(No Model.)

J. H. FOOTE.

SPRING WHIFFLETREE.

No. 377,025. Patented Jan. 31, 1888.

FIG. 1.

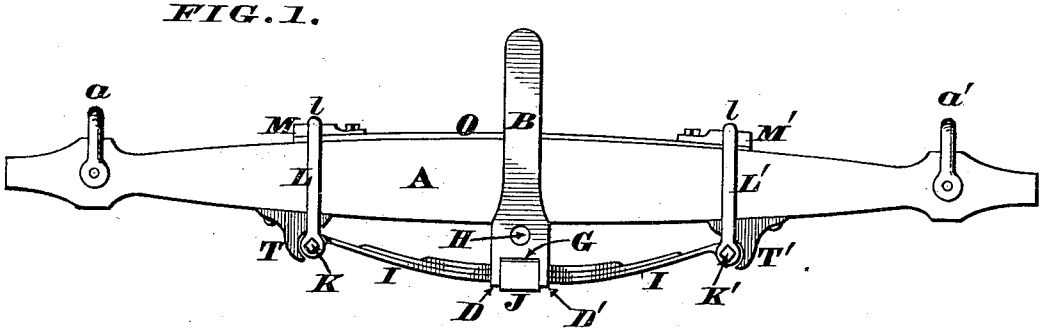


FIG. 2.

FIG. 6.

FIG. 5.

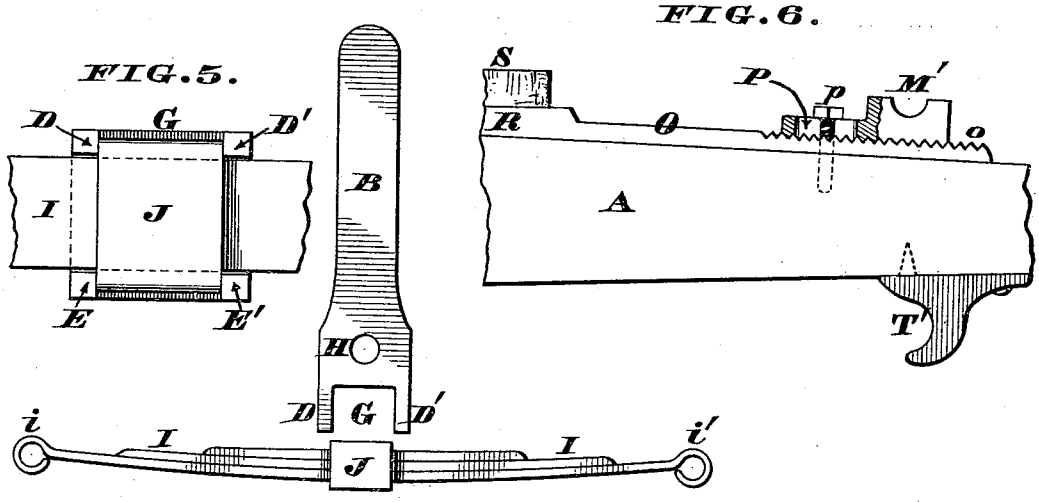


FIG. 3.

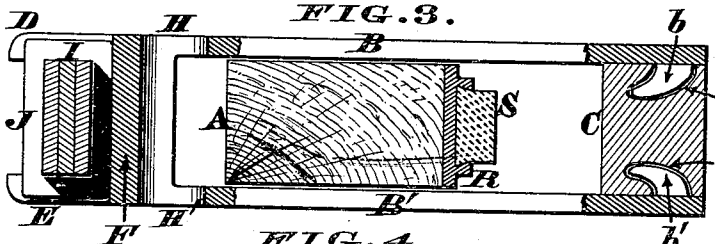
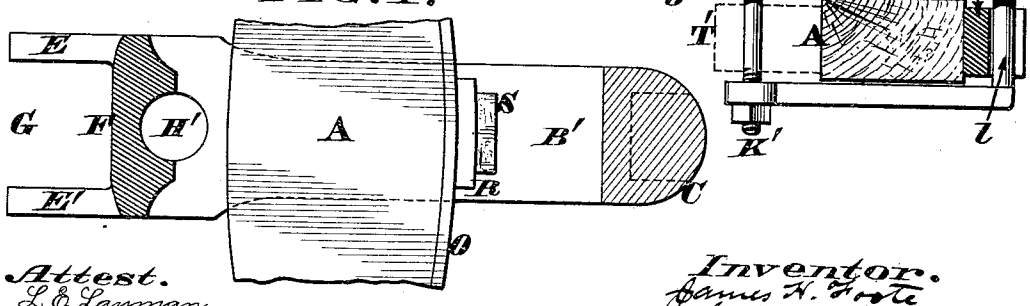


FIG. 7.

FIG. 4.



Attest.
L. E. Layman.
Wm. Steuler

Inventor.
James H. Foote
by James H. Layman
Atty.

UNITED STATES PATENT OFFICE.

JAMES H. FOOTE, OF CINCINNATI, OHIO.

SPRING-WHIFFLETREE.

SPECIFICATION forming part of Letters Patent No. 377,025, dated January 31, 1888.

Application filed March 10, 1887. Serial No. 230,330. (No model.)

To all whom it may concern.

Be it known that I, JAMES H. FOOTE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Spring-Whiffletrees, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to those whiffletrees which have a plate-spring connection with the pole or tongue for the purpose of preventing the horses being strained when the vehicle is first started; and one feature of my improvements comprises a novel keeper or housing having at its rear an open-ended socket, to which the spring is applied, as hereinafter more fully described.

Another feature of my improvements comprises a novel combination of devices for uniting the front ends of the housing, as hereinafter more fully described.

My improvements further comprise a novel combination of bearings and shackles wherewith the opposite ends of the plate-springs are coupled to the whiffletree, as hereinafter more fully described.

Another feature of my improvements comprises a novel arrangement of buffer or cushion that prevents injurious concussion of the whiffletree and spring-housing, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a plan of a whiffletree embodying my improvements. Fig. 2 is a plan of the spring and its keeper detached from the whiffletree. Fig. 3 is an enlarged longitudinal section of said keeper in position on the whiffletree. Fig. 4 is a horizontal section thereof. Fig. 5 is a rear end elevation of the keeper, a portion of the plate-spring being shown. Fig. 6 is a plan of the central portion of the whiffletree and its attachments. Fig. 7 is a transverse section of the whiffletree, taken in the plane of one of the shackles.

A represents an ordinary whiffletree, having the customary loops or hooks, *a a'*, at its opposite ends for attachment to the singletrees.

B B' are respectively the upper and lower plates of a keeper or housing, which is preferably made of malleable iron, the opposing faces of said plates having near their front ends spurs *b b'*, that engage with undercut pockets *c c'* in the top and bottom of a separable block, C, that closes the opening of said housing. Furthermore, the rear ends of said plates have respectively lugs D D' and E E', which, together with the web F, that unites the plates B B', form a socket, G, whose duty will presently appear. Plates B B' are pierced at H H', to admit the ordinary wagon-hammer.

I represents the plate-spring, which may be composed of one or more leaves, as circumstances may suggest, eyes *i i'* being provided at the opposite ends of said spring, and a band, clip, or re-enforce, J, being fastened at its mid-length. This band is preferably heated, and then placed upon the spring and allowed to shrink around the same, thus dispensing with special retaining devices and avoiding any weakening of the parts. This band J fits snugly within the socket G, as seen in Figs. 1, 3, and 5, and thus prevents either vertical or horizontal shifting of the spring, while at the same time the latter is allowed to bend freely. The eyes *i i'* of the spring are traversed by vertical bolts K K', passing through perforations in the rear ends of shackles L L', whose front bars are rounded, as seen at *l* in Fig. 7. These rounded bars of the shackles are seated in concave bearings M M', attached to the front edge of the whiffletree, and preferably adjustable, for the purpose of retaining said shackles in their proper position. The backs of these bearings may be serrated, as seen in Fig. 6, to engage with the serrated portion *o* of a strap, O, attached to the front edge of the whiffletree. Furthermore, these bearings may be slotted longitudinally at P, to receive a screw or bolt, *p*, which arrangement of devices is exactly duplicated at the opposite end of the strap, the central part of the latter having a socket, R, that receives a buffer or cushion, S, of cork, leather, or india-rubber, or other suitable compressible material.

T T' are stops secured to the rear edge of the whiffletree for the ends of the spring to normally rest against.

To apply my improvements to any ordinary whiffletree, the latter is simply inserted between the plates B B', and the front ends of these plates are then sprung apart a sufficient distance to admit the block C. Said block is

then shoved back until the lugs *b b'* snap into the pockets *c c'*, when a slight blow with a hammer drives the front ends of the plates B B' so firmly toward each other as to prevent any accidental detachment of the connecting-piece C. The band J of the spring is then seated in the socket G of the keeper or housing B B', and the bearings M M' are so adjusted as to cause the shackles L L' to pass across the whiffletree, after which act the bolts K K' are secured in said shackles and the eyes *i i'* of the spring. The opposite ends of the spring normally bear against the stops T T'; but the instant the horses commence to pull the spring bends or bows, and thereby draws itself away from said stop, the shackles L L' swinging readily within their concave bearings M M' to allow this motion of the spring to occur. Consequently the spring relieves the horses of any injurious straining, and when its tension has been overcome the rear of block C comes in contact with the buffer S, and thus prevents a rigid heavy pull against the whiffletree. It will thus be seen that my improvements save the horses both when the vehicle is first started and after the steady continued pulling takes place. It is also apparent that my open-ended socket G at the rear of the housing B B' enables the ready application of a new spring in case one of the leaves should break or bend.

I claim as my invention—

1. The combination, with a whiffletree, of a housing or keeper having at rear an open-ended socket, within which is fitted a leaf-spring, the extremities of the latter being coupled to said whiffletree, substantially as herein described.

2. A whiffletree-spring having its opposite extremities coupled to swinging shackles, which latter engage with concave bearings attached to the front edge of the whiffletree, for the purpose described.

3. A whiffletree-spring housing consisting of the plates B B', having at their rear ends lugs D D' E E', and at their front ends spurs *b b'*, that engage with the pockets *c c'* of a separable block, C, for the purpose described.

4. A whiffletree having a spring in the rear and a buffer secured to its front edge, for the purpose described.

5. The metallic strap O, fastened to the front edge of a whiffletree, said strap being provided with a socket, R, for the buffer S, and a serrated portion, *o*, for the concave bearing M', as herein described.

6. The combination of whiffletree A, housing B B' G H H', spring I *i i'*, band J, bolts K K', shackles L L', concave bearings M M', and stops T T', for the purpose herein described.

7. The combination, with a whiffletree, of a housing or keeper having at rear an open-ended socket, within which is fitted the band of a leaf spring, the extremities of the latter being coupled to said whiffletree, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES H. FOOTE.

Witnesses:
JAMES H. LAYMAN,
RANKIN D. JONES.