ABSTRACT: A splash guard is provided for a concrete cutting machine so that the water which is supplied to a concrete cutting tool to keep it cool during the process of cutting, together with any concrete slurry is caught and directed into a container, rather than are permitted to be sprayed and thrown about as is the present practice.
This invention relates to core bits used for cutting concrete and, more particularly, to means for providing a splash guard for such tools.

It is the practice to force a coolant such as water on the cutting tool used to cut holes in concrete. While this does not cause too great a problem when the hole is being cut on a horizontal plane such as in the floor, in cutting holes in vertical surfaces such as in the walls, or ceiling, the rotating tool sprays the water in all directions and besides spraying the water, throws off a slurry comprised of a mixture of the ground concrete and water. The thicker the concrete, the more water is employed, but even with thin concrete sections, the sprayed water and slurry cause an unsightly mess that stains paint and discolors raw material and further can constitute a hazard to an operator because of the spray slurry spraying on the surrounding equipment and surfaces.

OBJECTS AND SUMMARY OF THE INVENTION

An object of this invention is the provision of a splash guard for a concrete cutting tool which eliminates the splashing and spraying of the coolant.

Another object of this invention is the provision of a splash guard for a concrete cutting tool which is easy to assemble in place and also which is easy to remove.

These and other features of the invention are achieved in a splash guard arrangement for a concrete cutting tool wherein the tool is of the cylindrical saw type which is supported from a shaft which extends parallel thereto. The shaft is supported from a plate. The plate is usually flat up against the surface into which a hole is to be cut, and in the case of vertical walls, is usually attached to the concrete wall by inserting bolts through appropriate openings in the plate which are then fastened into the wall.

Usually, a linear gear arrangement is provided adjacent the shaft so that the cutting tool may be moved by suitable rotating gears engaging the linear gear, so that the tool moves parallel with the shaft. The splash guard substantially comprises a ring which surrounds the cutting tool and is held abutting the wall. The means for holding the ring in place comprises a clamp which is attached to the rod and extends therefrom to engage the splash guard.

Provision is made for removing water which accumulates within the splash guard by means of a hose which directs it to any suitable discharge location at a lower elevation.

The novel features of the invention are set forth with particularity in the appended claims. The invention will best be understood from the following description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates the presently known arrangement of a concrete cutting tool with which this invention may be employed;

FIG. 2 shows a concrete cutting tool with a splash guard in accordance with this invention in place;

FIG. 3 is a view in elevation of a splash guard;

FIG. 4 is a cross section of the splash guard taken along the lines 4—4;

FIG. 5 is a view in elevation of the clamping ring used to hold the splash guard in place; and

FIG. 6 is a side view of the clamp which is employed.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a concrete core drilling machine in place on a vertical wall in the manner presently practiced. A heavy metal base 10 is usually anchored to the concrete wall 11 by means of two bolts respectively 12, 14. Extending perpendicularly from the base 10 is a rectangular metal post or column 16. A gear track 18 is attached to the column or post 16 on the bottom side. A carriage 20 rides on the post and is supported thereby. The carriage is positioned along the post by gears, (not shown) which are turned by means of the handle 22. The gear turned by the handle engages the gear teeth 18.

A motor 24 is supported on the carriage 20 by a support member 25. From one end of the motor there extends the concrete cutting hole saw or bit 26 to be rotatably driven thereby.

In operation, the handles 22 are used to position the saw 26 over the spot in the concrete wall, 11, through which it is desired to drill a hole. The motor is started and the hole saw 26 rotates. In order to keep the hole saw from overheating, water from a water reservoir 28 is fed into the water swivel 27 of the motor, runs through the shaft and into the center of the bit. The water then runs past the face of the bit and sprays off as the bit rotates. In view of the large load on the motor and heavy friction on the saw, it is necessary to use large quantities of water to maintain the temperature of the saw below excessive levels. As a result, large quantities of water are sprayed off the hole saw and the slurry, comprising the mixture of water and cement powder caused by the grinding action, also gets sprayed about constituting a potential danger unless the proper protective eyewear is used. Also, there is the mess created over an extensive area which has to be cleaned up. While this is not too much of a problem in new construction, holes often are cut on jobs in buildings which are occupied which does make it a problem.

FIG. 2 illustrates the splash guard arrangement in accordance with this invention. Only so much of the saw is shown in FIG. 2 as to enable one to properly locate the splash guard. This comprises substantially a ring 30, which is held tightly against the cement wall 11, by a clamp 32. The ring 30 surrounds the saw 26, and is dimensioned to be high enough from the wall so it will catch all of the water and/or slurry sprayed by the saw.

The clamp 32 has a U-shape yoke portion 34 which fits over the column 16 at the space between the end of the linear gear 18 and the base 10. A turn screw 36 is used to tighten the clamp 32 in place so that it holds the ring 30 tightly in position against the cement wall 11. A rubber hose 38 is attached to the ring 30, and through a drain opening therein at the point of attachment, which is usually placed toward the bottom of the ring, collects and carries away the water and cement slurry to a convenient collection container.

It will be appreciated that with the arrangement briefly described the problems of the unsightly mess and potential hazard are eliminated. The ring can be rotated so that the drain opening is at any location, and the splash protection afforded by this invention is available for all orientations of the hole cutting saw.

FIGS. 3 and 4 constitute views in elevation and in section along the line 4—4 of FIG. 3. The ring 30 may be made of a light metal such as aluminum. From FIG. 3, it can be seen that the ring has its widest diameter at the base, wherein at the interior, there is a step offset portion to which a rubber gasket 40 may be cemented. The rubber gasket actually contacts the wall. A second step offset 42 is positioned along the ring whereby a reduction is made in the diameter of the ring from the diameter at the base portion. A curved lip 44 is used at the top portion of the ring to narrow the diameter still further.

It will be understood that the minimal diameter of the ring, which is at the top portion should be made wide enough to enable the circular cutting saw to be introduced therethrough and yet, must be made small enough so that it will catch substantially all of the spray from the rotating saw. A similar requirement is established for the height or dimension of the ring from base to top. This must be made high enough so it will catch substantially all of the spray from the rotating saw. Some typical dimensions are shown in FIG. 4.

FIG. 5 is a view in elevation of the clamp and FIG. 6 is a plan view. As may be seen in FIG. 5, the clamp has a pair of semicircular arms respectively 50A, 50B, which engage the offset 42 of the ring thereby holding the ring against the wall.
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The yoke portion 34 on the clamp fits over the support column 16 and is fastened thereto by means of clamp screw 36 which is screwed through the threaded opening 52 in the base of the clamp.

There has accordingly been described above a novel, useful splash guard arrangement for use with concrete cutting saws.

What is claimed is:

1. A splash guard for use with a circular concrete cutting hole saw of the type which is supported from a column which is offset from and parallel to said concrete cutting saw and having means for applying a coolant to said cutting saw comprising:

ring means positioned adjacent to the end of said concrete cutting saw for preventing said coolant from being sprayed by said concrete cutting saw,

said ring means having an offset portion disposed substantially at the center thereof,

clamp means attached to said column for holding said ring means in position,

said clamp means including a pair of arms formed into a semicircle,

a yoke attached to the base of said semicircle,

said yoke being dimensioned to fill over said column, and

screw means attached to said yoke for holding it to said column,

said pair of arms of said clamp means engaging the offset portion of said ring means for pressing said ring means against the concrete wall, and

tube means connected to said ring means for conducting said coolant away from said ring means.

2. A splash guard as recited in claim 1 wherein said ring means includes resilient means at the end thereof for affording a water sealing junction when pressed against the wall.