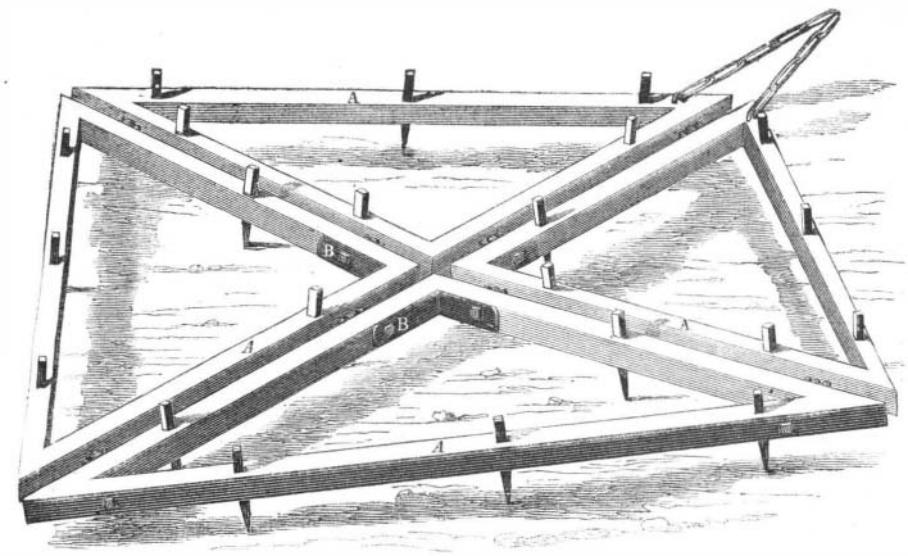
## RUSSELL'S IMPROVEMENT IN HARROWS.

The harrow is one of the most important agricultural implements, as much depends upon the top pulverizing or dressing of the soil, both before and and after the seed is sown, for the success of the future crop. The accompanying figure is a perspective view of a harrow for which a patent was granted on the 17th of January, 1860. The value of the improvement consists in the construction and arrangement of the different parts, so as to accomodate itself to the uneven surfaces of the ground, as we shall further explain. The figure represents a square harrow composed of four triangular ones, A A A A, which are brought together as shown, and so combined as to make it very flexible to avoid obstructions. The miter joints are secured by bolts, B B; one end of each has a screw and nut, the other is provided with a strap of iron as shown. These four harrows are thus secured so as to be sufficiently flexible to accomodate themselves to all inequalities of the ground over which they pass.



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The combined harrow is drawn by the chain, C, which is attached to the ends of two triangular ones, A A, in such a manner as to draw it in a wedge form to render its action better suited in overcoming obstructions than if drawn with a full square front. A shield of metal is usually secured to one of the harrows, and bent over in such a manner as to cover the opening between the two at the draft chain. This shield guides stubble and weeds to one side. This combination harrow is so simple that it is superflous to extend this description. It can be made cheap, strong and durable, and it is well adapted for harrowing either well-cleared or rough ground.

For more information address the patentee, Mr. John Russell, Grampian Hills, Pa.

## NEW FILTERING MEDIUM.

A patent has lately been taken out in England, by Julius Dahlke, of London, for the following method of preparing combination charcoal plates for filters—a very meritorious invention.

About 50 parts by weight of animal charcoal, 25 parts of quartz in coarse powder (silver sand, for example), 17 parts of coal tar, and 8 parts of fire-clay, are combined as follows:—The fire-clay is first mixed with the coal tar, so as to be thoroughly incorporated; the quartz and animal charcoal (wbich is to be previously reduced to a coarse powder) are then added, and the whole mass is intimately mixed and reduced to a plastic state, when it is fitted to be molded or fashioned into shapes or articles as required. The articles so made are then exposed to a gradually increasing heat, in close vessels, in order to carbonize the tar, and produce the necessary solidity. When gas is no longer generated, and has been all evolved, the heat is increased until the vessels and their contents become red hot, and remain so for about three hours, then they are taken out, cooled and the plates (as they may be of cylindrical or other shape) so formed are employed for filters, they being porous and well adapted for removing impurities from water. Vegetable charcoal may be used in place of animal charcoal, and the plates so made employed in sides of refrigerators, for the preservation of meats, &c. These filtering plates may be enclosed in a cylinder and placed in the supply pipe of house cisterns; or used on board ships, through which to pump water before using it; as a filter to pass the water to drinking fountains, &c.

For large purifiers, such as the filtering-beds of water works, plates of prepared charcoal, cemented together, are laid down, so that the water must pass through the charcoal. These plates can be taken out, scrubbed and washed when they become foul; and they can also be roasted again in a close retort and rendered as good as when new.

A VEGETABLE substance resembling sheets of flannel is frequently found on the sea-shore of Long Island.

## FRY'S IMPROVED MODE OF HANGING WINDOW-SASHES.

By the common methods of hanging sashes and securing windows in their frames, provision has not been made for the combined free movement of the windows up and down, easy access to the outside of them for cleaning the glass, a full open space for ventilation when required, and the retaining of the sash at any point—up or down—in proper position. All these desirable qualities are combined in the improvement represented by the accompanying engravings, Fig. 1 being a front view, showing how the upper and lower sashes may be swung and hung obliquely, and Figs. 2 and 3 are section views of the pivots on which the sashes rest.

Each sash, A, of the window is pivoted to a strip, B, at each side of the frame. These strips are confined in the slide recess of the frame, and connected to balance cords and pulleys of the usual construction. By pushing up the window-sash, A, the strip, B, will slide up also, the same as a common sash hung on balance cords. As each window-sash is pivoted at the middle to the strip, B, it will be readily understood how it can be swung into the position shown.

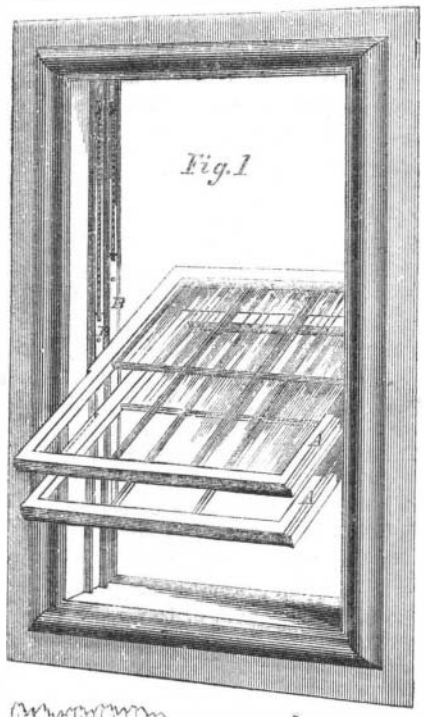

Fig. 1

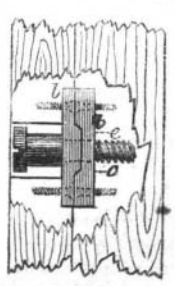

Fig. 2

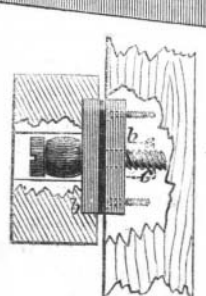

Fig. 3

But each sash has also the quality of retaining itself in place as shown. This is effected by the nature and arrangement of its pivots, as shown in the two minor figures 2 and 3. On one side of the window-sash, A, is a right-handed screw, *c*, Fig. 2, secured to it by a small metal plates, *b*, and upon the other side of the window-sash is a left-handed screw secured in a similar manner. On the sliding strips B B, at each side, are hollow screws or stationary nuts, *d*, adapted for receiving the solid screws, *c*; the latter form the pivots of the sash, and the hollow screws, *d*, are their sockets. By turning the window-sash, therefore, it will be held in the position shown, as provision is made with a piece of india-rubber for the strip, B, to accommodate itself to the motion of the screw pivots on which the sash can be made to turn. The plates, *b b*, of the hollow and solid screws, *c d*, may be formed as represented in Fig. 2 or 3, or the window-sash A, may be hung to the strips, B, by smooth pivots by having the surface of the plates, *b*, of such a form as to wedge and hold fast, when the sash is turned. Various modifications of the device for pivoting and securing the window-sash may be employed, all involving the same principles.

This improvement is also applicable to windows which do not have balance cords and pulleys. In this case the frame of the window is provided with a spring weather-strip, which runs along between the upper and lower window-sashes, and in this weather-strip there is a notch at each side to receive the edge of the sash. When it is desired to hold the windows obliquely, as shown in Fig. 1, the weather-strip at each side receives the sash and holds the window securely in position. The devices for effecting this are not all shown, but the operation will be readily understood from this statement.

By this invention the window-sashes are held firmly either in a horizontal or oblique position, and at a suitable point in the frame for free access of air and convenience of washing the glass inside and out. The advantages obtained by the simple and inexpensive devices and their arrangement for hanging window-sash, deserve general attention.

This invention was patented through the Scientific American Patent Agency on May 15, 1860, and measures have been taken to secure it in foreign countries. More information may be obtained by addressing the inventor, Thomas Fry, at 120 Fulton-street, Brooklyn, N. Y.

## THE ORIGINAL STEAM FIRE-ENGINE.

MESSRS. EDITORS:—In a recent number of the SCIENTIFIC AMERICAN I noticed that you had given the credit to Cincinnati of introducing the first steam fire-engine. This honor belongs to the City of New York. In the year 1842, the Matteawan Company furnished the fire insurance companies of this city with a steam fire-engine; the conditions being that the engine should be drawn either by men or horses, and should throw water over the flag-staff of the City Hall. The machine was completed under the superintendance of an engineer named Hodge; and when put in operation, it threw a 1½ inch stream over the said flag-staff, and was approved by the city authorities. This engine was kept in Mercer-street, in readiness for fires, and was instrumental in extinguishing a large fire in Dover-street near South-street, which so chagrined and annoyed the fire companies that it was found impossible to bring it into use, and the insurance companies sold it for other purposes. These assertions are facts which can be proved by reference to city records.

W. B. L.

New York, June 25, 1860.

CENTRAL PARK SWANS.—Eight of the twelve beautiful swans recently received from Hamburg, and placed in the pond at the Central Park, died on June 12th. It was at first thought that they had been poisoned, but a *post-mortem* examination failed to establish that hypothesis. The doctors were rather inclined to think that their death was caused by pleuro-pneumonia.