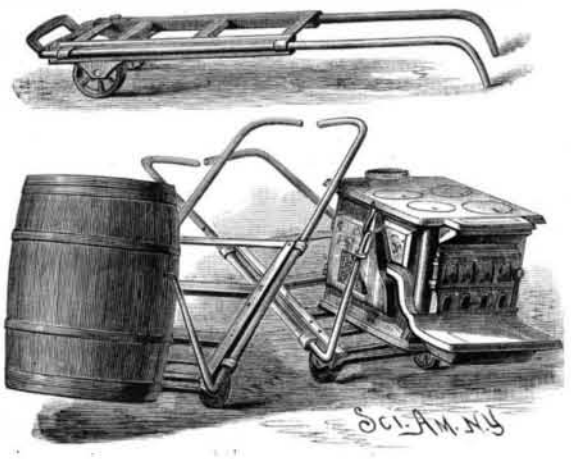
Generating Steam by Slag.

Mr. Brotherton, Superintendent of the American Smelter, at Leadville, Col., has patented a plan for generating steam for motive power at the smelters through the use of slag. By this method the slag is dumped into large shallow vessels, which are afterward run under boilers, and the heat used in generating steam. An experimental test of the method resulted in maintaining 75 pounds pressure on a vertical boiler for seven days. If the plan proves practical, it will result in a saving to the smelter of $1,200 to $1,500 a month.

IMPROVED HAND TRUCK.

In eyes secured to the side edges of the platform, which is mounted on wheels in the usual way, are journaled rods extending beyond the lower end of the platform. The outer parts of the rods are bent at right angles to form arms, and the extremities are bent inward and pointed, to engage with the article to be carried, as shown in the left of the cut. The other ends of the rods are bent toward each other, forming arms, which serve as levers for turning the rods to move the lower arms toward each other. The upper and lower arms are bent in planes approximately at right angles with each other; when not to be used, the lower arms are folded one over the other upon the edge of the truck, which can then be used in the ordinary way. When a stove or similar article is to be handled, small attachments are slipped over the grip points, when the stove can be easily carried, whether it be on its legs or not, by one man, who



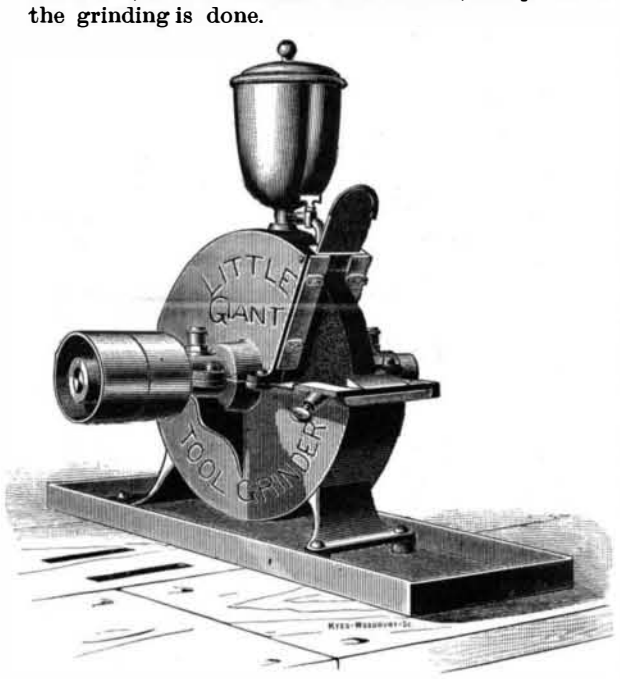
SMITH'S IMPROVED HAND TRUCK.

need not touch it with his hands. This feature makes the truck particularly valuable in handling such articles as spools of barbed wire.

This invention has been patented by Mr. Charles W. Smith, of Belmond, Iowa.

IMPROVED TOOL GRINDER.

The accompanying engraving represents an improved machine for sharpening machinists' tools of all kinds. The corundum wheel, the grade of which varies to suit the kind of work to be done, runs in water, thereby avoiding all danger of drawing the temper from hardened tools. A wheel made of this material cuts faster than the ordinary grindstone, is more accurate, and much cleaner. This grinder occupies a space only 12 by 22 inches. No water flies from the wheel, as it is covered with a hood, except where the grinding is done.

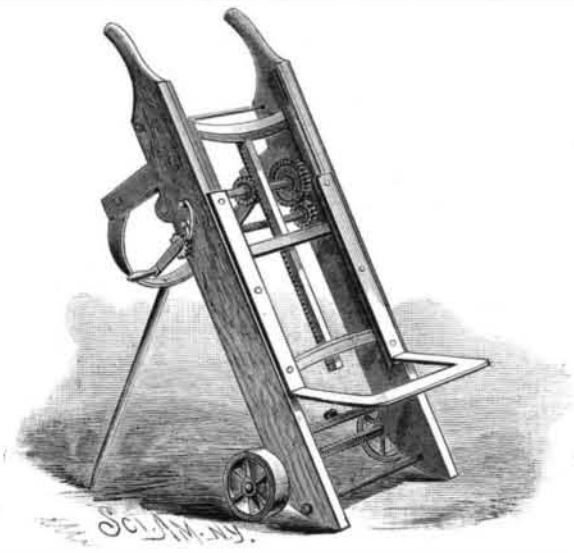


THE LITTLE GIANT TOOL GRINDER.

The manufacturers of this grinder—the New York Supply Company (limited), of 50 and 52 John Street, New York city—have adopted a special corundum wheel, which, by reason of its porous nature, is constantly moist, and, in consequence, all danger of drawing the temper of the tools is obviated.

A NEW HAND TRUCK.

The hand truck here illustrated is so constructed that it can be used as an elevator for loading boxes, sacks, and other heavy articles into wagons. In the inner sides of the upper part of the frame are formed



CALDWELL'S NEW HAND TRUCK.

grooves, in which slide bars of a frame, to the lower part of which are attached plates that overlap the side bars of the main frame. A toe is formed at the lower end of the plates. To the centers of the cross bars of the sliding frame is secured a rack bar, the teeth of which mesh with a pinion on a shaft driven by gearing operated by a crank handle at the side of the main frame. By properly turning the handle, the frame and its load can be raised, a pawl and ratchet wheel preventing the gearing from turning back. To the legs of the frame is hinged the forked upper end of a long leg, upon which the truck is supported when raised into an inclined position, so that the crank can be conveniently operated to raise the frame and load. When the load has been raised to the required height, it is held in place by the pawl, and can be placed in the wagon by swinging the upper part of the truck forward upon the toe as a fulcrum. When not in use, the leg is held against the under side of the truck by a spring clamp.

This invention has been patented by Mr. John Caldwell, P. O. box 87, Wilmington, Del.

Woolen as a Sanitary Measure.

A new philosophy of clothes is announced to the world under the title of Dr. Jaeger's Sanitary Woolen System, which seems already, after a trial of only four years, to have taken a strong hold upon many of the people of England and Germany, where the manufacture of the woolen fabrics and garments is conducted, subject to the scrupulous inspection of Dr. Jaeger himself, and conformably to his discoveries and theories respecting it as a cure and preventive of disease.

His claims in its behalf are broad and sweeping, and apparently extravagant. Nevertheless, his doctrine is rapidly gaining converts in both countries. The *London Times* speaks of it as having been adopted by some of "our most eminent sanitary reformers, while in Germany it has not only revolutionized the trade of Stuttgart, where its founder practices, but the clothes are worn and highly appreciated by such men as Count Von Moltke, who may be expected to apply the principles in question to the German army."

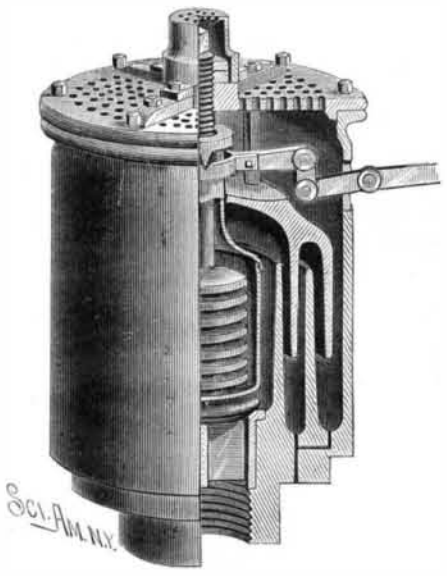
Everybody knows that almost everybody is the victim of some kind of ailment or infirmity; but hardly anybody would have suspected, till Dr. Jaeger revealed the results of his investigations and discoveries, that many of the ills that flesh is heir to are the effects of the "material and form of the ordinary clothing of the present day." But this is precisely what Dr. Jaeger claims to have proved, while he professes to have found a very general, though by no means a universal, remedy. It lies in the renunciation "*of all material of vegetable fiber* (linen or cotton) *or silk* in clothing and bedding," and the substitution "of clothing and bedding of *animal wool throughout*, so constructed as to afford to the body the *maximum* of protection from chill and damp, with the *minimum* of impediment to the escape of the exhalations from the skin."

He rests his theory chiefly on the well known properties of wool, which make it a poor conductor of heat, while it is highly permeable and transmissive to the exhalations of the skin. The London *Lancet* calls this the "rallying point" of his system, and the *Sanitary Record* (London, Feb. 15, 1884), says: "The underclothing has been extensively worn since its introduction, and has received a general consensus of approval on its intrinsic merits."

Any one curious to see these novel articles of clothing, from a collar to an overcoat, from a shoe to a necktie, and from chemise to shawl, will soon have an opportunity afforded them at 827–829 Broadway, where a large exhibition and salesroom is soon to be opened by the "Dr. Jaeger Sanitary Woolen System Co."

MUFFLER FOR STEAM VALVES.

This muffler, the invention of Mr. Thomas E. Hill, of Rahway, N. J., is for deadening or preventing the unpleasant hissing sound of escaping steam from the valves of steam engines. The main casting is formed with an outer circular casing and with inner upwardly projecting concentric flanges, which form annular chambers and a central circular chamber, the bottom of which is formed by a valve fitted in an opening in the casting. This valve is held to its seat against the pressure of steam by a spring arranged in a box that may be lifted against the pressure of the spring by suitable levers. The pressure of the spring upon the valve can be adjusted by means of a bolt, the upper end of which screws into the center of the top plate, and the lower end of which bears against a plate resting on top of the spring. It will be seen that by turning this bolt, which passes loosely through the upper or neck portion of the box inclosing the spring, the latter can be made to exert more or less pressure upon the valve. Held within the casing is a deflector formed with two downwardly projecting concentric flanges, which enter the annular chambers formed in the casting. This construction compels the steam escaping from the valve to take a circuitous course through the chambers, in which it is diffused and its pressure reduced; it finally issues in



HILL'S MUFFLER FOR STEAM VALVES.

many small jets from the numerous holes formed in the top plate.

FEEDING STAND FOR POULTRY.

The side, end, and center frames of the feeding stand are provided with rods in their panels, which are separated sufficiently from each other to allow the fowls to gain access to the feed. One-half of the roof is fixed, while the boards forming the other are hinged and provided with arms for limiting their motion when opened. In one compartment of the stand is a hopper, having openings in the bottom, which can be closed by a valve operated by a hand lever, pivoted to the frame as shown, or opened to allow the feed to escape. Below the hopper is placed a bar so shaped as to divide the grain entering from the hopper into the feed trough. In the other compartment is placed a metallic water trough, between which and the end of the compartment is formed a receptacle for soft feed. The grain from the hopper flows into the compartment, and is spread evenly on all sides by the bar; the flow of the grain is checked by the partial filling of the feed trough. As the grain is consumed, its place is supplied

McDONALD'S FEEDING STAND FOR POULTRY.

by fresh grain from the hopper, and in this manner a continuous supply is maintained in the trough, and the fowls are prevented from scattering or wasting the feed.

This invention has been patented by Mr. Samuel McDonald, of Cochran's Mills, Pa.