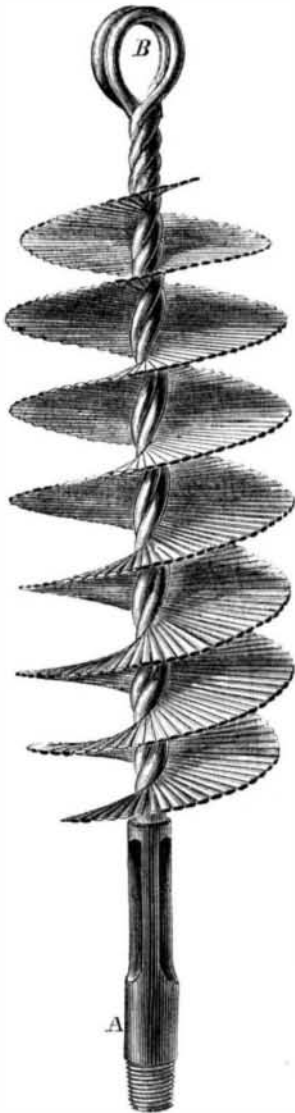


**STEEL BRUSH FOR BOILER TUBES.**

Fuel of all kinds is costly now, and a great deal is wasted by allowing steam boilers to get thickly coated with layers of ashes. Many tubular boilers are so neglected that the lower row of tubes is suffered to get entirely closed. This is a bad state of things, and any engineer guilty of it is not fit for his place. Whalebone brushes, to remove ashes and soot from the tubes, have been used for years, but they cannot be employed unless the boiler is quite cold, otherwise they will be destroyed. Steel-wire brushes have also been introduced, and are very useful.



The engraving published herewith shows an improved brush made of steel wire, spring tempered. It can be used when the boiler is hot, which is a decided advantage, for in some boiler tubes a tarry residuum is deposited by the smoke, which is best taken out while hot. For, when cold and mixed with ashes, it forms a very hard cement, which is almost immovable. The wires are flat on the ends, and act like cutters, and, being firmly soldered to the shaft, can be turned and twisted in any direction without danger of becoming detached.

These brushes are made with a screw shank, A, to which rods are fastened, a line is attached to the eye, B, and one man draws the brush through while the other turns and twists it about to perfect the operation.

We think this the best tube brush that we ever saw, and can recommend it as an effective instrument to all who own or use steam boilers. A medal was awarded to D. Stillwell, the patentee, at the late Fair of the American Institute.

It is manufactured by the New England Tube Brush Company, Fall River, Mass., D. Stillwell, Agent, and was patented through the Scientific American Patent Agency on March 20, 1864. For sale in this city by Bradley & Smith, No. 251 Pearl street.

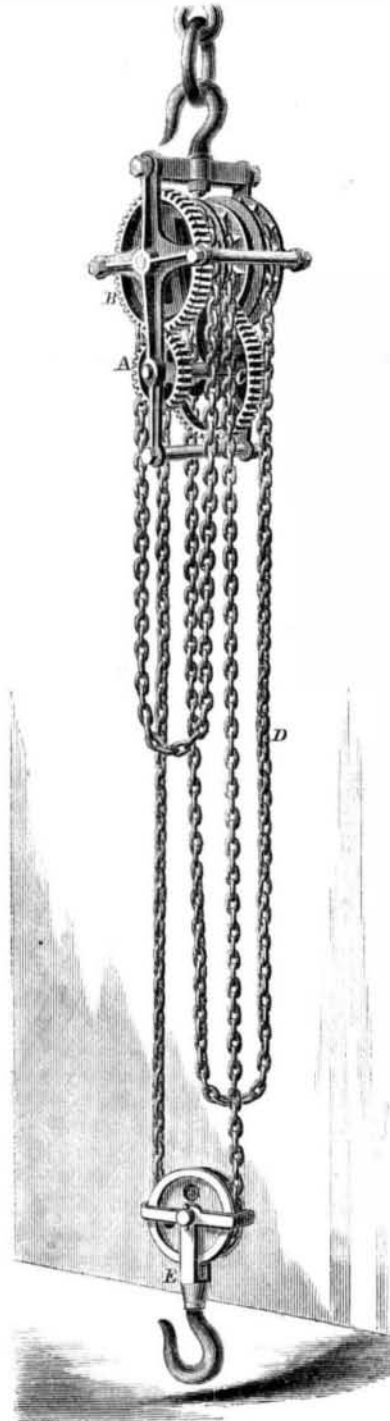
**Clarifying Liquors with Burnt Clay.**

Burnt clay is a very effective means of clarifying wine, liquors, beer, vinegar, and cider. You may use broken flower pots or any unglazed pottery-ware free from lime. These materials must be finely

powdered in a mortar and washed with water; let them rest for one hour and decant the water containing the finely distributed dust-like particles of clay. Repeat the same operation with another portion of pure water, and afterward dry the burnt clay. Two or three pounds of this material should be used for about one barrel; shake the fluid thoroughly with the clay, and allow it to rest. If necessary, the fluid may be finely filtered.

**BIRD'S GEARED DIFFERENTIAL PULLEY.**

The ordinary differential pulley blocks are coming into use in machine shops and workshops generally, where heavy bodies have to be lifted. In marine-engine works particularly, where many heavy jobs have to be put in lathes—sometimes in places so situated that laborers cannot get a chance to exert their strength—these hoisting machines have a marked advantage. The machine here shown is an improvement on the plain differential pulley, where the advantage gained is by making one more tooth in one of the wheels the chain passes over than in the other. This block is so made, but is also geared, in addition, by the common method of a pinion, A, working in a spur wheel, B; on the shaft of the pinion another spur wheel, C, being fixed, which gears in another not seen on the main block. By this arrangement additional power is gained in proportion to the measure of gearing employed, or in proportion to the di-



ameters of the pinions and the wheels driven by them. One man can raise great weights with these blocks, and the weight is sustained by hanging on

the chain, no fastening being required. By hauling on the bight, D, the weight attached to the pulley, E, will be raised.

This block was patented through the Scientific American Patent Agency on June 6, 1865, by James Bird; for further information address him at No. 167 East Twenty-sixth street, New York.

**BROWNE'S BROOM HEAD.**

The annexed engraving represents a head or clamp for house brooms; it is made of malleable iron in two pieces, jointed together, between which the brush or filling is placed. One piece is made with a socket,



A, having a sharp-threaded screw on the inside to receive the handle; the other piece is made with a yoke or ring, B, which passes over the socket. The handle is made a little tapering and pointed at the end. By inserting it, when the clamp is closed, through the yoke into the socket, and turning it round, the screw in the socket cuts a thread on the handle, which secures it very firmly, and, at the same time, fastens the clamp and compresses the filling.

This improvement obviates the difficulty hitherto complained of, in keeping the handle fast after having been in use a while; or, should a handle get broken, it is very easily replaced, requiring no special tools for the purpose. There are no separate or detachable parts to lose or break, and it is better and preferable on that account. It is cheap, durable, and effective, and is easy and simple of construction. It is intended for family use, so that parties in the country, who have the facilities, can raise their own broom corn, and fill these clamps with it without trouble.

The patent for this invention was allowed on Oct. 3, 1865. For further information address the patentee, J. D. Browne, care of James L. Haven & Co., No. 177 West Second street, Cincinnati, Ohio.

**SIZING FOR GOLD ON GLASS.**—The following recipe has been recommended:—Copal varnish is rubbed up fine with either white bole, burnt umber, or ochre—all of which must be quite dry—and then strained through cloth. The glass having been cleansed with fine chalk, is painted over with this varnish and placed in a warm room protected from dust. Experience soon teaches when it has become dry enough for applying the leaf, which is pressed on with cotton and then allowed to dry. If necessary, it may then be polished.—*Chemist and Druggist.*