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## New Mechanical Inventions.

A new form of Rock Drill, of the reciprocating type, has been designed by Mr. C. H. Chandler, of Foxcroft, Me. The drill point is cruciform in transverse section, having three of the wings or blades sharpened on the lower edges, and one wing squared and a little shorter than the others, the object being to crush the drill chips, keep the bottom of the hole free, and prevent the drill from entering too deeply into soft rock.

Mr. E. O. Leermo, of Gold Hill, Nev., proposes to make the Suction Pipes of mining pumps terminate in perforated nozzles attached by a ball and socket joint, so as to be readily removed out of the way of the workmen in sinking the shaft, and to be used in shallower water than a straight and rigid suction pipe can be.

A new Screw Propeller, which is claimed by the inventor, Mr. J. C. Capern, of New York city, to be unusually economical of power, has its blades formed in the section of a hollow semi-cone, having the flaring sides astern.

A machine for Cleaning and Condensing Lint Cotton as it comes from the gin has been invented by Mr. A. T. Hunt, of Arkadelphia, Ark. It consists of an inclined stationary or adjustable screen, made in sections, with parallel fingers, in connection with an endless belt having lateral combs or rakes.

Mr. W. F. Eyster, of Chambersburg, Pa., has invented an improved Water Motor for driving light machinery. The class of motors to which this invention belongs is that which employs a wheel having buckets upon its periphery, against which the stream of water is made to impinge. The improvements consist in the peculiar construction of the wheel, which is made of two convex disks with a trough-shaped periphery, carrying two rows of buckets; in the construction of the case, which is divided horizontally and arranged so as to be readily taken apart, and in the devices for preventing leakage at the joints.

Mr. Caspar Hübner, of Newark, N. J., has invented an improved Motor, applicable for purposes of locomotion,

such as propelling a hand car, and arranged so as to give out for a long time power which is stored up in heavy fly wheels. Motion is communicated to the fly wheels by means of cranks oppositely arranged and operated by hand levers.

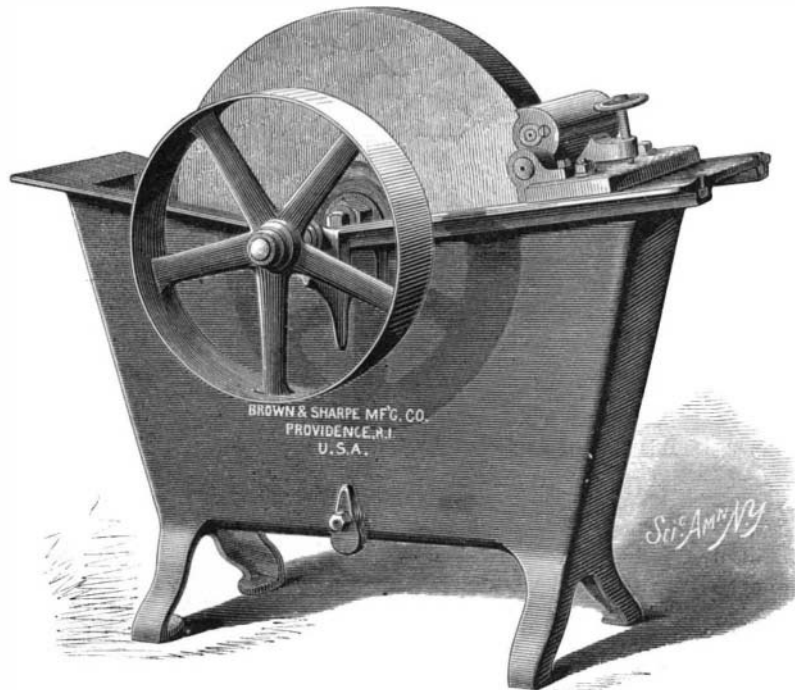


Fig. 1.—IMPROVED GRINDSTONE TROUGH.

An ingenious Hoisting Clamp for Barrels has been invented by Mr. W. Bulkeley, of Ballston Spa, N. Y. Two pairs of pivoted levers are connected at their lower ends by semicircular cross bars, and at their upper ends to a straight cross bar by links, the strain of the hoisting rope having the effect of tightening the hold upon the barrel in proportion to the weight of the latter.

## IMPROVED MACHINE TOOLS.

In the annexed engravings we illustrate some new machine tools manufactured by the Brown & Sharpe Manufacturing Company, of Providence, R. I., all of which are noteworthy for excellence of design, finish, durability, and general efficiency. In Fig. 1 is shown a grindstone trough combining a number of very desirable qualities. In addition to the ordinary arrangement of trough, spindle, and pulley, it is provided with self-oiling journal boxes and an adjustable device for truing the grindstone. This device, shown in Fig. 4, page 274, can be instantly applied to the face of the stone, working automatically and without dust, keeping the stone always in good shape and condition without interfering with its constant use. The stone should be revolved so as to have the device upon the face which moves upward. The main stand or bottom piece of the device is securely clamped upon the trough close to the face of the grindstone, then by turning the hand wheel the threaded roll is brought into contact with the face of the stone and allowed to remain so as long as is requisite to produce the desired result. The water is left in the trough as usual, so that the device, while always at hand and in position, does not for an instant stop the continuous use of the stone. When the hardened steel threaded roll becomes worn it may be readily and repeatedly cut from time to time as occasion may require.

In Fig. 2 is shown a special automatic bevel and spur gear cutting machine, in which there are two separate heads upon one bed or frame. One of them is designed for cutting bevel, and the other spur gear, teeth. They are specially intended for cutting the small gears used upon sewing machines and other light machinery. Both machines are automatic in their movements to the extent of revolving, the wheels being cut from tooth to tooth, the cutter passing through for each tooth, and stopping when the wheels are completed.

Upon the machine for bevel wheels the movement of a lever places the wheel in position for the second cut, after

[Continued on page 274.]

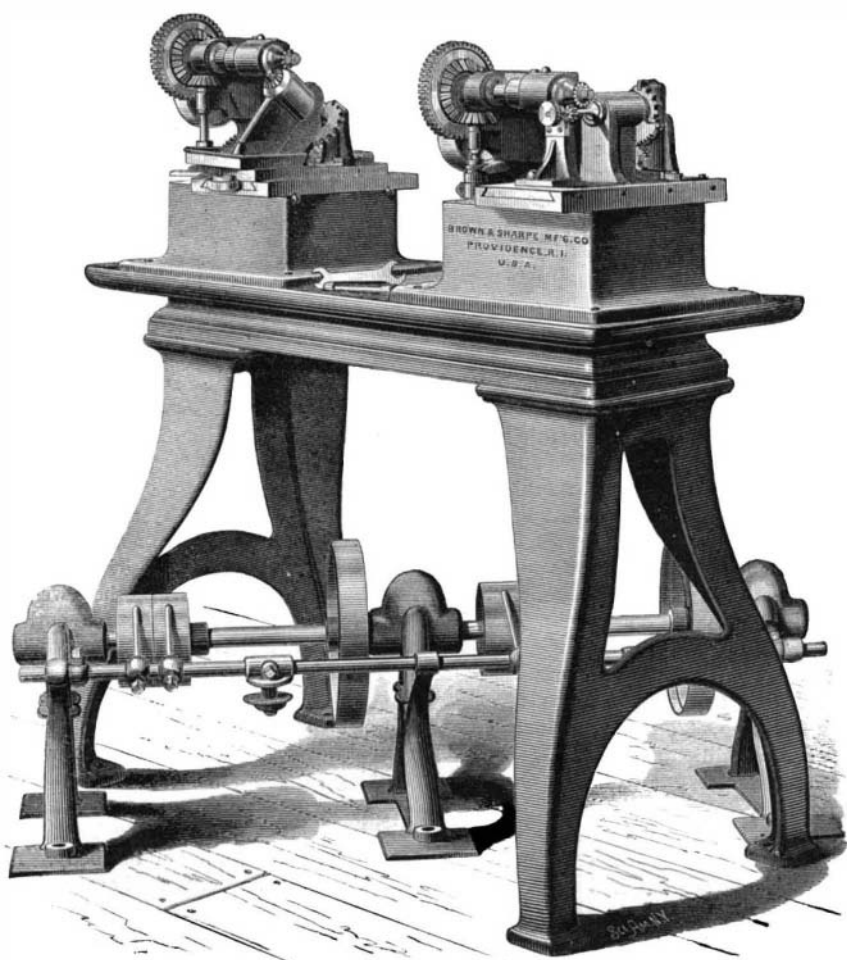


Fig. 2.—BEVEL AND SPUR GEAR CUTTING MACHINE.

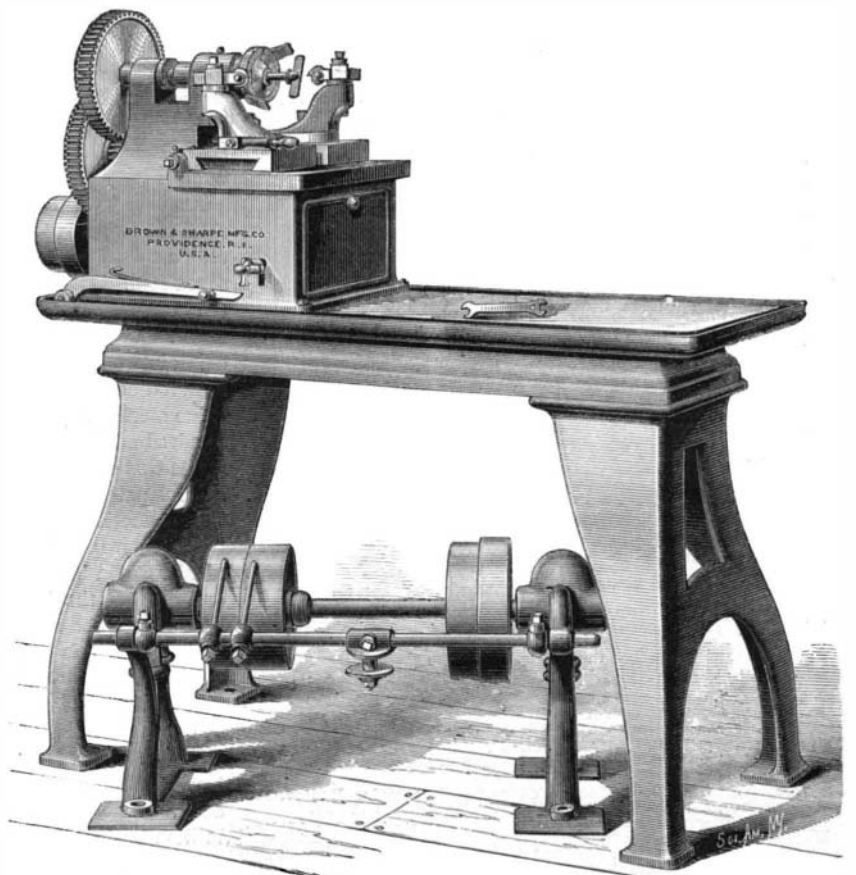


Fig. 3.—AUTOMATIC BALANCE WHEEL TURNING MACHINE.