

Only after the engineer has given the well understood signal, plainly audible in the work rooms, is the motive engine to be started. A similar signal shall also be given to a certain number of work rooms if only their part of the machinery is to be set in motion.

If any work other than the lubricating and cleaning of the shafting is to be performed while the motive engine is standing idle, the engineer is to be notified of it, and in what room or place such work is going on, and he must then allow the engine to remain idle until he has been informed by proper parties that the work is finished.

Plainly visible and easily accessible alarm apparatus shall be located at proper places in the work-rooms to be used in cases of accident to signal to the engineer to stop the motive engine at once. This alarm apparatus shall always be in working order, and of such a nature that a plainly audible and easily understood alarm can at once be sent to the engineer in charge.

All projecting wedges, keys, set-screws nuts, grooves, or other parts of machinery having sharp edges, shall be substantially covered.

All belts and ropes which pass from the shafting of one story to that of another, shall be guarded by fencing or casing of wood, sheet-iron, or wire netting four feet six inches high.

The belts passing from shafting in the story underneath and actuating machinery in the room overhead, thereby passing through the ceiling, must be inclosed with proper casing or netting corresponding in height from the floor to the construction of the machine. When the construction of the machine does not admit of the introduction of casing, then at least, the opening in the floor through which the belt or rope passes, should be inclosed with a low casing at least four inches high.

Fixed shafts, as well as ordinary shafts, pulleys and fly wheels, running at a little height above the floor, and being within the locality where work is performed, shall be securely covered.

These rules and regulations, intended as preventions of accidents to workmen, are to be made known by being conspicuously posted in all localities where labor is performed.

ENGINEERS.

The attendant of a motive engine is responsible for the preservation and cleaning of the engine, as well as the floor of the engine room. The minute inspection and lubrication of the several parts of the engine is to be done before it is set in motion. If any irregularities are observed during the performance of the engine, it is to be stopped at once, and the proper person informed of the reason.

The tightening of wedges, keys, nuts, etc., of revolving or working parts, is to be avoided as much as possible during the motion of the engine.

When large motive engines are required to be turned over the dead point by manual labor, the steam supply valve is to be shut off.

After stoppage, either for rest or other cause, the engine is to be started only after a well understood and plainly audible signal has been given. The engineer must stop his engine at once upon receipt of an alarm signal.

The engineer has the efficient illumination of the engine room, and especially the parts moved by the engine, under his charge. The engineer must strictly forbid the entrance of unauthorized persons into the engine room.

An attendant of a steam or other power motor, who is charged with the supervision of the engine as his only duty,

is permitted to leave his post only after he has turned the care of the engine over to the person relieving him in the discharge of his duties.

The engineer is charged with the proper preservation of his engine and means therefor. He must at once inform his superiors of any defect noticed by him.

The engineer on duty is permitted only to wear closely-fitting and buttoned garments. The wearing of aprons or neckties with loose, fluttering ends is strictly prohibited.

GEARING.

Every work on gearing, such as cleaning and lubricating shafts, bearers, journals, pulleys and belts, as well as the tying, lacing and shipping of the latter, is to be performed only by persons either skilled in such work, or charged with doing it. Females and children are absolutely prohibited from doing such work.

When lacing, binding, or repairing the belts they must either be taken down altogether from the revolving shaft or pulley, or be kept clear of them in an appropriate manner. Belts unshipped for other reasons are to be treated in the same manner.

The lubricating of bearings and the inspection of lubricating apparatus must, when the shafting is in motion, be performed either while standing upon the floor, or by the use of steps or ladders, specially adapted for this purpose, or proper staging or sliding ladders. The lubrication of wheel work and the greasing of belts and ropes with solid lubricants is absolutely prohibited during the motion of the parts.

In case of accident any workman is authorized to sound the alarm signal at once by the use of the apparatus located in the room, for this purpose, to the engineer in charge.

The following rules, classified under proper sub-heads, are published by the *Technische Verein* at Augsburg.

TO PREVENT ACCIDENT BY THE SHAFTING.

While the shafts are in motion it is strictly prohibited : (a) To approach them with waste or rags in order to clean them. (b) In order to clean them, to raise above the floor by means of a ladder or other convenience.

It is allowable to clean the shafting and pulleys only while in motion.

These parts of the machinery must be cleaned by means of a long handled brush only, and while standing upon the floor.

The workmen charged with these or other functions about the shafting, must wear jackets with tight sleeves, and closely buttoned up; they must wear neither aprons nor neckties with loose ends.

Driving pulleys, couplings and bearings are to be cleaned only when at rest.

This labor should, in general, be performed only after the close of the day's work. If performed during the time of an accidental idleness of the machinery, or during the time of rest, or in the morning before the commencement of work, the engineer in charge is to be informed.

VARNISH FOR CLEANING AND PRESERVING HARNESS AND OTHER LEATHER GOODS.

Four ounces of shellac, half an ounce of camphor, and one ounce of resin are dissolved in one pint of methylated spirit and shaken at intervals for 48 hours. The mixture is then colored according to the kind of leather with which it is to be used. Other resins, solvents, and proportions may be adopted.