

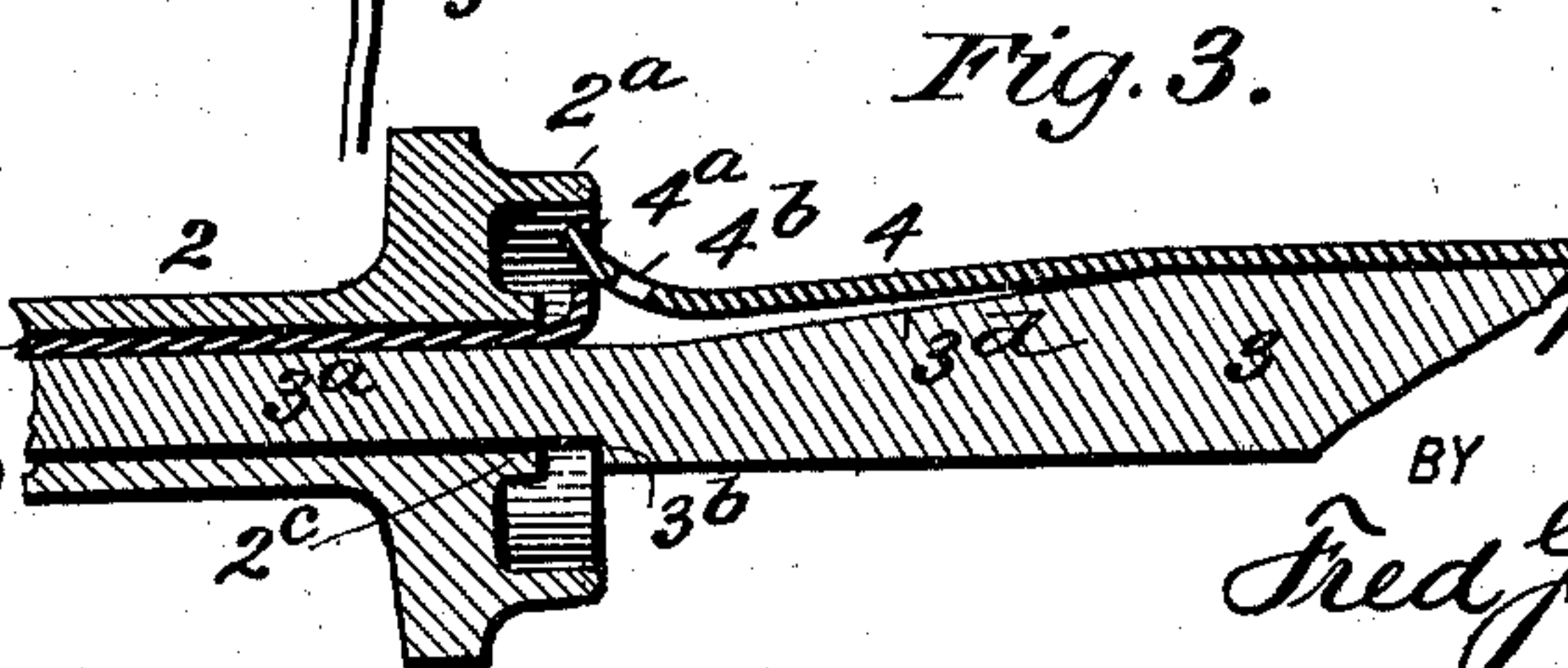
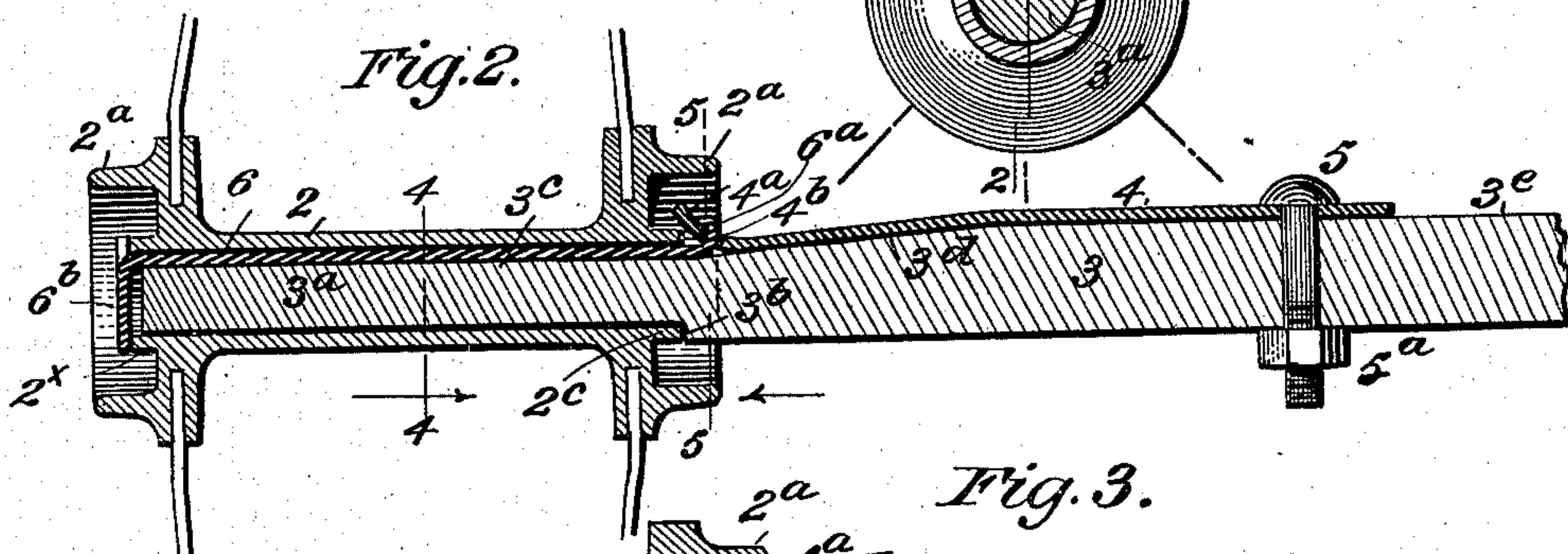
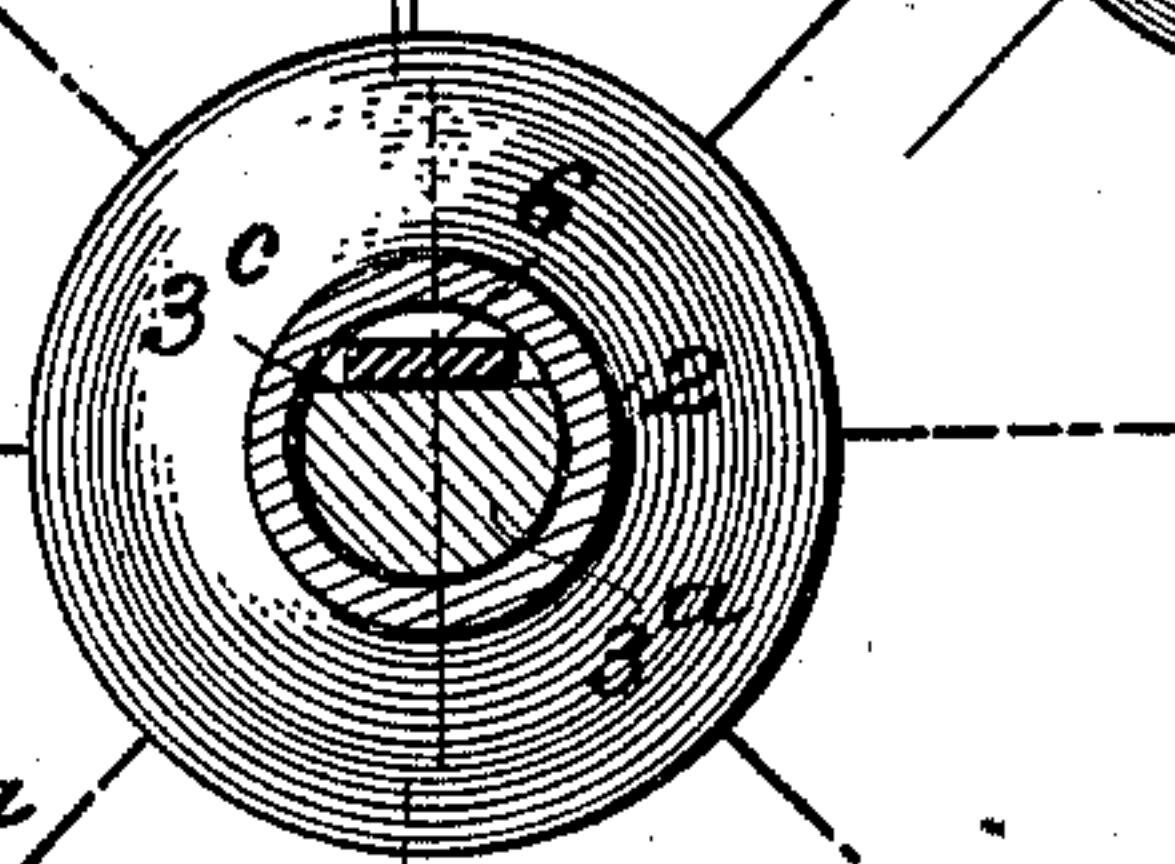
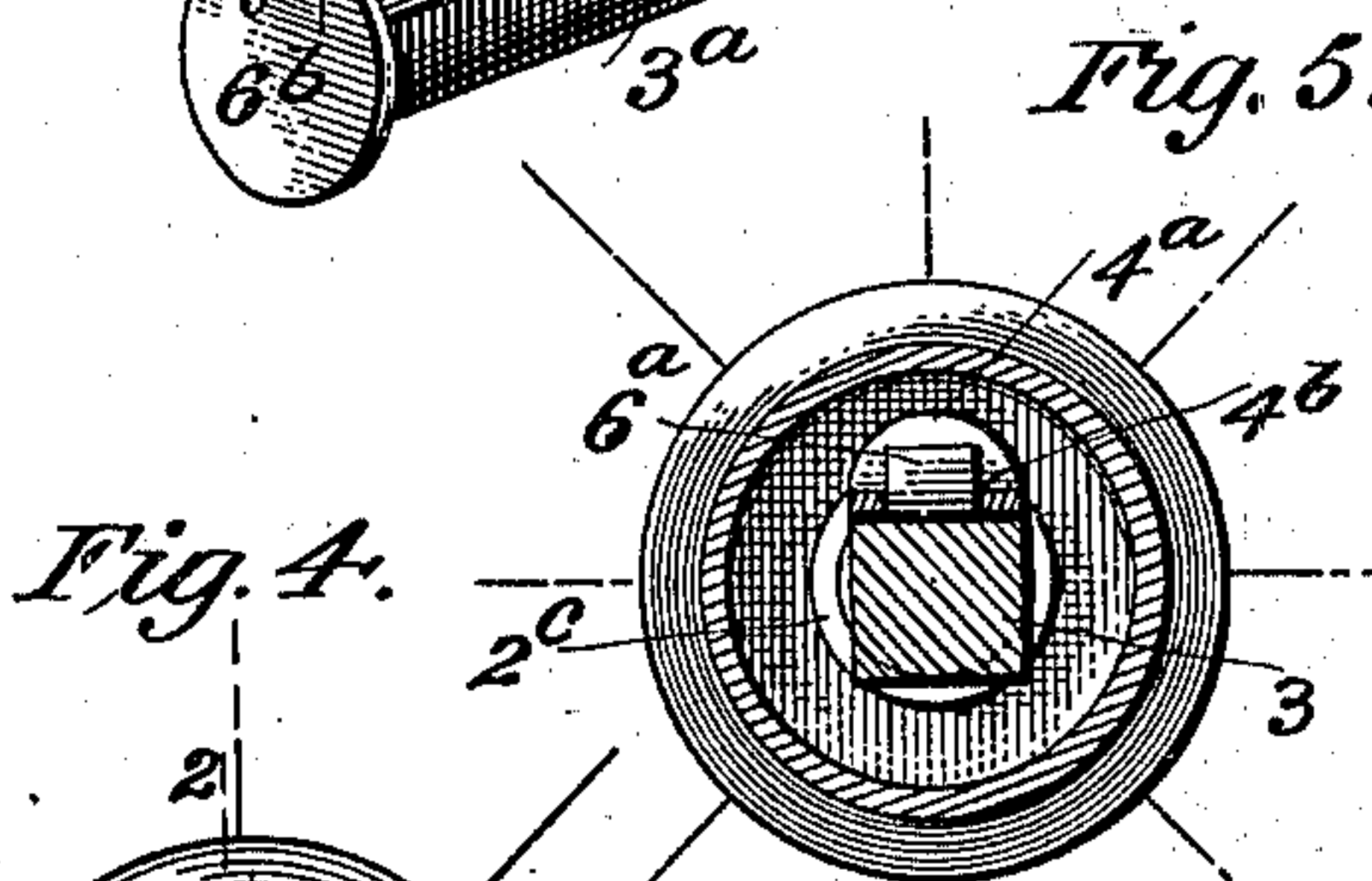
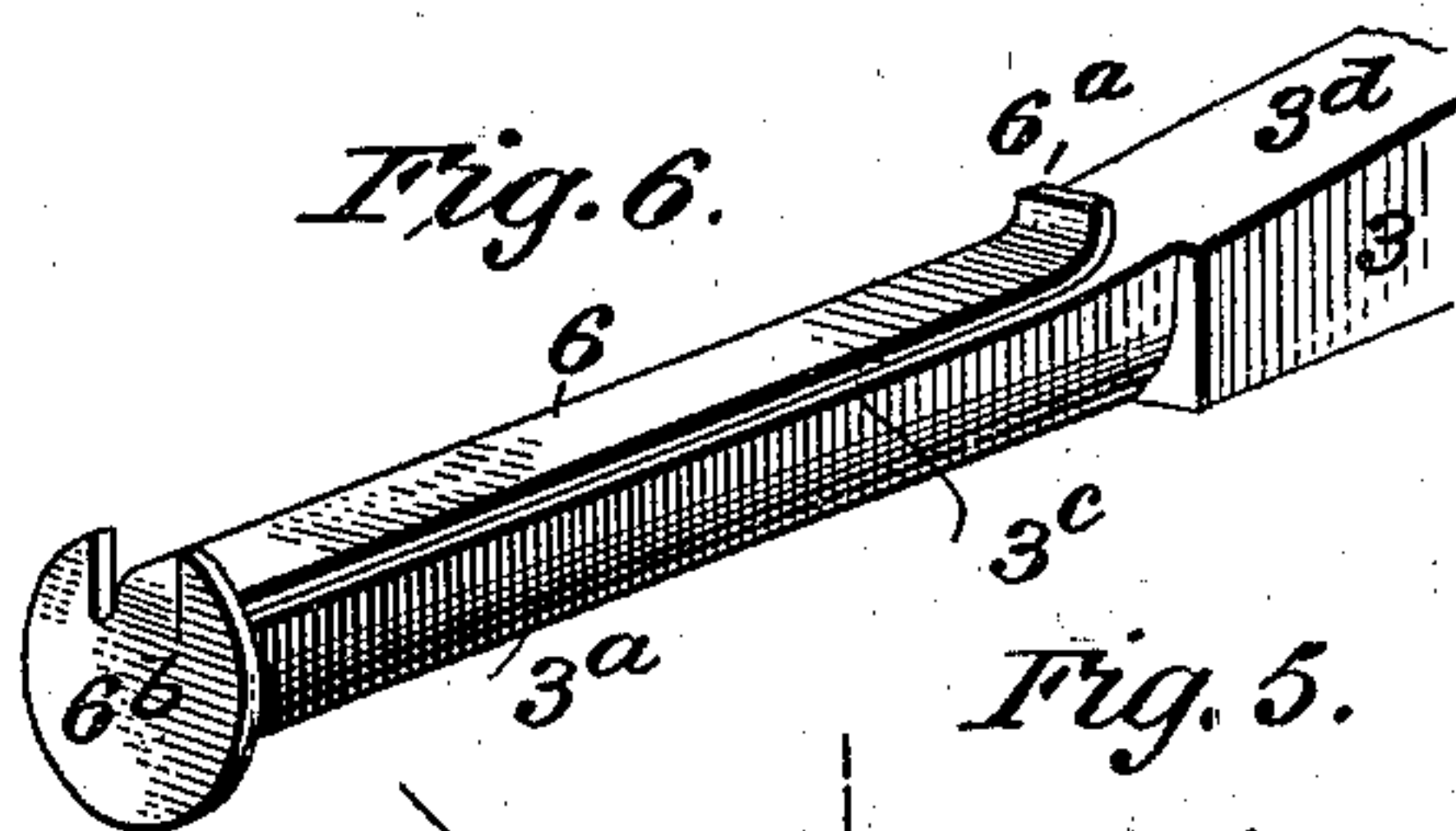
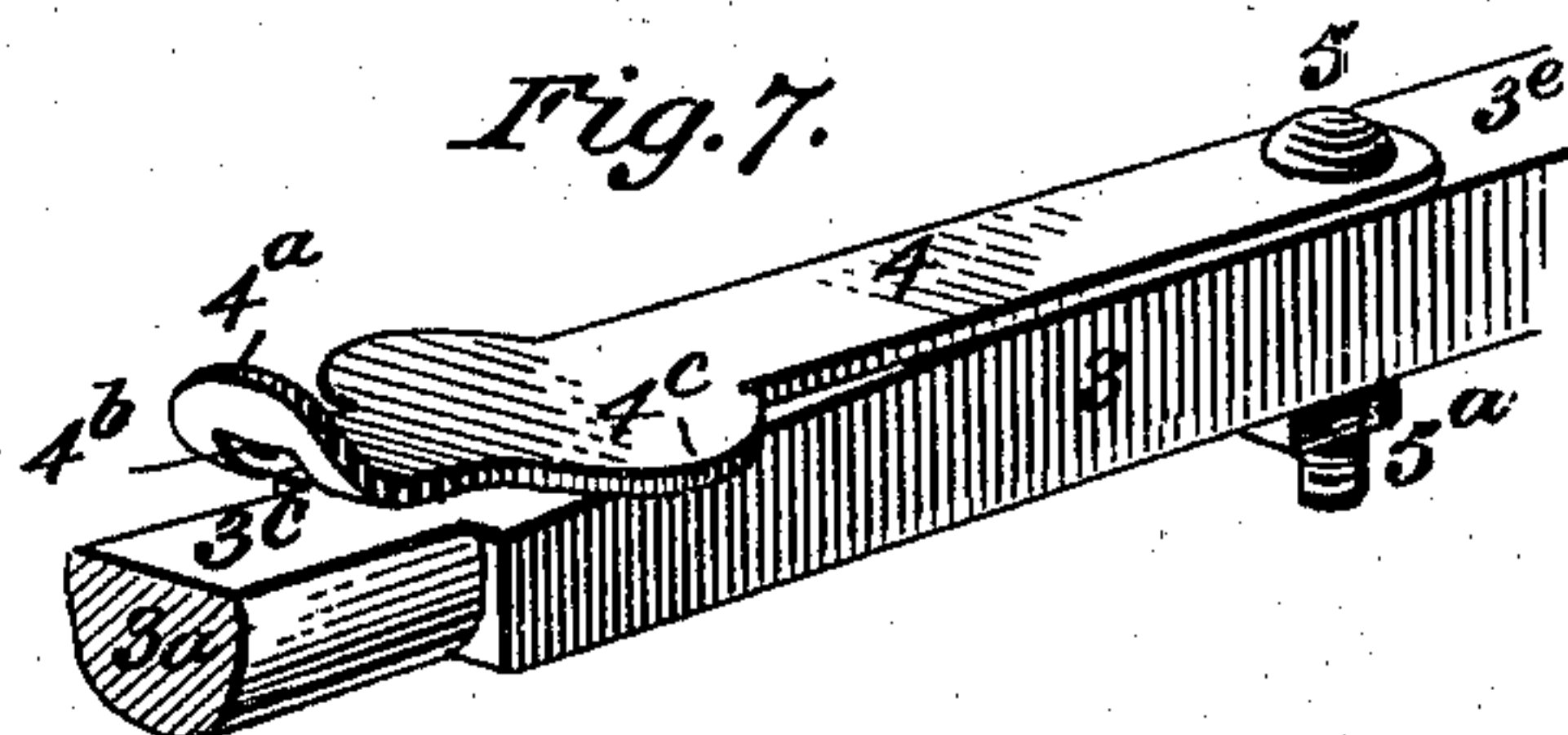
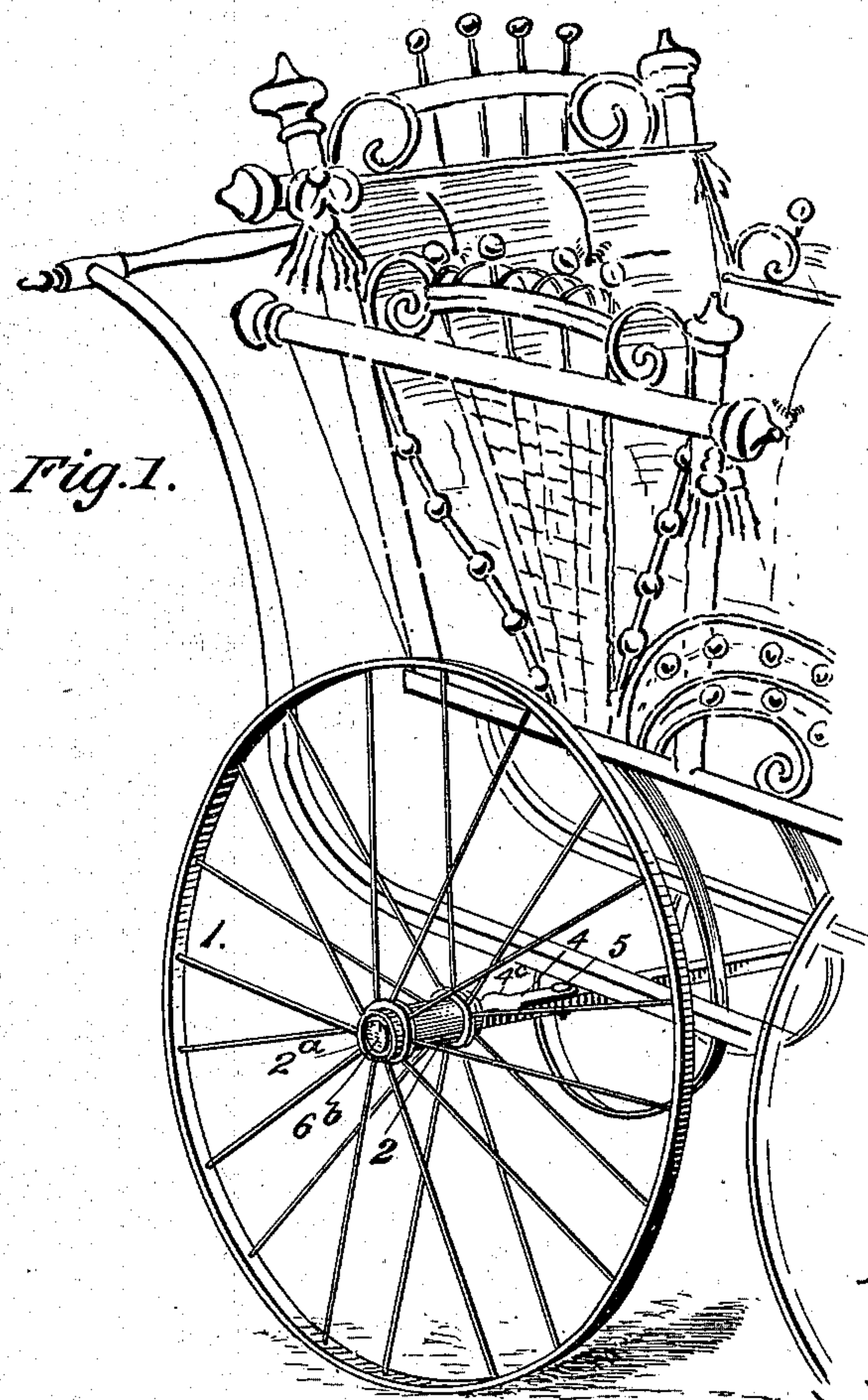
No. 681,120.

Patented Aug. 20, 1901.

W. HOERGER.
WHEEL AXLE.

(Application filed Nov. 30, 1900.)

(No Model.)



WITNESSES:

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WILLIAM HOERGER, OF FARIBAULT, MINNESOTA.

WHEEL-AXLE.

SPECIFICATION forming part of Letters Patent No. 681,120, dated August 20, 1901.

Application filed November 30, 1900. Serial No. 38,209. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOERGER, residing at Faribault, in the county of Rice and State of Minnesota, have invented certain new and useful Improvements in Wheel-Axles, of which the following is a specification.

This invention relates to improvements in wheel-axes, and more particularly has for its purpose to provide an improved means for holding on the wheels of baby-carriages and like perambulators without the use of the common axle-nut.

My invention in its generic nature comprehends a threadless axle-spindle, a detent adapted to be fixedly secured thereon, and a key device adapted to automatically interlock with the said detent when the wheel is slid upon the spindle and hold the wheel from sliding off said spindle.

In its more complete nature my invention embodies certain details of construction and peculiar combinations of parts, all of which will hereinafter be fully described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a view illustrating my invention as in use. Fig. 2 is a longitudinal view of one end of the axle, taken substantially on line 2 2 of Fig. 4. Fig. 3 is a similar view illustrating the manner in which the key engages the detent when the wheel is slipped on the axle-spindle. Fig. 4 is a cross-section on the line 4 4 of Fig. 2. Fig. 5 is a similar view on the line 5 5 of Fig. 2. Fig. 6 is a detail view of the key and axle-spindle, and Fig. 7 illustrates the detent and that of the axle upon which it is secured.

Referring now to the accompanying drawings, in which like numerals indicate like parts in all the figures, 1 designates the wheel, which is of the ordinary construction, it having the usual straightway hub 2, formed at each end with the usual annular rim 2^a, as best shown in Fig. 2.

3 designates the axle, one end of which is reduced, as usual, to form the spindle 3^a, which in my construction is, however, made slightly shorter than the length of the spindle-fitting hub 2 and without the threaded or common nut-receiving end. At the merg-

ing of the spindle 3^a and the axle 3 proper said axle has a shoulder 3^b to engage the end 2^c of the hub and prevent forward thrust or binding of the spindle with the hub. One face (preferably the upper) of the axle-spindle is flattened, as indicated by 3^c, and the said flattened part 3^c merges with an upwardly-inclined surface 3^d, that terminates with the top 3^e of the axle. (See Figs. 2 and 3.)

4 designates the detent-holding member, which consists of a flat spring-metal plate detachably held upon the upper face of the axle at a suitable point adjacent the spindle end by the bolt 5 and nut 5^a, devices that pass through the axle, as shown. The member 4 is of such length and so disposed relatively to the spindle that its outer end will project under the adjacent rim 2^a, the purpose of which will presently appear. The tension of the spring-plate 5 is such as to normally force its outer end down against the axle, and the said outer end 4^a curves upward to facilitate the automatic interlocking of the key, presently described, therewith when the wheel and the key are slid onto the spindle, as indicated in Fig. 3. The end 4^a has a slot 4^b, and at a point near the end 4^a the plate has lateral ears or lift portions 4^c to facilitate the raising of the spring-plate when it is desired to disengage said plate from the key, as will presently be explained.

6 designates the key which acts as the substitute for the ordinary nut. This key consists of a shank having a length somewhat greater than that of the wheel-hub. The inner end of the shank terminates in a turned-up locking-lip 6^a for engaging the slotted end of plate 4, while the outer end is bent down at right angles to form a cap member 6^b, said end being enlarged to a diameter equal that of the annular rim 2^x of the hub.

From the foregoing description, taken in connection with the drawings, it is thought the advantages and operation of my invention will be readily understood.

In the assembling of the parts the wheel, together with the key 6, is slipped on the spindle, and as the end 6^a of the key engages the end of spring-plate 4 sufficient end pressure is applied to the wheel and the key 6 to cause the key to lift the end of plate 4 and its end

6^a to interlock with plate 4, sufficient play under the annular hub-rim 2^a being provided to allow for such automatic interlocking. When the key is thus interlocked with the plate 4, the wheel will be securely held on the spindle from endwise movement and at the same time held to rotate freely without any increase of friction of the several parts. The cap member 6^b not alone acts the same as an ordinary nut, but also as a dust-guard to keep out dirt and sand from the spindle-bearing. By arranging the two members 4 and 6 so that their interlocking points come in a plane inside the inner run of the hub danger of meddling with or accidental contacting of some extraneous body therewith is reduced to the minimum. To remove the wheel, it is only necessary to press up the plate 4 to disengage it from the key, an unnecessary lift of the free end of the plate 4 being made impossible by reason of its engaging with the hub-rim 2^a during the operation of disconnecting the two parts.

While I have shown and described my improvement as especially adapted for baby-carriages, it is obvious the same may be used on larger-sized vehicles, if desired.

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

1. As an improvement in vehicle-axes, the combination with the wheel-hub and the axle, said axle having a threadless spindle, said spindle having a longitudinally-extending surface in a plane inside of its bearing-surface, and a detent held upon the axle having its locking portion adjacent the inner end of the spindle, and a key insertible through the wheel-hub from the front end and to engage the longitudinal seat in the spindle, whereby to lie in a plane inside the bearing-surface of the spindle, said key having its outer end formed with a member adapted to overlap the outer hub and spindle ends, and its inner end formed to automatically interlock with the

detent on the axle, all being arranged substantially as shown and for the purposes described.

2. The combination with the wheel and the axle, said axle having a spindle end of less length than the hub and non-threaded; of a detent detachably held on the axle with its locking end held adjacent the inner end of the axle-spindle and a key insertible through the hub, having its outer end formed to project over the outer end of the wheel-hub, and its inner end constructed to automatically engage and interlock with the locking end of the detent, substantially in the manner shown and described.

3. The combination with the wheel-hub and the axle, said axle having a spindle formed with a longitudinally-extending flat key-receiving portion; of a flat spring member 4, said member having its inner end turned up and slotted, and the key 6, having a pendent cap member 6^b, and an upturned locking-flange, all being arranged substantially as shown and described.

4. As an improvement in vehicle-wheels, the combination with the wheel having its hub provided on the inner end with an outwardly-extending annular rim; of the axle 3, having a spindle 3^a, provided with a flat surface 3^c, said axle having an inclined surface 3^d, merging with the surface 3^c; of the spring-plate 4, detachably held on the axle with its free end resting on the inclined axle-surface 3^d, said free end terminating in a slotted upturned lip 4^a, and the key 6, adapted to seat in the axle-spindle surface 3^c, said key having a lip 6^b, to interlock with the lip 4^a, and a cap-plate 6^a, the interlocking members 4^a and 6^b, being disposed in a plane under the hub-rim, all being arranged substantially as shown and described.

WILLIAM HOERGER.

Witnesses:

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