No. 610,261. Patented Sept. 6, 1898.

J. S. DETRICK.

MACHINE FOR MAKING ALL TOBACCO CIGARETTES.

(Application filed Dec. 24, 1895.)

(No Model.) 3 Sheets—Sheet 1.

Fig 2.

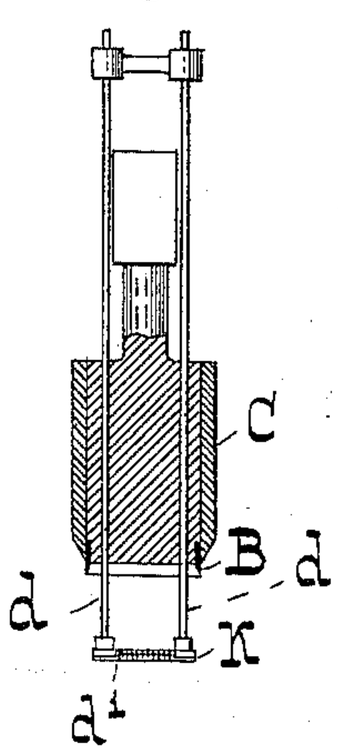
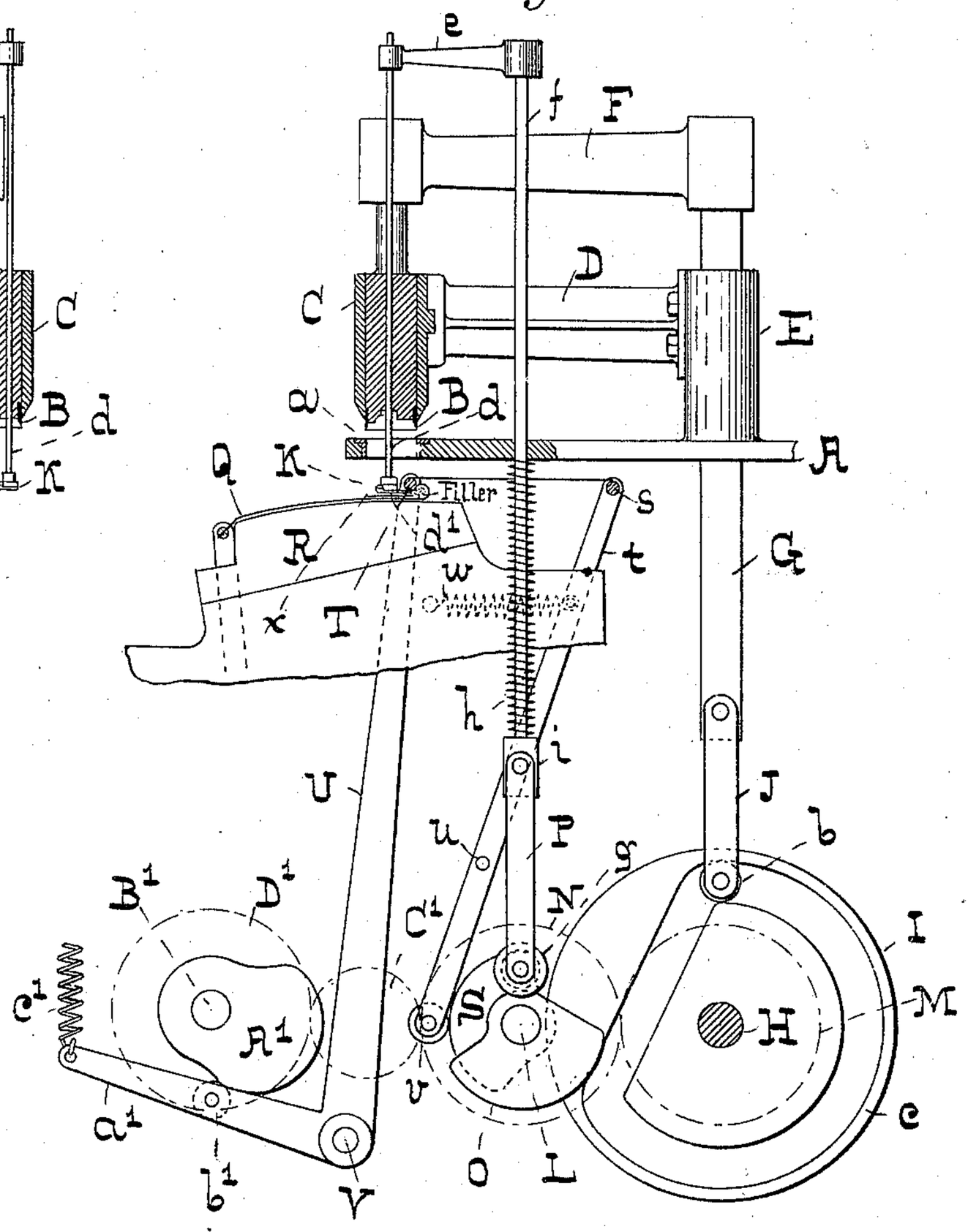


Fig 1.



-WITNESSES-

Dan'l Fisher

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Jacob S. Detrick,

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Fig 3.

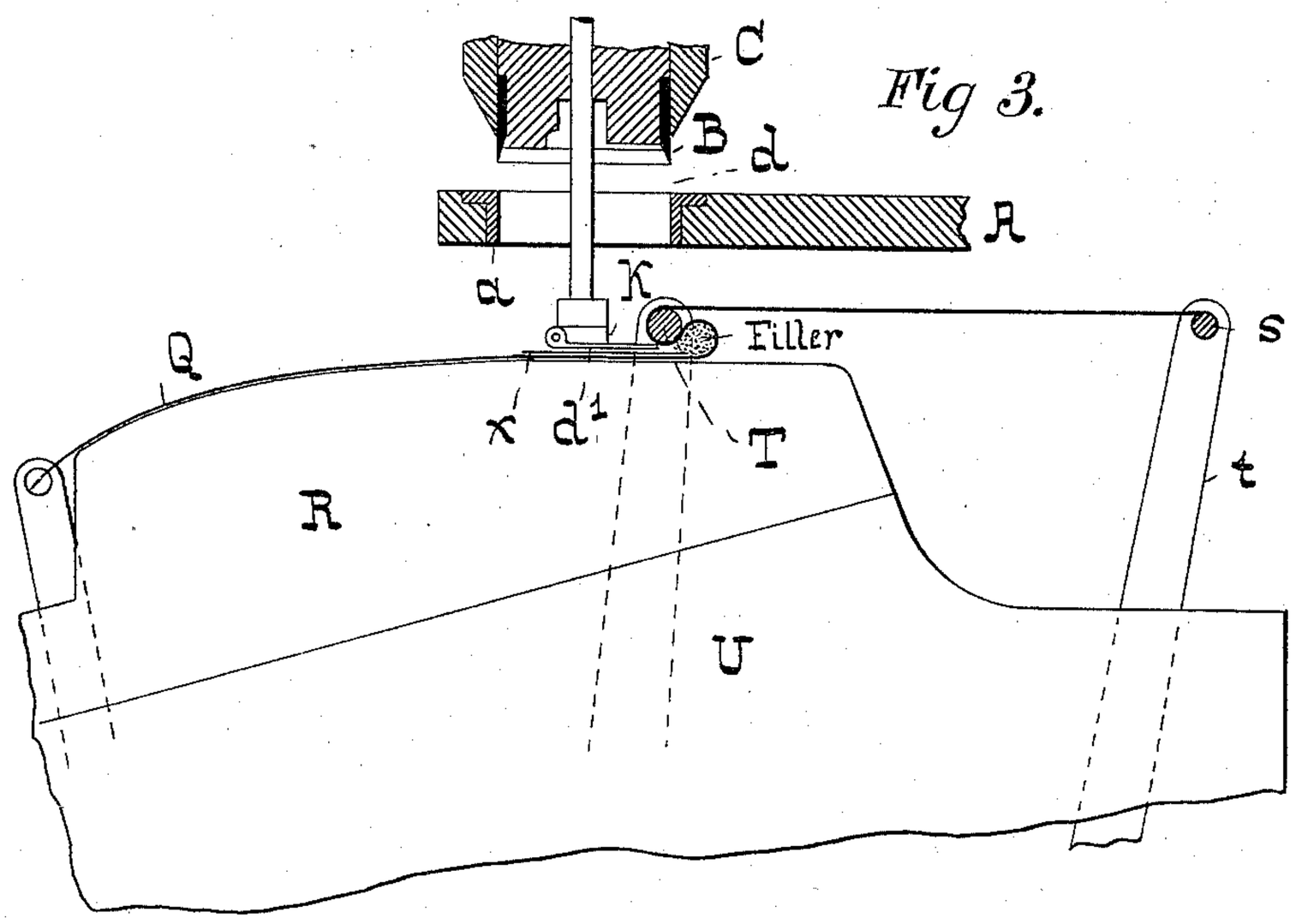

Fig 4.

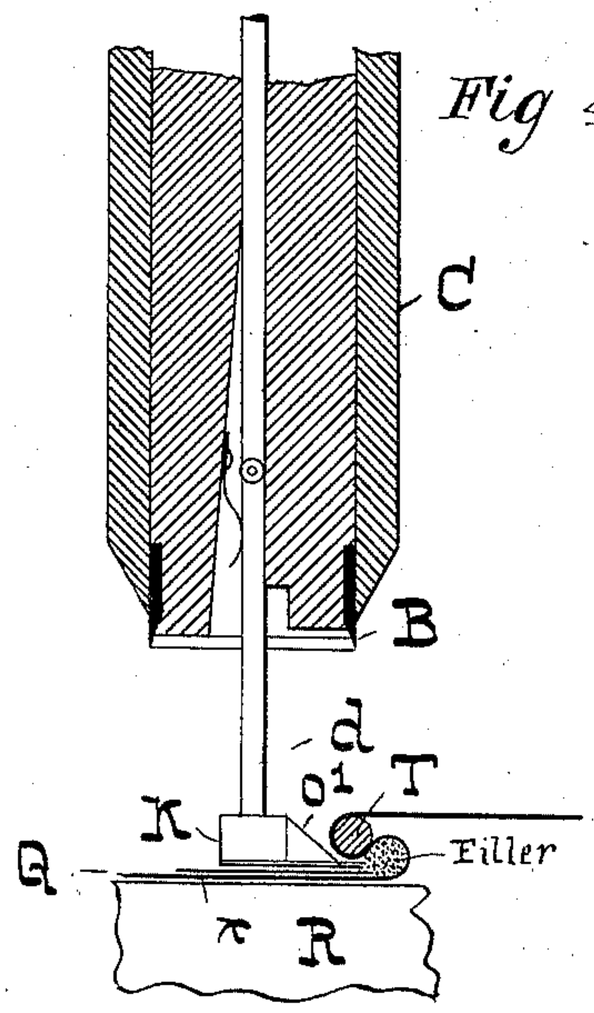

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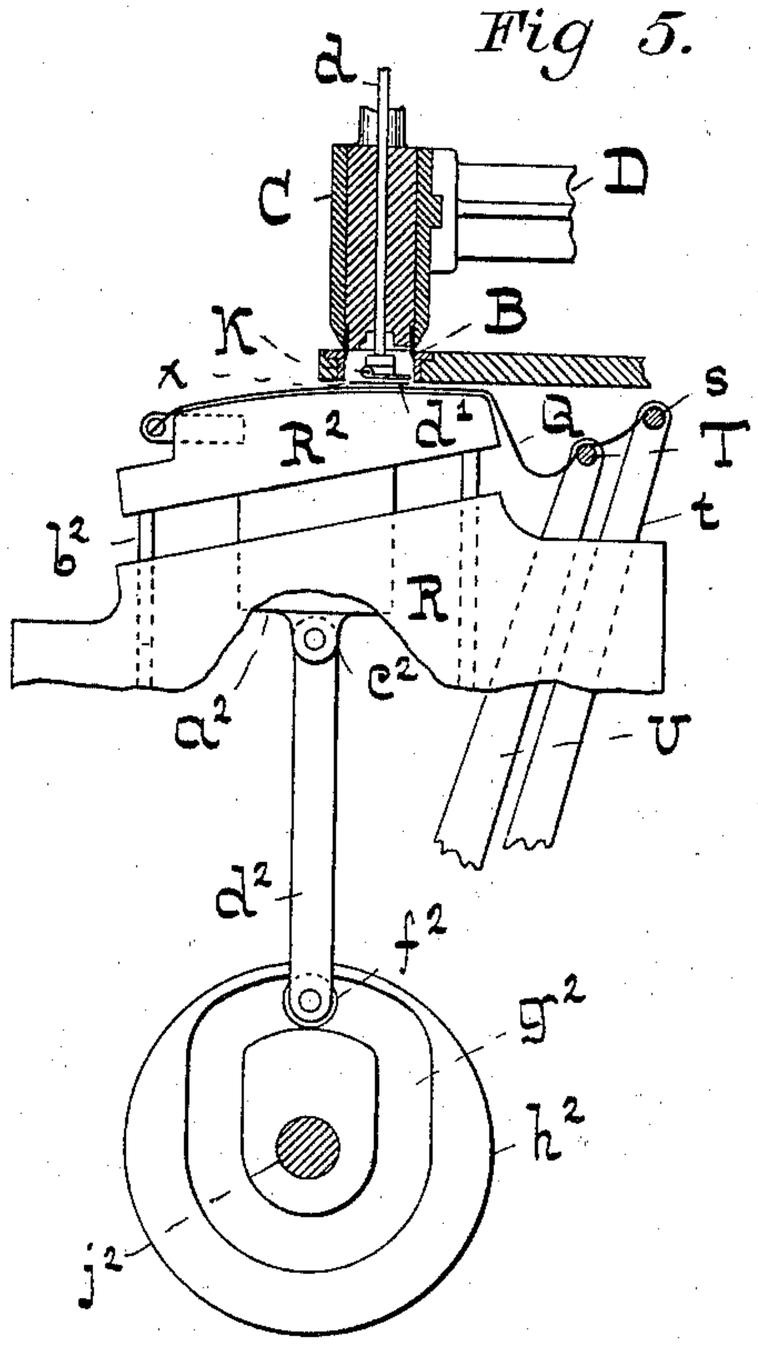
Fig 5.



WITNESSES:

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Harry Constantine.

INVENTOR:

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atty.

UNITED STATES PATENT OFFICE.

JACOB S. DETRICK, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE DETRICK CIGARETTE MACHINE COMPANY OF BALTIMORE CITY, OF MARYLAND.

MACHINE FOR MAKING ALL-TOBACCO CIGARETTES.

SPECIFICATION forming part of Letters Patent No. 610,261, dated September 6, 1898.

Application filed December 24, 1895. Serial No. 573,208. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. DETRICK, 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 machine shown and described in Letters Patent No. 552,104, for machines for making all-tobacco cigarettes, dated December 31, 1895, to which reference should be made.

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

Figure 1 is a side view, partly in section, of certain parts of the machine which embody the present invention and are affected thereby. Fig. 2 is a front view of certain parts shown in Fig. 1. Fig. 3 is an enlarged view of parts of the machine. Fig. 4 is a view illustrating a modified construction of a part of the machine. Fig. 5 shows an alternative construction hereinafter described.

Referring now to Figs. 1, 2, and 3 of the drawings, A is a table supported in any suitable manner and provided with a die *a*, the interior of which corresponds in size and shape with the wrapper *x* to be cut.

B is a punch which fits the die *a*. This punch slides within a suitable guide C on a bracket D, which is bolted to a standard E, projecting upward from the table A. The punch is attached to an arm F, secured to a shaft G, adapted to have a vertical reciprocating movement in the standard E. This vertically-reciprocating movement of the shaft G is derived from a revoluble shaft H through the medium of a cam I and a link J, having a roller *b*, which rests in the cam-slot *c*.

At each revolution of the shaft H the punch B is brought down so as to enter the die, and when a tobacco-leaf is placed over the die this motion of the punch cuts a wrapper out of the leaf.

K is a presser or plunger plate of such size and shape as to pass entirely into a cavity in the punch B. It is secured to the lower end of rods *d*, which extend through the body of the punch B and are connected to an arm *e*, fastened to the upper end of a stem *f*, which extends downward through the table A. This stem *f* receives its vertical reciprocating movement from the secondary shaft L, driven from the first shaft H by means of gear-wheels M and N (shown in Fig. 1 by broken lines) through the medium of a cam O and a link P, having a roller *g*, which rests on the cam. A spring *h*, wound around the stem *f* and confined endwise between the under side of the table A and a block *i* on the said stem, serves to keep the roller *g* in contact with the cam O.

The shape and stroke of the cams I and O and their relative positions are such that the presser or plunger plate K emerges from the cavity in the punch B in which it rests while the punch is cutting out a wrapper. As soon as the wrapper is punched from the leaf it is carried down independently of the punch and deposited and held upon the rolling-up apron Q for a period of time, as hereinafter described.

R is the rolling-up table, supported in any suitable manner. The apron Q, before briefly alluded to, is attached at one end to the table R and at the other fastened to a rod *s*, which connects the ends of levers *t*. These levers have their fulcrum at *u*, and between their lower ends is situated a roller *v*, which rests on a cam S on the shaft L. A spring *w* (shown only in dotted lines) serves to yieldingly hold the roller *v* in contact with the face of the cam S.

T is the loop-forming roller, adapted to traverse the surface of the table R and operate the apron Q in the rolling-up operation. This roller is situated between the ends of the long arms of the levers U, which are fulcrumed at V to some stationary part of the machine. The short arms *a'* of the levers U carry a roller *b'*, which is held by a spring *c'* against the cam A' on a shaft B', driven from the shaft L by means of the gear-wheels C' and D'. (Shown only by broken lines in Fig. 1.)

To the presser or plunger plate K is hinged a spring-held foot *d'*, which constitutes the active face or portion of that device. Its use will hereinafter appear.

Supposing the machine to be in operation, a leaf of tobacco is placed over the die, and as the punch containing the presser or plunger plate descends into the said die a wrapper is

cut. The punch only enters the die to a distance sufficient to cut the wrapper, and then it ascends. The presser-plate, however, moves down independently of the punch and carries the newly-cut wrapper to the surface of the rolling-up apron and holds it down firmly in contact with the said apron until the loop-forming roller comes forward, together with the loop containing the filler in a compressed state, and passes over the edge of the wrapper or over the edge of the presser-plate. At this time, the wrapper being firmly caught by the loop-forming roller and apron, the presser or plunger plate ascends, leaving the wrapper on the apron.

When a spring-held foot, such as is shown and denoted by d', is used in connection with the presser-plate K, the loop-forming roller and apron may pass over it as well as over the edge of the wrapper, and in such a case the said foot will have to be drawn from under the roller as the presser-plate ascends; but the said spring-held foot is not absolutely necessary, and when it is not employed the presser-plate will not be drawn from under the roller. In either case, however, the wrapper is held until the loop-forming roller carrying the apron has taken hold of the wrapper by passing over its edge.

I have shown no means or mechanism for placing the filler in the loop of the apron, merely showing the filler as confined in the loop, for the reason that the present invention does not extend to such devices, the operation of the machine, as far as the present invention is concerned, embodying only the punching out of the wrapper, its conveyance to the rolling-up apron, and the rolling up of the filler in the wrapper.

In Fig. 4 the presser-plate is shown without a spring-held foot, and the stems d are made in two parts, hinged together within the body of the punch, which has a suitable opening for the purpose. In this modification of the invention it is intended that the presser-plate shall be drawn from under the loop-forming roller in a manner similar to the withdrawal of the spring-held-foot; but in this alternate construction the stems are bent at the hinges or where their two parts are connected by joints. To facilitate the withdrawal of the presser-plate, the same is fitted with an inclined surface, (denoted by o') and in the upward movement of the presser-plate the loop-forming roller, which has overlapped the said surface in seeking the lowest point of the inclined surface, causes the presser-plate to be deflected and the stems to be bent at the joints, as described.

In the foregoing description I have shown in all cases a stationary rolling-up table and means to convey the wrapper from the punching mechanism to the apron thereon. It is evident, however, that the same result would be effected by adapting the rolling-up table to have a vertical reciprocating motion or one toward and from the punching mechanism, in which case the table would ascend as the presser-plate descends, and the devices for effecting this result would be arranged and timed so that the table would reach its highest position slightly before the wrapper leaves the punch and remain in such position until the wrapper is seated on the apron. The table and presser-plate would then descend together, and after the table had reached its normal or lowest position the rolling-up operation would take place, as before described. In Fig. 5 this alternative construction, arrangement, and operation is illustrated.

Referring now to Fig. 5, it will be seen that the upper portion R^2 of the table R is made separable and connected to the part R by means of an under side projection a^2, which slides in an opening in the part R, and a series of guiding-rods b^2, which slide in holes in the said part. The lower end of this projection a^2 is fitted with a joint c^2, to which a link d^2 is attached. The lower end of this link is fitted with a roller f^2, which rests in a cam-slot g^2 in the cam-disk h^2 on a shaft j^2, which shaft derives its movement in any desirable manner from one of the other shafts shown in the preceding figures. The shape of the cam-slot is such that the portion R^2 of the table is carried to its highest point and then made to dwell until the wrapper is properly seated on the apron, after which it recedes and assumes its normal position, when, as before stated, the rolling-up operation takes place. It will be understood that in this last-described arrangement, as in the others, the edge of the wrapper is caught by the loop-forming roller before the presser-plate is lifted or begins its upward movement.

I claim as my invention—

1. In a machine for making all-tobacco cigarettes, the combination of a die, a punch, mechanism to move the punch into the die to cut a wrapper, a rolling-up table and apron having a vertical reciprocating movement or one toward and from the die, means to effect the said movement of the rolling-up table and apron, a bunching-roller, and positive means to convey the cut wrapper from the die directly to the rolling-up apron, substantially as specified.

2. In a machine for making all-tobacco cigarettes, the combination of a punch and die, a rolling-up table and apron beneath the said punch and die, a reciprocating presser-plate adapted to move from a position within the punch to the apron, and means to effect such movement, and a bunching-roller with means to operate it, so arranged and timed as to bring the bunching-roller over the edge of a wrapper delivered to the apron by the presser-plate and before the beginning of the upward stroke of the said presser-plate, substantially as specified.

JACOB S. DETRICK.

Witnesses:
WM. T. HOWARD,
DANL. FISHER.

Correction in Letters Patent No. 610,261.

It is hereby certified that Letters Patent No. 610,261, granted September 6, 1898, upon the application of Jacob S. Detrick, of Baltimore, Maryland, for an improvement in "Machines for Making All-Tobacco Cigarettes," were erroneously issued to "The Detrick Cigarette Machine Company of Baltimore City," as sole owner of the invention; whereas said Letters Patent should have been issued to *the United States Standard Machine Company of New Jersey*, said United States Standard Machine Company being assignee, by mesne assignments, of the entire interest in said invention, as shown by the assignments of record in this Office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 20th day of September, A. D., 1898.

[SEAL.]

WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:

C. H. DUELL,
Commissioner of Patents.