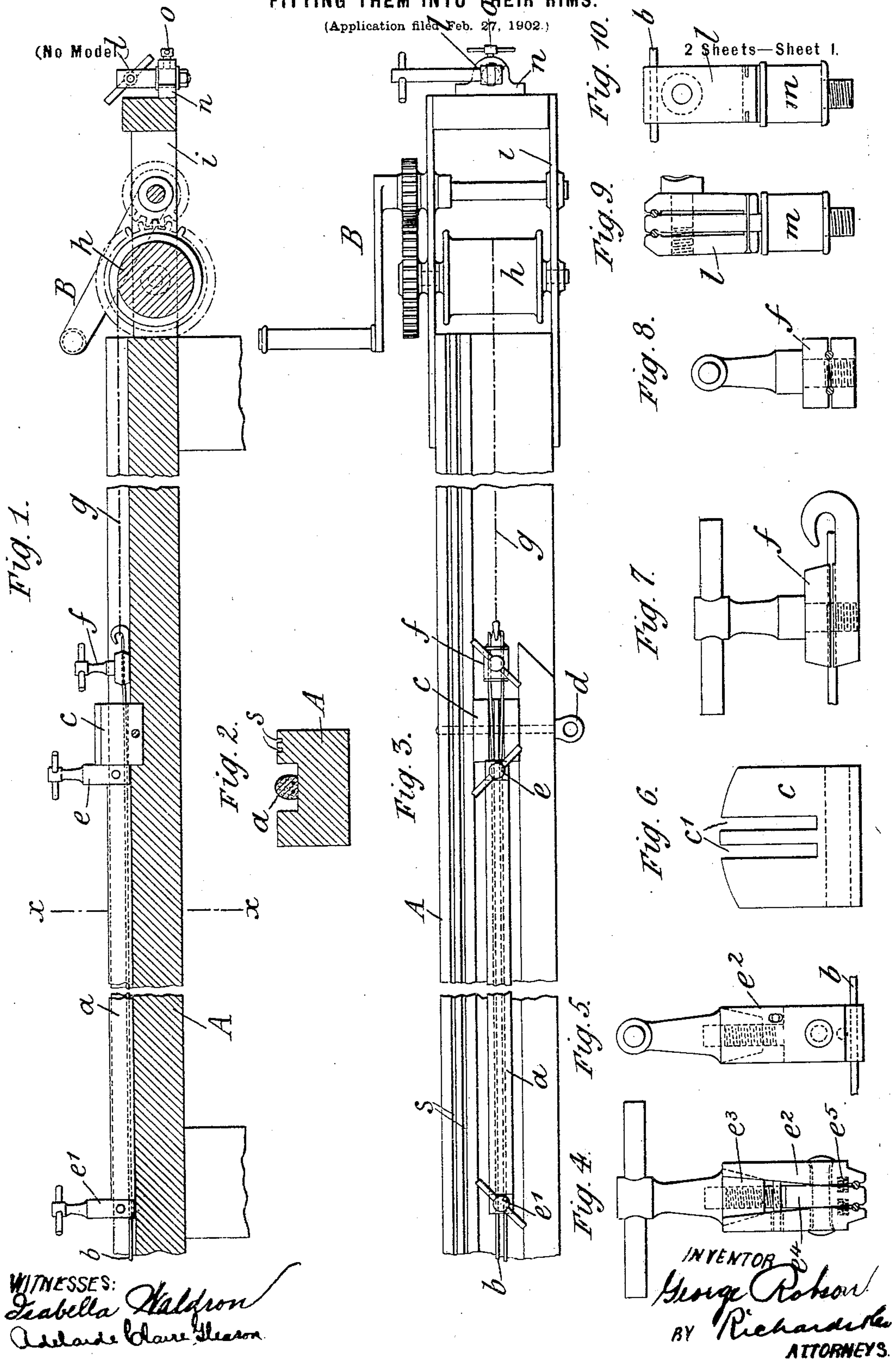


G. ROBSON.

MEANS FOR LONGITUDINALLY COMpressing WIRED ON CUSHION TIRES BEFORE FITTING THEM INTO THEIR RIMS.

(Application filed Feb. 27, 1902.)



No. 704,214.

Patented July 8, 1902.

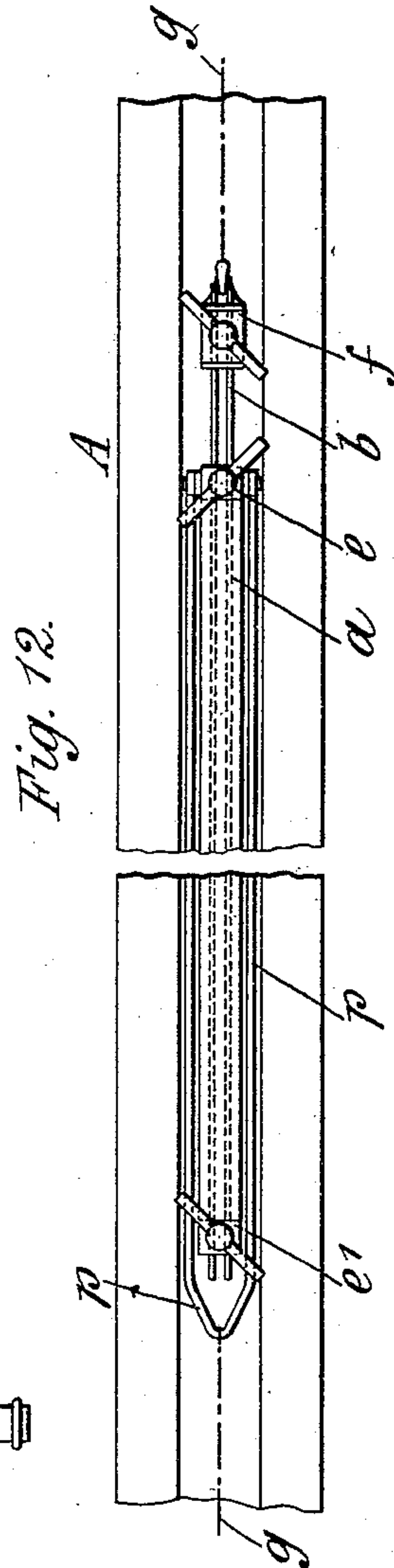
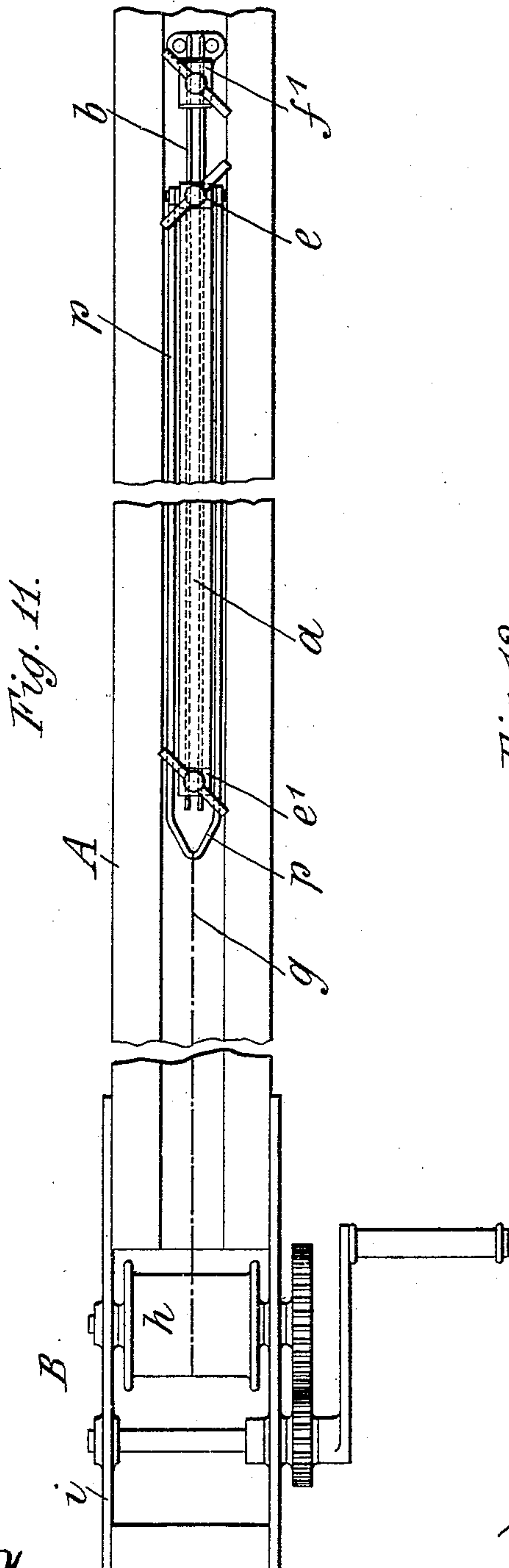
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(No Model.)

2 Sheets—Sheet 2.



WITNESSES
Isabella Oaldryn
Adelaide Claire Oaldryn

INVENTOR.
George Robson
BY *Richardson*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE ROBSON, OF LONDON, ENGLAND.

MEANS FOR LONGITUDINALLY COMPRESSING WIRED-ON CUSHION-TIRES BEFORE FITTING THEM INTO THEIR RIMS.

SPECIFICATION forming part of Letters Patent No. 704,214, dated July 8, 1902.

Application filed February 27, 1902. Serial No. 95,917. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROBSON, coach-wheelwright, a subject of His Majesty the King of Great Britain and Ireland, residing at 4½ Marshall street, Golden Square, London, England, have invented certain new and useful Means for Longitudinally Compressing Wired-on Cushion-Tires before Fitting Them to Their Rims; and I do hereby 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.

This invention relates to those rubber cushion-tires which are retained upon their rims by coupling together, as by screw-sleeve connections, the ends of the wires threaded through them. It is necessary that tires of this class or type should be in a state of longitudinal compression when on their rims, and heretofore this longitudinal compression of the rubber has usually been effected by hand, the protruding ends of the wires at one extremity of the tire being gripped in a vise, a clamp placed on the wires at the other extremity of the tire, and the rubber then grasped by the hands of the workman or workmen and forcibly pulled against said clamp to longitudinally compress it. This operation is slow and tedious, and more especially in the case of tires of large size both difficult and exhausting.

According to my invention I tightly fix a clamp to the wires protruding from one end of the tire to be compressed and loosely fit a clamp to the wires at the other end thereof, so as to be slidable relatively to said wires. I place the tire in a trough or channel, (such as is used to hold the tire while the wires are threaded through it,) at or near the end of which a windlass is conveniently mounted, and by means of a detachable connection between the windlass-chain and one of said clamps I draw this clamp toward the other, which latter is held up against the tire to receive the pressure by a stop or holding device. When the tire has been sufficiently compressed between the clamps, the loosely-fitted clamp is tightened up upon the wires, and the windlass-chain and stop device may be disconnected or removed from the tire now held compressed

between the clamps and the ends of the tire-wires gripped in a vise for cutting off, tapping, and uniting together. The detachable connection between the windlass-chain and one of the clamps, as above mentioned, may be provided by arranging the tire in the trough with the loosely-fitted clamp nearest the windlass and securing the chain of the latter by means of a clamp to the wires protruding through such loosely-fitted clamp, so as to draw the tightly-fixed clamp toward the loosely-fitted clamp, which is held against the rubber tire by a suitable stop or holder, the tire-wires themselves in this case constituting a part of the connection between the windlass-chain and the tightly-fixed clamp, or the tire being arranged in the trough with the tightly-fixed clamp nearest the windlass the chain of the latter may connect, as by a stirrup-piece, with the loosely-fitted clamp to draw the same toward the tightly-fixed clamp held up against the tire by a clamp fixed to the trough and secured to the tire-wires protruding past the loosely-fitted clamp, the said clamp fixed to the trough in conjunction with the tire-wires then providing the stop or holding device to the tightly-fixed clamp.

If desired, I may arrange a windlass at either end of the trough or channel and suitably connect the chain of one windlass, as by a stirrup-piece, with the loosely-fitted clamp above mentioned, the chain of the other windlass being connected with the wires protruding through said loosely-fitted clamp, so that the tightly-fixed and loosely-fitted clamps between which the tire is compressed may be drawn toward one another simultaneously.

To economize labor as much as possible, I prefer to fit the vise before referred to in which the wires of the compressed tire are held to be cut off and tapped at the end of the channel or trough. The tire will not then need to be lifted out of the trough or channel for the cutting and tapping operations, but may simply be drawn along the trough until the wires reach the said vise.

In the annexed drawings, in which similar letters refer to corresponding parts in all the figures, Figure 1 is a sectional side elevation of means for carrying out my invention. Fig. 2 is a cross-section on line *x x*, Fig. 1. Fig.

3 is a plan of Fig. 1. Figs. 4 to 10 are details, and Figs. 11 and 12 are plan views showing slight modifications of the means illustrated in Figs. 1, 2, and 3.

5 Referring to Figs. 1, 2, and 3, A indicates an ordinary trough or channel, such as is used to hold the tire *a* while the wires *b* are threaded through it, and *c* is a stop detachably fixed across the said trough by the pin
10 *d*, said stop being provided with slots or grooves *c'*, Fig. 6, through which the wires of the tire may pass freely. The tire *a* to be compressed is laid in the trough A, the wires *b* protruding from one end passing
15 through the grooves of the stop *c*. Between this stop and the front end of the tire I interpose a clamp *e*, loosely fitted on the wires *b*, so as to be slidable relatively thereto, and on the wires protruding from the rear end of
20 the tire I tightly fix the clamp *e'*. These clamps may be of any suitable construction, and a convenient arrangement is shown in the detached views Figs. 4 and 5, the jaws *e²* being gripped upon the wires by screwing
25 down the cone *e³* upon the screwed stem, which extends upward from the central member *e⁴* of the clamp, springs *e⁵* opening the jaws when the cone *e³* is unscrewed.

Upon the front ends of the wires *b* a clamp
30 *f* (shown detached in Figs. 7 and 8) is firmly secured, this clamp carrying a hook to which is attached one end of the chain *g*, whereof the other end is secured to the barrel *h* of the windlass B, mounted in a bracket or frame *i*
35 at the front end of the trough. On rotating the windlass to tighten the chain the clamp *e'* (which, as before mentioned, is tightly fixed upon the wires *b*) is drawn by said wires toward the loosely-fitted clamp *e*, through which
40 the wires slide freely and which is held up against the tire to receive the pressure by the stop *c*, the tire *a* being thus compressed longitudinally between the clamps to the desired extent. When sufficiently compressed, the
45 clamp *e* is tightened up, so as to firmly grip the wires. The clamp *f* may then be detached, the stop *c* removed from the trough, and the compressed tire drawn along the latter to the vise *l*, in which the ends of the wires are
50 gripped to be cut off and tapped. The windlass-barrel may be furnished with a ratchet-wheel and pawl to prevent its running back. To facilitate bending the compressed tire into a circle in order to unite the tapped ends of
55 the wires by the usual sleeves, I preferably mount the said vise *l* upon a stem *m*, Figs. 9 and 10, which fits freely within the socket-piece or holder *n*, secured to the front of the windlass-bracket, and which is fixed in the desired position by the clamping-screw *o*. A
60 portion of one of the sides of the trough is cut away toward the fore end, as clearly seen in Fig. 3, so that the clamping-screw *o* being loosened to free the vise *l* the tire may be
65 drawn off the trough or channel sidewise, the vise *l* turning with it, and may then easily be

bent around under the vise into a circle and the ends of the wires united together. The grooves *s*, Figs. 2 and 3, in one of the trough sides will be found useful for holding the
70 wires *b* straight for marking off to the proper length previous to inserting them in the tire.

In the modification Fig. 11 the tire is placed in the trough A with its tightly-fixed clamp *e'* nearest the windlass, and the chain *g* of the
75 latter is connected by the stirrup-piece *p* with the loosely-fitted clamp *e*. The ends of the wires *b* protruding past the clamp last mentioned are tightly gripped in the clamp *f'*, which is firmly secured to the trough A. In
80 this arrangement the loosely-fitted clamp *e* is drawn, by means of the windlass, toward the tightly-fixed clamp *e'*, which is held up against the end of the tire by reason of the wires *b* being gripped by the fixed clamp *f'* aforesaid. 85

The modification Fig. 12 resembles Fig. 11, except that a windlass is provided at each end of the trough A, the wires *b* in lieu of being held by the clamp *f'* secured to the
90 trough being gripped by the clamp *f*, to which the chain *g* of one windlass is attached, as in the arrangement Figs. 1 and 3. On rotating the windlasses both clamps *e* and *e'* will be simultaneously drawn together to compress the tire between them, or with this ar-
95 rangement either windlass may obviously be rotated alone while the barrel of the other is held stationary, as by a ratchet-wheel and pawl. For example, the windlass at the right-hand end of the trough being held fixed the
100 windlass at the other end may be rotated to draw the loose clamp *e* along the wires toward the tightly-fixed clamp *e'*. The arrangement then practically becomes that shown in Fig. 11, or the windlass at the left-hand end of
105 the trough being held stationary the other windlass may be rotated to compress the tire between the clamps in the manner first described with reference to Figs. 1 and 3, the stirrup-piece *p* performing the function of the
110 stop *c* to hold the clamp *e* up against the tire.

What I claim, and desire to secure by Letters Patent of the United States, is—

In apparatus for the purpose set forth, comprising a trough or channel wherein the tire
115 is compressed, the combination of a trough A whereof one of the sides is removed or cut away toward one end, and a vise or clamp revoluble about a vertical axis mounted at such end of the trough, whereby the tire after
120 compression may be drawn along the trough to said vise and its wires having been gripped therein may be drawn sidewise from the trough, the vise turning with it, substantially as described and for the purpose specified. 125

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

GEORGE ROBSON.

Witnesses:

A. E. ALEXANDER,
A. DIGGLE.