

No. 675,758.

Patented June 4, 1901.

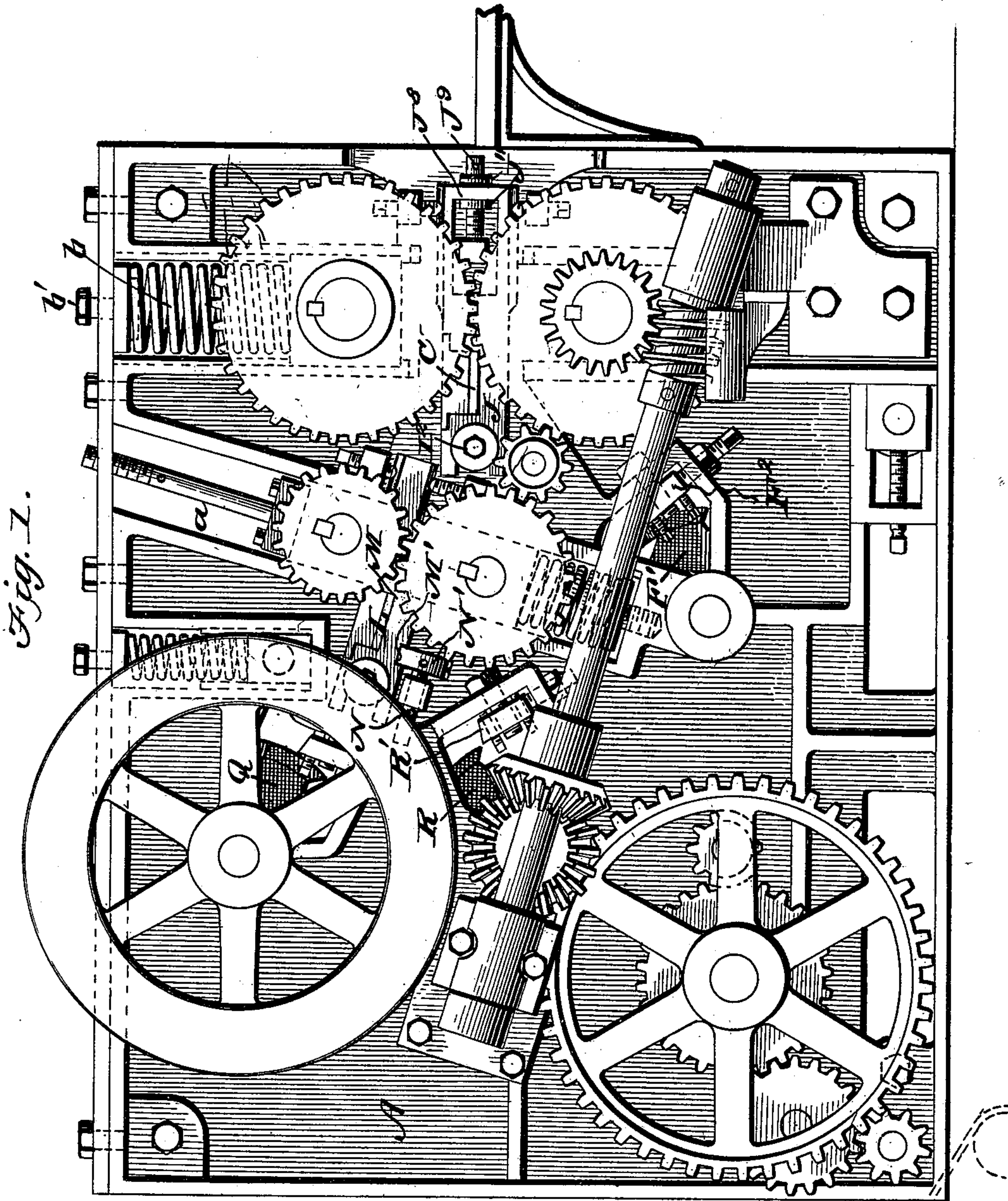
G. R. SHERWOOD.

MACHINE FOR OPERATING UPON PITHY STALKS.

(Application filed June 11, 1900.)

(No Model.)

5 Sheets—Sheet 1



WITNESSES:

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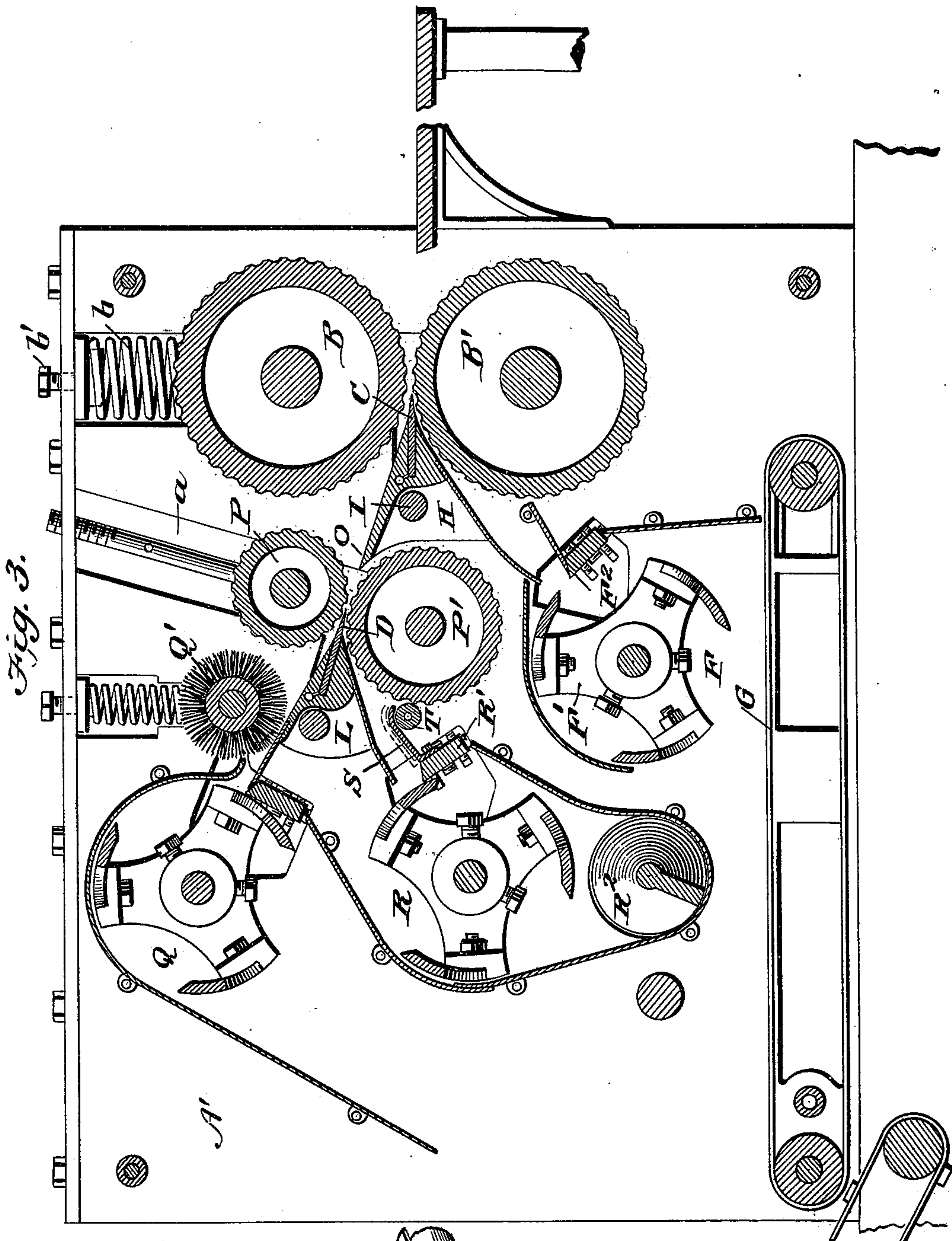
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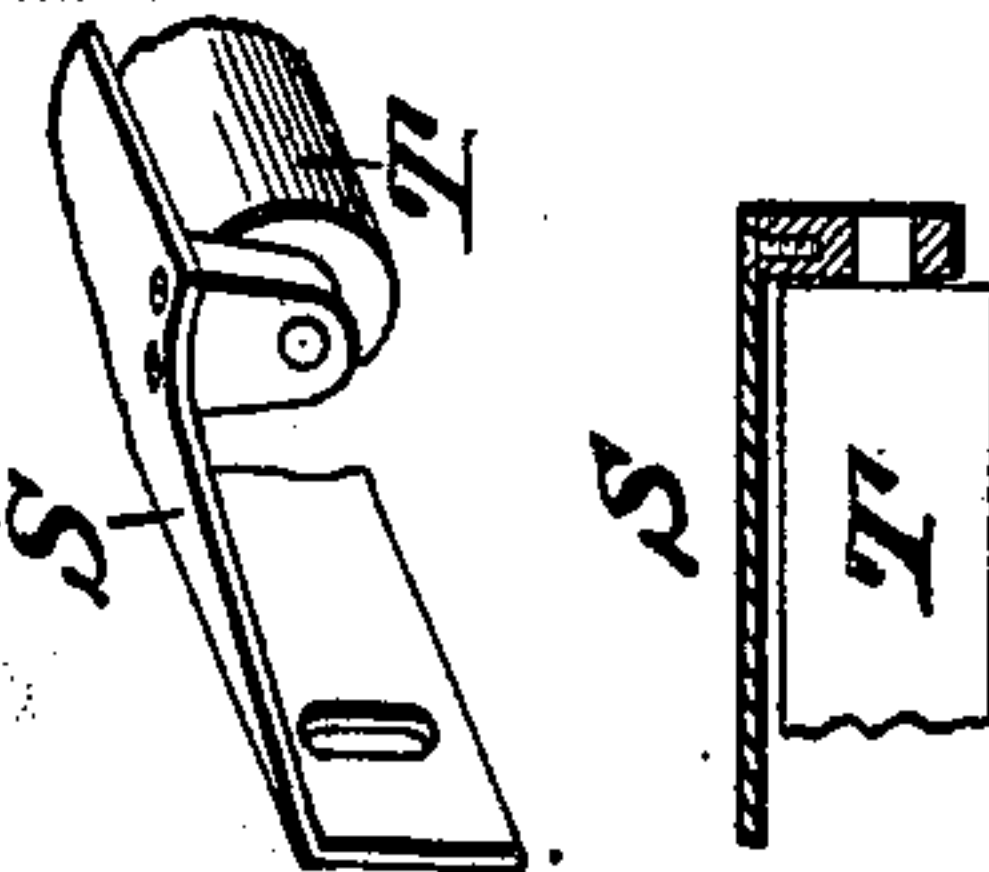
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Fig. 74.



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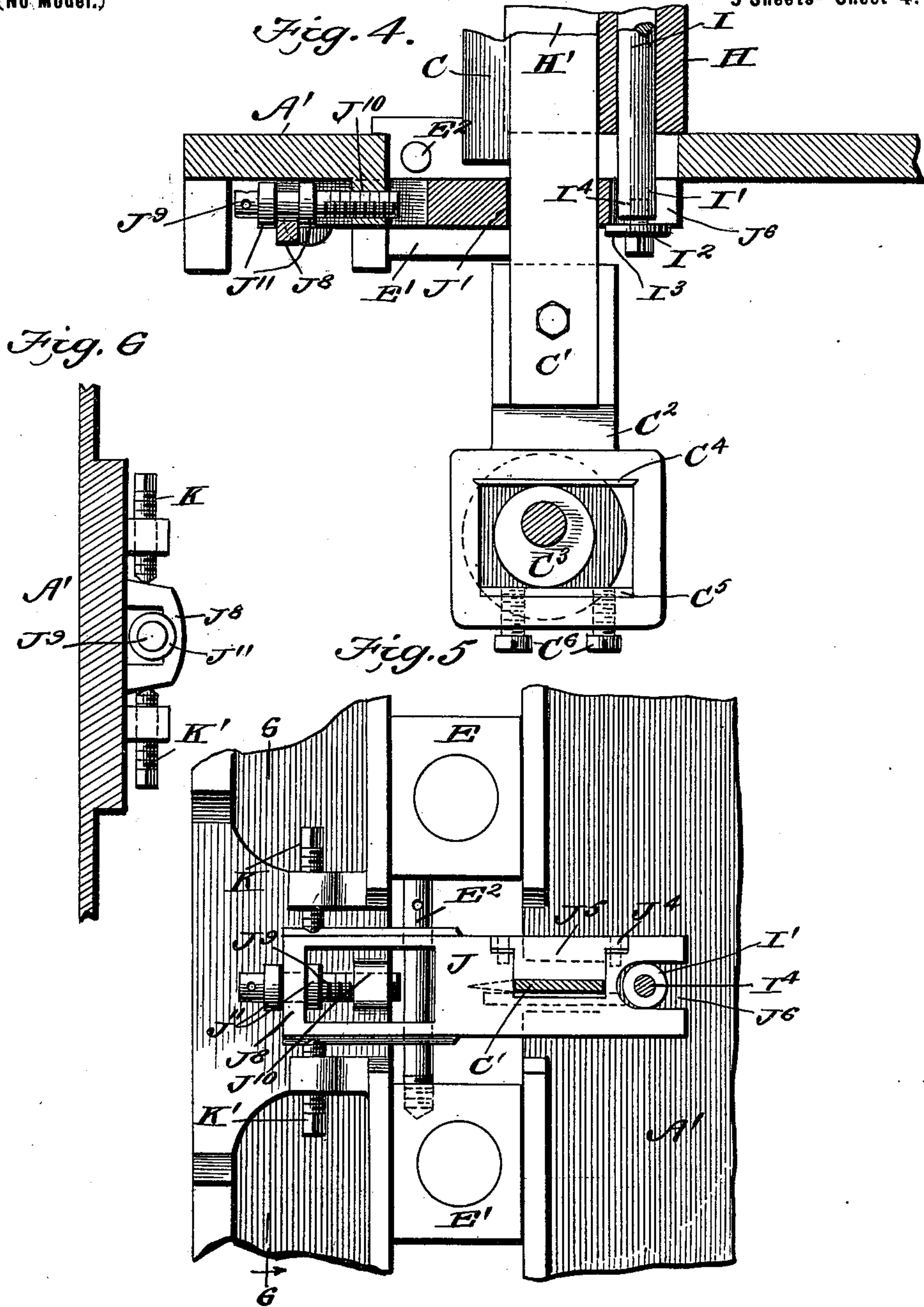
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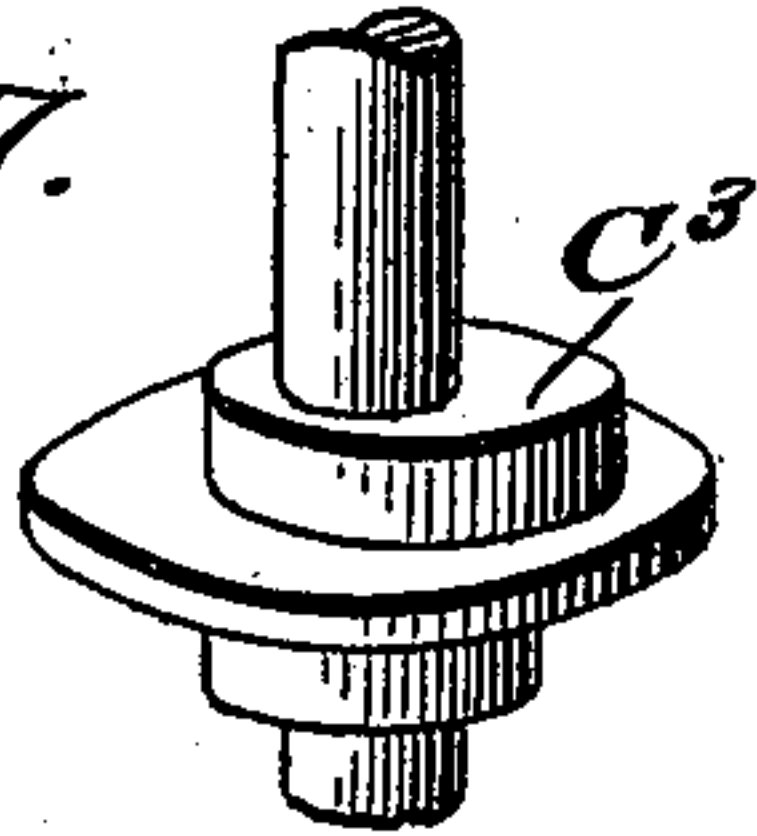
(No Model.)

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Fig. 7.



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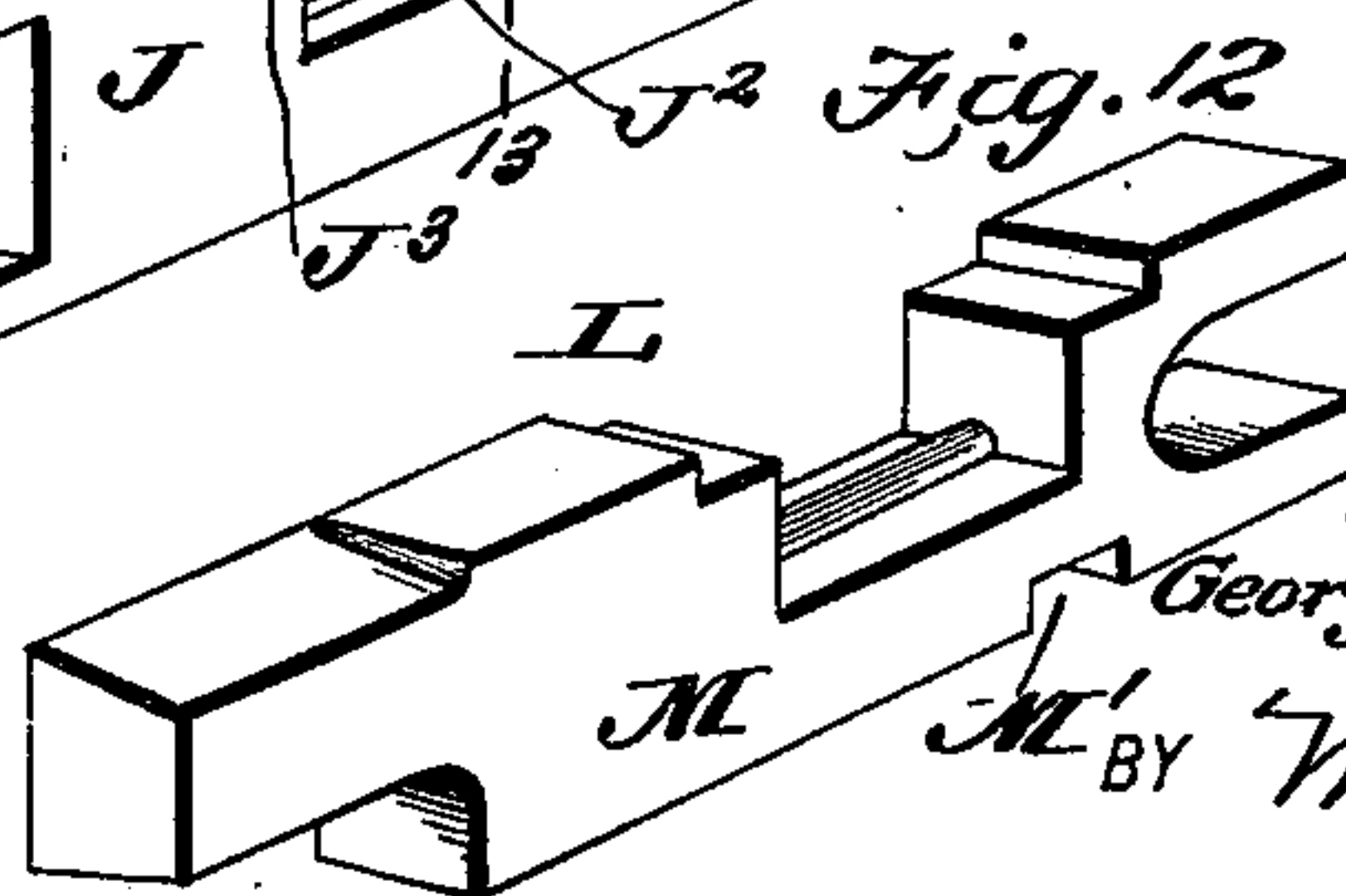
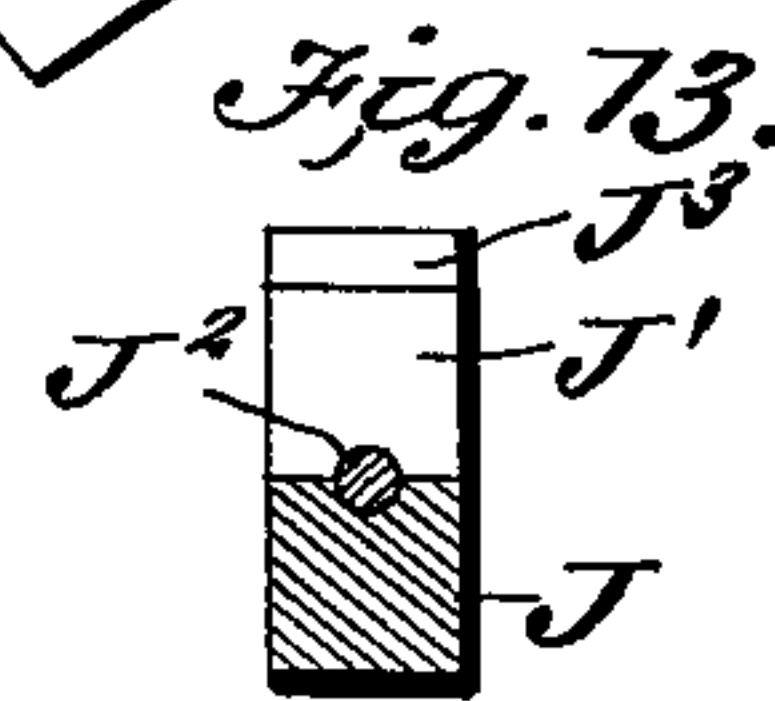
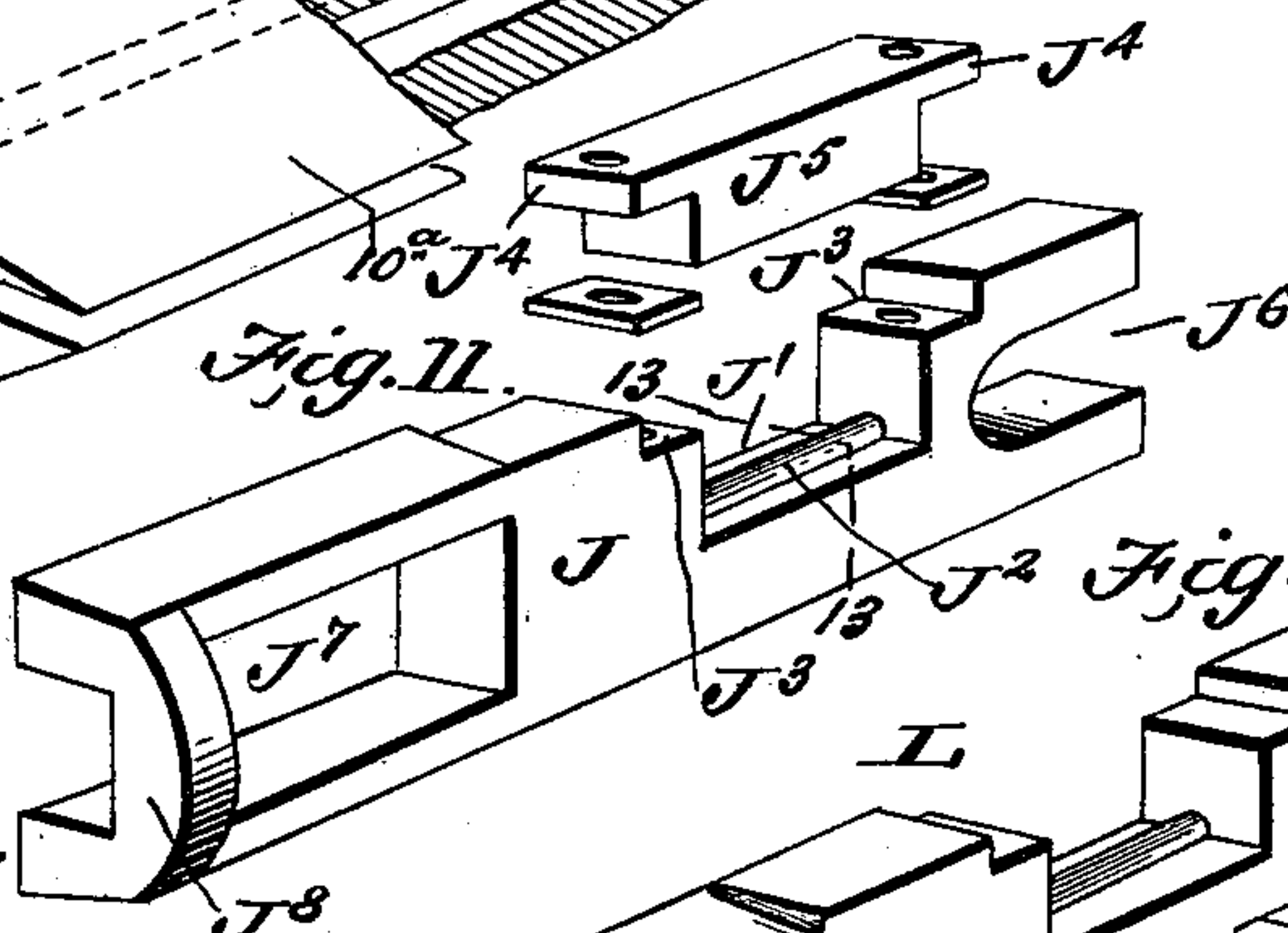
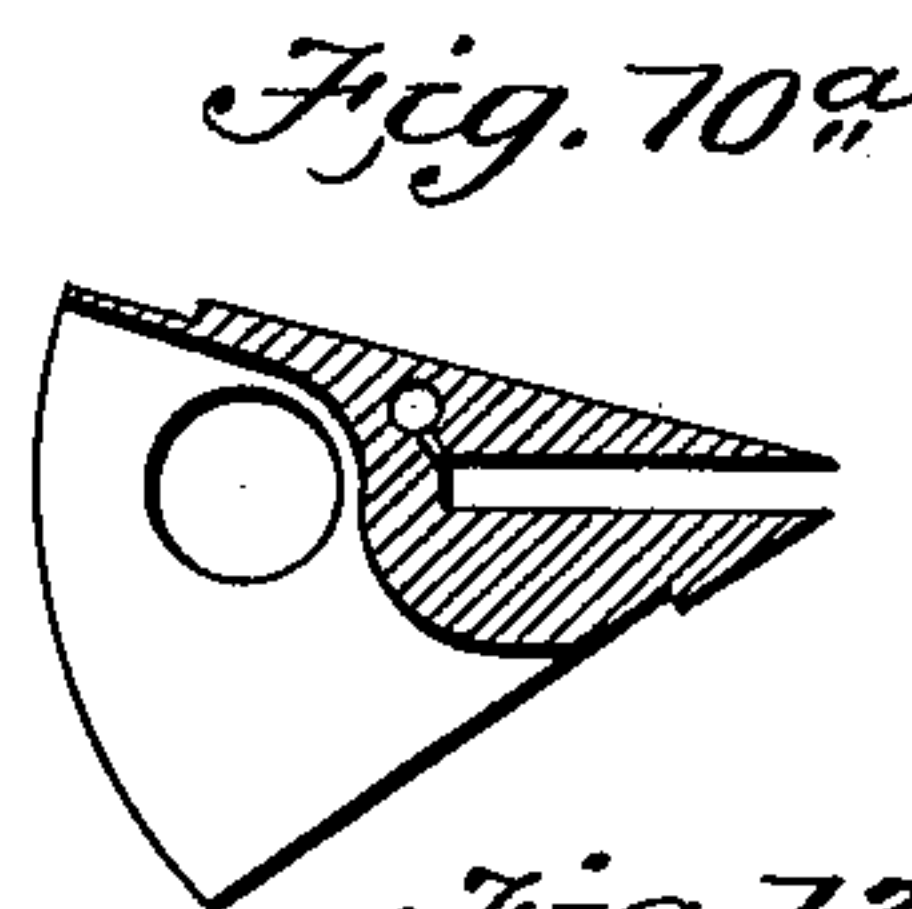
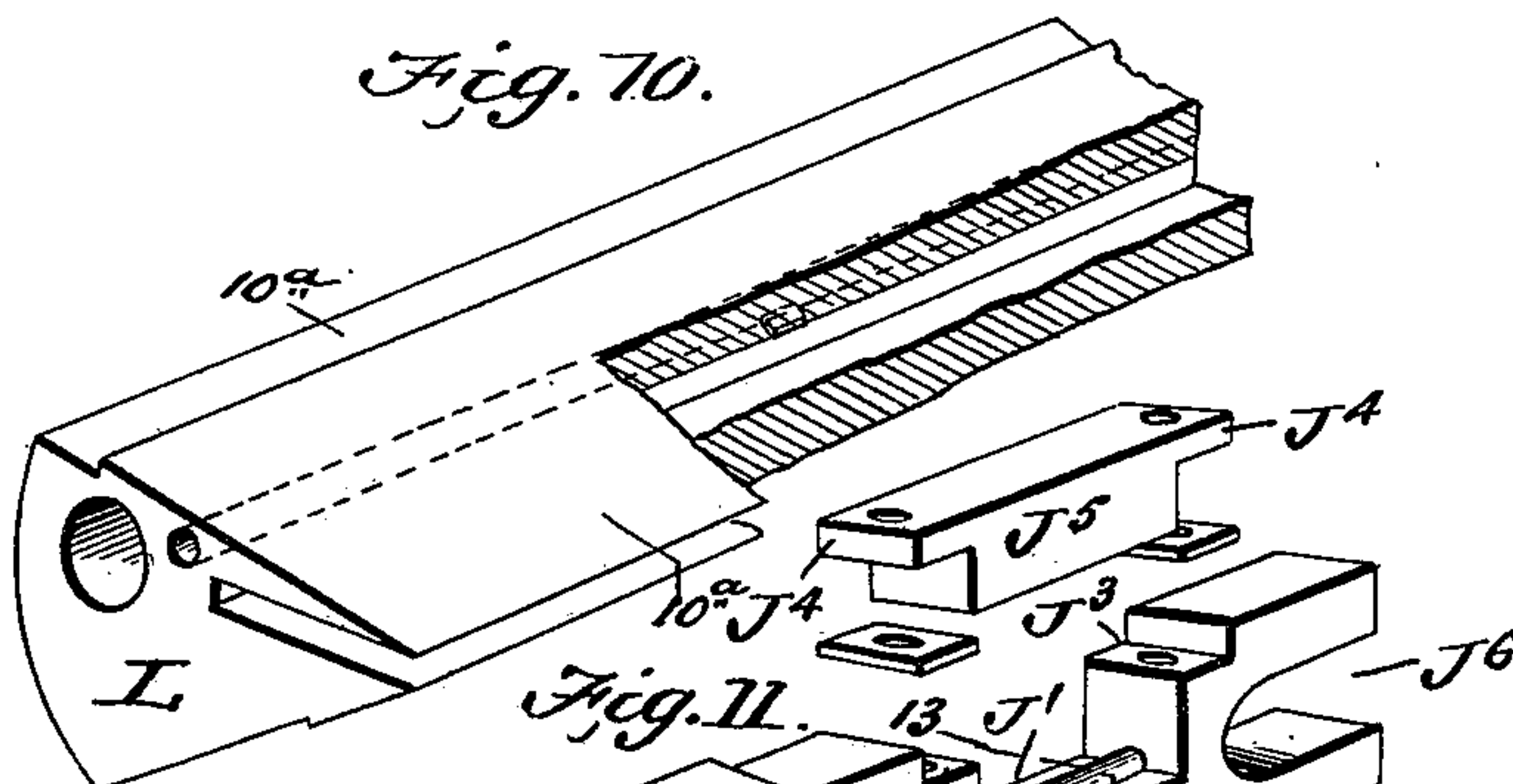
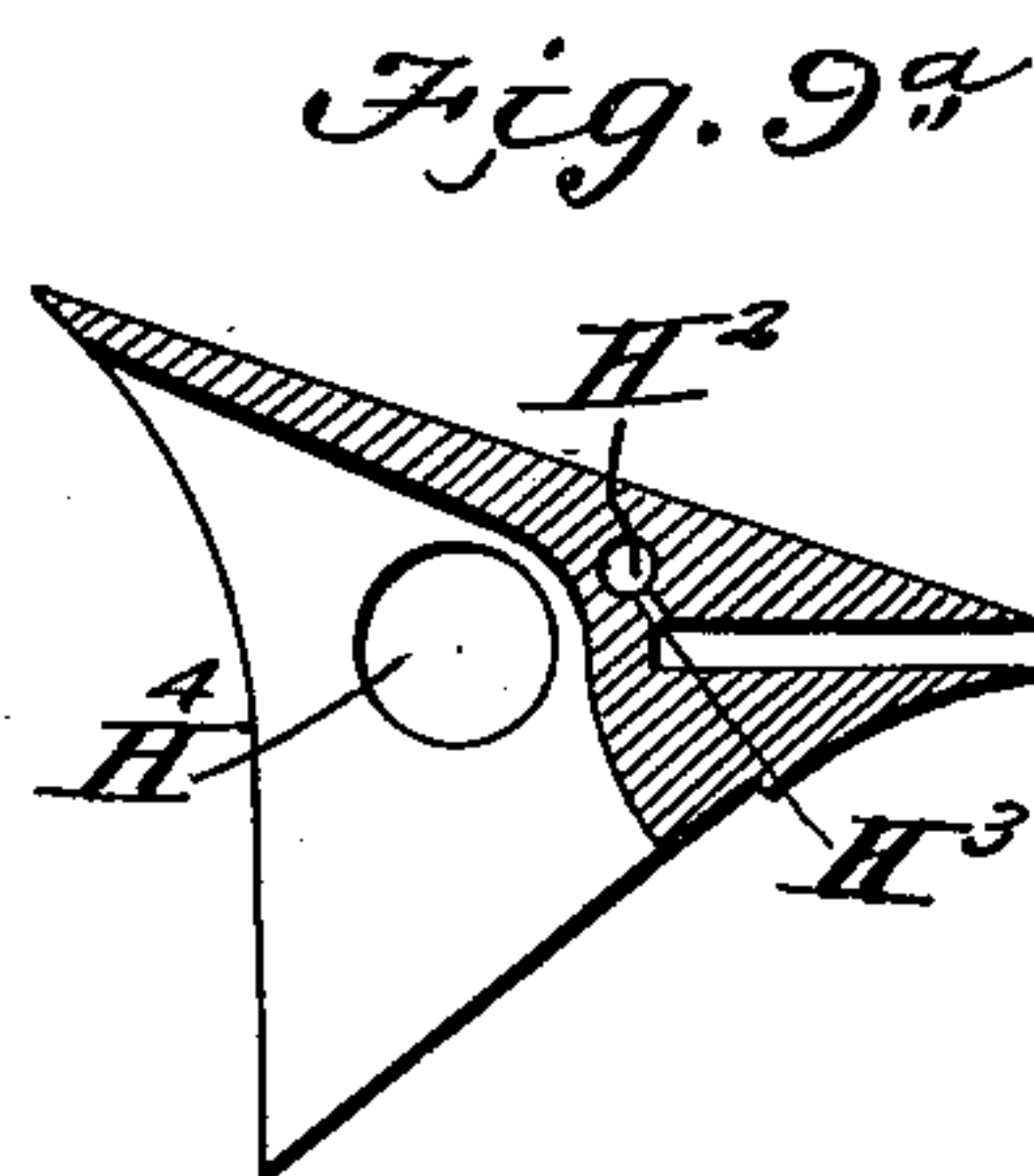
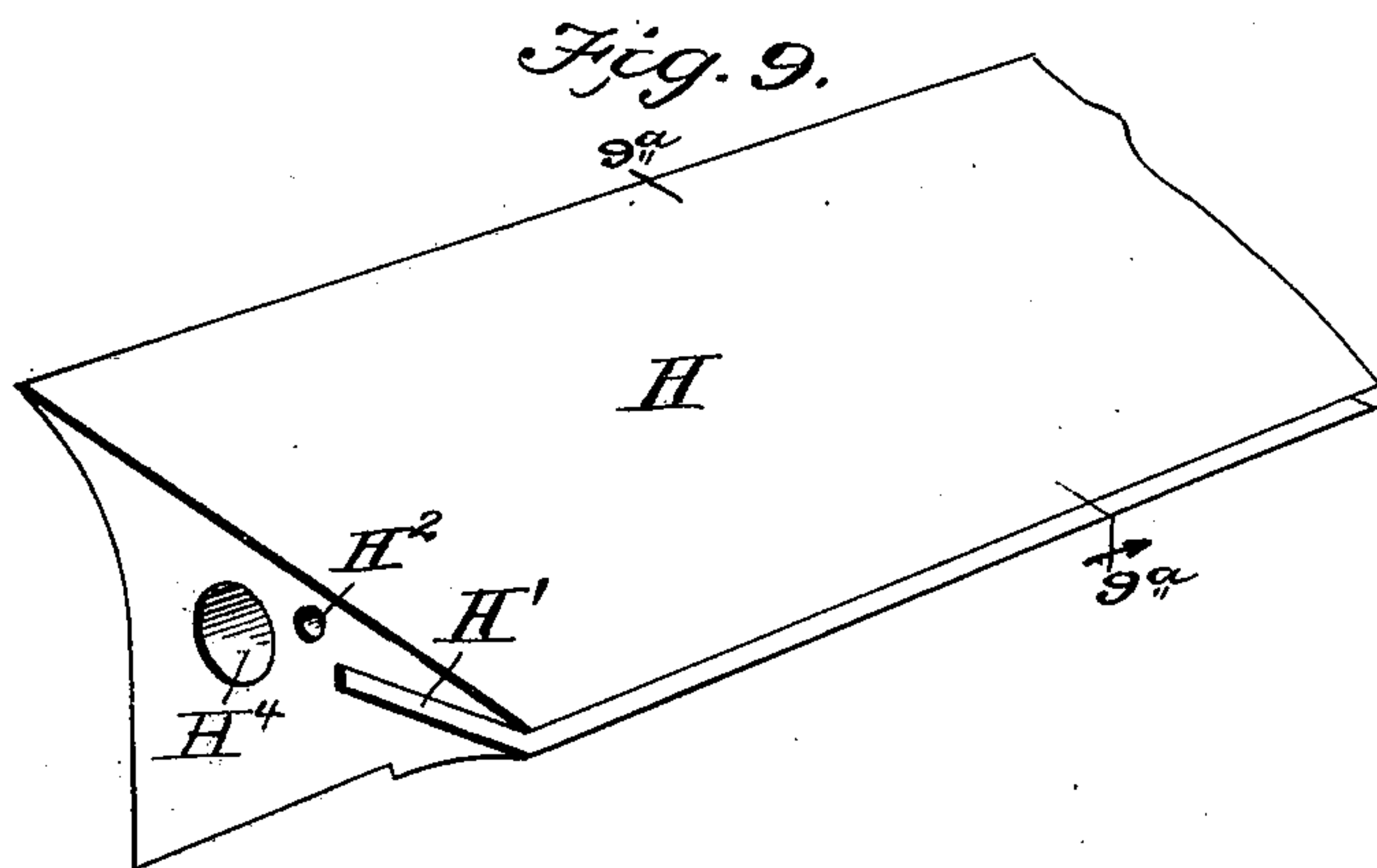
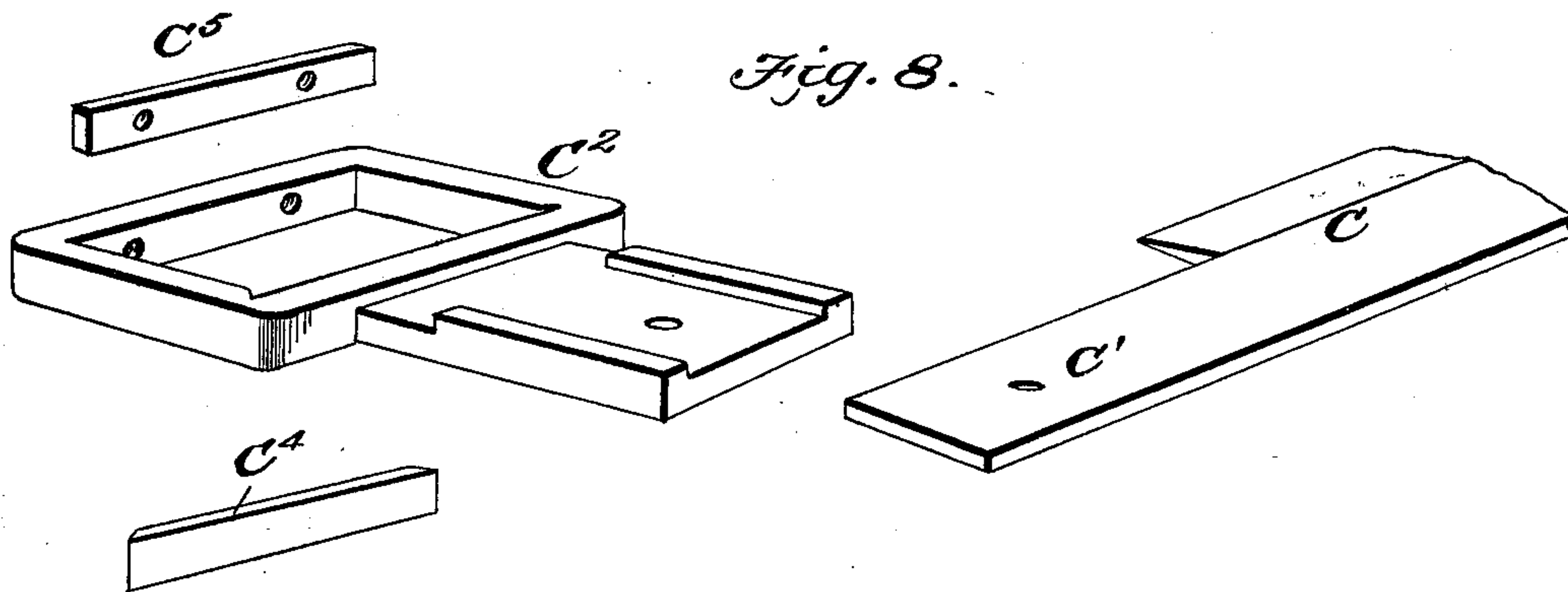
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(No Model.)

5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

GEORGE R. SHERWOOD, OF KEARNEY, NEBRASKA.

MACHINE FOR OPERATING UPON PITHY STALKS.

SPECIFICATION forming part of Letters Patent No. 675,758, dated June 4, 1901.

Application filed June 11, 1900. Serial No. 19,897. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. SHERWOOD, residing at Kearney, in the county of Buffalo and State of Nebraska, have made certain
5 new and useful Improvements in Machines for Operating upon Pithy Stalks, of which the following is a specification.

This invention is an improvement in machines for operating upon pithy stalks, and
10 especially in that class of such machines represented by my former patent, No. 627,882, dated June 27, 1899; and the present invention consists in certain novel constructions and combinations of parts, as will be herein-
15 after described and claimed.

In the drawings, Figures 1 and 2 are elevations of the opposite sides of the machine. Fig. 3 is a vertical longitudinal section of the machine. Fig. 4 is a detail top plan view,
20 partly in section and partly broken away, of the front cutter-blade, its carrier, and adjusting and operating means. Fig. 5 is a side elevation of said cutter-blade and its adjusting means. Fig. 6 is a detail cross-sectional view
25 on about line 6 6 of Fig. 5. Fig. 7 is a detail perspective view of the eccentric for operating the cutter-blade. Fig. 8 is a detail perspective view of a portion of the cutter-blade and its eccentric yoke and the wear-plates therefor detached. Fig. 9 is a detail perspective view, partly broken away, of the carrier for the front cutter. Fig. 9^a is a cross-sectional view on about line 9^a 9^a of Fig. 9. Fig.
30 10 is a detail perspective view, partly broken away, of the carrier for the rear cutter. Fig. 10^a is a cross-sectional view on about line 10^a 10^a of Fig. 10. Fig. 11 is a detail perspective view of one of the adjusting-blocks for the front cutter-blade, and Fig. 12 is a similar
40 view of the adjusting-block for the rear cutter-blade. Fig. 13 is a detail cross-section on about line 13 13 of Fig. 11, and Fig. 14 is a detail view of a portion of the clearing-roller and the guide-board and bed-cutter carrying
45 the same.

In carrying out my invention I employ the opposite side plates A and A', which are suitably constructed to receive the several parts presently described and are properly braced
50 apart in the desired position. In the present invention I employ at the front of the machine upper and lower feed-rollers B and B', which

feed the stalks to the front cutter-blade C. This cutter-blade C, as in my former patent before referred to, is designed to cut the shell
55 from the lower side of the stalk, the shell from the upper side of the stalk being cut by the succeeding or rear cutter-blade D. In my former patent the feed-rolls at the front of the machine were both yieldingly sup-
60 ported; but in my present invention, while the upper roll B is yieldingly supported by means of the spring *b* and may be adjusted by the screw *b'*, the lower roll B' is unyielding in operation, but may be adjusted to
65 any desired position by the screw *b*², as shown in Fig. 2. The boxes E and E' for the rollers B and B' move in suitable guides, and the movement of the upper box E may be regulated by the screw E², which is threaded at its
70 lower end in the lower box E' and is arranged at its upper end for abutment by the upper box E. By adjusting this screw in the box E' the extent of the downward movement of the box E may be limited, as will be readily
75 understood from Fig. 2 of the drawings. By making the lower roller B' rigid in operation and supporting the same so it can be adjusted the roller can be accurately set with respect to the cutter C to correspond to the size
80 of stalks to be operated upon, so that the shell will be properly cut from the lower side of each stalk and the lower roller, which guides the stalks to the blade, will remain permanently in such position during the operation.
85 At the same time the upper roller being yieldingly supported will permit the passage of any unusually large stalk or foreign substance that may be fed with the stalks.

The cutter C removes the shell from the
90 lower side of the stalk, and such shell is directed to the shell-cutter F, which has a revolving cutter F' and a bed-cutter F² and cuts the shell up and delivers it to a carrier G, by which it may be delivered at any desired
95 point.

From the feed-rollers B and B' the stalk passes to the cutter C, which cutter may be adjusted forward and back to take up wear
and to properly set it to cut the stalks, and
100 this blade may also be set up or down at its cutting edge. These operations are present in the machine covered by my former patent, before referred to; but in the present in-

stance instead of moving the carrier for the blade C forward and back and instead of rocking the said carrier to adjust the blade up or down I in the present instance adjust the
 5 cutter forward and back in the carrier and provide means which operate upon the cutter-blade whereby to rock the carrier. By these means I set the cutter-blade itself directly forward or back and up or down instead of effecting such movements indirectly
 10 through the carrier.

In the construction as shown the carrier II is provided in its front edge with a way II' for the blade C and parallel with said way
 15 with an oil-duct H², which has ports H³ leading to the way H' to lubricate the knife operating in the said way. The carrier II also has a longitudinal opening II⁴ for the shaft I, upon which the carrier II may rock. This
 20 shaft I extends at its ends I', and such extended ends are clamped to the adjusting-blocks, presently described.

The cutter C has at its ends the tangs or shanks C', one of which is connected with the
 25 yoke C², in which operates the eccentric C³ for reciprocating the knife. The eccentric C³ is suitably rotated and the yoke C² has bearing-plates C⁴ and C⁵, the former being fixed in place and the latter being adjustable
 30 by means of screws C⁶, so it can be set to take up the wear.

The adjusting-blocks J are formed in rights and lefts and are fitted against the outer sides of the framing and are constructed as shown
 35 in Fig. 11. As shown, the adjusting-blocks J are provided in their upper edges with notches J', forming seats for the cutter-blade, the lower wall of said notch being reinforced by a wear-pin J², which receives the wear resulting from the reciprocation of the cutter.
 40 The front and rear walls of the notch J' operate by engaging the edges of the cutter to adjust the same forward and back as the adjusting-block is correspondingly moved. The
 45 edges of the notch J' are rabbeted at J³ to receive the flanges J⁴ of the cap-plate J⁵, which fits in the notch J', maintains the cutter-blade in said notch, and may be forced downward by tightening its securing-screws to take up
 50 the wear.

In one edge of the block J, preferably at the rear end thereof, as shown, I provide a slot J⁶, which receives the extended end I' of the shaft I, which shaft forms a pivot on which
 55 the adjusting-block may be tilted when the clamp I² is loose. This clamp I² has a disk I³, which overlaps the edges of the slot J⁶ and binds against the outer face of the adjusting-block J when the clamp I² is tightened by
 60 screwing its threaded portion I⁴ in a corresponding socket in the end of the shaft I. By this means the shaft I and its clamp may be utilized to lock the adjusting-block in any desired adjustment.

65 For adjusting the block J back and forth I provide at its front end a recess J⁷, crossed by a bar J⁸ and entered by a screw J⁹, which

is threaded at J¹⁰ in a lug projecting from the framing and is provided with shoulders J¹¹, fitting on opposite sides of the cross-bar J⁸, so
 70 the screw J⁹ may operate to force the adjusting-block either forward or back, as may be desired. By this means the movements of the blade back and forth may be readily accomplished.
 75

For varying the angle of the blade I provide means for tilting the adjusting-block on the shaft I as a pivot. To this end I provide screws k and k', threaded in suitable bearings on the framing above and below the ad-
 80 justing-block, in position to engage therewith, so they can be set to move the front end of the block J up or down, as desired. In order that these screws K and K' may also operate to press the adjusting-block tightly
 85 against the outer face of the framing, I preferably taper the upper and lower edges of the block J, as best shown in Fig. 6, so the screws will operate with a wedging action to press the block against the framing.
 90

The rear cutter D has its carrier-block L constructed in general respects like the block II for the preceding cutter, and this cutter D is operated and adjusted like the cutter C, as
 95 before described; but as it is inconvenient to arrange the screw for adjusting the adjusting-blocks M for the rear cutter back and forth at the front end of the said blocks I provide for adjusting the said blocks M back
 100 and forth by means engaged therewith near their rear ends and consisting, preferably, of screws N, operating in threaded bearings on the framing and having a ring or flange N' entering a notch M' in the block M, so the
 105 movements of the screw N back and forth will correspondingly adjust the block M with which it is engaged.

As best shown in Fig. 3, an inclined guide is provided at O, leading upwardly from the front cutter toward the succeeding cutter D,
 110 and I find it desirable to arrange said cutter D to meet the stalk squarely in order to secure a perfect cleavage. To this end said cutter D is inclined to correspond with the direction of the guide O, and the feed-rollers
 115 P and P' for directing the stalks to the cutter D are arranged with their axes in a plane inclined to the vertical and at right angles to the direction of the inclined guide, as shown in Fig. 3. In securing this result the guide-
 120 ways a in the framing for the boxes of the rollers P and P' are inclined as shown in Figs. 1, 2, and 3.

The rear cutter D is designed to cut the shell from the upper side of the stalks, being
 125 to this end arranged above the center of the space between the rollers P and P', and by preference the roller P is practically unyielding during operation; but I find it desirable to support this roller P' so it can yield slightly,
 130 as the stalk, or so much of it as reaches the rollers P and P', has been firmly compressed by the preceding rollers B and B'.

From the cutter D the shell passes to the

cutter Q, being fed thereto by the brush-roll Q', while the pith is fed by the roller P' to the cutter R, passing during such operation over the yielding guide-board S, which is fixed at one end to the bed-cutter R', so it can be adjusted up or down, as will be understood from dotted lines in Fig. 3. At the under side of the free edge of the board S, which is preferably of resilient material, I provide the clearing-roll T, (shown in Fig. 3,) resting normally clear of the roller P', but sufficiently close thereto to be operated when a leaf or other particle gets between the rollers P' and T, as will be understood from Fig. 3. Thus if in operation one end of a leaf or other fiber passes above the guide-board S and the rear end of said part passes down between the rollers T and P' the roller T will be operated by the roller P' and the said leaf or other part will be drawn down between the rollers P' and T and will be discharged, whereas except for this roller T such leaves and other stringy parts would have a tendency to accumulate on the board S and between the same and the roller P' and clog the feed of the machine.

It should be noticed that I provide independent cutters F and Q for the shell-sections delivered from the front and succeeding cutters C and D and that both of these cutters F and Q discharge onto a carrier G, which may be arranged or extended or coupled to other carriers to deliver the shell at any desired point. The pith cut by the cutter R is discharged to a screw conveyer R², by which it may be delivered at one side of the machine.

It will be understood from the foregoing description that the cutters C and D may be adjusted back and forth in their respective carriers and that by tilting said cutters the carriers may be rocked to correspond with the direction of their cutters.

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

1. In a machine for operating upon pithy stalks, the combination of the framing, a cutter for cutting the shell from one side of the stalk means for reciprocating such cutter longitudinally and feed-rollers for feeding the stalk to such cutter the latter extending approximately parallel with the rollers, the roller on the side from which the shell is cut being practically unyielding during operation and under the control of adjusting devices, and the other roller being yieldingly supported substantially as set forth.

2. In a machine for operating upon pithy stalks, the combination of a cutter-blade for splitting the stalk, a carrier having a way in which said cutter may be reciprocated, means for reciprocating the cutter in said way, and devices whereby the cutter may be adjusted back and forth in the way of its carrier, substantially as set forth.

3. In a machine substantially as described,

the combination of a blade for splitting the stalks, a carrier rockably supported and provided with a way for the cutter-blade and means operating upon the cutter-blade whereby to rock its carrier, substantially as set forth.

4. The combination in a machine substantially as described of a cutter-blade for splitting the stalks, a rockable carrier having a way in which said cutter-blade operates, means whereby the cutter-blade may be adjusted forward and back in said way, and means operating upon the cutter-blade whereby to rock its carrier, substantially as set forth.

5. In a machine substantially as described, the combination of the blade for splitting the stalks, the rockable carrier having a way for said blade, and the adjusting-blocks having bearings for said blade and means for setting such blocks to adjust the blade, substantially as set forth.

6. The combination with the cutter and its carrier of the adjusting-blocks having bearings for the cutter and means for adjusting said blocks back and forth, substantially as set forth.

7. In a machine substantially as described, the combination of the carrier having a way for the cutter-blade, a shaft on which said carrier may rock, the adjusting-blocks having bearings for the cutter-blade, means by which the adjusting-blocks may be clamped to the shaft for the carrier, and means for adjusting said blocks, substantially as set forth.

8. The combination with the cutter-blade and its carrier, of the adjusting-blocks having tapered edges, the screws for rocking said blocks arranged to engage said tapered edges bearings for the blocks and means for adjusting the blocks longitudinally, substantially as set forth.

9. In a machine substantially as described, the combination of the cutter-blade, the carrier therefor having a way in which said cutter-blade operates, and provided with an oil-duct extending approximately parallel with said way and having ports communicating therewith, and means for operating said blade, substantially as set forth.

10. The combination in a machine substantially as described, of the cutter-blade, the carrier having a way for said blade, the shaft of said carrier having its ends extended, the adjusting-blocks having bearings for the cutter-blade and openings for the extended ends of the shaft, means for clamping said ends of the shaft to the adjusting-blocks, and means for adjusting said blocks, substantially as set forth.

11. In a machine substantially as described, the combination of the front cutter for removing the shell from one side of the stalk, an inclined guideway leading rearwardly from said cutter, a succeeding cutter in line with said inclined guideway, feed-rollers for feeding the stalks to said succeeding cutter, and

the framing having inclined guideways for the boxes of said feed-rollers, whereby the rollers may be arranged with their axes in a line at right angles to the direction of the inclined guideway, substantially as set forth.

12. In a machine substantially as described, the combination with a pair of feed-rollers and a cutter in rear thereof, of a clearing-roller located below the cutter and in close proximity to the lower feed-roller, substantially as shown and described.

13. In a machine substantially as described, the combination of a front and a succeeding cutter by which to cut the shell successively from the opposite sides of the stalk, feed-rollers in advance of said cutters, the latter being arranged to one side of the center of the

space between their respective rollers, the roller of each pair nearest their respective cutters being practically unyielding in operation and set-screws for controlling said unyielding rollers, substantially as set forth.

14. In a machine substantially as described, the combination of a pair of feed-rollers, a cutter in rear thereof, a spring guide-board below the cutter and a clearing-roller supported by the guide-board in close proximity to the lower feed-roller, substantially as set forth.

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Witnesses:

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