson machine, however, the shift keys and the printing keys are struck together and the hands remain substantially in one position, simply moving up and down, each finger above the pair of keys assigned to it, instead of darting here and there over a large keyboard. The illustration shows an operator in the act of printing the word "mankind." One downward movement of the hands prints the word, and as soon as they are lifted the machine automatically shifts the paper forward ready for the next word. It is claimed that this machine can be operated at a speed of 100 words a minute after six weeks' practice, and that its possibilities in the way of speed are greater than those of stenography; that it will not only save the time now spent in learning shorthand, but will do away with errors and illegible notes, and that in courts and large mercantile establishments a corps of typewriter copyists can be kept busy transcribing while a single Anderson operator is "taking." This typewriter is now in practical use in several large mercantile establishments, and operators are regularly being taught to work with its assistance

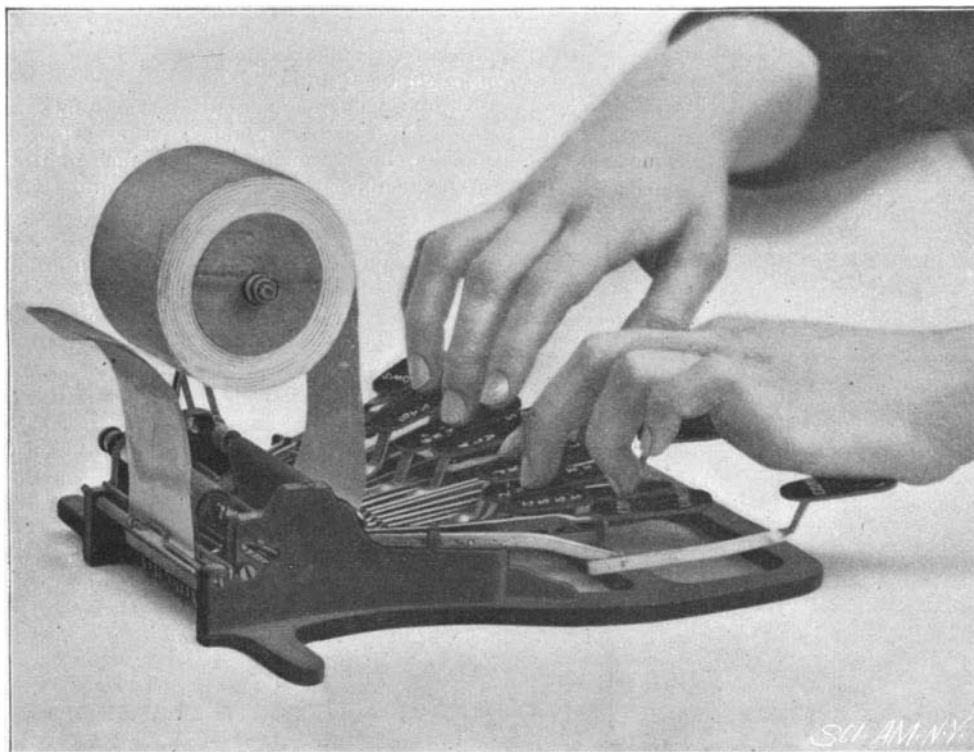
instead of learning the more complicated systems of shorthand reporting.

A NOVEL MUSIC LEAF TURNER.

A device designed to facilitate the turning of leaves of music, obviating the annoying delays so frequently embarrassing to a performer, is shown in the accompanying illustration, a rear view being given as indicating the manner of connecting the operating levers with the leaf-turning mechanism. The improvement has

**FLETCHER'S MUSIC LEAF TURNER.**

been patented by James Fletcher, of Chauncey, Westchester County, N. Y. To bring the upper edge of the music always in the same relative position to the leaf-turning mechanism, the top portion of the stand is made adjustable by thumbscrews, and in the top edge is a central pivot carrying rollers, from which extend horizontal leaf-carrying arms, provided with clamps or other devices for engaging the sheets of music. On another pivot, on the rear side of the music holder, are rollers, connected by cords with the rollers carrying the horizontal arms, and to these cords are connected two sets of pivoted operating levers, the different sets being connected to opposite sides or runs of the cords. These levers are connected by other cords to pivoted bell crank levers carrying keys in convenient reach of the player. A rigid arm projects from the music holder at one side, beneath which the thumb may be placed as the finger engages a key lever, to facilitate operating the device by pressing the thumb and finger together, thus obviating any tendency to shake or move the holder. By reason of the connection of the levers with both sides of the cords, it is obvious that the leaves may be turned in either direction, one or more pages being turned at once if desired. The keys may be placed at either side, or, by a slightly altered arrangement, on both sides, and, as the harder parts of the

**THE ANDERSON TYPEWRITER.**

mechanism do not strike each other, the device is designed to be practically noiseless.

A STEEL manufactory at Meurthe-et-Moselle recently blew out one of its furnaces which had remained in blast for seventeen years, in order to rebuild it to a height of seventy-five feet.

Shoe Eyelets.

There are many things that are sold by the gross, and not a few that are sold by the thousand, but there are not many that are sold by the million. Among the things that are so sold, however, are shoe eyelets, says the New York Sun.

Shoe eyelets are made of brass, by machines whose operation is almost entirely automatic. Three or four machines are required to produce the eyelet in the form in which it is sold, the brass being fed into the first machine in thin, flat strips. As sold to the shoe manufacturer, the eyelet is turned down at one end only. The eyelets look as much as anything like so many little hats with narrow brims and without any tops in the crowns. The upper end of the crown, which is like the end of a little cylinder, is put through the eyelet hole in the shoe, the finished brim or flange of the eyelet resting against the leather upon the outside. After the eyelet has thus been put in place its inner end is turned down upon the leather by a machine made for that purpose. In the manufacture of the eyelets a number of very slight vertical indentations are made at equal distances apart in the outside of the eyelet around the smooth, straight end. When the shoe machine smashes down the inner side of the eyelet the metal parts at these indentations are spread uniformly, thus giving it a secure hold.

Eyelets are made of various sizes in diameter and of various lengths of shank or cylinder, according to the thickness of the material with which they are to be used; and after they come from the machines they are finished in great variety. Some are finished white—these are silver plated; some are gilt finished and some are coppered. Eyelets are japanned in black or in various shades of russet; they are, in fact, made in any size and of any color that may be desired. Sooner or later the japanning wears off, exposing the brass. There are now made shoe eyelets that are covered with celluloid, which keep their color, but these are much more expensive than the kinds commonly used.

Shoe eyelets are packed in boxes containing 1,000, 10,000, 100,000, 250,000, and 500,000 each. Eyelets of the kinds most commonly used are sold, according to sizes and styles, at prices ranging from \$60 to \$135 a million. Some of the celluloid-covered eyelets sell for as much as \$500 a million.

The sale of shoe eyelets depends, of course, somewhat upon the prevailing style of shoe. When button shoes are more generally worn, not so many shoe eyelets are sold, but the number sold is always very large.

Eyelets are made for a wide variety of uses, up to the great eyelets that are sewed into the corners of sails, through which the sail is lashed to the end of the boom or yard. Taking them all together, the number is enormous; of shoe eyelets alone there are sold in this country some thousands of millions annually.

Veils and Vision.

Dr. Casey A. Wood, an American specialist, says that it is within the experience of every ophthalmologist that the wearing of veils produces weak eyesight, headaches, and sometimes vertigo and nausea. Not only are these effects produced by the eye strain consequent upon the increased efforts made by one or both eyes to see through or around an obstruction, but the irregular figuring on the veil itself is in some instances an annoyance to the wearer. Dr. Wood had a dozen typical specimens of veils selected for him, and made a number of experiments with them to determine the extent to which veils of various kinds affected the eyesight. He sums up his results as follows: 1. Every description of veil affects more or less the ability to see distinctly, both at a distance and near at hand. 2. The most objectionable kind is the dotted veil, although the influence for evil of this variety is more marked in some samples than in others. 3. Other things being equal, in undotted and non-figured veils vision is interfered with in direct proportion to the number of meshes to the square inch. 4. The texture of the veil plays an important part in the amount and kind of eye strain produced by the veil. When the sides of the mesh are single compact threads, the eye is embarrassed very much less in its effort to distinguish objects than when double threads are employed. 5. The least objectionable veil is that without dots, sprays, or other figures, but with large, regular meshes made with single compact threads.