

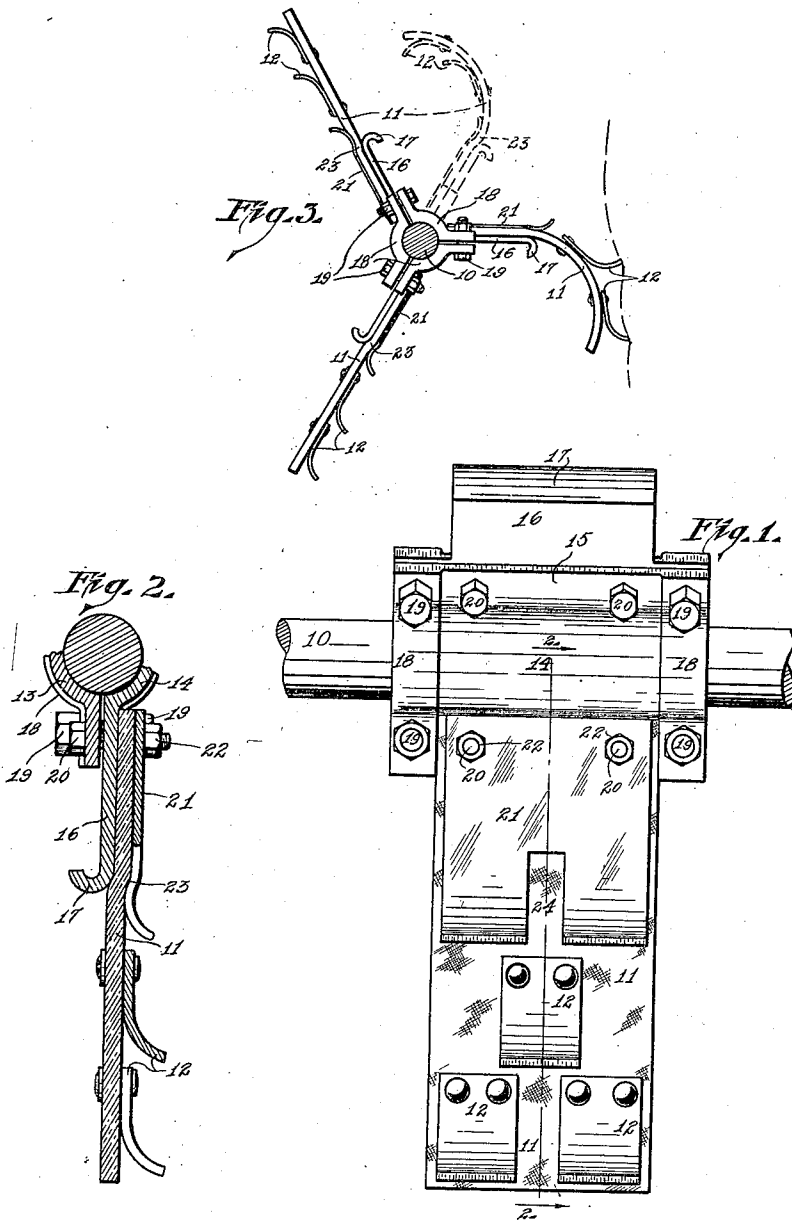
July 3, 1923.

1,460,863

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BEATER DEVICE FOR HOG SCRAPING MACHINES

Filed Sept. 13, 1921



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Patented July 3, 1923.

1,460,863

UNITED STATES PATENT OFFICE.

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BEATER DEVICE FOR HOG-SCRAPING MACHINES.

Application filed September 13, 1921. Serial No. 500,423.

To all whom it may concern:

Be it known that I, WILLIAM PRATT, a citizen of the United States, and resident of Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Improved Beater Device for Hog-Scraping Machines, of which the following is a specification.

My invention relates to improvements in beater devices to be used in hog scraping machines which are used in connection with removing hair from the hogs.

These beaters are usually placed on rotating shafts which are so arranged that hogs may be moved between two sets of shafts, and will be engaged by the beaters as the same are rotated in such a manner that the hair will be removed by said rotary movement. These beaters are formed usually of rubber belting having a series of scraper members attached to one face which are designed to engage the hogs as the said scrapers are rotated; the said engagement causing the beaters to be bent backwardly and to form a kink or sharp curve at the point near the device by which they are connected to the shaft.

As the beater is rotated and it disengages the surface of the hog, the weight of the scraping members will cause the flexible belt member to be thrown forward due to the momentum of the said scrapers. This causes the belting to be bent to a very large angle at the point to which it is attached to the shaft, and I have found by actual experience that this forward movement caused by the momentum of the scrapers causes the belting to be rapidly broken at the point of attachment.

It is, therefore, the object of my invention to provide new and improved means for attaching the belting to a shaft so that the forward movement of the belting may be somewhat modified, and the bent portion between the belt and its point of attachment may be carried through a curvature of a larger diameter.

A still further object is to provide improved means for mounting the belting supporting device to the shaft to prevent the same from slipping thereon, without decreasing the strength of the shaft.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement and combination of the various

parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of my improved device for attaching the beater members of a hog scraper to the shaft.

Figure 2 is a detail sectional view taken on the line 2--2 of Figure 1.

Figure 3 is an end elevation of my improved device showing the manner in which the same is operated, and as it is attached to the shaft.

The numeral 10 indicates a shaft which is rotatably mounted in a suitable frame of the ordinary hog scraping machines now in general use.

Each of these shafts 10 is designed to carry a series of scraper members which comprise short sections of belting 11. These belting members are cut from the ordinary stock rubber belting.

Riveted to one face of the belting 11 is a series of scraper plates 12, one of said plates being placed near each side edge and adjacent to the end of said belting; the other plate being placed inside of the said two plates and adjacent to the central portion of said belting, as clearly shown in Figure 1, the outer ends of each of the plates 12 being curved laterally.

These belts are usually provided with two other plates still nearer the central portion of the belt 11 and in line with the first two plates mentioned. These I have dispensed with in my improved arrangement.

For securing the belts 11 in position on the shaft I have provided a series of clamp members 13, each of which occupy substantially one-third of the circumference of the shaft, each of said members 13 being provided with cylindrical portions 14 having at one edge a laterally extending flange 15, and at the opposite edge a longer radially extending flange 16. This flange 16 is provided with a semi-cylindrical curved portion 17 extending across the entire end of said member 16. Each end of the member 14 is provided with a reinforcing flange member 18 which is thicker than the member 14 and the members 15 and 16.

Each of the end members of the flanges 18 is provided with openings for the purpose of receiving suitable bolts 19. The said flanges 18 are clamped together, as

shown in Figure 3, by means of said bolts 19.

Each of the members 16 is designed to carry the inner end of a belting member 11 which is secured in position by means of bolts 20 extending through the member 15 of one of the members 13, and through the member 16 of the adjacent member. A plate 21 is then placed over the inner end of the belt 11 on the opposite face from that engaged by the member 16 and held in position by means of nuts 22 on the bolts 20. This provides means for rigidly clamping the inner end of the belt to the member 16, and also for clamping the member 15 adjacent to the member 16, and to further assist in clamping the members 13 to the said shaft 10.

By means of the bolts 19 and 20, it will be seen that the member may be secured and rigidly held in position. The members 13 may be held in position when the belting is detached and the bolts 20 removed. This is an important feature in devices of this kind due to the fact that the members 13 may be aligned on the shaft and placed in proper position thereon, after which they do not have to be removed, and by this method of clamping the said members 13 will be securely held against rotation on the shaft without having to cut key seats or by boring holes for securing the same in position, as the holes cause crystallization of the metal from which the shaft is built. This crystallization would cause the shaft to be easily broken. These shafts are of a considerable length without any support between their ends, and for that reason considerable bending or deflection is apparent at the central portion of the shafts as they are operated.

I am aware that plates have been provided for mounting the inner end of the member 11 to the members 16, but these plates are very narrow and of a width less than the width of the said members 16. The belts are rotated in a counter-clockwise direction, as shown in Figures 2 and 3, which causes them to be bent over the rounded member 17 as they engage the carcass to be scraped. When the belting disengages the carcass, the momentum of the members 12 and the weight of the belting 11 will cause the free end of said belting to be thrown forwardly, as shown in dotted lines in Figure 3. This causes a very distinct kink in the belting at a point substantially near the end of the members 16. The reversing of the belt in one direction or the other to such a large angle, will cause the destruction at that point, and I have found that by extending the plate 21 to a point beyond the end of the member 16 and then curving the said plate forwardly, as shown in Figure 2, that the forward movement of the free

end of the belting 11 may be considerably modified, and that bent portion of the belt may be made to assume a longer curvature, and thereby avoid the destructive effect produced by the short kink or curve.

The plate 21 is curved slightly towards the members 17 at 23, thence curved in the opposite direction. This has a tendency to hold the backward curved portion of the belt slightly in its backward direction, and thereby prevent that portion of the belt, which usually breaks, from being reversed.

The member 21 is of such a length that the curved portion of the said member assumes the portion taken by the plates of the belting 11, which have been omitted as above referred to.

I have found by actual practice that these form the same function that the other plates would, and at the same time eliminate part of the weight from the belting 11, and thereby reduces the forward momentum above referred to.

I have provided a slot 24 in the central portion of the plate 21 which permits a certain amount of flexibility of the said members.

By providing the slot 24 I have also provided means whereby the life of the belting will be considerably increased, due to the fact that that portion of the belting which rests between the curved ends of the plate 21 does not bend as abruptly as that portion of the belting which engage the said curved portion, and I have found by actual practice that that portion of the belting which engages the curved portion of the plate breaks before the central portion of the belt which is opposite the slot 24. The life of the belting is thereby considerably increased, as it will still operate after the edges of the belting have become partially broken.

Thus it will be seen that I have provided an improved attachment for beaters for hog scraping machines, which I have found by actual practice to increase the life of the belting member about four or five times, and at the same time provides means for rigidly holding the same to the shaft without the cutting of key seats or bolt holes through the shaft.

I claim as my invention:

1. The combination of a rotary shaft, a supporting bracket thereon provided with a series of radial supporting plates, a beater belt secured to the forward face of each of said supporting plates, an auxiliary plate adjacent to the forward face of said belt, means for securing said supporting plate, said belt and said auxiliary plates together, the last said plate being of a length slightly greater than the length of the first said plate and provided with a forwardly extending curved portion at its outer end.

2. The combination of a rotatively mount-

ed shaft, a supporting bracket formed in a series of cylindrical segments, each of which is provided at one of its longitudinal edges with a radial flange and the other with a radial supporting plate, a beater belt adjacent to the forward face of said supporting plate, an auxiliary plate secured to the forward face of said beater belt opposite said supporting plate, said auxiliary plate being of a length slightly greater than the length of said supporting plate and provided with a forwardly and outwardly extending curved end portion, the radial flange of one bracket member being adjacent to the supporting flange of the adjacent bracket member, bolts extending through said flanges and said supporting plate, said belt and said auxiliary plate, a nut for each of said bolts.

3. The combination of a rotatively mounted shaft, a bracket on said shaft having a series of supporting plates, a radially arranged beater belt for each of said supporting plates, means for securing said belt to said support, said belt being designed to bend backwardly at the outer end of said support as it engages articles operated on, means located on the front side of said belt at a point farther from the center of said shaft than the outer end of the supporting plates to modify the forward movement of the beater belt caused by the momentum of the free end of the belts as they disengage articles operated on.

4. The combination of a rotary shaft, a supporting bracket thereon provided with a series of radial supporting plates, a beater belt secured to the forward face of each of said plates, an auxiliary plate adjacent to the forward face of said belt, the outer end of which is provided with a forwardly curved portion designed to form scraper

blades, said curved portions being separated from each other to form a central slot, the last said plate being of a length slightly greater than the length of the first said plate, and means for securing said plates and said belts together.

5. The combination of a rotatively mounted shaft, a bracket thereon provided with a series of radially mounted supporting plates, a flexible beater belt for each of said plates provided at its free end with scraper blades, a detachable plate secured to the forward side of said beater belt opposite said support and provided at its outer end with an outwardly and rearwardly extending portion, which is then curved to a forwardly and outwardly extending position, the said curved portion of said plate being beyond the outer end of said supporting members of said brackets.

6. The combination of a rotary shaft, a supporting bracket thereon, provided with a series of radial supporting plates, a beater belt secured to the forward face of each of said plates, an auxiliary plate adjacent to the forward face of said beater belt, said plate being provided with a forwardly extending curved portion to form scraper blades, said beater belt being comparatively short and provided with a double set of scraper blades arranged in inner and outer rows, the inner one of said blades being located adjacent to the outer end of said auxiliary plate in such a manner that the outer end of said auxiliary plate and said scraper blades will operate in conjunction with each other to form a scraper member as the said shaft is rotated.

Des Moines, Iowa, June 3, 1921.

WILLIAM PRATT.