

No. 858,967.

PATENTED JULY 2, 1907.

J. E. DIMOND.

UMBRELLA.

APPLICATION FILED MAR. 6, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

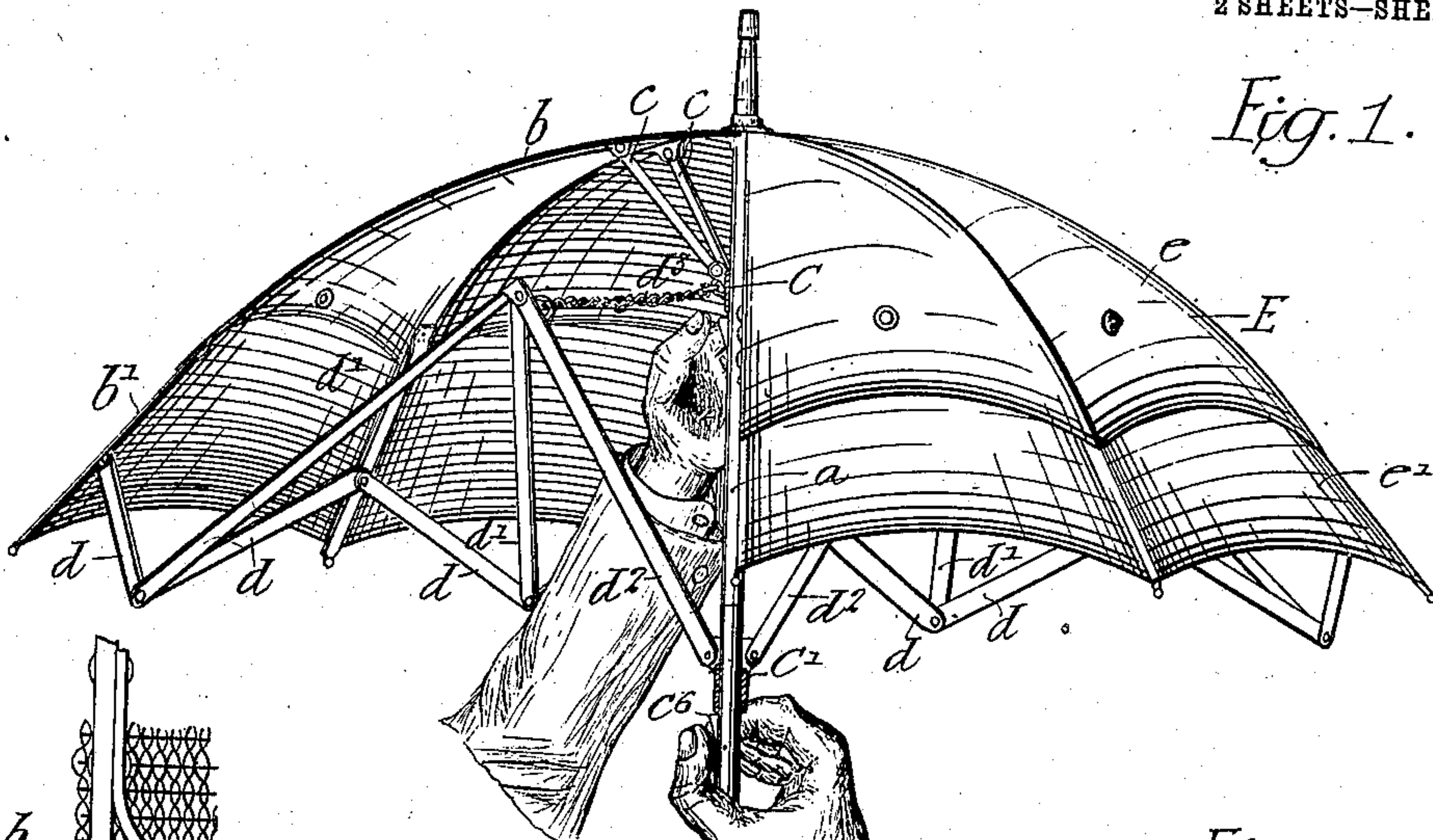


Fig. 3.

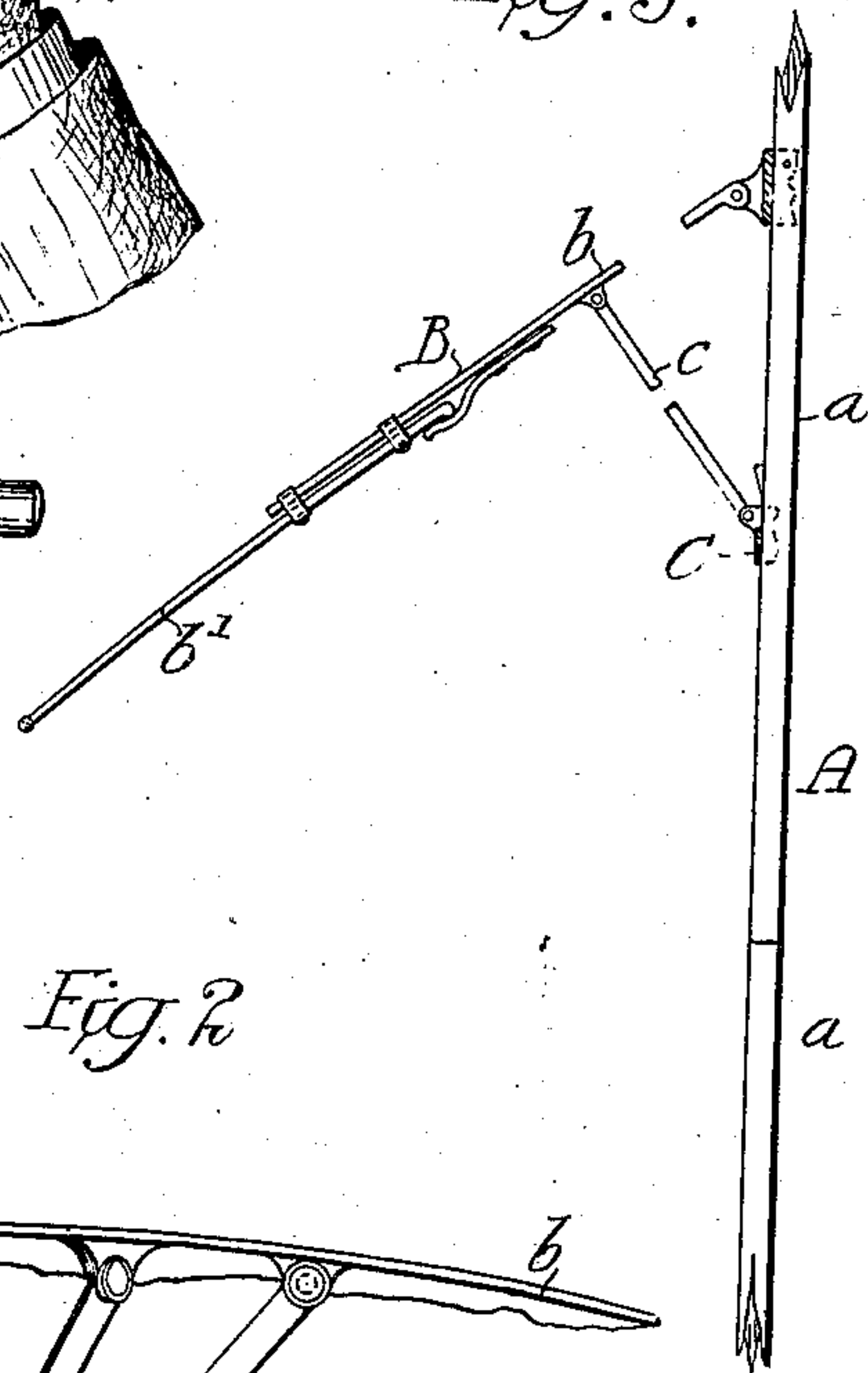


Fig. 4.

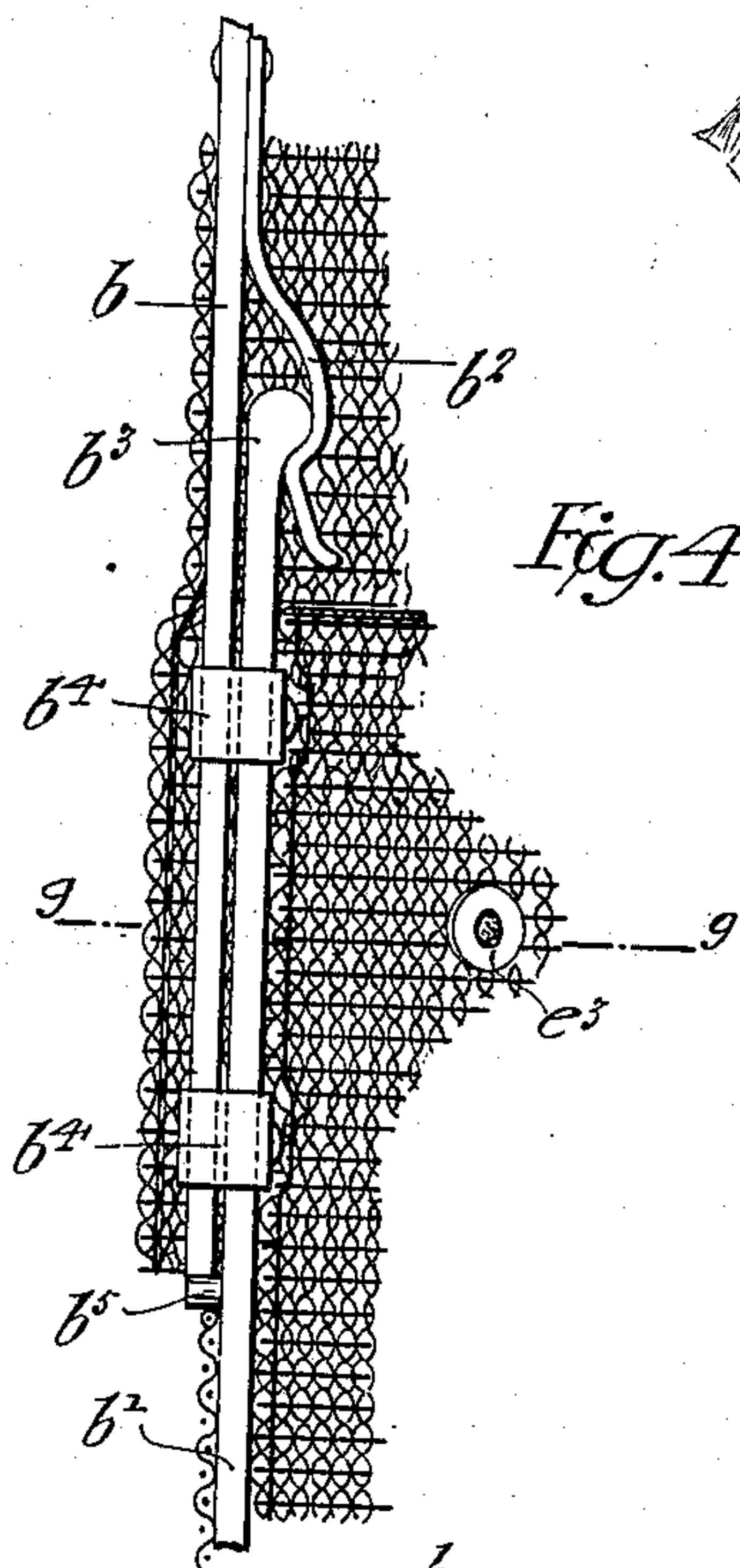
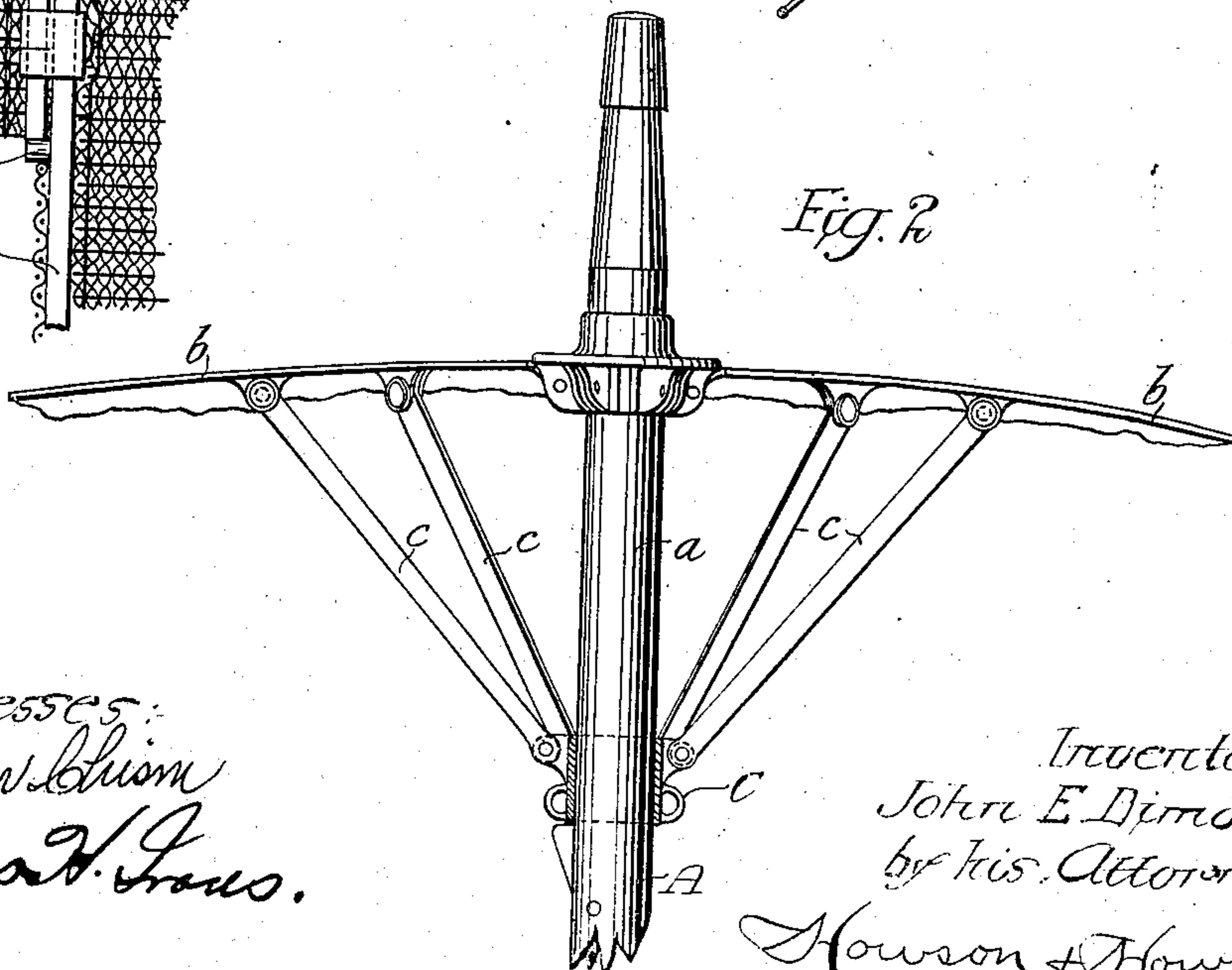


Fig. 2.



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2 SHEETS—SHEET 2.

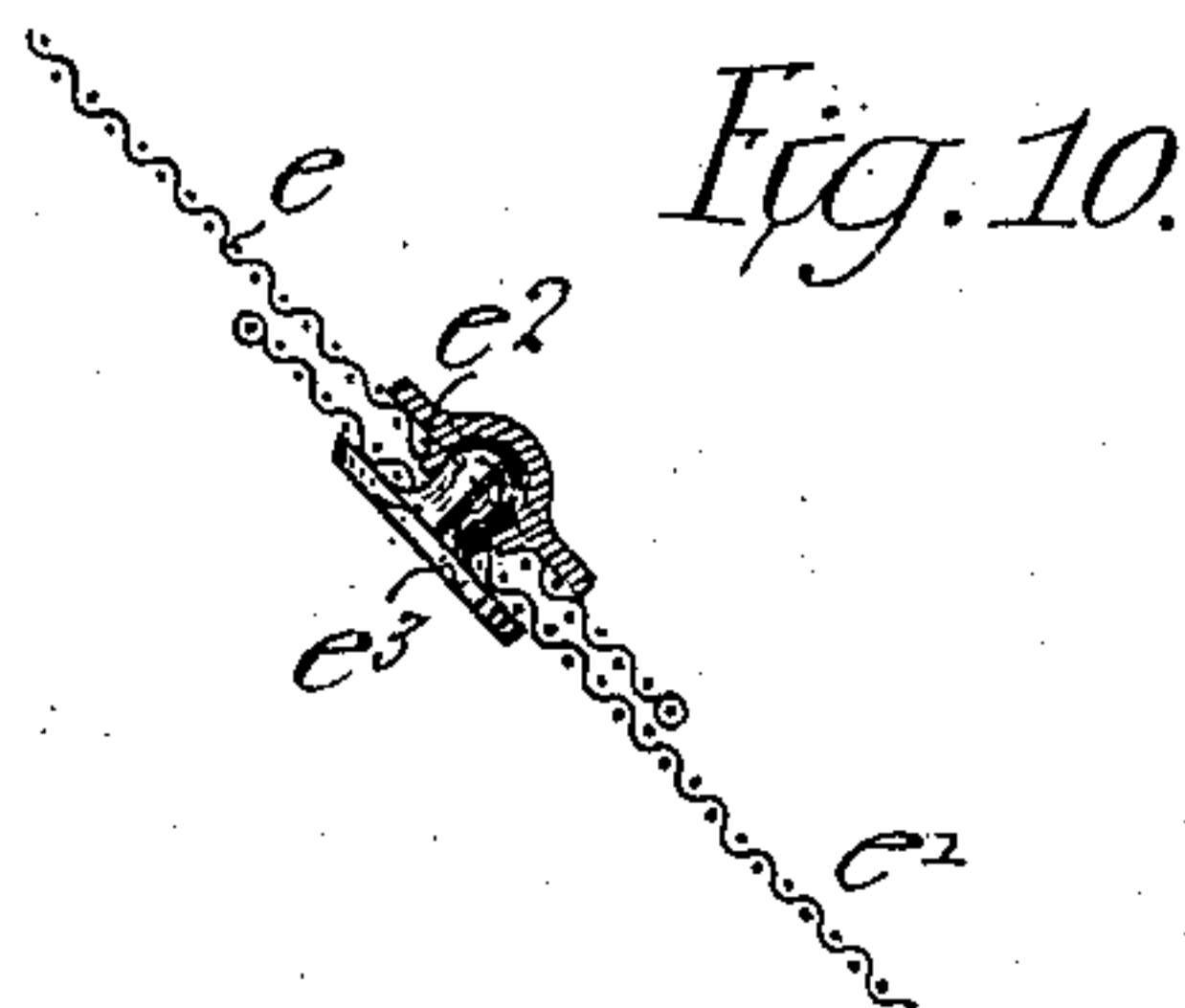
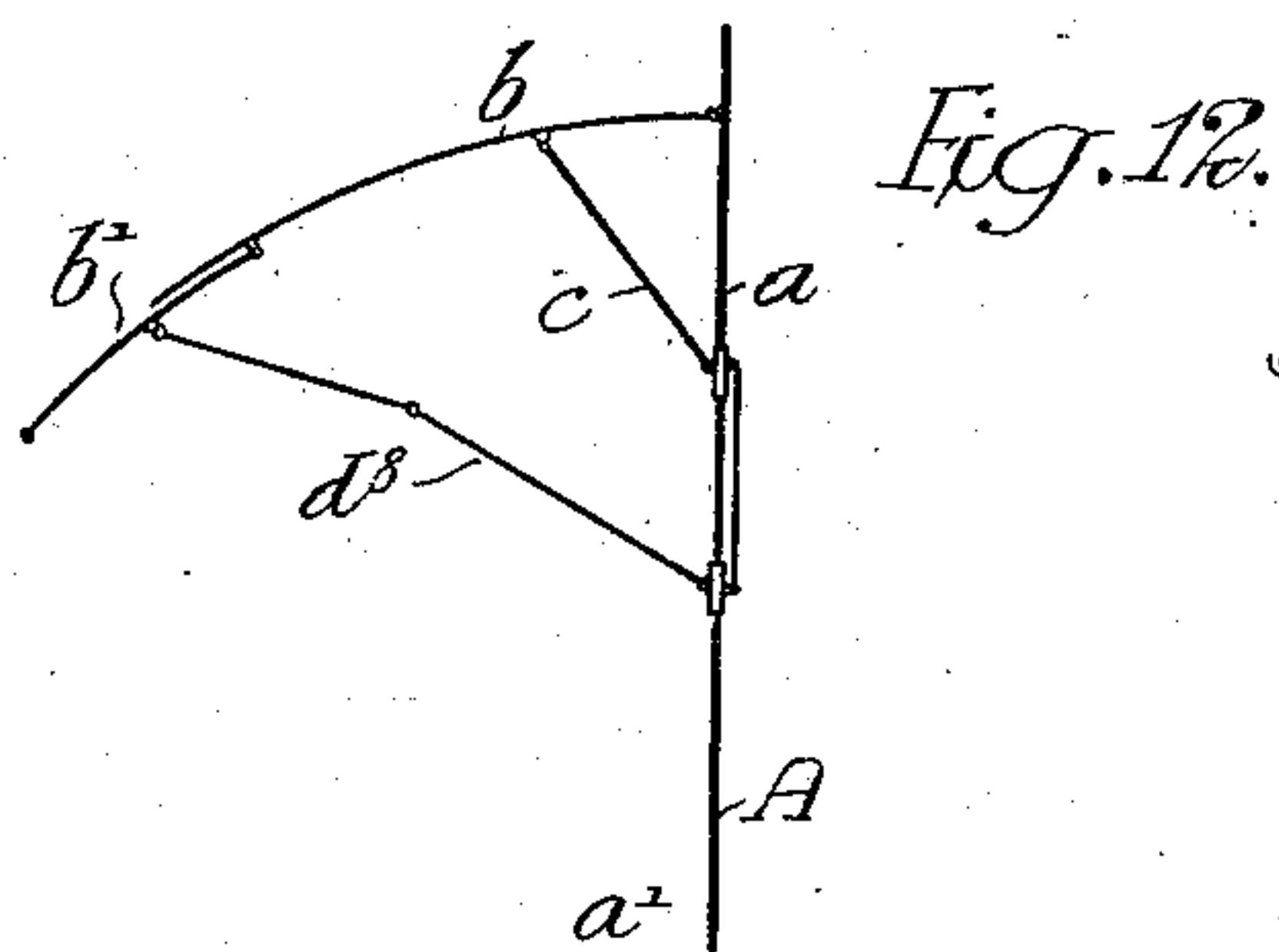


Fig. 5.

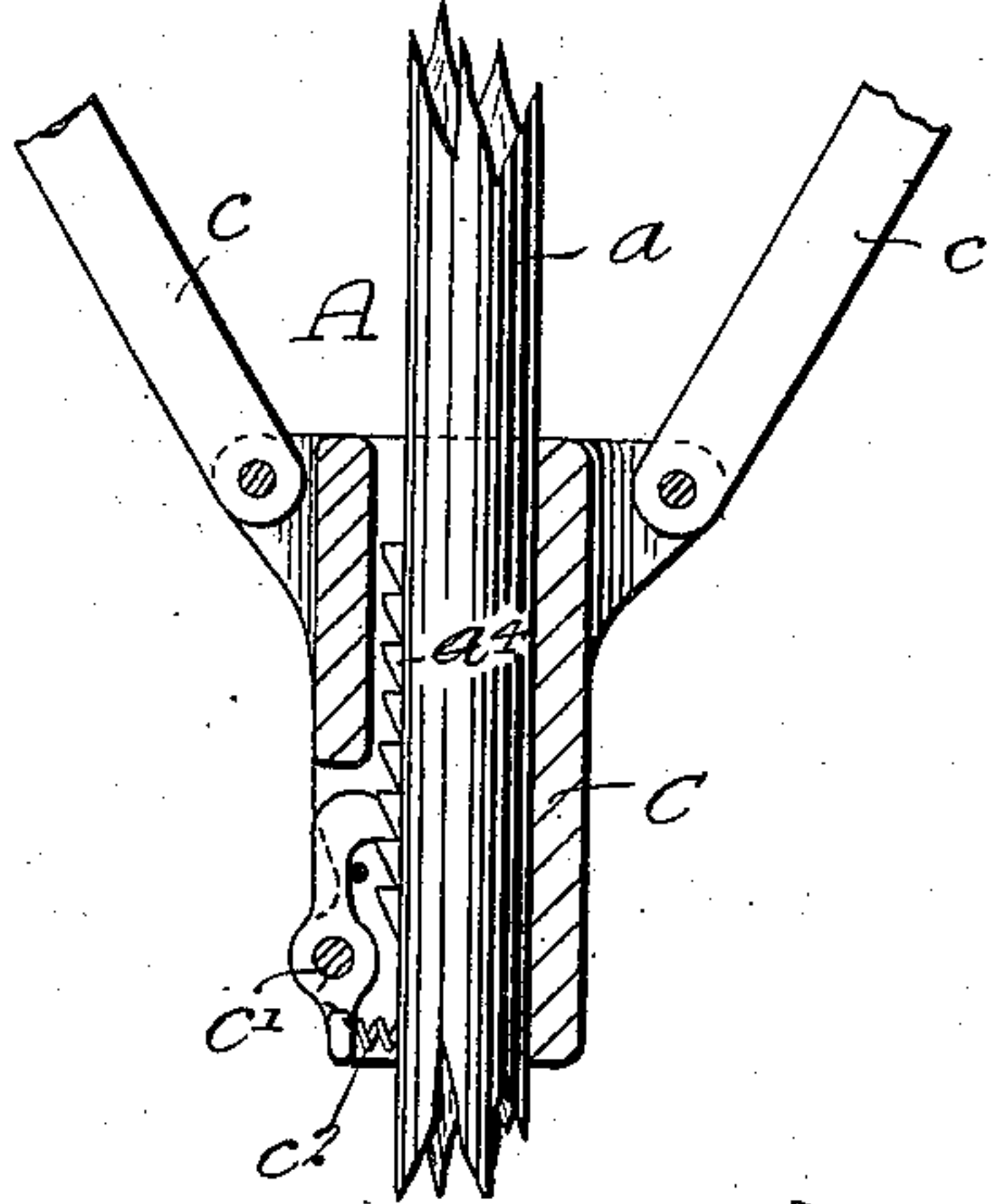


Fig. 8.

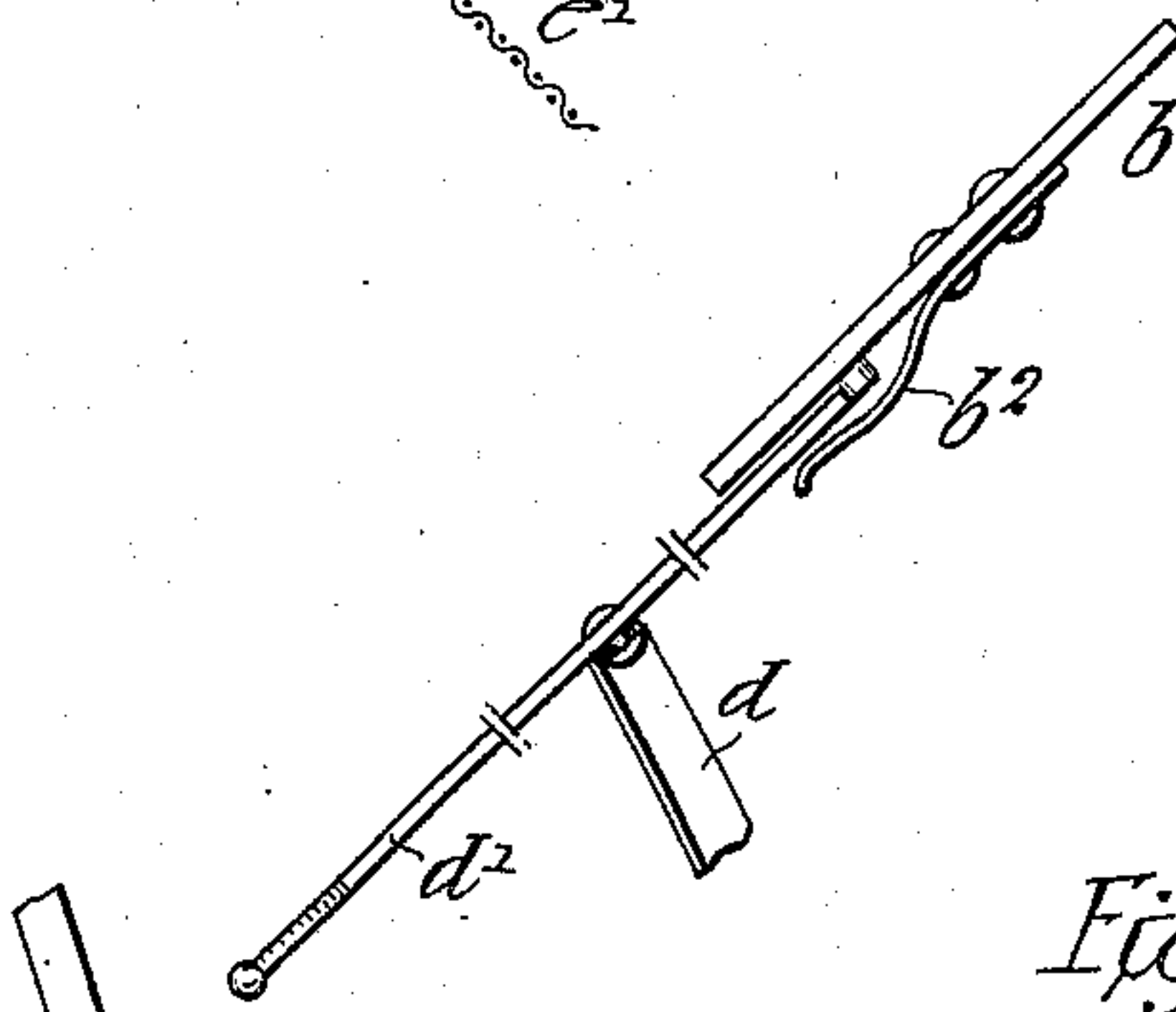


Fig. 9.

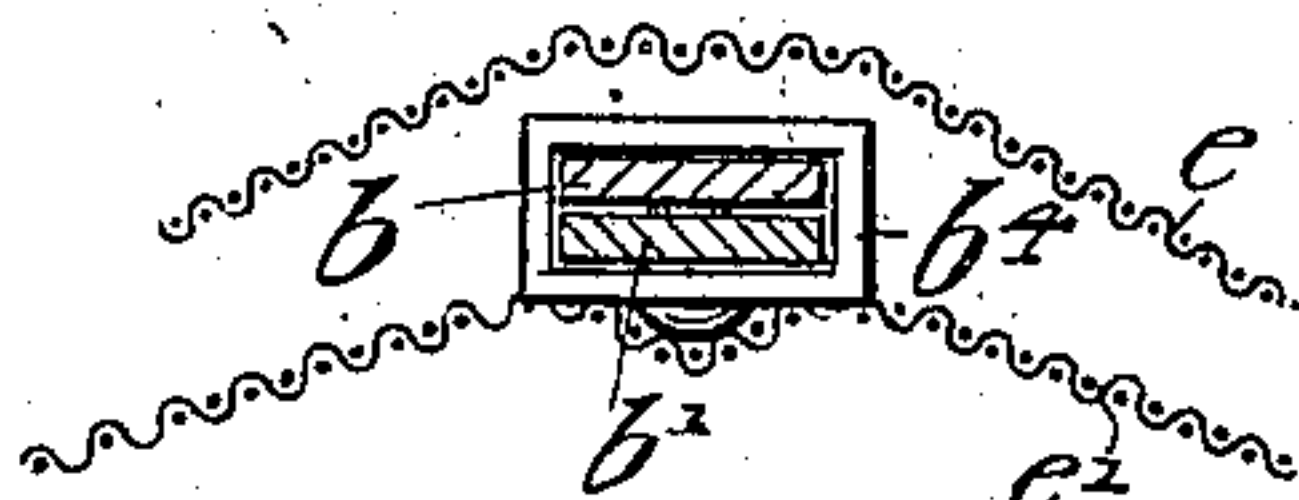


Fig. 6.

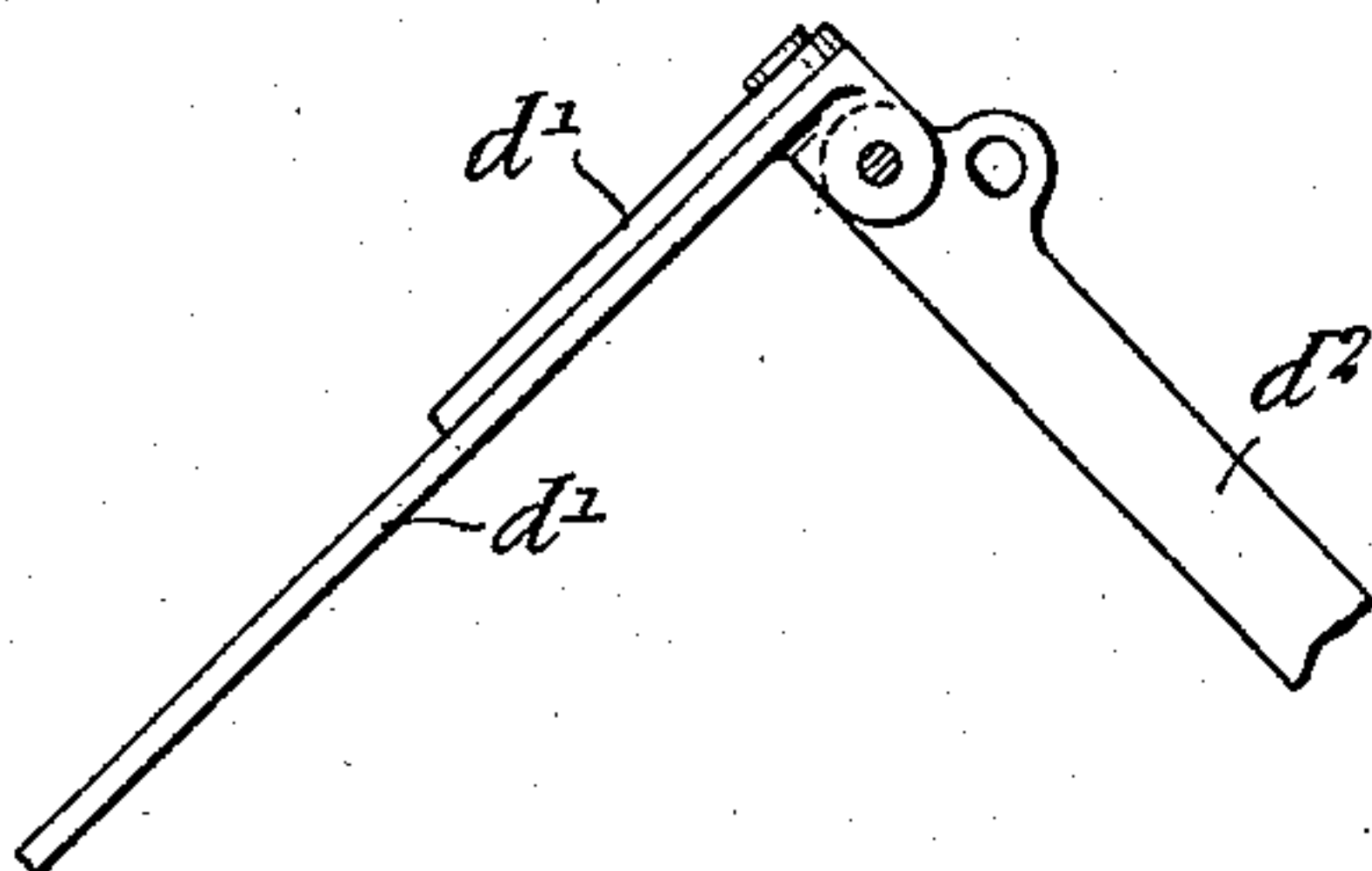


Fig. 13.

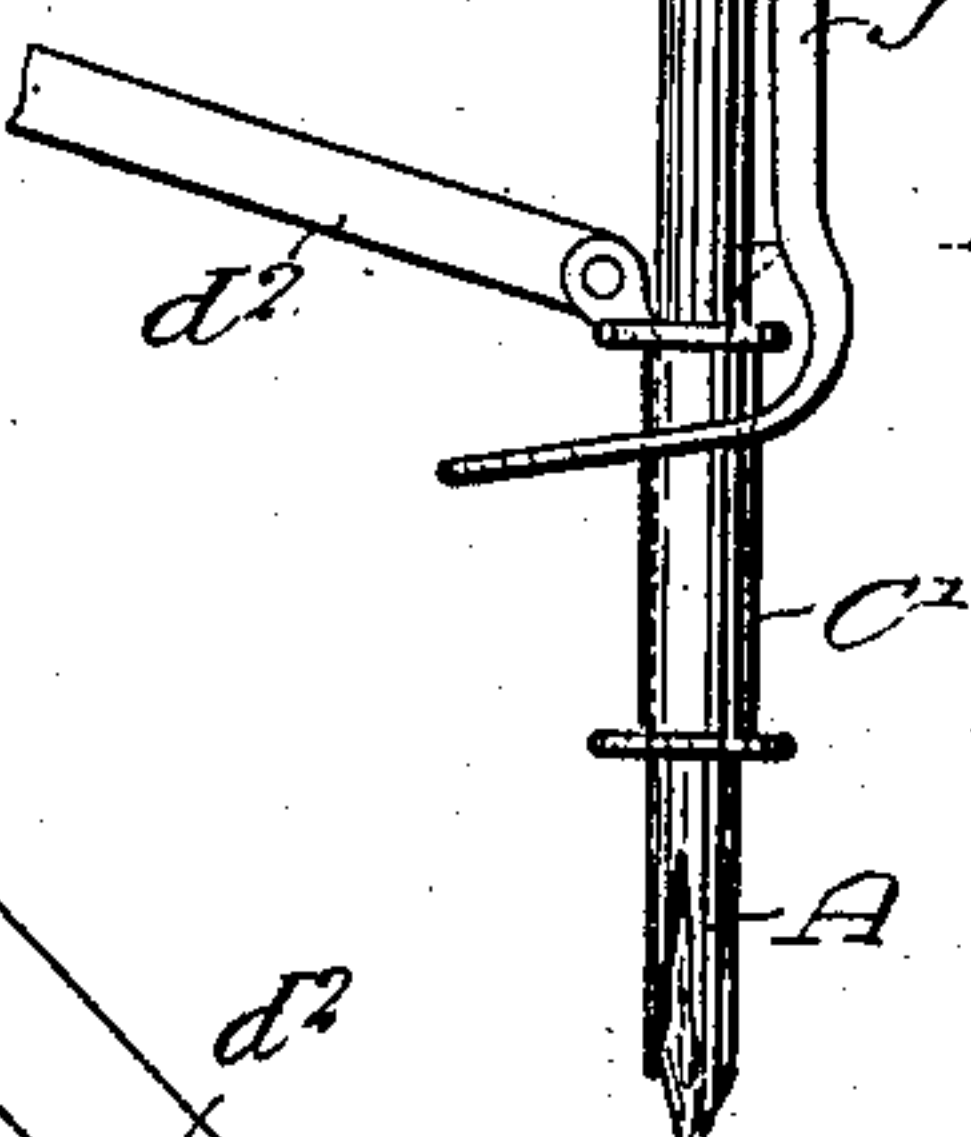


Fig. 7.

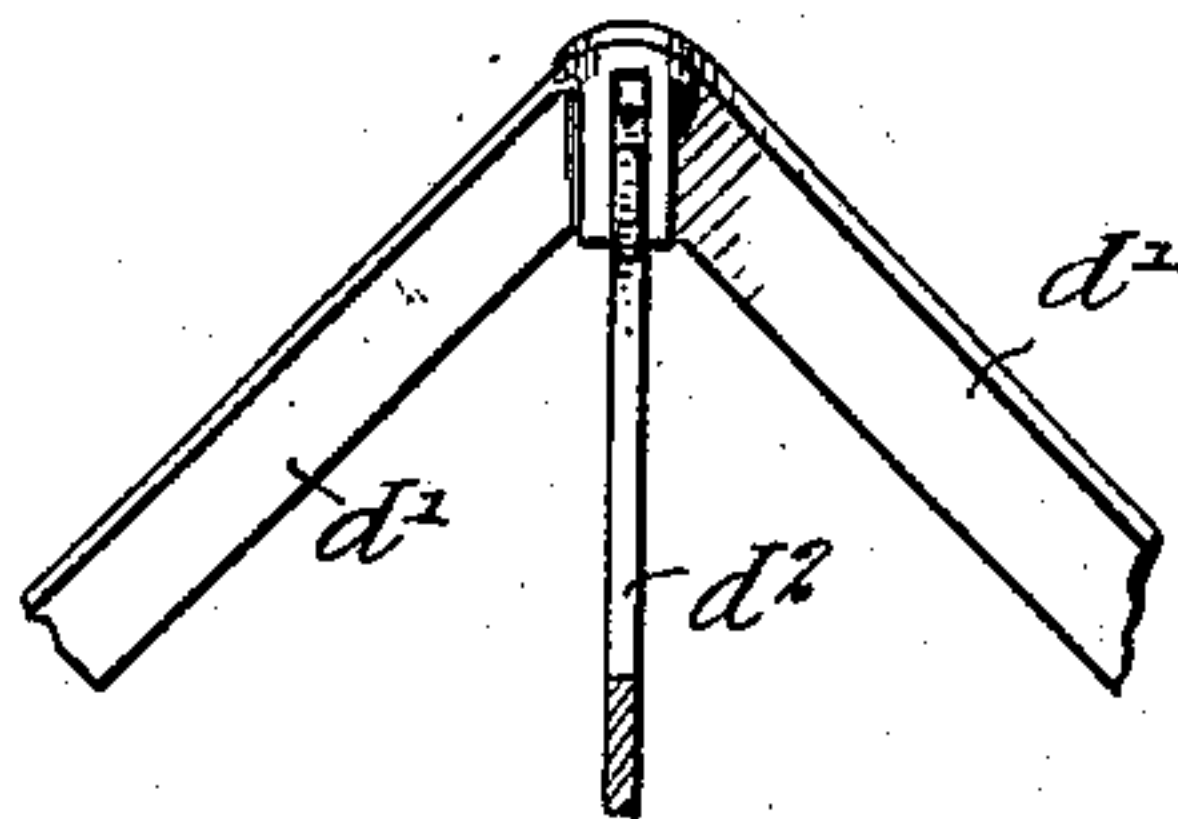
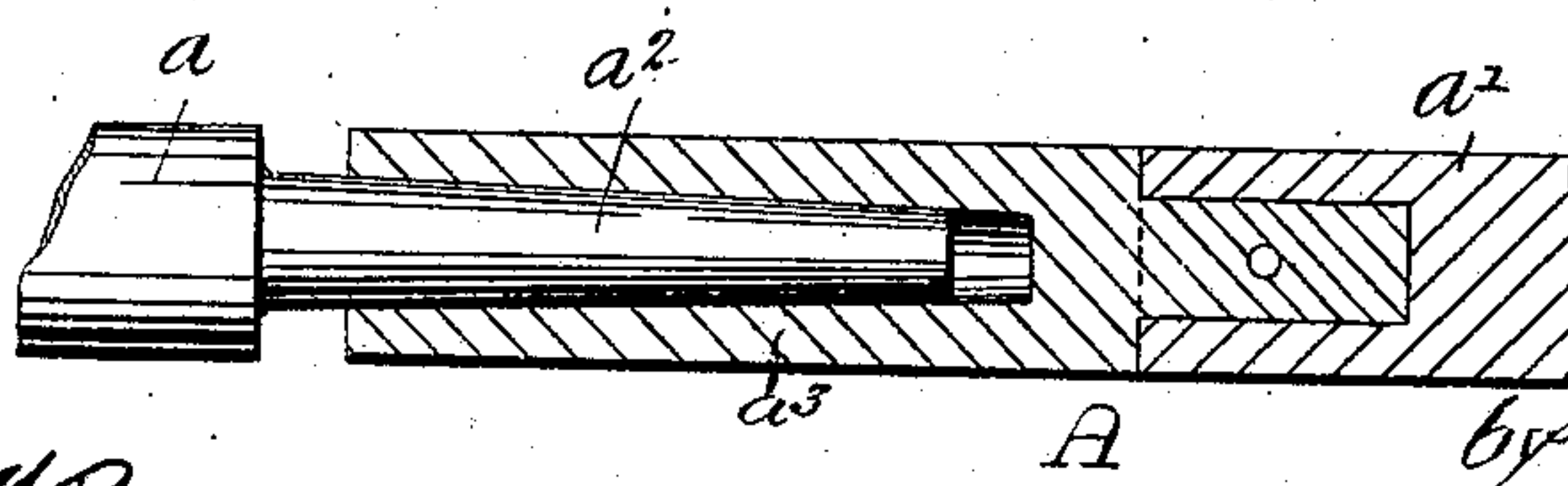


Fig. 11.



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UNITED STATES PATENT OFFICE.

JOHN E. DIMOND, OF PHILADELPHIA, PENNSYLVANIA.

UMBRELLA.

No. 858,967.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed March 6, 1905. Serial No. 248,554.

To all whom it may concern:

Be it known that I, JOHN E. DIMOND, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Umbrellas, of which the following is a specification.

My invention consists of improvements in umbrellas in which the stick and ribs are of such a nature as to permit of their being taken apart when the umbrella is out of use so as to permit packing the same in a bag or trunk less in length than said parts when the umbrella is in its closed position.

The invention further consists of an umbrella having its covering made in two parts and carried upon a frame, the parts of which are detachably held together so as to permit of the whole being made into a bundle substantially one-half the length of the closed umbrella.

Moreover, the invention consists in a novel construction of covering for the frame of an umbrella by which one portion of said cover is carried under another portion thereof, so that when the umbrella is in its raised position water flows from one portion to the other without the possibility of getting inside the umbrella at the points of junction of the two parts.

Referring to the drawings herewith, Figure 1, is a front elevation of my invention showing the umbrella in its raised position, the figure being partly in section to illustrate the detail construction of the frame; Fig. 2, is an elevation, partly in section, of the upper portion of the umbrella stick and frame; Fig. 3, is an elevation of a portion of the umbrella and one of the compound ribs of the frame; Fig. 4, is an enlarged view illustrating the joint between two portions of the ribs and showing the disposal of the covering fabric of the umbrella relatively thereto; Fig. 5, is a sectional elevation illustrating the preferred construction of the upper runner or sliding collar employed in connection with my invention; Figs. 6 and 7, are respectively side and front elevations illustrating the preferred connection between one of the frame struts and two of the links attached thereto; Fig. 8, is a side elevation illustrating certain structural details of one of the ribs and of the link connected thereto; Fig. 9, is a sectional elevation, taken on the line 9—9, Fig. 4; Fig. 10, is a sectional elevation illustrating the construction between the inner and outer sections of the covering fabric; Fig. 11, is an elevation, partly in section, illustrating one form of the connection between the two portions of the umbrella stick; Fig. 12, is an elevation, to some extent diagrammatic, of a portion of a modified form of frame which may be employed in carrying out my invention, and Fig. 13, is a fragmentary elevation of a device whereby both runners may be simultaneously operated.

In the above drawings, A is an umbrella stick having upper and lower sections, respectively indicated at a

and a', detachably connected together by any desired form of socket joint, preferably of the form shown in Fig. 11, in which the part a of the stick has its lower end a² tapered to fit into a similarly tapered recess formed in a metallic end piece a³ permanently fixed to the upper end of the lower umbrella section a'. Connected to the upper end of the umbrella stick, in any of the well known ways, are a number of radially disposed ribs B, each of which is composed of two sections b and b' detachably connected together by a joint which I preferably make as indicated in Figs. 4, 8 and 9. Piv-otally connected to each of the inner rib sections b is a link c, also pivotally connected to a runner C, slidably mounted upon the upper portion a of the stick A.

For a purpose hereafter noted, I provide teeth a⁴ on the upper stick and pivot a spring-actuated catch c' to the runner C, so constructed that it automatically engages said teeth under the action of a spring c² when the runner is moved upwardly, and can only be disengaged therefrom by being turned on its pivot by pressure applied to its lower end. In making the detachable connection between the two sections b and b' of the ribs B, I preferably provide one of said sections with a spring catch b² for the reception of a head b³ on the other section, and also employ two sleeves or rings b⁴ permanently fastened to the section b' for holding the upper section in proper alinement;—there being also a stop b⁵ on the lower section whereby the length of the upper section passed through the sleeve b⁴ is limited.

Each pair of the lower rib sections b' has respectively connected to it a pair of links d pivoted to each other and to a second or connecting link d', and any number of these latter links, in the present instance four, are in turn pivoted or otherwise flexibly connected to a strut or compression member d², which is pivotally connected to a second runner C'. In the present instance there are two of the struts required, although it will be understood that, if desired, fewer of the links d' can be connected to each strut and the number of said struts correspondingly increased.

In order to limit the possible outward movement of the upper ends of the struts, I provide a chain d³, one end of which is connected to the upper end of the strut adjacent to its point of attachment to the links d', while its second end is connected to the upper runner C. The joint between the links d' and the strut d², I preferably make as illustrated in Fig. 7, although it will be understood that I do not limit myself to any such detail arrangement of parts.

The fabric covering of the umbrella frame, indicated at e, consists of an upper portion e carried by the upper rib sections b, and overlapping an inner covering section e', which in turn is fixed to and carried by the lower or outer rib sections b'. In order to connect the two sections of the covering so that when the umbrella is in

a raised position they will be prevented from separating at their adjacent overlapping portions, I provide any desired form of fastening, such—for example—as that commonly used on gloves, which consists of a
 5 metallic socket e^2 , fixed to the upper covering section e and adapted to receive a projection from a metallic piece carried by the covering section e' .

It will be understood that when the umbrella is in condition for packing or convenient transportation in a
 10 relatively small space, the two parts of the stick A are separated, the lower runner C' being carried independently of the lower stick section by the struts d^2 . The upper rib sections with their fabric covering, as well as the links therefor, lie substantially parallel with the
 15 upper stick section, as do also the struts d^2 , the two sets of links d' and d , with the outer rib sections and their fabric covering e' ; it being understood that these latter rib sections are detached from the upper sections so that they may be conveniently carried within the folded
 20 covering e .

If it now be desired to raise the umbrella, the lower stick a' is passed through the runner C' and connected to the upper stick section, as shown in Fig. 11. Each of the upper rib sections b is then connected to its corresponding lower rib section b' by entering its end in the
 25 sleeves b^4 so as to cause the catch b^2 to engage the head b^3 of said lower section. The upper runner C is next moved upwardly until its spring catch engages one of the lower teeth a^4 , after which the lower runner C' is
 30 moved upwardly and finally held at a predetermined height by the well known spring catch c on the stick. The upward movement of the lower runner C' causes a toggle action of the links d and d' , for, as the struts d^2 are pushed upwardly, they necessarily pull up the links
 35 d' and consequently so move the point of junction of each pair of the links d with a link d' , as to tend to bring each pair of the links d into the same straight line; the chains d^3 preventing outward motion of the upper ends of the struts or compression members d^2 beyond the pre-
 40 determined amount necessary to bring said links d into the above position and the straightening of each pair of the links d extending the lower rib sections d' so as to fully distend the lower or outer section of the fabric cover. If it should be found that this action upon the
 45 lower rib and covering sections tends to improperly alter the positions of the upper rib sections b relatively to the sections b' , these latter may be restored to a position in which the inner fabric covering is given proper tension by a further upward movement of the runner C ,
 50 which is retained in its final position by its catch c' , as above noted. The various fasteners between the upper and lower covering sections are then connected as illustrated in Fig. 10, after which the umbrella is ready for use.

It will be noted that the inner covering section extends over the lower section e' so that whatever water runs from the inner to the outer or lower section is shed without the possibility of its getting inside of the cover. In order to take apart the device, the above noted oper-
 60 ations are reversed.

If desired, the outer rib sections b' may be hinged to the inner or upper sections b as indicated in Fig. 12, although in such case each set of ribs would have its own independent covering fabric. The outer set of
 65 ribs would, when the umbrella was collapsed, fold in-

wardly against the ribs b , and when the umbrella was raised would be held in their extended position by the knuckle joints between the supporting struts d^8 .

If it be desired to simultaneously operate both of the runners C and C' , this may be accomplished by the use
 70 of a device such as is shown in Fig. 13. Said device includes a spring piece j hinged to the runner C and provided with an opening through which passes the second runner C' . When this latter runner is moved the runner C is also moved by reason of the piece j en-
 75 gaging the flanges of runner C' , and as the said piece j always tends to grip the cylindrical surface of the runner C' because of its spring construction the upper runner will be held in any desired position and may be moved independently of runner C . 80

I claim as my invention:

1. An umbrella including a stick, main ribs connected thereto, a cover upon said ribs, auxiliary ribs connected to said main ribs to form extensions thereof, two sets of links for respectively supporting said two sets of ribs, and
 85 an independent cover for the auxiliary ribs forming a substantially continuous surface in extension of the main rib cover, substantially as described.
2. An umbrella including a stick, main ribs connected thereto, a cover upon said ribs, auxiliary ribs connected to
 90 said main ribs to form extensions thereof, two sets of links for respectively supporting said two sets of ribs, and a cover for the auxiliary ribs forming an extension of the main rib cover, said second cover extending under the first cover, and means for detachably securing said two covers
 95 together, substantially as described.
3. An umbrella having a two-part cover, a frame for supporting the same, said frame including a stick, ribs made in two sections respectively connected together to
 100 form a continuous support for said cover, with means for bringing said ribs into a position to distend the cover thereon, substantially as described.
4. An umbrella having a cover, and a frame including a stick, ribs for the cover each made in two sections detachably connected together and arranged to form a con-
 105 tinuous support for said cover, two independently movable runners on the stick, and two series of links respectively connecting said runners to the respective sections of each rib, substantially as described.
5. An umbrella including a cover, ribs for supporting
 110 the same, each of said ribs being made in two parts to permit of the umbrella being folded, one forming an extension of the other, means for supporting the ribs, the same including a toggle between each pair of the ribs, with means for operating said toggles, substantially as de-
 115 scribed.
6. The combination in an umbrella, of a frame and a cover therefor, said frame including ribs made in a plurality of sections, a runner and a set of links for operating one series of said rib sections, and a second runner,
 120 with compression members and toggles connected thereto, for supporting the second series of rib sections, substantially as described.
7. The combination in an umbrella, of a frame and a cover therefor, said frame including ribs made in a plu-
 125 rality of sections, a runner and a set of links for operating one series of said sections, and a second runner, with compression members and toggles connected thereto, for supporting a second series of rib sections, with means for limiting the movement of the compression members rela-
 130 tively to the second runner, substantially as described.
8. The combination in an umbrella, of a frame and a cover therefor, said frame including a stick, two independent sets of links, two sets of ribs respectively co-operating therewith and connected to the stick, runners for operat-
 135 ing said links, and means for retaining the upper one of the runners in any one of a plurality of positions upon the stick.
9. The combination in an umbrella, of a frame and a cover therefor, said frame including a stick, two independ-
 140 ent sets of links, two sets of ribs respectively co-operating

therewith and connected to the stick, runners for operating said links, and means connecting the runners to permit of their simultaneous movement, substantially as described.

5 10. The combination in an umbrella, of a cover, a frame for supporting said cover including a stick and a number of ribs, a plurality of independent links for supporting each rib, and means for operating said links, said cover being made in a plurality of detachable parts, and said 10 ribs being made in sections, one series of said sections supporting one portion of the cover, and the other series of sections supporting the second portion thereof, substantially as described.

15 11. In an umbrella, the combination of a stick, a series of ribs and a cover, the stick, each rib and the cover being made in a plurality of separable parts, and the parts of the cover forming a substantially continuous surface, means for maintaining said cover and the ribs in their connected positions, and two independent series of links 20 for respectively supporting the parts of the ribs, substantially as described.

25 12. The combination in an umbrella, of a frame including a stick, a plurality of ribs and a cover, each of said ribs being made in a plurality of parts held together by spring catch devices, one set of said rib parts being permanently connected to the stick, and the cover being made in two parts, of which one is fixed to those rib parts per-

manently connected to the stick and the other is attached to the other sections of said ribs, substantially as described.

30 13. The combination in an umbrella, of a two-part cover, a series of ribs each made in two parts and respectively supporting the parts of the cover, a series of links c for operating one set of rib sections, a second series of links connected to each other and to the second set of rib 35 sections, a third series of links respectively connected to the points of connection of said series of links, a runner on the stick, and compression members connecting the third series of links with said runner, with a runner for the first series of links, substantially as described.

40 14. An umbrella having a frame including ribs each made in a plurality of separable parts, one part of each rib being provided with a spring catch and the other with a head formed to be engaged by said catch, a two-part 45 cover for said umbrella fitted to the ribs, and a handle for supporting the frame, with means for raising and lowering the frame, substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN E. DIMOND.

Witnesses:

MURRAY C. BOYER,
WILLIAM E. BRADLEY.