

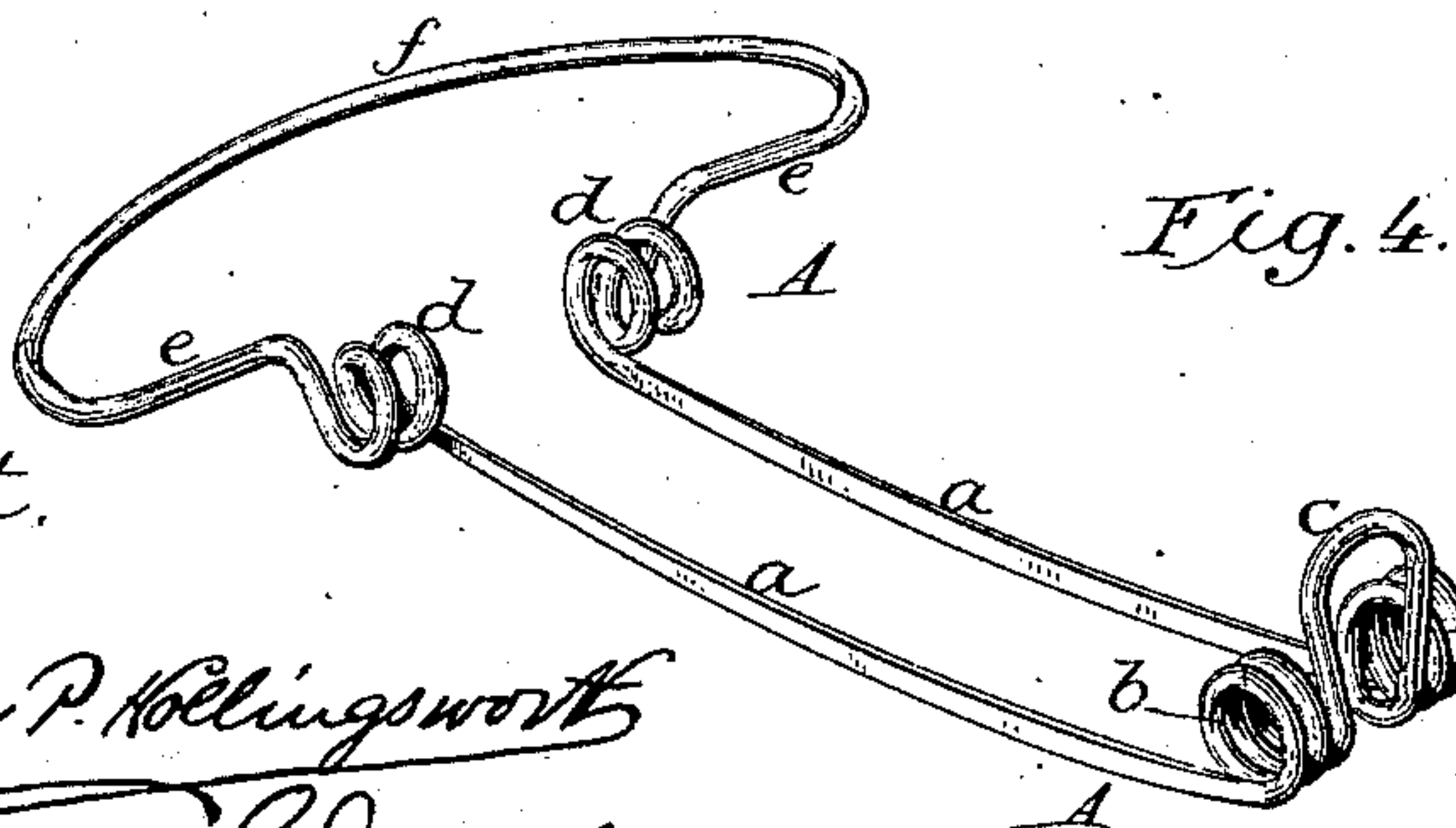
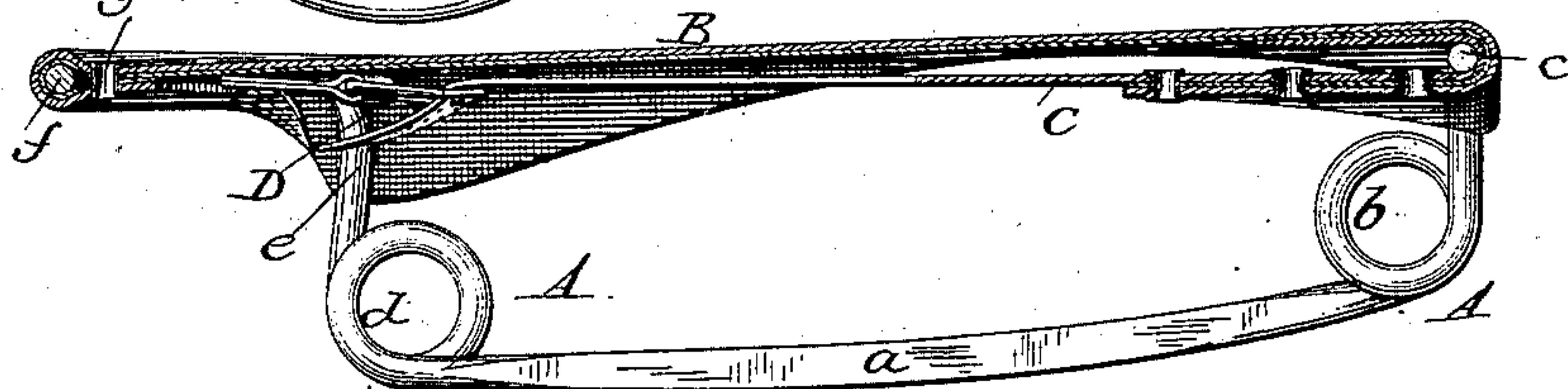
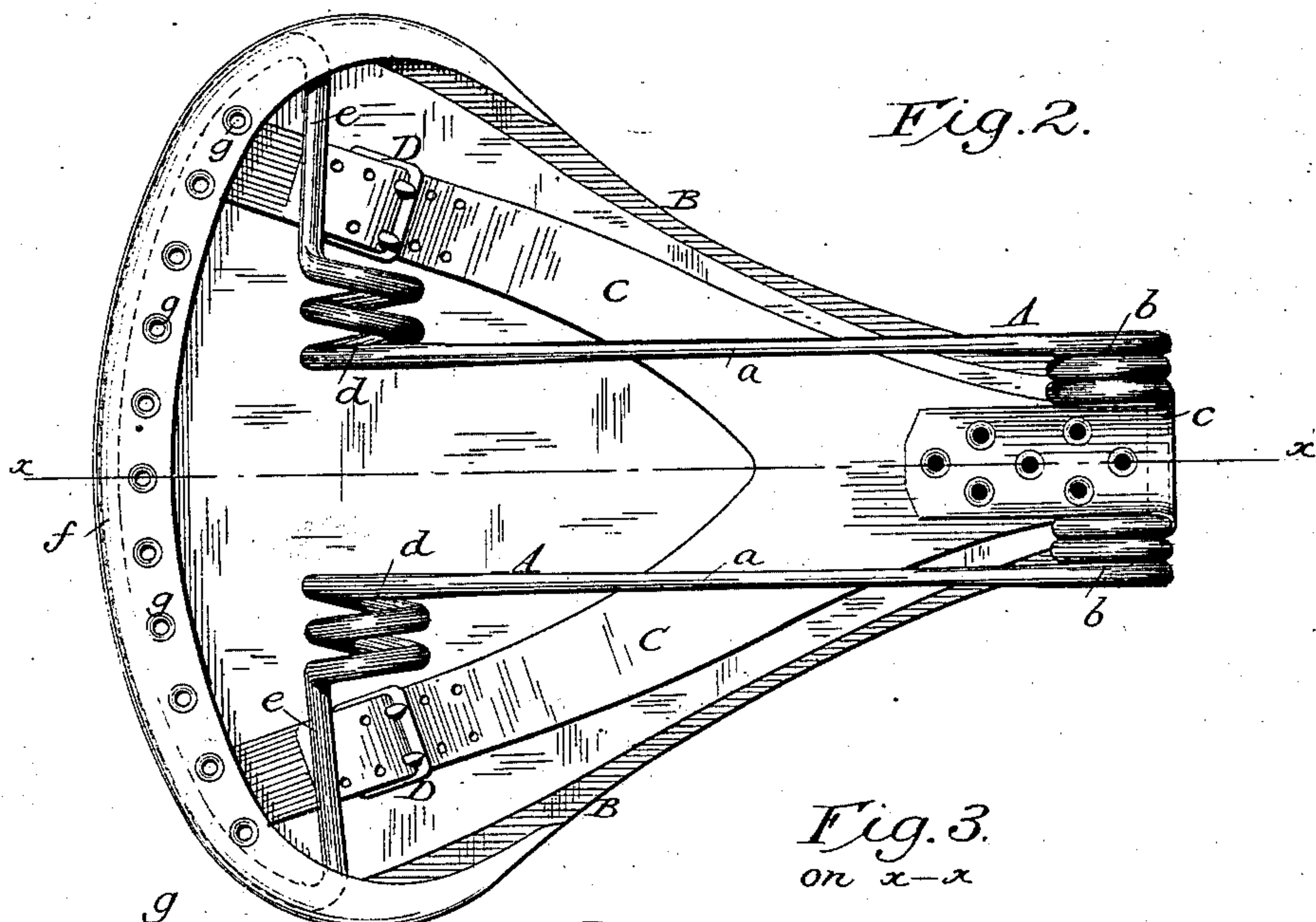
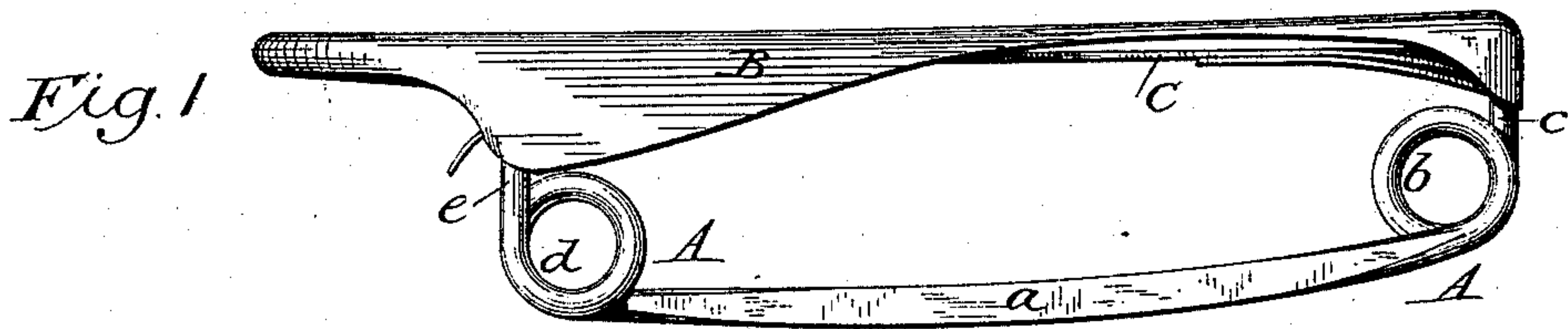
(No Model.)

W. S. KELLEY.

BICYCLE SADDLE.

No. 304,827.

Patented Sept. 9, 1884.



Attest.

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UNITED STATES PATENT OFFICE.

WILLIAM S. KELLEY, OF SMITHVILLE, NEW JERSEY.

BICYCLE-SADDLE.

SPECIFICATION forming part of Letters Patent No. 304,827, dated September 9, 1884.

Application filed January 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. KELLEY, of Smithville, in the county of Burlington and State of New Jersey, have invented certain Improvements in Bicycle-Saddles, of which the following is a specification.

The aim of this invention is to produce a light, cheap, and elastic saddle which may be applied to machines of the various types now in general use.

It is the particular aim of the invention to provide a saddle which shall be highly elastic in a vertical direction, the action of which shall remain unimpaired by use, and which shall be adapted to have its tension increased or diminished, as circumstances may require.

To this end it consists, essentially, in combining with a flexible or pliant seat a supporting-frame consisting of parallel arms or bars, the ends of which are coiled and extended thence upward in suitable form for connection to the seat proper. By the employment of the coils I am enabled to introduce into the frame, without unnecessary weight, a spring of considerable length and of consequent durability and elasticity. The employment of the coils also avoids the necessity of constructing the intermediate or connecting portion of elastic material.

My invention further consists in constructing the frame, as above described, in one continuous or endless piece, whereby I am enabled to avail myself of the torsional resistance of the metal and to produce a frame which will retain its original form and condition under the strains encountered in practice.

The invention further consists in combining with the flexible or pliant seat of leather or equivalent material a lining or backing of canvas, wire-gauze, or other equivalent material adapted to resist the strains without stretching, whereby the stretching and sagging of the seat which commonly occurs in existing saddles is wholly avoided.

The invention further consists in combining with the supporting-frame and the pliant seat straps or suspending devices extended from the forward end or horn of the seat proper backward beneath the same to points near the rear corners, where they are secured by

buckles or equivalent fastening devices. The adjusting devices thus applied admit of the tension of the seat being increased or diminished as circumstances may require, and applied in the peculiar manner stated they also serve to assist in sustaining the seat.

Referring to the accompanying drawings, Figure 1 represents a side elevation of my improved saddle. Fig. 2 is a bottom plan view of the same. Fig. 3 is a longitudinal vertical section of the same on the line *x x* of Fig. 2. Fig. 4 is a perspective view of the frame detached.

In proceeding to construct my saddle I first provide a frame, A, of the form represented in Fig. 4. This frame is constructed of a single piece of steel wire or equivalent material possessing the requisite strength and elasticity, bent into the proper form, and joined at the ends in such manner as to constitute a continuous or endless frame. The frame comprises, as shown, two parallel or substantially parallel arms, *a*, of substantially straight form, each of which is formed at the forward end into coils *b*, the coils of one arm being connected to those of the other by the intermediate arched portion, *c*, designed to support and strain the forward end or horn of the saddle. At the rear end each of the arms *a* is formed into a coil, *d*. These coils are located on the outer sides of the arms, and the terminal portions are bent upward, outward, and rearward, as shown at *e*, and joined at the rear side by a horizontal portion, *f*, which is given a curvature corresponding with that required at the rear end of the seat.

Having thus produced the frame, which, it will be observed, has a broad elevated portion, *f*, at the rear end, and a narrow elevated portion, *c*, at the forward end, I next provide the saddle B, or seat proper, consisting of a sheet of leather or equivalent pliable material, increasing in width from the front to the rear, its marginal form being the same, or essentially the same, as that of saddles now in common use. The end of this sheet I secure firmly in any suitable manner to the raised portion *f* of the frame, the preferred mode of attachment being to fold the leather over the frame from the top and secure it thereto by

means of the eyelets *g*, applied through the two thicknesses, in the manner represented in Figs. 2 and 3. The forward end of the seat is passed over the raised portion *c* of the frame, thence downward and backward thereunder. To the extremity of the seat on the under side I connect two straps, *C*, which extend thence backward in diverging lines to buckles or equivalent fastening devices *D*, secured to the rear end of the frame at or near its corners. These straps serve to apply the necessary longitudinal tension to the seat proper, and admit of this tension being increased or diminished as the weight of the rider or other circumstances may require.

It will be observed that the adjusting-straps are carried backward parallel with and immediately beneath the seat proper, and that they extend from end to end thereof. In consequence of this arrangement it is found that the straps serve an efficient purpose in assisting to maintain the seat, and that as the straps and the seat are of equal length there is no tendency of the seat to work back and forth around the forward end of the frame.

It will be perceived that when the seat is properly strained it is sustained at its two extremities by the upright portions of the frame, and that the coils of the frame, urging the elevated portions endwise, serve to apply a strong longitudinal tension to the seat, whereby it is adapted to sustain and carry the weight of the rider without sinking upon the frame beneath.

In practice it is found that by constructing the frame of one endless piece, as described, it is the better adapted to maintain its original form, that the torsional elasticity of the metal is rendered more available, and that the liability of the seat to lateral displacement is lessened.

The saddle constructed as above may be attached to the machine by means of clips or fastening devices of any suitable character adapted to engage with the frame *a*. In practice I find it usually advisable to flatten the arms *a* on their sides, so that they will have a vertical section deeper than the transverse section, this construction giving additional strength in proportion to the weight. The yielding action of the saddle is derived wholly from the elasticity of the coils and of the raised portions at the end, no reliance being placed on the elasticity of the arms *a*, which may be, and, in fact, generally are, made of such strength as to be practically rigid under the strains which they commonly encounter, the main purpose of the arms *a* being to keep the extremities of the saddle in line with each other, to sustain the coils, and to prevent the two ends from being drawn together by the

longitudinal strain. The employment of the coils is advantageous in that it enables me to give greatly-increased length to the elastic portion of the frame. It being a well-known fact that the life of a spring depends upon its length, it will be seen that the employment of the coils is of great advantage.

Having thus described my invention, what I claim is—

1. In a bicycle-saddle, the combination of the flexible seat or saddle proper and the supporting-frame consisting of the longitudinal arms, the terminal coils, and the elevated ends.

2. In a bicycle-saddle, the combination, with a pliable sheet forming the seat or saddle proper, of a supporting-frame having terminal coils connected with the seat to apply a longitudinal tension thereto, and longitudinal arms rigidly connecting the coils at one end with those at the other.

3. In combination with a flexible seat, an endless sustaining-frame provided with elevated ends and with coils at one or more points in its length.

4. The improved frame for a saddle, consisting of parallel arms provided with terminal coils and connected by raised portions, substantially as described.

5. In a bicycle-saddle, the combination, with a frame for supporting the extremities, of a pliable seat or saddle of leather or like material, and a backing of canvas or equivalent non-elastic material applied closely thereto, substantially as described, whereby the stretching of the leather and the sagging of the seat is prevented.

6. In combination with a frame for supporting its extremities, the pliable seat or saddle proper, the two divergent straps connected to the forward end thereof, and buckles or equivalent fastening devices, substantially as shown.

7. In combination with a flexible seat or saddle proper, a supporting-frame, the rear end of which is composed of a continuous elastic wire or rod passing through the rear end of the saddle, with its two ends curved downward and fashioned into coils, substantially as described.

8. In combination with a flexible seat or saddle proper, the arched supporting-arm *c*, having its lower extremities fashioned into coils *b*, substantially as described.

WILLIAM S. KELLEY.

Witnesses:

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CHAS. H. CHICKERING.