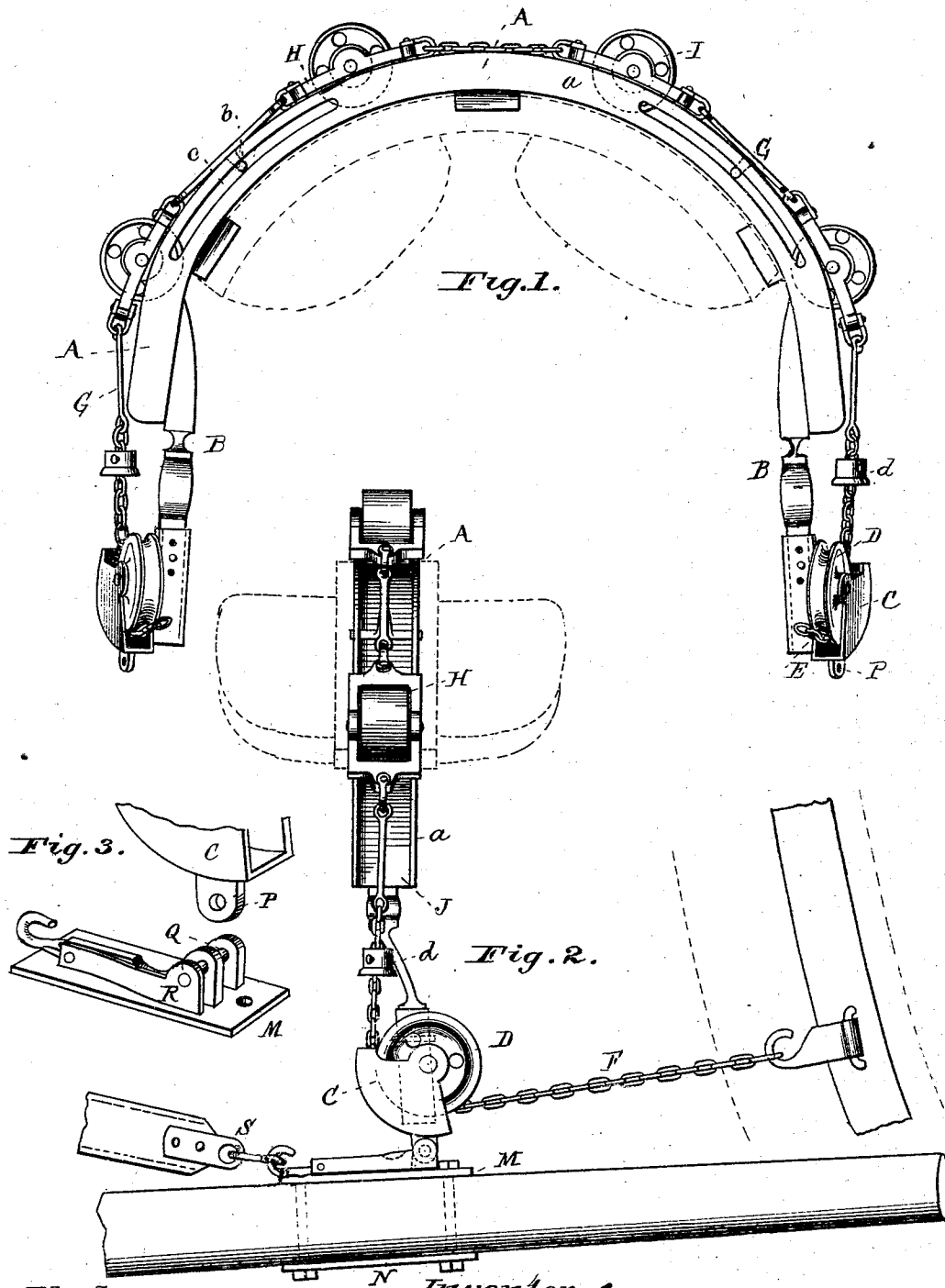


E. W. DAVIS.

Draft-Equalizers for Harness.

No. 155,930.

Patented Oct. 13, 1874.



Attest.
J. H. Norris.
J. S. Booms

Inventor. E. W. Davis.
By his Attorney- James S. Norris.

UNITED STATES PATENT OFFICE.

EDWARD W. DAVIS, OF SAVANNAH, GEORGIA.

IMPROVEMENT IN DRAFT-EQUALIZERS FOR HARNESS.

Specification forming part of Letters Patent No. **155,930**, dated October 13, 1874; application filed September 26, 1874.

To all whom it may concern:

Be it known that I, EDWARD W. DAVIS, of Savannah, in the county of Chatham and State of Georgia, have invented certain new and useful Improvements in Draft-Equalizer for Carts, Drays, and other vehicles, of which the following is a specification:

This invention has for its object an effective and perfect draft-equalizing attachment, designed especially for carts, drays, and other vehicles, so as to render the draft-strain exerted upon the hames regular or equal on both sides, for avoiding jerks or the unequal application of the draft, as heretofore.

The invention consists in the employment of an arched bar, extending over the harness-saddle, being seated on the same, and having its lateral legs attached to the shafts of the cart or dray, a chain or connected links passing over pulleys or sheaves at the lower ends of said leg, being connected at each side to the hames in such a manner that all the draft or pulling-force exerted upon the hames will be equally distributed, thus counteracting all jerks or liability of one section of the hames to receive an unequal degree of draft-force. The invention further consists in forming a guide-channel in the upper side of the arch, or providing the same with lateral flanges, so as to receive and guide a series of traveling friction-rollers, which are connected with the draft-equalizing chain secured at its opposite ends to the hames. The invention further consists in connecting the arch or entire equalizing attachment to clamps or retaining-plates, applied to the shafts, the top plate being for this purpose provided with ears or sockets, between which the lower ends of the vertical portions of the arch are secured by means of spring bolts or pins passing through eyes, the object of this construction being to enable the equalizing attachment to be removed together with the harness, it not being a fixture applied permanently to the shafts.

In the accompanying drawing, Figure 1 is a front elevation of a draft-equalizing attachment constructed according to the present invention. Fig. 2 is a side elevation of the same, showing the relative position of the harness-saddle, shafts, and hames. Fig. 3 is a detail view of the devices employed for securing the

detachable connection of the attachment to the shafts.

The arch or bow shaped bar or plate A is constructed of wrought, cast, or sheet metal, and it is designed to be properly seated on or in the top surface of an ordinary harness-saddle, as shown in Figs. 1 and 2. The lateral vertical branches or legs B of the arch may be formed with the curved portion, when the same is made of cast metal; but when sheet metal is used for forming the main portion of the arch, then the legs are welded or riveted to the inner side of the arch, being suitably re-enforced at the point of connection by a greater preponderance of metal. To the lower ends of the vertical legs of the arch are applied sheave or pulley boxes C, having grooved sheaves D journaled therein, and provided with sockets E on their inner sides, for the reception of said lower ends of the vertical legs of the arch. The sheave-boxes or casings are secured by rivets or pins passing through their sockets and legs of the arch.

In certain instances, the sheave-boxes and legs may be made in one piece; but the construction first described is preferred, as it will enable all the parts to be cheaply manufactured, and so as to be light, and, withal, strong and durable.

The sheave-boxes are made of a segmental shape, and the sheaves D, which turn in the same, are properly adapted for the reception of a chain, F, which extends forward to the hames, where it is attached by means of hooks or other fastenings. There is a chain at each side of the arched piece, and both are arranged exactly alike; but it is to be understood that each chain-section forms in connection with a series of rollers and connecting-links or shorter chains, a complete chain of links and rollers extending entirely across the arch or bow A. Such a chain extending forward at its lower ends, and attached to the hames, will cause the draft-strain or pulling-force to be equalized, or to be distributed upon both sections of the hames uniformly, which is not the result when no such provision is made, for it then invariably occurs that the draft is applied more on one side than on the other, thus causing one section of the hames to be pulled in rear or in front of

the other, and otherwise producing sudden jerks and jars which are tiresome and injurious to the horse. The chains E, at each side, are connected directly or by jointed rods G with roller-frames H, and said roller-frames are in turn connected with each other by similar jointed rods G, so as to produce a continuous chain extending entirely across the arch. The rollers I, mounted in the frames H, are designed to turn freely, and, for the purpose of retaining the same in position on the arch A, I propose to form a channel or groove, J, in the arched portion of the latter, said channel being either formed by casting or by turning up lateral flanges *a* at each side of the arch, when the same is made of sheet or plate metal. Some of the connecting-links of the roller-frame are provided with laterally-projecting pins *b*, which run in guide-slots *c* made in the flanged sides *a* of the arch. Stops or knobs *d* are applied to the chains F for the purpose of limiting the movement of the same, or preventing the same from being drawn too far when in use. The connection of the arch to shafts of the cart or other vehicle is secured by means of attaching-plates M, applied permanently to the shafts by bottom clamp-plates N and vertical screw-bolts. The plates M are provided with ears or lugs O, between which there is inserted an eye or perforated projection, P, on the bottom of the sheave-box or casing. A locking pin or bolt, Q, attached to a spring-tongue, R, passes through said lugs and eye on the arch and serves to secure the same in position on the shafts. The disconnection of the arch from the shafts is easily effected by withdrawing the lock-pins, and it can then be taken off together with the harness. S is a hook on the plate M for the reception of the tug or trace.

I desire it to be understood that, while I have described the equalizing attachment as being located above the horse's back, in certain instances the position may be reversed by placing it under the horse, the construction being of course slightly varied, to suit this disposition of parts. A rope of hemp or wire may also be used instead of a chain constructed as described, or even a plain chain. The lateral arch-supporting legs or arms B possess a sufficient degree of elasticity for counteract-

ing the effect of jars, which, were the arms rigid, would tend to break the same. The requisite elasticity is imparted to the arms B by making the same with an upper narrow attaching-neck, and a shank which is reduced in thickness, so as to act as a spring. The tenon formed on the lower end of the spring-shank of the arms enters the socket E and is maintained therein by a fastening-pin. A series of holes are made in the socket, so as to enable the arch to be adjusted in a vertical direction to suit different sized horses. The jars transmitted to the arch or draft attachment are received and counteracted by the elastic arms, the same possessing sufficient torsional force to return the yoke to its normal position after the removal of such causes as may tend to twist the arch.

My invention can be used in connection with double teams of horses in that class of carts, drays, and other movable vehicles where there are shafts employed, and, further, it is intended to use the equalizer in front of the animal by fastening the same to the end of the shaft, and thus produce and secure the same results above specified.

What I claim is—

1. A draft-equalizing attachment for carts, and other vehicles, consisting of an arched or bow-shaped piece extending over the horse's back and attached to the shafts, and a chain passing over said arch around sheaves at the bottom of the same, and secured to the hames, substantially as herein shown and described, for the purpose set forth.

2. The channeled or grooved arch A, in combination with the equalizing-chain composed of guide-rollers, connecting-rods, and end chains and attached to the hames, substantially as and for the purpose described.

3. The retaining-device M O Q R, in combination with the shafts and the detachable arch A, having the eye or perforated lower projection P, as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

EDWARD W. DAVIS.

Witnesses:

JAMES L. NORRIS,
JOS. L. COOMBS.