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ABSTRACT

The present invention describes an apparatus for restraining an animal's head, said apparatus comprising a mounting body 1 capable of being mounted to a cattle crush, wherein said mounting body 1 comprises a pivotally connected restraining arm 2 and a ratchet wheel 4, wherein said restraining arm 2 is connected to said ratchet wheel 4 via a wire rope 5 passed through a pulley wheel 6 configured to allow a single operator to simply rotate said ratchet wheel 4 thereby raising said restraining arm 2 upwards and under the animals neck and safely and easily holding the animal's head in place.
<Figure 1>

IE120255

ANIMAL HEAD RESTRAINING APPARATUS"

Field of the Invention

The present invention relates to an apparatus for restraining an animal's head for use in conjunction with conventional cattle crushes to enable an animal handler to administer a treatment to the animal. In particular there is provided an apparatus which allows safe treatment to the animal while avoiding the risk of injury to either the animal or the handler and also avoiding the risk of damage being caused to the apparatus itself.

Background of Invention

When treating animals, in particular cattle, it is very common for an animal handler such as a farmer, rancher or veterinarian to have to restrain the animal in a cattle crush in order to facilitate the administration of a treatment to said animal. Such treatments may include but are not limited to procedures such as oral and subcutaneous dosing or administration of medicine, administration of eye ointment, examination, dehorning and attaching ear tags for any purpose. In performing such procedures, it is necessary to restrain the head of the animal in order to allow safe treatment and to avoid injury to the animal and/or the handler.

Cattle crushes are used on the majority of modern farms, performing a number of functions to assist in the day to day management of the cattle herd. The main purpose of the crush is to allow cattle to be arranged into single file, in a controlled manner, between movable side walls which prevent the animal from moving forward or backward in the cattle crush. Conventional cattle crushes comprise what is called a head gate at the forward end of the cattle crush. The animal is held in position by the head gate which closes around the neck of the animal thus restricting movement of the animal to facilitate administration of various treatments. However it is often the case that cattle being lead along the cattle crush become nervous and restless due to being confined and may therefore have become quite agitated and uncooperative by the time they reach the head gate of the cattle crush.

The head gate restraint still allows the agitated animal some movement of its head from side to side, up and down or forward and backwards, making the performance of any procedure difficult. Therefore some animal handlers may have to adapt the conventional cattle crush to incorporate further means for restraining the animal's head. Such further means usually involve attaching a commercially available head restraint to the head gate of the crush to hold the animal's head in an upwards or downwards orientation. Such head restraints can comprise nose restraints or upper neck restraints which for example form an inverted U-shape over the top of the animals neck forcing the animals head downwards. An example of such an animal head restraint is disclosed in European Patent Publication Number 2123151.

Head restraints of this type are effective in many respects for restraining animals in order to perform many procedures, however these procedures are restricted to those whereby it is sufficient for the animals head to be held in a downward orientation. This is not suitable for the performance of numerous procedures, for example oral administration of medicament. If the animals head is held downward it is inevitable that a substantial proportion of the medicament will be wasted as the animal spits it out. It is often impossible for a single farmer to orally administer medicament as he is required to hold the animals head up and administer the medicament at the same time. Frequently, in the application of eye ointment, as the cows head is lowered and facing downwards, a significant amount of eye ointment run out of the eye and is lost. It is impossible to administer eye ointment in this manner. Such waste of eye ointment and/or medicament can prove very costly for the handler.

Such conventional animal head restraints attached to a cattle crush are not always safe to use. The majority of animal head restraints require that the operator is in close proximity to the animal in order to place the animal's head within the head restraint and also to remain in close proximity to the animal's head while working the device. There is a strong possibility that the agitated animal could injure the handler as it struggles against the handler who is trying to fit the animal's neck or nose into the head restraint in order to administer a treatment to the animal.

It is not uncommon for an animal who is agitated and distressed at being held in a crush to lash out with it's feet or resist the farmer's advances by throwing back and forth it's head and thereby causing damage to or indeed breaking the animal head restraint which is attached to the crush. This results in a broken animal head restraint that cannot be used costing the farmer in terms of both time and expense.

The more the animal struggles the longer the procedure takes resulting in a more time consuming job for the handler and more distress to the animal.

Conventional animal head restraints attached to a cattle crush are not always easy to use. They may have associated therewith a number of nose and/or neck restraints which must be moved between various positions to enable the animal to be safely restrained in the restraining device. The operation of the various aspects of such a device can impose particular demands on the operator to ensure that concurrent with controlling an animal and enticing it into the head gate of the cattle crush, he safely operates the device in a timely manner without undue risk of injury to the animal, or to the operator.

In addition conventional head restraints may involve pulling a lever in order to restrain the animals head, for example in a upwards orientation. This action requires significant physical strength and as a result a farmer who is not at his full strength for any reason, such as injury or aging, or a farmer who has to work on his own with no assistance is not able provide treatment to his animals.

It is an object of the present invention to provide an improved product which is safer and easier to use than conventional animal head restraints used in conjunction with a cattle crush and which reduces the risk of a struggling animal damaging or breaking the device.

Summary of Invention

Following extensive testing and research, the present inventor has developed an apparatus which can be used in conjunction with a conventional cattle crush to enable the animal handler to safely and easily restrain the animal's head in an upwards orientation while avoiding any risk of injury to either himself or the animal by not being in close proximity to the animal's head while he restrains the animal in order to carry out a procedure. The apparatus of the present invention allows the handler to stand away from the animal's head while working the invention thereby avoiding the risk of an agitated, struggling animal causing injury to either himself or the animal. Once the animal is restrained it is then safe for the handler to approach the animal and perform the required procedure. In addition, the inventor of the present invention has observed that having the animal's head restrained before the handler approaches the animal causes less distress to the animal.

The apparatus of the present invention provides the advantage of allowing the animal's head to be safely held in an upwardly orientation to allow the handler to carry out procedures, including but not limited to, oral and subcutaneous dosing or administration of medicine, administration of eye ointment, examination, and attaching ear tags with minimum waste and in a safer environment for the animal handler.

Such an apparatus for restraining the head of an animal is also easier to operate than a conventional animal head restraint in that it enables a single handler such as a lone farmer or veterinarian to carry out a procedure that would usually require help from at least one assistant. This results in a reduction in human labour requirements associated with treating a herd of cattle.

In addition, unlike most other animal head restraints, with the present invention there is no possibility of the struggling animal being capable of damaging or breaking the device such that it can no longer function. This is a common problem with standard animal head restraints.

According to a first aspect of the present invention there is provided an apparatus for restraining an animal's head said apparatus comprising a mounting body capable of

being mounted to a cattle crush, wherein said mounting body comprises a pivotally connected restraining arm and a ratchet wheel, wherein said restraining arm is connected to said ratchet wheel via a wire rope passed through a pulley wheel configured to raise said restraining arm upwards and under the animals neck to safely and easily hold the animal's head in place.

In a preferred embodiment the mounting body is mounted to the passage boundary of a cattle crush and specifically engages the head-gate end of the cattle crush.

In a preferred embodiment the mounting body comprises at least one tubular member suitable for being mounted to a cattle crush and held in a fixed position.

In a further embodiment the mounting body comprises tubular members adapted to engage with each other to form a rectangular frame suitable for being mounted to a cattle crush and held in a fixed position.

In certain embodiments the mounting body may be in the form of a gate which can also be secured to an adjacent wall or post to close a gap or to keep animals out. In certain embodiments the mounting body of this invention can be customise made to fit the size and space available to the farmer.

In a preferred embodiment the mounting body comprises a pivotally connected restraining arm which extends into a U shape. The restraining arm is raised under the animal's head and holds the animal's neck in an upwards orientation and thus restrains the animal's head.

In a preferred embodiment the restraining arm is pivotally connected to the mounting body by an adapted pivot bracket. Said pivot bracket been specifically developed to contain two attachment points to ensure that the restraining arm is securely connected to the mounting body. It is a common problem that a struggling animal may damage a restraining arm of this type and through trial and error the inventors have discovered that the addition of the second attachment point of the present invention on the pivot bracket tightly secures the restraining arm and prevents lateral movement of the

restraining arm as a result of the struggling animal. This second attachment point is a sliding attachment so that while preventing the lateral movement of the restraining arm it still allows maximum vertical extension of the restraining arm. Therefore the restraining arm can easily accommodate animals of various heights and sizes. The pivot bracket comprises two metal brackets pivotally connected in two locations by two separate bolts. The first pivot bolt is non-movable and secures the restraining arm to the mounting body. The second pivot bolt is moveable and allows each bracket to slide relative to each other.

In a preferred embodiment the restraining arm is raised and lowered using a ratchet wheel which allows the present invention to be worked with ease so that a lone famer can work the invention and provide treatments to his animals without the need for assistance. The ratchet wheel is of basic design and is connected to the restraining arm via a pulley system comprising a wire rope that passes through a pulley wheel. The ratchet wheel comprises a handle that the farmer physically rotates thus activating the pulley system raising the restraining arm under the animal's head. The ratchet wheel is a much easier device to use than a lever based device and as a result the apparatus of the present invention requires significantly less physical strength to operate.

The present invention further extends to a method for restraining an animals head, the method comprising the steps of attaching a mounting body to a cattle crush, the mounting body comprising a pivotally connected restraining arm and a ratchet wheel, wherein said restraining arm is connected to said ratchet wheel via a wire rope passed through a pulley wheel; and manually turning the ratchet wheel so that the restraining arm is raised upwards and under the animals neck to hold the animals head in place.

Brief Description of the Drawings

The preferred embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 illustrates the apparatus of the present invention detailing the mounting body comprising the pivotally connected restraining arm, the ratchet wheel, wire rope and pulley wheel.

Figure 2 illustrates the mounting body comprising tubular members adapted to engage with each other to form a rectangular frame suitable for being mounted to a cattle crush and held in a fixed position.

Figure 3 is a front perspective view of the mounting body of Figure 2 mounted to a conventional cattle crush.

Figure 4 is an enlarged view of the pivot bracket detailing the two attachment points

Figure 5 is a side perspective view of the cattle crush with an animal in situ wherein the animal head restraining device of the present invention is shown in use.

In the drawings, like parts are denoted by like reference numerals.

Detailed description of the Invention

The animal head restraining apparatus of the present invention is designed for use in conjunction with conventional cattle crushes of all sizes for restraining animals including but not limited to cows, heifers, bullocks and bulls.

The animal head restraining apparatus of the present invention as shown in Figures 1 and 2 comprises a mounting body 1 wherein said mounting body comprises a restraining arm 2 connected to said mounting body by a pivot bracket 3 and a ratchet wheel 4, wherein said restraining arm 2 is connected to said ratchet wheel 4 via a wire rope 5 passed through a pulley wheel 6.

The mounting body 1 of the present invention comprises a single tubular member and is mounted to the passage boundary of the cattle crush 7, specifically engaging the head-gate end 8 of the cattle crush 7.

By way of an example the mounting body as represented in figure 2, is mounted in a fixed position to the passage boundary or the head-gate 8 of the cattle crush 7 on at least two hinged brackets 9a and 9b shaped and dimensioned to engage the passage boundary, each at separate locations. In certain embodiments the mounting body 1 is rectangular in form and made of tubular bars of a rigid material, typically metal, such as iron, steel or the like, see Figure 3.

In another embodiment the mounting body 1 may be in the form of a gate which can also be secured to an adjacent wall or post to close a gap or to keep animals out. In certain embodiments the mounting body 1 of this invention is customise made to fit the size and space available to the farmer.

In a first state the mounting body 1 stands in a fixed position parallel to the head-gate end 8 of the cattle crush 7 in preparation for use and while in use. Figure 5 shows a side perspective view of the present invention in use with an animal in situ.

In a second state, once the animals have left the cattle crush 7 and all procedures are completed, the hinged brackets 9a and 9b allow the mounting body 1, as embodied in Figure 2, to be swivelled 90 degrees so as to be perpendicular to head-gate end 8 of the cattle crush 7 and secured to the side of the cattle crush 7. This allows for unhindered movement around the cattle crush 7 and for the animal head restraining device to be stored safely alongside the cattle crush until required for use again.

The mounting body 1 comprises a pivotally connected restraining arm 2. The restraining arm 2 extends from the mounting body into a U shape 2a that holds the animals neck in an upwards orientation and thus restrains the animals head, as shown in Figure 5. The restraining arm 2 and the U shape 2a are made of a rigid material, typically metal, such as iron, steel or the like. The U shape 2a is adapted to provide maximum comfort for the animal, for example it may be made from or covered by a

plastic of foam like material or the like. In certain embodiments the U shape 2a is any similar shape suitable for cupping the animal's head thereby holding it in place. The U shape is approximately six to eight inches in width to ensure the comfort of the animal. As the apparatus is put into effect the restraining arm 2 is raised under the animals head thereby holding it in place.

The restraining arm 2 is connected to the mounting body 1 by a pivot connection 3 as illustrated in Figure 4. The pivot connection consists of two brackets 3a and 3b. The pivot brackets 3a and 3b have been specifically developed to contain two attachment points 3c and 3d to ensure the restraining arm 2 is securely connected to the mounting body 1. It is a common problem that a struggling animal may damage a restraining arm of this type and the inventors have discovered that the addition of the second attachment point 3d of this invention on the pivot connection 3 tightly secures the restraining arm 2 and prevents lateral movement of the restraining arm 2 as a result of the struggling animal. This second attachment point 3d is a sliding attachment so that while preventing the lateral movement of the restraining arm 2 it still allows maximum vertical extension of the restraining arm 2. Therefore the restraining arm 2 can be easily accommodate animals of various heights and sizes. The pivot connection 3 consists of two metal brackets 3a and 3b pivotally connected in two locations by two separate bolts as shown in Figure 4. The bolt at the first pivot attachment point 3c is non-movable and secures the restraining arm 2 to the mounting body 1. The bolt at the second pivot attachment point 3d is moveable and allows the pivot brackets 3a and 3b to slide relative to each other. The channel of movement of 3a relative to 3b is curved to allow this sliding motion.

The mounting body 1 of the present invention also comprises a ratchet wheel 4. The ratchet wheel 4 allows the restraining arm of the present invention to be raised or lowered with ease so that a lone famer can work the invention and provide treatments to his animals without the need for assistance. The ratchet wheel 4 is of standard design and is connected to the restraining arm 2 via a wire rope 5 passed through a pulley wheel 6. The ratchet wheel 4 comprises a handle 4a that the farmer physically rotates causing the wire rope to wrap around the cog wheel of the ratchet wheel 4 and thus raise the restraining arm 2 under the animal's head. The spurs on the ratchet wheel

are spring mounted to release the wheel when the farmer wants to lower the restraining arm 2. The spurs prevent the restraining arm 2 from falling down under the force of gravity and the weight of the animal's head when the farmer stops winding the handle 4a thereby maintaining the restraining arm 2 in the desired position under the animal's head. The ratchet wheel 4 allows the restraining arm 2 to be releasably locked in position when raised under the animals head. The ratchet wheel 4 is an easy device to use and as a result the apparatus of the present invention requires significantly less physical strength to operate than conventional animal head restraining devices.

In certain embodiments a container bracket 10 may be mounted between the ratchet wheel 4 and the mounting body 1 to hold medicines and administrative tools.

The invention is not limited to above embodiments. It will be apparent to those skilled in the art once given this disclosure that various modifications, changes, improvements and variations may be made without departing from the scope of the invention.

It is understood that although this embodiment and accompanying drawings describe the use of the apparatus of the present invention in conjunction with what is know as a "right hand" cattle crush, it will however be understood that the orientation of the various components of the restraining apparatus may be reversed in order to be suitable for use with a "left hand" cattle crush.

It is also understood that the apparatus of the present invention is suitable for use with mobile cattle crushes or crushes of varying sizes, which are generally comprised of movable sets of railings. In addition, the apparatus of the present invention is of lightweight design and made of inexpensive materials, thus allowing for a much more economical device to be available to farmers and veterinarians.

Claims

1. An animal head restraining apparatus comprising

a mounting body,

the mounting body comprising a pivotally connected restraining arm and a ratchet wheel,

wherein said restraining arm is connected to said ratchet wheel via a wire rope passed through a pulley wheel, and

wherein the pulley wheel is configured to raise said restraining arm upwards and under the animal's neck to hold the animal's head in place.

2. The apparatus as claimed in claim 1 wherein the mounting body is mounted to the passage boundary of a cattle crush and specifically engages the head-gate end of the cattle crush.

3. The apparatus as claimed in claim 1 wherein the mounting body comprises at least one tubular member suitable for being mounted to a cattle crush and held in a fixed position.

4. The apparatus as claimed in claim 1 wherein the mounting body comprises tubular members adapted to engage with each other to form a rectangular frame suitable for being mounted to a cattle crush and held in a fixed position.

5. The apparatus as claimed in claim 1 wherein the mounting body may be in the form of a gate which can also be secured to an adjacent wall or post.

6. The apparatus as claimed in any one of the preceding claims wherein the restraining arm is pivotally connected to the mounting body by an adapted pivot connection, said pivot connection comprising two pivot brackets with each pivot bracket comprising two attachment points.

7. The apparatus as claimed in claim 6 wherein one of the attachment points of the pivot brackets is a sliding attachment point.

8. The apparatus according to any preceding claim wherein the restraining arm extends into a U shape.

9. The apparatus as claimed in any one of the preceding claims wherein the apparatus is adapted to be installed on any cattle crush.

10. A kit for making an animal head restraining apparatus comprising

a mounting body,

the mounting body comprising a pivotally connected restraining arm and a ratchet wheel,

wherein said restraining arm is connected to said ratchet wheel via a wire rope passed through a pulley wheel, and

wherein the pulley wheel is configured to raise said restraining arm upwards and under the animal's neck to hold the animal's head in place.

11. The kit as claimed in claim 10 wherein the mounting body is as claimed in any one of claims 2 to 5.

12. The kit as claimed in claim 10 wherein the wherein the restraining arm is pivotally connected to the mounting body by an adapted pivot connection, said pivot connection comprising two pivot brackets with each pivot bracket comprising two attachment points.

13. The kit as claimed in claim 12 wherein one of the attachment points of the pivot brackets is a sliding attachment point.

14. A method for restraining an animals head, the method comprising the steps of:

attaching a mounting body to a cattle crush, the mounting body comprising a pivotally connected restraining arm and a ratchet wheel, wherein said restraining arm is connected to said ratchet wheel via a wire rope passed through a pulley wheel;

manually turning the ratchet wheel so that the restraining arm is raised upwards and under the animals neck to hold the animals head in place.

15. The method as claimed in claim 14 wherein the mounting body is as claimed in any one of claims 2 to 5.

16. The method as claimed in claim 14 wherein the wherein the restraining arm is pivotally connected to the mounting body by an adapted pivot connection, said pivot connection comprising two pivot brackets with each pivot bracket comprising two attachment points.

17. The method as claimed in claim 16 wherein one of the attachment points of the pivot brackets is a sliding attachment point.

18. An animal head restraining apparatus substantially as herein described with reference to and/or as shown in the accompanying drawings.

19. A method for restraining an animals head substantially as herein described with reference to and/or as shown in the accompanying drawings.

DRAWINGS

FIGURE 1

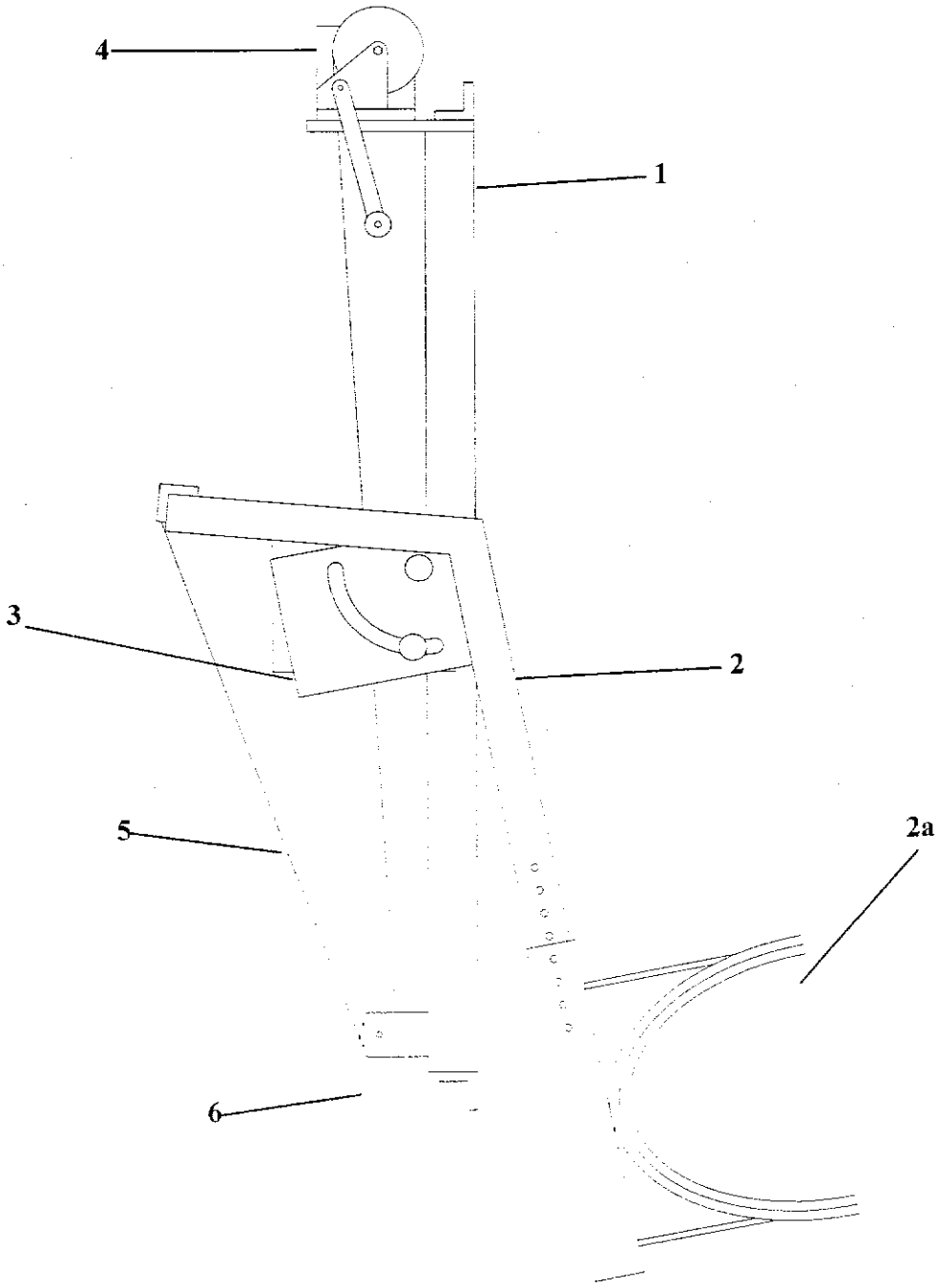

FIGURE 2

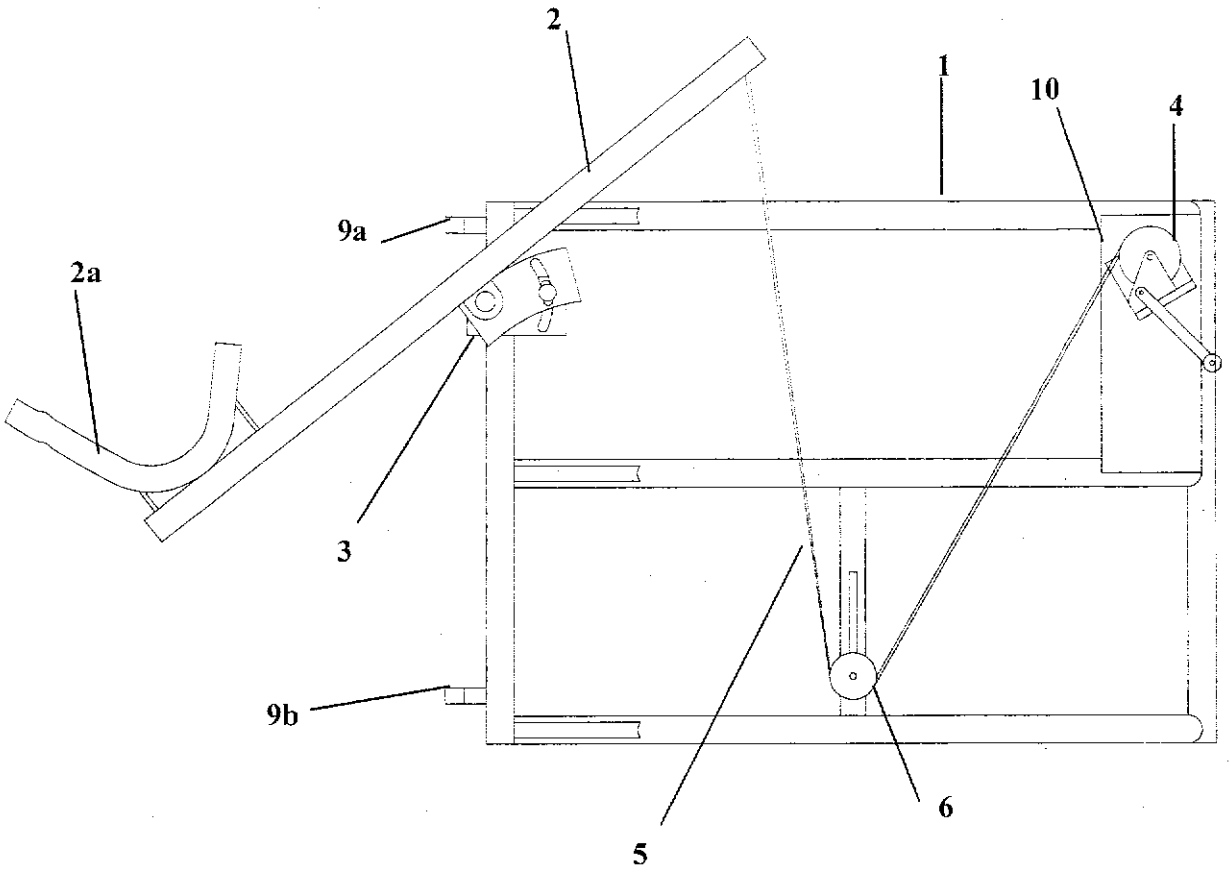

FIGURE 3

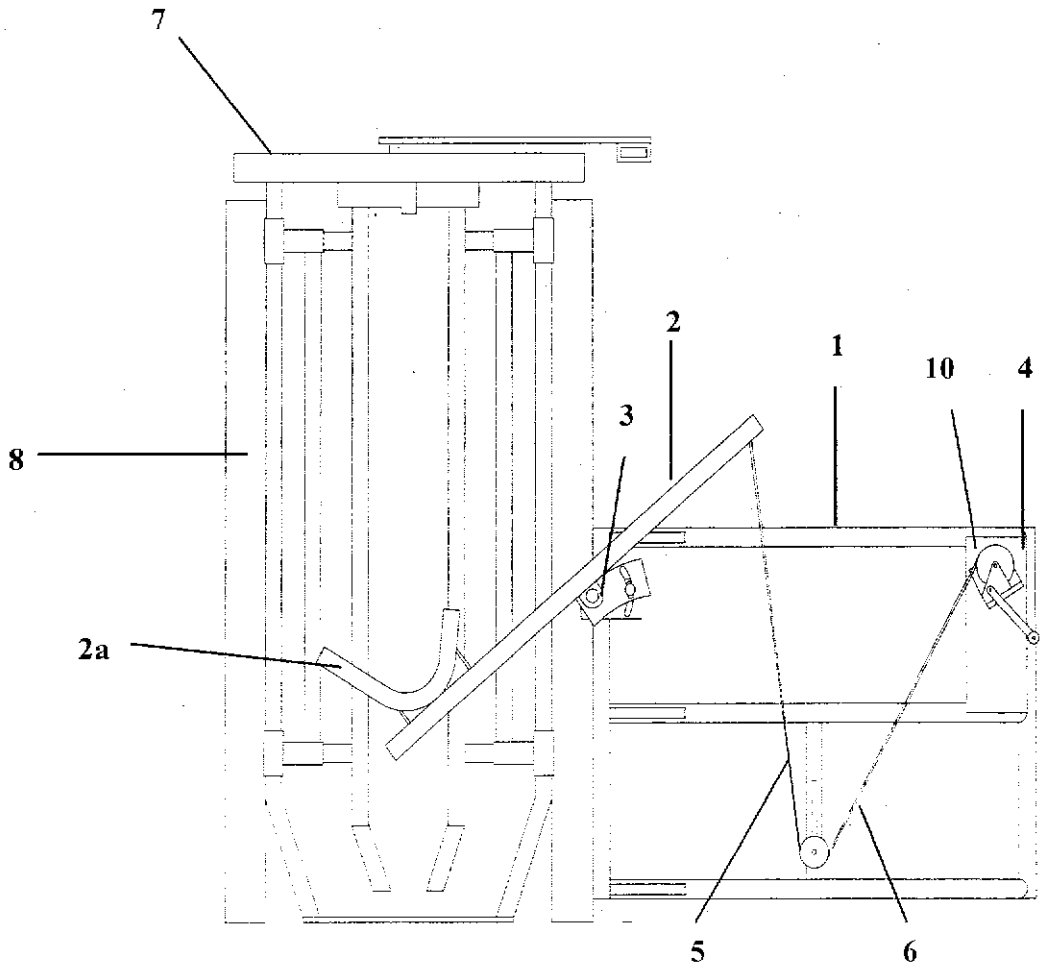

FIGURE 4

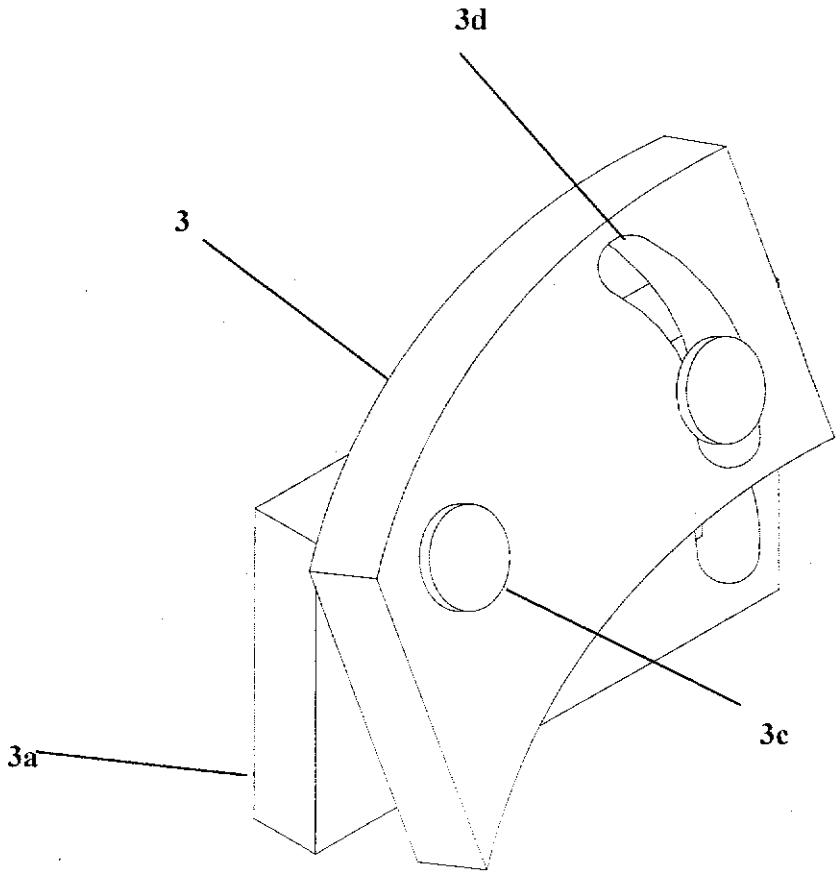

FIGURE 5