

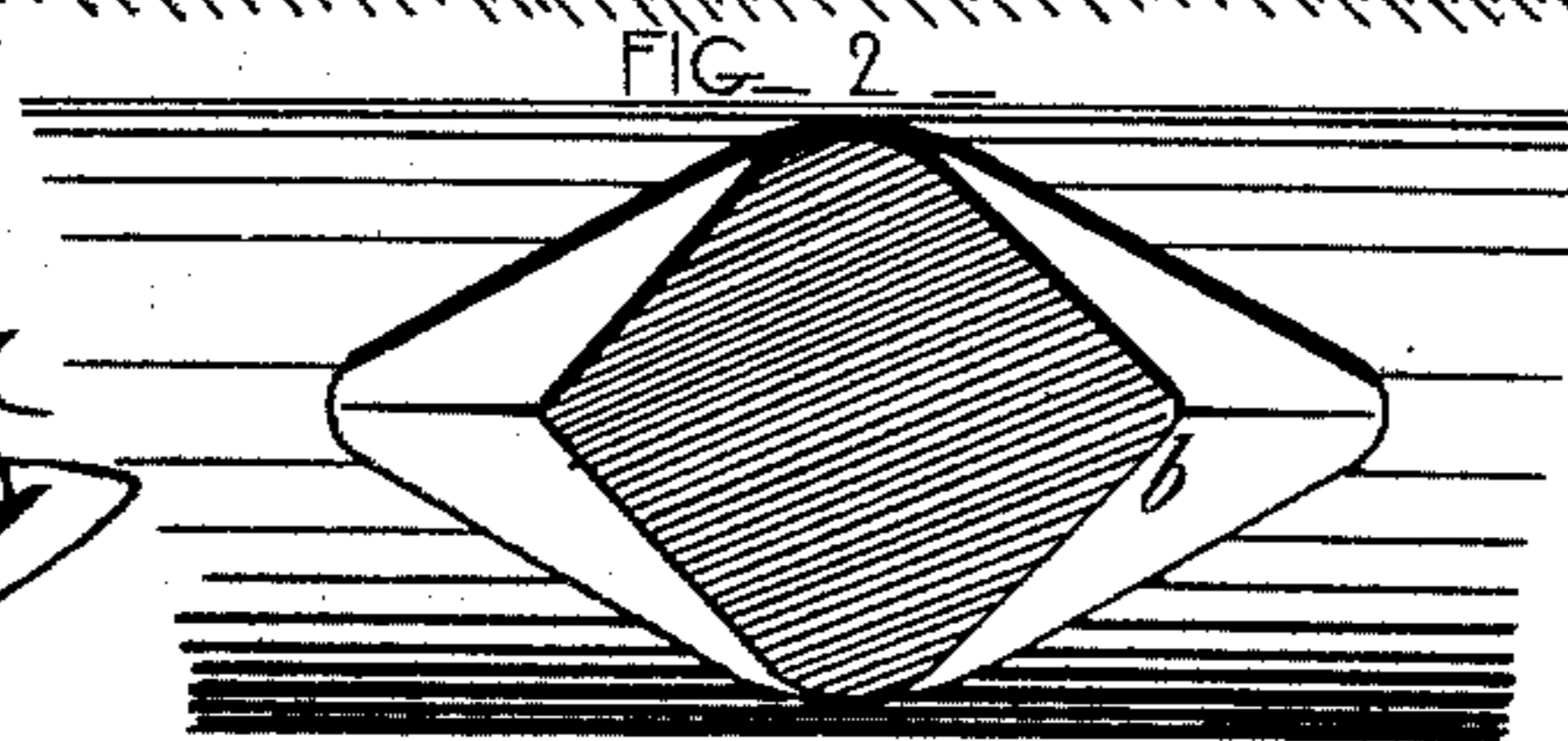
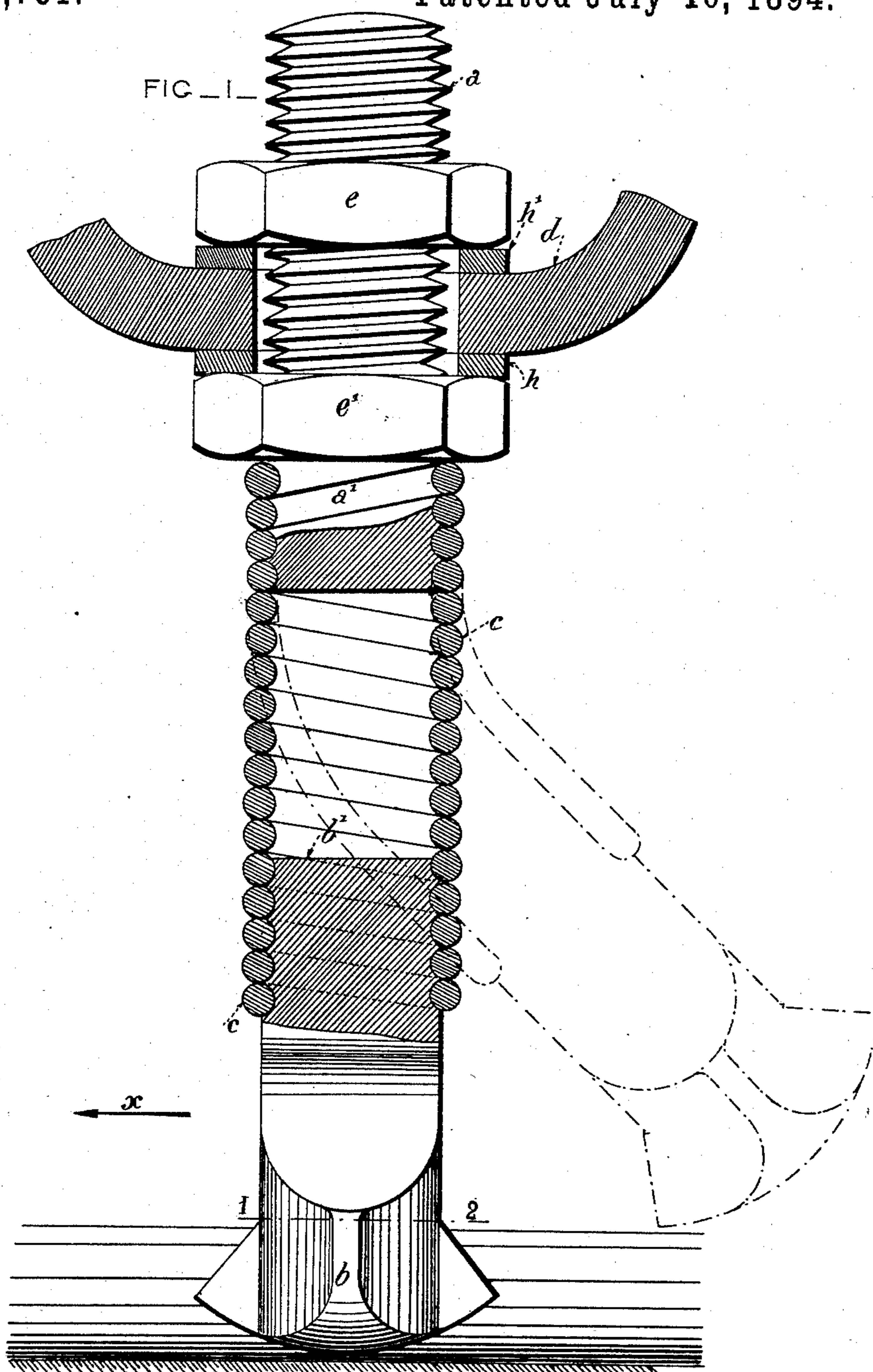
(No Model.)

3 Sheets—Sheet 1.

D. C. LE BRAS.
SELF ACTING CLEANER FOR GROOVES OR HOLLOW OF RAILS OF
RAILWAYS.

No. 522,761.

Patented July 10, 1894.



Witness
Oscar W. Smith
for Laurence

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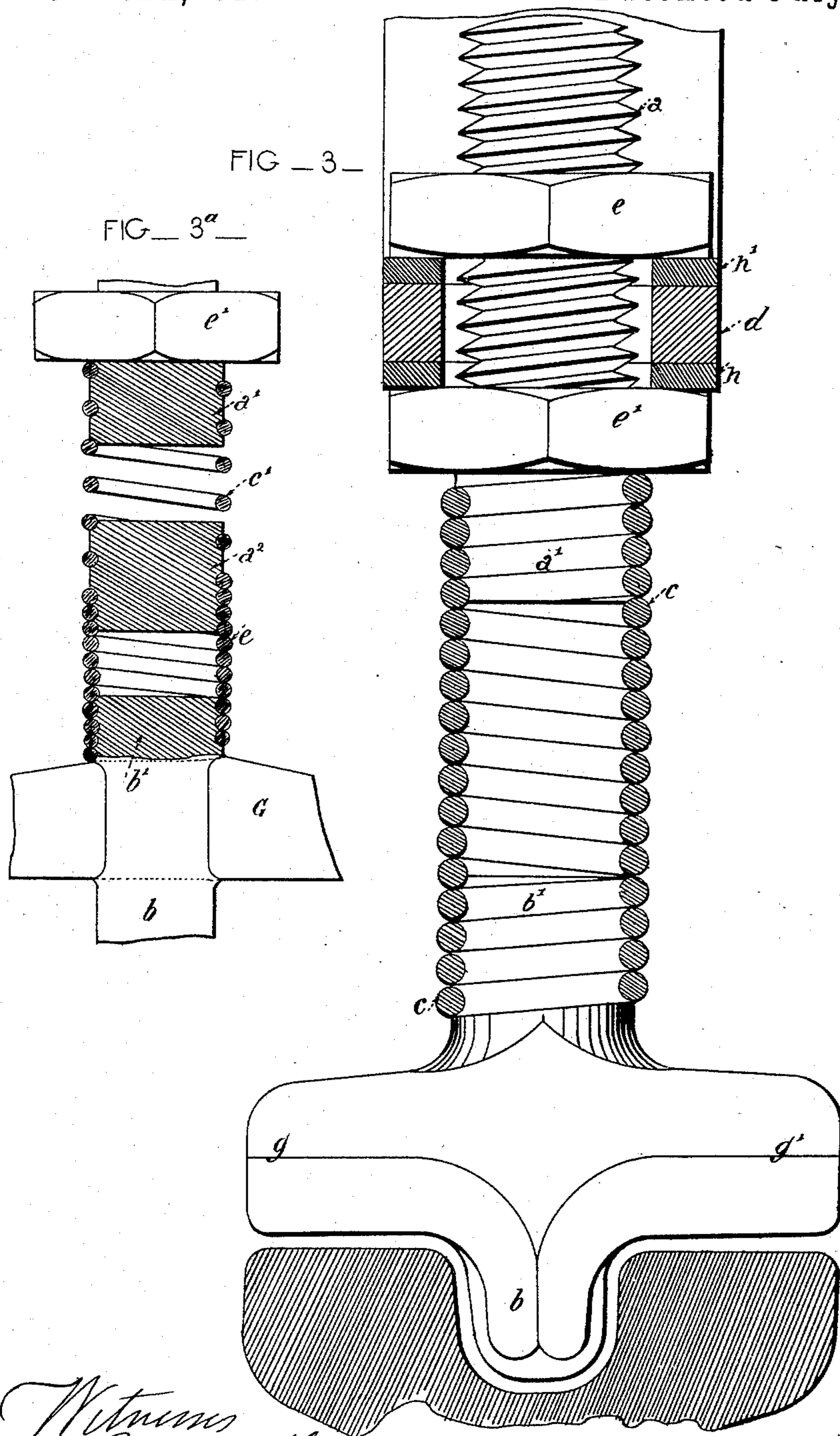
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3 Sheets—Sheet 2.

D. C. LE BRAS.
SELF ACTING CLEANER FOR GROOVES OR HOLLOWS OF RAILS OF
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(No Model.)

3 Sheets—Sheet 3.

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FIG. 4 —

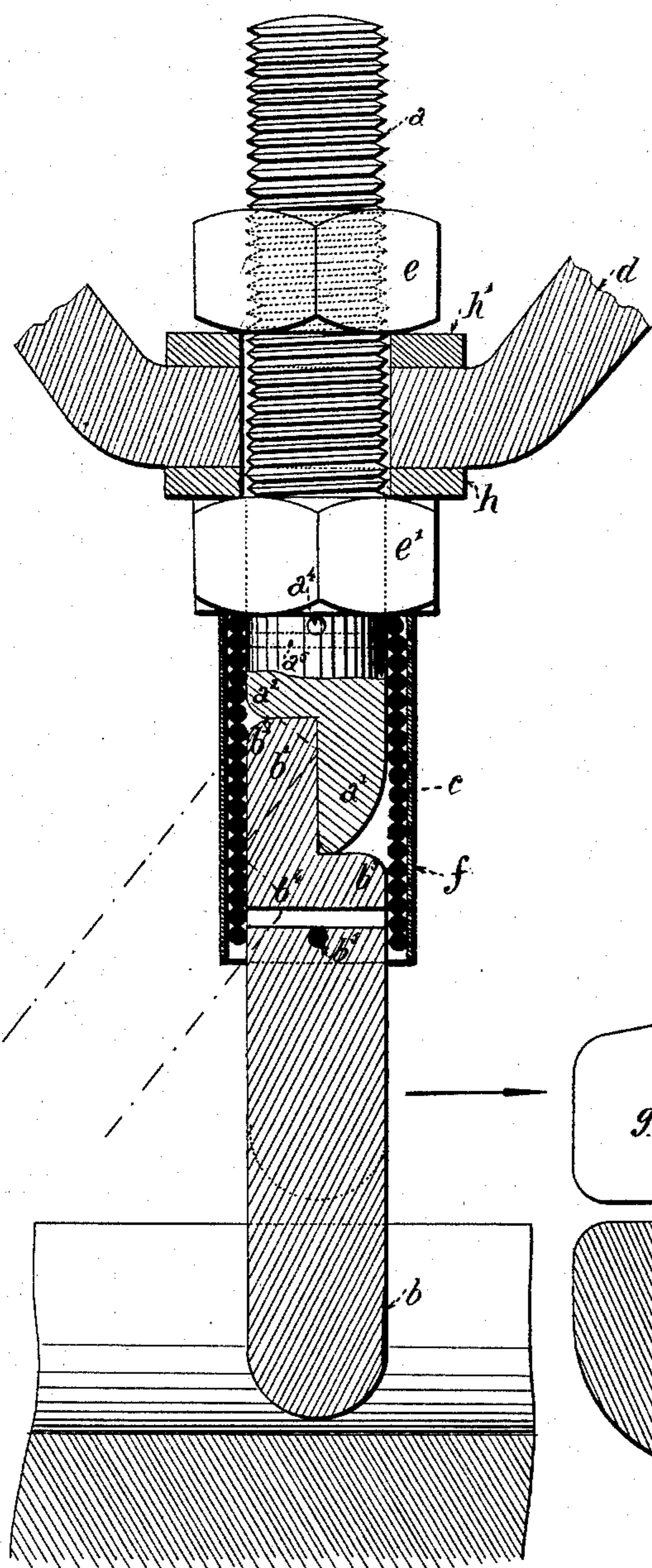
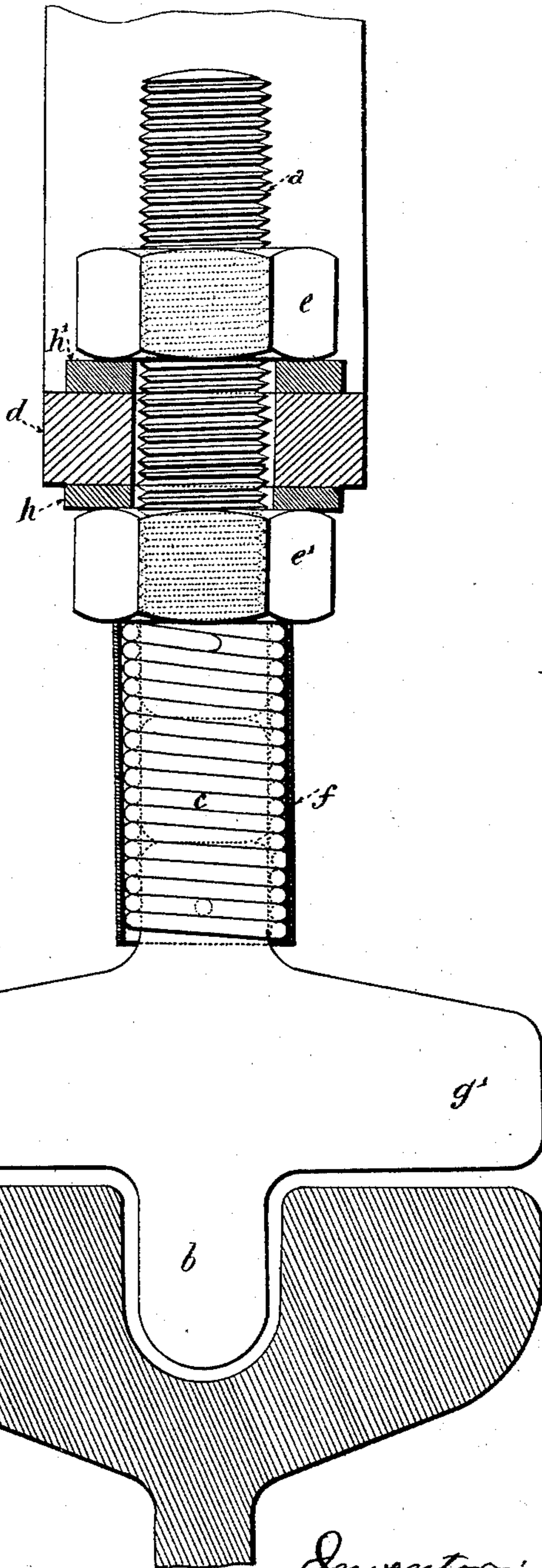


FIG. 5 —



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UNITED STATES PATENT OFFICE.

DOMINIQUE CÉSAR LE BRAS, OF PARIS, FRANCE.

SELF-ACTING CLEANER FOR GROOVES OR HOLLOWES OF RAILS OF RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 522,761, dated July 10, 1894.

Application filed June 19, 1893. Renewed May 28, 1894. Serial No. 512,731. (No model.) Patented in France April 21, 1893, No. 229,516.

To all whom it may concern:

Be it known that I, DOMINIQUE CÉSAR LE BRAS, engineer, of 10 Rue du Jour, Paris, in the Republic of France, have invented a new Self-Acting Cleaner for the Grooves or Hollows of Rails of Railways, (for which I have obtained Letters Patent of France for fifteen years, dated April 21, 1893, No. 229,516;) and I do hereby declare that the following is a full and exact description thereof, reference being made to the accompanying drawings.

The object of this invention is to provide an apparatus applicable to all vehicles running upon a road formed of hollow or grooved rails for the purpose of cleaning such rails automatically.

In order to be really practical, an apparatus or tool for cleaning hollow or grooved tramway rails, should fulfill the following conditions:—It should be applicable to all kinds of vehicles that run on such rails, be cheap, light and strong, not liable to wear the rail or offer any undue resistance to the motive power; it must be securely fixed and so arranged as to adapt itself without external assistance to the inflexions and movements met with in its passage round curves and over crossing-points, rail joints and various obstacles such as stones, &c., that may get into the groove or be met with on the ground when derailment takes place, and when once in place it must require a minimum of attention and be easily adjusted and finally it must be as durable as possible. These desiderata are secured by the arrangement of cleaning or clearing apparatus hereinafter described.

Referring to the annexed drawings, Figure 1 is a sectional elevation of the apparatus taken through the longitudinal axis of the groove of the rail. Fig. 2 is a sectional plan taken on the line 1—2 of Fig. 1. Fig. 3 is a transverse sectional elevation taken through the axis of the apparatus. Fig. 3^a shows a modification. Figs. 4 and 5 are two sectional elevations, taken in planes at right angles to each other, of an apparatus similar to that shown in Figs. 1, 2 and 3 but arranged in a slightly different way.

The arrangement comprises essentially a rigid stem *a* of iron fixed firmly to the vehicle, a cleaning or clearing instrument *b* of iron or

other suitable material running in the groove or hollow of the rail, and a helical steel spring *c* establishing an elastic or flexible connection between the parts *a* and *b*.

The stem *a*, screw-threaded at its upper end, passes freely through the supporting piece *d* to which it is fixed adjustably by means of the two nuts *e* and the washers *h*, *h'*. The support *d* may be of any form and composed of T, angle, or flat, iron, or iron or steel of other suitable section; it is fixed rigidly to the body of the vehicle preferably at a point which brings the cleaning or clearing instrument in front of and as near as possible to the point of contact of the front wheels with the rails in order to avoid as much as possible the tendency of such instrument to come out of the groove while passing round curves of short radius. But the position of this support *d* may be chosen if preferred so that the cleaning or clearing instrument *b* is either placed between the front and back wheels, or behind the latter.

Below the support *d*, the stem *a* is formed at its part *a'* with grooves into which are screwed a few of the spirals of a strong helical spring *c* the lower spirals of which are screwed into similar grooves formed in the end *b'* of the cleaning or clearing instrument *b*. The parts *a'* *b'*, thus connected together by means of the spring *c* constitute a cleaning or clearing arrangement the lower end of which can rise out of the groove of the rail when the resistance encountered by the part *b* is greater than that of the spring *c*. The dotted lines in Fig. 1 show the cleaning or clearing instrument *b* raised in a direction opposite to that of the motion of the vehicle shown by the arrow *x*.

The spring *c* may be arranged so as to utilize its compressive instead of its tensile action.

Fig. 3^a shows an arrangement in which the tension spring *c* is connected to an intermediate part *a''* which is connected by a compression spring *c'* to the stem *a'*. The height of the spring *c'* is determined by the maximum and minimum oscillations due to the springs of the vehicle at the point where the cleaning or clearing instrument *b* is fixed. In Figs. 4 and 5 the parts *a'* and *b'* are halved

together at the point where they join. They are, like those above described, connected together by the spring *c*, the ends of which are screwed into threads or grooves formed on the said parts.

In order to prevent the projection of mud into the spiral spring the latter may be covered with a flexible sheath *f* of vulcanized india rubber or other suitable material. The apparatus may also be provided with a suitable dirt or water guard.

The elastic connection which characterizes my invention may be arranged with a helical spring or with a pendant of elastic material such as india-rubber for example which, like the above described spring *c*, offers sufficient resistance not only to cause the cleaning or clearing instrument *b* to push before it the mud filling the groove of the rail but also to clear and drive out compacted earth or snow which however is comparatively seldom met with. Furthermore to enable the cleaning or clearing instrument to penetrate better and more easily into hard earth it may be formed as a wedge as shown in Figs. 1, 2 and 3, or as a spur, a plowshare, &c.

In Figs. 1, 3, 4 and 5 the cleaning or clearing instrument is shown as comprising a part *b* which moves in the groove of the rail and two side wings *g g'* which hang over the surface of the rail for the purpose of cleaning such surface at the same time as the groove, but to enable the instrument to adapt itself better to all the movements of the vehicle, the wings *g g'* may be omitted, for the surface of the rail is generally cleaned sufficiently by the sweepers, the wind, the passage of pedestrians and carriages, and even by the wheels of the vehicles which carry the cleaning and clearing apparatus. When however the wings *g g'* are considered necessary, they may be formed by means of a key or cotter *G* fixed in the stem of the cleaning

or clearing instrument as shown in Fig. 3^a. Furthermore the wings *g g'* or the key or cotter *G* as the case may be can be adjusted into such a position, especially during rain, as will prevent the collection of dirt. In all cases the cleaning or clearing instrument *b* and the wings *g g'* should be of a material softer than the rail in order that they may wear rather than the rail.

The cleaning or clearing instrument may be terminated by a flexible net of india rubber or an iron trellis-work, &c., or a flexible steel blade which removes more or less completely all traces of dust from the rail.

I claim—

1. In combination with a support *d* attached to the body of a vehicle, a screw threaded stem *a* which passes through the said support and is grooved to receive a helical spring, nuts *e e'* which engage the threads of the said stem to provide for its vertical adjustment, a helical spring *c* which fits at one end into the grooves *a'* of the said stem, and a rail cleaning head *b* having an upwardly extending part *b'* grooved to receive the coils of the lower part of the said spring substantially as and for the purpose set forth.

2. In a cleaning or clearing apparatus for hollow or grooved tramway rails, the support *d* secured to the vehicle, the stem *a* secured to said support, the cleaning or clearing instrument *b*, the said stem and the said cleaning or clearing instrument being halved together at the parts *a' b'* in a plane transverse to the road, and connected together by the spring *c* substantially as described, and illustrated in the drawings.

In witness whereof I have hereunto set my hand in presence of two witnesses.

DOMINIQUE CÉSAR LE BRAS.

Witnesses:

ROBT. M. HOOPER,
GEORGE LAURENS.