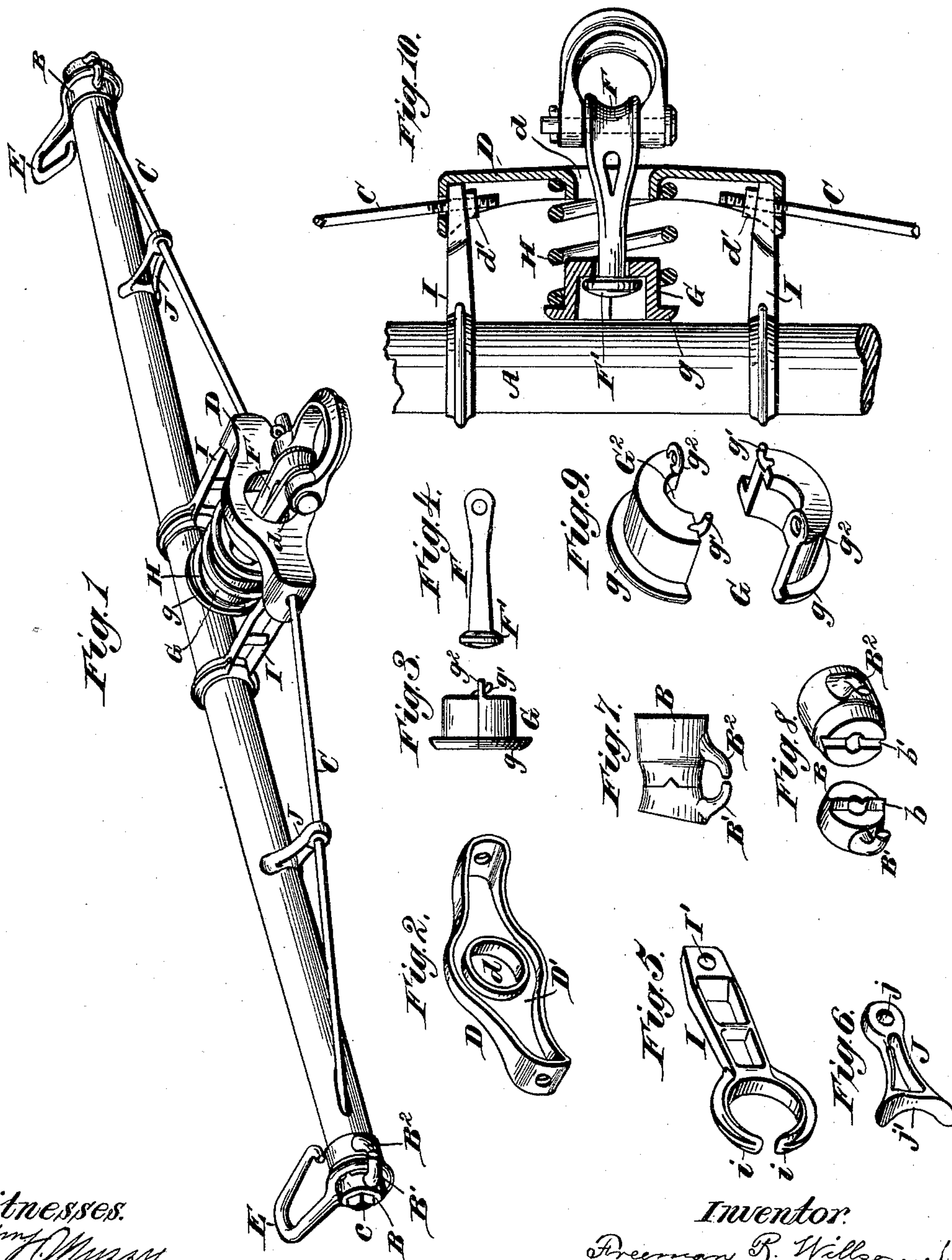


(No Model.)

F. R. WILLSON, Sr.
SPRING WHIFFLETREE.

No. 432,659.

Patented July 22, 1890.



Witnesses.

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UNITED STATES PATENT OFFICE.

FREEMAN R. WILLSON, SR., OF COLUMBUS, OHIO.

SPRING-WHIFFLETREE.

SPECIFICATION forming part of Letters Patent No. 432,659, dated July 22, 1890.

Application filed March 27, 1890. Serial No. 345,594. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN R. WILLSON, Sr., a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Spring-Whiffletrees; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improvement on Letters Patent No. 376,462, granted to me January 17, 1888.

It has for its object partly to avoid the necessity of weakening the wood of the whiffletree by bolt-holes or recesses, excepting the grooves for the truss-rods, partly to protect the truss-rods against wrenching, partly to provide for easily putting together the various elements or devices without special skill, partly to avoid the necessity for heading the draw-bar after it has been put through the cap, and, finally, in certain other details of improvement. These ends are effected by the construction and combination of devices hereinafter particularly set forth and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a whiffletree embodying my invention. Figs. 2, 3, 4, 5, 6, and 7 represent detail views, respectively, of the yoke, the cap, the draw-bar, one of the stays, one of the braces, and one of the ferrules. Fig. 8 represents the two sections of the ferrule slightly separated. Fig. 9 represents the cap similarly separated. Fig. 10 represents a view of a part of the whiffletree, showing the spring cap and yoke in horizontal section.

A designates the wooden body of the whiffletree; B, the terminal ferrules thereof; C, the two truss-rods; D, the yoke connecting them; E, the hooks hung on said ferrules; F, the draw-bar working through an opening *d* in the center of said yoke; G, the cap on the inner end of said draw-bar; and H the helical spring between said cap and said yoke and surrounding said draft-bar. The general arrangement and operation of these parts are

substantially as described in the aforesaid patent.

The yoke D is recessed in its inner or forward face at D' to receive the outer end of the spring, and through the end walls of said recess the truss-rods pass, receiving nuts *d'* on their screw-threaded ends which are nearest the draw-bar. These nuts are made to serve the additional purpose of holding in place the detachable stays I, the outer ends of which are interposed between said nuts and said end walls. The outer end of each stay has an opening I' formed therein, through which the end of the truss-rod passes, the nut being, of course, too large to slip through. The inner end of each stay is bifurcated, forming two claws *ii*, which are bent tightly around the wooden whiffletree-body A, so as to be securely fastened without the need of bolting. The outer end of each stay I also exactly fits within the corresponding end of the recess D' of the yoke or outer cap D. In consequence the truss-rods are effectually guarded against independent motion. They cannot rock or twist without causing a similar motion of the yoke and the stays, and the latter are too firmly clamped on the wooden body for this to be allowed. They are made of malleable metal.

The cap G, excepting the flange *g* at its forward end, is made of such diameter that the proximate end of the spring H may inclose it, said spring being thereby kept more accurately in place, besides the further advantage hereinafter stated. This cap is also divided into two sections, which are normally held together by the pressure of the spring and by hooks *g'* on one section and eyes *g''* on the other section, or other detachable devices. By separating these sections the headed end of the draw-bar F is allowed to be placed in position behind said cap G, the draw-bar extending forward through the central opening G' of said cap. Hitherto it has been necessary to pass the rear end of the draw-bar back through this opening while still unheaded and then to attach the head which was made separately. My sectional construction of the cap G allows me to use a draw-bar F, which is in one piece. Such a

draw-bar is much less expensive to make and much stronger, there being no risk of displacing the head F' under strain. A head screwed on, as heretofore, is very liable to be
 5 worked off in driving or hauling. It is, indeed, no more than a nut and subject to the same accidents.

J designates two braces, one of which is arranged about the middle of each truss-rod, the rear end having a hole j formed in it for the passage of said rod, while the forward end is spread and curved at j' to fit the rear face of the whiffletree-body A. The chief office of these braces is to prevent the truss-rods
 10 from bending toward said body. They also tend to prevent twisting of said truss-rod by their spreading hold on said body. They may be of wrought or cast metal.

Each ferrule B consists of two sections, the larger fitting the end of the whiffletree-body A, the smaller extending out beyond the same. These fit together edge to edge, being interlocked by indentations b' and teeth b , the former being as shown on the inner section and
 25 the latter on the outer section. The arrangement of these teeth and recesses may of course be reversed, or each section of the ferrule may have some of one and some of the other. The outer end of the truss-rod on each side passes
 30 through the ferrule, and the outer nut c , screwing on the said end, binds the small outer section of the ferrule firmly in place. Of course the said nut aids in securing the other section also. The outer section is provided with a beak or lip B' , which is curved inwardly, and the inner section is provided with a similar beak or lip B'' , curved outwardly. These serve to hold the eyes of the draft-hooks E in place, so that the said hooks
 40 will not slip too far on the whiffletree nor off from the ends of it.

The yoke or outer cap D may be made in any convenient way from malleable iron or stamped from soft steel. The recess D' will
 45 be produced either by depressing the middle of the blank or bending up the edge to form a rim. Its thickness is uniform and it is rounded at the corners, making a strong device, which is also easy of manufacture. The
 50 wooden body A is also very strong, being quite without bolt-holes and having no recess of any sort, except where the truss-rods fit into grooves at the ends. It is circular in cross-section and of equal diameter everywhere, and consequently can be made very cheaply and easily.

By backing out the truss-rods after unscrewing the nuts, all the parts of this improved whiffletree are left free to come apart
 60 without difficulty. They may easily be put together again without any especial skill. By making each ferrule in two detachable sections I allow the eye of each hook to be easily put in place.

This invention is of course applicable
 65 equally to singletrees and doubletrees.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In combination with a whiffletree-body 70 and spring, a cap fitting against and within one end of said spring and consisting of detachable sections, for the purpose set forth.

2. In combination with a whiffletree-body, spring, and draw-bar, a cap consisting of detachable sections and inclosing said draw-bar, but partly inclosed by said spring, for the purpose set forth. 75

3. In combination with a whiffletree-body and an integral headed draw-bar, a sectional 80 cap having an opening of less size than said head, the said draw-bar passing through the cap, and the sections of the latter being detachable, substantially as set forth.

4. In combination with a spring, an outer 85 cap or yoke, an inner cap and draw-bar, a whiffletree-body to which these parts are attached without bolt-holes or other recesses except at the ends where the truss-rods pass into the ferrules, substantially as set forth. 90

5. In combination with a whiffletree-body, a pair of truss-rods, their connecting-yoke, and a pair of stays between said yoke and said body, these stays fitting on the exterior of the said body and being clamped against 95 the yoke by the inner nuts of the truss-rods, substantially as set forth.

6. A pair of detachable stays, in combination with truss-rods extending through them, an outer cap or yoke, and a whiffletree-body, 100 said devices being all detachable and secured without perforating said body except at the ends where the truss-rods pass into the ferrules, substantially as set forth.

7. A pair of stays, in combination with an 105 outer cap or yoke, which is recessed to fit their ends, a whiffletree-body on which these stays are fitted, and a pair of truss-rods extended through the ends of said yoke and said stays, these parts being held together by 110 nuts, substantially as set forth.

8. A pair of stays having bent claws at one end and a hole in the other, in combination with a whiffletree-body on which said claws are bent, a pair of truss-rods passed through 115 said holes, a connecting-yoke and nuts which hold said truss-rods, stays, and connecting-yoke together, substantially as set forth.

9. In combination with a whiffletree-body and truss-rods, a pair of detachable stays inserted between said truss-rods and said body, and shaped at one end to fit closely against the curved surface thereof to prevent the bending of said rods. 120

10. In combination with a whiffletree-body 125 and truss-rods, a pair of stays shaped at one end to fit closely against the curved surface of said body and having the other end perforated to receive said rods, substantially as set forth. 130

11. In combination with a headed draw-bar and a cap made in detachable sections, a spring bearing against said cap but surrounding a part of it to hold said sections to-

gether, the said cap, spring, and draw-bar being connected to a whiffletree-body, and operating substantially as set forth.

12. A whiffletree-ferrule made in two interlocking sections, in combination with the whiffletree-body on which said ferrule is fitted, a fixed truss-rod extending through said ferrule, and a nut on said truss-rod which

binds said sections together, substantially as set forth.

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

FREEMAN R. WILLSON, SR.

Witnesses:

THEO. H. THACKARA,

E. W. BRINKER.