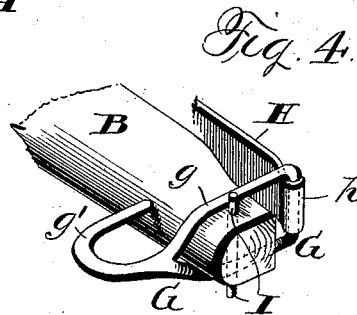
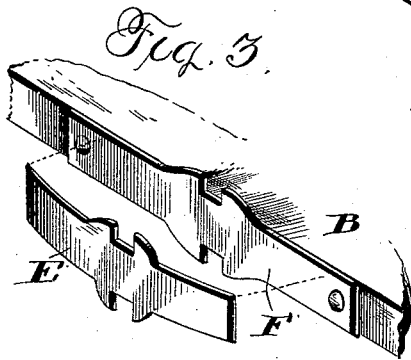
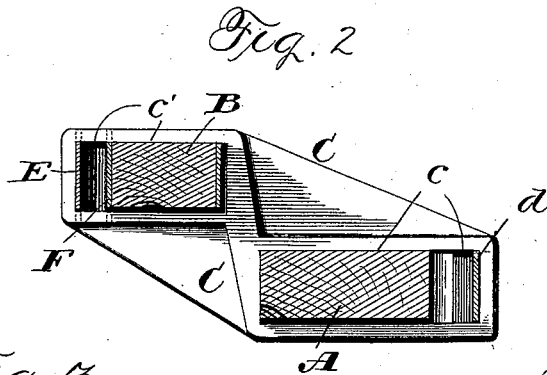
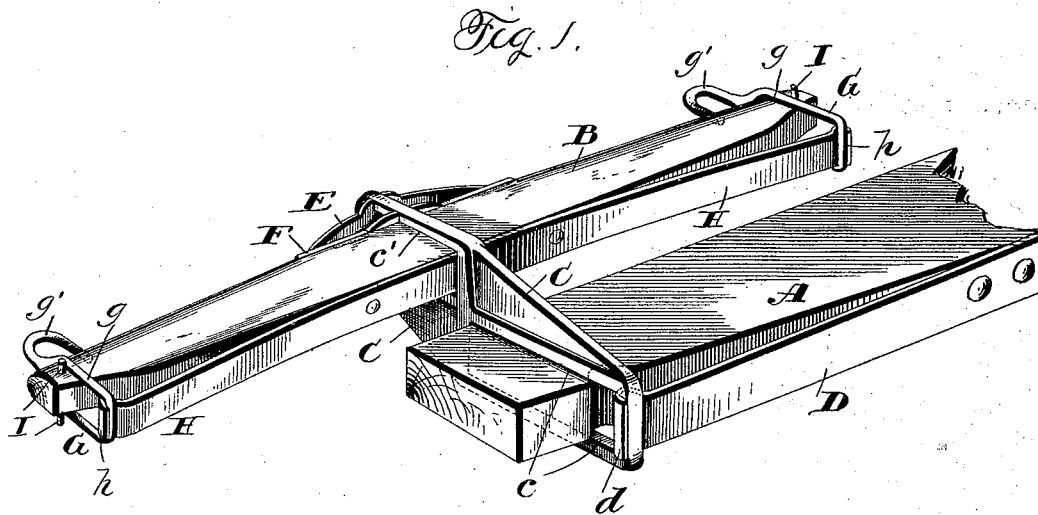


(No Model.)

R. F. KING.  
WHIFFLETREE.

No. 490,749.

Patented Jan. 31, 1893.



Witnesses  
A. Williamson.  
A. L. Hough.

Inventor  
Robert F. King,  
by Franklin H. Hough  
his Attorney.

# UNITED STATES PATENT OFFICE.

ROBERT F. KING, OF BOZEMAN, MONTANA.

## WHIFFLETREE.

SPECIFICATION forming part of Letters Patent No. 490,749, dated January 31, 1893.

Application filed May 25, 1892. Serial No. 434,304. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT F. KING, a citizen of the United States, residing at Bozeman, in the county of Gallatin and State of Montana, have invented certain new and useful Improvements in Whiffletree Attachments; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in singletrees, and in means employed for attaching the same to the doubletree.

To these ends and to such others as the invention may pertain, the same consists in the peculiar construction and in the novel combination, arrangement and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is fully illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating the same parts throughout the several views, and in which drawings;—

Figure 1, is a perspective view of my invention applied. Fig. 2, is a transverse section, and Figs. 3 and 4 are enlarged details in perspective, which will be more particularly hereinafter referred to.

Reference now being had to the details of the drawings by letter, A designates the double-tree, and B the single tree, which are connected together by a plate or casting C, in such manner that they occupy different horizontal planes, the single tree being preferably in the higher plane, and so far above the doubletree that in its vibrations or in the vibrations of the double-tree, their edges will not strike or come together, but the singletree will pass above the other. The plate C has an opening *c*, through which the end of the doubletree passes, and an opening *c'* through which the single tree passes, the two openings being in planes related to each other to conform to the above indicated positions of

the two parts. Each opening has a length greater than the width of the portion of the tree it incloses, and springs are provided which tend to press and yieldingly hold each tree at one end of its opening. In the case of the double tree A, a flat spring D is secured to its rear edge, which, at its free end has a hook *d* that engages the rear end of the opening *c* in the plate C, while in the case of the singletree, a bowed spring E is placed in the opening *c'* so that its central portion bears against the front end of said opening, while its two outer ends engage the front edge of the single tree at points equi-distant from its center, to securely hold said spring E in position its upper and lower edges are notched to engage the upper and lower sides of the opening *c'*, while to hold the singletree against longitudinal movement, a metal plate F is secured to its front edge, whose upper and lower edges are similarly notched to engage the same sides of the opening *c'*. Preferably said plate F is of such length that the free ends of the spring E bear against it instead of the edges of the singletree, thus avoiding wear of the latter.

The described form of connection of the singletree to the plate C, while preventing longitudinal movement of the former, admits of all needed vibration in a horizontal plane, because of the excessive length of the opening *c'*, and the ready yielding of the spring. For the reasons just mentioned, there is also possible a degree of lateral movement of the plate C, and the doubletree A.

The springs besides constituting anti-rattling devices, also serve as cushioning devices, to prevent sudden shocks or strains to the parts while in use.

The detachment of the singletree from the doubletree is effected by simply pressing the free end of the spring D toward the doubletree to release the hook *d* from the plate C, and then draw the plate off the end of the doubletree. A notch is provided in the rear edge of the latter into which the said hook can be pressed in order to have it entirely out of the way for the separation of the parts, as indicated. I have also applied springs to the trace-hooks G, G, on the singletree, for purposes like those had in view in providing the springs D and E as above set forth, and for

the further purpose of preventing the accidental unhooking of the traces from said hooks when the pull upon the traces is relaxed and they are loose. Each hook G consists of a loop portion *g* and a trace engaging portion *g'* in the form of a simple hook. The loop portion *g* has a dimension that corresponds to the dimension of the engaged portion of the singletree, and another dimension that is longer than said portion of the tree. The latter is in the plane of the hook portion *g'*, so that a flat spring H secured to the rear edge of the singletree and engaging by a hook *h* the rear end of the loop, will tend to pull and yieldingly hold said hook portion *g'* into contact with the front edge of the singletree, and thus prevent accidental displacement of the trace as above indicated. A pin I projects from the upper and lower sides of the singletree, to engage the loop *g* at its narrow portion, to hold the hook G in place upon the singletree and prevent its lateral movement. The loop portion *g* preferably has such length that when it is desired to detach the hook from the tree, it is simply necessary to press the spring H close against the rear edge of the tree, and then turn the hook until the longest part of the loop *g* is in a vertical line. It can then be passed over the pin I, as the length of the latter is less than the length of the loop.

It will be noted that the feature common to the connection of the doubletree with the plate C, the connection of the singletree with

the same, and the connection of the hook with the singletree, is the provision of openings in the plate C and in the hook G having a length in excess of the width of the part engaged, and in the use of a spring which acts alike in each instance.

Having thus described my invention, what I claim to be new and desire to secure by Letters Patent, is;—

1. In combination, a doubletree, a singletree, the plate connecting them having openings in different horizontal planes, said openings being longer than the part inclosed thereby, and a spring engaging one end of each opening and the whiffletree and doubletree substantially as shown and described and for the purpose specified.

2. In combination, a double tree, a single tree, the connecting plate having an opening through which the single tree passes made longer in one direction than the width of the said tree, the notched plate attached to the edge of the single tree and engaging the sides of the opening, and a spring engaging the whiffletree, the doubletree and the end of the opening, substantially as and for the purpose described.

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

ROBERT F. KING.

Witnesses:

JOHN V. BOGERT,  
HERBERT S. WEBB.