

Improved Geared Capstan.

This improved capstan is a very powerfully-gearred machine. In ordinary capstans the force of the operator is transmitted to the cylinder or drum, through the medium of a lever; the length of it and the diameter of the capstan body is a measure of the force exerted. In this capstan the lever or handspike is also used, but there are three distinct ways of applying the power. In the first, the capstan can be used as any ordinary one by simply placing the handspikes in the holes in the head, A; the drum, B, will then revolve as in all others. This is the quickest way of using the machine, and for fleeting up chain cables, falls or hawsers, it will be found valuable in connection with the other features of the capstan.

On the left of the engraving a horizontal spur wheel, C, may be seen, which gears into a similar fixture on the base of the capstan; this affords a slower motion than the first, and an increased strain on the line or chain which is wound on the drum; the gear is worked by the vertical shaft seen at the right; the end of it fitting in the socket, D, to which the shaft is transferred as required. The gearing through which the operator is exerting his strength, is yet another modification, and the most efficient one of all for extremely heavy work, such as dislodging anchors caught in heavy holding ground, hauling ships off shore, &c. &c. It will be seen that the vertical shaft is provided with a small capstan head, which has apertures for four or more bars, and that this shaft sets in a socket in the bevel wheel, E; this wheel gears into a large bevel wheel, F, on the shaft, G; this latter shaft has a worm upon it which meshes into a thread cut on the base of the drum.

Any one at all familiar with machines will see that this is a most effective arrangement for obtaining an immense strain. The movement of the drum is slow, but not necessarily so; for where steam power is convenient the capstan head may be removed and a pulley substituted which can be driven by a small engine; or for that matter this head is itself a pulley on which a belt may be run with perfect facility. Through this agent the velocity of the small shaft and worm can be regulated to suit circumstances. This machine combines a very wide range of usefulness, and will be found a most valuable aid on ship-board or for wrecking purposes. It is strongly fastened to a solid bed-plate, and can be made as heavy as required; suitable pawls are provided within the base of the drum to take up the slack or recoil of the same.

This is a most excellent capstan, and as such we do not hesitate to give it our endorsement. It was patented Oct. 20, 1863, by J. G. Morgan, of Ithaca, N. Y. For further information address G. H. Collins, 235 Broadway, New York.

Porpoise and Shark Oil for Machinery.

The rebels are put to such straits for want of oil to lubricate their machinery with, that they have established a porpoise fishery at a place called "Weatherly Swash," the North Carolina coast where they take quantities of the fish; one porpoise yielding about ten gallons of oil. They also catch sharks and try out their livers for the sake of the oil they contain.

Porpoise oil is used chiefly for clocks and small tools; but is not adapted for heavy machinery, being too thin and without sufficient body. Peanut oil is also used; but the journal from which we take the above facts, adds, naively, "it is of little worth."

ATTERBURY & REDDICK'S REFLECTOR LANTERN.

This invention consists in applying a silver-plated or polished tinned reflector to one side of a lantern, so

that it remains permanently fixed where it adds very much to the power or intensity of the light. When the glass shade, A, is first made, a circular opening, nearly the size of the reflector, is left in it; this opening is afterward closed by the reflector, which is permanently secured by means of cement or similar sub-

invention was patented, May 12, 1863, by J. S. and J. B. Atterbury, Pittsburgh, Pa. For further information address Atterbury, Reddick & Co., at that place.

MACHINES FOR MAKING SKATES.

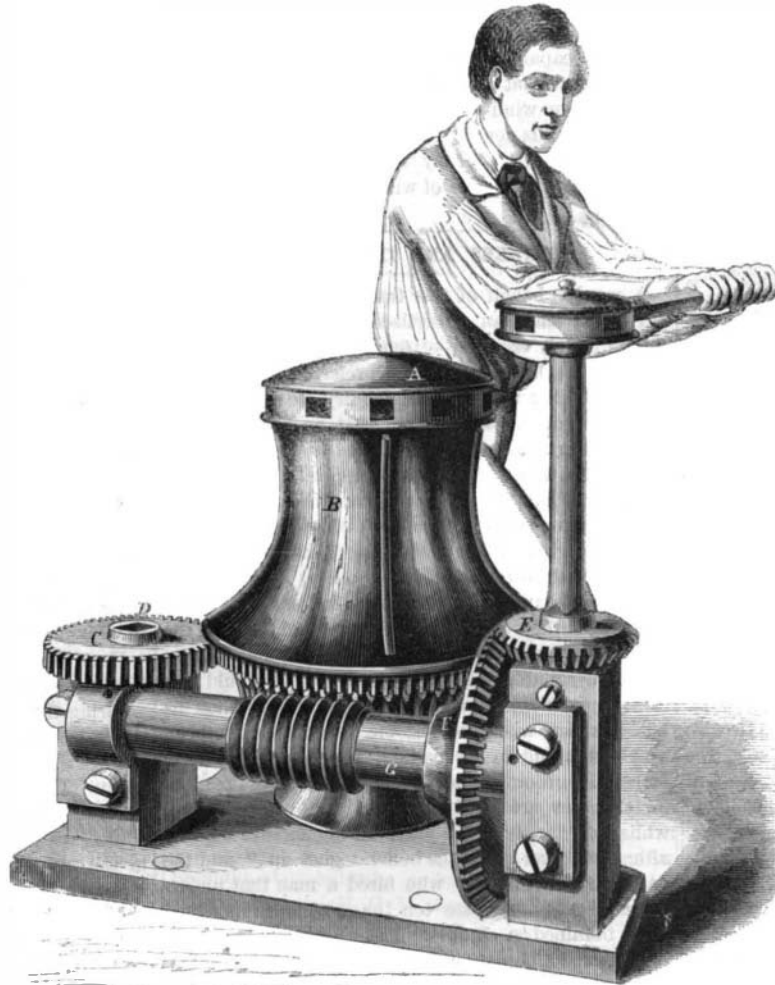
The pastime of skating has been so universally adopted that the demand for skates will increase instead of diminish for a longtime to come. There are so many varieties of the article in question, that it would be out of place to name any particular shape or pattern, as most desirable to be made by a special machine. Nevertheless it is easy to see that an apparatus for shaping the runners, in connection with another for grinding and polishing the same, would be the means of cheapening the article in a remarkable degree. A good pair of imported skates costs \$5, which is far too much; domestic ones cost much less. Fine cast steel, far better than skate runners are generally made from, costs at this time 23 cents per pound; the metal in a pair of skates need not weigh over 1½ pounds at the most, which makes the cost of the raw material amount to 35 cents. There is no reason why a vast skate manufactory should not be established on the principle of a sewing-machine factory, to systematize the work, so that the cost of production shall be reduced to the lowest point, and as a consequence enhance the profits. The factories already engaged in skate-making might successfully employ a good machine for the purpose indicated, and although we know nothing of their wants in this respect, we do not doubt that they would be glad of a practical tool for the object indicated. The foot-hold of the skate, whether wood or iron, might also be provided for by special machinery. Skate-making tools are now as necessary as those for rifled muskets.

MESSRS. MUNN & CO. TO THE READER.

Wise ship masters, if they wish their vessels to be conducted in the quickest and safest manner through deviating channels, employ the assistance of the best and most experienced pilots. The same observation holds good in respect to the piloting of inventions through the courses of the Patent Office. Many thousands of patents have already been piloted by us with success, and the public confidence in our establishment has, from year to year, steadily increased. This has ripened our judgment, widened our experience, and prepared us to serve the interests of large numbers of clients in the most prompt and superior manner.

We find in the last weekly official list of patents granted the names of FIFTY-ONE of our clients. This is about forty-nine times more cases than the majority of patent agents in this country are in the habit of obtaining in the same period. Our experience in obtaining patents is so extensive, and our facilities for preparing the drawings and papers so complete, that we are often enabled to execute the work quicker and better than it can be done elsewhere, while no one can possibly enjoy better advantages for pushing cases speedily through the Patent Office. This is the reason why so many persons, living at a distance, prefer to send all their patent business to Munn & Co.

RAILROAD ACCIDENTS.—We learn from the *Railroad Journal* that 935 serious accidents occurred on American railroads in 1863, by which 264 persons lost their lives, and 671 were wounded. The number of casualties is less than in the previous year. In 1862, there were 263 lives lost and 870 persons wounded. We are pleased to make this record, more especially as our railroads were pushed to their utmost capacity last year. Railroad traveling is far more safe than by the old-fashioned stages.

**MORGAN'S GEARED CAPSTAN.**

stance. This lantern is also conveniently arranged for lighting and filling. An aperture is left on the bottom, B, which is surrounded by a loose band, C; this band has also a hole in it, so that when it is



turned to correspond with the opening in the side, the lamp can be trimmed or filled as occasion may require. The small projection, D, is for convenience of moving the loose band spoken of previously. This