(No Model.)

S. M. BENNETT & J. H. SULLIVAN.

VEHICLE AXLE.

No. 316,439. Patented Apr. 28, 1885.

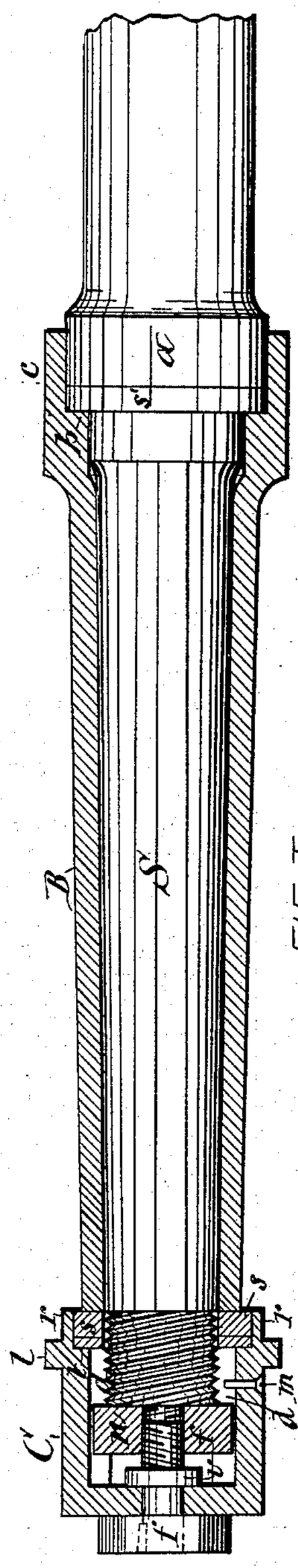

FIG-I-

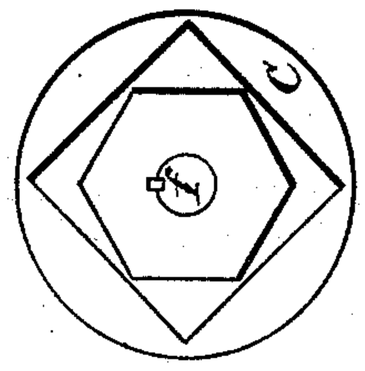

FIG-III-

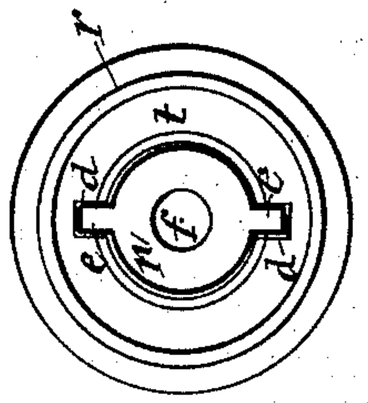

FIG-II-

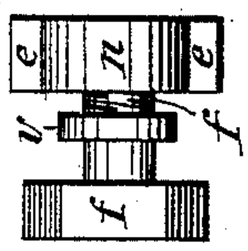

FIG-VI-

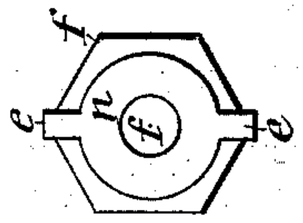

FIG-V-

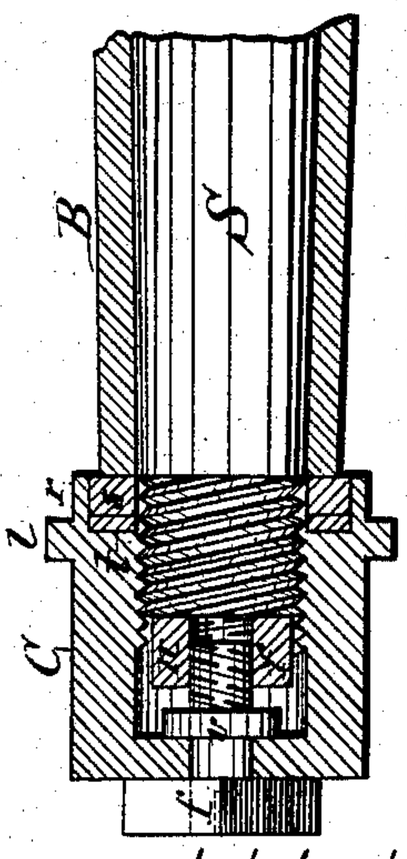

FIG-IV-

WITNESSES

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J. H. Gibbs

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UNITED STATES PATENT OFFICE.

STRONG M. BENNETT AND JAMES H. SULLIVAN, OF MEXICO, NEW YORK.

VEHICLE-AXLE.

SPECIFICATION forming part of Letters Patent No. 316,439, dated April 28, 1885.

Application filed October 27, 1884. (No model.)

To all whom it may concern:

Be it known that we, STRONG M. BENNETT and JAMES H. SULLIVAN, both of Mexico, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Vehicle-Axles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in novel means for securing on an axle the wheel-retaining hub, which is adjustable to compensate for wear and abrasions on the ends of the hub-box and on the bearings in contact therewith, and effectually prevent rattling of said parts without danger of unduly binding the same.

The invention is fully illustrated in the annexed drawings, wherein Figure I is a longitudinal section of the end portion of an axle provided with our improvement. Fig. II is an inner end view of the wheel-retaining hub. Fig. III is an outer end view of the same. Fig. IV is a longitudinal section of the outer end of the axle-spindle, showing our invention as it appears in a plane at right angles to that in which Fig. I is taken; and Figs. V and VI are detached end and side views, respectively, of the jam-nut and set-screw connected therewith.

Similar letters of reference indicate corresponding parts.

S represents the spindle of a metallic axle formed with the collar *a* at the inner end of the spindle, and screw-threaded at the outer end of the spindle.

B denotes the metallic box, with which the bore of the wheel-hub is usually lined, said box being formed with a shoulder, *b*, by which it abuts indirectly against the collar *a*, a packing-ring, *s'*, of leather or other suitable material being interposed between said parts. The inner end of the box is in the form of a sleeve-extension, *c*, which laps onto and embraces the collar *a*, as shown in Fig. 1 of the drawings.

C represents the wheel-retaining nut, consisting of a female threaded screw-cap, which screws onto the outer end of the spindle S, and is provided with the usual circumferential guard-flange, *l*. The inner or open end of the aforesaid screw-cap C is formed with an annular flange, *r*, which projects toward the box B, and is of a diameter to allow it to pass over the end of said box. At the inner side of the flange *r* the screw-cap is provided with an annular shoulder, *t*, and between said shoulder and the end of the spindle is introduced one or more leather gaskets or other suitable packing-rings, *s*.

Inside of the screw-cap C is arranged a jamb-nut, *n*, which has a smooth exterior, so as to allow it to move freely and independently of the screw-threads of the cap C. The nut *n* is prevented from turning in the cap, and is guided rectilineally toward the end of the spindle by lugs *e e* on the nut projecting into longitudinal grooves *d d* in the inner side of the screw-cap. The jam-nut is provided with a screw-threaded eye, in which works the screw-threaded shank of a set-screw, *f*, inserted through the outer end of the screw-cap C, as shown in Figs. I and IV of the drawings. The eye in the screw-cap, through which the set-screw passes, is smooth, and by the head of the screw bearing against the outer face of the cap C and a collar, *v*, attached to the screw at the inside of the cap, the said set-screw is prevented from moving longitudinally. A pin, *m*, inserted in the side of the screw-cap, and projecting into the groove *d* of said cap, limits the movement of the jam-nut, so as to prevent its disengagement from the end of the set-screw and its dropping out of the screw-cap when removed from the spindle.

The box B is adjusted on the spindle by tightening the screw-cap C, so as to bring the ends of the box to proper bearings against the packing-rings *s s'*, which latter retain the lubricant, and serve to prevent rattling and undue friction. The extension *c* over the collar *a* serves to hold the packing-ring *s* in place and to exclude dust. The screw-cap C is retained in its aforesaid adjusted position by turning the set-screw *f* so as to press the jam-nut *n* against the end of the spindle.

The flange *r* holds the packing-rings *s* in place and allows the end of the spindle to pass inside of the said flange as the packing-rings become worn, and the screw-cap is set in to compensate for the wear.

We are aware that prior to our invention wheel-retaining screw caps or taps have been formed with a single screw-threaded eye extending completely through the said caps, and

of uniform diameter throughout the length thereof, one end of which eye screwed into the end of the spindle of the axle, and a set-screw or so-called "temper-screw" was inserted in the outer end of said eye to abut against the end of the spindle; but such a construction and combination of parts requires the set-screw to be as large as the screw-threaded end of the spindle, and the large hole through the cap weakens the same; furthermore, such set-screws are more liable to work out of the cap and become lost, all of which defects are obviated by our improvements.

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

1. In combination with the spindle and its wheel-retaining screw-cap, a jam-nut guided rectilineally in said cap, and a set-screw inserted through the end of the cap, and restrained from longitudinal movement, and having its screw-threaded end working in the jam-nut, substantially as set forth and shown.

2. In combination with the spindle S and box B, the screw-cap C, provided internally with longitudinal grooves *d d*, the jam-nut *n*, seated loosely in the screw-cap and provided with lugs *e e*, entering the aforesaid grooves, and the set-screw *f*, inserted through the outer end of the screw-cap and provided with a head and a collar, respectively, at the outside and inside of said cap, and engaging a screw-threaded eye in the jam-nut, substantially as described and shown.

In testimony whereof we have hereunto signed our names and affixed our seals, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 7th day of October, 1884.

STRONG M. BENNETT. [L. S.]
JAMES H. SULLIVAN. [L. S.]

Witnesses:
FREDERICK H. GIBBS,
WM. C. RAYMOND.