No. 720,522. PATENTED FEB. 10, 1903.

H. C. HINE.

SUSPENDERS.

APPLICATION FILED SEPT. 11, 1902.

NO MODEL.

Fig. 1.

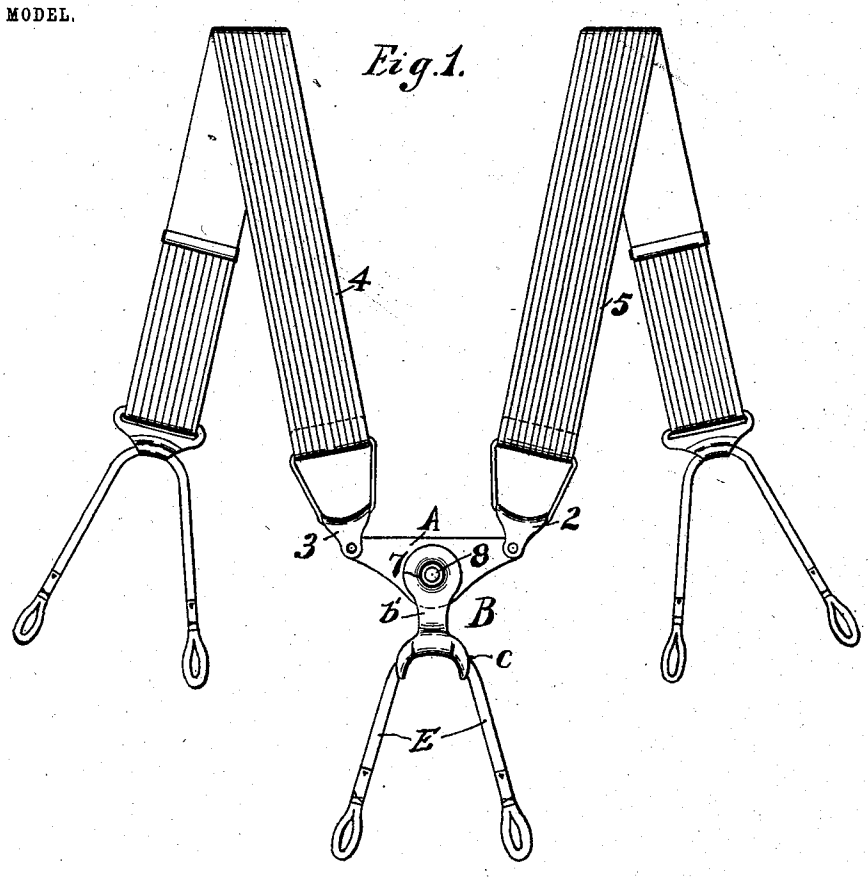


Fig. 2.

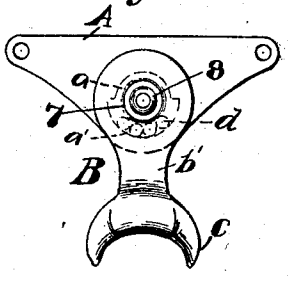


Fig. 3.

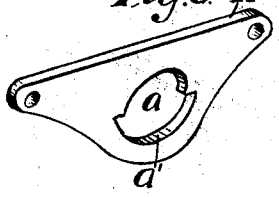
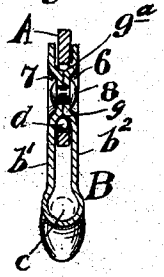


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 720,522, dated February 10, 1903.

Application filed September 11, 1902. Serial No. 122,903. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. HINE, a citizen of the United States, residing in New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Suspenders, of which the following is a specification.

This invention relates to that class of garment-supporters designated as "suspenders."

One of its objects is to connect the shoulder-straps to the button end by an improved and simplified draft-equalizing device comprising a lever to which said straps are attached and a hanger to which the suspender-end is connected.

In the drawings forming a part of this specification, Figure 1 illustrates a suspender embodying my improved attachment. Fig. 2 illustrates the draft-equalizer. Fig. 3 shows the beam or lever of the equalizer separated from the hanger; and Fig. 4 is a section of the equalizer, illustrating the assemblage of parts.

Similar characters of reference indicate like parts throughout the drawings.

The equalizer, by which the shoulder-straps and the button ends of the garment-support are connected, comprises a lever or beam A and a hanger B. The lever A is provided with attachments 2 and 3, which receive the shoulder-straps 4 and 5. Intermediate the ends of the lever A is an opening or eye *a*, in the lower portion of which is formed a segmental recess *a'*. The hanger B, constructed of sheet metal, is bent to form two walls b' b^2, the bend of this member forming the cord-channel *c* for receiving the suspender-end E. Near the extremities of each of the walls b' and b^2 are annular depressions or grooves 6 and 7, which register and are held together by a central rivet 8, and these depressions fit within the opening *a* of said lever and form an annular journal 9, interposed between which and the segmental recess *a'* of the opening *a* are the series of balls *d*.

It will be observed that one of the shoulder-strap-lever and suspender-end-hanger elements has a journal 9 and the other thereof has preferably an eye *a* inclosing said journal, said eye having a segmental recess *a'*; that a set of balls *d* is confined by said recess in contact with said journal; that the recess in this instance is in the form of a cradle which supports the balls upon which the journal rests; that the hanger consists, preferably, of two plates b' and b^2, inclosing the recess *a'* and having an intermediate journal which is sufficiently within said recess to enable the balls to run in contact with the journal; that preferably the member B is folded and its sides are riveted together at the journal; that the eye is partly adapted to said journal, the unrecessed upper portion thereof coöperating with the upper part of the journal to prevent displacement of the hanger B with relation to the lever A, and that the journal 9 is formed by the coöperation of circular inwardly-projecting portions 9^a, which are connected by the rivet 8.

It will be noted that the simplicity of construction allows the attachment to be produced without much manipulation. It is cheap and at the same time possesses the necessary durability.

Modifications of various kinds may be resorted to within the scope of this invention.

Having described my invention, I claim—

1. A garment-supporter comprising shoulder-straps connected together by a lever, a segmental recess in said lever, balls disposed in said recess, a hanger pivotally supported upon said balls, and a suspender-end supported upon said hanger.

2. A garment-supporter comprising shoulder-straps connected by a lever, a segmental recess formed in said lever, a hanger consisting of a pair of plates which are provided with annular shoulders which form a journal within said recess, balls running in said recess in contact with said journal, and a suspender-end supported upon said hanger.

3. In combination, a shoulder-strap lever and a suspender-end hanger, one of said elements having a journal and the other thereof having an eye inclosing said journal; said eye having a segmental recess; and a set of balls confined by said recess and in contact with said journal.

4. In combination, a shoulder-strap lever and a hanger, one of said elements having a journal and the other thereof having a seg-

mental recess or cradle; and a set of balls confined by said recess and in contact with said journal.

5. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, one of said elements having a segmental recess formed therein, and the other of said elements consisting of two plates which inclose said recessed element and also having a journal within said recess; and a set of balls confined by said recess and running in contact with said journal.

6. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, one of said elements having formed therein an eye provided with a segmental recess, and the other of said elements consisting of two plates inclosing said recessed element and having an intermediate journal within said recess; and a set of balls confined by said recess and running in contact with said journal.

7. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, one of said elements consisting of a single plate and having formed therein an eye a part whereof consists of a segmental recess, and the other of said elements consisting of a folded plate inclosing said single plate and having a journal within said eye; and a set of balls confined by said recess and running in contact with said journal.

8. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, one of said elements having formed therein an eye provided with a segmental recess, and the other of said elements consisting of two plates which inclose said recessed element, and also having a journal within said eye; said plates being riveted together at said journal; and a set of balls confined by said recess and running in contact with said journal.

9. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, one of said elements consisting of a single plate and having formed therein a segmental recess, and the other of said elements consisting of a folded plate which incloses said single plate and also having a journal within said eye; said folded plate being riveted at such journal; and a set of balls confined by said recess and running in contact with said journal.

10. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, one of said elements consisting of a single plate and having formed therein an eye a part whereof consists of a segmental recess, and the other of said elements consisting of a folded plate inclosing said single plate and having circular inwardly-projecting portions which together form a journal within said eye; and a set of balls confined by said recess and running in contact with said journal.

11. In combination, a shoulder-strap lever and a suspender-end hanger, one of said elements having a journal and the other thereof having an eye which at one part is adapted to said journal and at another part is formed with a segmental recess; and a set of balls confined by said recess and running in contact with said journal.

12. In combination, a shoulder-strap lever and a suspender-end hanger, said hanger having a journal and said lever having an eye inclosing said journal; said eye having a segmental recess; and a set of balls confined by said recess and in contact with said journal.

13. In combination, a shoulder-strap lever and a hanger, said hanger having a journal and said lever having a segmental recess or cradle; and a set of balls confined by said recess and in contact with said journal.

14. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, said lever having a segmental recess formed therein, and said hanger consisting of two plates which inclose said recessed element and also having a journal within said recess; and a set of balls confined by said recess and running in contact with said journal.

15. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, said lever consisting of a single plate and having formed therein an eye a part whereof consists of a segmental recess, and said hanger consisting of a folded plate inclosing said single plate and having a journal within said eye; and a set of balls confined by said recess and running in contact with said journal.

16. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, said lever having formed therein an eye provided with a segmental recess, and said hanger consisting of a folded plate inclosing said recessed element, and having inwardly-projecting portions which form a journal within said recess; said journal portions being riveted together; and a set of balls confined by said recess and running in contact with said journal.

17. In combination, a sheet-metal shoulder-strap lever and a sheet-metal hanger, said lever consisting of a single plate and having formed therein an eye, a part whereof consists of a segmental recess, and said hanger consisting of a folded plate inclosing said single plate and having inwardly-projecting portions which form a journal within said eye; said journal portions being riveted together, and a cord-channel being formed by the fold of said hanger; and a set of balls confined by said recess and running in contact with said journal.

18. In combination, a shoulder-strap lever and a suspender-end hanger, said hanger having a journal and said lever having an eye which at one part is adapted to said journal and at another part is formed with a segmental recess; and a set of balls confined by said recess and running in contact with another part of said journal; the latter resting upon said balls.

HENRY C. HINE.

Witnesses:
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