Jan. 22, 1952 W. J. THOMPSON 2,583,347

DEHORNING INSTRUMENT

Filed July 16, 1947 2 SHEETS—SHEET 1

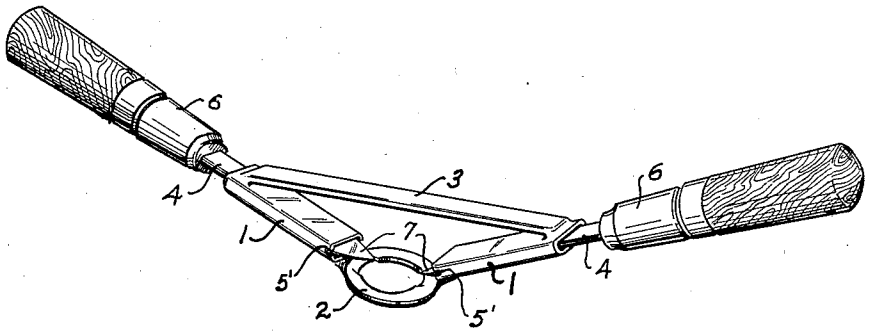


Fig. 1

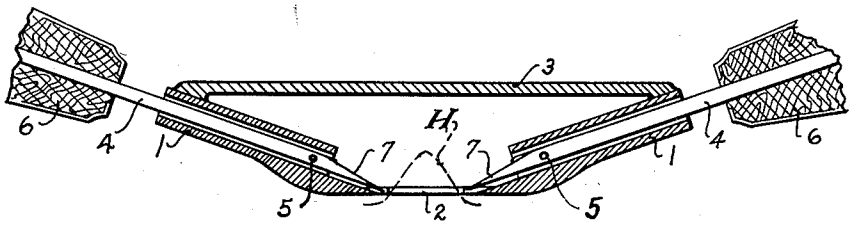


Fig. 2

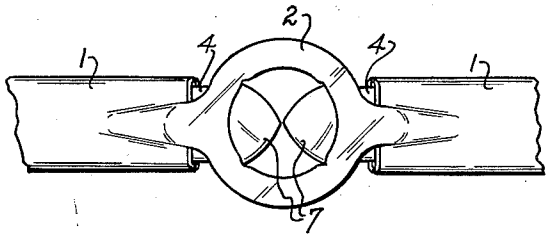


Fig. 3

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Fig. 4

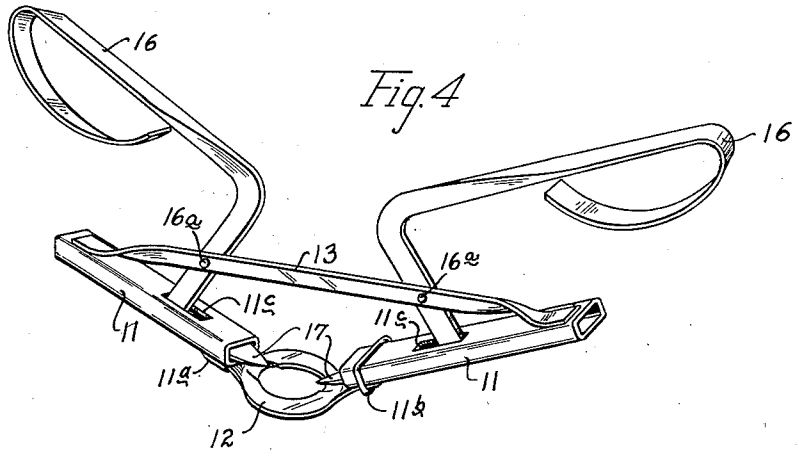


Fig. 5

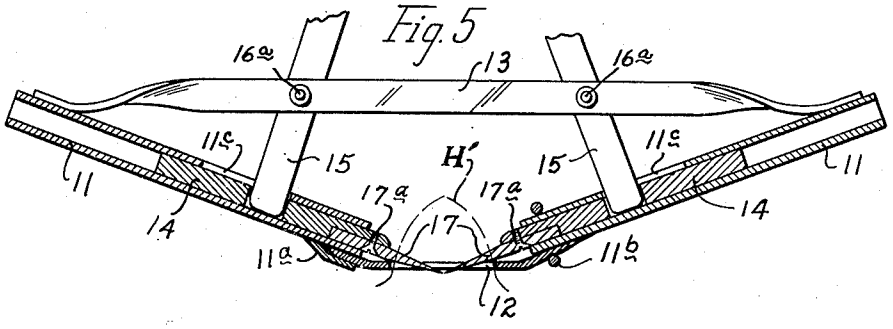


Fig. 6

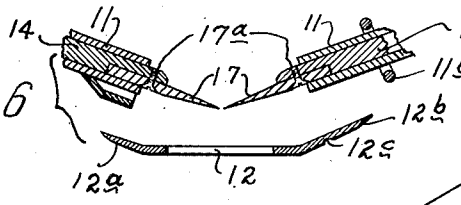


Fig. 7

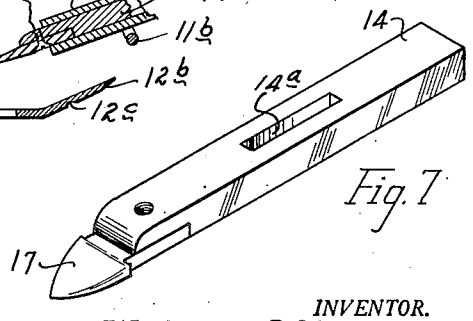
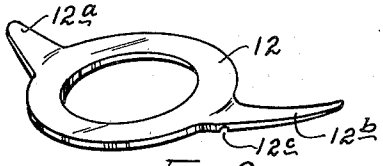


Fig. 8



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DEHORNING INSTRUMENT

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9 Claims. (Cl. 30—173)

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This invention relates to improvements in instruments for dehorning cattle and more particularly to an instrument so scientifically designed as to materially reduce the mortality rate among cattle as a result of the dehorning operation.

With instruments in use heretofore, it has been impossible to gauge the depth of the incision properly and accurately, hence loss of blood has been excessive, and injury to the brain and nerve tissue frequent; and as a result of the dehorning operation, the mortality among cattle and calves has been high.

The primary object of this invention is to provide a dehorning instrument that will reduce to a minimum the injury among cattle as a result of the dehorning operation.

Another object of this invention is to provide a dehorning instrument in which the depth of the incision can be gauged properly and accurately and which may be adapted for use on horns of various sizes.

With the present invention, the depth of the incision can be gauged carefully and accurately so that the horn may be removed with a minimum of damage to the sub-cutaneous derma, to the epithelial cells and to the periosteum, because provision is made for guiding the instrument, and for evenly distributing the pressure thereon.

An embodiment of this invention, together with a modification thereof, are illustrated in the accompanying drawings in which;

Fig. 1 is a perspective view of the dehorning instrument;

Fig. 2 is a fragmentary elevational view thereof, with parts shown in section and with parts broken away;

Fig. 3 is a fragmentary bottom plan view of the instrument showing the cutter blades;

Fig. 4 is a view similar to Fig. 1, but of a modified form of the dehorning instrument;

Fig. 5 is a view similar to Fig. 2, but of the modified form;

Fig. 6 is a fragmentary exploded sectional view of the modified form of the instrument;

Fig. 7 is a perspective view of the cutter knife and shaft removed from the instrument; and

Fig. 8 is a perspective view of the gauge ring removed from the instrument.

With more detailed reference to the drawings, Figs. 1 to 3, inclusive, the numeral 1 designates a tubular frame having a gauge ring 2 secured to the lower ends of the frame members and made integral therewith to hold the tubular frame

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members 1 in spaced relation and at an angle to each other. A brace 3 is secured in bridging relation between the upper ends of the tubular frame members 1, so as to hold them in a rigid unit.

The tubular frame members 1 are preferably flattened to receive elongated shafts 4, which shafts are adapted to slide freely within tubular frame members 1, within the limits afforded by stop pins 5 and the ends of the handles 6. Handles 6 are provided on the outer ends of shafts 4 to limit the inward movement thereof, and a blade 7 is secured to the inner end of each shaft. These blades are so positioned on the shafts as to slide inward toward each other until they almost touch, when the shafts are moved inward, as shown in Fig. 3. The shafts may be moved outward until stop pin 5 engages a notch 5' formed in a side of each tubular frame member 1. The ring 2 has a substantially circular opening therein, and this ring is adapted to be slipped over the horn H, shown in dotted outline in Fig. 2. The hole in the ring 2 and the thickness of said ring are determining factors in properly positioning the instrument so the horn may be severed and removed without damage to the periosteum and without causing undue loss of blood. The lower side of the blade 7 is in substantially the same plane as the lower side of the shaft 4. The ends of the blades are rounded to converge into a point and are sharpened so as to sever the horn quickly and cleanly.

In the use of the form of the instrument as shown in Figs. 1 to 3, inclusive, the ring 2 is fitted over the horn H, as shown in Fig. 2, which will guide the instrument to the proper position on the horn and hold it in that position for the dehorning operation. With the ring properly positioned on the horn, pressure is then applied to the handles 6, which forces shafts 4 inward to drive the blades 7 carried thereby toward each other through the cutaneous derma, the subcutaneous derma, into the cornified structure and into the periosteum. Then, holding the instrument steady while the knives are projected inward, the instrument is rotated a quarter turn, thus quickly severing the horn with a minimum of damage to the tissues involved and without causing excessive bleeding.

The instrument may be constructed with rings of various sizes, so that an instrument may be had suitable to the various sizes and states of development of the cattle to be dehorned.

In the dehorning operation, it is necessary to remove the cornified tissue so that growth will not

recur, but the blood and nerve bearing tissues should be injured as little as possible, as excessive damage to these tissues may result in undue delay in recovery of the animals, or it may even cause death. The use of the present instrument reduces to a minimum the damage which results from the dehorning operation and therefore reduces to a minimum the mortality among cattle that results from the dehorning operation.

The inner diameter of the ring and the thickness thereof are important in positioning the instrument over the horn in exactly the proper position so that the horn may be removed without undue injury to the animal.

In the form of the invention as shown in Figs. 4 to 8, inclusive, provision is made for detachable rings and detachable blades, so that a single instrument may be adapted for use on cattle of all sizes and ages. Also greater leverage may be had against the shafts so that the horns of older cattle, which are larger and harder than those of calves, can be quickly and cleanly removed. The operation performed and the manner of performing it are substantially the same for both forms of the instrument.

The modified form of the invention provides a pair of flattened tubular elements 11, positioned at an angle and held together by means of a detachable ring 12, the lower ends of the tubular elements 11 being detachably secured to the ring 12 on opposite sides thereof.

A brace bar 13 is secured to the upper ends of the frame elements 11 as by welding. In this form of the invention, the ring 12 is made detachable, as shown in Figs. 6 and 8. Rings of varying inner diameter and of varying thickness may be provided to meet the needs of the work to be done. The detachable ring 12 has a lug 12*a* on one side thereof adapted to engage a socket 11*a*, which socket is positioned on the lower side of the tubular element 11. On the opposite side of the detachable ring 12 is a lug 12*b* which is wedge-shaped and has a groove 12*c* across the lower side thereof, which groove is adapted to receive a ring 11*b*, as shown in Figs. 5 and 6.

Each of the flattened tubular members 11 carries an elongated shaft 14 which is fitted for sliding engagement within said tubular member. Each of the shafts has a slot 14*a* therein, which slot is adapted to receive the lever end 15 of the handle 16. A slot 11*c* is provided in each of the tubular members 11, which slot is of sufficient length to permit a limited swinging movement of the lever 15. Each lower end of each shaft is provided with a detachable knife 17. The inner end of each knife is in-set within a notch in the lower portion of its respective shaft 14 and each knife is held rigidly in place by screws 17*a*, as will best be seen in Figs. 5 to 7, inclusive. The outer ends of the blades are formed and sharpened substantially as the blades of the form of the instrument described above, with the exception that they are detachably secured to their respective shafts, so that they may be readily and quickly removed for sharpening or replacement.

The handles 16 are pivoted at 16*a* so that a greater leverage may be exerted on the shafts 14 in order to force the blades 17 into the cornified tissue, should it be large and hard.

In the operation of this instrument, a ring 12 of suitable diameter and thickness is selected and the lug 12*a* slipped into the socket 11*a* and the ring 11*b* is inserted over lug 12*b* and moved upward along the wedge surface of the lug 12*b* until the ring engages a groove 12*c* so as to hold the ring 12 in binding engagement with the flattened tubular elements 11. This method of attachment of the ring 12 to the tubular frame members to form a strong rigid structure, gives substantially the same instrument as is provided above, but the rings may be quickly interchanged to meet the needs of the particular operation, and the change requires no tools or equipment other than the hands of the operator.

When the correct ring has been selected and secured onto the frame elements, the ring is slipped over the horn H', as shown in Fig. 5, and the handles 16 pressed downward. This downward pressure will urge the knives 17 into the position shown in Fig. 5. Then by holding the handles in depressed position and turning the instrument through approximately ninety degrees, the horn H' will be neatly and quickly severed, at the proper place to prevent undue injury to the animal, and to prevent excessive bleeding.

It will be appreciated that the present invention provides an instrument that is light in weight, convenient to handle, and positive in operation. The instrument is so designed as to be safe in the hands of the layman or inexperienced operator, so that the cattle may be dehorned efficiently, and quickly and with a minimum of injury and with a low mortality rate.

It is frequently neither possible nor expedient to have the dehorning operation performed by a veterinary surgeon, but with methods heretofore in use the operation has been hazardous for cattle and resulted in loss to the cattleman and to the nation's food supply. The present invention has eliminated the hazards incident to the dehorning operation.

Having thus described the invention, what is claimed is:

1. In a rotatable instrument for removing the horns from animals, a frame comprising a pair of guideways, a member intermediate said guideways for forming a gauge that at least partially encircles a horn, each of said guideways having a shaft slidably positioned therein, the inner end of each shaft carrying a sharpened blade, means connected to said shafts for urging said shafts inward independently of the rotation of said instrument to bring pressure against said blades and cause them to pierce said horn, said blades being end-pointed and sharpened on the converging sides of said pointed end, so that upon rotation of the instrument said horn will be completely severed while the shafts are in-pressed.

2. In a rotatable instrument for removing the horns from cattle, a frame comprising a pair of angularly disposed guideways, a gauge member intermediate said guideways and secured integral therewith, said gauge being substantially circular in outline and adapted to encircle said horn a gauged distance from the base thereof, each of said guideways having a shaft slidably positioned therein, each of said shafts carrying a sharpened blade at the inner end thereof, means connected to said shafts for applying pressure thereto to urge said shafts and the blades carried thereby inward independently of the rotation of said instrument against said horn so that said blades will penetrate said horn.

3. In a rotatable instrument for removing the horns from animals, a frame comprising a pair of angularly positioned guideways having a gauge member secured intermediate said guideways, said gauge being substantially circular in outline and adapted to encircle a horn and to fit snugly thereabout near the base thereof, each of said

guideways having a shaft slidably positioned therein, the inner end of each shaft carrying a blade, said blade being pointed at the end and sharpened on the converging sides, means connected to said shafts for exerting pressure thereon to move said shafts longitudinally to urge said blades carried thereby inward independently of the rotation of said instrument against said horn so that said horn will be penetrated by said blades, said gauge being of a predetermined thickness so as to space said blades a predetermined distance from the skull of the animal to prevent permanent injury thereto.

4. In a rotatable instrument for removing the horns from animals, a frame comprising a pair of angularly disposed tubular guideways having an intermediate gauge member secured to the inner ends thereof, said gauge member being adapted to encircle the horn of the animal, each of said guideways having a shaft slidably positioned therein, the inner end of each shaft carrying a sharpened blade, means connected to said shafts for applying pressure thereto and to the blades carried thereby inward independently of the rotation of said instrument against said horn, so that said blades will penetrate said horn, a bracing member bridging the outer ends of said guideways, a handle positioned on the outer end of each shaft for urging said shafts and the blades carried thereby inward.

5. In a rotatable instrument for removing the horns from animals, a frame comprising a pair of angularly disposed guideways, a gauge member disposed intermediate said guideways and removably secured to the inner ends thereof, each of said guideways having a slidable shaft positioned therein, the inner end of each shaft having a sharpened blade removably secured thereto independently of the rotation of said instrument, means secured to the outer ends of said shafts to which inward pressure may be applied to said shafts and to the blades carried thereby so that said blades will penetrate said horn.

6. In a rotatable instrument for removing the horns from animals, a frame comprising a pair of angularly disposed guideways, a gauge disposed intermediate said guideways and secured to the inner ends thereof, each guideway having a shaft slidably mounted therein, each shaft having a sharpened blade secured to the inner end thereof, a brace member bridging the outer ends of said guideways and having levers pivoted thereon, the inner ends of said levers being adapted to engage said shafts to impart inward sliding movement thereto and to the blades carried thereby when pressure is applied to the outer ends of said levers, said pressure applying means being independent of the rotation of said instrument.

7. In a rotatable instrument for removing the horns from animals, a frame comprising a pair of angularly disposed guideways having a gauge member disposed intermediate the inner ends thereof and removably secured thereto, each of

said guideways having a shaft slidably mounted therein, each of said shafts having a pointed sharpened blade removably secured to the inner end thereof, a brace member bridging the outer ends of said guideways, said brace member having levers pivoted thereon, the inner ends of said levers adapted to engage said shafts so sliding movement may be imparted to said shafts and to the blades carried thereby when pressure is applied to said levers, and stop means on said guideways for limiting the movement of said shafts, said pressure applying means being independent of the rotation of said instrument.

8. In an instrument for removing horns from animals, a gauge member for at least partially encircling a horn, a pair of guide members secured to said gauge member, said guide members being substantially in opposed relation and each forming an acute exterior angle with respect to the base of said gauge member, a shaft mounted in interfitting relation with each of said guide members for longitudinal movement with respect thereto, and carrying a sharpened blade on the inner end thereof, means connected to said shafts for urging said shafts and said blades inward to cause a piercing action of said blades into said horn.

9. In a rotatable instrument for removing horns from animals, a gauge member for at least partially encircling a horn, a pair of guide members secured to said gauge member, said guide members being substantially in opposed relation and each forming an acute exterior angle with respect to the base of said gauge member, a shaft mounted in interfitting relation with each of said guide members for longitudinal movement with respect thereto, and carrying a sharpened blade on the inner end thereof, means connected to said shafts for urging said shafts and said blades inward to cause a piercing action of said blades into said horn, said blades being end-pointed and forming a vertex with respect to a medial line on the upper surface of said shaft and being sharpened with respect to the lateral sides of said apex, so, upon rotation of the instrument in either direction, said horn will be severed by the in-pressed blades.

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