

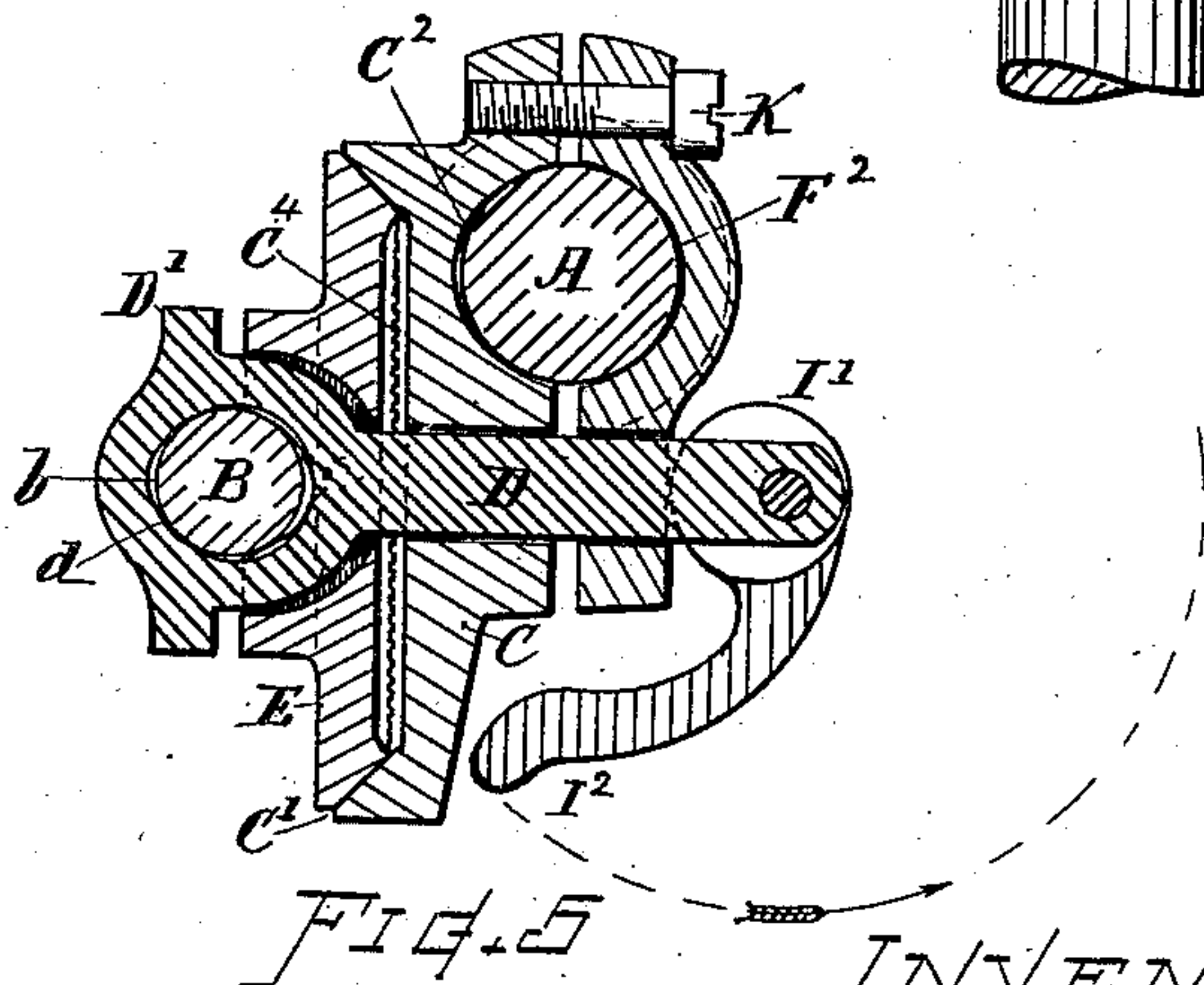
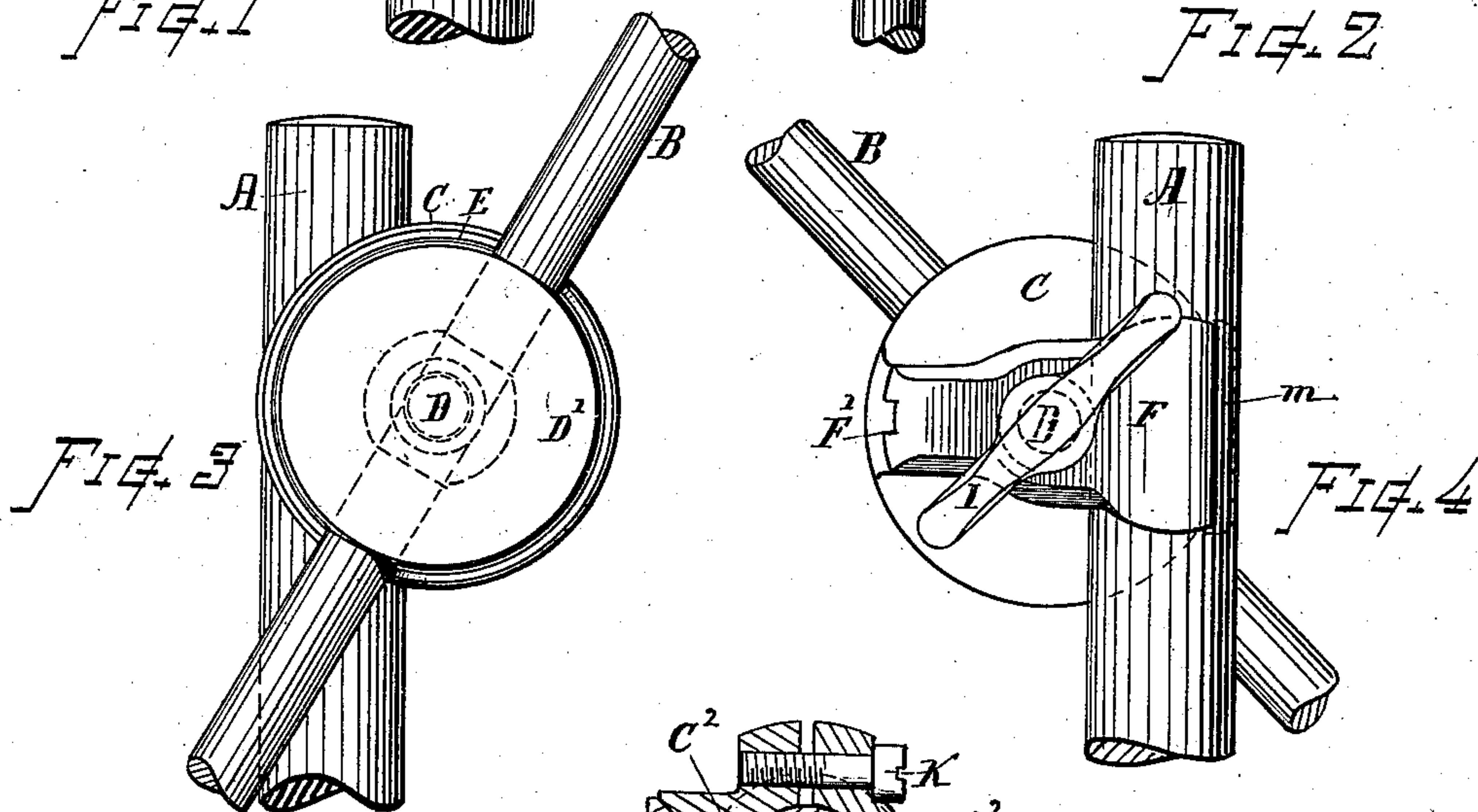
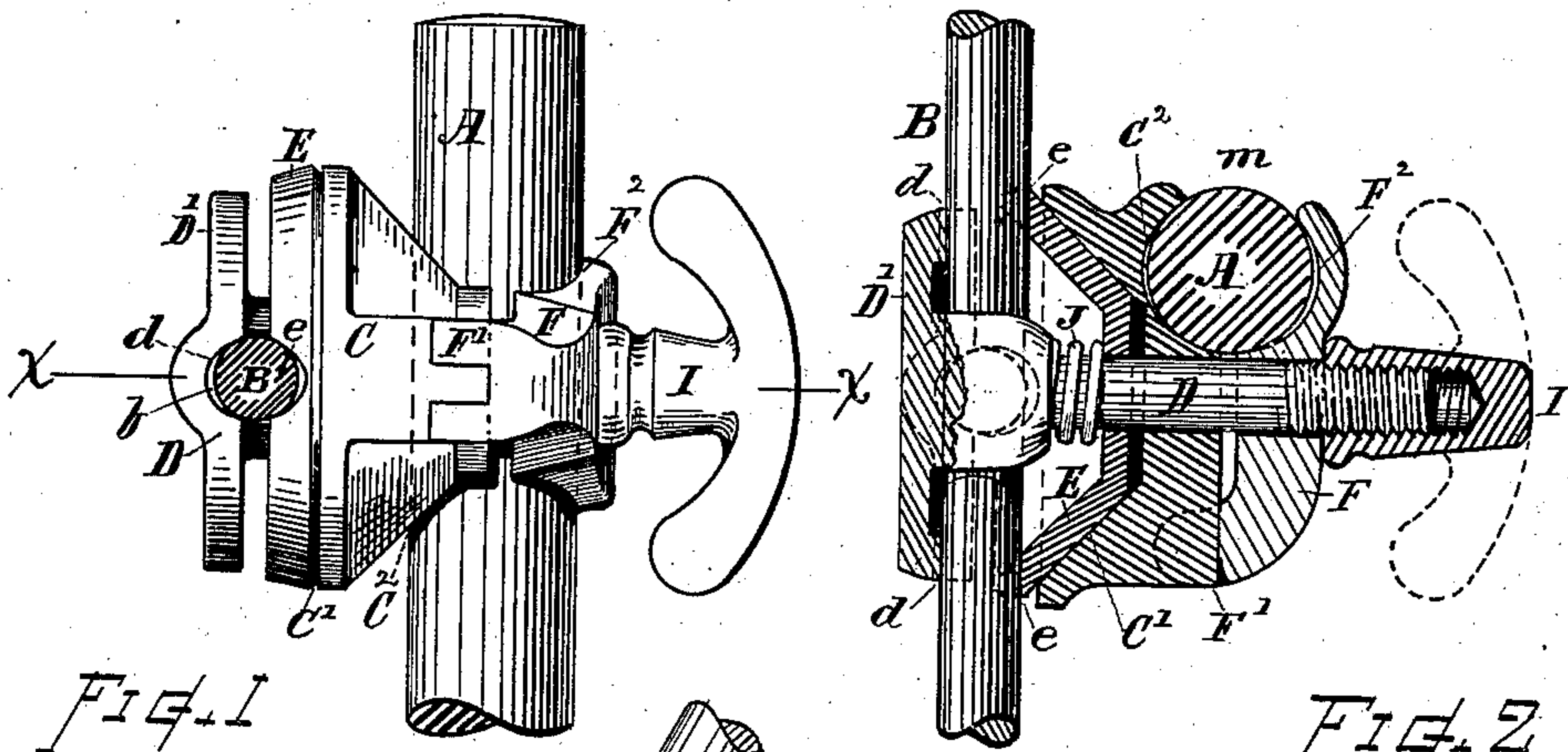
(No Model.)

O. C. WHITE.

COMPOUND SWIVELING AND CLAMPING JOINT MECHANISM.

No. 369,143.

Patented Aug. 30, 1887.



WITNESSES.

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COMPOUND SWIVELING AND CLAMPING JOINT MECHANISM.

SPECIFICATION forming part of Letters Patent No. 369,143, dated August 30, 1887.

Application filed June 13, 1887. Serial No. 241,109. (No model.)

To all whom it may concern:

Be it known that I, OTIS C. WHITE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Compound Swiveling and Clamping Joint Mechanisms for the Connection and Adjustment of Rods, &c., of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my invention is to provide a practical and convenient compound swiveling, adjusting, and clamping joint adapted for use in the construction of photographer's head-screens and head-rests, and for similar purposes, whereby rods or arms may be adjusted to various degrees of angular positions in relation to each other, as desired, and the adjustment of all parts secured by the action of a single fastening device.

Another object is to provide in a compound swiveling and clamping joint adapted for holding by a single fastening, a plurality of rods or bars, a spring, or yielding mechanism which will act to maintain the clamp upon one rod while releasing it from the other when the clamping device is partially relieved.

Another object is to provide a universal swiveling and clamping joint readily detachable from the main standard or supporting-rod without removing parts of the joint mechanism.

Another object of my invention is to provide a swiveling and clamping joint mechanism for retaining a plurality of rods, one in connection with the other, by a single fastening device, which joint mechanism will permit swiveling action on either of the rods, the annular rotation of one rod in relation to the other, and also the movement of the joint mechanism on either of the rods longitudinally thereof, as more fully hereinafter described.

These objects I attain by mechanism constructed as shown, the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a side view of my improved compound adjustable swiveling and clamping joint mechanism. Fig. 2 is a

longitudinal section of the same in the direction of line *xx* on Fig. 1. Fig. 3 is an end view looking from the left. Fig. 4 is an end view looking from the right, and Fig. 5 is a central sectional view showing modifications in the construction of the parts.

In referring to parts, A denotes one of the rods, which is herein termed the "primary" rod, and may be the standard or support for the other parts. B denotes the other rod, which is herein termed the "secondary" rod, and which may be the rod or arm carrying the screen, head-supporters, or other devices, as desired. For connecting and adjusting these rods, the clamping-joint mechanism consists, essentially, of the support-plate or main disk C, the eyebolt D, the intermediate plate or swivel-disk, E, the jaw F, and binding device I, which parts are constructed and disposed in relation to each other and to the rods A and B substantially as indicated.

The main disk C is preferably made with a recess at one side, having a conoidal or tapered bearing-surface, as at C', for the reception of the intermediate or swivel disk, E, which latter is provided with an oppositely-tapered or conoidal bearing-surface matching thereto.

The disk C and the jaw F are respectively provided with recesses or seats at C² and F² for the bar A at one side of the central axis, while at the other side the jaw and disk have intermeshing lugs, as at F', that retain the parts in proper position and serve as a hinging-joint for the jaw. The disk and jaw are made with a central opening, and the eyebolt or stud D is arranged therethrough. Said eyebolt is provided with a transverse opening or eye, *b*, through its head D', that embraces the secondary rod B. The head D' may be expanded to form a finishing boss or a disk of greater or less extent, and said head, together with the intermediate disk, E, are respectively provided with recesses or seats *d* and *e* for the secondary rod, which is confined between said parts.

A clamping device or binder, I, is arranged in connection with the opposite end of the eyebolt D, which may be a nut screwed on said bolt outside the jaw F for drawing the parts together. A suitable spring, J, is preferably arranged between the intermediate disk, E, and the head of the eyebolt D, for pressing

said disk and eyebolt asunder when the binder or nut I is loosened. The seating-surfaces at d and e and at C^2 and F^2 are preferably made elliptical or parabolic in sectional outline, or of different curvature or shape from the curvature or shape of the bars or rods A and B, so that said surfaces will press against or bite upon the rod at intermediate points, instead of embracing the entire surface by their contact.

The jaw F, disks C and E, and eyebolt D embrace the rods in the manner indicated, and when the nut or binder is turned down all the parts are simultaneously and firmly clamped for holding them at any position of adjustment. When the binder is slightly loosened, the joint mechanism may be moved longitudinally or rotatively on the rod A, longitudinally or rotatively on the rod B, or one of the rods may be swung to different degrees of angular position in relation to the other by a swiveling movement of one disk or the other about the axis of the eyebolt, thus giving universal adjustment and extension movement of the rods, while requiring but a single action of the binder for tightening or securing all parts.

The bearing-surface between the main disk and intermediate disk can be conoidal or annular, and, if desired, in some instances be notched or corrugated, as indicated at C^4 , Fig. 5, where it is essential to retain very strong pressure. I prefer, however, the plain conoidal surfaces, as indicated in Fig. 2, where the work is very light, as a more even movement in the adjustment is thereby attained.

In some instances the jaw F may be constructed as shown in Fig. 5, the eyebolt passing through one end of the jaw, and the other end being provided with an adjustable attaching-screw, K, whereby it is confined to the edge of the disk C. By turning the screw K in or out the jaw can be adjusted for variations of the size of the rod A. In this figure I have also shown a binder made as a cam, I' , and pivoted to the eyebolt D, instead of as a nut, I, screw-threaded to said eyebolt. With this construction the joint mechanism is loosened by swinging back the arm I^2 of the binder-cam I' , (indicated by dotted lines,) and tightened by again swinging it back to place. In this figure I have also shown the mechanism with the spring J omitted, which in some instances is desirable, although I prefer to construct the joint with the spring included, as shown in Fig. 2.

With the jaw and disk constructed as indicated in Fig. 2, the joint mechanism can be readily taken off and put onto the primary bar A without detaching the parts of the joint mechanism from each other by simply loosening the binder I and relieving the jaw sufficiently to let the bar A pass out through the open space m .

The opening through the eyebolt and the bearing-seats e and d and C^2 and F^2 may be

made for holding rectangular or other shaped bars or rods, when desired, in lieu of the cylindrical rods herein shown, the operation being substantially the same as that herein described.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. An adjusting and clamping joint having a main disk or supporting-plate fitted with an angular bearing-surface, an intermediate disk fitted at one side to match said bearing-surface, and at its other side having a recess or seat for the supported rod, an eyebolt or stud extending through said disks and having an eye that embraces said rod, and a binder or nut connected with said stud for drawing the parts together and simultaneously clamping said rod and disks in position, substantially as set forth.

2. An adjusting and clamping joint mechanism consisting of a main disk or supporting-plate having a conoidal bearing-surface, an intermediate disk formed at one side to match said conoidal surface, and on its other side having a recess or seat for supporting a rod, a stud having an eye for receiving said rod passing through said disks and provided with a nut or binder at its opposite end, and a spring disposed for throwing outward the head of said eyebolt from the disk when the binder is relieved, substantially as set forth.

3. An adjusting and clamping joint mechanism having a main disk fitted at one side with a frictional or engaging surface and on the other with a recess or seat for the primary rod, a jaw disposed opposite said seat for embracing said rod, an intermediate disk fitted to match said engaging-surface, and having on its outer side recesses or seats for the secondary rod, a central stud extending through said disks and jaw and provided with an opening transversely through its head, embracing said secondary rod, and a binder or nut on the opposite end of said stud that effects the simultaneous clamping of all the bearings on the several rods and engaging-surfaces of the disks, substantially as hereinbefore described.

4. In an adjusting and clamping joint mechanism, substantially as described, the swiveling plates, eyebolt, and jaw having seats or recesses, the surfaces in which are formed on parabolic or elliptical arcs for receiving the rods and binding thereon, substantially as and for the purpose set forth.

5. In an adjusting and clamping joint mechanism having swiveling plates, the combination, with rod-supporting seats, and a central clamping-stud, of a spring disposed between the parts for relieving the engaging-surfaces when the clamping-pressure is released, substantially as set forth.

6. The combination, with the main disk having the rod-seat C^2 , primary rod, clamping-stud, and binder, of the jaw F, having an opening through which the clamping-stud passes, and a seating end extending partially

around said rod, with space *m* between it and the disk-seat, and the extension or stud *F'*, engaging with said disk, substantially as set forth.

- 5 7. The combination of the rod B, the eye-bolt D, embracing said rod, the rotatable disk E, having transverse recesses or seats for receiving said rod, the main disk having annular, beveled, or conoidal engaging-surfaces
10 C', against which said rotatable disk is sup-

ported, the jaw F, the primary rod A, disposed between said main disk and jaw, and the clamping-nut or binder I, substantially as and for the purposes set forth.

Witness my hand this 11th day of June, A. D. 1887.

OTIS C. WHITE.

Witnesses:

CHAS. H. BURLEIGH,
ELLA P. BLENUS.