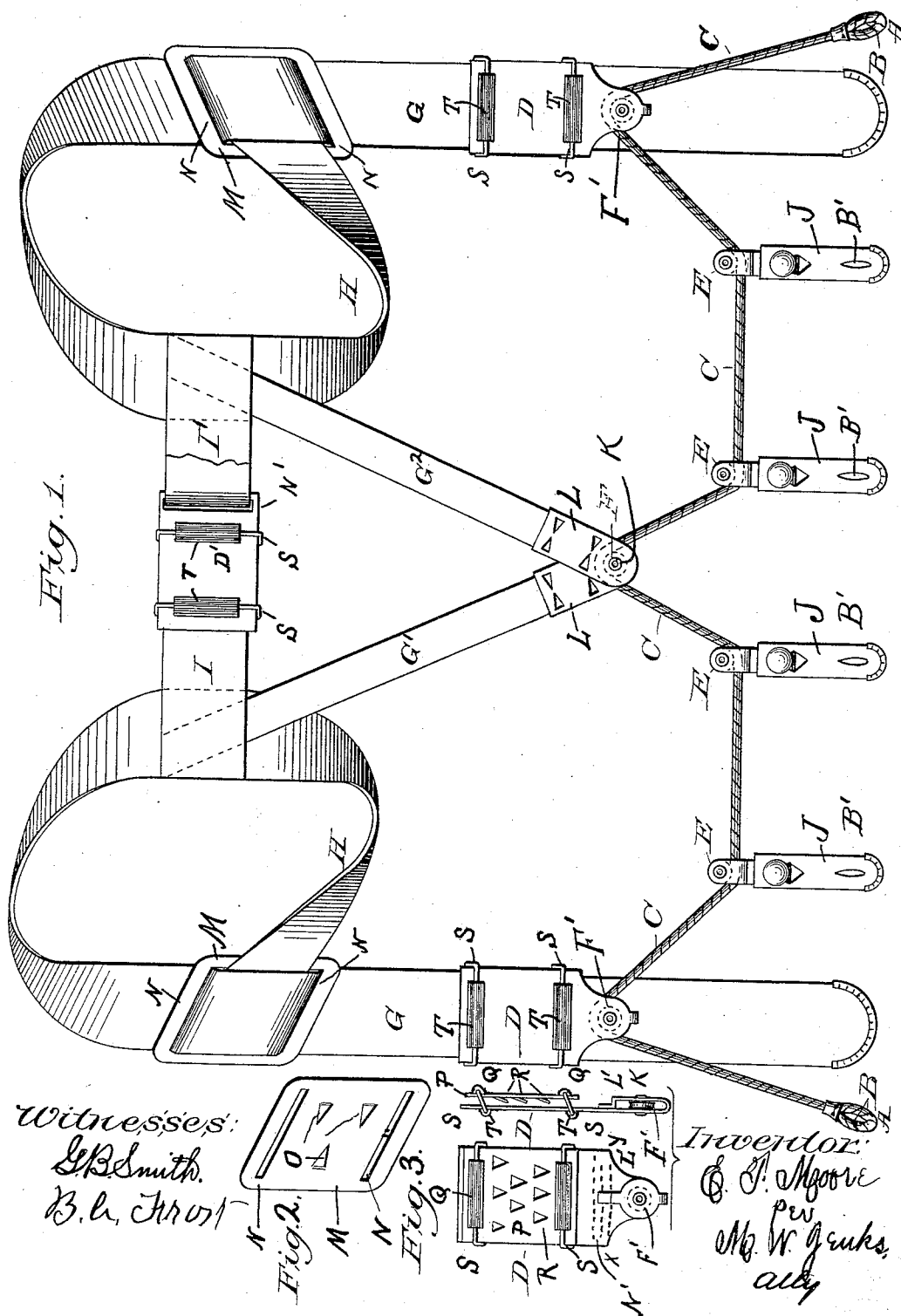


(No Model.)

E. F. MOORE.  
SUSPENDERS.

No. 487,758.

Patented Dec. 13, 1892.



# UNITED STATES PATENT OFFICE.

EDWARD F. MOORE, OF ARGENTINE, KANSAS.

## SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 487,758, dated December 13, 1892.

Application filed May 24, 1890. Serial No. 353,873. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD F. MOORE, a citizen of the United States, residing at Argentine, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Suspenders; 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.

My invention relates to improvements in suspenders and shoulder-braces.

The objects of my invention are, first, to provide suspenders having the usual shoulder and back straps with a single supporting-cord having its ends attached, respectively, to the two front trousers-buttons and movably connected with the shoulder and back straps and straps attached to the other trouser-buttons; second, to provide a cheaply-manufactured and efficient and readily-adjustable suspender-buckle, and, thirdly, to provide an improved combined shoulder-brace and suspender, the details of construction being fully shown and described hereinafter.

In the accompanying drawings, illustrative of my invention, Figure 1 represents a pair of shoulder-braces and suspenders constructed in accordance with the principles of my invention. Fig. 2 represents the shoulder-brace sliding clamp, and Fig. 3 represents a front and side elevation of the improved suspender-buckle.

Similar letters of reference indicate similar parts.

Referring to the drawings, A indicates the position of the front trousers-buttons.

B indicates button-holes in the ends of the continuous cord C, which are adapted to the buttons A. Only the ends of the cord C are attached to the trousers direct, but the cord is connected with the other trousers-buttons by means of the straps J, which are provided with pulley-wheels E at their upper ends through which the cord is passed. The lower end of the straps J are provided with button-holes B', adapted to the trousers-buttons.

G indicates the shoulder-straps, made of any material usually employed for such purposes—as, for instance, elastic webbing. The back-straps G' and G'' are dependent from

the shoulder-straps G and may be united at their lower ends in the ordinary manner; but, as shown in the drawings, Fig. 1, it is preferred to mount the lower ends with metallic tips L, provided with holes fitted to a rivet-shaft K, upon which is revolvably mounted between the tips L a pulley-wheel F. When the parts are so mounted, the rivet-shaft K is headed at either end, thus holding the parts L and F together and pivotally movable with relation to each other.

M, Fig. 2, indicates a rectangular strip of sheet metal provided with a transverse slot N near each end, through which the strap G passes, as shown in Fig. 1.

O indicates V-shaped points thrown up in the metal between the slots N, which serve to hold the elastic webbing H, which is preferably an extension or continuation of strap G and which passes under the arm and connects with the strap G, forming a loop. As shown in Fig. 1, the strap G passes up through one slot N of the plate M, over the strap H, and down through the other slot N. This construction permits an easy adjustment up or down of the end of the strap H upon the suspender-strap G.

Referring to Fig. 3 for a description of the suspender-buckle, D indicates a substantially-rectangular blank of sheet metal provided with an extension L', adapted to be bent around, as shown in the side elevation in Fig. 3, and the end secured in any suitable manner to the body of the blank. A rivet K passes through the blank D and extension L' and serves as a bearing, upon which the pivoted roller F' is mounted between the body D and the extension L'. Near each end of the body of the blank D a transverse semicylindrical groove T is thrown down in the metal to a point near each side. This groove serves as a bearing, in connection with the body of the blank, for one side of a rectangular wire link S.

Parallel to the blank D and connected thereto by means of the links S, just described, is another rectangular blank of sheet metal P, provided with V-shaped points R, projecting from the side toward the blank D. Transverse grooves Q, corresponding in position and formation to the hereinbefore-de-

scribed grooves T, are provided in the blank P and serve as bearings for the opposite sides of the rectangular links S, respectively.

A buckle D', similar to the one just described, is shown in Fig. 1, connecting the straps I and I'. The difference in the two buckles is that in the one shown in Fig. 1 at D' the projecting end of the blank D is cut away, as shown by the dotted lines *x y*, Fig. 3, and a slot N' (shown in dotted lines in Fig. 3) is punched in the lower end of the blank D. The straps I I' are preferably of elastic webbing, one end of each being secured to the back of the loop H and G. The other end of the strap I' is passed through the slot N' and is then folded and secured to the strap I'. The other end of the strap I is passed between the plates D' and P and through at least one of the links S. The strain on the straps I I' causes the plates D' P to move toward each other, and the V-shaped downwardly-extending points R in the plate P engage the fabric of the strap I and prevent it slipping. The same action takes place when the strap G is passed between the plates D and P, as shown in Fig. 1.

It is evident that a very cheap and efficient buckle and sliding clamp may be constructed as herein described, the principal parts of the buckle and clamp being punched and formed up from sheet metal in a few operations.

My invention is operated in the following manner: The buckles are connected to the straps in the manner before described. The cord C is then passed over the pulleys F F' and under the pulleys E, two of the straps J being located upon the cord C on each side of the pulley F, between said pulley and pulley F'. The straps J and the ends of the cord C are then secured to their respective buttons, and the straps H are raised or lowered by means of the sliding clamp M to suit the arms. The buckles D are raised or lowered

upon the straps G to a suitable position, and the back buckle D' is caused to take up a suitable portion of the strap I. It will be noted that no matter what position may be assumed by the person wearing the suspenders above described the pulley-wheels E, F, and F' will travel along upon the cord C to a position suitable for the posture taken, thus preventing any undue strain at any point and permitting the wearer to move freely in any direction.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The herein-described suspenders, consisting of the ordinary shoulder-straps G and back-straps G' G'', connected at their rear ends, the pulley F, secured to and connecting opposite ends of the straps G' G'', the buckles D, provided with the pulley-wheels F', the straps J, provided with the pulleys E, and the single cord C for attachment to the front trousers-buttons and engaging with the pulleys E, F, and F', substantially as described.

2. The combined shoulder-braces and suspenders herein described, consisting of shoulder-straps G, provided with extensions H and back-straps G' G'', the movable clamp M, connecting-straps G and H, the buckles D, provided with pulley-wheels F', a pulley-wheel F, mounted upon the rear ends of the straps G' G'', the straps I I', connected by the buckle D' and to the shoulder-straps, the straps J, provided at their upper ends with the pulley-wheels E, and the running cord C, secured at its ends to the front trousers-buttons and engaging, as described, with the pulley-wheels E, F, and F', all substantially as described and set forth.

EDWARD F. MOORE.

Witnesses:

HUGH BLAIR,  
JENNIE WATT.