

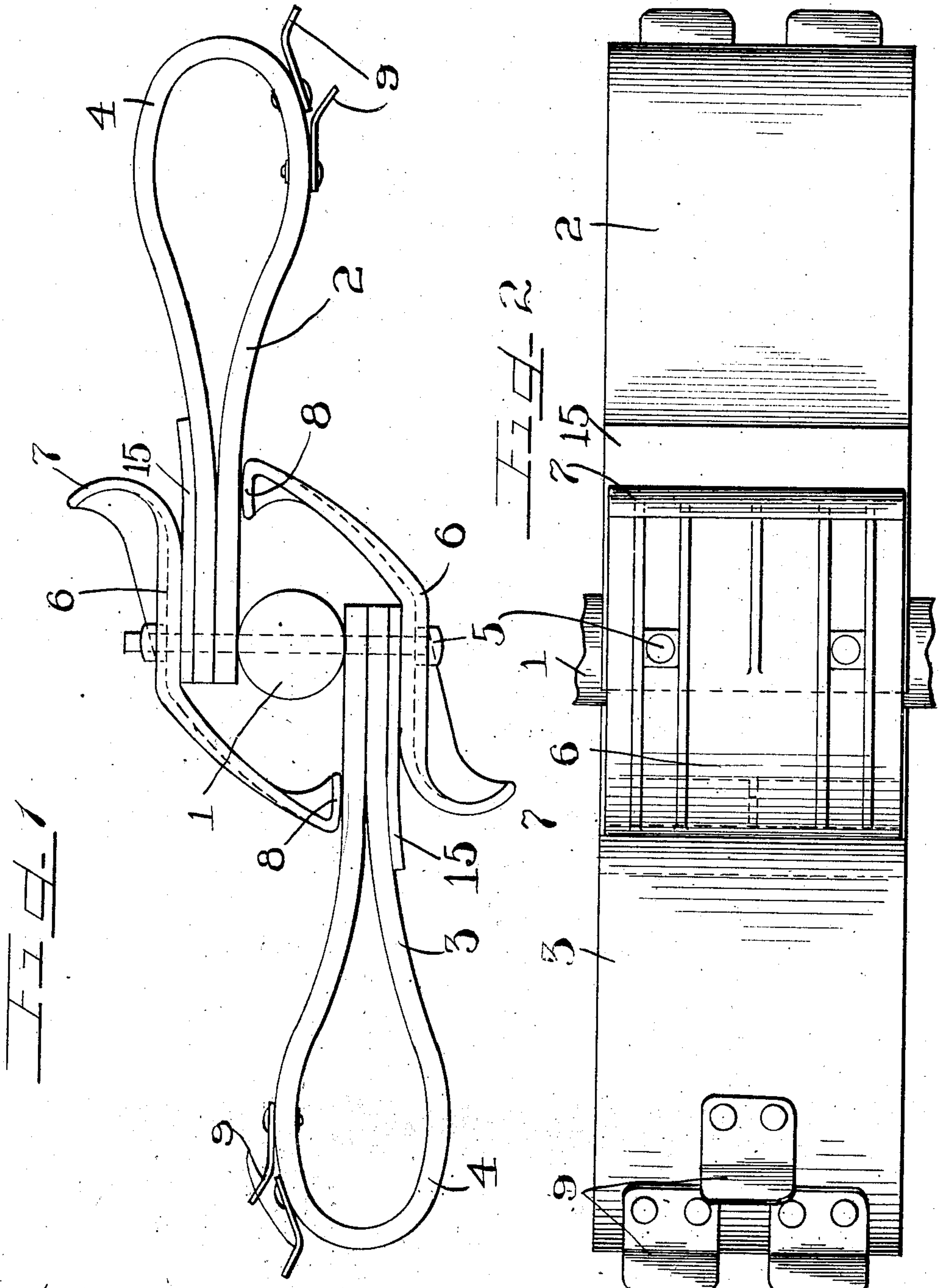
A. HANNAFORD.

BEATER.

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994,460.

Patented June 6, 1911.



WITNESSES
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BEATER.

994,460.

Specification of Letters Patent.

Patented June 6, 1911.

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To all whom it may concern:

Be it known that I, ALFRED HANNAFORD, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Beaters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numbers of reference marked thereon, which form a part of this specification.

This invention relates to that class of beaters set forth in my prior application for patent for "Beater arms for animal cleaning or dehairing machines", filed on the 12th day of June, 1908, Serial No. 438,151, and in which beaters or sections of rubber or other belting were bent centrally and the ends thereof overlapped and bolted to a rotating shaft, the arrangement being such that the axis of curvature of the loop extended longitudinally of the shaft. Although such beaters are capable of use for a variety of purposes, one of their important uses is in dehairing carcasses, as, for instance, slaughtered hogs. In operation, said beaters act centrifugally with the rotation of the shaft to strike, beat, and massage the carcasses subjected thereto and upon contact with the carcasses, are first bent back in a direction opposite to the rotation of the shaft until the looped end passes the carcasses or object struck thereby. Thereupon the resiliency of the loop, and of course, the centrifugal force due to the rotating of the shaft tends to throw the beater violently forward, and owing to the recoil to a point considerably in advance of what its normal position should be. This tends to flex or bend the beater in close proximity with the shaft and in consequence such beaters are frequently broken and the life is very much shortened by such recoil.

The object of this invention is to obviate the rebound or recoil of the beater upon

passing the carcasses and to afford a stop adapted to limit the forward movement of the beater approximately to its normal position due to the rotation of the shaft.

It is also an object of the invention to afford a rear stop for the beater acting to prevent short bending of the beater near the shaft and to afford a rounded surface over which the beater may be bent without danger of injury.

It is also an object of the invention to afford a construction adapted to limit the forward throw of the beater by reaction and to prevent forward short bending of the beater.

The invention embraces many novel features and consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a view in end elevation of a shaft and beaters secured thereon and equipped with devices embodying my invention. Fig. 2 is a face view thereof.

As shown in the drawings: 1, indicates the shaft, and 2 and 3 respectively the beaters, any desired number of which may be secured on each shaft conveniently in pairs directed oppositely, adjacent pairs of which, however, may be arranged at any desired angle with each other. Each of said beaters comprises a piece of rubber belting or other flexible material of the requisite ply, width and length, which is bent centrally to afford a loop 4, and the ends of which are brought together and secured on the shaft by means of a bolt 5, which passes through the overlapped ends of the material affording the beaters. On the rear side of each beater and also secured on said bolts are short, comparatively stiff sections 15, of belting or other suitable material adapted to reinforce the beater against rearward bending to a point well beyond the shaft. Said bolts also extend through the iron, steel or other suitable stops 6, each of which comprises a

rounded and outwardly and rearwardly curved end 7, at the rear side of the beater with which the same is secured by the shaft, said rounded surface insuring a relatively long bend of the beater when forced rearwardly by contact with that upon which the beater acts. Said plate or member extends obliquely and inwardly beyond the inner end of the beater and at its extremity is provided with a slightly rounded head 8, which contacts the forward side of the other beater of said pair at a point sufficiently far out on the beater to serve as a positive stop therefor against excessive forward movement.

Curved plates 9, are secured on the forward side of the loop of each beater, the outermost of said plates projecting sufficiently beyond the loop to guard the bend or loop from contacting the carcasses, thereby obviating excessive wear at the bend of the loop.

The operation is as follows: The rapid rotation of the shaft 1, causes the beaters to successively strike the carcasses howsoever supported in the path thereof, said beaters acting centrifugally and also owing to their resiliency acting to resist rearward bending. In passing the carcasses, however, the beaters of necessity are bent rearwardly over the curved face 7, of the stop 6. Any cramping tendency that would otherwise be produced on the bolts 5, being to a considerable extent resisted by the bracing effect of the rounded head or brace 8, which bears against the complementary beater, thus in effect, by rigidly connecting the rounded stop 7, with the stop 8, a distinct bracing effect is secured, the cramping effect on the bolts due to the blow on one beater being in part resisted by said brace and stop 8, which communicates a part of the shock to the other beater. What is perhaps more important, however, is that having passed the carcasses, the resiliency of the beater aided by the centrifugal force due to the rotation of the shaft tends to throw the beater forwardly and beyond its normal position. This is effectually resisted by the stop 8, which is so disposed as to receive and absorb such forward throw thereby greatly extending the life of the beater by preventing the same breaking forwardly.

Of course, though a carcass ever contact any portion of the stop 8, inasmuch as the same curves rearwardly, no injury can be done the carcasses thereby and furthermore, owing to the large space between the shaft and said stop, hair and other refuse can never interfere with the successful operation of the device by lodging in said space.

Of course, details of the construction may vary and I do not purpose limiting this application for patent otherwise than necessitated by the prior art.

I claim as my invention:

1. The combination with a shaft of flexible looped beaters secured thereon in oppositely directed pairs, and curved stops secured at the rear side of each beater and projecting beyond the same to bear on the forward side of the complementary beater.

2. The combination with a shaft and flexible looped beaters thereon arranged in oppositely disposed pairs, a curved stop secured at the rear of each beater to limit the rearward bending thereof and an integral head connected therewith and extending therefrom into contact with the front face of the other beater of each pair.

3. A machine of the class described embracing a rotative shaft, flexible and resilient beaters thereon each provided with a loop, a curved stop at the rear side of each beater and means bearing against the front side of each beater and acting to limit forward reaction.

4. The combination with a shaft of a flexible beater secured thereon, a curved stop at the rear side thereof limiting the rearward bending of the same, scraping blades on the outer side of the beater, and a stop adapted to engage the forward side of said beater at a point somewhat outwardly beyond the rear curved stop therefor.

5. In a device of the class described a shaft, beaters secured thereto, each comprising a strip of material folded to form a loop, means securing the ends of each beater to the shaft, and members secured to the shaft each providing a rear stop for one beater and a front stop for another beater.

6. In a device of the class described a shaft, a looped beater secured thereto comprising a strip of flexible and resilient material folded to provide a loop, means for securing the beater to the shaft, scraping blades secured to the beater, means for preventing rearward short bending of the beater and means for limiting the recoil of the beater.

7. In a device of the class described a shaft, oppositely directed beaters thereon, and a brace member secured at the rear side of each beater and projecting obliquely against the other at a suitable distance from the shaft.

8. In a device of the class described a shaft, beaters, each comprising a strip of flexible and resilient material folded to form an outer loop, and the ends secured to the shaft, a section of flexible and resilient rein-

forcing material secured at the rear of each beater, means for limiting both the rearward bend of each beater and the recoil and scraping blades secured to each beater.

5 9. In a device of the class described a shaft, loop beaters secured thereto, scraping blades secured to the beater, and mechanism secured at the front and at the rear of the beaters for limiting the bending of the beat-
10 ers in both directions.

10 10. In a device of the class described a shaft, beaters secured thereto and members secured to the shaft, one adapted to be con-

tacted by each beater to limit the recoil of the respective beaters, said members being 15
unconnected with the body of the beaters adapting the beaters to move independently thereof in operating.

In testimony whereof I have hereunto subscribed my name in the presence of two sub- 20
scribing witnesses.

ALFRED HANNAFORD.

Witnesses:

C. W. HILLS,

LAWRENCE REIBSTEIN.