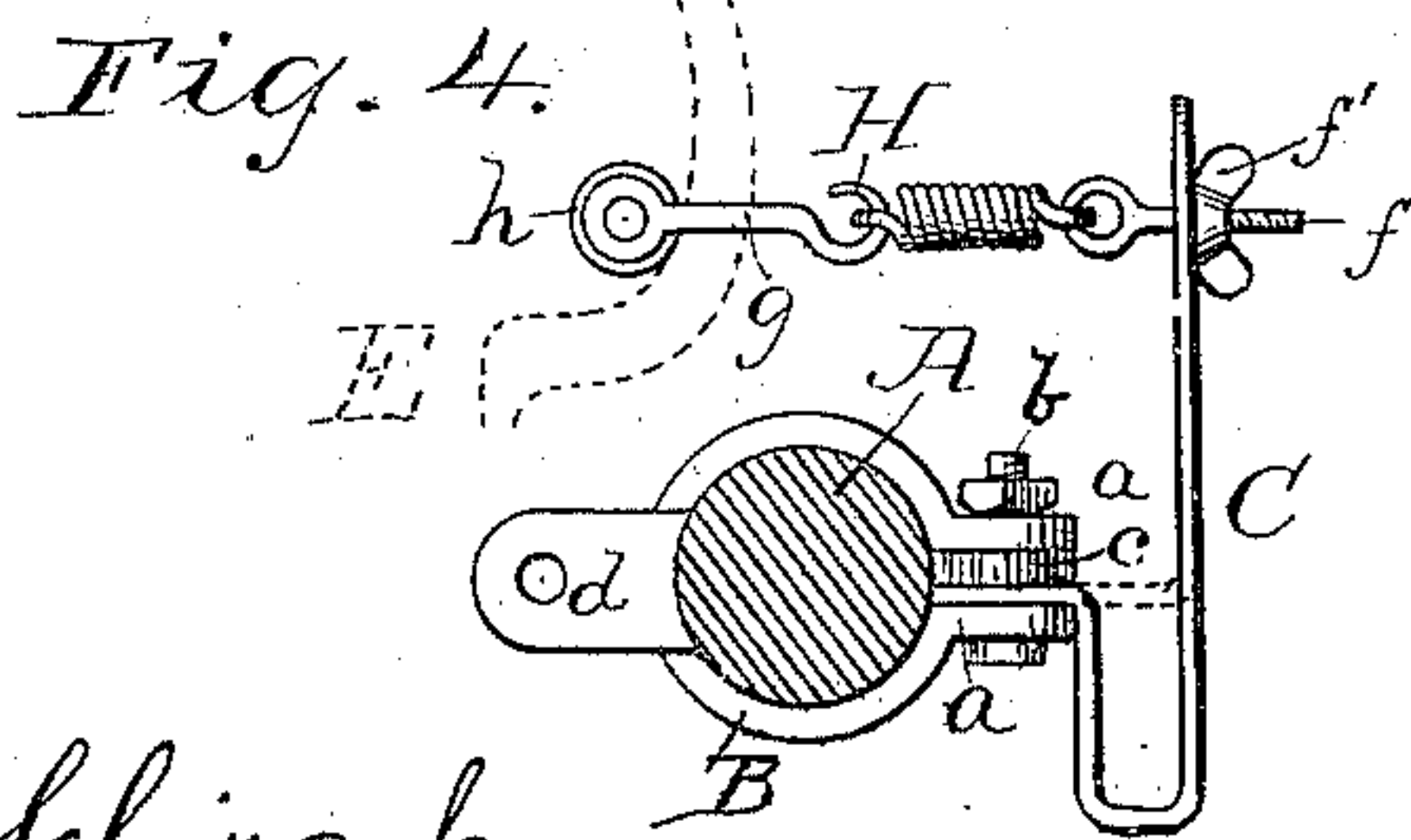
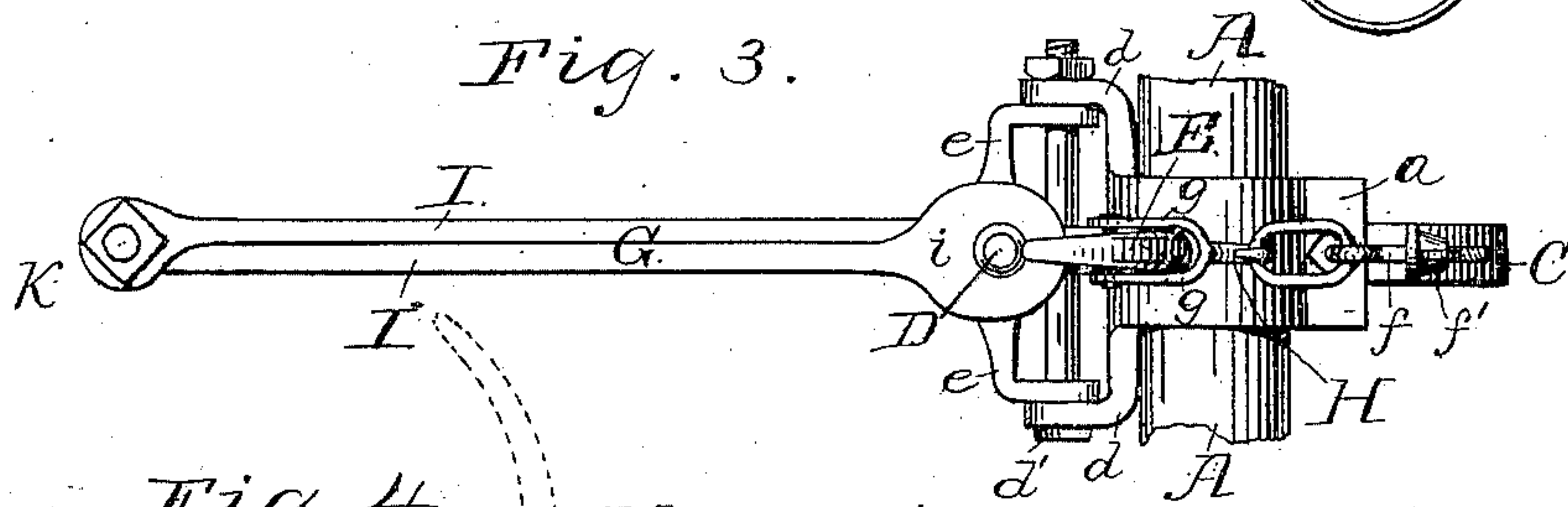
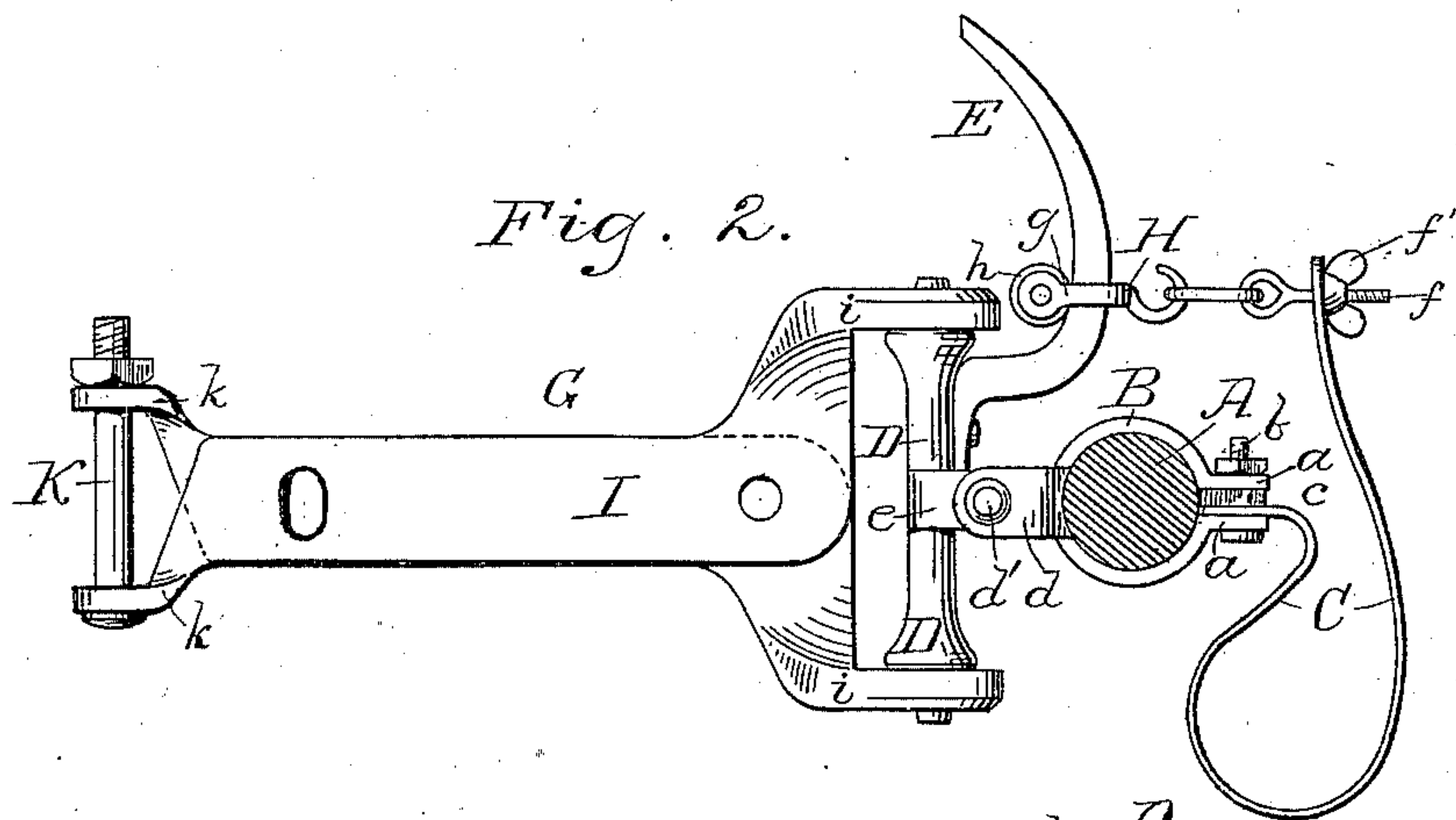
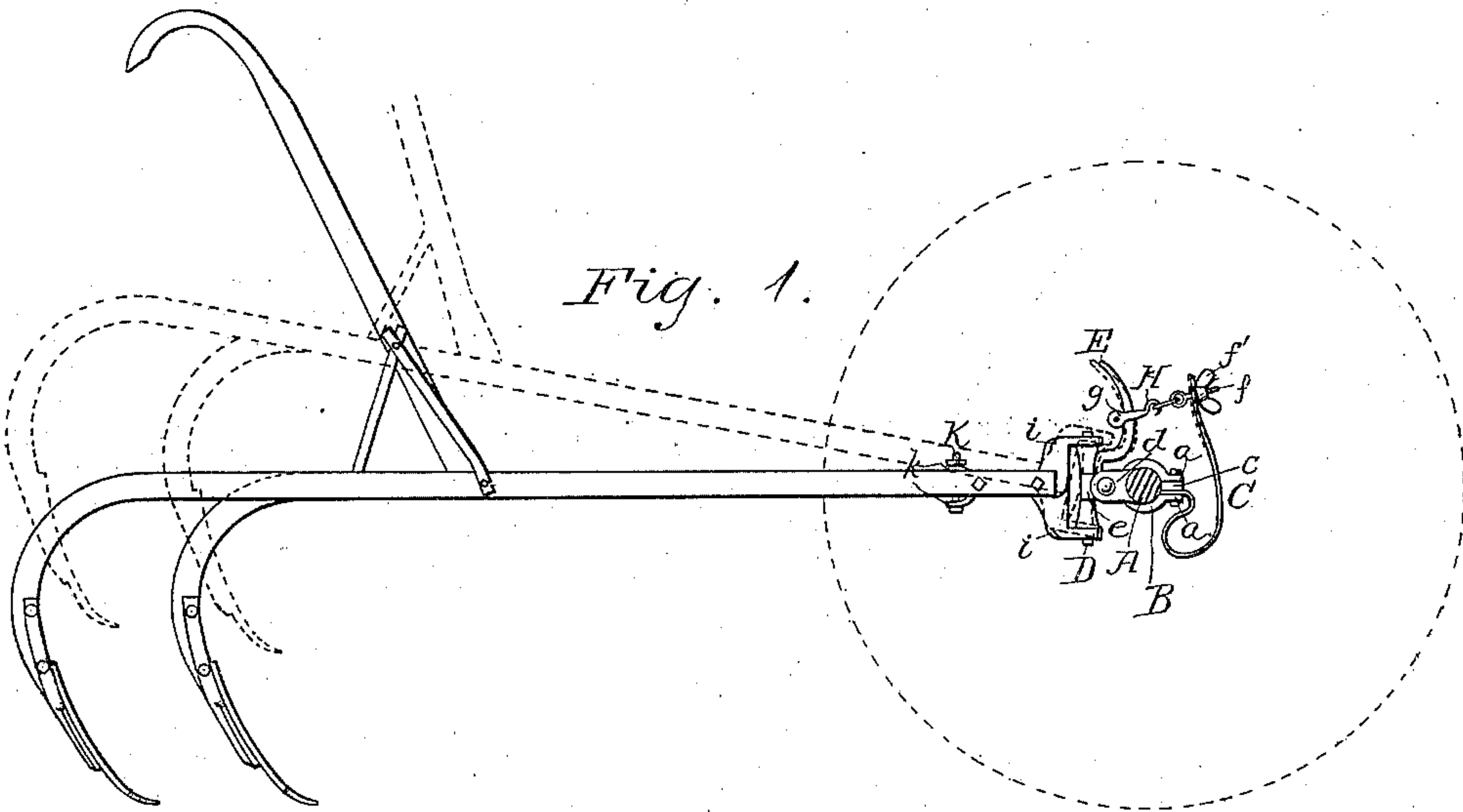


(No Model.)

W. J. BROWNE.
SPRING CULTIVATOR.

No. 335,013.

Patented Jan. 26, 1886.



WITNESSES

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WILLIAM J. BROWNE, OF FORT MADISON, IOWA.

SPRING-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 335,013, dated January 26, 1886.

Application filed March 12, 1885. Serial No. 158,651. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BROWNE, of Fort Madison, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Spring-Cultivators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a combined cultivator-coupling and beam-lifter which is simple in construction and perfect in action.

In the drawings, Figure 1 is a side elevation of my invention, showing the manner of its application and use. Fig. 2 is an enlarged side elevation of the same with the cultivator-shovel beam detached. Fig. 3 is a plan view, and Fig. 4 is a modification, of my improved coupling and beam-lifter.

A great saving of laborious effort is effected by the use of any of the many kinds of cultivator-beam lifters, the principle of which is to provide some elastic counterpoise to the weight of the beam, so that when the plowman desires to lift the shovels from the earth to avoid an obstacle, or for other reasons, he will not have to make an exhaustive effort to do so.

My invention permits either a vertical or lateral movement of the shovel-beam, and admits of the easy separation and removal of the beam, or of any of its parts, provided they need repairing or are to be replaced by new ones, and further it is so constructed that the tension of the spring-counterpoise can be increased or decreased as desired.

In the drawings, A represents that portion of the axle-tree between the arch and spindle on which is secured the band B. This band surrounds the axle-tree, and has its ends *a a* project laterally therefrom toward the front of the machine. Passing vertically through suitable holes in these ends is a bolt, *b*, which by means of a nut on its screw-threaded end draws said ends *a* toward each other, thus securely clamping said band in position on the

axle-tree. Between these ends *a a* of band B is placed the end of a spring, C, and a rubber washer or cushion, *c*, above it, both of which are secured by bolt *b*. The spring C is flat, and from a side view describes somewhat the letter C having its upper end turned back and secured between lugs *a a*, and having its lower arm extend upward some distance above the plane of the end secured between the ends of the band B.

Diametrically opposite to the ends of the band B are L-shaped lugs *d d*, which have pivoted to or near their extremities, by means of a pintle, *d'*, the L-shaped arms *e*, branching laterally in opposite direction from the vertical swivel-bolt D, at about its center of length. This bolt D is enlarged near its ends, so as to form shoulders to prevent the knuckles of the coupling G from approaching nearer each other, as will hereinafter be more fully explained.

Secured to the body of the swivel-bolt D, just below the shoulder near its upper end, is a sickle-shaped arm, E, which pursues a lateral direction to the front, then upward.

In the extremity of the elongation of the lower arm of the spring C is an opening through which the screw-threaded shank of the eye *f* passes. The shank of the eye *f* is provided with a thumb-nut, *f'*. Connected to this eye *f* by means of a suitable link is a hook, H, having arms *g g* branching from its shank, which straddle the vertical portion of the sickle-shaped arm E, and have journaled in and between their ends a traveler or roller, *h*, which, as said swivel-bolt D to which said arm is permanently fastened oscillates vertically, rolls on the inversely-curved surface of said arm. The curvature of this arm E is such that when the cultivators—the beams of which are secured to the coupling G, which is pivoted on the swivel-bolt, as will hereinafter be more fully explained—are pushed into the ground a reasonable distance to make a deeper furrow the spring C will not offer any undue resistance; but when the cultivators are lifted from the soil the said spring will be drawn forward, thus increasing its tension or resistance.

The coupling G is composed of two plates, I I, corresponding in shape and dimension, having a knuckle, *i*, on the end nearest the

swivel-bolt, and having an arm, *k*, extending from their other ends similar shaped but smaller in size than the knuckles *i i*. The plates *I* are placed flat against each other, and in such relative position that the arms *k* on one end and the knuckles *i* on the other pursue opposite directions, the knuckles *i i* being journaled or pivoted on the ends of the said swivel-bolt and the arms *k k* being connected by a vertical bolt, *K*, through their ends, as shown. The plates *I I* have transverse holes in them correspondingly registered, through which the bolts securing thereto the cultivator-shovel beams pass and are fastened by nuts on their screw-threaded ends.

Concerning the spring, there may be several changes made from that hereinbefore explained without departing from the spirit of my invention, which are as efficacious as those described. For instance, in Fig. 4 the spring *C* is shown to be \sqsubset shape, or it may be \sqcap shape, as shown in dotted lines, and be connected to the arm *E*, as hereinbefore explained. Again, instead of a spring, *C*, a rigid arm may extend up from the ends of band *B*, between which it is secured, and instead of a link being used to connect the eye *f* and hook *G* a coil-spring is substituted. Any kind of spring capable of use in a similar or somewhat similar manner may be substituted for spring *C*. The rubber cushion *c*, which is placed between the ends *a* of band *B*, is intended to assist the elasticity of spring *C* and to avoid the jar and vibration which (if it were not there) might be caused by the vibrations of the spring *C*. It will be noticed that a cushion, *c*, could be dispensed with. If desired, the hook *H* might attach directly to the eye *f*, and I should not consider it a departure from the spirit of my invention if instead of a hook, *H*, a straight rod were used, extending from the arms *g*, which had its end screw-threaded and passed through the end of spring *C*, like the shank of eye *f*, and had a nut similar to *f'* thereon to regulate the tension of said spring.

Another change in my invention which might be made is that the end of spring *C*, instead of being fastened between the ends of

band *B*, might be secured permanently to the shaft by other means—say by circling the end around the axle-tree and riveting its ends, so as to clamp it tightly and secure it in an immovable position on said axle-tree.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a cultivator-shovel-beam lifter and coupling, the combination, with coupling *G*, of bolt *D*, arm *E*, secured thereto, traveler *h*, spring *C*, axle *A*, to which said spring is rigidly secured, and means for connecting said traveler to said spring.

2. The combination, with bolt *D*, to which the coupling is connected, arm *E*, and traveler *h*, of the adjustable eye *f*, spring *C*, axle *A*, and means whereby said spring is connected to said axle.

3. The combination, with the coupling *G*, pivoted, as shown, to the ends of bolt *D*, of bolt *D*, pivoted at its center of length to arms *d* of band *B*, and said band *B*, substantially as described.

4. The combination, in a coupling, with plates *II*, of corresponding shape and dimensions, having knuckles *i i* on one end and arms *k k* on the other, bolt *K*, connecting arms, *k k*, and the cultivator-shovel beams, of the swivel-bolt *D* and band *B*.

5. The combination, with coupling *G*, bolt *D*, and arm *E*, projecting therefrom, of the traveler *h*, spring *C*, and means for connecting said traveler and spring, band *B*, having ends *a*, between which one end of spring *C* is secured, and cushion *c*.

6. The combination, with a coupling-bolt, *D*, and arm *E*, projecting therefrom, of traveler *h*, hook *H*, in and between the arms extending from which said traveler is journaled, eye *f*, having a screw-threaded shank-nut, *f'*, placed thereon, spring *C*, and band *B*.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM J. BROWNE.

Witnesses:

JAMES H. COYNE,

FRANK D. THOMASON.