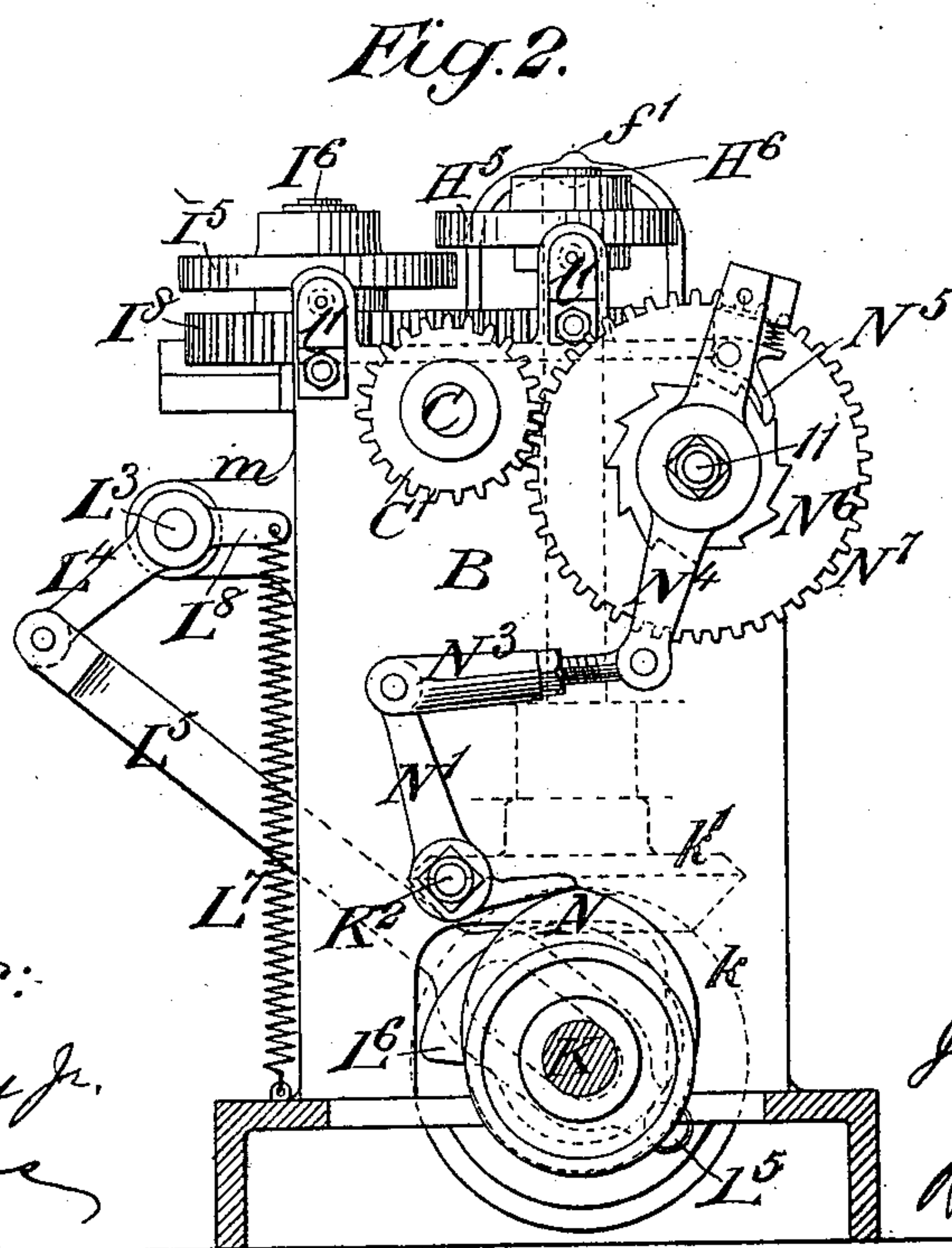
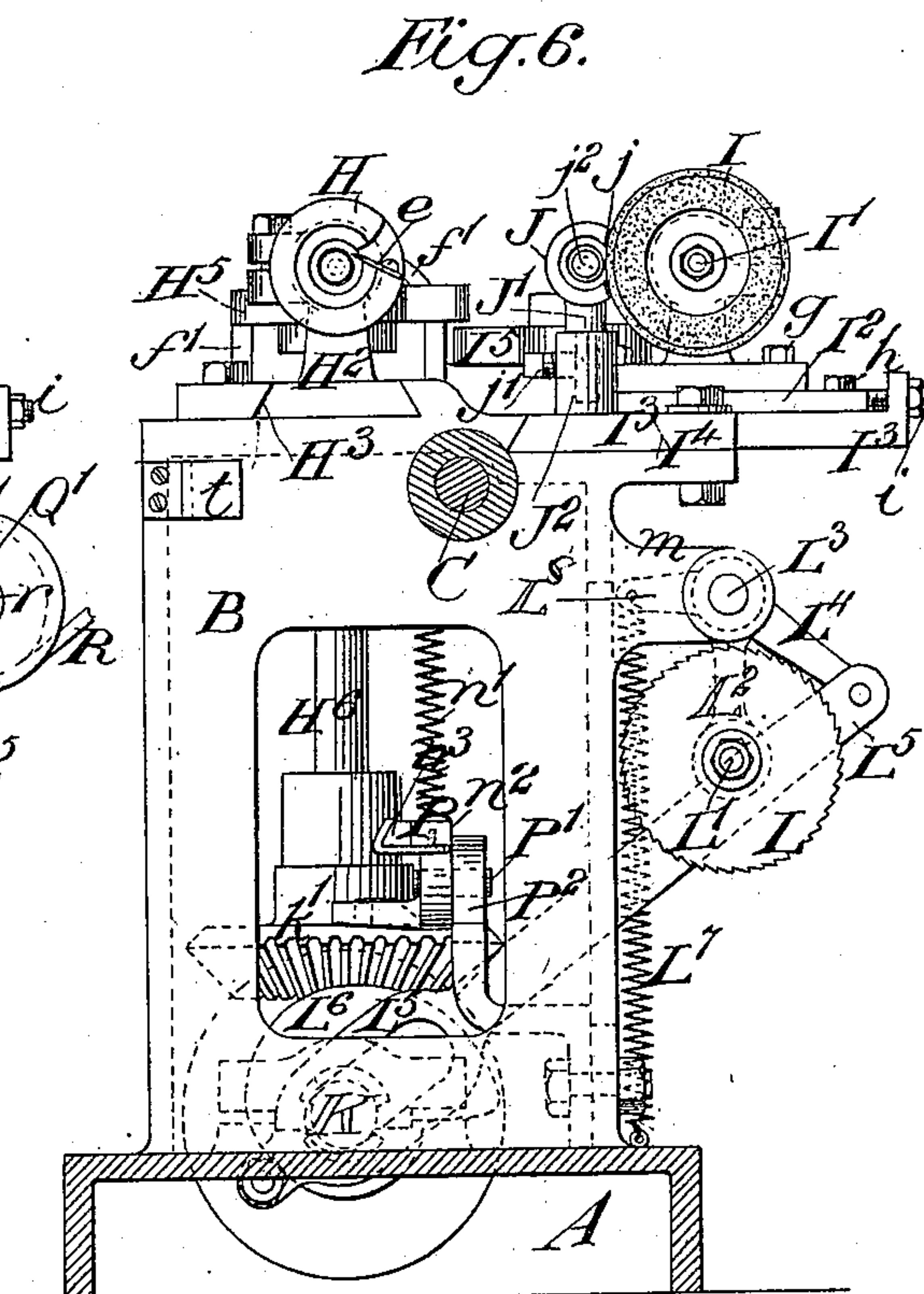
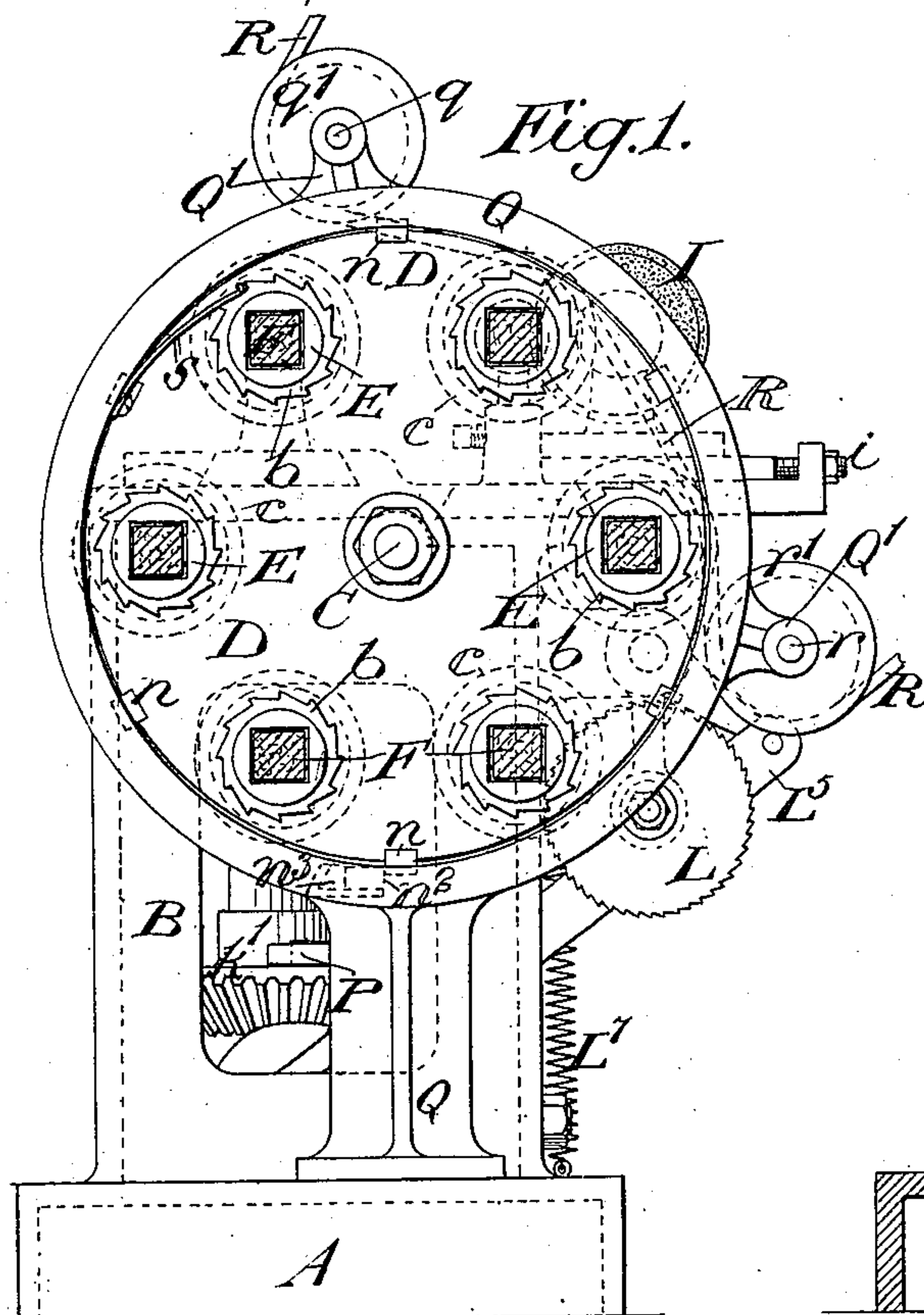


3 Sheets—Sheet 1.

No. 601,892.

Patented Apr. 5, 1898.



Witnesses:
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Fred Haynes

Inventor:
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by attorneys
Phonograph

3 Sheets—Sheet 2.

No. 601,892.

Patented Apr. 5, 1898.



Inventor:-
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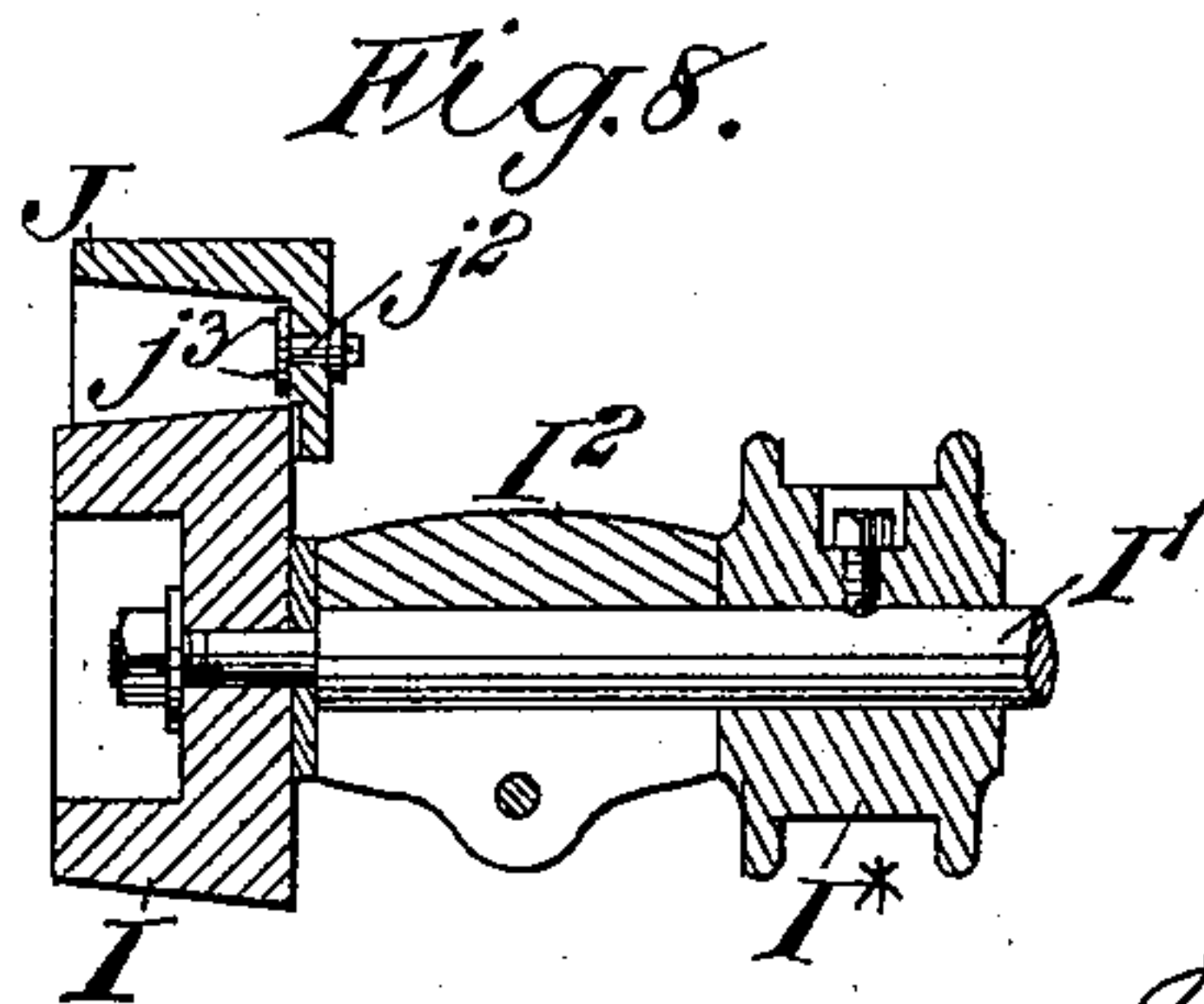
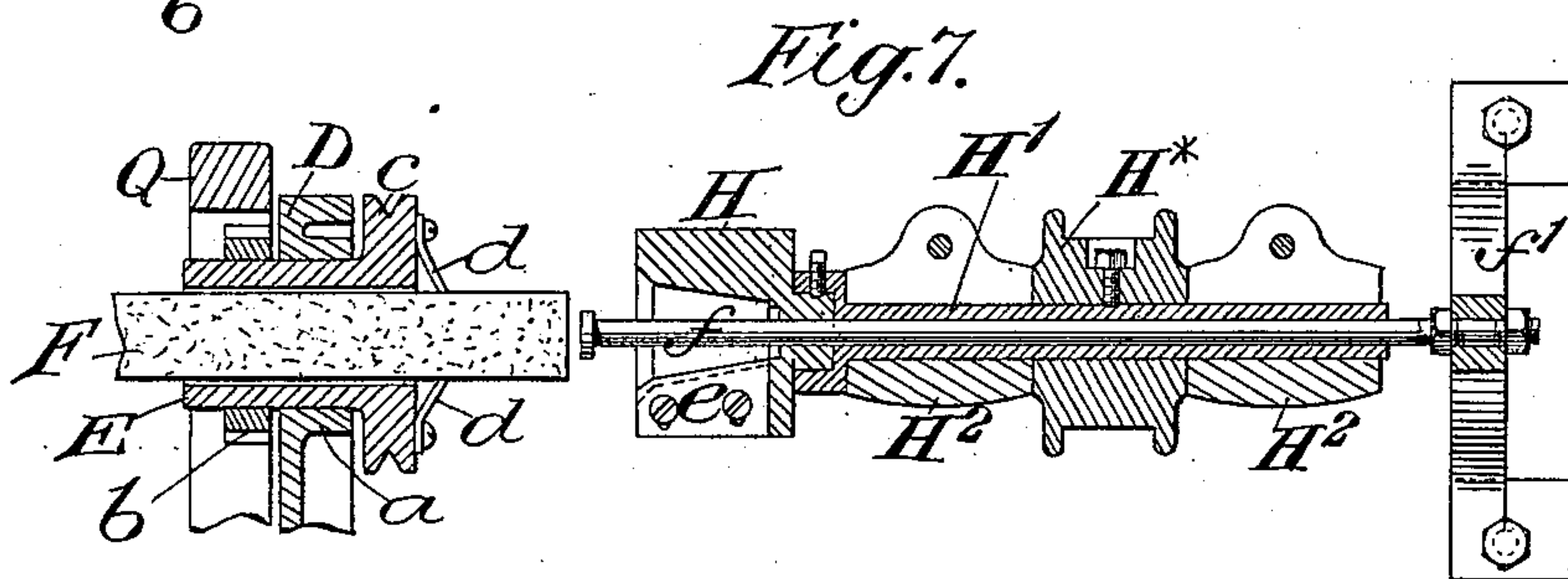
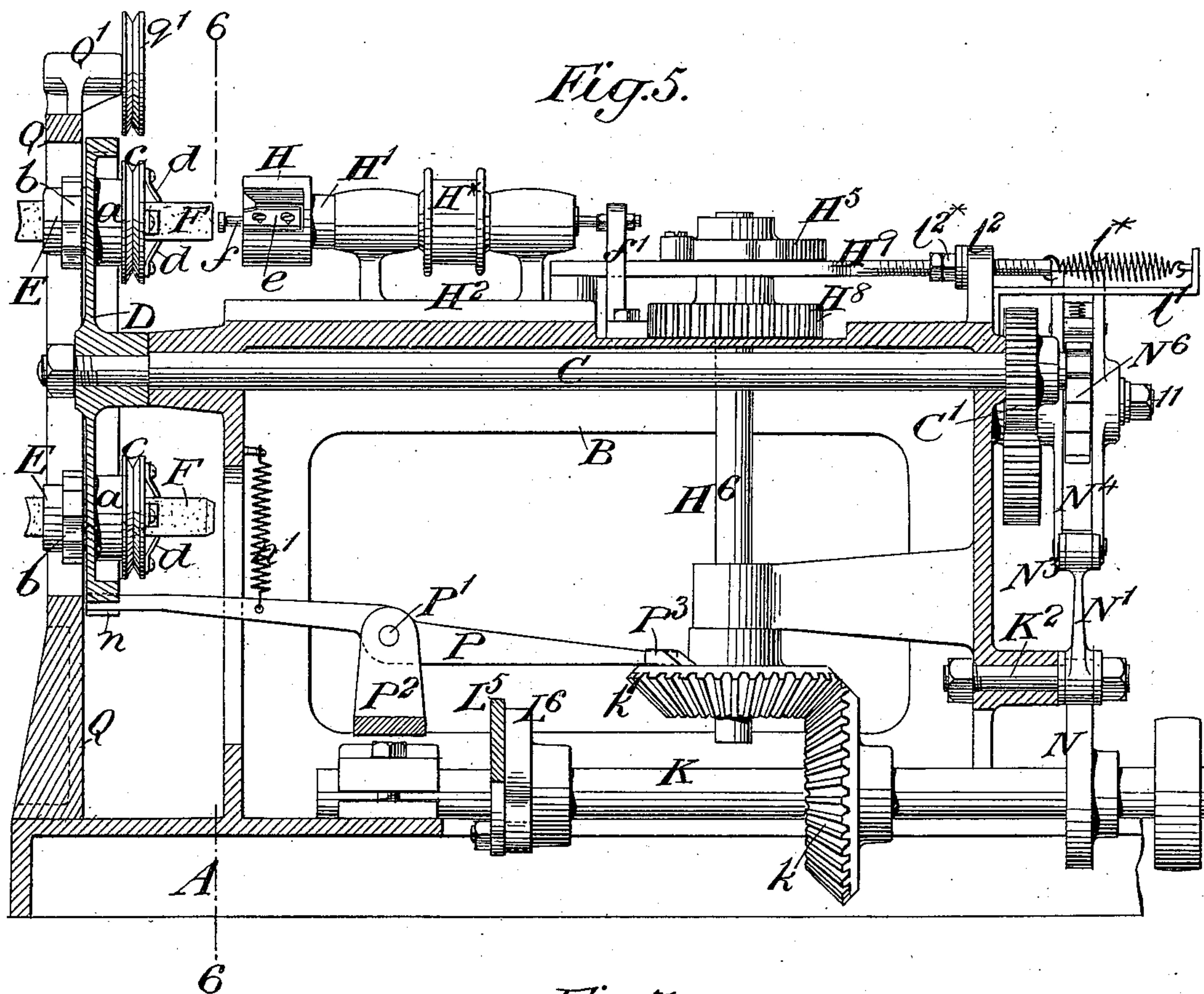
(No Model.)

3 Sheets—Sheet 3.

J. JONSON.
MACHINE FOR CUTTING CORKS.

No. 601,892.

Patented Apr. 5, 1898.



Witnesses:-

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UNITED STATES PATENT OFFICE.

JULIUS JONSON, OF NEW YORK, N. Y., ASSIGNOR TO ROSE JONSON, OF
SAME PLACE.

MACHINE FOR CUTTING CORKS.

SPECIFICATION forming part of Letters Patent No. 601,892, dated April 5, 1898.

Application filed March 31, 1897. Serial No. 630,033. (No model.)

To all whom it may concern:

Be it known that I, JULIUS JONSON, of the city and county of New York, in the State of New York, have invented a new and useful
5 Improvement in Machines for Cutting Corks for Bottles or other Vessels, of which the following is a specification.

In a machine embodying the present invention the raw cork, which has been previously
10 cut into the form of strips or sticks, is placed in that form in revolving chucks arranged in an intermittently-rotating carrier by which each of the said chucks in its turn is first brought opposite a cutter for the purpose of
15 having the end of the stick within it turned or trimmed to the form of a cork and is afterward brought opposite a grinder for the purpose of giving the so turned or trimmed portion a finished surface and is finally presented
20 to a saw or rotary cutter, by which the portion of the stick so shaped and finished is cut off in the condition of a finished cork ready for use.

The improvement consists in the several
25 combinations of rotary carrier, chucks, cutters, grinder, and operating mechanism illustrated by the accompanying drawings and hereinafter described and claimed.

Figure 1 represents a front end elevation of
30 a machine embodying my invention; Fig. 2, a rear end elevation of the same; Fig. 3, a side elevation; Fig. 4, a plan; Fig. 5, a longitudinal vertical section; Fig. 6, a transverse vertical section in the line 6 6 of Figs. 3, 4, and
35 5; Fig. 7, a horizontal section of the cutter and one of the cork-holding chucks; Fig. 8, a horizontal section of the grinder.

Similar letters and figures of reference designate corresponding parts in all the figures.

40 A is a bed-plate, on which is erected a stationary framing B, which contains in its upper part the bearings for the horizontal shaft C, to which at its front end is securely fastened the intermittently-rotating carrier D,
45 consisting of a circular disk in which are formed in a circle concentric with the shaft C and at equal distances from each other sockets *a*, (see Figs. 5 and 7,) which constitute bearings for the revolving chucks E. These

chucks consist each of a tube open through- 50
out and unobstructed in front, and they are represented as having their interiors of square form for the passage through them of the square sticks F of cork and furnished in front of the carrier with a circular ratchet *b* and at 55
the back of the carrier with a pulley *c* and with spring-dogs *d* to prevent the backward movement of the cork after it is pushed through the chuck from the front. The carrier-shaft C is furnished at its rear end with 60
a spur-gear C', through which it receives an intermittent rotary motion, as hereinafter described.

H *e* designate the turning or trimming cutter, arranged or located opposite to and behind 65
the rotating carrier. This cutter, which surrounds and incloses the work on which it operates, is represented (see Figs. 5, 6, and 7) as consisting of a rotary hollow stock H, having an opening in one side of it, through which 70
is inserted a cutting-blade *e*. This cutter being well known to mechanics needs no further description. It is carried on the front end of a shaft H', arranged parallel with the carrier-shaft in bearings in a carriage H², which 75
is fitted to run toward and from the rotary carrier in a slideway H³ on the top of the framing B. The cutter-shaft H' is furnished with a pulley H*, through which it receives rotary motion from any suitable driving-belt. The 80
said shaft is hollow, as shown in Fig. 7, for the passage through it of a stationary rod *f*, (see Figs. 4, 5, and 7,) which is firmly held in a fixed bridge *f'*, bolted on the top of the framing B, behind the cutter-carriage. The pur- 85
pose of this rod will be hereinafter explained.

I is a rotary grinder located opposite to and behind the rotary carrier D on a shaft I', arranged parallel with the carrier-shaft in bearings in a journal-box stand I², which is 90
supported on a carriage I³, which is fitted to run toward and from the rotary carrier in a slideway I⁴ on the top of the framing B. The said grinder consists of a grindstone or emery-wheel having its profile corresponding with 95
the profile of the corks to be cut. If the corks to be cut are to be taper, the grinder will have a corresponding but reverse taper. The

shaft I' of the said grinder is furnished with a pulley I*, through which it derives rotary motion from any suitable driving-belt. On one side of this grinder there is, as shown in Figs. 4, 6, and 8, a holder J, in which the ends F' of the sticks F, which protrude through the backs of the chucks, as shown in Figs. 3 and 4, and which have been cut to the shape of corks, are received and contained during the grinding operation. The said holder consists of a socket the interior of which is substantially of the same form as the cork to be ground, but large enough for the cork to rotate freely within it, the said socket having a lateral opening, as shown at *j* in Fig. 6, so that the periphery of the grinder may enter within it. The said socket is provided with a stem J', which is received within a stock J² on the carriage I² and secured therein by a set-screw *j'*, which provides for the adjustment of the socket J' or holder to the rotary grinder.

The journal-box stand I² is adjustable backward and forward on the carriage I³, as provided for by fastening-bolts *g g*, passing through slots, as shown in Fig. 4, for the purpose of adjusting the grinder toward and from the rotary carrier and in relation to the cork-holder J. The said stand I² is also adjustable laterally, as provided for by bolts *h*, passing through slots, and by an adjusting-screw *i* between it and the carriage I³, for the purpose of adjusting the said stand laterally to place the grinder I and the holder J at a proper distance from the cutter-shaft H'—that is to say, with the center of the cutter-shaft and the center of the holder J at a distance apart corresponding with the space between the chucks in the rotary carrier—so that while the stick of cork in one chuck may be opposite to the grinder the stick in the next chuck in advance of it in the direction of the rotation of the carrier may be opposite the holder J of the grinder. In the rear end of the holder J, which is closed, there is loosely pivoted a pin *j*², on the inner end of which there are spikes or teeth *j*³, (see Fig. 8,) which enter the end of the stick of cork which is received within the holder, the said pin serving as a pivot for the end of the stick while it is turned in the said holder to present its entire circumference to the grinder and so serving to keep the sides of the tapered portion of the stick from being pressed against the opposite side of the holder by the action of the grinder.

For the purpose of forcing the cutter-carriage H² and the grinder-carriage I³ forward to receive the ends of the sticks F as the said sticks are successively presented opposite to the cutter and to the holder J of the grinder there are located behind the said carriages two cams H⁵ and I⁵, one for each carriage. The cutter-carriage cam H⁵ is on an upright shaft H⁶, which derives rotary motion through miter-gears *k k'* from the horizontal main shaft K, which works in bearings on the bed-

plate A. The grinder-carriage cam I⁵ is fitted to turn on a fixed stud I⁶, which is secured on the top of the framing B and is furnished with a spur-gear I⁸, through which it derives motion from a gear H⁸ on the upright shaft H⁶. The yokes H⁹ I⁹ of the said cams, which are furnished with antifriction-rollers *l l*, upon which the cams operate, are connected at their rear ends with brackets *l' l'* on the framing by coil-springs *l* l**, which draw them back as the cams recede, and the stems of the said yokes, which work through fixed guides *l² l²* on the framing A, are screw-threaded to receive stop-nuts *l^{2*} l^{2*}*, which are adjustable in front of the said guides and which serve, by coming in contact with the said guides, as stops to the backward movement of the cutter and grinder carriages.

At a distance below the grinder there is a rotary cutter L, which may be either sharp-edged or saw-toothed for the purpose of cutting off the turned and ground portions F' of the sticks F, which when cut off constitute the corks. The shaft L' of this cutter runs in bearings in a swinging frame L², affixed to a rock-shaft L³, which is supported in bearings in brackets *m* on the framing B and which is furnished with an arm L⁴, connected with the yoke L⁵ of a cam L⁶ on the main shaft K, the said cam once during every revolution of the said shaft swinging the cutter across the position occupied by a stick F in one of the chucks *a*, while others of the said chucks are respectively one opposite the cutter and the other opposite the holder of the grinder. A spring L⁷ is applied to another arm L⁸ of the rock-shaft for the purpose of drawing back the swinging cutter-frame L and so preventing the cutter from interfering with the rotation of the carrier. The cutter-shaft L' is furnished with a pulley L*, through which it receives motion from any suitable driving-belt.

The intermittent rotary motion of the carrier is produced by a cam N on the main shaft K, the said cam acting on an elbow-lever N', (see Figs. 2, 3, and 5,) working on a fixed fulcrum-pin K², secured in the framing B, and being connected by a link N³ of adjustable length with a double lever N⁴, working on a fixed stud 11, which is secured in the framing. This lever N⁴ carries a spring-pressed pawl N⁵, which engages with a ratchet-wheel N⁶, which is fast to a spur-gear N⁷, turning on the said stud 11. This spur-wheel gears with the spur-gear C' on the carrier-shaft C, and so drives the carrier. The relative sizes of the gears N⁷ and C' and the number of teeth in the ratchet-wheel N⁶ are so proportioned that the carrier makes one movement corresponding with the distance between its chucks for every revolution of the main shaft K.

In order that the carrier in completing each intermittent rotary movement may not be carried by its momentum beyond the point at

which its chucks are in proper relation to the cutter, the grinder, and the saw, there are provided on the carrier, between the chucks, one for each chuck, stop projections n for the arrest of the carrier by the front end of a stop-lever P , Figs. 3, 5, and 6, which works on a fixed fulcrum P' in a bracket P^2 , secured to the framing B , and the rear end of which overlies the back of the gear k' on the upright shaft H^6 , whereon there is provided a cam P^3 , which at the proper time before each movement of the carrier lifts the rear end of the said lever and trips it from the projection n on the carrier with which it had been engaged. At all times but while tripped, as above described, the front end of the stop-lever is held up to the periphery of the carrier by a spring n' , connecting the said lever with the framing. To ease the stoppage of the carrier and prevent shocks, the front end of the stop-lever is fitted with a facing-piece n^2 of metal, behind which there is applied, as shown in Fig. 6, in a dovetail recess in the lever, a small india-rubber cushion-block n^3 .

In front of the carrier there is set up on the bed-plate A a stationary standard Q , a portion of which is represented of open circular form substantially conforming to the carrier. To this frame, as shown in Fig. 1, a spring-pawl s is secured in such position that when the carrier is stationary the said pawl engages with the ratchet-wheel b of that chuck E which is opposite the rotary cutter $H e$, and so prevents the rotation of that chuck while the said cutter is in operation on the end of the stick therein. The said standard Q has also on it stands or brackets Q' , in which are secured the fixed axles $q r$ of guide-pulleys $q' r'$, by which a suitably-driven belt R is conducted to run in contact with one or more of the pulleys c of the chucks, but always in contact with the pulley of that chuck which is opposite the grinder, for the purpose of giving rotary motion to the stick in that chuck during the grinding operation. In Fig. 1 the said belt is represented in bold dotted outline as running on the pulleys of two chucks; but that is immaterial so far as the invention is concerned.

Secured on the front of the framing B , behind the carrier, at a point which the chucks pass on their way to the cutter, there is a fixed gage t , up to which the sticks placed in the chucks are pushed by an attendant as the chucks have severally been brought opposite the said gage by the rotation of the carrier. This gage determines the proper length of the stick to be protruded through the chucks for the formation of the corks.

Having now described in detail the several parts of the machine and their operation, I will describe very briefly the operation of cutting corks in the machine.

A stick of cork F of as great length as can be obtained or can be conveniently manipulated and of suitable thickness is placed in

each chuck by an attendant, and as the chucks are brought in succession by the movement of the carrier opposite the gage t the attendant pushes it forward up to the said gage. The successive movements of the carrier bring one so-protruding stick opposite the cutter, another opposite the holder of the grinder, and another in proximity to the saw L . The chuck opposite the cutter has its ratchet so engaged by the spring-pawl as to be prevented from turning in the direction in which the said cutter rotates. The grinder and the cutter have been held back and the saw has been held aside during the movements of the carrier. During every intermission in the rotation of the carrier and while it is stopped by the lever P the cutter $H e$ and the grinder are moved forward by their respective cams $H^5 I^5$, and the protruding portion F' of one stick is turned by the said cutter to the shape of a cork, while the corresponding protruding portion of a stick which has been previously turned is ground, the chuck opposite the grinder then having its pulley opposite the belt R , giving the stick the necessary rotary motion for grinding. At the same time the saw L is moved by its cam L^6 across the previously turned and ground stick which is opposite to it and the said portion is cut off as a complete cork ready for use. Before the next movement of the carrier the rotary cutter $H e$, the grinder, and the saw are drawn back to permit such movement, fresh sticks being supplied to the chucks as fast as the preceding ones are completely cut up.

During the above-described operation the sticks are held in the chucks by the dogs d securely enough to prevent them from being pulled back by the rotary cutter $H e$ and the grinder during their receding movements. When, however, the stick is cut up so short that no considerable portion of it may remain in the body of the chuck, the grasp of the dogs might not be sufficient to retain it, and it is for that purpose that the stationary rod f is provided running through the cutter-shaft. In case there should be any tendency of the cut portion of the stick to remain in the cutter when the latter moves back it will be expelled by the said rod as the cutter moves back.

Every stick is subjected to the above-described operations of the rotary cutter, the grinder, and the saw until there is only left of it a portion of insufficient length to make a cork, the said portion being pushed from the chuck by the insertion of the next stick thereinto.

It is obvious that there might be two grinders like that represented arranged between the rotating cutter $H e$ and the cutting-off saw L , the said grinders, one coarser and the other finer, being at such distances apart corresponding with the distance between the chucks that the first one or that nearest the

cutter might be operating on the cork just trimmed by the cutter, while the other one would be in operation on the one previously ground by the first one.

5 This machine produces corks with great rapidity and with much less waste than is involved in the ordinary process of cutting corks, which consists in first cutting blanks from the sheet of cork and afterward trim-
10 ming them to the required conical form.

It is obvious that a machine such as I have hereinabove described is capable of producing bungs, plugs, pegs, or other articles of wood or other material than corks, involving
15 the same operations in their production, and I should consider such a machine for cutting such articles as within the scope of my invention.

What I claim as my invention is—

20 1. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of tubular chucks arranged in said carrier in a circle concentric therewith and adapted for the insertion and passage directly
25 through them of sticks of cork, and a cutter consisting of a hollow cutter-stock and a cutter-blade projecting thereinto for turning portions of said sticks which are successively protruded through the said chucks and carrier,
30 all in combination substantially as herein described.

2. In a machine for cutting corks, an intermittently-rotating carrier, a series of revolving tubular chucks arranged in bearings in
35 said carrier with their axes in a circle concentric to and parallel with the axis thereof and adapted for the passage through them of sticks of cork, a rotary grinder having its axis parallel with the axis of the carrier and with the
40 axes of the chucks, for grinding the sides of portions of sticks which pass through and protrude beyond said chucks and carrier, and a stationary holder for receiving the said protruding portions of the sticks during the
45 grinding, all in combination substantially as herein described.

3. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of tubular chucks arranged in said
50 carrier and adapted for the passage through them of sticks of cork, a turning-cutter consisting of a hollow stock and a cutting-blade projecting thereinto and opposite to which the said chucks are brought by the rotation
55 of the carrier for the purpose of turning portions of sticks of cork which are successively protruded through the said chucks and carrier, and means for moving said cutter toward and from the chucks to receive the suc-
60 cessively-protruded portions of the sticks during the intermissions of the rotation of the carrier, substantially as herein described.

4. In a machine for cutting corks, the combination of an intermittently-rotating carrier,
65 a series of revolving tubular chucks arranged in bearings in said carrier and adapted for the passage through them of sticks of cork, a ro-

tary grinder in proximity to which the said chucks are brought by the rotation of the carrier for the grinding of portions of the sticks
70 successively protruded through the chucks, and means for drawing back said grinder in lines parallel with the axis of rotation of the carrier during the intermissions of the rota-
75 tion of the latter to permit the passage by of the so-protruded portions of the sticks, substantially as herein described.

5. In a machine for cutting corks, the combination of an intermittently-rotating carrier, a series of revolving open tubular chucks fitted to bearings in said carrier, a hollow rotary turning-cutter which incloses the work
80 and a rotary grinder opposite to which the said chucks are successively brought by the rotation of the carrier and retained during
85 the intermissions in the rotation thereof, means for preventing the turning of that chuck which is at any time opposite the said cutter and while a stick in said chuck is being turned by the rotation of said cutter
90 around it, and means for at the same time giving rotary motion to another chuck which is at the same time opposite the grinder for the purpose of presenting all sides of said stick to the grinder, substantially as herein
95 described.

6. In a machine for cutting corks, the combination of an intermittently-rotating carrier, chucks fitted to turn in bearings in said carrier and provided each with a band-pulley
100 and a ratchet-wheel, a hollow rotary cutter which incloses the work, a rotary grinder opposite to which said chucks are successively brought by the rotation of the carrier, a driving-belt, a stationary support and guide-pulleys attached thereto for guiding the said belt
105 over the pulley of a chuck which is opposite the grinder for driving that chuck, and a pawl for engaging with the ratchet-wheel of a chuck which is opposite the cutter for preventing the rotation of the latter chuck, substantially as herein described.

7. The combination with the rotary grinder, of a cork-holder consisting of a socket closed at one end and open at the other and having
115 a lateral opening for the periphery of the grinder, and a pivot in the closed end of the holder provided with teeth at its inner end, substantially as herein described.

8. The combination of the intermittently-rotating horizontal shaft C, the carrier D on said shaft, the chucks E in said carrier, the rotary cutter H^e opposite to which the chucks are brought by said carrier, the upright rotary shaft H⁶, the cam H⁵ on said shaft H⁶
120 for moving the cutter toward and from the carrier during the intermissions of the rotation of the latter, the stop-lever P for arresting the rotation of the carrier, and the cam P³ on said shaft H⁶ for operating said stop-lever and means for rotating the shafts C and H⁶, all substantially as herein described.

9. The combination of the intermittently-rotating horizontal shaft C, the carrier D on

said shaft, the chucks E in said carrier, the rotary cutter H e and the rotary grinder I opposite to which the chucks are successively brought by said carrier, the upright rotary
5 shaft H⁶, the cam H⁵ on said shaft H⁶ for moving the cutter toward the carrier, the upright pivot I⁶ and the cam I⁵ thereon for moving the grinder toward the carrier, and the

gears H⁸ I⁸ on the said shaft H⁶ and cam I⁵ respectively for producing the rotation of 10 said cam I⁵, all substantially as herein described.

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