

(No Model.)

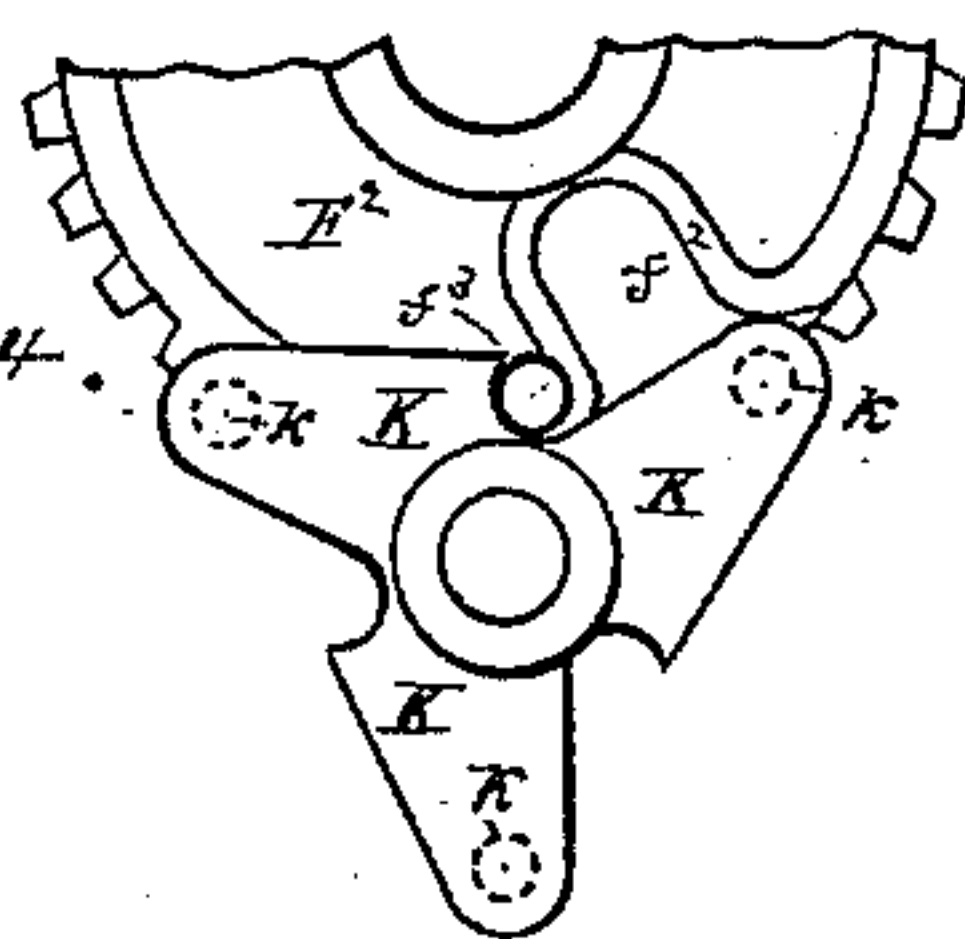
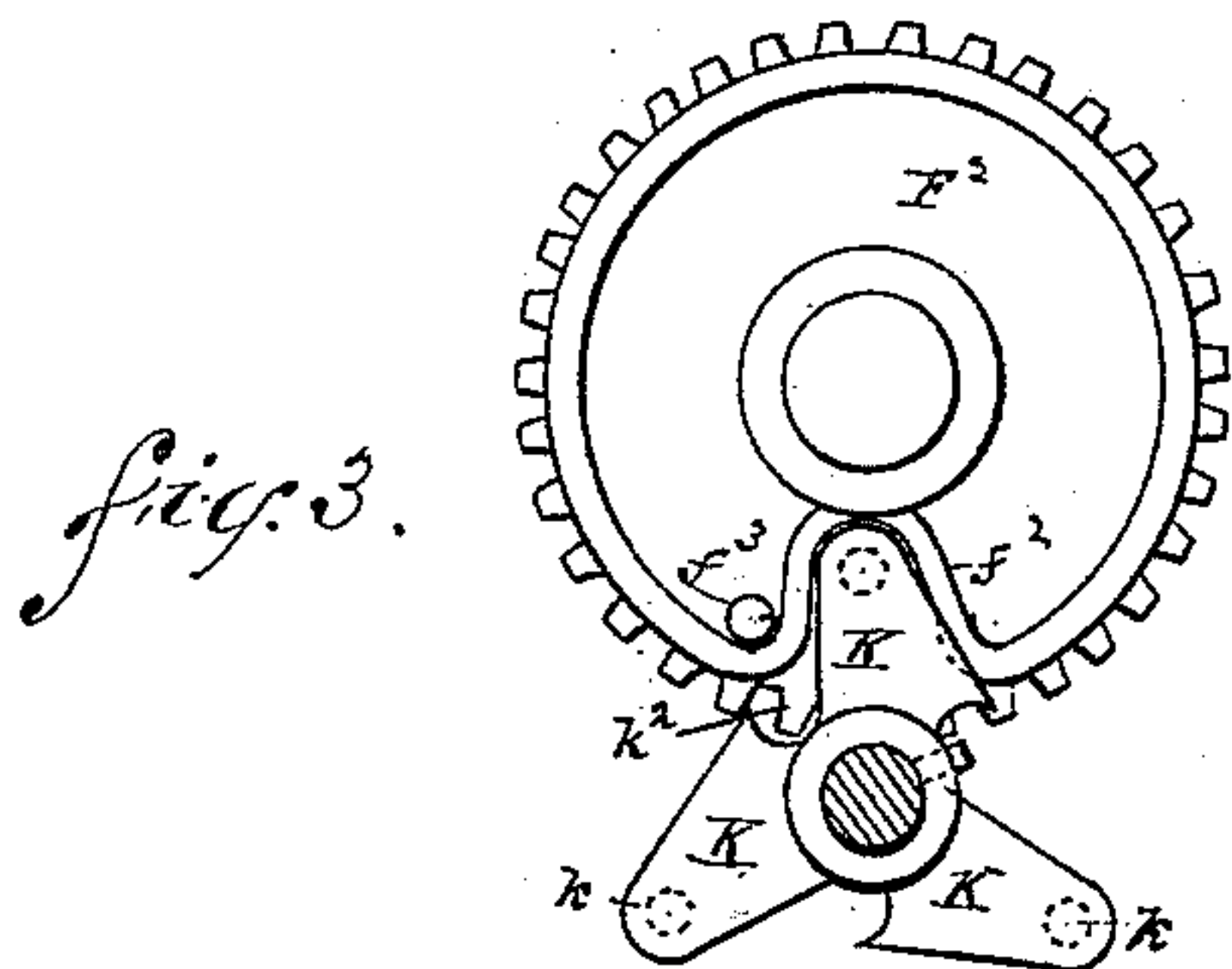
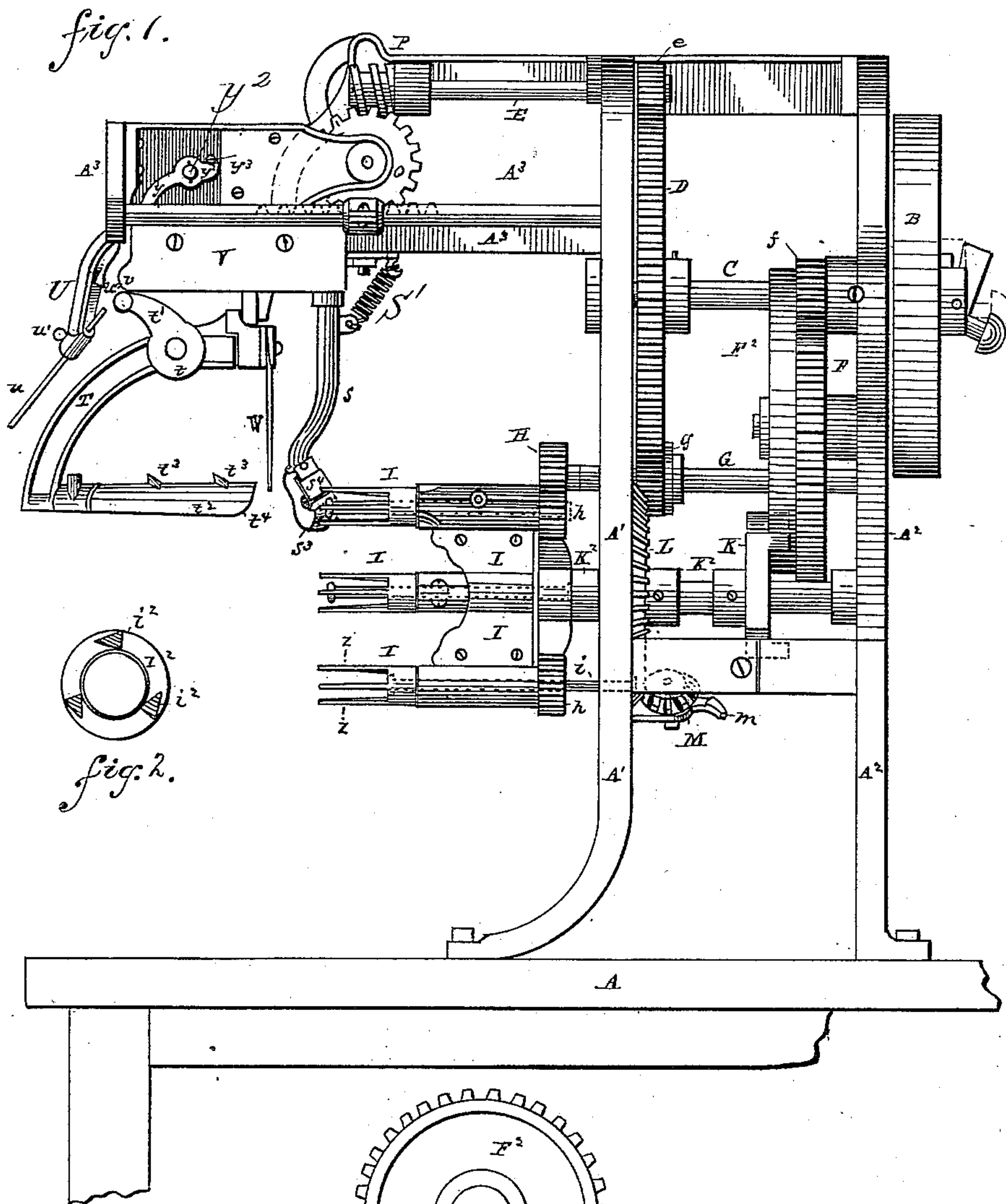
3 Sheets—Sheet 1.

W. A. C. OAKS.

APPLE PARER.

No. 379,324.

Patented Mar. 13, 1888.



WITNESSES:

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(No Model.)

3 Sheets—Sheet 2.

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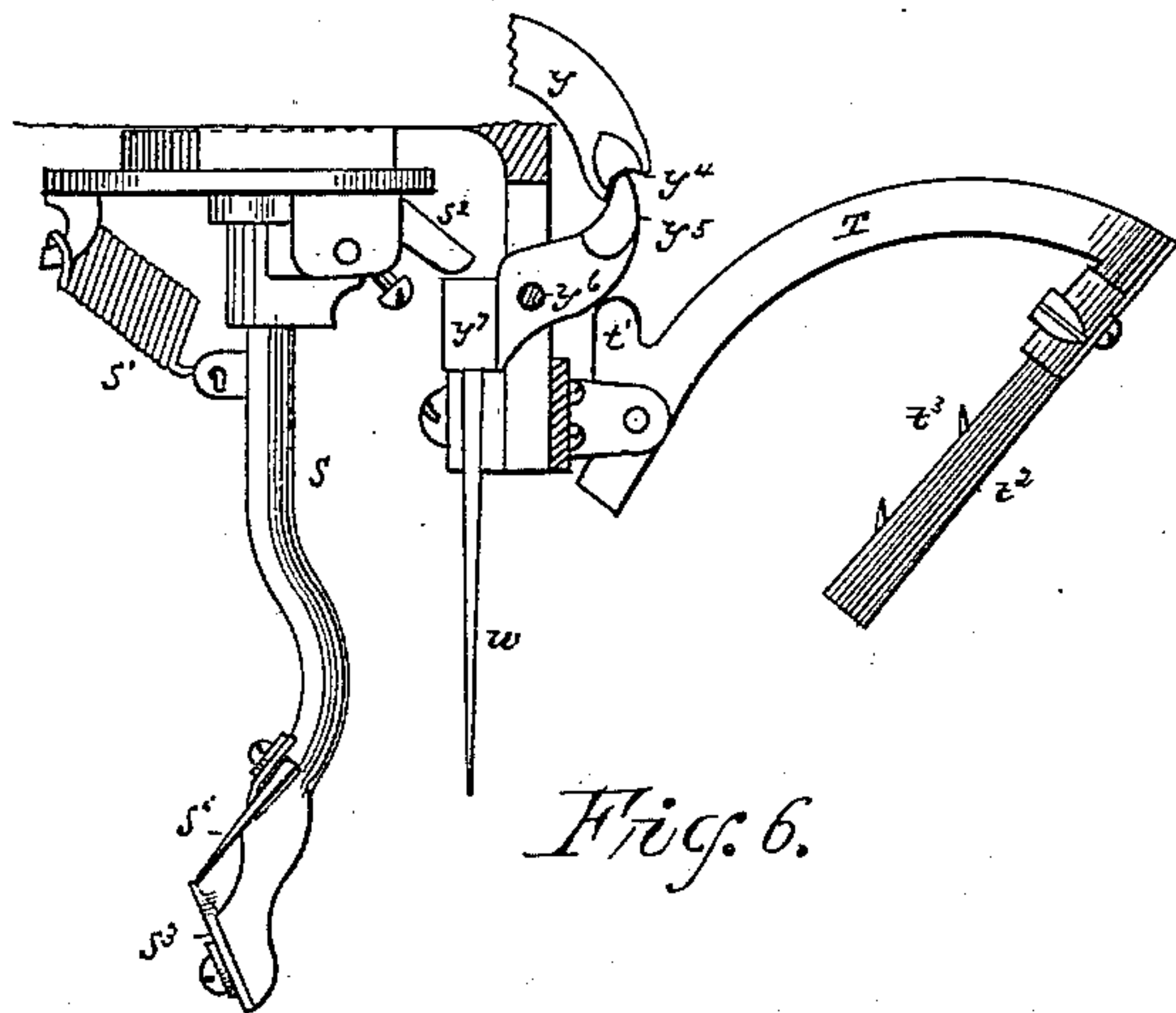


Fig. 6.

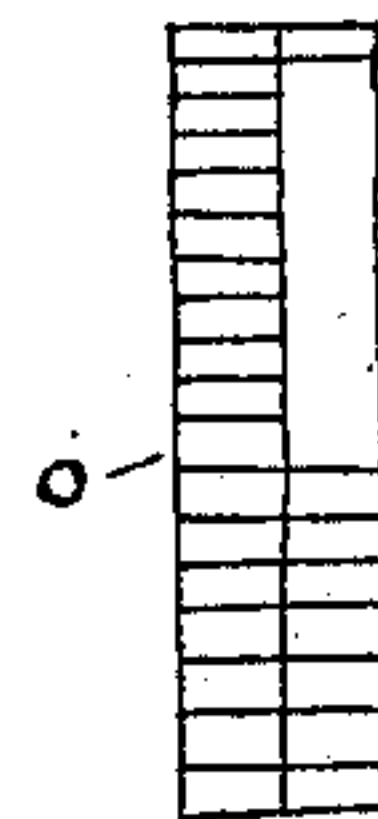


Fig. 5.

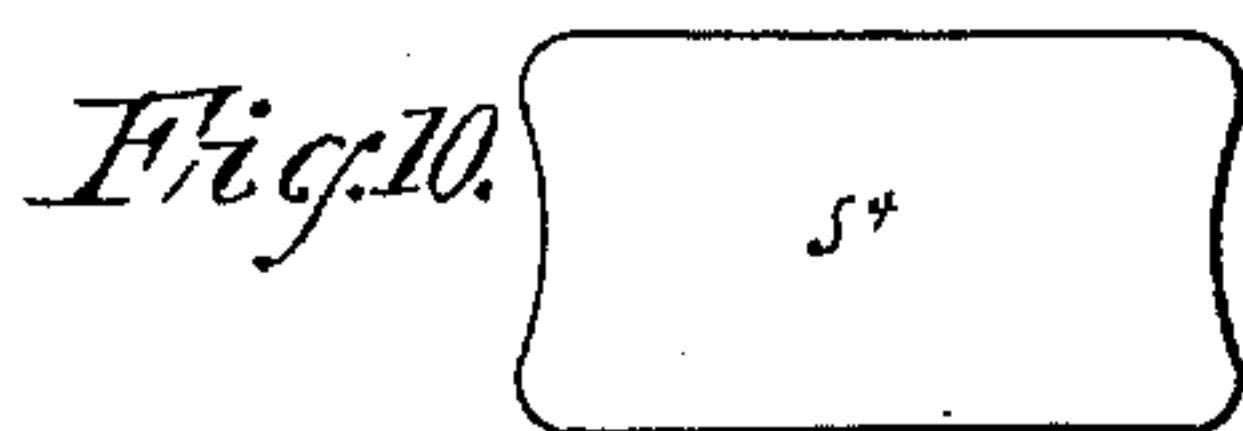


Fig. 10.

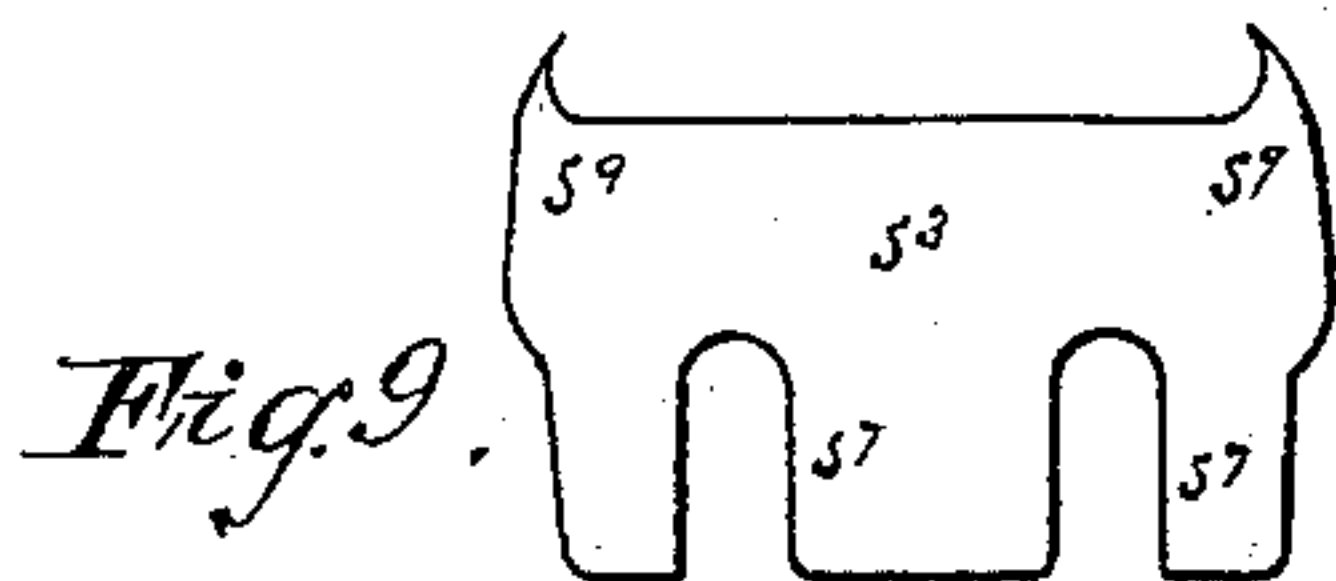


Fig. 9.

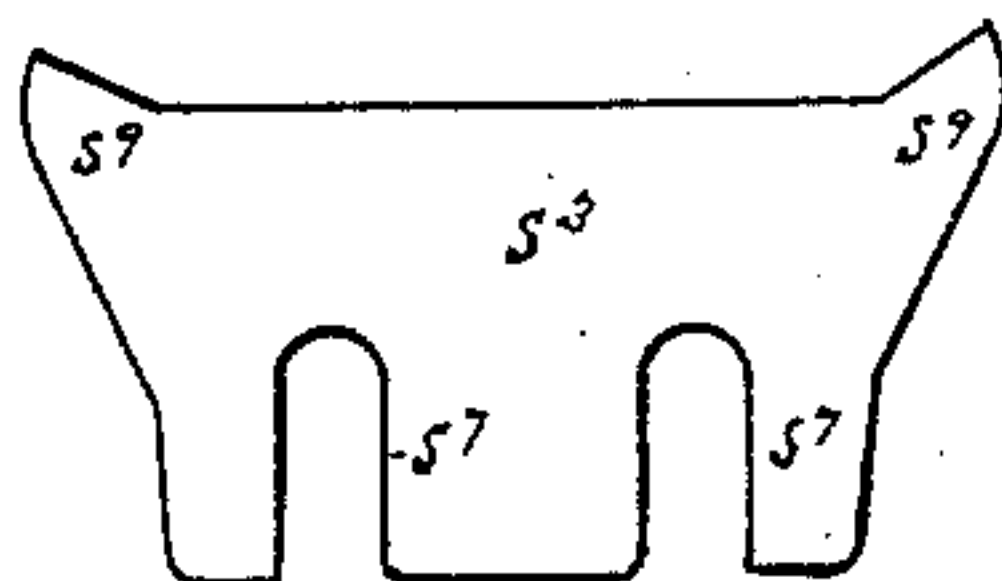


Fig. 8.

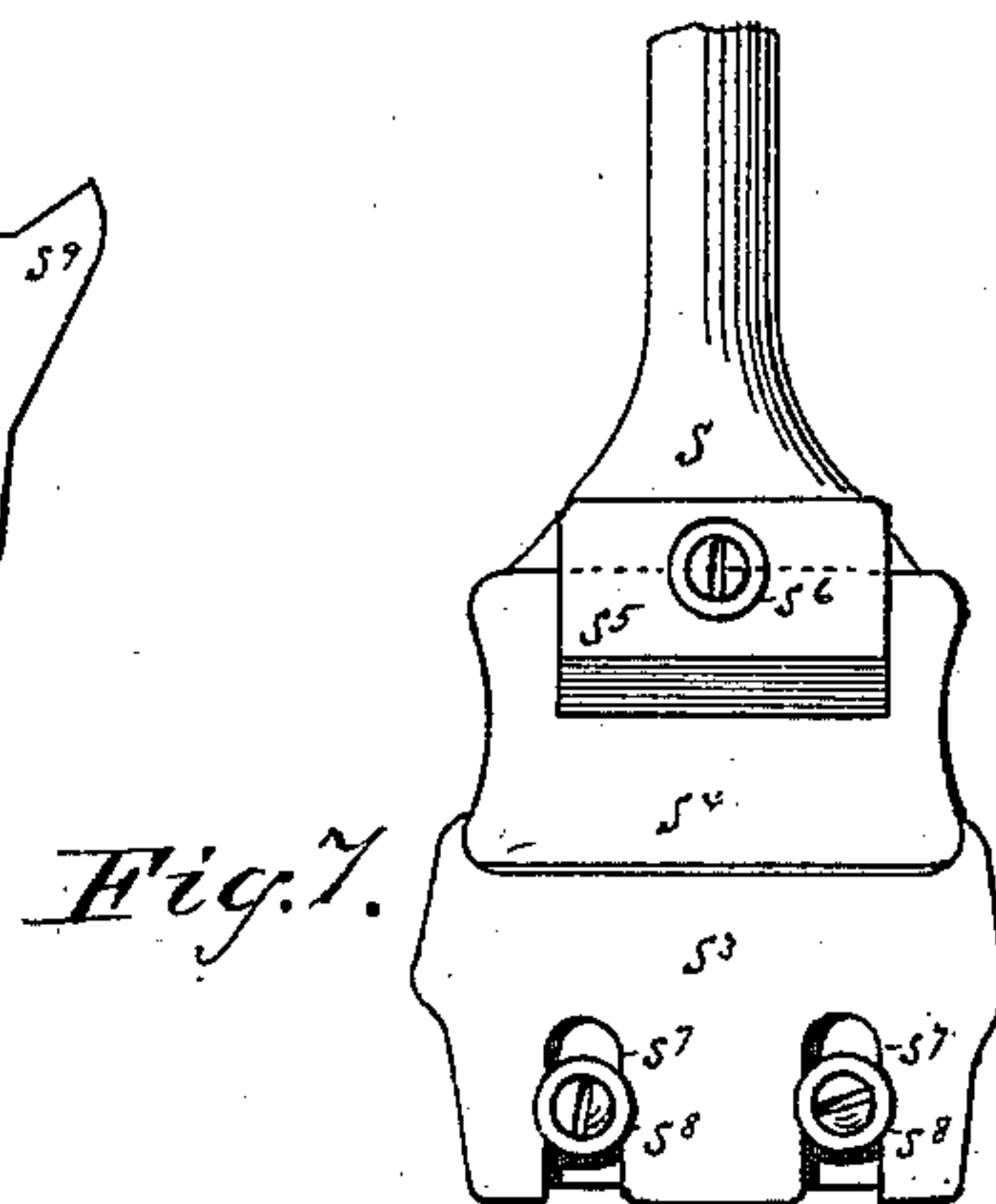


Fig. 7.

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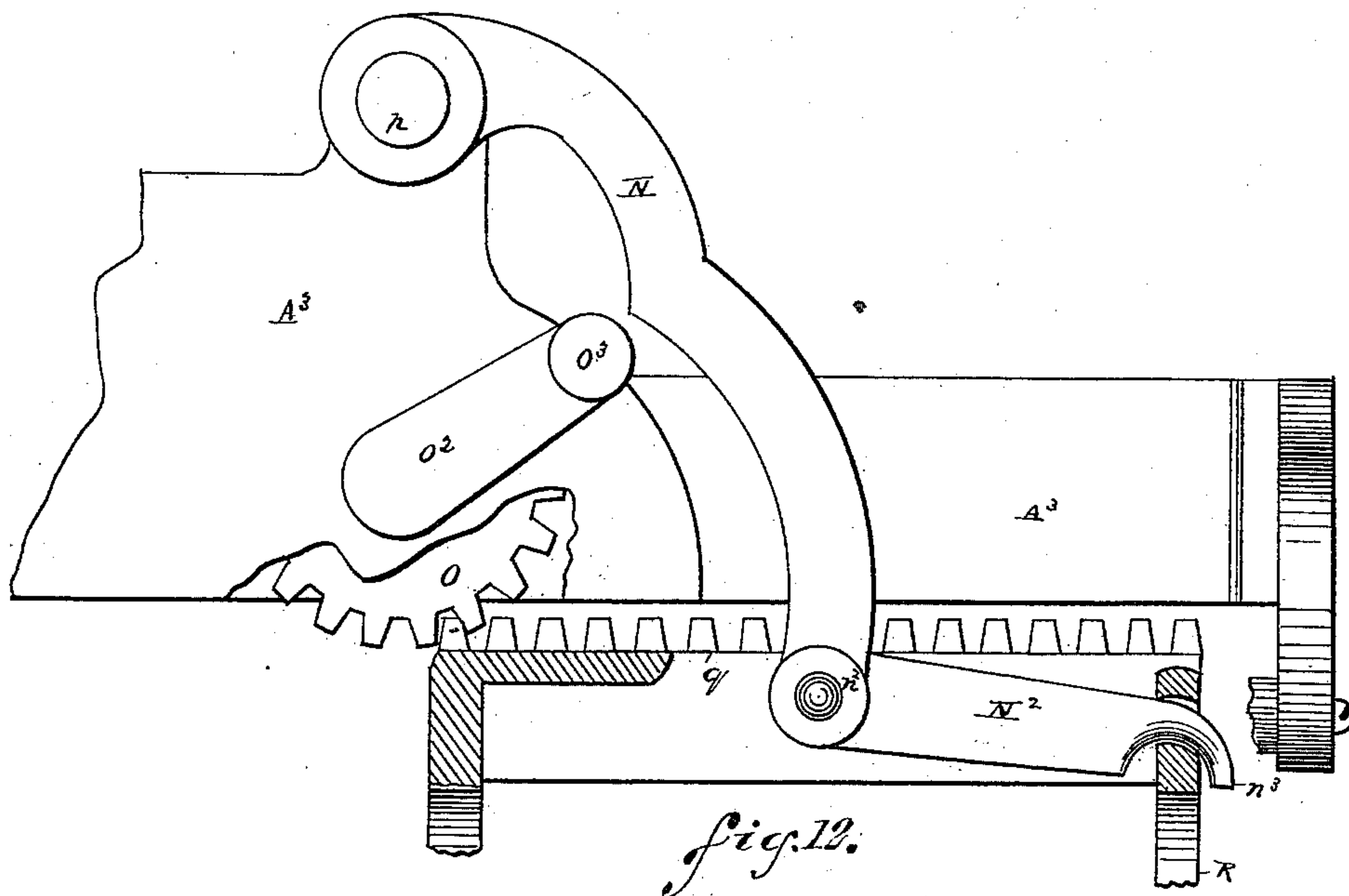
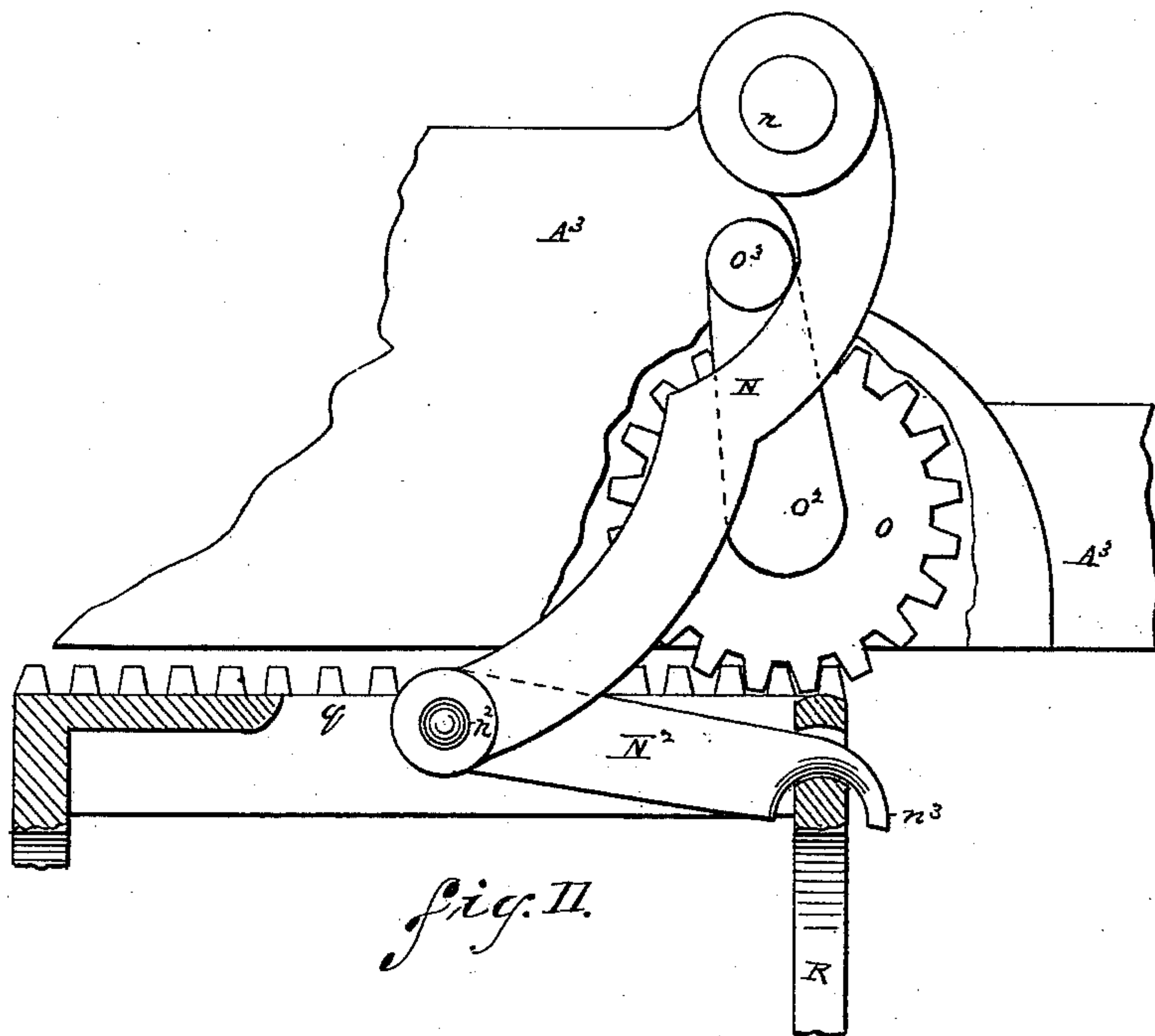
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# UNITED STATES PATENT OFFICE.

WILLIAM A. C. OAKS, OF ANTRIM, NEW HAMPSHIRE.

## APPLE-PARER.

SPECIFICATION forming part of Letters Patent No. 379,324, dated March 13, 1888.

Application filed October 5, 1886. Serial No. 215,333. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. C. OAKS, of Antrim, county of Hillsborough, and State of New Hampshire, and a citizen of the United States, have invented certain new and useful Improvements in Apple-Parers, of which the following is a specification.

The object of my invention is to provide a more perfect machine for paring apples, in which a revolving fork-reel is used, than those now in use, although my improvements are to a large extent applicable to other classes of apple-paring machines.

My machine consists of the following improvements and devices: an improved coring-knife and an improved device for carrying and dumping the apple clear of the parings and cores, all of which improvements and new devices are more fully set forth hereinafter.

My improvement in the coring-knife consists in making it in the form of a portion of a hollow cylinder, rounding one corner, and providing the convex surface with notches for the purpose of holding the apple and withdrawing it after the operation of coring.

My device for carrying back and dumping the apple consists of a curved lever pivoted to the knife-carriage and provided with the aforesaid coring-knife. This lever has also a crank and pin, which comes in contact at the right time in its course with a camway upon the frame of the machine, tilting the corer-blade and bringing the apple against a rod fixed to the frame of the machine, which pushes the apple from the knife and permits it to fall clear of the parings.

In the drawings, Figure 1 is a front elevation of my improved machine complete. Fig. 2 is an end view and partial section on the line  $z z$  of one of the forks. Fig. 3 is a detail view of a portion of the mechanism for turning and locking the fork-reel, the parts being shown in the position which they occupy when the reel is locked. Fig. 4 is a similar view, but showing the position of parts when the reel has just turned forward one-third of a revolution and is about to be locked. Fig. 5 is a detail view of the mutilated gear O. Fig. 6 is a detail rear view of the mechanism for forcing the knife back as the reel brings the next apple forward. Fig. 7 is a plan view

of the paring-knife head. Fig. 8 is a plan view of the paring-knife blade before it is shaped. Fig. 9 is a view of the paring-knife shaped as when applied to the machine. Fig. 10 is a plan view of the guard for the paring-knife. Fig. 11 is a rear elevation of the quick return motion when the knife-carriage is farthest removed from the apple. Fig. 12 is a similar view of the same parts when the carriage has completed its return motion.

Similar letters refer to similar parts throughout the several figures.

The principal parts are as follows:

A is the base, to which are secured the upright frames  $A'$  and  $A^2$ , supporting a cross-frame,  $A^3$ , near the top. A driving-pulley, B, is mounted upon a shaft, C, resting in bearings in the frames  $A'$   $A^2$ , and carrying a spur-wheel, D, which gears with a pinion,  $e$ , upon the shaft E. At the outer end of the shaft E is an endless screw, P, which by gearing with the worm-wheel O operates the quick return motion of the knife-carriage.

To the shaft C is also secured, near the end of the shaft toward the driving-pulley B, the pinion  $f$ , as shown in Fig. 1. This pinion gears with a spur-wheel, F, which is hung upon the shaft G, turning in bearings in the frame, and has intervaled with it a cam-face,  $F^2$ , which, as shown in Fig. 3, operates a three-pronged cam, K, which is keyed to the shaft  $K^2$ , turning in the frame-work and bearing at its outer end the fork-wheel I.

To effect the rotation of the individual forks about their own axis, a pinion,  $g$ , is secured to a shaft, G, and gears with the spur-wheel D. At its outer end the shaft G carries a pinion, H, which gears in turn with each of the pinions  $h$ , secured to the rear of the forks. To throw the core from the forks, a bevel-wheel, L, is pinned to the shaft  $K^2$  and gears with a bevel-pinion, M, having a lever,  $m$ , which by a cam at the end pushes against the central doffing-pin,  $i$ , of each fork.

N and  $N^2$ , Fig. 12, are the links of the quick return motion.

O is a spur-wheel.

$q$  is the rack attached to the knife-carriage R. S, Fig. 1, is the paring-knife arm; T, the pivoted curved arm carrying the coring-knife  $t^2$ ; U, the fixed arm for doffing the apple.



W is the slicing-knife.

The coring-knife consists of a thin curved blade in the form of a half-hollow cylinder,  $t^2$ , and secured to a curved lever, T, which is piv-  
 5 oted at  $t$  to the carriage, and moves forward with it and slides over the fork in close proximity to it. A projecting arm and pin,  $t'$ , on the backward trip of the carriage passes around the rounded end  $v$  of a plate, V, which is  
 10 screwed to the frame of the machine and strikes a lug,  $u^2$ , on a fixed arm, U, inclined as shown.

The blade  $t^2$  is rounded at the end  $t^4$  to cause it to enter the apple and cut without tearing,  
 15 and projecting points or barbs  $t^3$  are made upon the back of the blade, to retain the apple while it is being withdrawn from the core.

When the lever T strikes by its pin  $t'$  against the lug on the fixed arm U, the lever is caused  
 20 to turn upon its pivot  $t$  and the apple is forced back against the pin  $u$ , secured to the fixed arm U and adjusted by the set-screw  $u'$ , and is thrown off clear of the parings and cores.

The mechanism for rotating and locking the  
 25 fork-reel consists of the following parts: A cam-wheel,  $F^2$ , is cast integral with the spur-wheel F and has the inset  $f^2$ , Fig. 3, and the pin  $f^3$  is so placed that in rotating the pin  $f^3$  first comes in contact with the curved notch  
 30  $k^2$  in the three-pronged cam K, turning it so that one of its pins  $k$  enters the inset  $f^2$ , and the cam K, with the fork-reel, is turned through one-third of a revolution. The pin  $k$  then escapes from the inset  $f^2$ , and two of these  
 35 pins  $k$  press against the smooth rim of  $F^2$  in about the position shown in Fig. 4, preventing any movement of the reel in either direction until it is again released and moved by the return of the inset  $f^2$ .

40 The device for lifting the paring-knife while the apple is coming in is best shown in Fig. 6, and consists of a curved lever,  $y$ , pivoted at  $y^2$ , Fig. 1, and abutting at one end,  $y'$ , against a stop,  $y^3$ , the other end,  $y^4$ , Fig. 6, being notched;  
 45 and when the knife-carriage is almost back on its return-stroke the end  $y^5$  of the curved lever  $y^5 y^7$ , pivoted to the frame of the carriage at  $y^6$ , catches in the notch  $y^4$ , and both move together while the carriage is approaching the stop un-  
 50 til the end  $y'$  of the lever  $y$  presses against the stop  $Y^3$ , when, as the end  $y'$  of the lever  $y$  is prevented from moving in that direction by the pin  $y^3$ , the end  $y^5$  of the curved lever  $y^5 y^7$  is pressed down, lifting the end  $y'$  of this lever  
 55 and also lifting the small projecting arm  $S^2$  of the knife-arm S, thus drawing back the knife. This continues until, the strain becoming too great, the end  $y^5$  of lever  $y^5 y^7$  suddenly escapes from the notch  $y^4$  of lever  $y$ , and the paring-  
 60 knife, which has by this time reached its proper place, is caused to spring against the apple by means of a spring,  $S'$ , attached to the frame and to the knife-shaft, as shown in Figs. 1 and 5. The lever  $y$  is pivoted so that it can  
 65 yield slightly to catch the point  $y^5$  of the lever  $y^5 y^7$ .

The paring-knife blade  $S^3$ , Fig. 7, has the usual slots,  $S^7 S^7$ , and is held to the knife-head by screws and washers  $S^8$ , its peculiarity being  
 the wings  $S^9$ , Fig. 8, which are bent around to  
 7c form curved corners for the purpose of entering the apple without tearing it. The guard  $S^4$  is made, as is shown in Fig. 11, with corners rounded to correspond, and is held to the knife-head by the spring-plate  $S^5$  and screw  $S^6$ ,  
 75 Fig. 7.

The forks I are simply made with the back edges of their tines brought to an acute angle to enter the apple more easily and to avoid  
 the risk of splitting. The quick return mo-  
 80 tion is in every particular but one the same as that fully described in Letters Patent No. 340,675, granted me April 27, 1886.

The single change consists in making a hook,  
 85  $n^3$ , Fig. 11, upon the end of lever  $N^2$ , where it is attached to the knife-carriage R. The two extreme positions of the carriage and the links of the quick return are shown in Figs. 11 and 12.

The wheel O, driven by the endless screw P  
 90 in one direction, has on one side a portion of its teeth cut away, and while this portion is turning over the rack the latter, with the carriage, is free to slide back and forth beneath  
 the wheel. The quick return then comes into  
 95 action.

A crank,  $O^2$ , attached to the shaft of wheel O and carrying at its extremity a pin,  $O^3$ , comes  
 into contact with the curved edge of the link N, pivoted at  $n$  to the frame  $A^3$ , and at  $n^2$  to  
 100 the link  $N^2$ , which in turn is hooked at  $n^3$  to the carriage R. The effect of the revolution of wheel O and the crank  $O^2$  is to push the carriage back to the position shown in Fig. 12.

The slicing-knife is of the usual form. 105

The pulley B may be removed and a crank substituted to operate it by.

The operation of the machine is as follows:  
 An apple is placed upon the fork, which is in front and on a horizontal line with the axes of  
 110 the reel. The wheel B is then turned over and to the right. It in turn rotates the spur-wheel F, and with it the cam-wheel  $F^2$ , which, by means of the inset  $f^2$  and the pin  $f^3$ , turns the three-prong cam K, carrying with it the shaft  
 115  $K^2$ , and the fork-reel bringing the apple into its proper position for paring and the pinion  $h$  into gear with the pinion H, the fork then revolves, turning the apple toward the knife. The reel is locked in place by the cam K and  
 120 the wheel F coming into the position indicated in Fig. 3. The knife-carriage has in the meantime been moving toward the apple by means of the pinion  $f$ , spur-wheel D, pinion  $e$ , screw P, spur-wheel O, and rack  $q$ . The paring-  
 125 knife is at first pressed back to permit the apple to take its proper place without obstruction, and then springs back upon the apple, and under the action of the segmental gear and turn-table, engaging with the  
 130 rack  $q$  on the carriage in the manner described in my Letters Patent heretofore referred to,



the paring-knife S is gradually moved round the revolving apple and fed along its side as the carriage is fed along by the rack. The slicing-knife W then enters the revolving apple and slices it completely in one long spiral slice, the knife coming out at the other end. Meanwhile the coring-blade  $t^2$  has entered the apple just as the paring-knife has left it and passes completely through the apple to effect the coring, the paring-knife and carriage having reached the extreme end of their throw. At this point the quick return motion of the carriage takes place, and the paring-knife S, slicing-knife W, and coring-blade  $t^2$ , the latter carrying the pared apple, retreat with the carriage until the pin  $t'$  comes in contact with the lug  $u^2$  on the arm U, and, rising on the inclined plane thereof, lifts the outer end of the coring-knife and the arm T through the arc of a circle past the doffing-pin  $u$ , which presses against the apple, and by the time the arm T has completed its upward path and the coring-blade is hanging nearly perpendicular the apple has been pushed off by the doffing-pin into a receptacle placed below it, which, as before stated, is free from the parings which have fallen from the revolving forks I. The fork which had borne this apple has been meanwhile thrown away from contact with the pinion H, and the core is pushed off from the fork

by the central doffing-pin,  $i$ , operated as before described. The mechanism is now ready to begin the operation anew, taking the next fork and apple in rotation.

I claim—

1. The coring-knife described, consisting of a thin curved blade in the form of a half-hollow cylinder rounded at one end and provided with points or barbs on the convex surface, substantially as and for the purpose specified.

2. A carrying and dumping device for apple-parers, which consists of a curved lever pivoted to the knife-carriage, a curved blade provided with points or barbs attached to said lever, a tilting-pin carried at the end of a crank rigidly attached to said curved lever, mechanism for moving said curved lever and said carriage backward and forward during the operation of the machine, a fixed arm having a projecting lug which stands in the path of the crank-pin and tilts the curved lever at the proper time, and a rod attached to the fixed arm in the path of the curved blade for doffing the apple, substantially as shown and described.

WILLIAM A. C. OAKS.

Witnesses:

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