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chestnut, or other hard wood, to be acted on; the piece of wood is then rapidly, and with a power of from ten to thirty tons, according to the depth of the ornament pressed into the mould by means of a lever press; and this is repeated until the full relief is obtained. The wood is then thrown into cold water, the charred surface being afterwards scraped or brushed off, after each application to the mould. After about 250 impressions have been taken off the mould requires chasing; the whole number of impressions that may be taken from one mould is from 400 to 500.

MR. WILSON'S DOUBLE-ACTING SAFETY-VALVE FOR
STEAM-BOILERS.

BY MR. WILSON.

THE object of Mr. Wilson's safety-valve is to supersede the necessity of having two *detached* valves by combining them very neatly in one structure. The larger valve, to be used only in cases of emergency, is a conical disc, kept in its seat on the boiler by a weight suspended within the same; the smaller valve, intended for general use, has a solid conical plug, which fits an aperture in the centre of the larger or annular valve cover. The smaller valve is of about half the diameter of the larger, and is loaded *at the ordinary pressure*, either by spiral or elliptical springs, or if small, by weights as usual, whereas the load on the large valve is from half to one pound per square inch *above ordinary pressure*, so as only to be lifted when the smaller aperture is insufficient for the escape of a large volume of steam.

CASELLA'S PLUVIAMETER.

THE pluviometer, or rain-gauge, invented by Mr. Casella, consists of a hollow cylindrical vessel, 23 inches high, and $3\frac{7}{8}$ inches in diameter, mounted upon a hollow base forming the segment of a cone, whose lower diameter is 13 inches, upper diameter $3\frac{7}{8}$ inches, and height 8 inches; this may be filled with dry sand, or other substance, to give steadiness to the apparatus, which is furnished with three pointed legs for the purpose of fixing it into the ground when required. At the top of the vertical cylinder is an open basin, of the same form and size as the base, perforated in the bottom with an aperture, equal to $\frac{1}{8}$ th of an inch in diameter, through which the rain collected in the basin descends to the bottom of the cylinder, and the height of the column of water so

collected is shewn by a graduated glass tube attached to the cylinder, and communicating with it at the bottom. The tube is half an inch in diameter internally, and the graduation on the tube is in inches and tenths of an inch.

The collective areas of the cylinder and glass tube being equal to $\frac{1}{10}$ th the area of the basin at the top, a scale is readily formed for ascertaining the depth fallen on the surface in a given time; and Mr. Casella intends to graduate the scales in future so as to shew at once the actual depth of rain fallen without any reference to a table.

The mode of adjusting the pluviometer is to fill the cylindrical vessel exactly up to zero on the scale, the rain falling into the basin, and descending into the cylinder, elevates the water in the cylinder and glass tube simultaneously, and thus the depth is found by an inspection of the scale.

On adjusting the gauge for a second experiment, it is merely required to draw off the water to zero by the cock fixed in the side of the cylinder.

MR. TAUNTON'S ELEGANT AND ELABORATELY
CONSTRUCTED UMBRELLA,
INTENDED AS A PRESENT FROM THE TURKISH AMBASSADOR
RESIDENT IN ENGLAND TO THE SULTAN.

THE stick and frame generally are made of standard gold, and the handle of ivory, having on its exterior richly carved representations of military trophies. The silk is of Spitalfields manufacture, and beautifully worked; the pattern being a basket of flowers, which is repeated in each gore. Within the stick and handle are contained the following articles, viz. a telescope, a watch, a pencil-case with watch-key, a case containing pencil-points, a sun-dial, a thermometer, a botanical microscope, and a knife with two blades. The whole weight of the umbrella is thirty-six ounces, and the value is stated to be five hundred guineas.

ON THE PROCESS OF PRINTING WARPS TO PRODUCE
FABRICS TERMED "CLOUDED," OR "CHINÉ."

By G. T. KEMP, Esq.

THE art of clouding silk has been practised upwards of a century, but until lately was conducted in a very rude manner, and at a very considerable cost.

The technical term to "cloud," or, as in French, "chiner," denotes the partial colouring of the threads of silk, or other mate-