

NEW INVENTIONS.

An improvement in fireproof ceilings has been patented by Mr. John D. Ottiwell, of New York City. The object of this invention is to prevent the plastering applied to the ceilings at the points where the corrugated arched plates meet the girders from becoming loosened and falling off.

A shoe nail for the channels of boots or shoes roughened on its shanks, having a body slightly tapered on two of its opposite sides, but drawn from the middle of the other two opposite sides to form an entering point, and provided with an elongated or diamond-shaped head, has been patented by Mr. John Hyslop, Jr., of Abington, Mass.

Mr. Julius Austin, of Wakeman, Ohio, has patented a simple, inexpensive, and effective wind wheel, to be operated by the wind for actuating pumping, grinding, and other machinery.

An improvement in refrigerators has been patented by Mr. Charles P. Jackson, of Chicago, Ill. The object of the invention is to secure economy and convenience in shipping and storing refrigerators, and to secure a constant circulation of air and an extended refrigerating or cooling surface within them.

Mr. Charles L. Norton, of New York City, has patented an improved spring clip for indexing books, which is both simple and convenient. It consists in a clip of spring metal with sides of unequal length, and having a sharp bend near the end, and an index letter stamped on the part between the bend and the end of the clip, so that the clip can be placed on the end of a page with the lettered part projecting outward, and thus indicating the index divisions of the book.

An improved neck yoke, for connection with the end of the tongue or pole in a double team, has been patented by Mr. Thomas N. Rudgers, of Fowler, Mich. It consists in the peculiar means for increasing or diminishing the leverage of the neck yoke, or adapting it to unequally matched horses.

Mr. Alfred Nobel, of Paris, France, has patented a primer for the ordinary composition of powder when reduced to meal, and thereby adapted to increase the charge in a hole of given size by its compressibility.

A fence, so constructed that it can be readily set up, and which is light, strong, and durable, and not liable to be blown down or pushed out of place, has been patented by Mr. Daniel T. Hazen, of East Milan, Mich.

A register for registering the number of fares deposited in the fare boxes used in street railway cars, stages, and for other purposes, has been patented by Mr. Joseph N. Hardy, of New Orleans, La. The invention consists of a toothed cylinder pivoted in the lower part of the fare box below the tilting trap. The shaft of this toothed cylinder is connected with an index on a circular dial, so that as the cylinder revolves it turns the index, which shows on the dial the number of fares paid.

Mr. Bernhard von Schenk, of Heidelberg, Germany, has patented a mass for manufacturing plastic objects, consisting of sulphate of lime nine and a half parts, coal or coke one part, and iron shales sixty-hundredths of a part.

Mr. William Wilmington, of Toledo, O., has patented certain improvements in that class of car wheel chills which have in the outer portion of the flange face a peripheral receptacle for sand or its equivalent. The invention consists in constructing the chill with this peripheral receptacle, and also with a circular chamber in rear of it having an inlet and outlet for the circulation of superheated steam, the object of which is to retard the cooling of the iron in order to increase the depth of the chill.

IMPROVED BLACKING BRUSH.

The engraving represents a novel blacking brush recently patented by Mr. E. L. Wood, and now being introduced by Messrs. E. L. Wood & Co., of Eastland City, Eastland county, Texas. The improvement consists in hinging the dauber or small circular brush by means of which the moist blacking is applied, so that it may swing over and become charged with the blacking contained in an ordinary blacking box clamped on the back of the polishing brush. The blacking box is secured in its place by a thumbscrew. The dauber is pivoted and provided with a crank at the back of its support so that when it is inverted so as to touch the blacking it may be rotated. Spring catches are provided which hold the dauber in either of its positions.

When the brush is not in use the cover is placed on the blacking box and the dauber is brought down upon it. Arranged in this way the brush may be carried without blacking other articles with which it may be brought into contact.

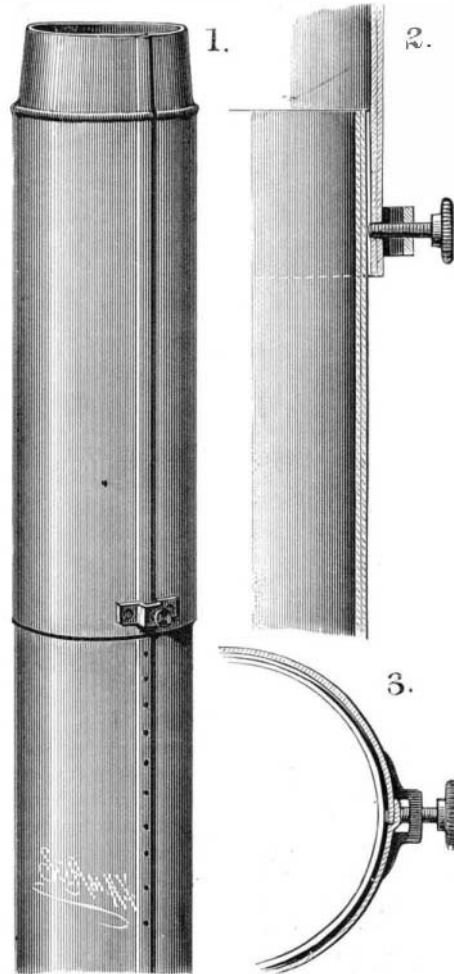
Importing Oysters.

Boston flats have recently been stocked with oysters unintentionally introduced from African waters by the bark *Fantee*. While the bark was off the coast of Africa her sides and bottom were fastened upon by oyster spat, which thrived abundantly. Many bushels were removed on her recent

arrival at Long Wharf and planted on the flats. It is hardly probable that they will survive the cold of the coming winter.

NEW EXTENSION STOVEPIPE.

The engraving represents an improved extension stovepipe joint recently patented by Henry Cook, corner of Main and Harrison streets, Leadville, Col. The two parts are adapted to slide together telescopically, admitting of using the pipe in situations where joints of the regular length would not be available. The advantage of this arrangement will be apparent to any one having anything to do with stoves and stovepipes, and the amount of vexation that will be avoided by its use is considerable. The construction of the extension joint will be understood by reference to the engraving, in which Fig. 1 is a perspective view of the joint, Fig. 2 a longitudinal section, and Fig. 3 a transverse section.



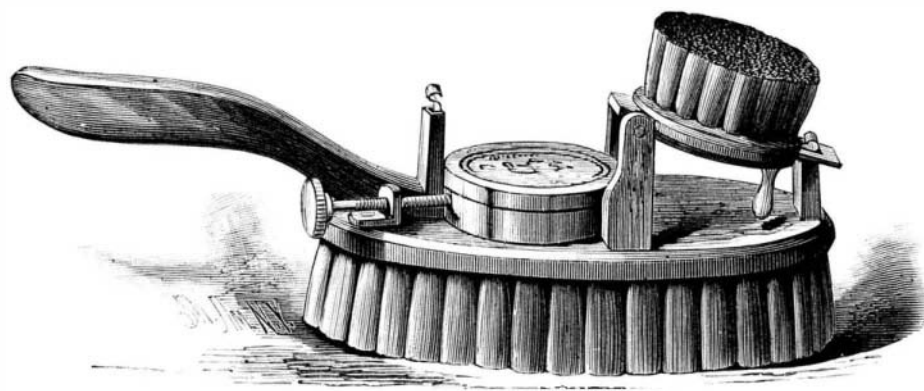
COOK'S EXTENSION STOVEPIPE.

The invention consists in a joint of stovepipe made in two parts, one sliding within the other. A thumbscrew passes through a yoke attached to the outer part, and enters any one of several indentations in the rib or seam of the other part. It will be seen that this length may be used in the same way as other pipe, and it may be readily lengthened or shortened to suit circumstances.

Further information may be obtained by addressing the inventor as above.

Solar Boiler.

In a note before the Academy of Science, in Paris, Mr. A. Pifre describes a compound reflector having a focal length much less than usual. The zone of maximum heat is nearest to the lower part of the boiler, and the laws of the heating can be easily studied. The reflector presents a usable



NOVEL BLACKING BRUSH.

surface of about 100 square feet to the sun. The boiler contains 1.8 cubic feet of water. When the sky is clear the water boils in about 40 minutes, and the pressure rises 1 atmosphere every 7 or 8 minutes. In several experiments even 6 minutes have been sufficient to raise the pressure 1 atmosphere. The machine connected with the apparatus has a new construction, and a pump connected with it lifted per minute $3\frac{1}{2}$ square feet of water to a height of 10 feet. This labor is ten times as great as that previously obtained at Algiers.

Roman Coins at Harvard.

In 1877, Robert Noxon Toppan (1858), of New York, presented to the library a collection of Roman coins, eighty-one in number, illustrating the period from 400 B.C. to Constantine the Great, A.D. 337. The coins, says the *Harvard Register*, are of copper, silver, and gold, and are of exceptional value, owing to their fine state of preservation, many of them being as clear cut as the recent coinage of the United States Mint. Copper money was first coined in Rome about 425 B.C., and this collection includes a large copper *as* of 400 B.C. The stamp of the government did not determine the value of the coin; it simply certified that the value existed in the coin. All the Roman emperors before Constantine are represented here. Cleopatra, Julius Cæsar, Brutus, Sylla, the Calpurnian, Æmilian, and Acilian families, contribute a coin each, and there are ten of the year 269 B.C.

This collection remained unarranged until quite recently, when the donor presented a handsome case, and personally arranged the coins chronologically, with a descriptive label beneath each coin. The case is of polished rosewood, two feet in height, three feet in length, eighteen inches in depth at the base, and six inches at the top. It has been placed in the art room, which is immediately above the delivery room, and can be seen at any time by permission of the librarian.

How Diamond Mines are Worked.

The system of working the diamond mines is described by an operator as follows:

The ground being picked loose by natives and broken up, is hauled out of the mines in tubs running on inclined wires; from these tubs it is transferred to a sifting cylinder, which removes the coarser stones, the remaining soil being mixed with water and slowly stirred in a flat pan of circular form, by means of arms fitted with teeth, this pan varying from 6 to 15 feet in diameter, according to the amount of work to be done. The effect of this is to leave the diamonds, which are heaviest, at the bottom; the lighter soil escaping over the edge of the pan, to be taken up by a dredger and trucked away. At the end of a day's work the contents of the circular pan are cleaned out and washed up in hand-sieves, when in turning over the sieve on the table the diamonds can be at once seen from their brilliance, some being of most perfect octahedron shape and as clear as crystal.

The rough diamonds are almost invariably below 10 carats in weight, the average being about the size of a pea; indeed, in the Bultfontein mine, a 10 carat stone is looked upon as a curiosity, though specimens exceeding 100 carats in weight have on rare occasions been secured. The value of a stone depends entirely on its color, shape, and freedom from spots or flaws; those of faultless shape and perfect whiteness taking the precedence of all others. The diamonds exceeding 20 carats in weight are mostly of various shades of yellow, a large white diamond being a comparative rarity.

A Good Example.

A shipbuilding firm of Dumbarton, Scotland, offers awards ranging between \$10 and \$50, to any workman in their employment who has (1) invented or introduced a new machine or hand tool into the yard; (2) improved any existing machine or hand tool; (3) applied any existing machine or hand tool to a new class of work; (4) discovered or introduced any new method of carrying on or arranging work; or (5) made any change by which the work of the yard is rendered either superior in quality or more economical in cost.

Into the Bonanza Group.

The north header of the Sutro Tunnel has passed through the Consolidated Virginia and California mines, and is fast nearing the point where it will connect with the Ophir, being at present in the Golden Gate ground, which adjoins the Ophir and Mexican on the east. The course of the tunnel will continue a little east of north until it connects with the Ophir, when it will bear more to the eastward for a connection

with the Union shaft, thus passing diagonally through the Golden Gate ground at a depth of 1,600 feet below the surface. Its connection with the Union shaft will be a very important one and anxiously looked for, as it will be of invaluable assistance in the way of drainage to the new bonanza deposits now being developed in the Sierra Nevada and Union ground.

It is easy to see that the Golden Gate, located in the very midst of these valuable developments, and with the Sutro Tunnel now making its way directly through it, is rather of an interesting piece of property at the present time, as the tunnel has over a thousand feet yet to go in order to reach the Union shaft, and all the way through the Golden

Gate ground, passing directly beneath the heavy and prominent croppings in the cemetery, just north of Virginia. The Golden Gate Company, formerly the old Vermont Consolidated, have their title fully perfected and covered by United States patent. They now propose to resume sinking their large new three-compartment working shaft down to a connection with the tunnel, and have levied an assessment for that purpose. They have excellent prospects already, but are going after their full share of the good things at that point.—*Enter prise.*