

No. 781,447.

PATENTED JAN. 31, 1905.

J. W. MYERS.
SICKLE GRINDER.

APPLICATION FILED APR. 4, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

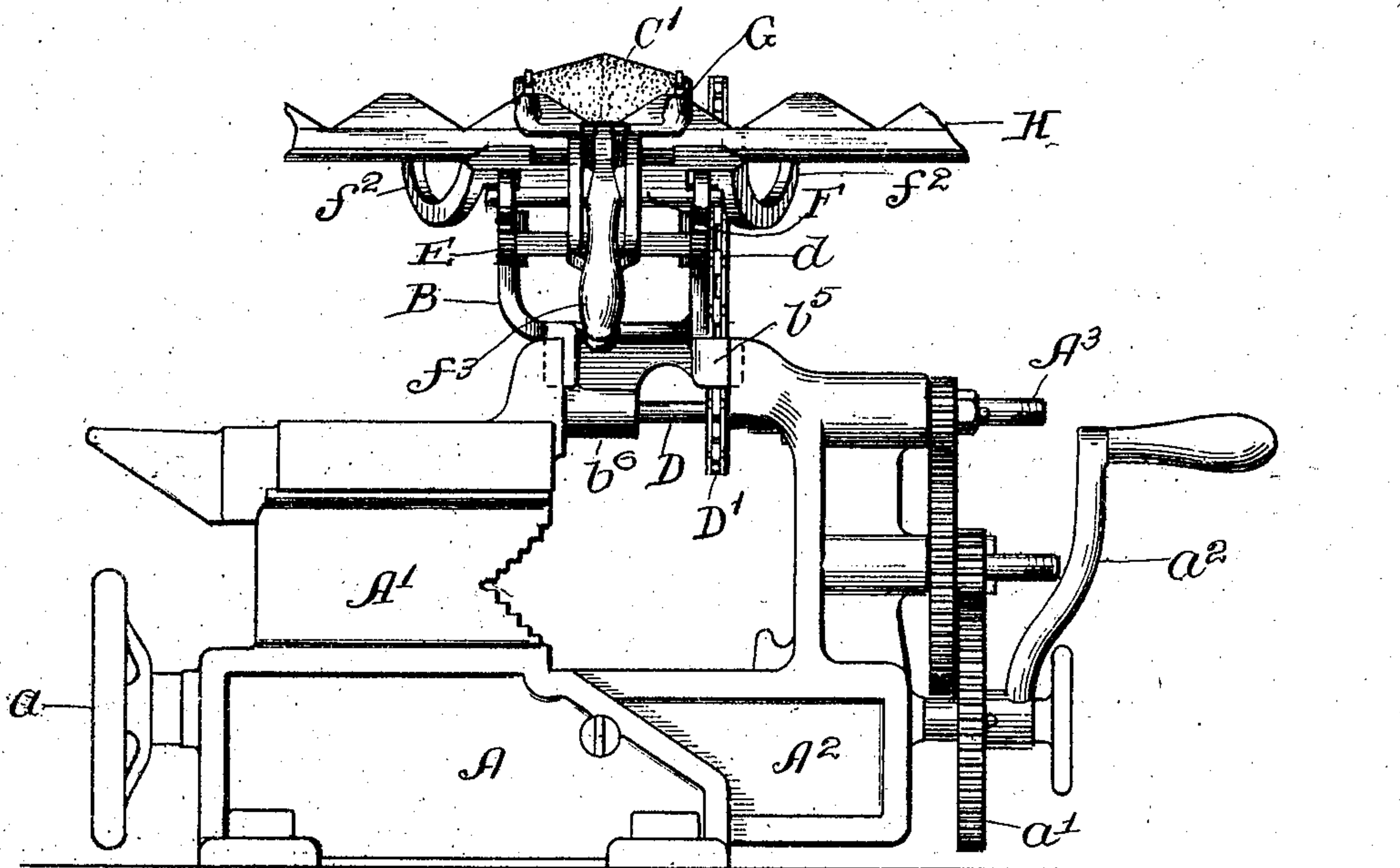
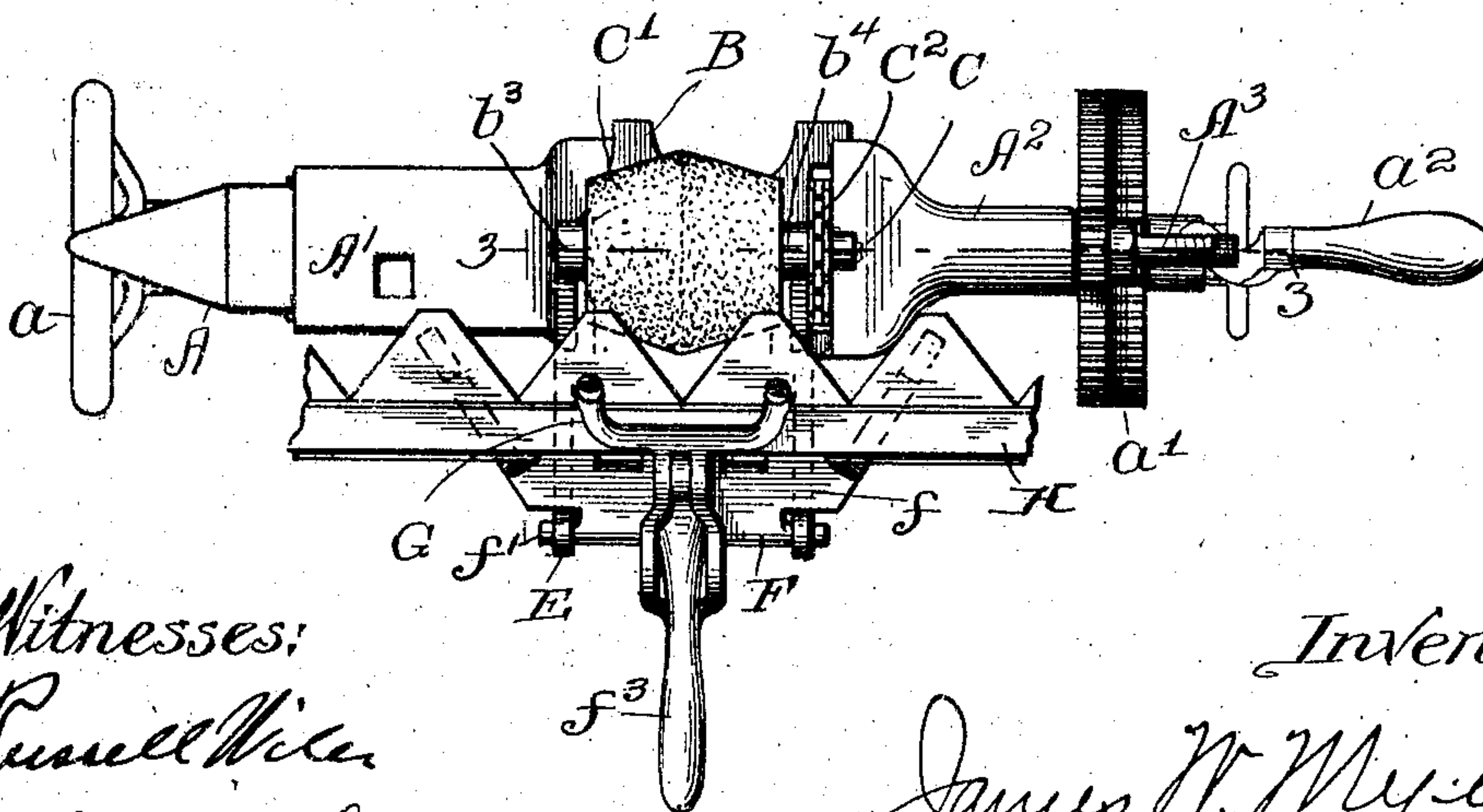


Fig. 2.



Witnesses:

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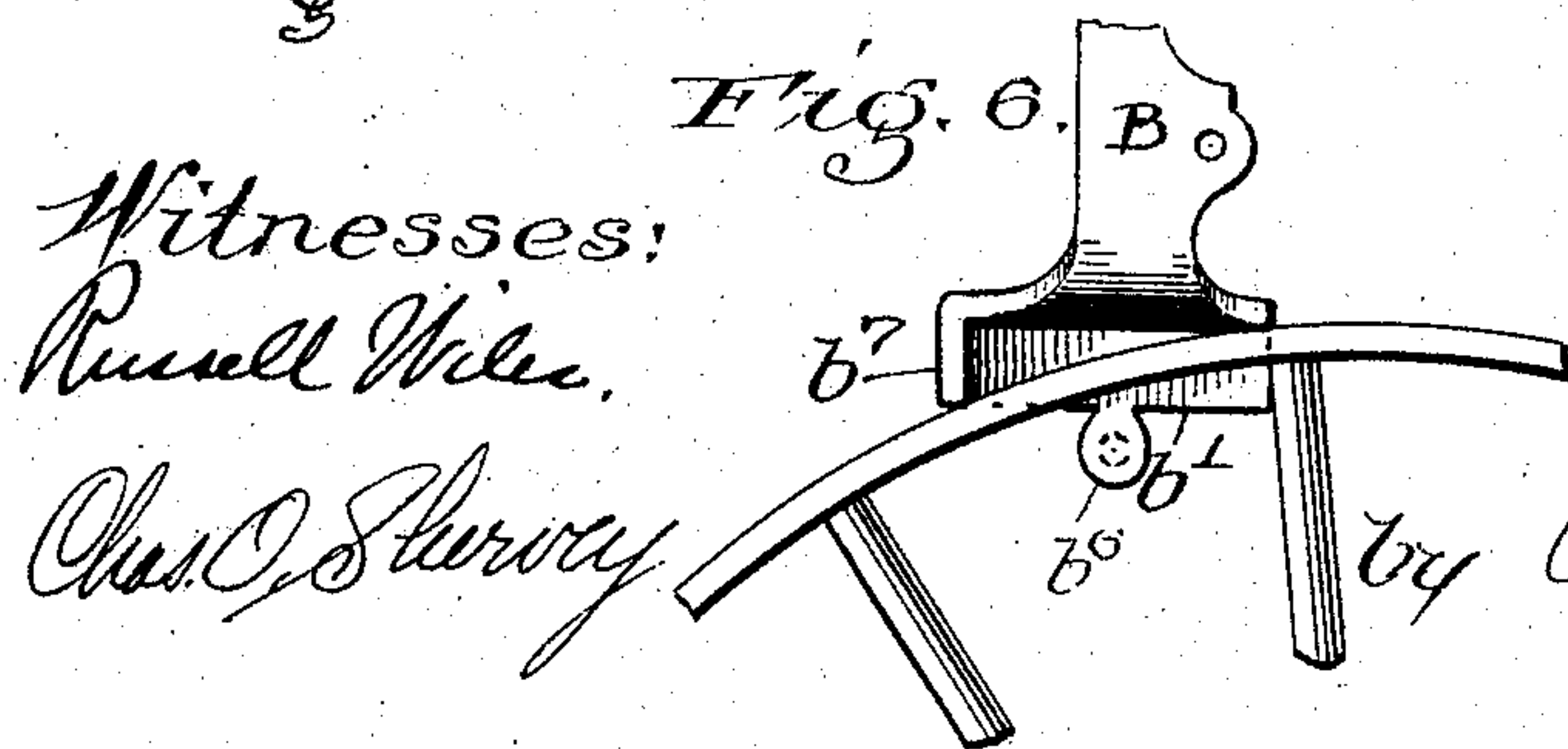
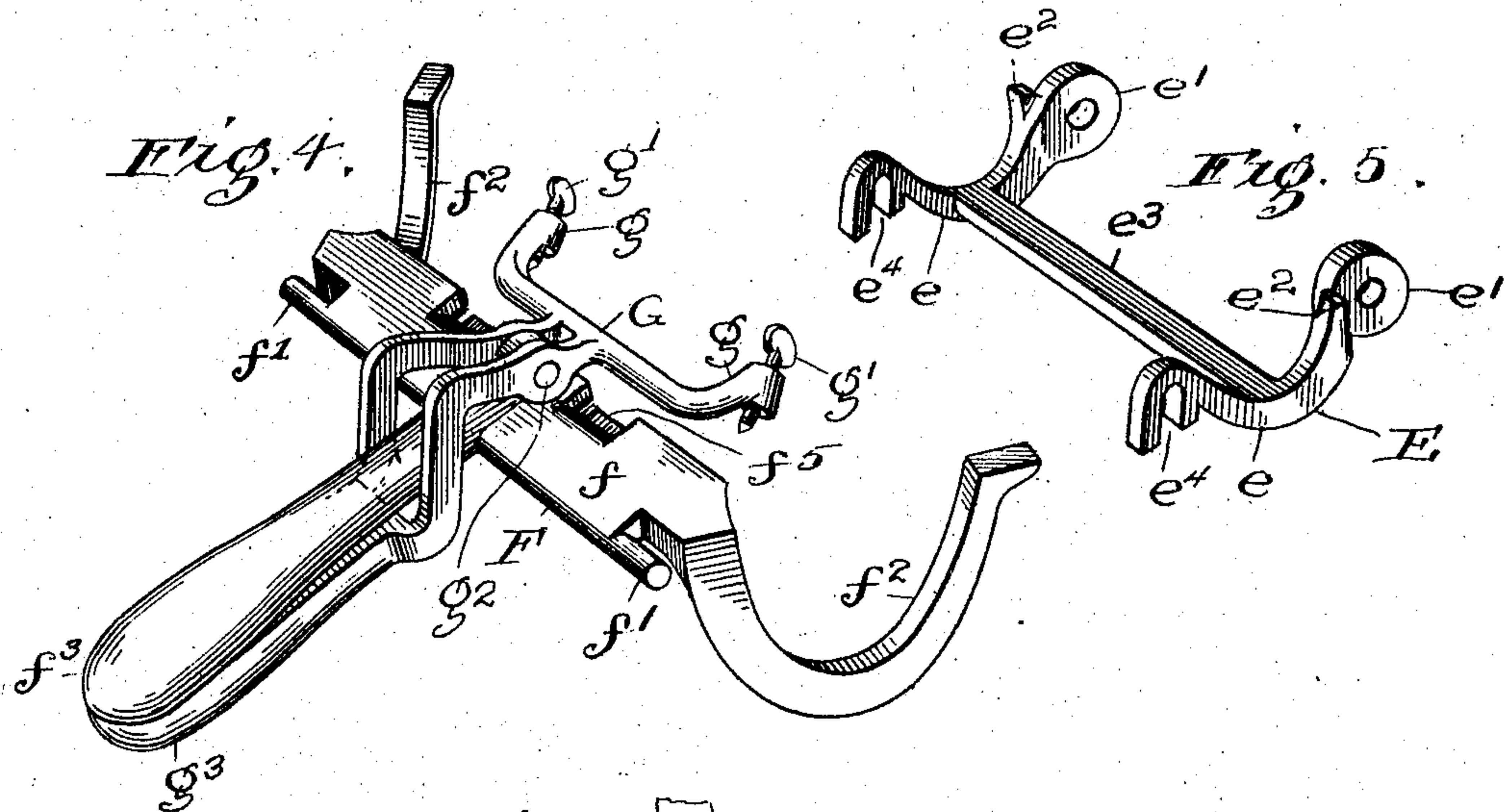
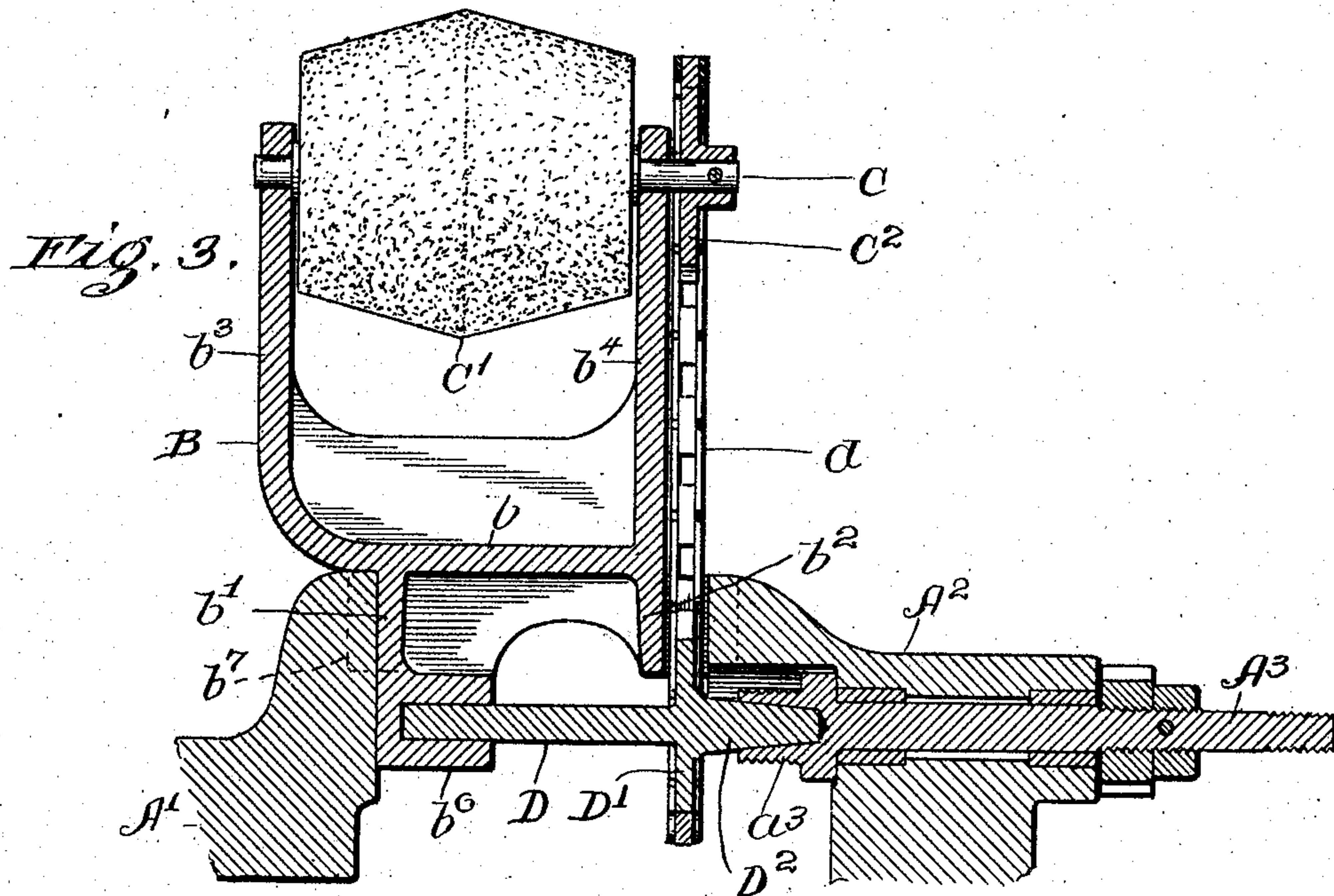
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3 SHEETS—SHEET 2.



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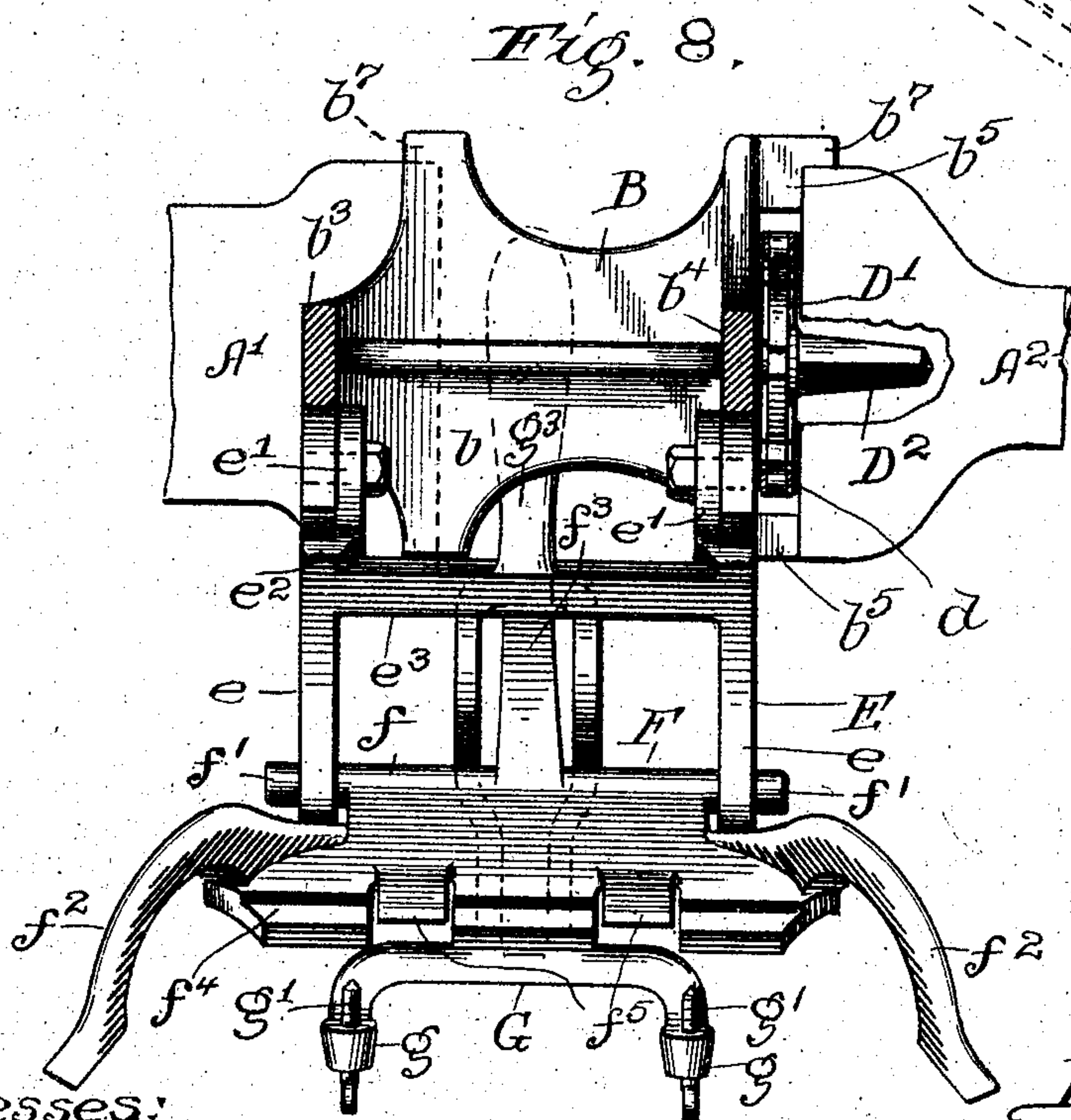
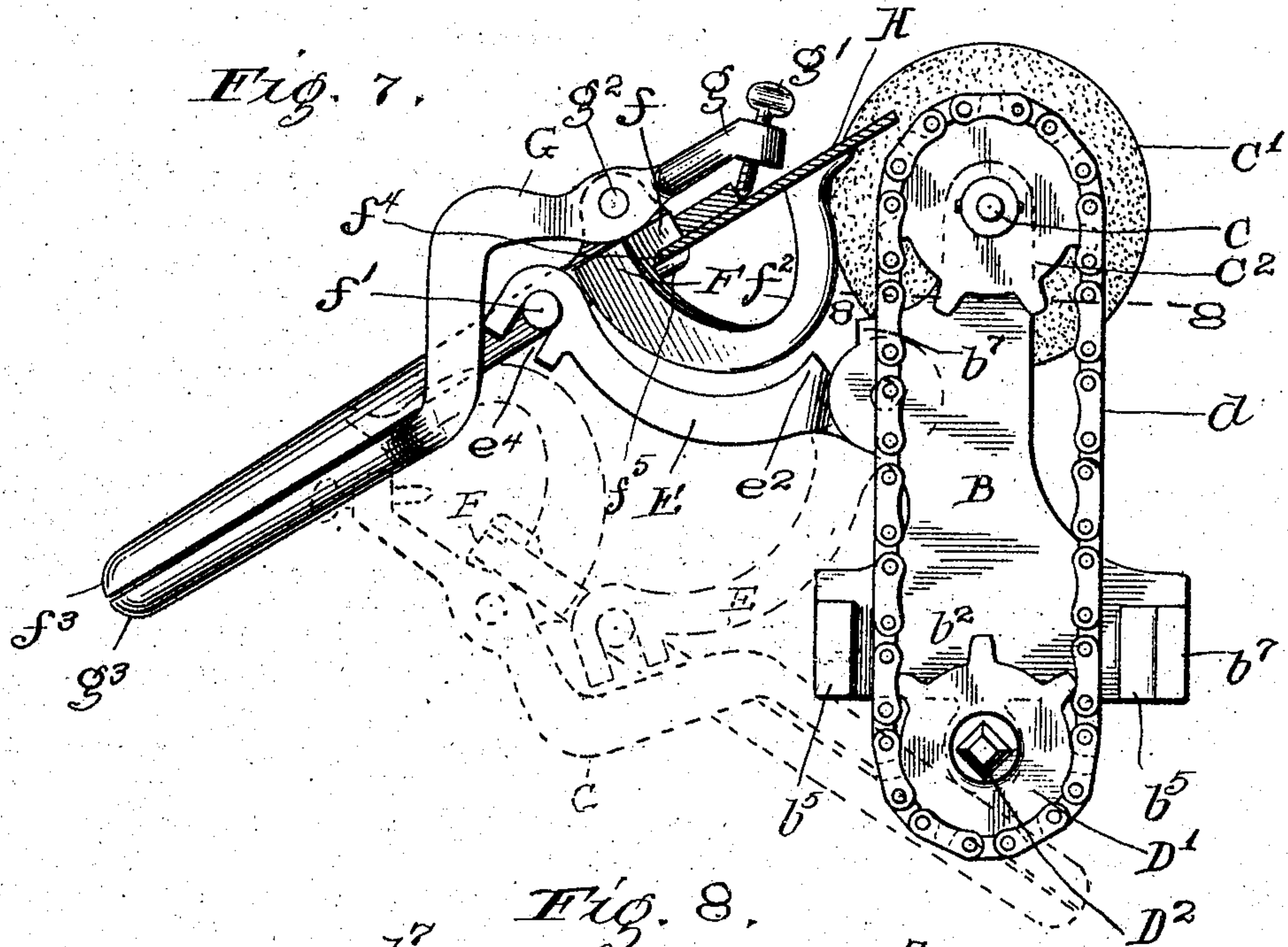
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES W. MYERS, OF CHICAGO, ILLINOIS.

SICKLE-GRINDER.

SPECIFICATION forming part of Letters Patent No. 781,447, dated January 31, 1905.

Application filed April 4, 1904. Serial No. 201,617.

To all whom it may concern:

Be it known that I, JAMES W. MYERS, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sickle-Grinders, of which the following is a specification.

My invention relates to certain new and useful improvements in sickle-grinders; and its object is to produce a device of this class which shall have certain advantages which will appear more fully and at large in the course of this specification.

To this end my invention consists in certain novel features of construction, which are clearly illustrated in the accompanying drawings and described in this specification.

In the aforesaid drawings, Figure 1 is a front elevation of a vise, showing my improved sickle-grinder in place. Fig. 2 is a top plan of the same. Fig. 3 is a vertical section in the line 3 3 of Fig. 2. Fig. 4 is a perspective view of the sickle-clamping jaws. Fig. 5 is a perspective view of the link to which the clamping-jaws are pivoted. Fig. 6 is a view illustrating the manner in which the grinder can be attached to other supporting devices—as, for instance, a mower-wheel. Fig. 7 is an elevation of the sickle-grinder proper removed from the vise; and Fig. 8 is a section in the line 8 8 of Fig. 7 looking downward, the clamping-jaw and the link supporting the same occupying a position shown in dotted lines in Fig. 7.

Referring to the drawings, A indicates a vise which is used to support my improved device. The stationary jaw of this vise is indicated by A', the movable jaw by A². A hand-wheel *a* is provided for drawing the two jaws together, and the movable jaw A² is provided with a train of gears *a'*, driven by a crank *a''*, to rotate a shaft A³ in the upper end of said movable jaw. The inner end of this shaft A³ has a head *a'''*, (see Fig. 3,) having a non-circular central socket for engagement with other devices.

B indicates the supporting-frame of my improved sickle-grinder. This frame has a horizontal web *b*, having downwardly-projecting flanges *b'* *b''* and upwardly-extending

portions *b'''* *b''''*. The downwardly-extending flange *b''* has suitable lugs *b'''* at its edges, and the entire piece B is adapted to be supported by the jaws of the vise A, the two jaws engaging with the downwardly-projecting flanges *b'* and with the lugs *b'''* on the downwardly-projecting flanges *b''*. Vertical flanges *b'''* extend along one of the edges of the flanges *b'* *b''* to assist in positioning the frame upon the jaws of the vise. All the parts of this supporting-frame B are preferably cast integral and suitable strengthening-ribs are provided, as illustrated. A shaft C is journaled in the upper end of the upwardly-extending members *b'''* *b''''*. This shaft bears an emery-wheel C' between the supporting members *b'''* *b''''* and a sprocket C² outside the supporting member *b''''*. The downwardly-projecting flange *b'* has at its lower end a socket *b''*, in which is journaled one end of a shaft D, said shaft carrying a sprocket D', having a non-circular spindle D², adapted to engage with the non-circular socket in the head *a'''* of the shaft A³. The sprockets C² and D' are connected by a suitable chain *d*. The chain *d* passes through the space inclosed by the lugs *b'''*, the movable jaw of the vise, and the downwardly-projecting flange *b''* on the frame B, and the lugs are provided for the purpose of affording this space through which the chain can pass. It will be evident that when the train of gears is set in motion the emery-wheel C' will be rotated at a high speed. The shaft D is provided with a bearing at one end only, the other end being supported by the shaft A³, and this construction is particularly desirable, because it permits a certain limited movement of the end of the shaft, and consequently lets it work freely and without binding even if the parts are not perfectly adjusted. To the upwardly-extending supports *b'''* *b''''* is pivoted a link E, Fig. 5. Said link consists of two arms *e*, having heads *e'* pivoted to the supporting members *b'''* *b''''* and provided with stops *e''*, engaging with similar stops *b'''* on the supports *b'''* *b''''* to limit the upward movement of the link. The arms *e* are connected by an integral cross-bar *e'''* and have at their free ends notches *e''''*.

F indicates the lower clamping-jaw, which

holds the sickle to be operated on. This jaw has a flat web f , integral laterally-projecting pins f' , sickle-engaging portions f'' , and a handle f^3 . The pins f' are pivoted in the notches e^4 in the link E, and it will be seen that the faces of the sickle-engaging portions f'' lie close beside the pins, so that the pins can only be slipped into the notches when the link E and the jaw F are swung substantially into line, so that the handle f^3 approaches the lower side of a cross-bar e^3 . The parts can only reach this position when the link is swung up nearly to its upper limit of movement, for when the link is swung down—as shown, for instance, in dotted lines in Fig. 7—the handle will not ordinarily swing up to the cross-bar e^3 , being arrested by the frame B, as illustrated. This construction is such, therefore, that the jaw F can be swung up adjacent to the emery-wheel without disengaging the parts and can be dropped to let the link swing down to its lower limit of movement. When the link swings down in this way, the rear ends of the sickle-engaging portions b^2 engage with the ends of the arms e of the links, preventing the disengagement of the parts. In this way a simple, cheap, and very effective self-locking pivot is provided. The web f is formed with a shoulder f^4 , against which the sickle H rests, and lugs f^5 , adjacent to the shoulder f^4 , forming therewith a guide for the sickle.

To the jaw F at g^2 is pivoted a jaw G, which has two sickle-engaging portions g , opposed to the web f of the jaw F. The jaw G has a handle g^3 , adapted to be grasped with the handle f^3 to draw the engaging ends of the jaws together. The jaw G is also provided at its engaging end with adjusting-screws g' , whereby sickles of various constructions may be clamped in place.

The operation of this device will be very readily apparent. A sickle H is placed in position between the jaws and the jaws are brought together upon it by drawing the handles together. The emery-wheel is then rotated, as heretofore explained, and the sickle is swung up into contact therewith by raising the handles f^3 g^3 and moving the sickle back against the emery-wheel.

It is frequently desirable to support the sickle-grinder upon the mowing-machine for use in the field, and my device is particularly desirable for this purpose. The frame is removed from the vise and can be fastened to the wheel of the mowing-machine, as illustrated in Fig. 6, with an ordinary clamp of any sort. The flange b^7 on the downwardly-projecting flange b' engages with the wheel to level the device, and the emery-wheel can then be driven by the handle attached directly to its shaft. It is of course obvious that the frame can be supported in the jaws of a vise of the ordinary construction or upon a bench by a clamp or other device.

I realize that considerable variation is possible in the details of this construction without departing from the spirit of my invention, and I therefore do not intend to limit myself to the specific form herein shown and described.

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

1. The combination with a vise having opposing jaws, and a rotatable shaft mounted in one of said jaws, of a sickle-grinder having a supporting-frame constructed and arranged to be grasped by said jaws, a grinding-wheel mounted in the frame, and means for connecting the grinding-wheel with the rotatable shaft of the vise.

2. The combination with a vise having opposing jaws, and a rotatable shaft mounted in one of said jaws, of a sickle-grinder having a supporting-frame constructed and arranged to be grasped by said jaws, a grinding-wheel mounted in the frame, means for connecting the grinding-wheel with the rotatable shaft of the vise, and means for supporting a sickle and holding the same in contact with the grinding-wheel.

3. The combination with a vise having opposing jaws, and a rotatable shaft mounted in one of said jaws, of a suitable supporting-frame constructed and arranged to be grasped by said jaws, a grinding-wheel journaled in the frame, a shaft journaled at one end in said supporting-frame and having the other end constructed and arranged to be detachably secured to the end of the shaft of the vise, and means of connection between the shaft journaled in the frame and the grinding-wheel.

4. The combination with a vise having opposing jaws, and having a rotatable shaft journaled in one of said jaws, of a supporting-frame having downwardly-projecting flanges, lugs upon one of said flanges, the lugs and the other flanges being constructed and arranged to be grasped by the jaws, a grinding-wheel journaled in the supporting-frame, a sprocket secured to the shaft of the grinding-wheel, a second sprocket rotated by the shaft in the vise, and a chain passing over said sprockets and between the lugs on the downwardly-projecting flange of the frame.

5. The combination with a suitable supporting-frame, of a grinding-wheel journaled in the frame, means for driving said wheel, a link pivoted to the frame and arranged to swing in a vertical plane, laterally-open notches in the end of said link, a pair of sickle-supporting jaws, pins in the end of one of said jaws, arranged to enter the notches on the link when the two are swung into line, engagement devices on the jaw, cooperating with the link to prevent the disengagement of the pins from the notches when the link and jaw are not in line, and means for limiting the relative rotation of the parts to prevent the link and jaw from accidentally falling into line.

6. The combination with a supporting-frame, a grinding-wheel journaled therein and means for driving the same, of a link pivoted to the supporting-frame, one clamping-jaw pivoted to the link, a second jaw pivoted to said first jaw and coöperating therewith to grasp a sickle, and handles upon each of said jaws adapted to draw their operative ends together.

10 7. The combination with a supporting-frame, a grinding-wheel journaled therein and means for driving the same, of a link pivoted to the supporting-frame, one clamping-jaw pivoted to the link, a second jaw pivoted to said first jaw and coöperating therewith to grasp a sickle, handles upon each of said jaws, adapted to draw their operative ends together, and means for adjusting the opening between the operative ends of said jaws.

8. The combination with a supporting-frame, a grinding-wheel journaled therein and means for driving the same, of a link pivoted to the supporting-frame, one clamping-jaw pivoted to the link, a second jaw pivoted to said first jaw and coöperating therewith to grasp a sickle, handles upon each of said jaws, adapted to draw the operative ends together, and suitable adjusting-screws at the operative end of one of said jaws for adjusting the size of the jaw-opening.

In witness whereof I have signed the above application for Letters Patent, at Chicago, in the county of Cook and State of Illinois, this 21st day of March, A. D. 1904.

JAMES W. MYERS.

Witnesses:

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CHAS. O. SHERVEY.