

(No Model.)

2 Sheets—Sheet 1.

LA VERNE W. NOYES.
HORSE COLLAR PAD.

No. 383,143.

Patented May 22, 1888.

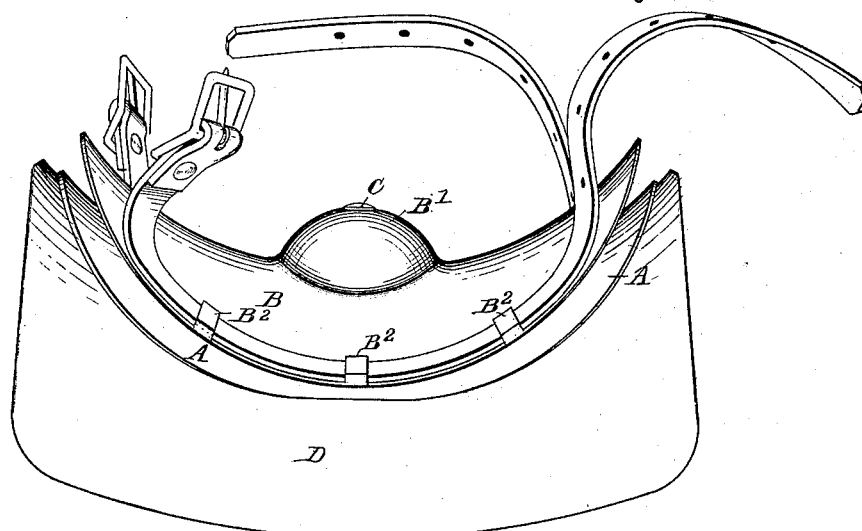


Fig. 1.

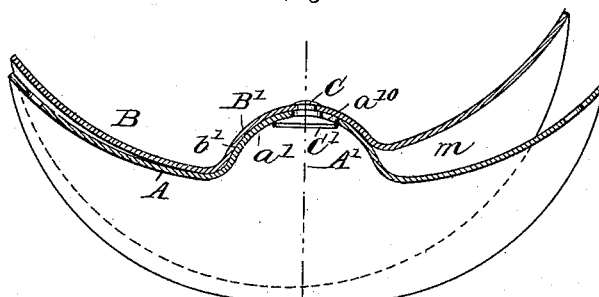


Fig. 2.

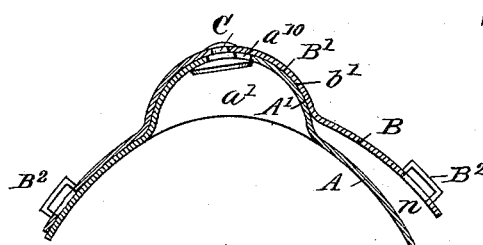


Fig. 3.

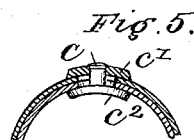


Fig. 5.

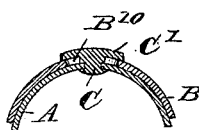


Fig. 4.

Witnesses:
L. B. Dover.
Jan Elliott.

Inventor:
L. W. Noyes.
By Burton & Burton
attys

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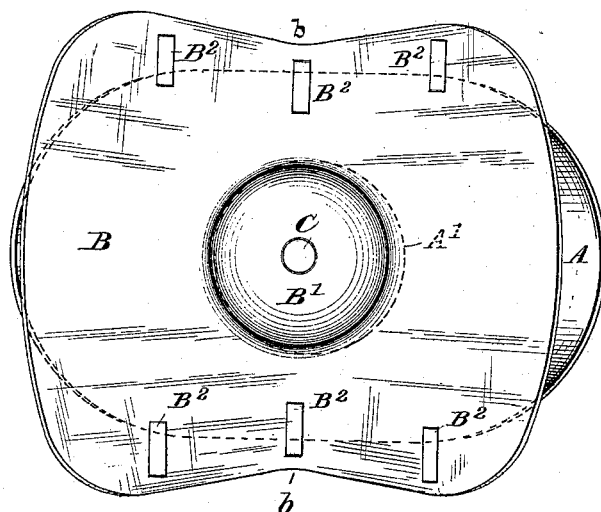


Fig. 6.

Witnesses:
S. B. Dover.
C. W. Davenport.

Inventor:
L. W. Noyes.
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UNITED STATES PATENT OFFICE.

LA VERNE W. NOYES, OF CHICAGO, ILLINOIS.

HORSE-COLLAR PAD.

SPECIFICATION forming part of Letters Patent No. 383,143, dated May 22, 1888.

Application filed February 24, 1888. Serial No. 265,139. (No model.)

To all whom it may concern:

Be it known that I, LA VERNE W. NOYES, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Horse-Collar Pads, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming part thereof.

Figure 1 is an elevation; Fig. 2, a longitudinal vertical section. Fig. 3 is a transverse vertical section. Fig. 4 is a detail section through the vertical section, showing modification of the means of securing together the neck-plate and the collar-plate. Fig. 5 is a similar section showing another modification. Fig. 6 is a plan.

A is the neck-plate.

B is the collar-plate.

C is a pin which connects them.

The neck-plate A may have a soft pad, D, secured to its under surface, so as to be in contact with the neck of the animal. The neck-plate A is made of metal, preferably being struck up with a die out of sheet metal. In form it is longitudinally convex downward and transversely concave downward, and has at the center a spherical protuberance, A', which is less than a hemisphere in extent, and is hollow underneath, so that viewed from the under side the said plate A has a spherical depression, *a'*. The collar-plate B in general form is longitudinally convex downward and transversely concave downward, its said curvature being determined by a slightly longer radius than that of the neck-plate A. The collar-plate B has at its center a spherical protuberance, B', whose under surface, being concave downward, has the same curvature as the upper surface of the protuberance A' of the neck-plate. This protuberance B' is less than a hemisphere in extent, and slightly less also than the protuberance A', so that when the collar-plate is placed upon the neck-plate with the protuberance A' entering the concavity *b* in the protuberance B', the latter does not entirely cover the former, but fits it throughout the whole extent of the latter. The pin C is secured at the center of the protuberance in one of the two plates, and passes through an opening in the other, which is larger than said pin, and it has on the opposite side of the plate having said opening a head, C', larger than

said opening. In Figs. 2 and 3 the head is represented as being on the under side in the concavity *a'*, the hole *a''* being in the plate A, and the pin being secured in the plate B. In Fig. 4 the arrangement is reversed, and the pin C is secured in the plate A, and passes through the hole B'' at the center of the protuberance B' in the plate B, and has a head, C', above said protuberance.

A further slight modification might be in the form shown in Fig. 5, wherein the pin has two heads, *c'* and *c''*, and is secured in neither plate, but passes through openings in both, either or both of which are larger than the pin and smaller than the head of the pin.

The collar-plate B has its side edges hollowed to make the depressions *b* for the purpose of guiding the collar to the center of the pad when it is tightened upon it. The same effect is partially caused by the fact that the plate is longitudinally concave upward; but this circumstance only tends to settle the collar at the center of the plate by virtue of hanging upon the plate, whereas the form of the edges tends to effect that result by virtue of the tightening of the straps which draw the collar laterally to the plate. The purpose of this construction being to permit freedom of movement of the shoulders and neck of the animal without tendency to chafe under the collar-pad, it is adapted to afford three distinct movements. First, that which results from the swinging from the collar sidewise, of which movement the space *n* in Fig. 3 is the measure, and for the purpose of which that space is provided by the difference in angular extent of the two spherical protuberances A' and B'. Second, that which is caused by the raising and lowering of the animal's head, tending to oscillate the collar-pad in a longitudinally-vertical plane. Of this movement the space *m* in Fig. 2 is the measure, that space being also provided by the relative extent of the said spherical protuberances A' and B'. Third, and most important, the movement about the vertical axis through the center of the protuberances A' or B' or through the center of their surfaces in contact, that movement being caused and made necessary by the alternate movement of the two shoulders of the animal tending to swing the collar alternately backward on one side and forward on the other, alternately reversing those positions

as the animal travels. In all these movements the bearing of the two plates upon each other is obtained at the spherical protuberances A' and B', and the extent of those surfaces renders the structure shown durable, while the movement is still made easy. It will be seen that each of these movements may occur at any position of the parts as respects both the other movements. For instance, the animal may be traveling with the head down, so that the position of the plates A and B, as respects their longitude, may be that shown in Fig. 2, wherein they are shown at the farthest limit one way of their longitudinal play, and while in that position the movement of the shoulders of the animal will be causing oscillation about a vertical line through the protuberances.

In order that this last-described movement may be with the least possible friction when the parts are in the extreme position shown in Fig. 2 and last above stated, it is evidently desirable that the surfaces in contact should be of the least possible extent and as little as possible removed from the center of that oscillation. I therefore shape the two plates A and B with respect to their longitudinal curvature, so that when rocked to the extreme position longitudinally, as shown in Fig. 2, they are stopped by contact with each other close to the base of the protuberances A' and B', and do not come quite in contact, but slightly diverge from each other longitudinally beyond the base of those protuberances, as is seen in Fig. 2.

In order that the provision for securing the binding-straps which fasten the collar to the plate B may not cause any projection or roughness on the under surface of that plate, which might increase the friction of the movement between the two plates, I provide for securing those straps by striking up out of the metal comprising the plate B the staples B², thus leaving no projections upon the under side. The first two movements above described—that is, the longitudinal and the transverse oscillation—make necessary the enlargement of the aperture through which the pin C passes in the plate to which it is not secured. When the form shown in Fig. 5 is used, being secured to neither plate half the extent of aperture in each allows for the same amount of movement.

I am aware that horse-collar pads have heretofore been made having the part which rests upon the neck and that which is secured to the collar connected together by a ball-and-socket joint; but this construction is of necessity quite expensive by reason of the fact that the parts are retained in connection by making the enclosing socket extend over more than a hemisphere of the ball, and consequently the bearing-surfaces are made necessarily of quite limited extent, since otherwise the collar-plate and neck-plate would be too far separated for practical convenience, and the purpose of my invention is to produce a cheap, compact, and practical structure which will afford the same ease of movement which is afforded by the ball-and-socket joint.

I claim—

1. A horse collar pad comprising a neck-plate and a collar-plate, the one having a protuberance and the other a cavity, both being in the form of spherical segments, the former fitting into the latter, their spherical surfaces being in contact and forming the bearings of the neck and collar plates upon each other, and a pin connecting said plates at the center of said cavity and protuberance and having play in one of said plates for a small distance about said center, substantially as set forth.

2. A horse collar pad comprising a neck-plate and a collar-plate, the one having a protuberance and the other a cavity, both being in the form of spherical segments, the former fitting into the latter and neither exceeding a hemisphere in extent, and a pin connecting said plates at the center of said cavity and protuberance and having play in one of said plates for a small distance about said center, substantially as set forth.

3. In combination with the neck-plate and the collar-plate, one having a protuberance and the other a cavity in which said protuberance fits, said protuberance and cavity being each a spherical segment in form, one of said plates having at the center of said spherical portion an opening, and the other having secured to it a pin, which is smaller than said opening and passes through it, and which has a head on the farther side larger than said opening, substantially as set forth.

4. In combination with the neck-plate, whose general form is convex downward longitudinally and concave downward transversely, and which has the upwardly-projecting protuberance A' in the form of a spherical segment, the collar-plate whose general form is also longitudinally convex downward and transversely concave downward, and which has also the upwardly-projecting protuberance B' in the form of a spherical segment and forming the corresponding spherical cavity, b', which fits the spherical protuberance A', the extent of said protuberance being greater than that of the cavity b', and neither being greater than a hemisphere in extent, and a pin which connects the two plates at the center of said protuberances, its connection in one of them being loose and allowing play about the center substantially equal to the difference in spherical extent of the two protuberances, substantially as set forth.

5. In combination with the neck-plate, the saddle-plate pivoted to it and having at the side the hollows b, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 11th day of February, 1888.

LA VERNE W. NOYES.

Witnesses:

CHAS. S. BURTON,
E. F. BURTON.