

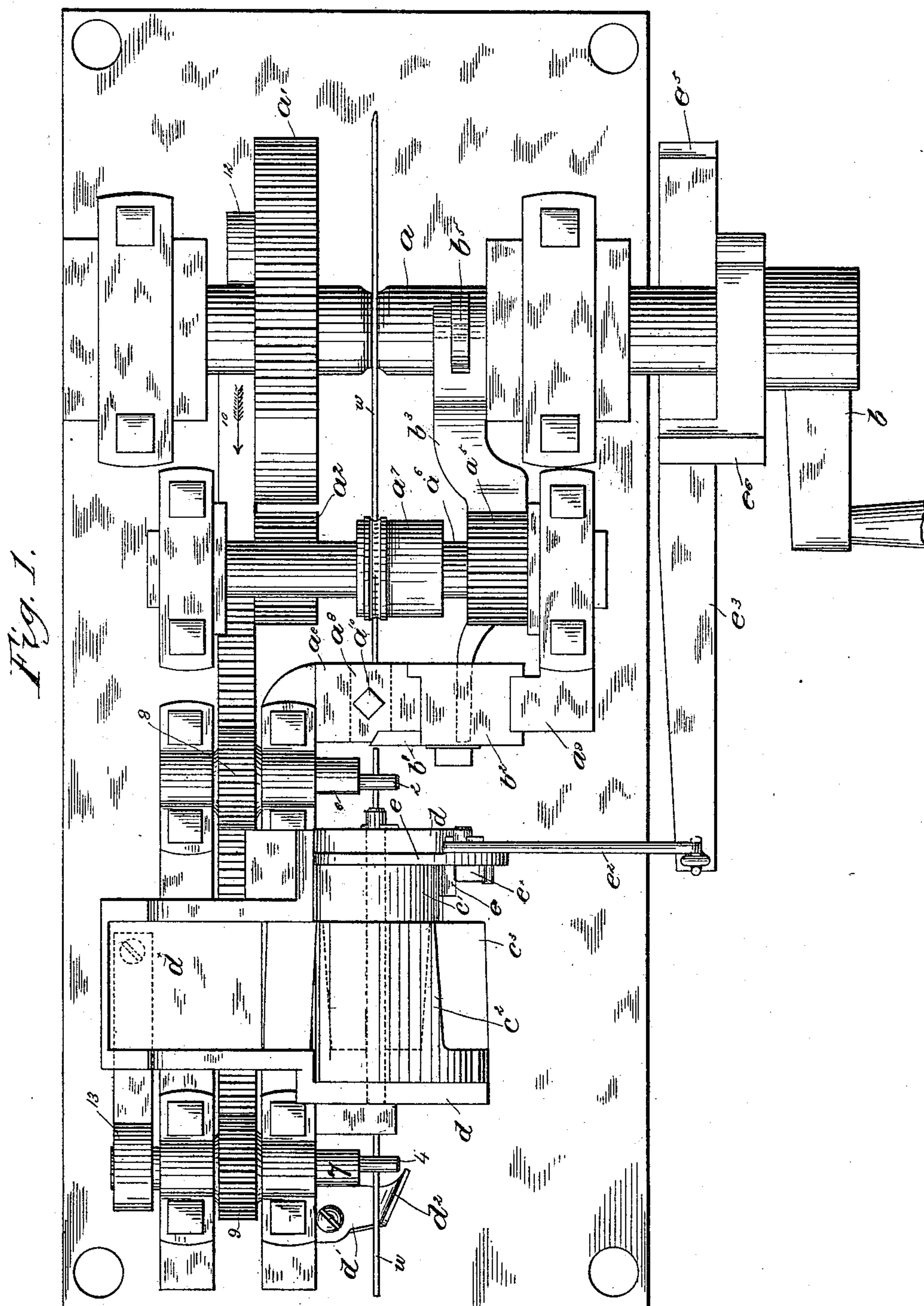
(No Model.)

3 Sheets—Sheet 1.

B. MERRITT.
CORK WIRING MACHINE.

No. 451,062.

Patented Apr. 28, 1891.



Witnesses.

Fried. S. Greene of
Edward F. Allen.

Inventor

Benjamin Merrill
by Leroy & Sons
1875

(No Model.)

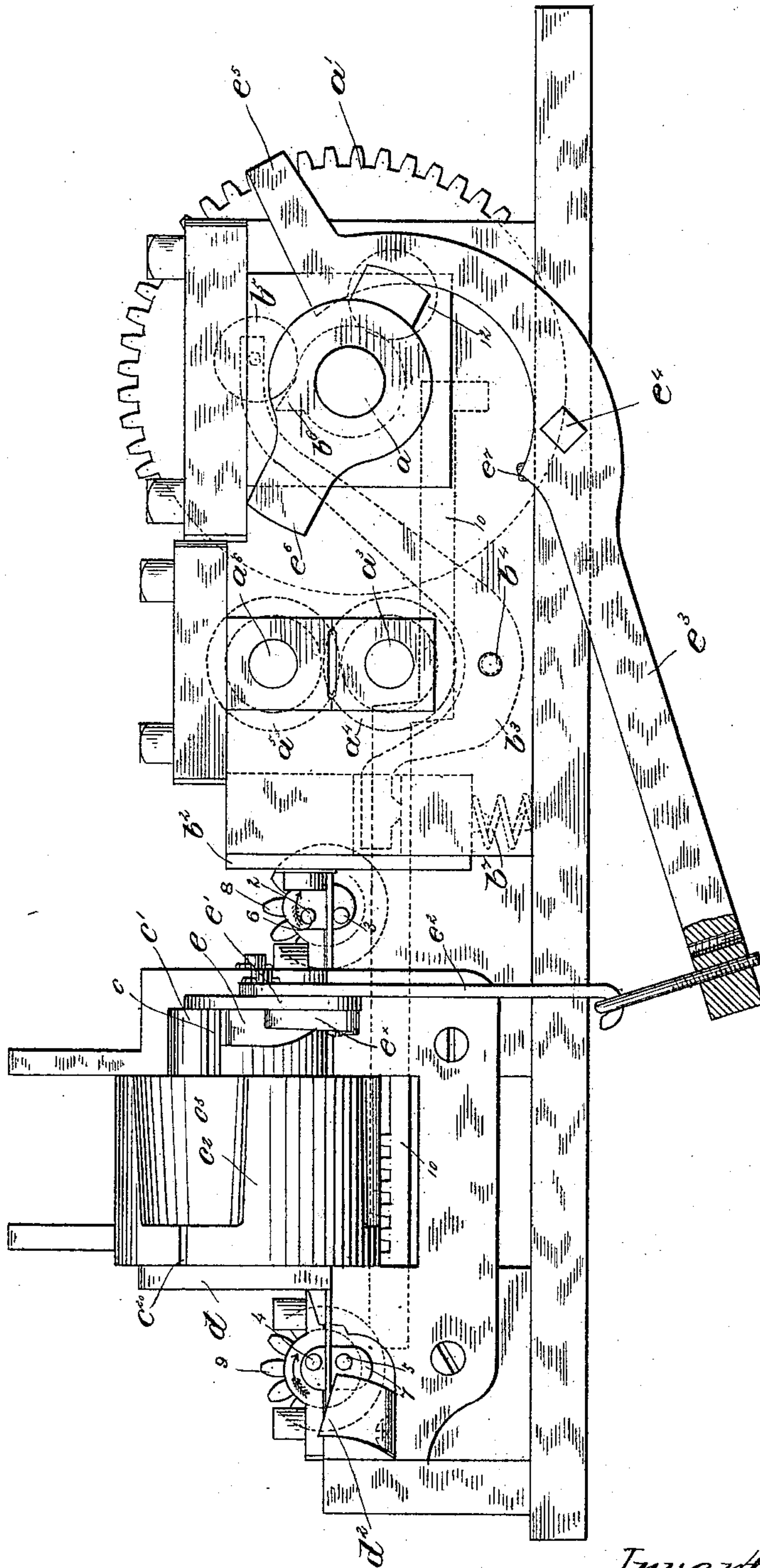
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Fig. 2.



Witnesses.

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Benjamin Merritt,
by Lemby & Gregory Attys.

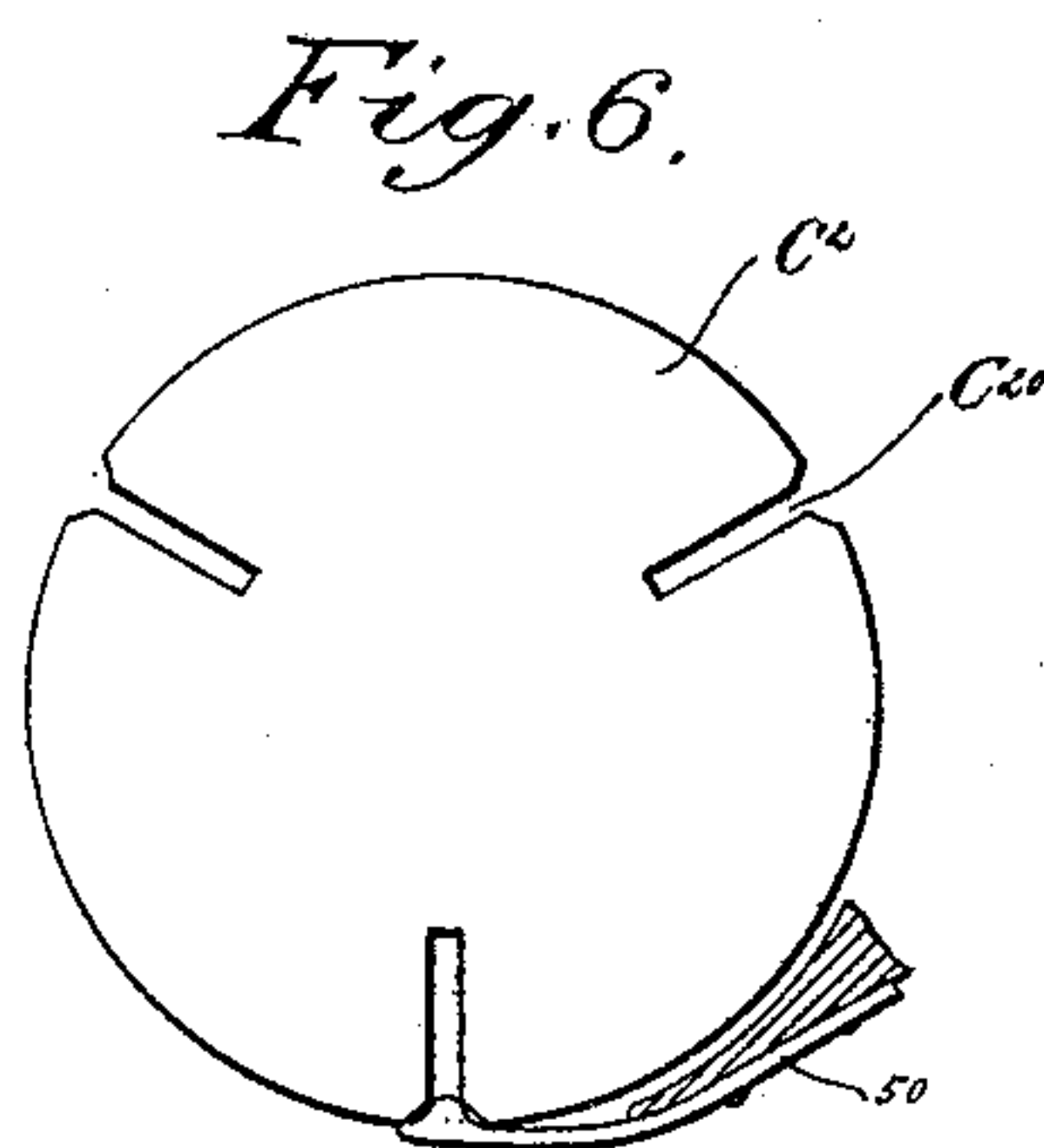
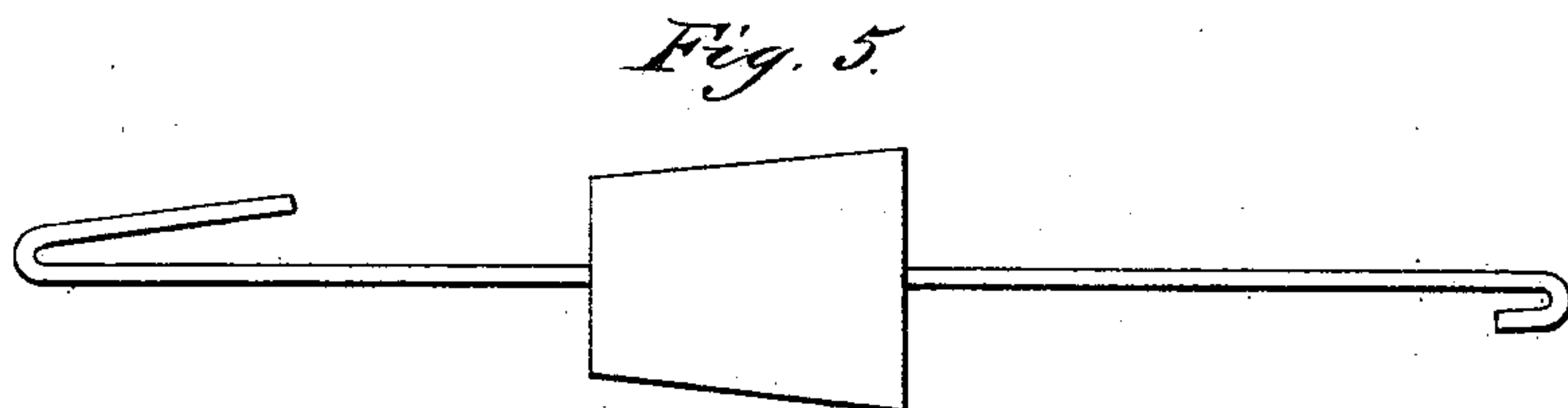
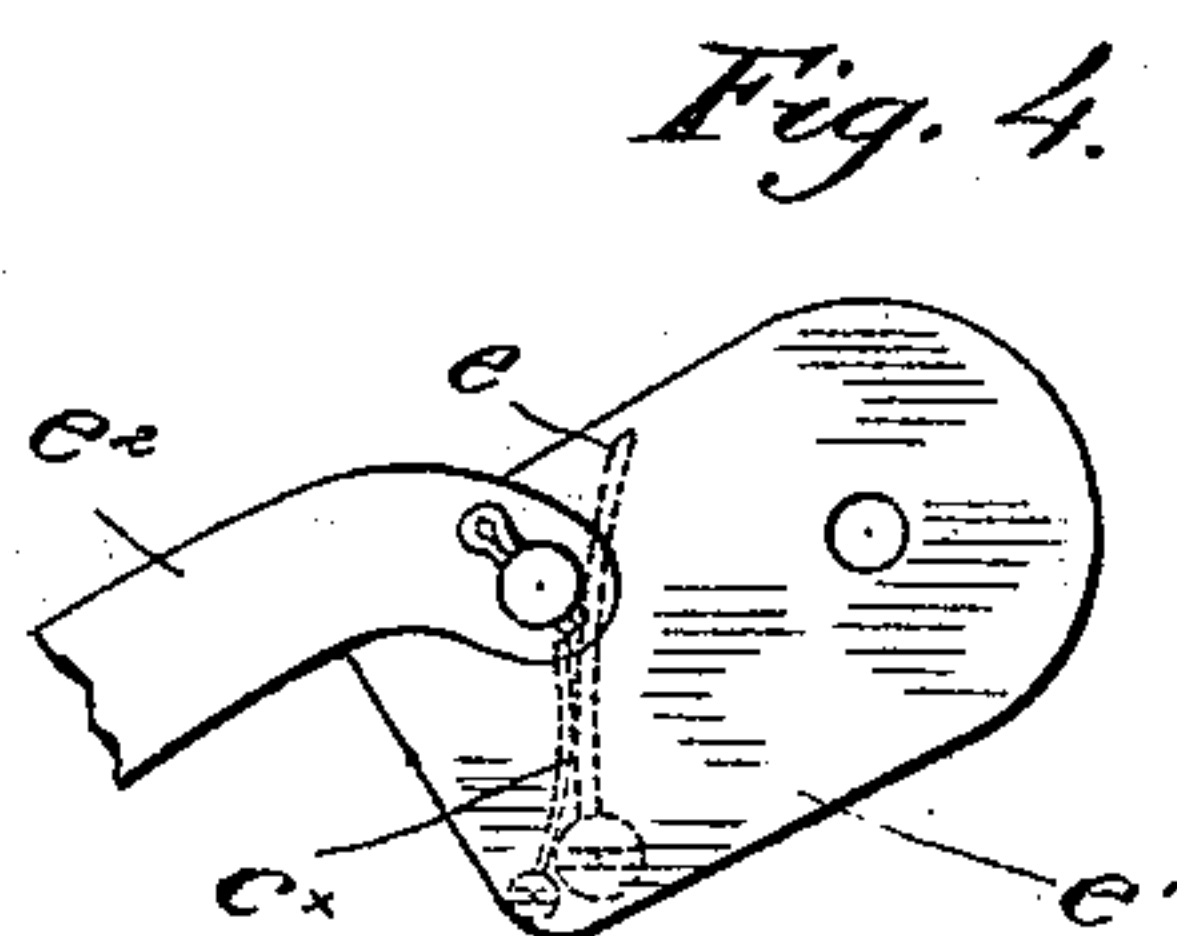
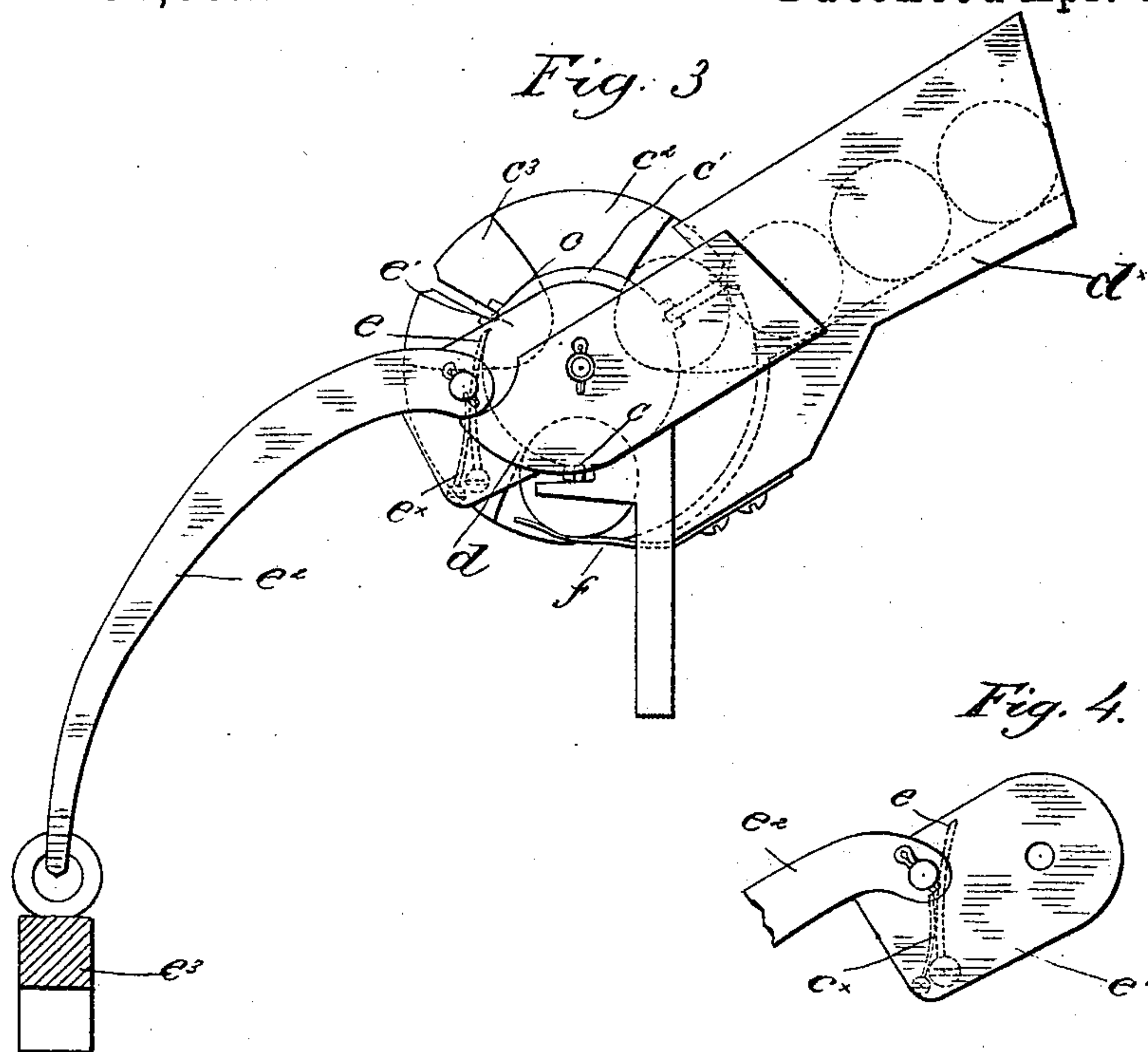
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Edward F. Allen.

Inventor
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UNITED STATES PATENT OFFICE.

BENJAMIN MERRITT, OF NEWTON, MASSACHUSETTS.

CORK-WIRING MACHINE.

SPECIFICATION forming part of Letters Patent No. 451,062, dated April 28, 1891.

Application filed June 23, 1890. Serial No. 356,336. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN MERRITT, of Newton, county of Middlesex, State of Massachusetts, have invented an Improvement in Machines for Wiring Corks, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to construct a machine for wiring corks, it being especially designed to drive or force a wire through a cork longitudinally and to bend it over at one or both ends to form hooks thereon.

15 In accordance with the object of this invention a suitable feeding device is employed to feed a definite length of wire forward from a continuous coil at each time the feeding device is operated. A cutting-off device is
20 provided for cutting off the wire at regular intervals. A holder or receiver is provided to hold the corks in suitable position to permit the wire to be driven through them, said holder being preferably intermittingly movable, and suitable means are provided for dis-
25 charging the wired corks.

An especial feature of my invention is the particular means I employ for bending over the ends of the wire and for shortening the
30 distance between the bending devices after the wire has been bent, so as to enable the wired cork to be easily discharged from the machine.

Figure 1 shows in plan view a machine for
35 wiring corks embodying my invention. Fig. 2 shows a side elevation of the machine shown in Fig. 1, the crank being removed. Fig. 3 is a detail of the cork-holder. Fig. 4 is a separate detail of the pawl and pawl-carrier for
40 rotating the cork-holder. Fig. 5 is a view showing the wired cork, and Fig. 6 is a detail showing the centering device for the cork-holder.

The main drive shaft a has on it a suitable
45 crank b , or it may be a drive-pulley of any suitable construction. A drive-gear a' is also secured to the main drive-shaft a , it being herein represented as a mutilated gear having teeth for about one-half of its circumfer-
50 ence. The mutilated gear a' meshes with a pinion a^2 , secured to a shaft a^3 , having its bearings in the main frame-work. The shaft

a^3 has on it a pinion a^4 , (see dotted lines, Fig. 2,) which engages a pinion a^5 on a shaft a^6 , arranged above and parallel with the shaft
55 a^3 . Each shaft a^3 a^6 is supplied with a feed-roll a^7 , of any usual or suitable construction, adapted and arranged to grip and feed forward the wire w , which may be taken from
60 any suitable reel arranged for the purpose.

The wire w as it is fed forward by the feed-rolls a^7 passes through a hole in a block a^8 , (see dotted lines, Fig. 1,) mounted in an up-
right or stand a^9 and held in place by a set-screw a^{10} . The cutting-off device for the wire,
65 which, as above stated, is delivered from a reel, consists of a cutter or knife b' , attached to a block or carrier b^2 , mounted on the stand or support a^9 and movable vertically, by means to
be hereinafter described, in such a manner that
70 the cutter or knife b' passes across the delivery end of the guide-block a^8 and severs the wire thereat. A lever b^3 is pivoted to the main
frame at b^4 , one arm of which engages or co-operates with the vertically-movable cutter-car-
75 rier b^2 , and the other arm of which carries a friction-roller b^5 , which bears on the main shaft a or a suitable hub thereon, and a cam or projection b^6 (see dotted lines, Fig. 2) is
80 arranged on said drive-shaft a in such relation to the friction-roller as to engage it once during each rotation of the drive-shaft and thereby move the lever b^3 on its pivot. When
the lever is moved by the projection b^6 , the cutter-carrier b^2 is moved down to sever the
85 wire, and when the projection b^6 passes by the friction-roller b^5 the spring b^7 acts to restore the cutter-carrier b^2 to its normal position.

As the wire is fed forward by the feeding devices it passes through the guide-block a^8 ,
90 as described, and continues through a groove or passage c , formed in the hub c' , fixed to and movable with the cork-holder c^2 , said hub and cork-holder being mounted in suitable bear-
ings to rotate on an axis at right angles to
95 the axis of rotation of the feed-rolls.

The cork-holder is herein represented as a block c^2 , having several recesses c^3 , three being herein shown, and in proper line with the longitudinal center of each recess, the hub
100 c' has formed in it the groove c , so that as the cork-holder is rotated to present one or another recess containing a cork in proper position to have the wire driven through it the

groove will occupy a position immediately above the flat-surfaced frame, and thereby present the guide-grooves above referred to for the passage and proper guidance of the wire. As the wire is passed through the groove c further movement of the feeding device forces it through the cork which may be in one of the recesses of the cork-holder, thence through a hole c^{20} at the opposite side of the cork-holder, and thence through the supporting-frame d for the cork-holder. A guide-plate d' , having an inclined portion d^2 , is secured to the frame at the remote end of the machine to direct the wire properly if it should swerve after leaving the cork.

The toothed portion of the drive-wheel a is sufficient to rotate the feed-rolls a number of revolutions and to carry the wire forward through the cork contained in the cork-holder, and as soon as the wire has been thus driven the projection b^6 acts on and moves the lever b^3 and severs the wire.

It is desired to bend up or turn over the ends of the wire to form loops thereon, and I have herein represented two bending devices, one for each end of the wire, they consisting each of a fork comprising two tines 2 3 and 4 5, Fig. 2, fixed to short shafts or studs 6 and 7, mounted in suitable bearings in the frame-work. The drive-pinion a' has on it a stud 12, which during each revolution strikes the end of the rack-bar 10 and moves it in the direction of the arrow thereon to turn the pinions 8 and 9 a partial revolution, and as soon as said stud 12 has passed out of the plane of the rack-bar a coiled spring 13, which is arranged on one of the shafts, as 7, and which is wound up as the rack-bar 10 is moved in the direction of the arrow, recoils and turns the shaft 7 in the opposite direction, which by means of the pinion 9 moves the rack-bar 10 and the pinion 8 back to their normal position. Hence it will be seen that the forked bending devices are reciprocated once during each revolution of the drive-pulley a' , and hence it is, as herein represented, during that part of the movement of said drive-pinion when the toothless portion on its circumference is passing by and not engaging the feeding devices that the wire may be held stationary when the bending devices operate.

For reasons to be hereinafter set forth the lower pin 3 of the bending device 2 3 and the upper pin 4 of the bending device 4 5 are arranged eccentric to the axis of rotation of their respective shafts, one above and the other below the center, and the pins 2 and 5 are arranged eccentrically above and below the pins 3 and 4, respectively, and as the shafts 6 and 7 are reciprocated in the direction of the arrows thereon the pins 2 5 will act upon the wire and turn it over the pins 3 4. Thus the ends of the wire are over-turned in opposite directions.

If it is desired to turn one end over more than the other, one of the shafts will be turned a greater number of degrees than the other,

and hence one of the pinions 8 or 9 will be made a little larger for the accomplishment of this purpose.

As the ends of the wires are turned over the tendency is for the wire to cling to the pin in such a way as to necessitate the removal by hand, and hence I have herein shown the pins 3 4 with relative eccentricity, so that as the shafts 6 7 are turned in the direction opposite to the arrows thereon the distance between the pins 3 4 is shortened, and the wire will fall or may be readily removed.

It will be herein understood that while I have shown two bending devices, one for each end of the wire, it is obvious that one only may be employed, and, furthermore, that while I employ two eccentrics one only may be employed.

The cork-holder c^2 , which is mounted upon bearings in the frame or support d , is turned a short distance during each movement or action of the machine to present the next cork to the wire which is to be fed forward, and as it is thus turned the ends of the wire which project from each end of the cork will strike the underside of the frame d , and will thereby remove the cork from the cork-holder c^2 .

The base-plate of the machine will be provided at a point beneath the cork-holder with a suitable opening (not shown) to allow the wired corks to pass through.

The means herein shown for rotating the cork-holder c^2 intermittently consists of a pawl e , pressed into contact with the hub c' by means of a spring e^x , said pawl being attached to a pawl-carrier e' , loosely connected by a link e^2 with a rocker-arm e^3 , pivoted at e^4 to the main frame and having its outer end upwardly extended, as at e^5 , which upwardly-extended end e^5 is struck by a projection e^6 , secured to the drive-shaft a , once during each revolution thereof, and when thus moved will lift the pawl-carrier, and its pawl e will engage a tooth on the hub c' and move it forward, as herein represented, one-third of a revolution, the tooth, as herein shown, being one of the two ribs which constitute the groove c . The rocker-arm e^3 has also a shoulder e^7 , which is struck by the projection e^6 just as the main shaft a completes its revolution to restore the rocker-arm e^3 to its normal position, so that the pawl e may engage the next tooth on the hub c' . Thus it will be seen that at each revolution of the drive-shaft the cork-holder will be rotated to present the next recess in line with the guide-holes.

The support d for the cork-holder has attached to it a short chute d^x , into which the corks may be placed, and as the recesses c^3 in the cork are necessarily open for the entrance and delivery of the corks a large flat spring-acting plate f is attached to the support d , which will support the corks in a yielding manner when in position to receive the wire.

I do not desire to limit my invention in all respects to the particular details of construction herein shown, as many of them may be

materially changed and accomplish the same functions as herein described, which details, I deem, come within the spirit and scope of this invention.

5 A spring-acting or spring-actuated plate 50 is attached to the supporting-frame d of the rotatable cork-holder c^2 , it having a projection on its end which enters one or another hole or slot c^{20} to hold the cork-holder in a position of rest to properly present the corks to allow the wire to be driven through them, said plate 50 thereby constituting a centering device.

I claim—

15 1. In a machine for wiring corks, a cork-holder, means for feeding the wire forward, and a cutter, combined with a bending device for the end of the wire, consisting of a short shaft and two pins, both of which are arranged eccentric to the axis of rotation of the shaft, substantially as described.

20 2. In a machine for wiring corks, a cork-holder, means for feeding the wire forward, and a cutter, combined with two bending devices, one for each end of the wire, one of which consists of a short shaft and two pins thereon, one of which pins is arranged eccentric to the axis of rotation of the shaft and the other of which consists of a short shaft and two pins thereon, both of which pins are arranged eccentric to the axis of rotation of the shaft, substantially as described.

3. In a machine for wiring corks, the cork-holder and means for moving it intermittently, combined with a frame which is struck by the projecting ends of the wire to discharge the cork from its holder, substantially as described.

4. In a machine for wiring corks, a cork-holder having grooves c , formed by two parallel ribs, combined with a pawl engaging one of the ribs, a pawl-carrier, and means for moving it, substantially as described.

5. In a machine for wiring corks, the combination, substantially as described, of a cork-holder movable to present the corks successively in position to be pierced by the wire and means for feeding the wire forward, driving it through the cork, and cutting it off.

6. In a machine for wiring corks, a rotatable cork-holder having recesses for receiving the corks and in line therewith having grooves c , each formed by two parallel ribs, combined with a stationary flat-surface frame with which said ribs co-operate to form a recess for the passage of the wire, substantially as described.

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

BENJAMIN MERRITT.

Witnesses:

BERNICE J. NOYES,
EMMA J. BENNETT.