

No. 620,976.

Patented Mar. 14, 1899.

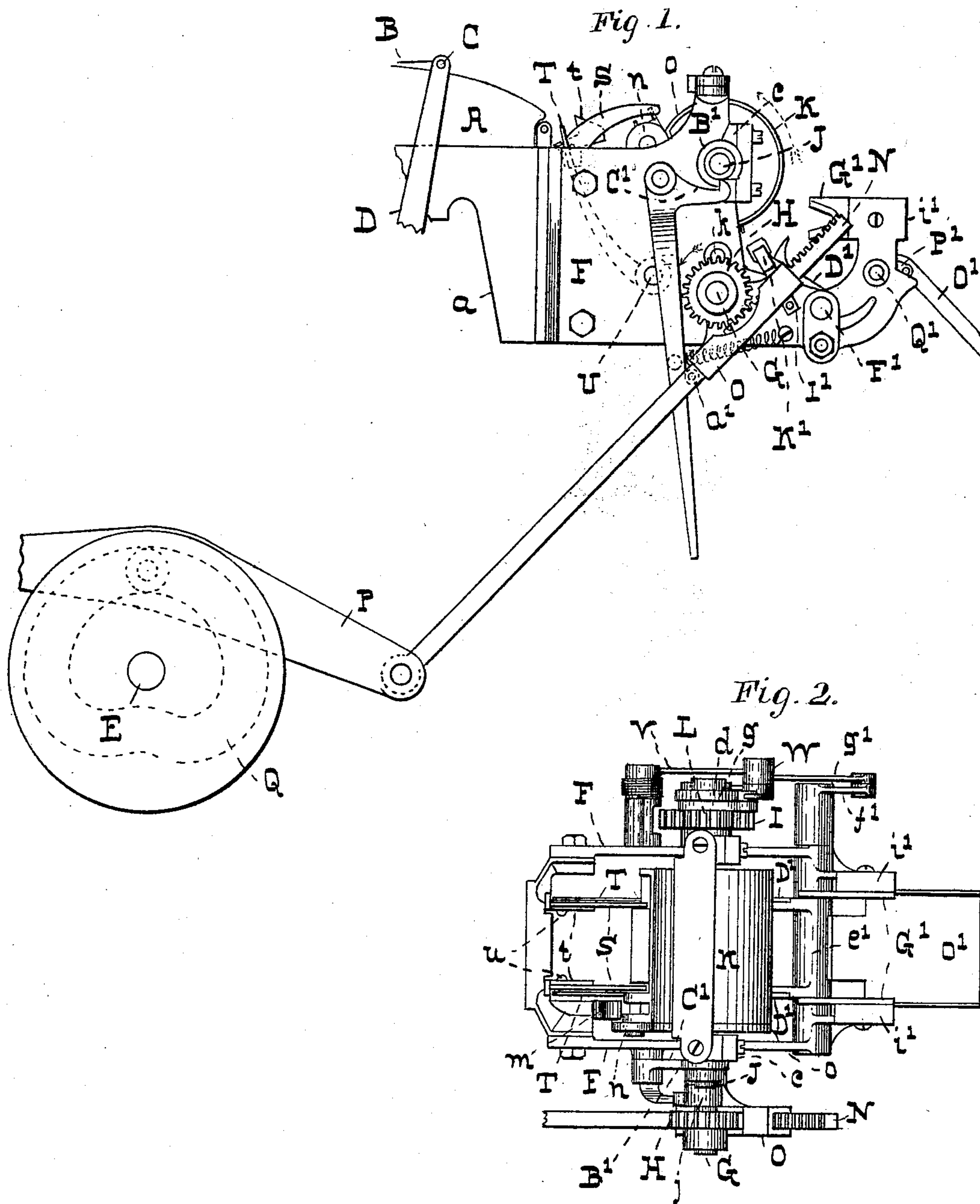
A. SCHNEIDER.

MACHINE FOR MAKING ALL TOBACCO CIGARETTES.

(Application filed Jan. 29, 1898.)

(No Model.)

2 Sheets—Sheet 1.



-WITNESSES-

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2 Sheets—Sheet 2.

Fig. 3.

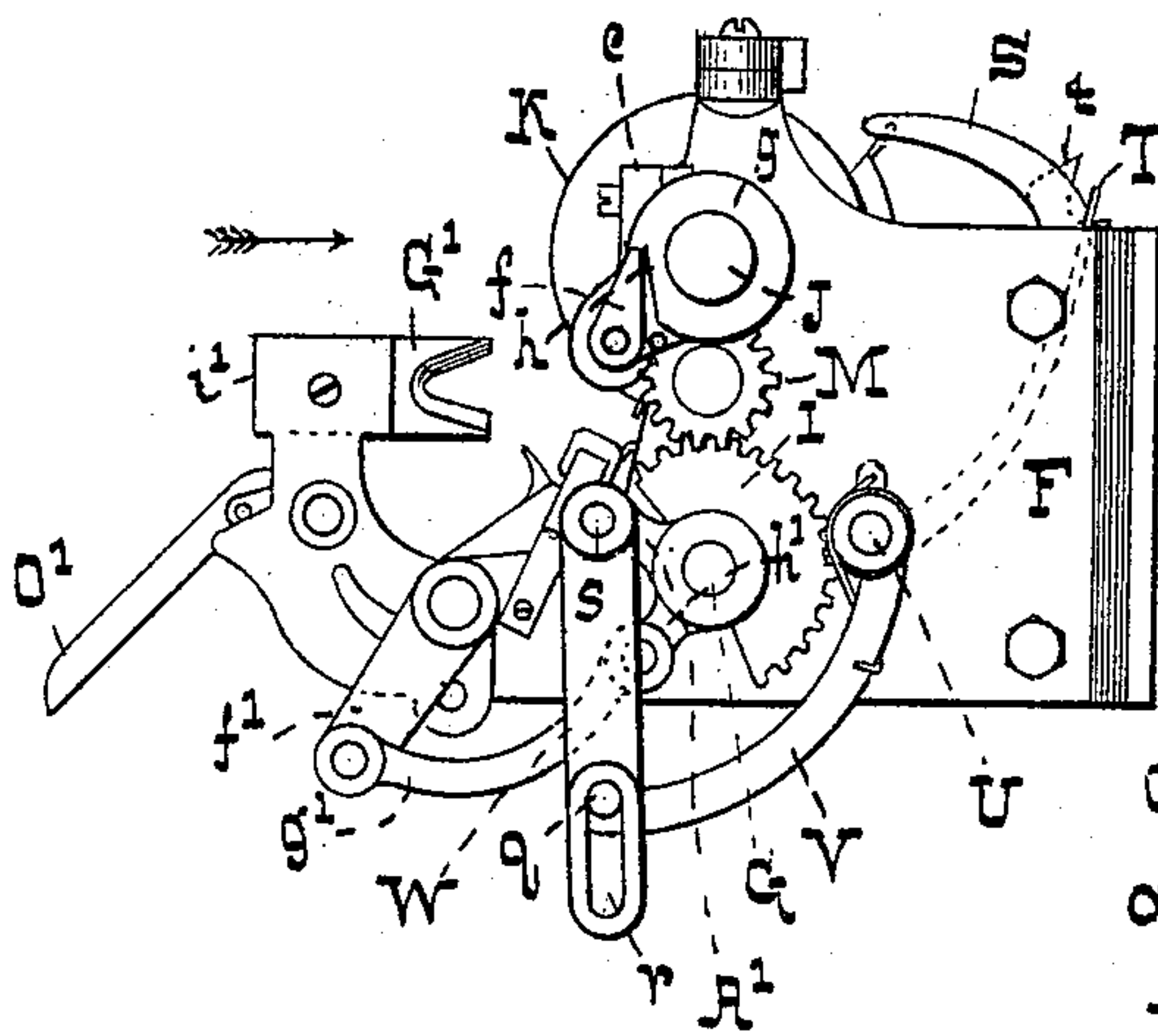


Fig. 4.

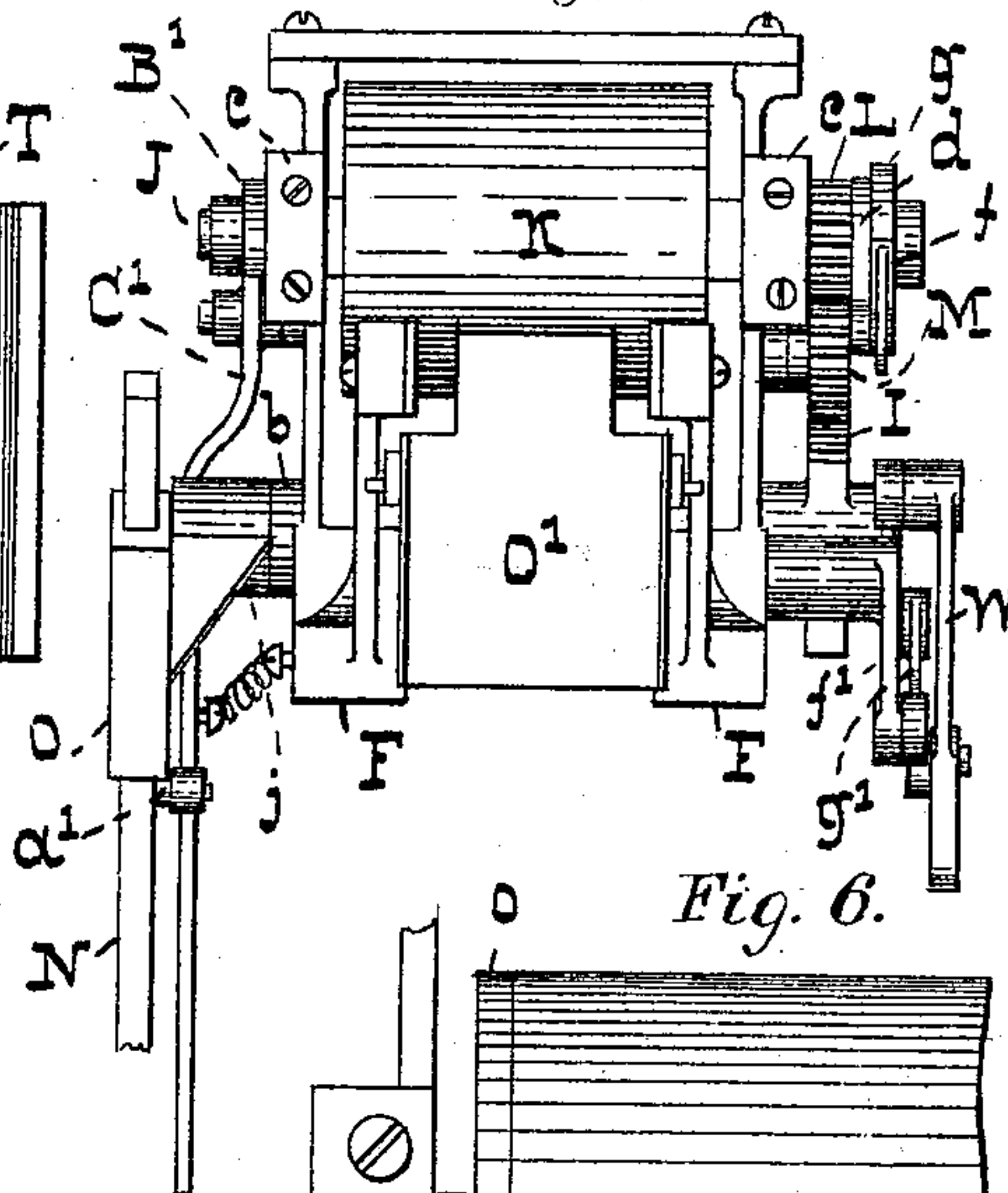


Fig. 6.

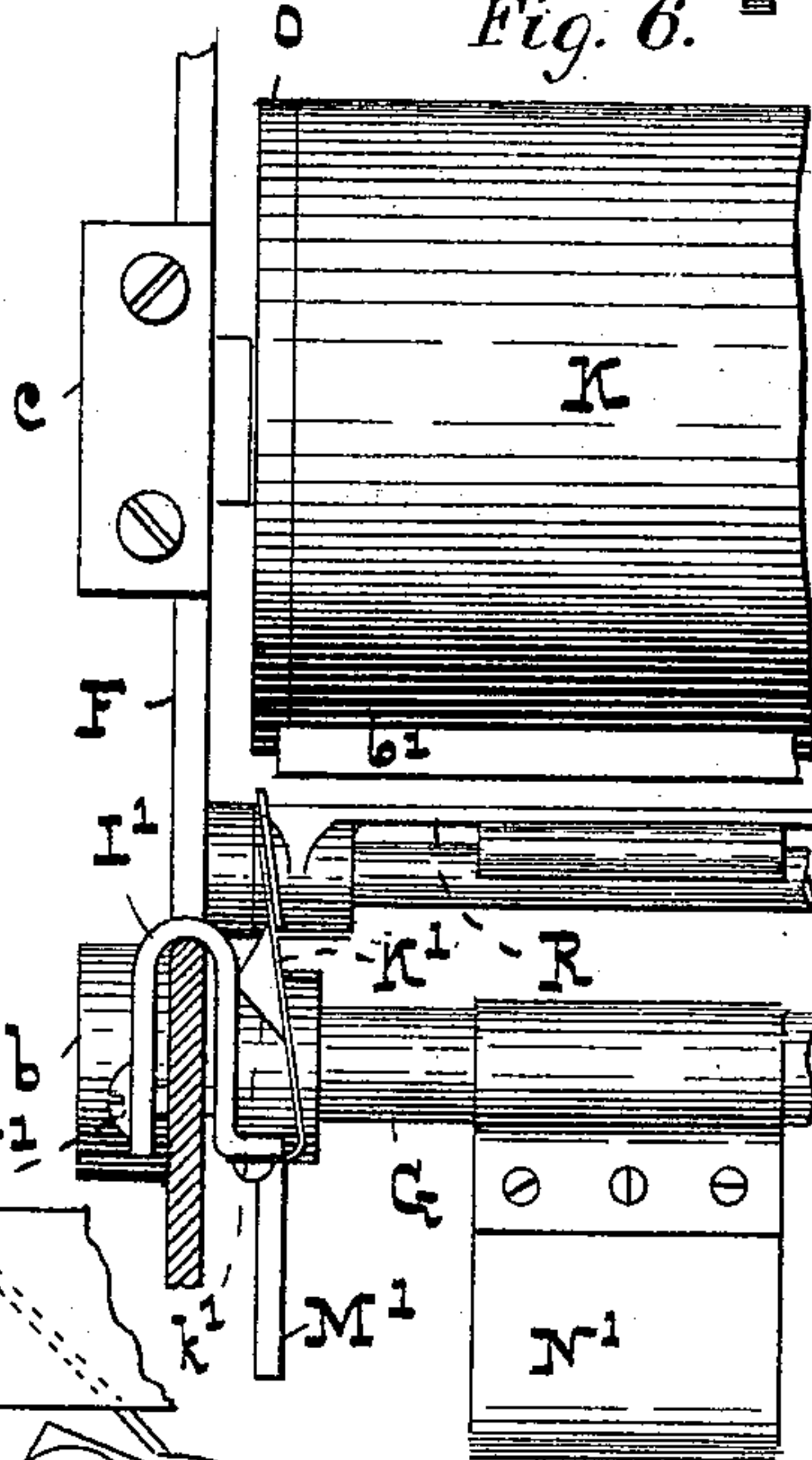
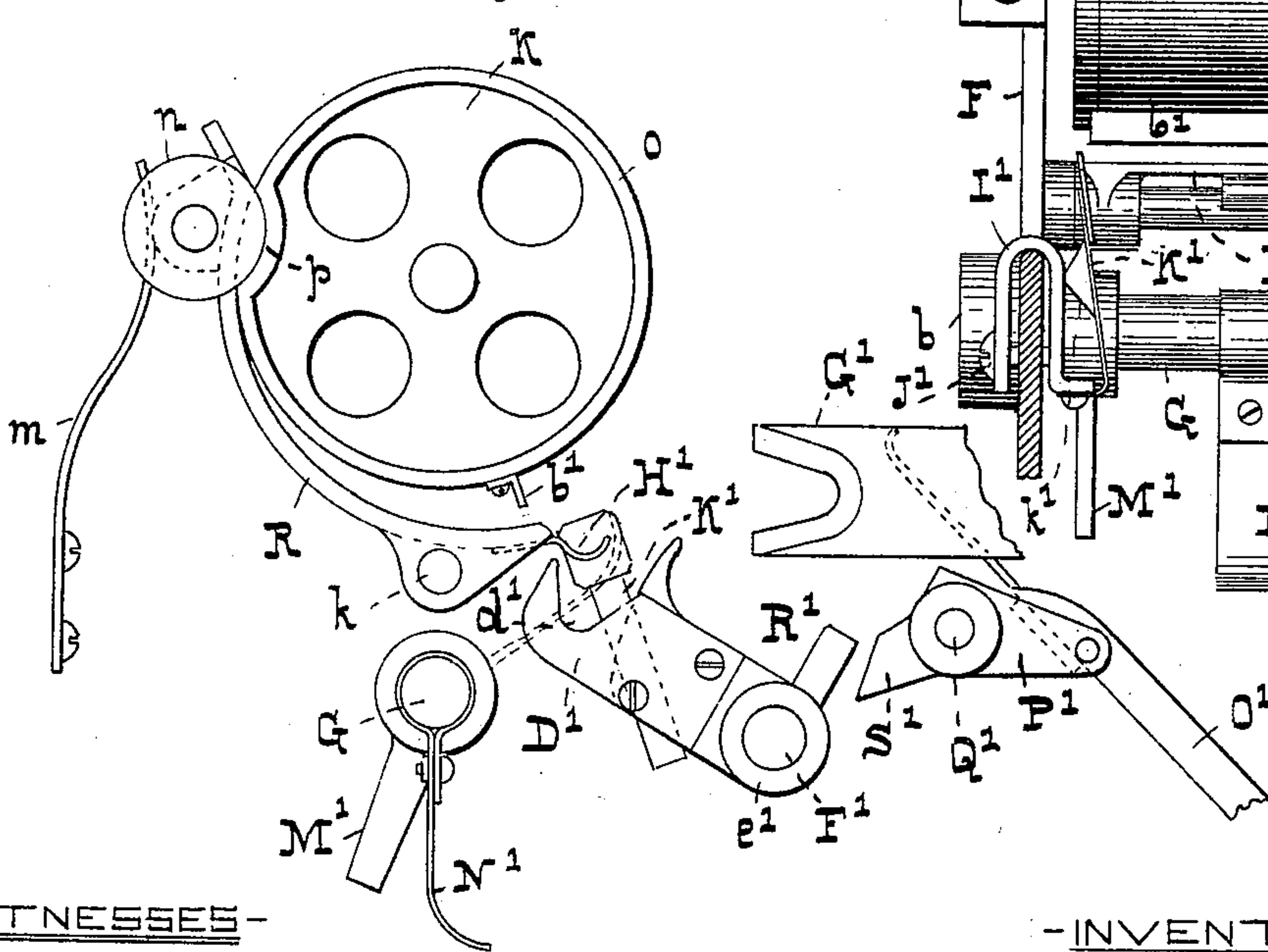


Fig. 5.



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UNITED STATES PATENT OFFICE.

ANTHONY SCHNEIDER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE
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MACHINE FOR MAKING ALL-TOBACCO CIGARETTES.

SPECIFICATION forming part of Letters Patent No. 620,976, dated March 14, 1899.

Application filed January 29, 1898. Serial No. 668,433. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY SCHNEIDER, of the city of Baltimore and State of Maryland, have invented certain Improvements in Machines for Making All-Tobacco Cigarettes, of which the following is a specification.

This invention relates to certain improvements in the invention shown and described in the application of Jacob S. Detrick, Serial No. 633,213, filed April 22, 1897, to which reference should be made. The said Detrick invention, briefly described, consists in mechanism adapted for attachment to the delivery end of the rolling-up apron and table of an all-tobacco-cigarette machine to receive the cigarettes, straighten and smooth them, and finally cut off their ragged ends and bring them to a uniform length. The apparatus is also adapted when an unformed cigarette or one in which the filling is not pasted in the wrapper is presented to separate it from those which are perfect, and thereby prevent the scattering of loose tobacco and wrappers among completed cigarettes. In the said Detrick invention there is nothing shown or described which effects the centering of the cigarettes as presented to the knives, which clip off the ragged ends, and in consequence some cigarettes are discharged from the channel between the curved plate and the smoothing-drum in such lateral position that only one ragged end is clipped, the other being untouched or having only a portion of its ragged end removed.

With the present invention the uncut cigarettes are laterally centered before being subjected to the action of the knives, and this insures both ends of the cigarettes being properly clipped.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is an exterior side view of a part of the cigarette-machine proper, together with the mechanism which embodies the present invention. Fig. 2 is a plan of Fig. 1. Fig. 3 is a view the reverse of Fig. 1 except that certain parts of the cigarette-machine are omitted. Fig. 4 is a view of Fig. 3, looking

in the direction indicated by the arrow. Figs. 5 and 6 are enlarged details of the invention.

Referring now to the drawings, A illustrates the delivery end of the rolling-up table, secured to the frame *a*, and B the apron. The forming-roller is denoted by C and the arm for operating it by D.

E is a shaft which makes one revolution for each double stroke of the forming-roller arm D.

F is a frame of any suitable construction, secured to the main frame *a* of the machine.

G is a shaft adapted to turn in bearing-boxes *b* on the frame F.

H and I are toothed pinions or sectors on the shaft G, and J a shaft in bearing-boxes *c* on the frame F, carrying the drum K, which is secured thereto. The said shaft has a toothed pinion L, which is loose thereon, and the pinion is driven from the toothed sector I through the medium of the idle-pinion M. To the outer face of the pinion L is fastened an arm *d*, having a pawl *f*, which rests on the circumference of a collar *g*. The collar has one notch *h*, (see Fig. 3,) and is tight on the shaft J. From this it will be seen that when the toothed pinion H is turned in the direction indicated by the curved arrow in full lines in Fig. 1 the drum will be revolved in the direction indicated by the dotted arrow through the medium directly of the spring-held pawl *f* and that when the said pinion is revolved in a contrary direction the pawl *f* becomes inoperative and the drum is not revolved.

To effect the operation of the pinion H in a forward and backward direction, I provide a toothed rack N, adapted to slide in a guide O, having a hub *j*, the whole being loose on the shaft G. The teeth of this rack are in gear with those of the pinion H, a part of the face of the guide being cut away to admit of this engagement.

The rack N is operated from any part of the machine which will give a stroke at each movement of the forming-roller, and it is shown as connected to the end of the lever P, which derives its motion from a cam Q, shown in dotted lines as on the shaft E. (See Fig. 1.)

R is a curved plate loose on the fixed shaft

the ends of which are supported in the frame F. A spring *m*, projecting from the frame F, bears against the upper end of the curved plate and keeps it yielding against the face of the drum K.

The lower or pivoted end of the curved plate R stands away from the drum a distance which is equal to the diameter of the cigarettes, and the upper end of the plate is provided with a roller *n* at one side, which bears against a flange *o* at one end of the drum. A portion of this flange is cut away to form a notch or depression *p*, into which the roller *n* drops, as shown in Fig. 5. When the roller is in the notch, the upper end of the plate R bears against the periphery of the drum K, but when it is on the circular part of the flange the upper end of the plate is carried out so as to make its inner surface concentric with the circumference of the drum K. This construction forms a channel of a uniform width equal to the diameter of the cigarettes, and in passing through the channel the cigarettes are not only straightened but smoothed.

The means for carrying cigarettes from the rolling-up table to the entrance end of the channel consist of two stationary curved rails S, fastened to the frame F, and two vibratory arms T, which are situated exteriorly of the rails S and are secured to the shaft U, which rests in bearings forming parts of the frame F. To vibrate the arms T, there is attached to one end of the shaft U a curved arm V, having a pin *q*, which is in a slot *r* in a link W, the upper end of which is pivoted to a pin *s* on an arm A', the hub of which is fastened to the shaft G. To the inner side of each rail S is hung a pivoted counterbalanced stop *t*, the pivotal point of which is at *u*. The upper ends of these stops are angular in shape and project slightly above the rails, and they are at a distance from the vibratory arms T when the same are nearest to the rolling-up table, as shown in Fig. 1, slightly greater than the diameter of a cigarette. By this mechanism it will be seen that in the forward and backward partial rotation of the shaft G, effected, primarily, by the motion of the rack-bar N, the arms T vibrate from the position shown in Fig. 1 to one which brings their ends over the point of contact of the plate R with the drum K, and a cigarette deposited between these arms and the counterbalanced stops is thereby carried to the said point of contact, the cigarette in its movement depressing the stops over which it passes.

The train of gearing described, together with the longitudinal movement of the rack-bar N, is arranged so as to effect one complete revolution of the drum K for each cigarette delivered thereto by the forming-roller, and in order that the drum may always stop with the roller in the notch *p* I provide one end of the shaft J with a notched disk B' and the frame F with a pawl C', the point of

which enters the said notch. (See Fig. 1.) This pawl is mechanically removed from its notch immediately before the drum begins its revolution, and this is effected by a pin *a'* on the rack-bar N striking the tailpiece of the pawl, which is bent outward to bring it into alinement with the said pin. On the periphery of the drum K is a longitudinally-extending flange *b'*, which serves to scrape the curved inner surface of the plate R and remove therefrom any particles of tobacco which may have adhered thereto. It further serves to carry through the channel any cigarettes which may have lodged therein and not been discharged by the rotation of the drum.

D' D' are vibratory knives, into the notches *d'* of which the cigarettes after they have passed through the channel between the drum and curved plate are deposited. These knives are secured to lugs on a sleeve *e'* on the shaft F', supported, as are the other shafts, in the frame F, and they are vibrated by securing to the end of the said shaft an arm *f'*, which is united by a link *g'* to an arm *h'*, extending from the hub of the arm A'.

In connection with the vibratory knives described are the fixed ones G', attached rigidly to brackets *i'*, forming parts of the frame F. The relative positions of the vibratory and fixed knives when the former are so placed as to receive cigarettes discharged from the channel is shown in Fig. 5 on an enlarged scale.

To the lower edge of the curved plate R is attached a tray H' to temporarily hold the cigarettes as they are discharged from the channel between the said plate and the drum K. It is while they are in this tray that the cigarettes are centered in accordance with the present invention, and to effect this centering I secure to the frame F, by means of the curved bars or strips I' and the screws J', the spring-fingers K', having the angular lugs *k'*. (Shown particularly in Fig. 6.) By reference to Fig. 5 it will be seen that the ends of the spring-fingers are opposite the ends of the tray H', and they normally stand some distance from the tray, as shown in Fig. 6. To bring these fingers closer to the ends of the tray, and thereby center or adjust a cigarette lying therein, I secure to the shaft G two arms M', one for each finger, which in the partial revolution of the said shaft in one direction strike the said lugs *k'* and deflect them inward and then move back to their original position or one in which they are inoperative. I also secure to this shaft, so as to move with it, a curved plate N', which prevents the cigarette when discharged from the channel being thrown over the edge of the tray.

O' is a chute attached to rockers P' on the stationary shaft Q', which extends between the two parts of the frame F. The chute is tilted by a lug R' on the vibratory knife-holder, which strikes a similar lug S' on the

rocker P' as the said knives approach the stationary ones, thereby placing the chute O' in such position that it will receive the cigarette after its ends are clipped.

5 Supposing the parts of the apparatus to be in the relative positions shown in Fig. 1 of the drawings, the operation of the same is as follows: As the cigarette is discharged by the forming-roller it falls onto the rails S and between the vibratory arms T and the counter-
10 balanced stops t, and in the revolution of the cam Q the rack-bar N is drawn down, which causes the said vibratory arms to be thrown over and the cigarette deposited at the junction of the curved plate R with the circumference of the drum K, where it rests for a moment.

In the continued downward motion of the rack-bar N the pin a' strikes the tailpiece of
20 the pawl C', and the point of the pawl is thereby withdrawn from the notch in the disk B'. The drum is now in condition for revolution, and about simultaneously with the action of the pawl the drum begins to re-
25 volve in the direction before stated. The drum at the commencement of its revolution being in the position shown in Fig. 5, it will be seen that at the first motion the roller n, which is connected to the upper part of the
30 curved plate R, is struck by the portion of the flange o which adjoins the notch p, in which the roller has been resting. This causes the curved plate to move outward, so as to make the channel formed between the drum
35 and the curved plate of a uniform width, which is the same as the diameter of the cigarette. The cigarette then falls into this channel and in the revolution of the drum is rolled around the inner surface of the plate
40 and discharged in a straight and smooth condition into the tray H'. Immediately before the vibratory knives D' move from the position in which they are shown in Fig. 5 the shaft G moves so as to bring the arms M'
45 against the inclined surface of the lugs k' of the fingers K', and the said fingers are simultaneously moved toward each other, and thereby adjust the cigarette laterally in the tray H', and the curved plate N', which moves
50 with the said arms, being brought to such po-

sition as to project partially over the cigarette and the edge of the tray, as shown by dotted lines in Fig. 5. At this time the vibratory knives D' move toward the fixed ones and the cigarette is lifted from the tray and
55 falls into the notches in the vibratory knives. The cigarette is thus carried forward to the fixed knives and its ends clipped off. Just before the cigarette is brought to the fixed knives the chute O' is tilted by means of the
60 lug R' striking the lug S' of the rocker P', and the chute is held in a tilted position until the clipped cigarette falls into it, when it returns to its original position and the finished cigarette rolls down the chute to any re-
65 ceptacle placed for its reception. In the return or upward movement of the rack-bar N the pawl C' comes again into contact with the edge of the disk B', so that when the drum has completed its full revolution it is sud-
70 denly stopped by the pawl C' engaging with the tooth on the said disk, and the drum remains in this position until it is required to roll another cigarette.

By delivering the cigarette from the ma-
75 chine proper to the rails S those cigarettes which are imperfect or not wrapped fall between the said rails and are not carried to the channel around the drum K. Consequently no imperfect cigarettes are mixed with the
80 perfect ones. This separation of imperfect cigarettes is described in the Detrick invention and is therefore not peculiar to this.

I claim as my invention—

1. In a machine for making all-tobacco cig-
85 arettes, devices to straighten and smooth a rolled cigarette, combined with mechanism to laterally center the cigarette, and knives to clip its ends, substantially as specified.

2. In a machine for making all-tobacco cig-
90 arettes, devices to straighten and smooth a rolled cigarette, combined with fingers and means to move them toward each other and thereby laterally center the cigarette between them, and knives to clip the ends of the cen-
95 tered cigarette, substantially as specified.

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Witnesses:

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