

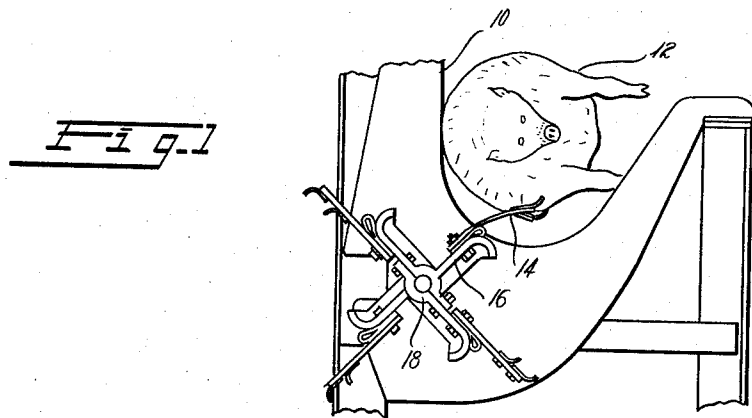
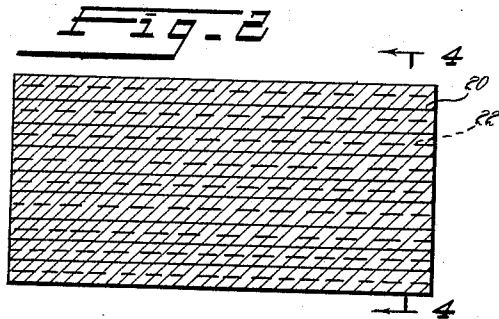
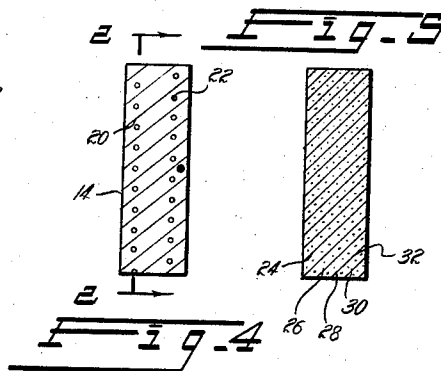
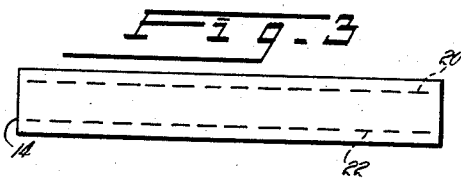
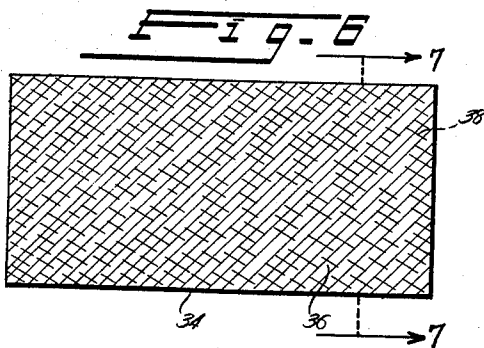
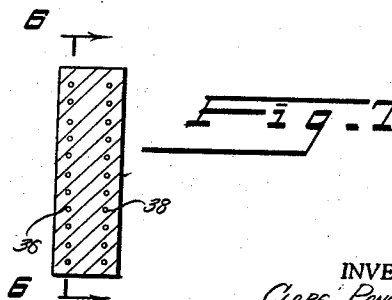
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2,851,722

HOG BEATER PADDLE

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2,851,722

HOG BEATER PADDLE

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4 Claims. (Cl. 17—18)

This invention relates to improved scraping devices for carcass dehairing machines and more particularly relates to hog beater paddles for use in dehairing and cleaning machines of the general type disclosed in United States Patent No. 1,502,749.

Hog dehairing machines or hog beaters of this type generally comprise a plurality of beater paddles which are appropriately clamped to a rotating shaft beneath which the carcasses are drawn. Each beater paddle ordinarily is formed of a flexible, elastic arm provided with a number of scraping edges, usually of metallic construction. When the carcass is in proper position the beater paddles are drawn across its surface to pull away the hair and bristles by frictional contact, as well as removing scurf and imparting a polish to the surface of the animal.

Beater paddles heretofore used have usually been made from a belting material such as layers of rubber and canvas or duck, to which are attached the metal scraper elements. The life of such beater paddles however, is limited by their tendency to acquire a permanent set or to break at the point of bending and the resiliency and strength of the paddles is somewhat dependent upon temperature and moisture conditions.

The canvas or duck material generally utilized as the reinforcing fabric in hog beaters is a square woven fabric wherein the weft is parallel to the short dimension of the beater paddle. With this type of construction continual flexing of the paddles causes a sawing of one cord on another, particularly in the fabric layers closest to the surface, and this generally results in rather rapid paddle deterioration. As the reinforcing function of the fabric is gradually destroyed through breakage of cords, the resiliency of the beaters undergoes a change so that their scraping efficiency is markedly decreased. This problem has been recognized and it has been proposed to eliminate the layers of square woven fabric at the surface of the beaters and to replace these surface layers with alternate layers of weak wefted or weftless rubberized cord fabric. Center reinforcement by means of square woven fabric was still necessary, however, and while fabric failure through a cord sawing action was reduced it was not eliminated. The surface reinforcement in such an arrangement still comprises a fabric wherein the adjacent cords are in contact with one another and wherein one layer of such weak wefted or weftless fabric is immediately above an underlying layer so that a sawing action occurs between superposed layers.

I have now found that it is possible to overcome the foregoing problems and to produce hog beater paddles having a long life, controlled and relatively stable resiliency and improved strength, if the reinforcing fabrics almost universally utilized heretofore are eliminated and the beater paddles are reinforced by means of spaced wires which do not contact one another at any place within the body of the beater.

It is accordingly a primary object of the present invention to provide an improved flexible elastic beater

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paddle having a controlled and stable flexibility and long life.

It is another object of the invention to provide an improved hog beater paddle adapted to withstand the repeated and long continued flexures under heavy strain which are incident to the service in which such beaters are employed.

It is another object of the invention to provide hog beater paddles which are reinforced in a novel manner to increase the life thereof.

These and further objects and advantages of the invention will become apparent upon reference to the following description and claims and appended drawings wherein:

Figure 1 is a side elevation, partly broken away, of a conventional hog beater, showing the carcass of a hog being acted on by the beater paddles;

Figure 2 is a horizontal section through a beater paddle taken along the line 2—2 of Figure 4 and showing a beater paddle enlarged with respect to Figure 1 and constructed according to one embodiment of the invention;

Figure 3 is a vertical elevation of the enlarged beater paddle of Figure 2;

Figure 4 is a vertical section of the enlarged beater paddle of Figure 2 taken along line 4—4 of Figure 2;

Figure 5 is a vertical cross section of another enlarged embodiment of a beater paddle;

Figure 6 is a horizontal section of another enlarged embodiment of a beater paddle according to the invention, taken along the lines 6—6 of Figure 7; and

Figure 7 is a vertical cross section taken along the lines 7—7 of Figure 6.

Referring to Figure 1 of the drawing, the dehairing machine or hog beater comprises a plurality of longitudinally spaced grills 10 which form a trough in which the hog 12 may roll as the paddles 14 engage therewith, the paddles being mounted on arms 16 of a suitable rotor 18, as will be understood by those skilled in the art and as is more fully described in the aforementioned patent.

Referring to Figures 2, 3, and 4, according to one embodiment of my invention, the paddle 14 comprises a rubber like body having parallel metal wires or cables molded therein in spaced relation in a pair of rows 20 and 22 wherein adjacent wires in the two rows are staggered with respect to one another, as is clearly seen in Figure 4. The resiliency of such a paddle is accurately and stably controlled because of the fact that the metal wires or cables do not stretch and the bending action or flexing which occurs is permitted by the stretch or distortion of the rubber only. Since the wires are in no place in contact with one another there is no possibility of a sawing action which weakens the wires. As a consequence the wires may be placed into the paddle body in a position to secure the optimum flexibility and strength without a necessity for placing the wires in a position where strains and flexures of a certain type are at a minimum. The flexibility of the paddle may be varied by varying the number and spacing of the wires or cables so as to permit a greater or lesser distortion of the rubber or plastic material by reason of the greater or lesser volume of such material between the metal wires and cables. An example of a paddle having a greater strength and lesser flexibility than that of the paddle shown in Figures 2, 3, and 4 is shown in Figure 5 wherein five rows 24, 26, 28, 30 and 32 of wires or cables are utilized in spaced relation.

In service where side thrust makes it necessary to increase the strength of the unit to prevent splitting longitudinally, the wires or cables may be molded into the paddle body at angles as shown in Figures 6 and 7. Thus

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according to this embodiment of the invention the paddle 34 has molded thereinto a first row of wires 36 extending at an angle of approximately 30° to the longitudinal axis of the paddle, and a second row of wires 38 spaced from the first row and also extending at an angle of approximately 30° to the longitudinal axis of the paddle but in an opposite direction to the wires 36. In this type of paddle the flexibility and resistance to longitudinal splitting may be controlled not only by varying the number of wires but also by increasing the angle away from the longitudinal axis of the paddle. As this angle is increased the flexibility of the unit increases but the resistance to transverse splitting decreases. As with the paddle shown in Figures 2 through 5, flexibility and strength may be further controlled by increasing the number of rows of wire, bearing in mind that the various rows are always spaced one from another and that no two wires in the paddle body contact one another. Not only are the wires maintained out of contact with one another but their spacing is so great that ordinary flexure will not cause the wires to come into contact with each other.

While the beater paddles illustrated herein have been rectangular in shape it will be understood that any desired shaped paddle may be utilized according to the invention so long as it is reinforced with spaced wires or cables which do not contact one another within the body of the paddle. Paddles constructed according to the invention are possessed of a long life and of a flexibility which is stable over substantially the entire life of the paddle. In addition to this the flexibility may be accurately controlled by the placement and number of wires utilized.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. A beater paddle for securement to a rotary shaft

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for dehairing a carcass, comprising an elongated rubber-like body having a plurality of spaced wires positioned therein so that each wire in said body is spaced from each other wire in said body, said wires being arranged in rows wherein the wires in each row lie in a single plane and wherein said planes are spaced and parallel.

2. A beater paddle for securement to a rotary shaft for dehairing a carcass, comprising an elongated rubber-like body having a plurality of parallel spaced wires positioned therein so that each wire in said body is spaced from each other wire in said body, said wires being arranged in rows wherein the wires in each row lie in a single plane and wherein said planes are spaced and parallel.

3. A beater paddle for securement to a rotary shaft for dehairing a carcass, comprising an elongated rubber-like body having a plurality of spaced wires positioned therein so that each wire in said body is spaced from each other wire in said body, said wires being arranged in rows wherein the wires in each row are parallel and lie in a single plane and wherein said planes are spaced and parallel, the wires in adjacent rows being at an angle to one another.

4. A beater paddle for securement to a rotary shaft for dehairing a carcass, comprising an elongated rubber-like body having a plurality of spaced wires positioned therein so that each wire in said body is spaced from each other wire in said body, said wires being arranged in rows wherein the wires in each row are parallel and lie in a single plane and wherein said planes are spaced and parallel, the wires in adjacent rows being at an angle to one another, and at an angle of approximately 30° to the longitudinal axis of said paddle.

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