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## THE SCIENTIFIC AMERICAN,

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### A New White Metal.

A new alloy, which does not appear to tarnish more readily than ordinary white metal, and which is considerably cheaper, has just been discovered by Mr. W. Sharman, and it is thought probable that it will, to a great extent, supersede the various Britannia metals now in use. The alloy consists of tin, 16 parts; lead, 3 or 4 parts; zinc, 5 parts; and differs only from all similar compounds on record from the much larger percentage of zinc it contains. In the process of manufacture the zinc is first melted at as low a heat as possible, the tin is next added, and finally the lead. The whole is well stirred up with a green wood pole, to ensure perfect mixture, and to prevent oxydation, for which latter purpose a coating of borax and the addition of a little resin will be found useful. The whole operation must be conducted as quickly as possible, and excess of heat avoided. The proportions may be modified as required, more zinc giving less ductility, and more tin giving more flexibility, and a better color. For teapots and articles of a like character, the alloy composed of 16 parts tin, 3 parts zinc, and 3 parts lead, is preferable. These alloys being easily fusible, care must be taken in the selection of the solder. The new alloy can be rolled and spun, and will, therefore, be easy of application to a large variety of purposes.

### Silver Door Plates.

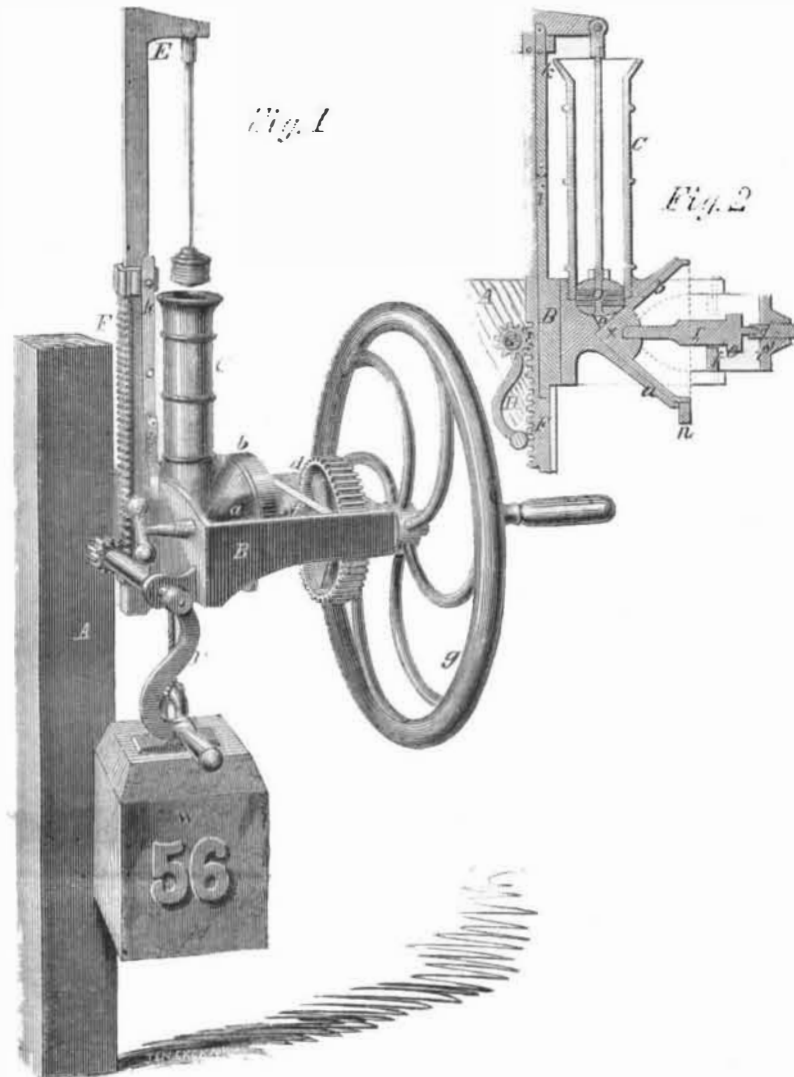
We notice the following item in an exchange, and we would make suggestion not contained in the paragraph, namely, that the ammonia should be very weak—about two teaspoonfuls of ammonia to a teacup of water:—

Housekeepers will, without doubt, thank us for informing them that the black sulphide of silver, which forms on plated and silver wares, door plates and knobs, may at once be removed by wiping the surface with a rag wet with aqua ammonia, and without the trouble of rubbing and scouring with polishing powders.

It may be well also to inform them, that this black film, which forms on silver exposed to sulphide of hydrogen, is no evidence that the silver is impure, for it forms as quickly on fine silver as on that which is alloyed with copper. We have known instances of good silver plate having been returned to the manufacturer, because it had been wrapped up in flannel, and we had occasion to explain that the sulphur came from the flannel, and would act with equal readiness on the finest silver.

After rain, much sulphide of hydrogen is disengaged from the soil of our streets, and it then blackens silver door plates very quickly. This black film, as before observed, is most readily removed by means of aqua ammonia. The same agent will be found very useful in cleaning gold chains and jewelry.

## THOMAS'S PAINT MILL.



Although paint can be ground very finely and well with a muller and stone, yet the operation is very tedious and slow, and it has been found advisable in this, as in every other branch of manufacture, to introduce machinery. Our engravings illustrate a mill for grinding paint with expedition and evenness.

Fig. 1 is a perspective view of the mill, and Fig. 2 a vertical section of the same.

A is the post or support to which is bolted the main frame, B, which supports the operative parts, composed of a stationary hollow cone, a, and a conical rotating muller, b. Instead of employing a hopper to receive the semi-fluid to be ground, a force pump or equivalent apparatus is used. The cylinder of this pump is shown at C; this is screwed into an opening in the top of the grinding cone, a, which opening communicates with the interior of the grinding cone by the passage, o, and within the cylinder the piston, D, operates. This piston is hinged to an arm, E, that extends from a toothed rack, F, and over the cylinder. This arrangement allows the piston to be swung freely out of the way of the mouth of the cylinder, while the latter is receiving its charge of paint or material to be ground. The rack, F, slides freely up and down between the upright guides, i i, and engages with a pinion, G, fixed on a crank shaft, H.

Furthermore, a weight, W, of the necessary size is attached to the lower end of the rack, such weight by its gravitating power serving to depress the piston in the cylinder, and to force the liquid paint into the grinder or mill

during the process of grinding. The muller, b, has a slot, which receives the flattened end of the rotating shaft, I, on which is fixed the pinion, e, that engages with the gear, d, driven by the shaft of the fly wheel, g.

The swinging frame, f, is hinged to the main frame, B, and is drawn up by the set screw, m, which operation forces the muller into the grinding cone at any desired pressure.

By means of the above described improved mill the paint or semi-fluid can not only be ground much faster than by the ordinary process, but as less grooving of the muller is necessary to make it feed, it will grind much finer, and greater durability of the grinding surfaces is obtained. The operator is enabled also to use the expansion of air in driving the material out of the cylinder into the grinder, for if the piston is raised out of the cylinder after most of the paint is ground, and again introduced therein, the compressed air expels the paint through the passage, o, and the grooves of the muller, so that a very trifling waste of material is sustained, an important consideration in grinding colors.

**Operation.**—By rotating the crank shaft, H, the rack, F, with the weight, W, and the piston, D, attached to the arm, E, are simultaneously elevated and held in elevation by the spring catch, k, the cylinder is then filled with the material to be ground, the piston is then let down, and presses upon the top of the paint by the full force of the weight, W. The muller is then put in motion and pressed into the mill, and as the ground paint reaches

the edge of the muller, it is scraped off by the scraper, n, and drops into a suitable receptacle placed below to receive it.

It is the invention of Chauncey Thomas, of West Newbury, Mass., and was patented April 27, 1858. Any further information can be obtained by addressing Nichols & Thomas, proprietors and manufacturers, at the same place.

### Improved Corn Harvester.

I. Reamer and H. Miller have invented a new corn harvester, by the first feature of which the cutting action of the knife is greatly enhanced, for when the knife comes in contact with the corn stalks, it cuts with an upwardly oblique cut owing to its being set with its cutting edge elevated, and the springs allowing it to give in an upward direction. Cutting the corn with an oblique upward cut is very essential, and is always practised when corn is harvested by hand on account of the root of the stalks offering a stronger resistance to cut against than is offered by the upper portion of the stalks in cutting downwards; and by the second feature, the perfect drawing in and bending down of the stalks to a position for being cut by the knife is ensured. The deposit of the cut stalks on to the platform, and the discharge of the same in bundles therefrom are accomplished very perfectly. It was patented last week. The inventors reside at Conrad's Store, Va.

### Improving the Quality of Sugar.

G. J. Benson has recently secured a patent in England for an improvement in the manufacture of molded sugar, which consists in removing the sirups or liquids in which the crystals have been formed in the usual manner, and simply substituting or mixing therewith clear liquor or sirup, produced from refined sugar. This is well mixed with the crystals of sugar, and the proportion of liquor is such that the mixture will just run from a spoon. The process may be performed in a vacuum pan, or ordinary open pan, or a pan in which streams of air may be blown, or in any other suitable manner that will mix the whole intimately together.

### Machine for Sorting Thread.

We would call the attention of silk manufacturers to the patent issued this week to Mr. Dimock, of Mansfield, Conn., for a new process of manufacturing silk and twist for sewing machines, which process insures an even thickness of thread throughout the spool or skein. This is a valuable improvement in the manufacture of twist, which will be duly appreciated by the operators of sewing machines. Measures have been taken to secure patents in several foreign countries.

**CARELESS LETTER WRITERS.**—From a Parliamentary report it appears that 2,024,057 letters were sent to the Returned Letter Office in England and Wales in 1857. Of these 264,253 were destroyed after every effort on discover the writers had failed. 25,115 letters contained money or some kind of valuable property, amounting in all to no less than \$1,700,000. Out of this list the writers of 3,333 letters containing property of the value of \$81,000 have not been found.

**GRAIN TRADE OF CHICAGO.**—The receipts of grain at Chicago for this season have been over 17,000,000 bushels, of which 15,000,000 bushels have been shipped off again by the lakes.