

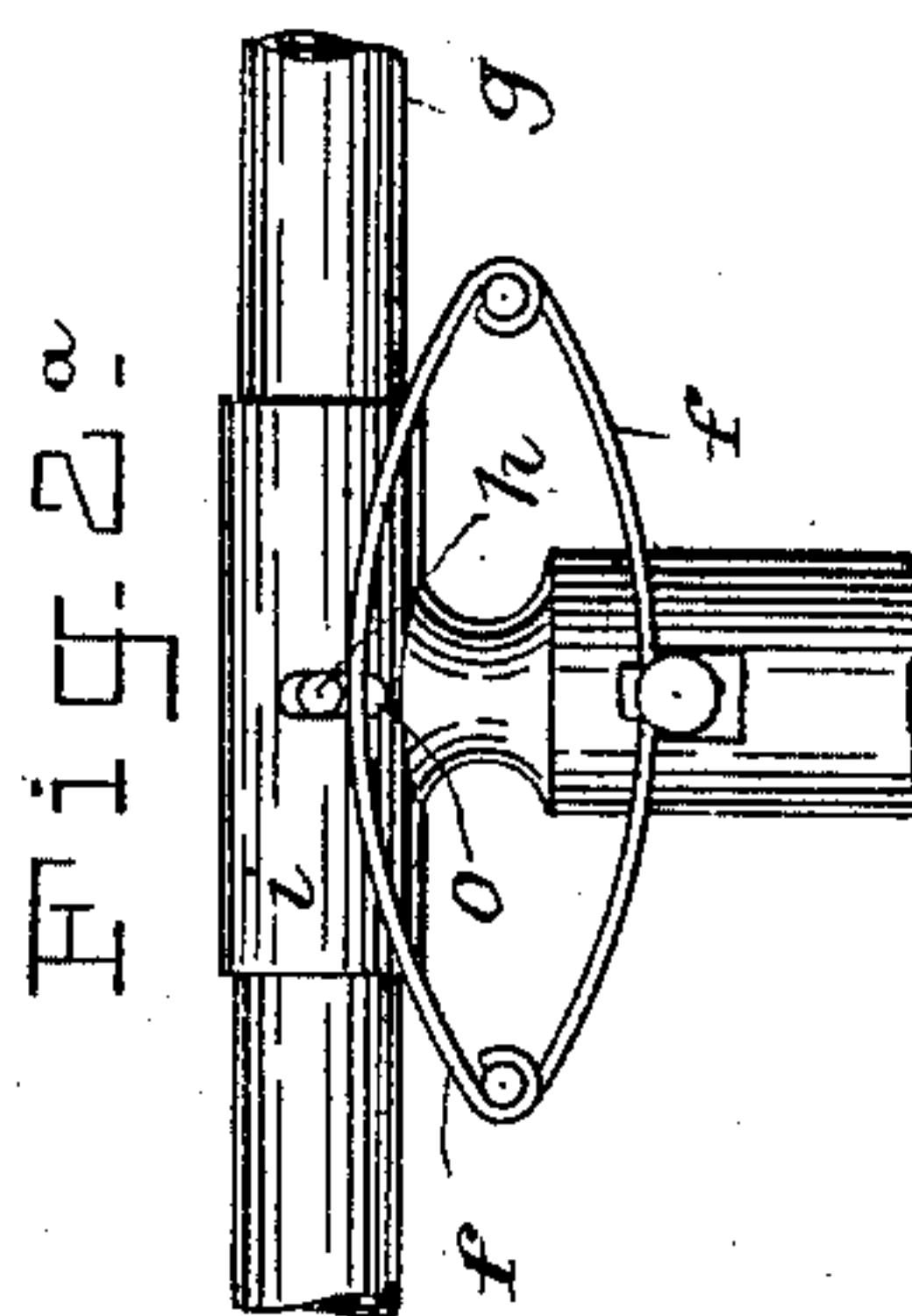
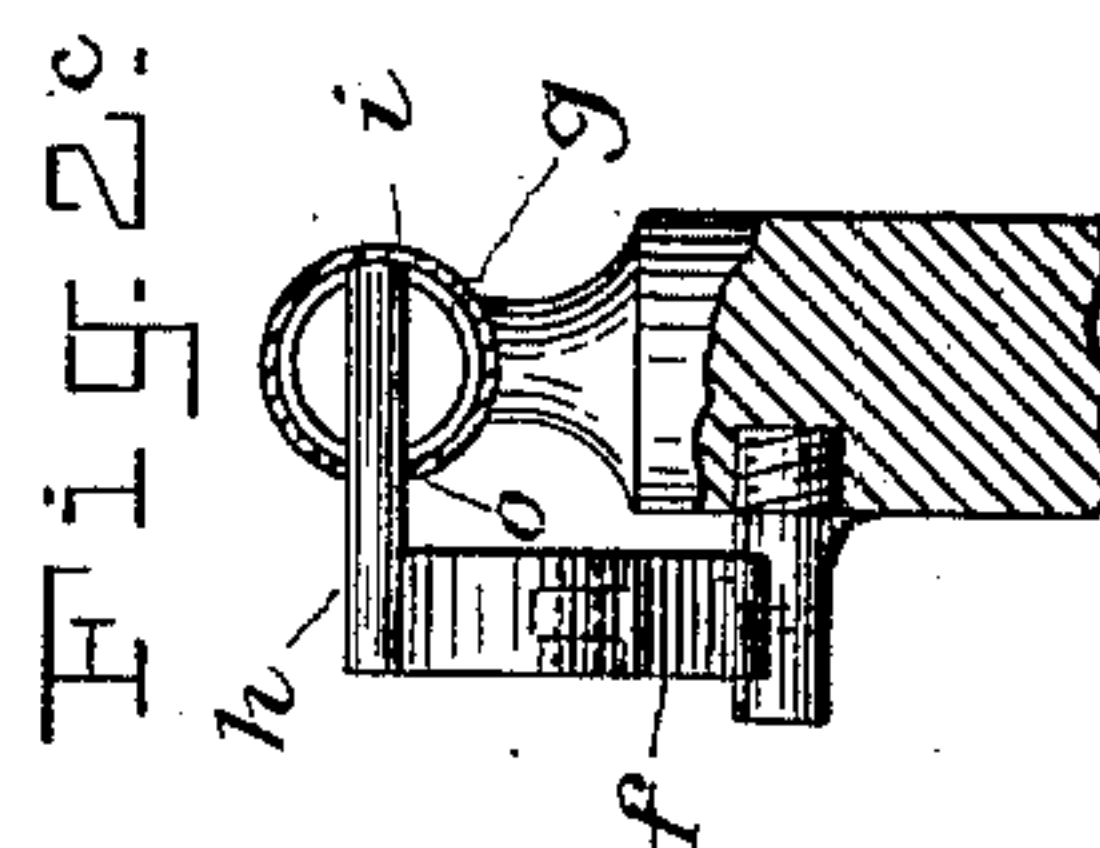
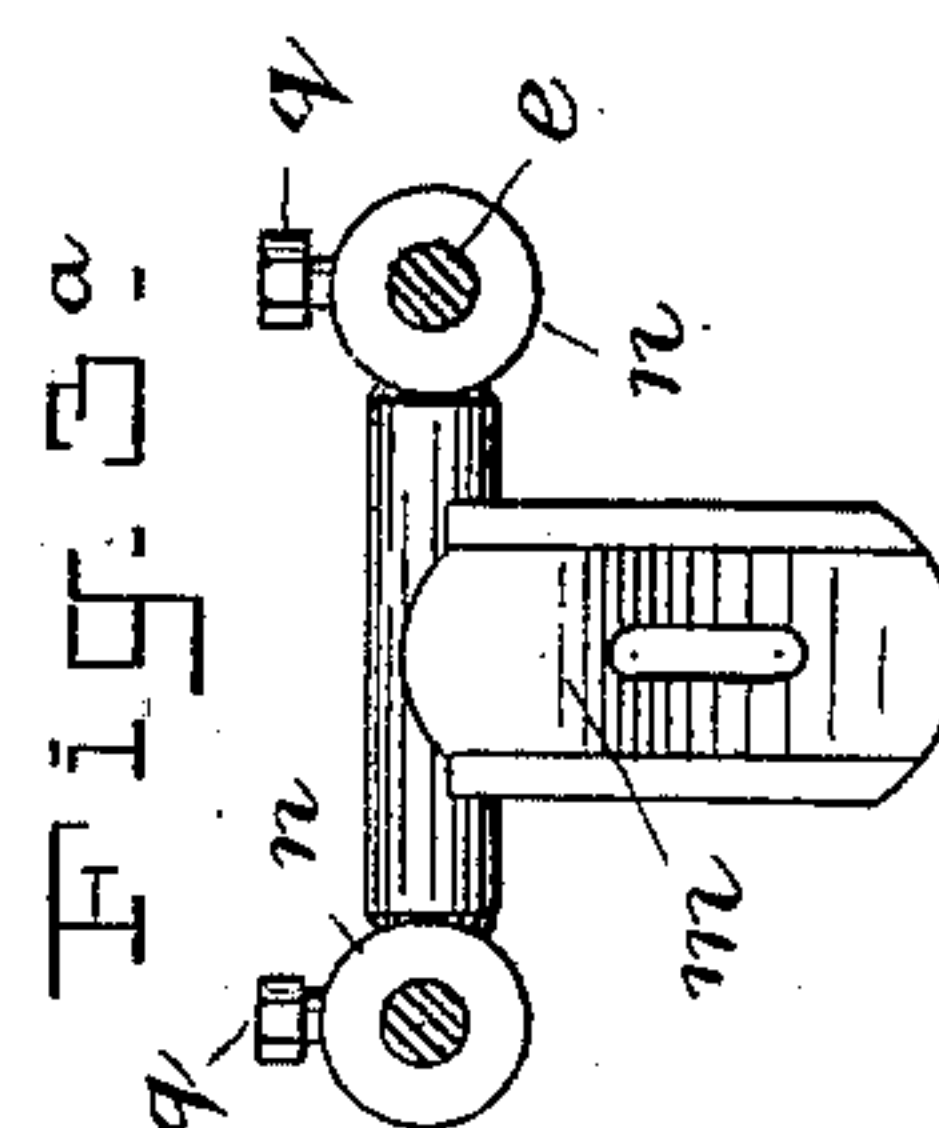
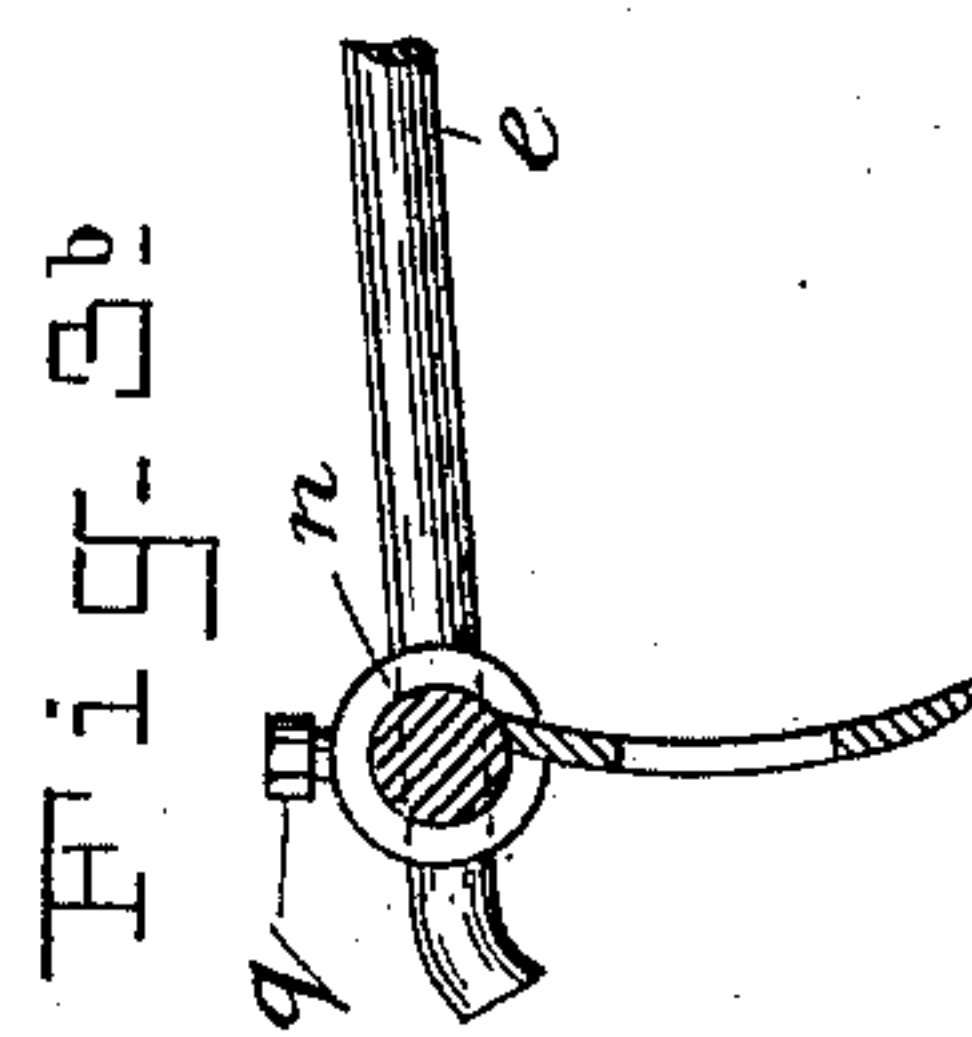
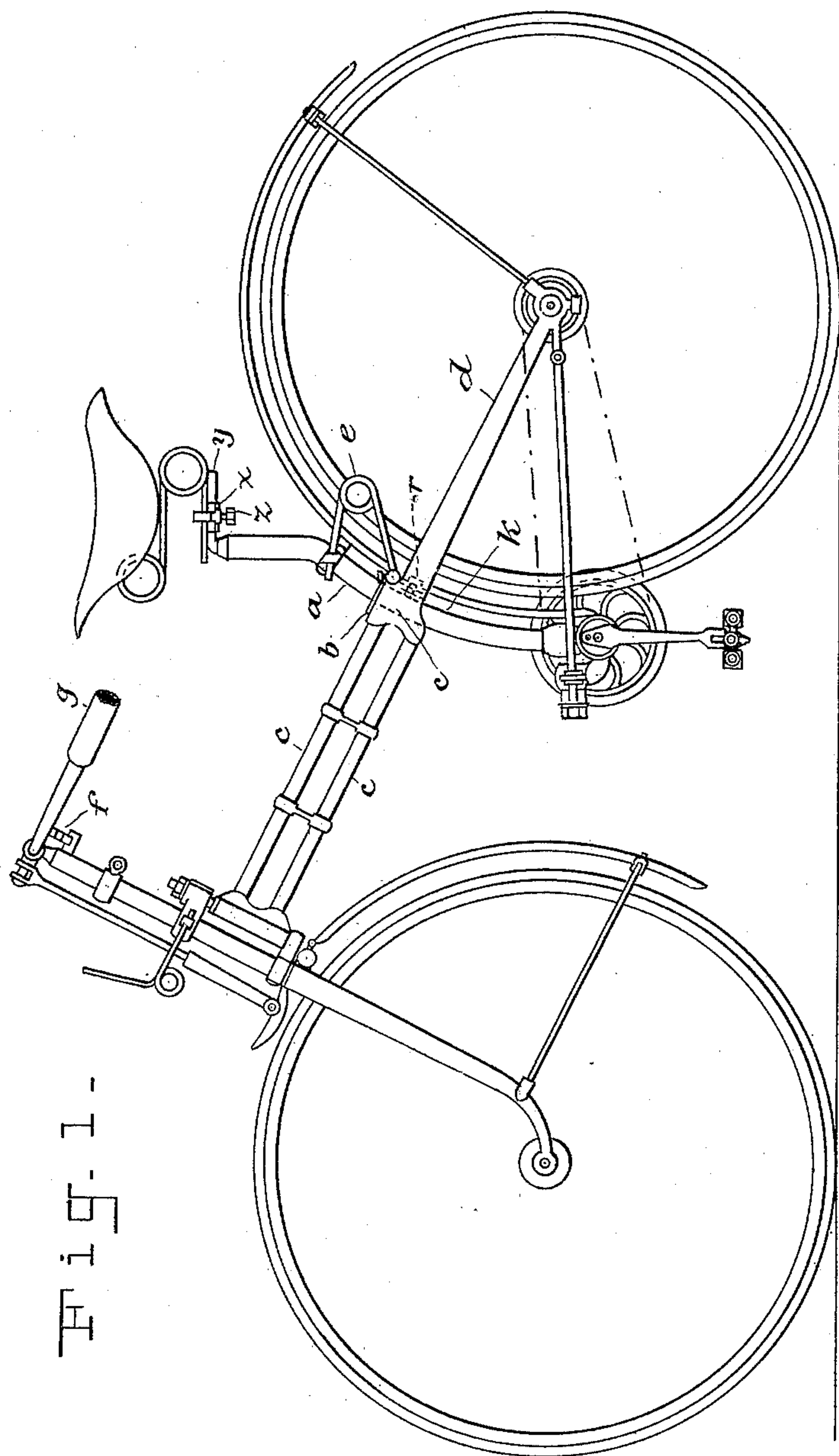
(No Model.)

2 Sheets—Sheet 1.

V. KARMIN.
SAFETY VELOCIPED.

No. 465,861.

Patented Dec. 29, 1891.



WITNESSES:

E. B. Bolton

C. S. C. Sampson.

INVENTOR

Valerian Karimov

BY

Richardson
per *Richardson*
ATTORNEYS

(No Model.)

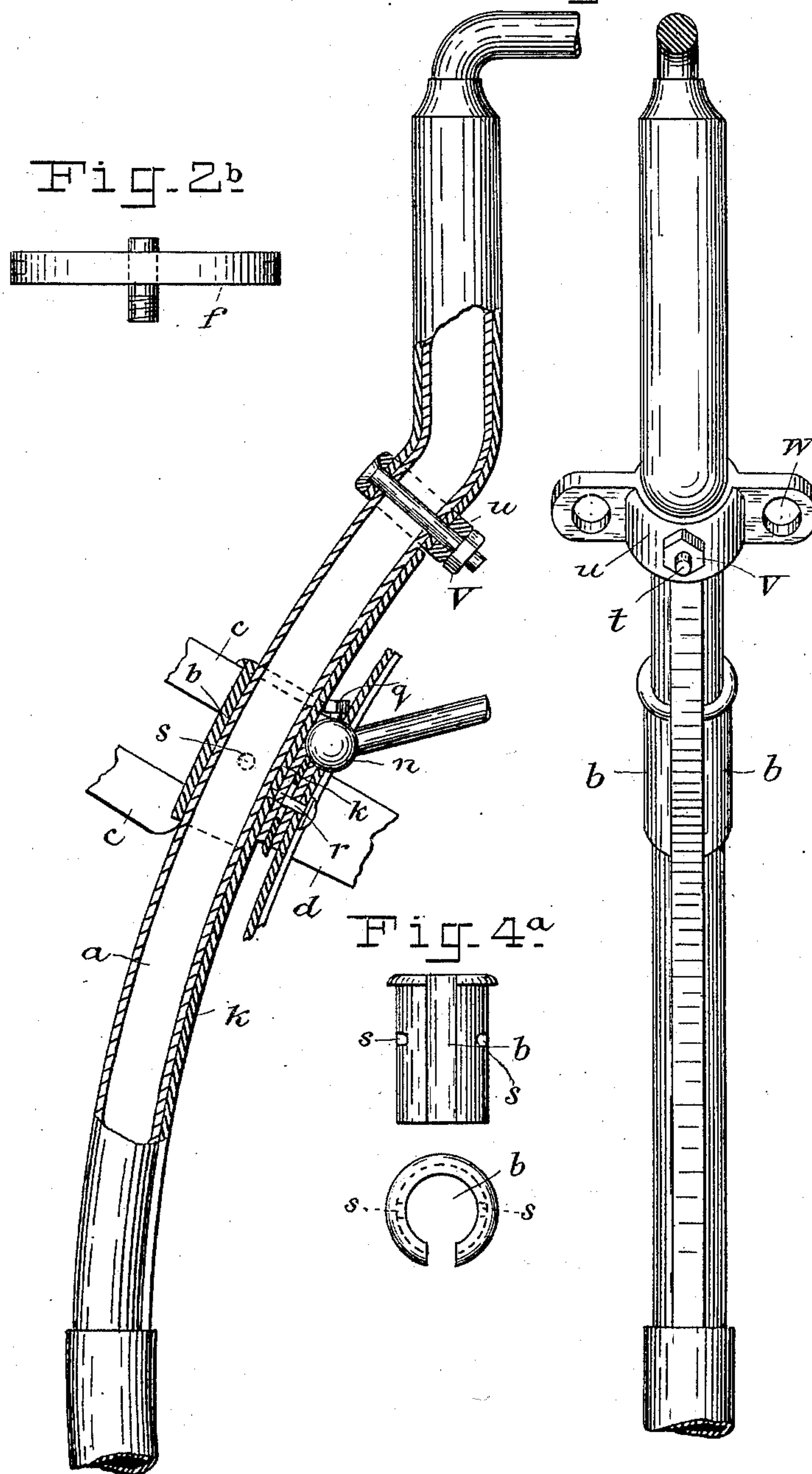
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Fig. 5.



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UNITED STATES PATENT OFFICE.

VALERIAN KARMIN, OF ST. PETERSBURG, RUSSIA.

SAFETY VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 465,861, dated December 29, 1891.

Application filed November 22, 1890. Serial No. 372,315. (No model.)

To all whom it may concern:

Be it known that I, VALERIAN KARMIN, a subject of the Emperor of Russia, residing at St. Petersburg, Russia, have invented a certain new and useful Improvement in Safety Velocipedes, of which I declare the following to be a full, clear, and exact description.

The present invention relates to a Safety bicycle which overcomes the defects of the safety-wheels now in use by its simplicity and durability of construction, as also by its even running in consequence of the springs used.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side view of the machine. Figs. 2^a, 2^b, and 2^c show the spring *f* with the handle-bar in front and rear view and cross-section. Figs. 3^a and 3^b show the lower spring *e* of the saddle in rear view and cross-section. Fig. 4 shows the sleeve *b* in side elevation and plan. Fig. 5 shows the saddle-post support in longitudinal section and rear view, Figs. 2, 3, 4, and 5.

The new construction contains the following improvements, retaining the ordinary well-known wheels: The front and back wheels are connected by a perch made up of two pieces of tubing *c*, connected with one another and with the forks, Fig. 1. This connection is much simpler than the ones now in use, and, although lighter, its strength is greater. Through this perch passes the saddle-post support *a*, made of tubing, onto the upper end of which the saddle-post is pushed, and the two are held firmly together, Figs. 1 and 5, by a screw *t* passing through the clip *u*.

On the rear side of the saddle-post support *a* a flat strip *k* is welded, which serves also as a guide on the saddle-post support *a* to the slotted sleeve *b*, firmly fastened to the perch by means of screws *s*. The slotted sleeve *b*, in conjunction with the flat plate *k*, prevents the saddle-post support *a* from turning.

On the short pin projecting from the steering-rod the lower part of an elliptic checking-spring or buffer-spring *f* rests and is secured, its upper part abutting against a pin *h*, which projects from the sleeve *i* of the handle-bar *g*. This pin has a guiding-aperture *o* in the sleeve of the handle-bar, Figs. 2^a, 2^b, and 2^c. The elliptic spring *f* serves to receive the shocks of the front wheel, so that the hand resting on the handle-bar does not feel them, a nat-

ural result of the use of this spring, for the checking-spring *f* is more or less compressed, according to the force of the shock, and the hand will only feel the slight oscillation in the sleeve of the handle-bar.

Besides the two springs under the saddle, two lower springs *e* are secured, Fig. 1, at their upper ends in the two openings *w w* of the lugs of the clip *u*, fastened by means of the screw *t* to the saddle-post support, Fig. 5, and the lower ends of the springs are fastened by the screws *q* in the two knobs *n* of a cross-link. On the connecting-link of the knobs *n* a spring *m* is welded, which has an opening to admit the screw *r*, by means of which screw said spring is fastened between dust-shield, the fork *d*, and the frame *c*, Figs. 4 and 5. The object of this lower saddle-spring is to make the vibration of the rear wheel less noticeable to the wheelman and to transfer his weight from the saddle-post support to the fork *d*.

In order to adjust the saddle forward or backward, the clip *x*, which receives the upper saddle-spring, is attached at the arm *y* of the saddle-post and can be fastened securely by screw *z*, which is another advantage to the wheelman. A hinged brace joins the rear fork at the hub of the rear wheel to the lower end of the saddle-post support near where the cranks are attached to the axle of the sprocket-wheel. This connecting-brace is hinged close to the axle of the rear wheel in order to keep taut the sprocket-chain which drives this wheel and to render the brace less liable to breakage by sudden jars.

I do not limit myself to the use of my invention in connection with bicycles, as it is evident that it is also applicable to that class of machines known as "cripper tricycles;" nor do I limit myself to the exact details of construction shown, as it is evident they may be modified without departing from the invention. For instance, the usual saddle-spring may be dispensed with, if desired, as spring *e* is its equivalent in preventing vibrations of the rear wheel reaching the wheelman.

I claim—

1. A spring-frame bicycle in which the saddle-post support *a* is led in a slotted sleeve *b* through the main frame *c*, in which the shocks are avoided by means of symmetrically-ar-

ranged springs *e*, in which, further, the main frame *c* is made stronger for the greater safety of the wheelman, and in which, finally, the shocks are transmitted by the front wheel in a much milder form through the possibility of a partial turning of the handle-bar *g*, which rests by pin *h* on the checking-spring *f*, which latter can also be replaced by one or two spiral springs.

10 2. In a velocipede, a steering-rod having a T-sleeve at its upper end provided with a transverse slot, a handle-bar loosely mounted in said sleeve and carrying a pin riding in said slot, and a spring operatively connected
15 with said pin and the steering-rod, substantially as described.

3. In a velocipede of the character described, the combination of the frame or perch, a saddle-post support passing through and having
20 free vertical play in said perch and provided at its lower end with bearings for a crank-shaft, a spring or springs secured to the perch to resist the downward movement of the saddle-post support, and side braces pivoted at

their rear ends to the forks and adjustably
connected at their front ends to the crank-
shaft bearings, substantially as and for the
purpose set forth. 25

4. In a velocipede of the character described, the combination of the frame or perch, a saddle-post support passing through and having
30 free vertical play in said perch and provided at its lower end with a T for the reception of the crank-shaft, a spring or springs secured to the perch to resist the downward movement of the saddle-post support, and side
35 braces pivoted at their rear ends to the forks and adjustably connected at their front ends to said T, substantially as and for the purpose set forth. 40

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

VALERIAN KARMIN.

Witnesses:

LADISLAW GROTH,
WILHELM OTTO.