

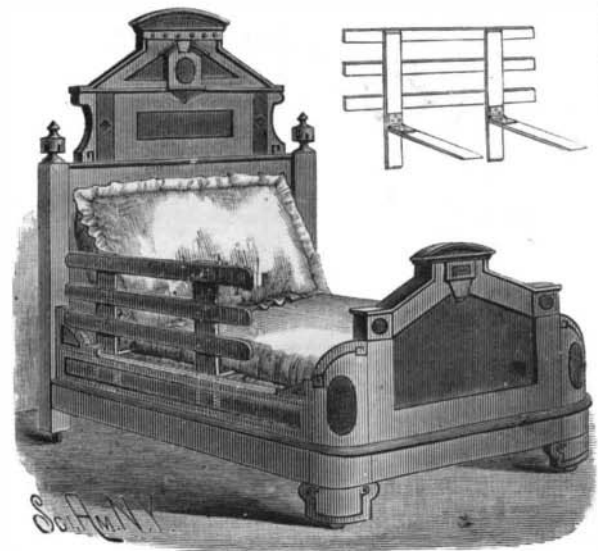
MACHINE FOR BEVELING ANGLE BARS, ETC.

Any one practically acquainted with shipbuilding, boiler-making, etc., will be aware that up to a recent date it has been and is still generally customary to bevel bars for the frames, reverse bars, keelsons, stringers, etc., for iron or steel vessels in a very laborious manner, with the use of tools worked entirely by hand; the angle has in the first instance to be guessed at by the workmen, then altered back or forward until it conforms with the bevel obtained from the body plan of the ship. When the bevel required to be put on a bar, and the curve to which it has to be bent, is considerable, several heats are necessary, the iron in the process becoming brittle and unsatisfactory. Frequently the bar is broken and the labor at all events lost, as usually iron manufacturers only replace the material, and do not allow for the labor expended. In any case, the work when it is done by the ordinary method is far from being satisfactory, the bars becoming hollow in the flanges, thus—



instead of being perfectly flat, so that, when the work is put together, the riveters are compelled to ply the bar with quarter hammers so that it may be made to lay close; and while doing so the bars are frequently fractured, which if detected leads to them being condemned, or doubling pieces have to be fitted as compensation. Arthur's patent beveling machine overcomes these practical difficulties to good beveling, and has already been tried, approved, and adopted by several large shipbuilding firms. The patentee is a practical iron shipbuilder, being at present a foreman plater with Messrs. Ramage & Ferguson, who have adopted the machine. The need of some better means of beveling angle and other bars has often occurred to Mr. Arthur, and this machine is the result of much thought and experiment on his part.

The machine which we saw at work was mounted on rails in front of the furnace, and when in use is brought up opposite the furnace mouth. It draws the bar out of the furnace (a saving of manual labor), and the beveling process goes on simultaneously while the bar is still at its best heat, no time being lost as in the ordinary method by having first to secure the bars on the blocks. It bevels straight out from the heel, and smooths down the rough edges of the rivet holes, so that the rivet head gets close up to the neck and the work lays close. The beveling is done correctly and at once, so that the result is smooth, clean, and accurate work; and the operation being done by rollers when the bar is hot, the edges are fair and free from local

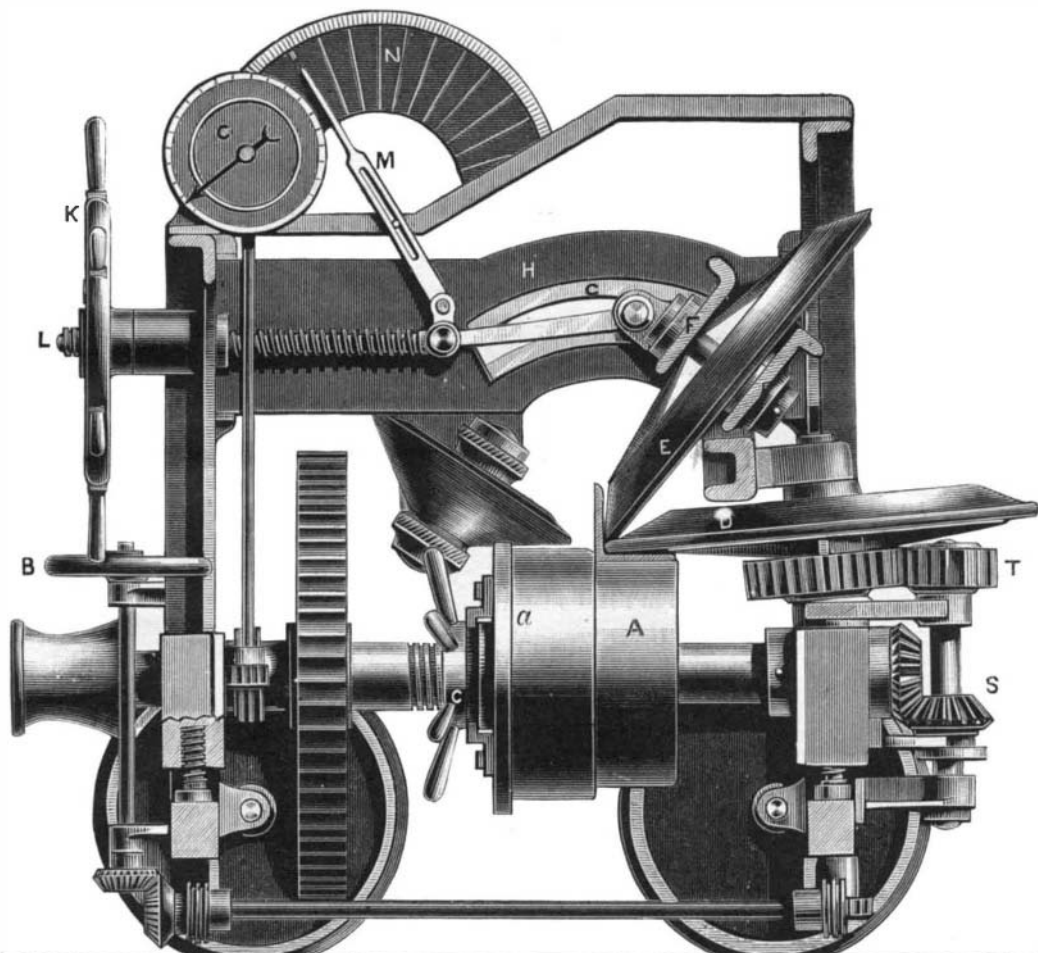


McMURRAY'S SLEEPER'S GUARD.

strains, which are always put on bars beveled by the old fashioned way, the beveling occupying just about the same time as in the ordinary method is taken in merely drawing the bar out of the furnace.

The bar when it has left the machine is sufficiently hot to be turned without reheating, and is easily wound or turned fair to the set, so that it is therefore

free from kinks. It is claimed by the patentee that the work is done with a saving in labor alone equal to about 50 per cent, and there is no doubt that there is a very great saving in the labor expended in beveling. The machine is very compact, lightly but strongly constructed, and so simple that any workman can use it.



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The machine we saw in operation was being used to bevel 6 in. by 4 in. frame bars, and the frame turner using it was doing so for the first time, and had found practically no difficulty in understanding how to manipulate it, and expressed himself thoroughly satisfied that it did much better work than can be done by the old, crude method; and seeing the patentee was a perfect stranger to him, and he has no interest whatever in the machine, such an expression of opinion speaks for itself.

We append an illustration showing a sectional view of the machine, with part of the gearing and guide rollers removed, and with a bar in the position for open-beveling; when it is required to shut-bevel, the bar is fed through the machine with the horizontal flange in the opposite direction to that shown in the drawing, so that the edge will lie toward the collar, *a*, of the roller, *A*, and this roller is then adjusted horizontally to bear up on the edge of the bar. The most important parts of the machine are the conical rollers, *D* and *E*, of which the roller, *D*, holds one flange or wing of the angle bar horizontal, while the other roller, *E*, regulates the angle of the other wing of the bar. The angle is determined beforehand, and indicated by the pointer, *M*, on the sector, *N*, which is provided with a scale. The position of the roller, *A*, is adjusted by the hand wheel, *B*, and the screw collar, *C*, according to the thickness of the bar. By means of the collar, *C*, the roller, *A*, can be moved toward or from the conical roller, *D*; and by means of the hand wheel, *B*, the roller, *A*, can be adjusted vertically.

To regulate the angle of the bar, the screw, *L*, is turned, thus moving the summit of the cone, *E*, in the slot, *G*, formed in the cross-bar, *H*. The pointer, *M*, is connected at one end to the screw, *L*, and, as stated above, indicates on the sector, *N*, the angle formed by the two wings of the bar. This angle can be varied in different parts of the bar; and in this case the angles are taken on the plan of the ship at equal intervals in the length of the bar to be shaped. A disk, *O*, provided with a pointer indicates the course taken by the bar in passing through the machine. Note is taken in advance of the angles which correspond to each point of the bar, each of these points being designated by a number, and these numbers are placed on the disk, *O*. When the machine is to be operated, a bar is placed between the rollers, *D* and *A*, which revolve, and thus draw said bar into the machine. As the points which have been marked occur at regular intervals, it can easily be seen on the disk, *O*, when one of these points arrives at the rollers, at which moment the operator regulates

the position of the roller, *E*, so that the pointer, *M*, will indicate on the sector, *N*, the angle corresponding to the desired angle of the bar at said point.

The machine draws the bar from the furnace when it has reached the desired temperature, and for this purpose guide rollers are provided, which are not shown in the cut.

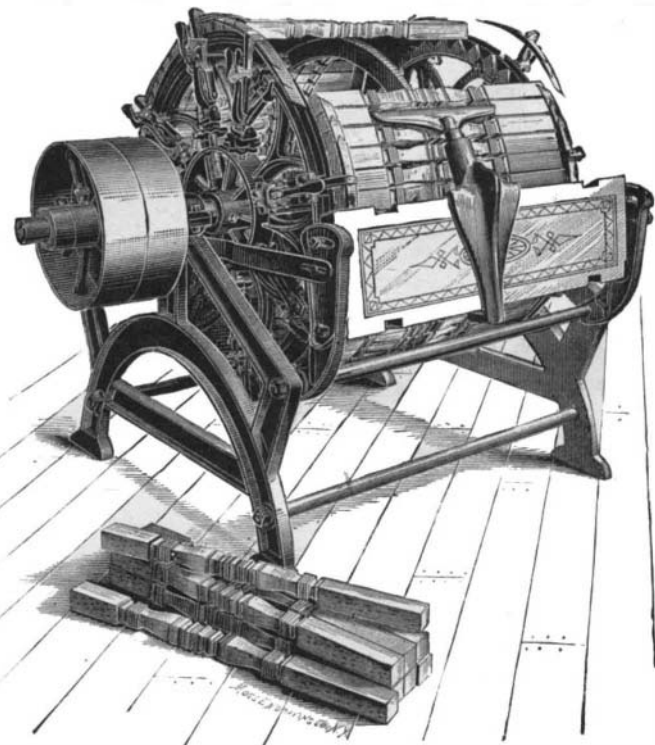
THE SLEEPER'S GUARD.

One, two, or three horizontal slats are attached to two upright bars, which are intended to be placed between the edges of the mattress and the side pieces of the bedstead or berth. Two folding arms are hinged to these uprights at points considerably above their lower ends, and when in use are arranged to be placed between the two mattresses of the bed, or when only one mattress is used, between the mattress and the springs or slats. The guard is shown in our illustration as adjusted to an ordinary bedstead. When not in use, the arms may be folded against the uprights, as shown, and the guard is readily portable or may be disposed of during the day by putting it under the mattress. The invention has quite a wide application. It is intended for use with ordinary beds, or with the berths of sleeping cars and steamers, to prevent the occupant, and particularly children, from falling out and being injured or crippled. It is a very simple device, and when adjusted to the bed or berth, the sleeping persons are perfectly secure without recourse to pillows, chairs, or other uncertain contrivances. The guard has been patented by Mr. John C.

McMurray, and is manufactured by the Sleeper's Guard Co., 277 Pearl St., New York.

AN IMPROVED TURNING LATHE.

This lathe, shown in the engraving, is designed to turn work square or polygonal in shape instead of round. The machine consists of two wheels adjustably secured upon a central shaft. The materials to be turned are placed upon the wheels, thereby forming a cylinder. The wheels being revolved, one side of the pieces are cut to the desired shape. They are then turned over, and the other sides cut in like manner. The pieces are held on the wheels by a series of clamps or shoes, which are adjustable radially to enable them to clamp materials of different thickness. Each clamp is worked by a lever, which is quick and powerful in operation. A single movement of the lever will throw the clamp back out of the way, as shown in the engraving, leaving a section of the machine free of all im-



SMITH'S IMPROVED TURNING LATHE.

pediments, enabling the operator to place materials thereon or turn them over very rapidly; and when in place, a single movement of the lever will securely clamp them to the machine and lock the clamp so that it cannot be thrown back. The machine has an adjustable middle support for the pieces, upon which they are firmly held, preventing all vibration and per-