

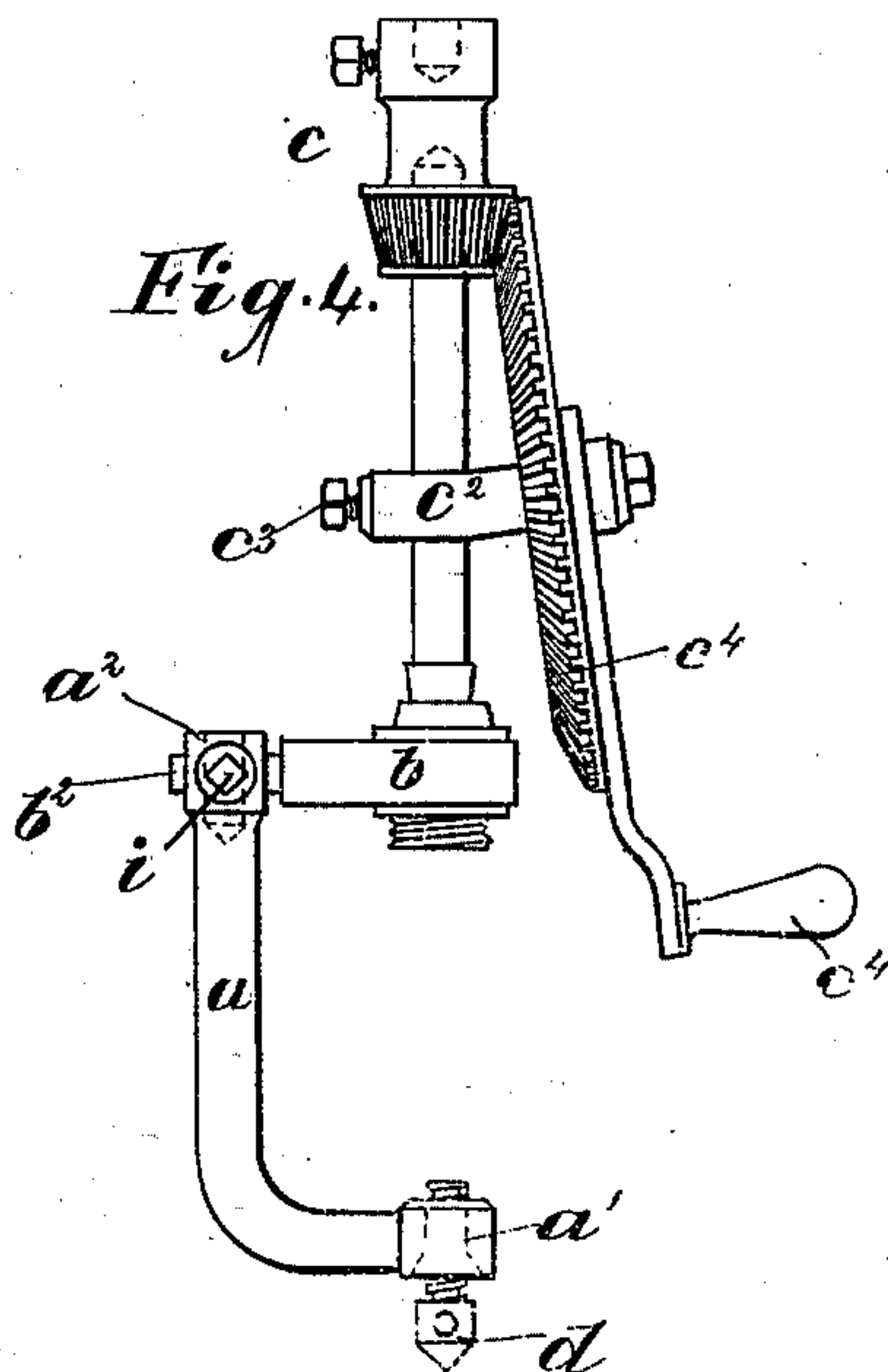
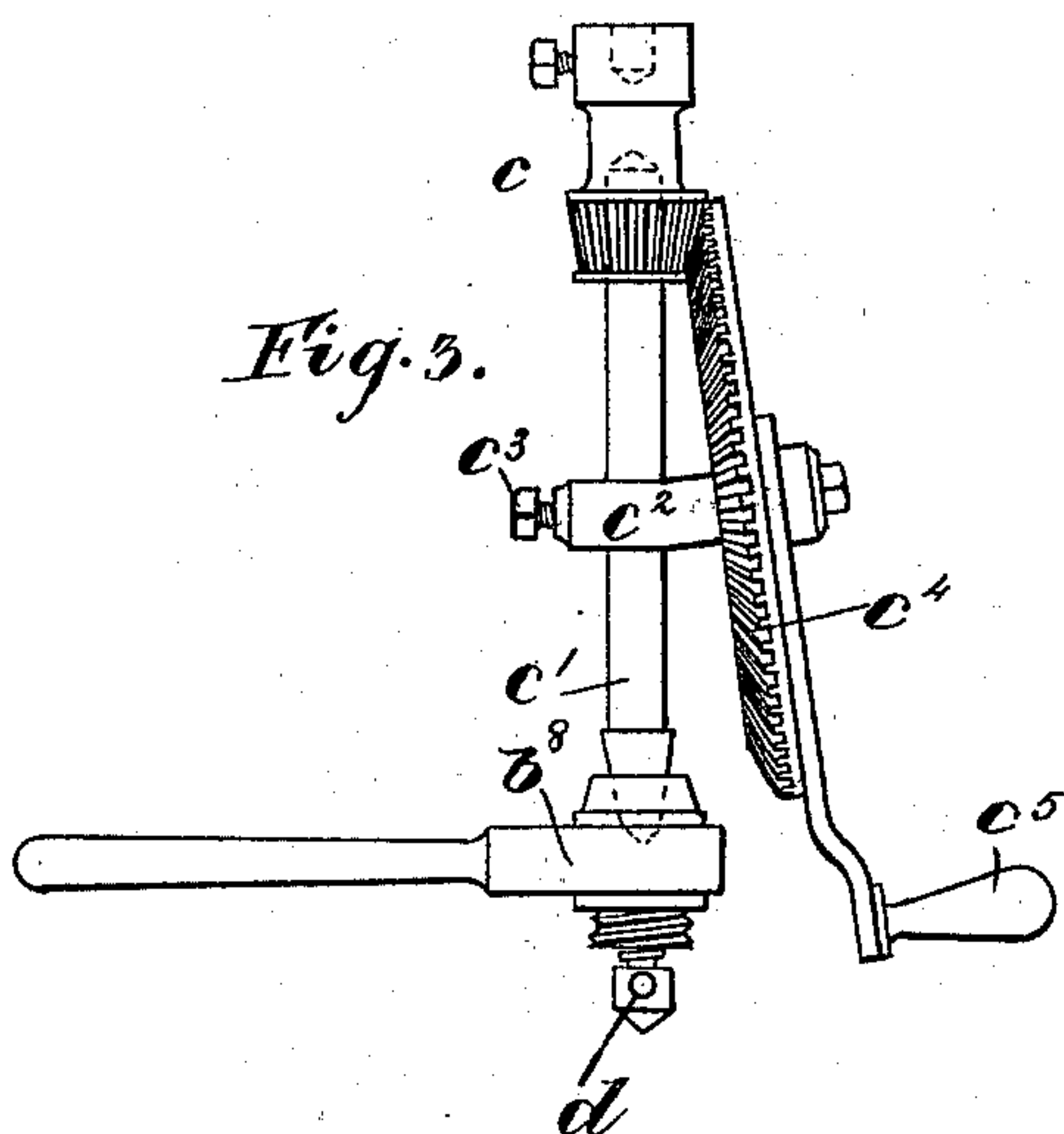
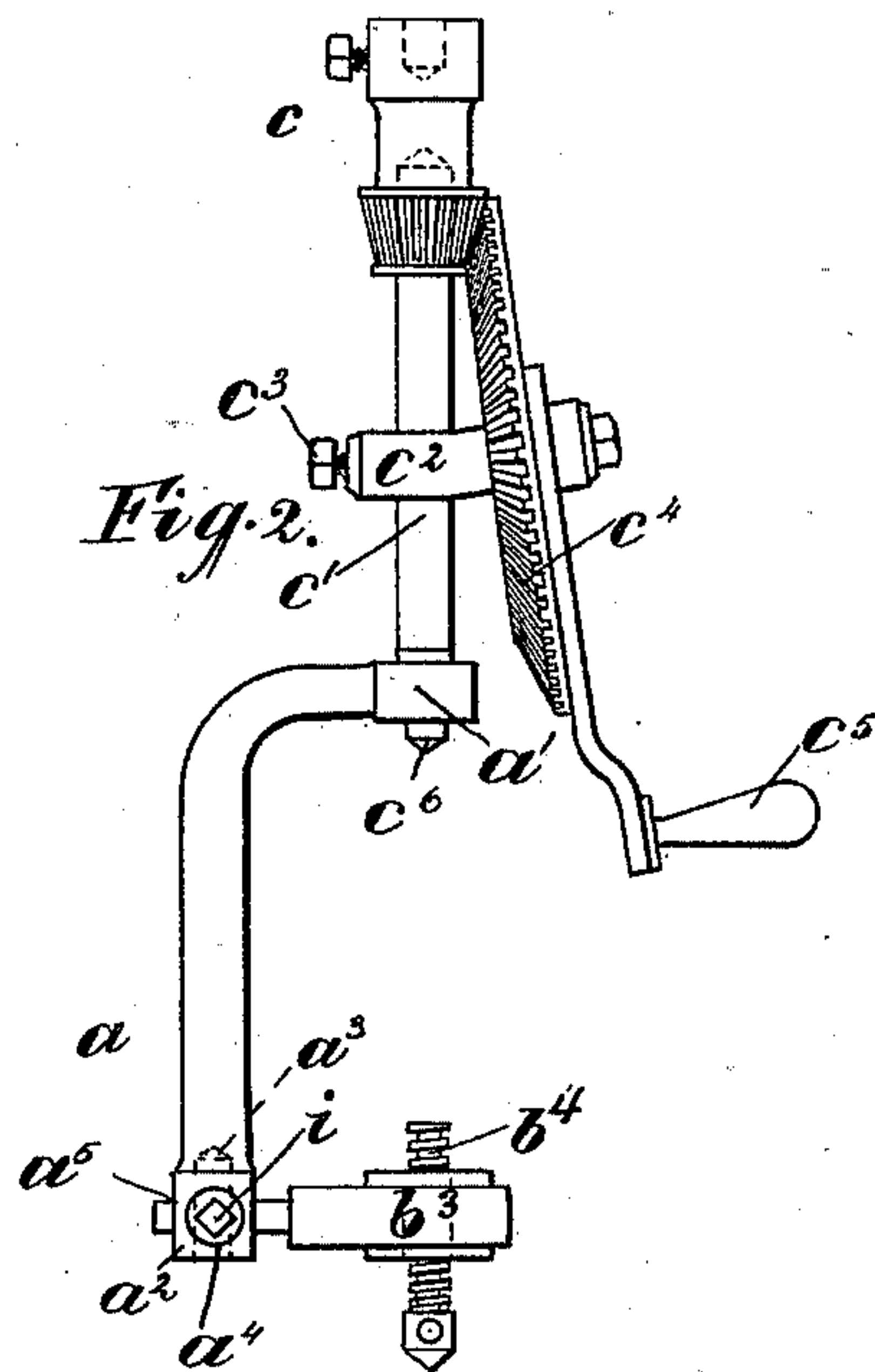
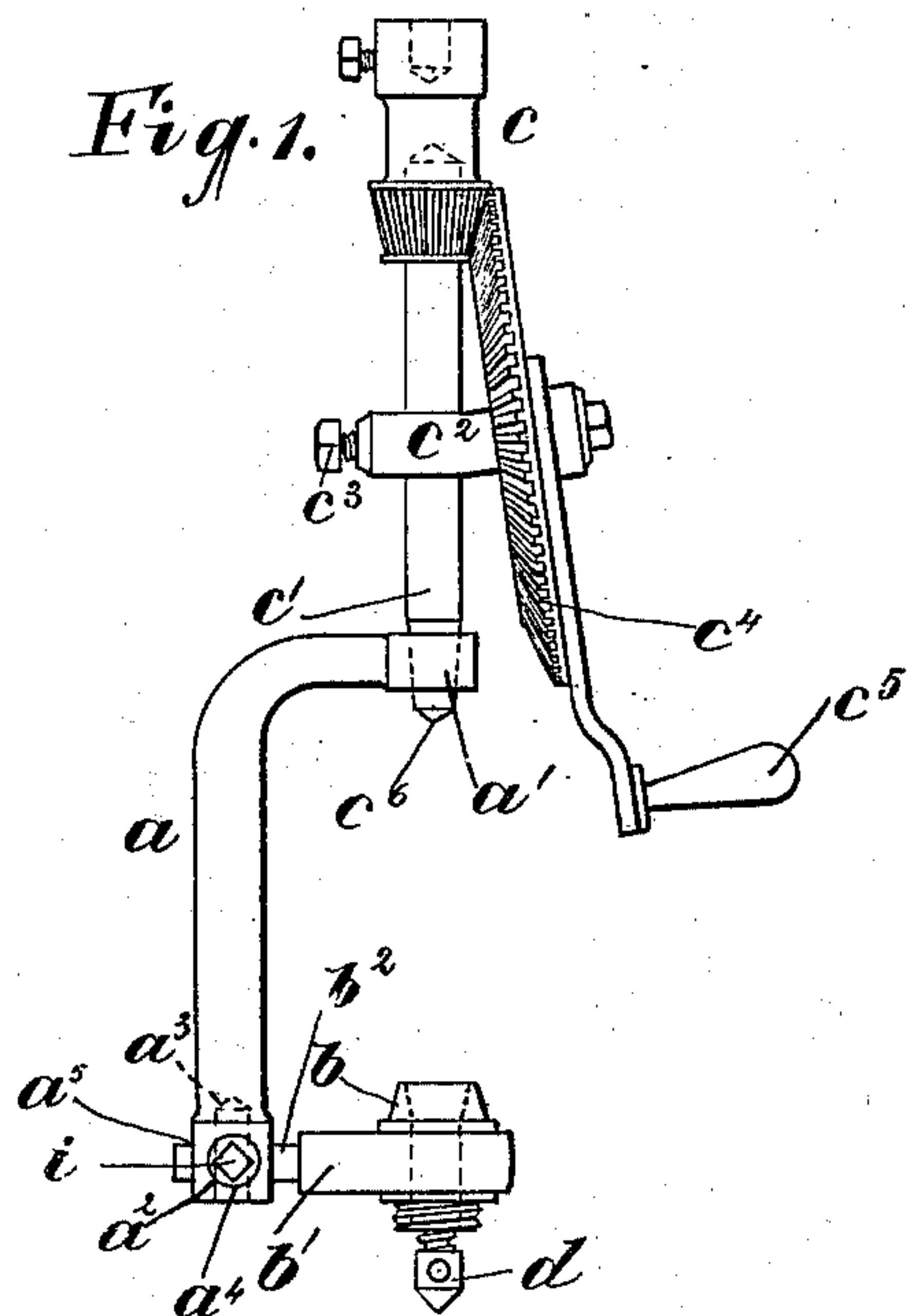
(No Model.)

2 Sheets—Sheet 1.

A. A. TATTERSALL.
COMBINATION TOOL.

No. 560,824.

Patented May 26, 1896.



Witnesses:

J. C. Hebert.
O. Block.

Inventor:

Arthur A. Tattersall,
By H. A. De Vos,
Attorney.

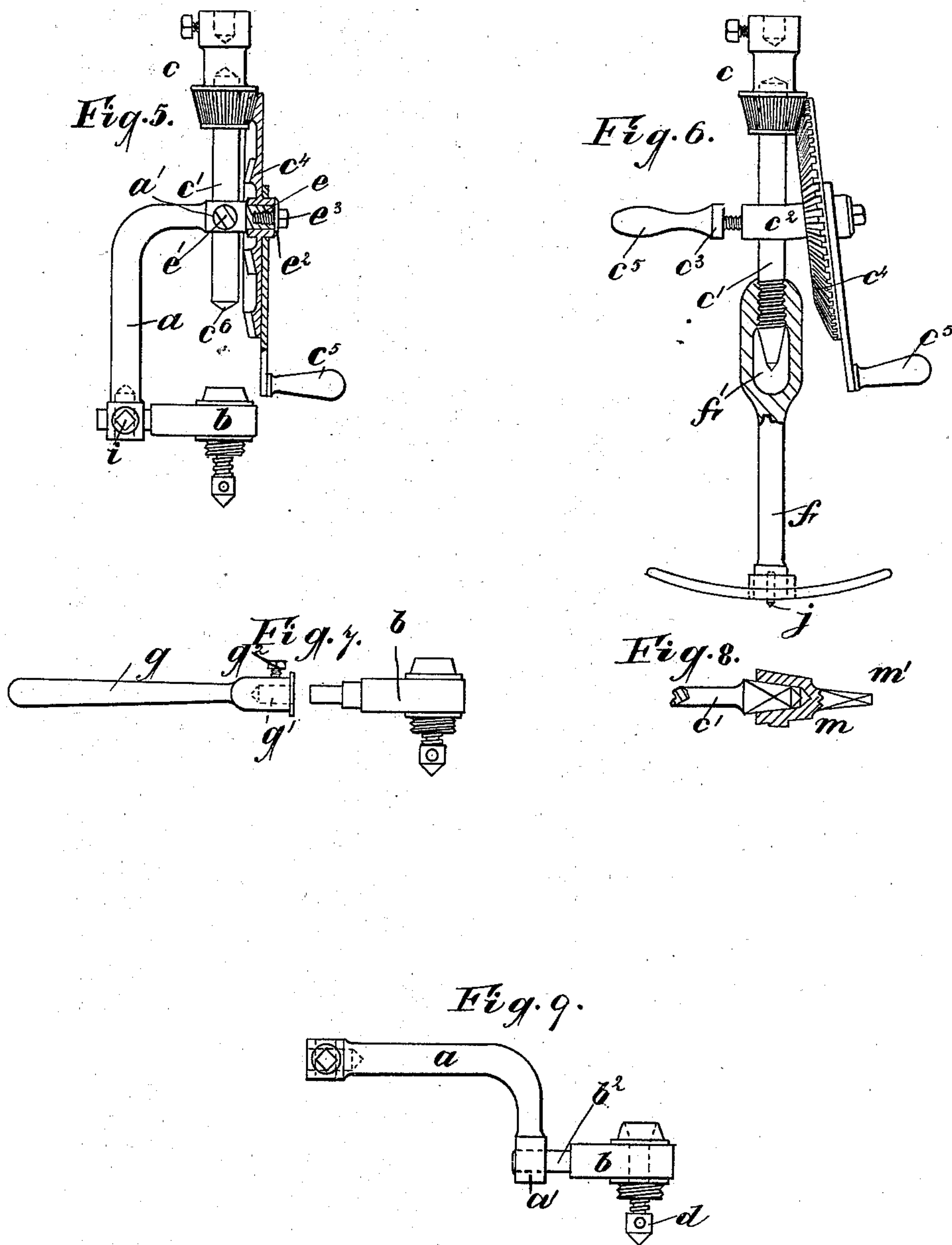
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UNITED STATES PATENT OFFICE.

ARTHUR ALBERT TATTERSALL, OF BLACKBURN, ENGLAND.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 560,824, dated May 26, 1896.

Application filed October 30, 1895. Serial No. 567,405. (No model.) Patented in England May 13, 1893, No. 9,576.

To all whom it may concern:

Be it known that I, ARTHUR ALBERT TATTERSALL, a subject of the Queen of Great Britain, and a resident of the town of Blackburn, county of Lancaster, England, have invented certain new and useful Improvements in Combination-Tools, (for which I have obtained a patent in Great Britain, No. 9,576, bearing date May 13, 1893,) of which the following is a specification.

This invention relates to a tool which combines in one a ratchet, a crank-brace, and a drill.

In carrying out my invention I make the tool in three separate parts, the first part being a crank-arm, the second a ratchet, and the third a drill. The ratchet or the drill can be used alone, or the crank and ratchet, or all the parts can be combined together so as to form one tool; and in order that my said invention may be properly understood I have hereunto appended two explanatory sheets of drawings, whereon—

Figures 1 to 9 show different forms of the combination-tool.

On the drawings the same reference-letters, wherever repeated, indicate the same or similar parts.

In Fig. 1 a combination-tool is shown consisting of a bent or cranked bar a , having at one end a boss a' , provided with a vertical taper-socket, and at the other end a boss a^2 , provided with a central vertical socket a^3 and two horizontal holes a^4 a^5 at right angles to each other. The holes a^3 and a^5 are square, while the hole a^4 is tapped for a pinching-screw i . A ratchet b , having a short arm b' with a square end b^2 , is fitted into the horizontal hole a^5 of the boss a^2 , while the lower tapered end of the spindle c' of the drill c is fitted into the tapered hole in the boss a' . This drill, which may be otherwise of the usual construction, is made with a cranked or bent part or stud c^2 , which is fitted to and capable of sliding up and down the spindle c' . The stud is clamped to the spindle by the pinching-screw c^3 . The driving gear-wheel c^4 is mounted on the extremity of the bent part of the stud, as shown.

The object of making the stud bent, as shown, is to support the wheel c^4 at an angle so that it will clear the boss a' of the brace,

or the boss b' of the ratchet if the drill is fitted into the latter.

This tool is specially adapted for working in metal, and it will be found very useful by mechanics and others, as it practically combines in one three separate tools—viz., a drill, a brace, and a ratchet. When the drill is fitted into the boss a' , as shown, the tool can be used like an ordinary drill and be driven by the handle c^5 , or it may be turned by the crank a and be used in the same manner as an ordinary brace. When it is used as a brace, the ratchet part b should be turned around to a position at right angles to that shown, so that the screw d would not penetrate the body or breast, and the ratchet-head would be thus made to serve as a breastplate. If so desired, the parts can be taken asunder and the drill-spindle c' be fitted into the ratchet b in the same manner as shown with an ordinary ratchet at Fig. 3. In this case the tool serves as a ratchet with a short lever-arm; but the arm can be lengthened by securing the crank a to it, as shown at Fig. 9. In this case the ratchet-feed would be put on by the screw d in the ordinary manner.

As will be seen, the lower end of the drill-spindle c' is made with a point or center c^6 on it, against which, in certain positions of the drill when used alone and where sufficient pressure cannot be brought to bear directly on it, a piece of wood or a bar of metal can be placed and its leverage used to produce the required pressure.

In Fig. 2 the ratchet b is replaced by a swivel-head b^3 , which is provided with a feeding-screw b^4 . This swivel-head, when turned around to a position at right angles to that shown, serves the purpose of a breastplate. The head is removably secured to the crank a in the same manner as the ratchet-arm, Fig. 1—i. e., by being fitted in the hole a^5 in the head of the crank a and secured therein by a pinching-screw i . In this case the tool can be used either as a cranked brace or as a drill.

In Fig. 3 the drill is shown as fitted in an ordinary ratchet b^8 and the pressure is applied by turning the screw d of the ratchet. As will be readily understood, the tool can in this case be used either as a ratchet or as a drill. The drill may in the same manner be fitted to any ordinary brace.

When the drill is to be fitted in a brace or a ratchet, the spindle has its lower tapered end squared, so as to fit into and turn with the drill-holder of the brace or the ratchet.

5 The lower extremity of the spindle will preferably, in all cases, be made with a center or point c^6 , as at Fig. 1.

Fig. 4 shows the drill fitted into the ratchet b of Fig. 1 instead of into the crank a . In
10 this case, as shown, the crank a is reversed and the screw d is removed from the ratchet and inserted in the boss a' of the crank, which may be tapped for its reception. The feed is put on by the screw d . The tool can in this
15 case be used at will, either as a drill, a ratchet, or a brace.

Fig. 5 shows a double-speed driving-wheel as fitted on a pap or boss e , made in one with or secured to the boss a' of the brace. The
20 spindle c' may in this case be round and be provided with a steel point or center c^6 at its lower end. The spindle c' is secured to the boss by a pinching-screw e' . The wheel c^4 may be supported on the pap e by a washer e^2
25 and screw e^3 .

In Fig. 6 a breast-drill spindle f is shown as fitted on the spindle c' of the drill as an extension. The drill, as shown, is made so as to fit any ordinary brace or ratchet, and the
30 lower end of its spindle is cut with a screw-thread. The breast-drill spindle is made with a hollow part f' , which is tapped, as shown, for the reception of the screwed end of the spindle c' . When the center or point j of the breast-drill attachment is placed against
35 something stationary, the part f' can be turned around in the same manner as an ordinary ratchet, so as to give the necessary feed. Lever or other pressure can be brought to
40 bear on the point j of the breastplate. The screw c^3 can in this case be provided with a handle c^5 . As will be seen, the drill can be used with the attachment in the same manner as an ordinary breast-drill.

45 Fig. 7 shows a removable lever-handle g , which may be fitted on the ratchet part b so as to give greater leverage. The handle is made with a socket g' , into which the ratchet-arm is fitted and held in place by a pinching-
50 screw g^2 .

To make the tapered spindle c' of the drill part of the tool fit a ratchet square hole and a joiner's-brace square hole, a connecting-piece m , Fig. 8, must be used. The end m'
55 of the connecting-piece fits into the joiner's brace.

This combination-tool can be used for various purposes, as it combines practically three

tools—viz., a crank-brace, a ratchet, and a drill. The parts can be taken apart and used
60 separately, if so desired.

With the tool holes can be easily bored in metal from one-sixteenth of an inch to one and one-quarter inches.

The device is equally applicable for drilling
65 as a drill or boring as a ratchet or a brace.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination, a crank-frame provided
70 with sockets at its opposite ends, a spindle mounted in one of said sockets, a rotatable socket on said spindle, provided with a gear, a driving-gear adapted to mesh with the gear on said rotatable socket, and a ratchet mechanism carried at the opposite end of said
75 frame, substantially as described.

2. In combination, a crank-frame provided with sockets at its upper and lower ends, a
80 spindle mounted in the socket at the upper end thereof, a rotatable socket on said spindle provided with a gear, and a driving-gear adjustable relatively to the gear on said socket, substantially as described.

3. In combination, a frame provided with a
85 socket, a spindle mounted therein, a rotatable socket on said spindle provided with a gear, and a driving-gear mounted on said spindle with its body standing at an angle to said
90 spindle, substantially as described.

4. In combination, a crank-frame provided with sockets at its upper and lower ends, a
95 spindle mounted in said upper socket, a rotatable socket on said spindle provided with a gear, a driving-gear adjustable relatively to the gear on said rotatable socket, and an adjustable ratchet mechanism carried by the lower end of said crank-frame, substantially as described.

5. In combination the crank a with its boss
100 a' with tapered hole for the reception of a drill-spindle and a boss a^2 with a hole for the reception of the arm of a ratchet, the ratchet b with its arm b' adapted to fit in the hole of the boss a^2 , and the drill c with its adjustable
105 bent stud c^2 and angled bevel-wheel c^4 made with a spindle c' adapted to fit in the hole in the boss a' , substantially as hereinbefore set forth.

Signed at Blackburn, England, this 12th
110 day of October, A. D. 1895.

ARTHUR ALBERT TATTERSALL.

Witnesses:

EVERARD HALL,
GERALD HALL.