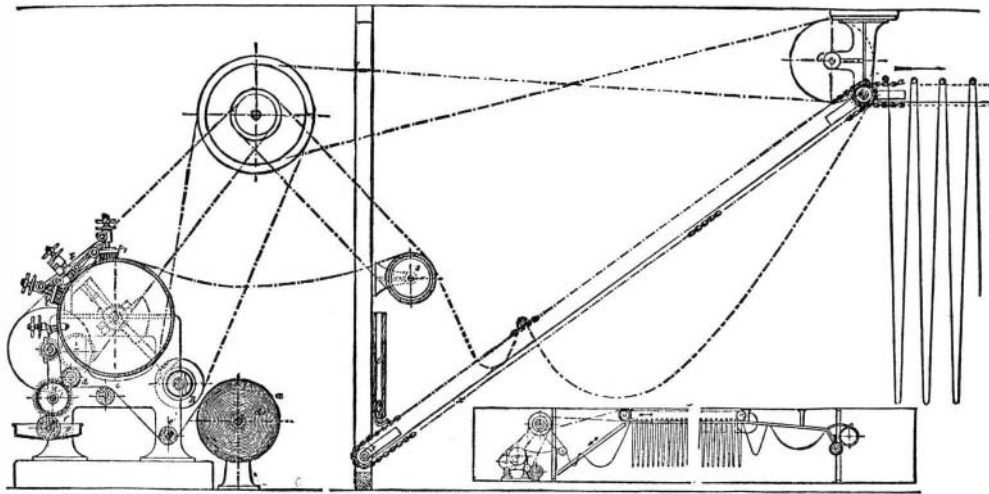


NEW MACHINE FOR PRINTING COLORED PAPER.

The annexed engraving represents a new apparatus for printing colored paper, devised by M. Flintsch, the engraving of which we extract from the *Revue Industrielle*. The paper is led from the roll, *a*, Fig. 1, above and below guide rollers, *b*, *c*, and *d*, and thence to a felt roller, *e*, where it receives the color from the printing roller, *f*. The paint is held in a reservoir, *g*, and the paper passes over the roller, *h*, while the color is uniformly distributed by the fixed brushes, *j*, and movable brushes, *i*. The paper is then led over a guide roller, *s*; and as soon as one of the sockets attached to the inclined chain engages one of the bars of wood placed in the box, *t*, the paper is looped over the bar, and is thus carried upward by the moving chain. On reaching the summit of the inclined plane, the bar passes to a horizontal chain which moves very slowly forward. The paper, lastly, reaches a pair of cylinders (shown on the right of Fig. 2, which is a general view of the whole apparatus), on one of which it is rolled.



FLINTSCH'S PAPER-COLORING MACHINE.

the piston will be prevented from making full strokes, and when the opening of one steam port is slightly increased by the movement of the valve, the opposite exhaust will be slightly opened, to allow a little movement of the piston.

The Cheese Industry.

Our English cousins are still unhappy over the immense importation of cheese from the United States. Their agricultural journals are still scolding the farmers, for making an inferior article, and thus allowing our factory-made cheese to supply the English market. The *London Grocer*, in referring to a meeting just held by the cheese makers, states that an association was formed, called the British Dairy Farmers' Association, to which the editor alludes as follows:

"There is plenty of work for the new association to do. Our cheesemakers may be taught a good deal with advantage, and there are many reforms which they may usefully adopt. Hitherto they have been an isolated and unsocial community. As a consequence, they have made no progress; their trade has languished; the Americans have been gradually driving them out of the market. Some few years ago, dairy farmers saw that, if they were to live by cheese-making, they must make some radical alteration; and this fact being especially evident in Derbyshire and Cheshire, the farmers there took a hint from their American competitors, and established cheese factories on the American principle. The Americans are running us hard, and send cheese over here which for price and quality is hard to beat. But it is mostly cheese of the lower sort, and cannot in any way be compared with some of the fine qualities of English production. What we want, however, is an improvement in the general quality of the cheese made in this country, and we hope that in this respect the enlightened teaching of the Dairy Farmers' Association will do great good. With proper care and skill in the processes of production, with a better knowledge of the nature of the materials they are employed upon, and with a little more enterprise, English cheesemakers may defy the competition of the world."

Honorable Employment.

There is nothing derogatory in any employment which ministers to the well being of the race. The plowman that turns the clod may be a Cincinnatus or a Washington, or he may be a brother to the clod he turns. It is in every way creditable to handle the yard, and to measure tape; the only discredit consists in having a soul whose range of thought is as short as the stick and as narrow as the tape. There is no glory in the act of affixing a signature by which treasures of commerce are transferred, or treaties between nations are ratified; the glory consists in the rectitude of the purpose that approves the one and the grandeur of the philanthropy that sanctifies the other. The time is soon coming, the *Chicago Journal of Commerce* thinks, when, by the common consent of mankind, it will be esteemed more honorable to have been John Pounds, putting new and beautiful souls into the ragged children of the neighborhood, while he mended their fathers' shoes, than to have been set on a throne.

Treatment of Ash.

Woodworkers will find the following advice, from the *Northwestern Lumberman*, useful in the treatment of ash, to render it pliable.

Steam is the ordinary means used to soften ash; but when it is practicable, boiling in water is the best. The chief thing is to have the right kind of ash, as some kinds bend and others do not. One tract of land may furnish the best of ash; while another, lying close by and having just as good a soil, may produce only an inferior quality. The timber must be heavy and tough, and cut from good trunks. No matter if it has been cut and dried three years. A splinter of this quality of ash can scarcely be torn off, and runs the whole length of the wood before it ceases. Half an hour's boiling is sufficient to soften a piece of wood 23.4 inches

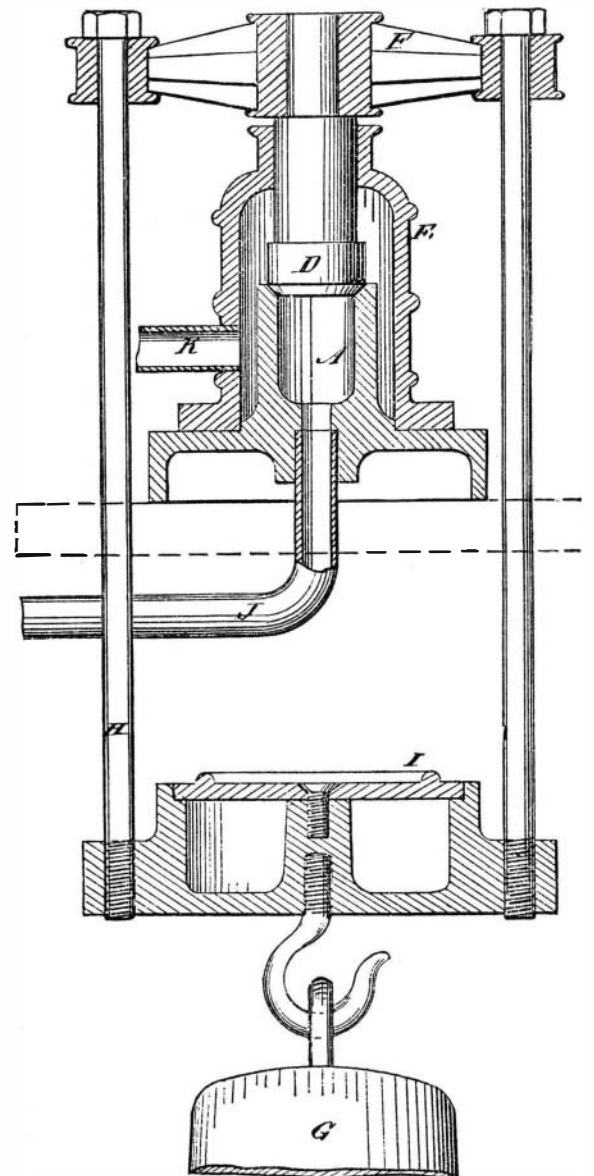
thick. When the wood is taken out of the kettle, put it in the brace, screw and wedge it in the desired form without relaxing, and let it cool a few hours. After the wood is thoroughly dried in the brace, unscrew it and take out the wedges; it will always then retain its form.

IMPROVED STEAM GAGE.

Messrs. H. and A. Greenleaf, Brooklyn, N. Y., have patented through the Scientific American Patent Agency, August 29, 1876, a novel apparatus for testing steam pressure, by which the pressure of steam on an area of any given size—say a square inch—may be weighed by means of weights lifted directly by the steam without a lever or spring. In the annexed engraving, *A* is a hollow cylinder, setting upright on a base adapted to rest on a shelf. It is open at the top, on which a circular valve, *D*, one square inch in area, is seated. The rod of the valve works without friction through the top of a case, *E*, surrounding the cylinder, and has the cross beam, *F*, attached to its upper end. The weight, *G*, for weighing the steam pressure, is suspended from this beam by the rods, *H*. There is a holder, *I*, for weights to be added when required.

The rods pass through the table for a guide and support against lateral movement. Steam enters the cylinder, *A*, under the valve by the pipe, *J*, and the exhaust passes off through the pipe, *K*. The apparatus is intended as a permanent fixture in a boiler room, and is a positive and comprehensive instrument, readily at hand to test the accuracy of the steam gage and working condition of safety valve, whether the engine is running or not, without the necessity of disconnecting steam fittings, or mathematical calculations. The action of the steam is a direct dead lift of the exact counterbalance of the pressure upon the valve; and the weights being hung directly under the valve, the valve will seat in its proper place without the necessity of the valve stem fitting tightly in the guides.

For want of such a device, engineers generally depend upon their steam gages, the accuracy of which is doubtful, as in many cases they are seldom or never tested, and thus run great risks that may be avoided by this instrument. In case of testing boilers by hydrostatics, this instrument may



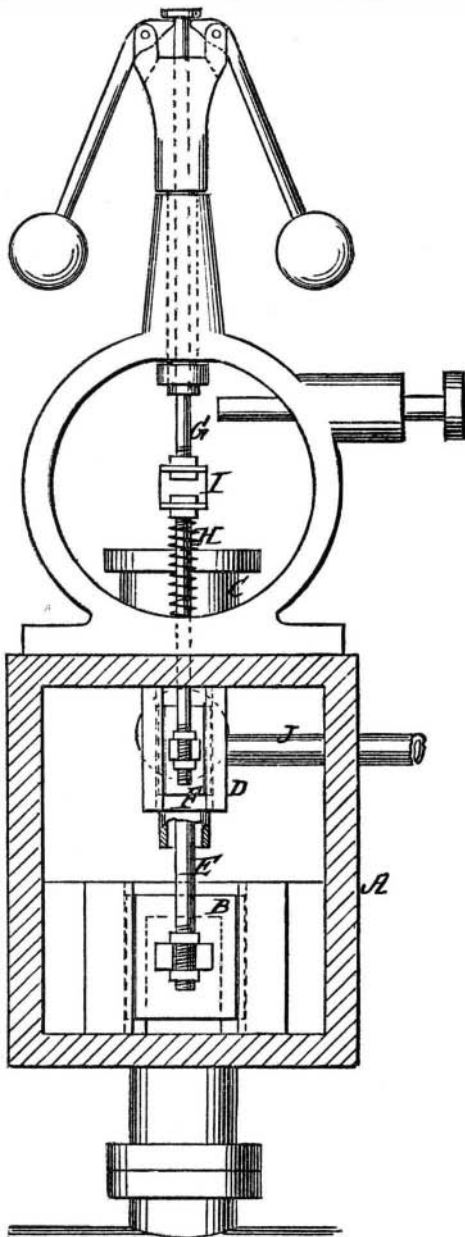
be used to any given pressure by simply adding weights up to the required amount.

A GOOD CEMENT FOR GLASS.—Orange shellac, bruised, 4 ozs.; rectified spirits, 3 ozs. Set this solution in a warm place, and shake frequently until the shellac is dissolved. This cement will stand every contingency but a heat equal to that of boiling water.

TO ATTACH TIN TO METALLIC SUBSTANCES.—Mucilage tragacanth, 10 ozs.; honey of roses, 10 ozs.; flour, 1 oz. Mix

A NEW STEAM GOVERNOE.

Mr. John K. True, of San Francisco, Cal., has patented through the Scientific American Patent Agency, September



19, 1876, an improved steam governor, an engraving of which is given herewith. *A* is the chest containing the throttle valve, *B*, admitting steam to the valve chest of the engine to be regulated. *D* is the small engine for working the valve, *B*, which is connected to the piston rod, *E*. *F* is the valve to the small engine, the rod of which is coupled to the governor, *G*; so that when the balls of the governor rise by increase of speed, valve, *F*, will descend, and admit steam in the upper end of engine, *D*, which will close the