IMPROVED CAR BOX GRINDER.

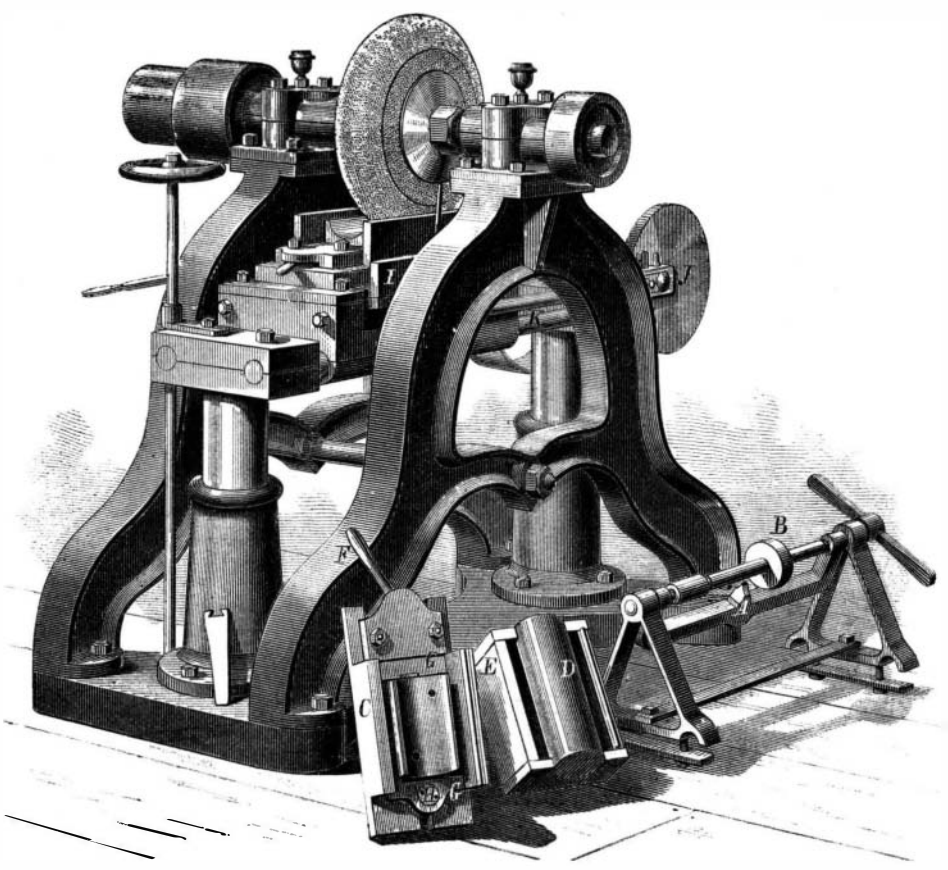
The use of car brasses, entirely unfitted and rough from the sand, results in great wear of axles and of the brasses, in hot brasses, and the delays and accidents entailed thereby, in an immense consumption of oil and cotton waste, and in such excessive friction as greatly to increase the power necessary to draw the train. The ordinary method of fitting car brasses is by the use of lathe and file, and the work requires the labor of a skilled mechanic.

The machine herewith illustrated is not only expected to supersede the above named tools for the purpose, but also to render the accurate fitting of brasses a cheap process, requiring no particular experience or skill. The principal feature of the apparatus is found in the emery wheels, which are originally turned and then kept true by a patented diamond tool, the latter being so arranged that it is impossible to turn by it anything except the geometrically correct circle to which the master mechanic sets it. Wheels of 20 inches diameter are used; and though they should be worn down to the flange, it is claimed that they will still grind the full diameter desired, while a speed of from 1,080 to 1,800 revolutions is all that is required.

The diamond tool, A, is shown in its frame, in the engraving, detached from the apparatus proper. The tool, it will be observed, swings on a center in its frame, and can be adjusted to any arc. Once set, it can only turn the prescribed arc with accuracy. In order to avoid the necessity of the foreman having to set the tool, a gage is also furnished. This consists of a spindle adjustable with a nut in such a way that its two points rest in the centers on which the diamond tool revolves. It is only necessary for a disk B, turned accurately to the diameter of the bearing, to be prepared, and this the apprentice can place on the spindle, adjust the latter, and screw down the diamond tool until it touches the periphery of the disk. A nut is then fastened on the diamond tool, and the frame is lifted on the ways beneath the wheel, when the moving of the handle turns the face of the wheel to the exact circle desired.

To adjust the brass in the chuck, C, it is first set on the axle, D. The chuck is then placed on frame, E, in such a way that the Vs fit. Handle, F, then moves a cam that clamps the brass between the jaws, G, one set of which swing on a pivot at H. The brass is thus adjusted in such a manner that, despite the imperfections in molding, it is ground accurately with the least removal of metal. The chuck, C, fits into planed guides on the table, I, and is thus brought in exact line with the motion of the wheel. The crank, J, serves to move the table to and fro on the rods, K, and the table also rises and falls on planed ways, being pressed up by springs. The hand wheel gives vertical adjustment to the whole bed by means of a chain beneath it. There is a pulley by which a suction fan, to remove dust, etc., may be driven. The machine is claimed to be capable of fitting from 150 to 500 car brasses per day.

For further information, address the Tanite Company, Stroudsburg, Pa.

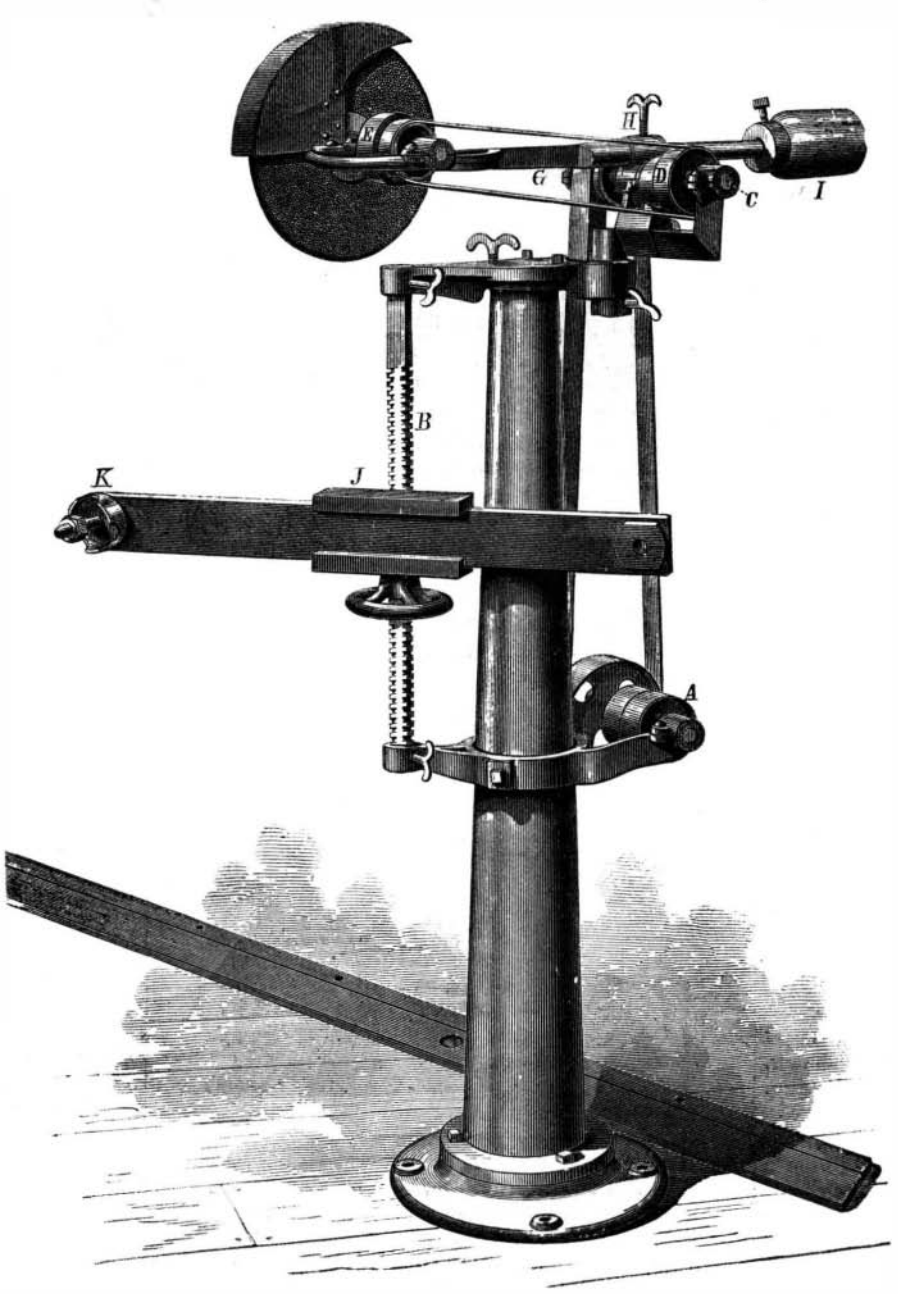


THE TANITE COMPANY'S CAR BOX GRINDER.

IMPROVED SAW GUMMING MACHINE.

In the accompanying engraving we illustrate a new application of that universally useful invention, the emery wheel, to the purposes of a saw gummer. The apparatus embodies novel devices, whereby the wheel may be set to any angle and rendered suitable either for gumming saws or for grinding the edges of planer or other knives. The working parts are supported on the crosshead of the strong upright column, as shown. At A are the driving pulleys, journaled between arms on a lower cross piece, in which is also socketed the lower extremity of the elevating screw, B. On the upper crosshead is swiveled a yoke, to which is journaled a shaft, C, carrying pulleys, D. These, as is clear from the engraving, transmit motion from the driving pulleys, A, to the pulley, E, on the emery wheel shaft. The shaft, C, passes through a metallic block, F, which fits loosely upon it, and which is ground off to a point on its under side, to form a bearing for an adjusting screw, not shown Said block is also bored to receive the arm, G, which supports the grinding wheel. This arm is movable in the block and can be fastened in any desired position by the set screw, H. I is a counterbalance for the wheel. J is a stock, secured in place, as desired, by a set screw not shown, and supported from below by the hand wheel by which it can be elevated and depressed. Said stock has ways for a saw bar or a carriage with clamps for the blade.

The saw disk, in case a circular saw is to be gummed, is attached to the end, K, of the saw bar, and the latter is properly adjusted and fastened to the stock, in such position as to bring the saw teeth properly under the emery wheel. The stock is then adjusted so as to bring it to a proper hight by means of the elevating screw, and the arm, G, is depressed in front until the wheel is in proper position. The wheel, it should be stated, is previously adjusted to the proper angle to the tooth by rotating the arm partially in the block, F, and securing it when the wheel is at suitable inclination. When the apparatus is to be used to gum a straight-edged saw, the blade is confined in a carriage, and the wheel is set in relation thereto, as already described. The saw is gradually carried forward by the carriage as each tooth is gummed.



DENSMORE'S SAW-GUMMING MACHINE.

Planer blades are mounted similarly to saw blades, and arm and carriage are so adjusted that the knife edge can be traversed continually along the side of the wheel. The latter can be set by rotating the arm at any angle, in regard to said edge, between a perpendicular and a horizontal position.

Patented by Randolph Densmore, April 4, 1876. For further particulars, address the Tanite Company, Stroudsburg. Pa.

The Soap Mines of California.

The rock soap mine is situated in the lower mountains or foothills of the coast range in Ventura county, five miles from the city of the same name. It was discovered by A. F. Hubbard while prospecting for coal. He accidentally dislodged some that fell into water and dissolved. It being a new experience to see rock dissolve, he gave it his attention, found it soapy, took it home to experiment with, and soon learned its virtues; yet, strange to tell, his family used it for nearly a year before it was given to the public, when Mr. Hubbard associated himself with Messrs. Cronk & Bickford, forming the present company, who are sole proprietors of this wonderful mine. It is accessible only through a cañon leading to and opening upon the beach. The coast line stage road passes the mouth of this cañon, three miles below the mine. This cañon or ravine penetrates one of the wildest possible volcanic regions. A little stream follows its course, an almost "lost cause" in summer, but in winter a raging, rushing torrent, which, after draining immense hights and many a rugged mountain side, finds its way to the ocean, often bearing along in its fearful strength huge boulders and entire trees. Along the side of this ravine, sometimes in the bed of the stream, sometimes high up in its precipitous banks, winds a little trail leading to the soap mine, traveled only by the safe pack mule and hardy miner. The rock resembles chalk or lime. At the southern extremity is an extensive deposit, veined, marbled, and particolored, resembling Castile soap. The ledge at its opening is fifteen to twenty feet wide, and crops out for 2,000 feet, to an unknown depth. The lode is well defined, with wall rocks of hard slate stone, and has, in common with the slate and sandstone strata about it, been thrown up from the depths and turned completely on edge. In its vicinity is a mountain of gypsum, also turned up on edge; indeed, the whole country bears evidence of fearful convulsions, also of some time having lain peacefully at the bottom of the ocean; for on the highest mountain tops can be found nearly perfect sea shells and various specimens of marine matter.—*San. Benventura (Cal.) Reporter.*

Prizes for Temperance Investigations.

The French Temperance Society submits the following questions, to be answered before January 1, 1878. For the best and most complete reply to the first a prize of $400 is offered, to the second, $200. Articles must be written in French, and sent with author's name sealed in a packet, with distinctive device, addressed to Dr. Lunier, secretary of the society, 6 Rue de l'Université, Paris.

1. Determine, by the aid of clinical observation and experiment, the differences which (from the point of view of effects on the organization, the two being administered with equal alcoholic doses) exist between natural wines and brandies on one hand, and on the other wines fabricated or simply treated with alcohols of purely industrial derivation, and brandies of the same origin.

2. Discover by the aid of clinical and experimental observation whether (with equal doses) the addition to alcohol of an aromatic principle other than that of absinthe, such as the essence of aniseed, fennel, tansy, and analogous plants, augments the toxic properties.

Painting Glass for the Magic Lantern.

Draw on paper the size of the glass the subject you mean to paint. Fasten this at each end of the glass with paste, or cement, to prevent it from slipping. Then reverse the glass so as to have the paper underneath, and with some very black paint, mixed with varnish, draw with a fine camel hair pencil very lightly the outlines sketched on the paper which are reflected on the glass. It would add to the resemblance if the outlines were drawn in the colors of the object; but in this respect the artist must please his fancy When the outlines are dry, color and shade the figures; but observe to temper the colors with strong white varnish.