(No Model.) 4 Sheets—Sheet 1.

A. C. SCHUTZ.

CIGAR BUNCHING MACHINE.

No. 497,415. Patented May 16, 1893.

Fig. 1.

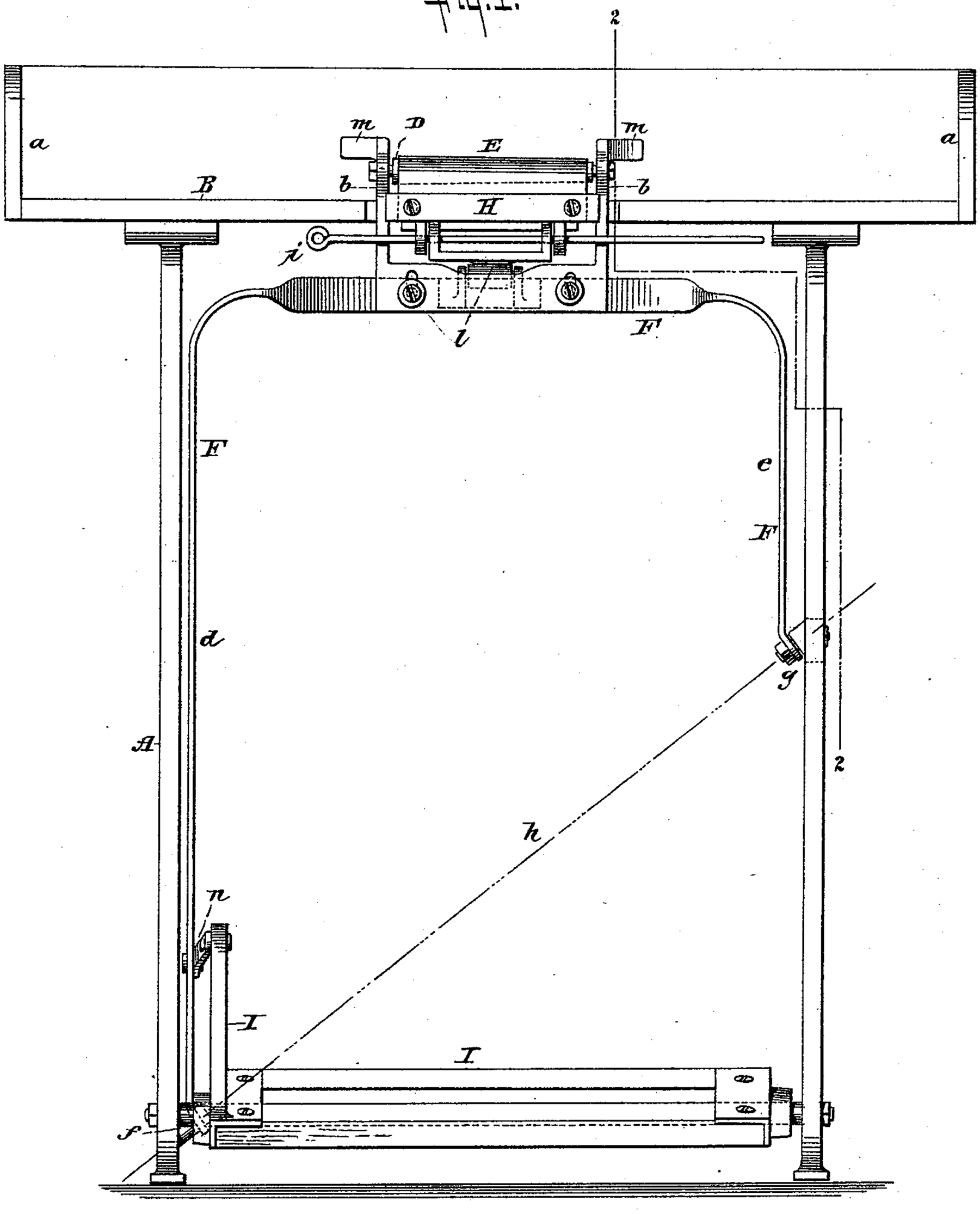

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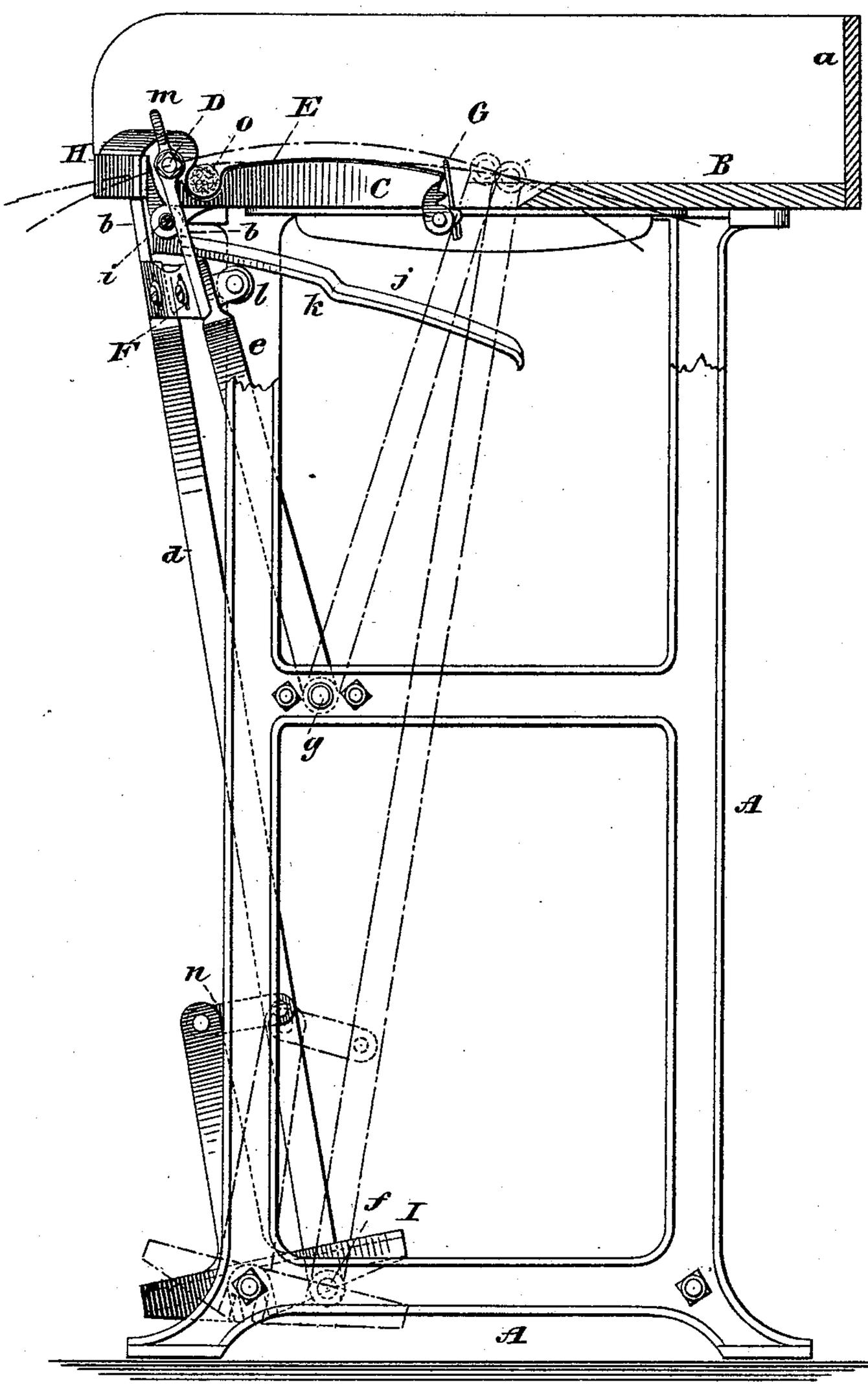
Fig. 2.



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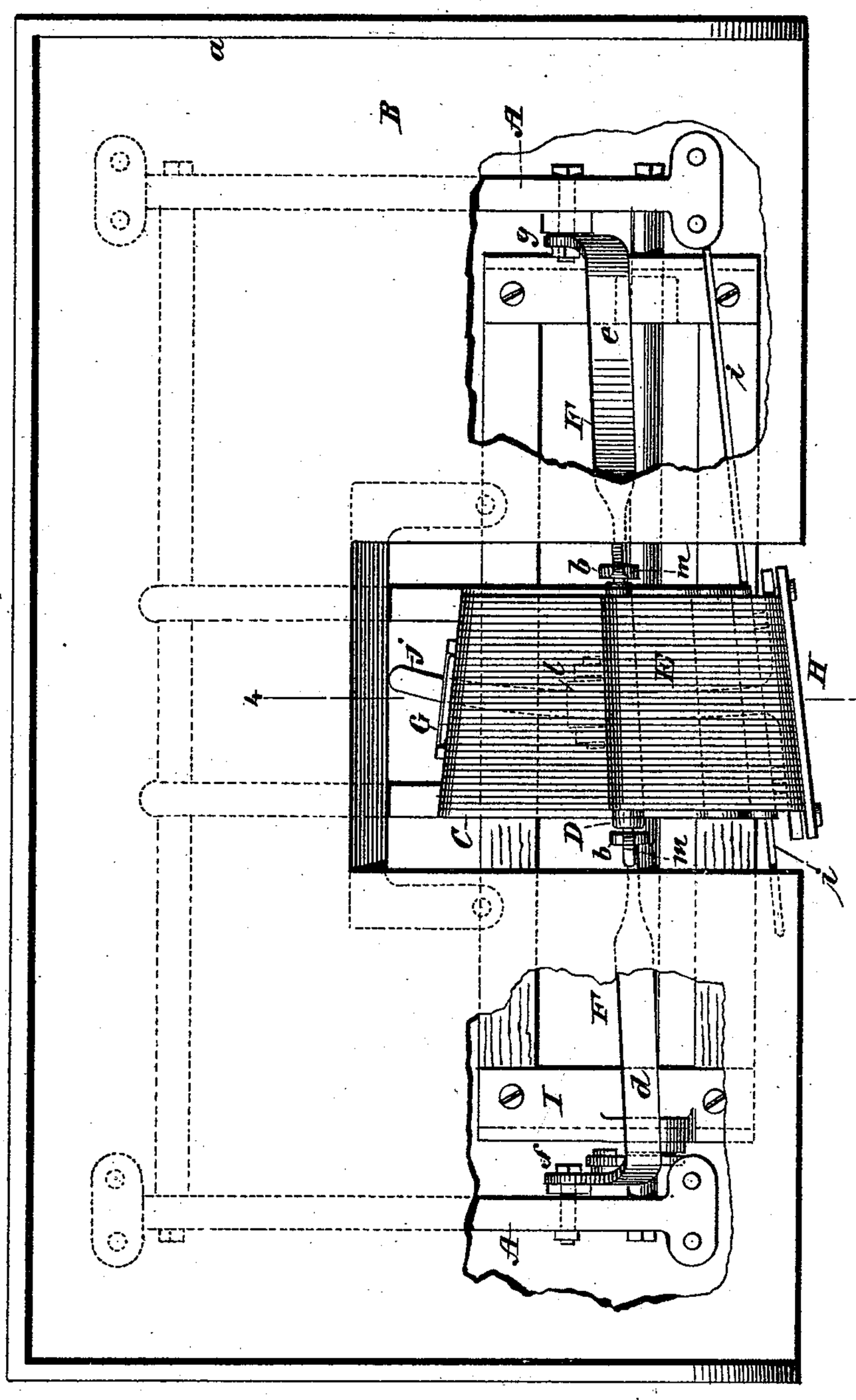

FIG. 3.

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(No Model.) 4 Sheets—Sheet 4.

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CIGAR BUNCHING MACHINE.

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Fig. 4.

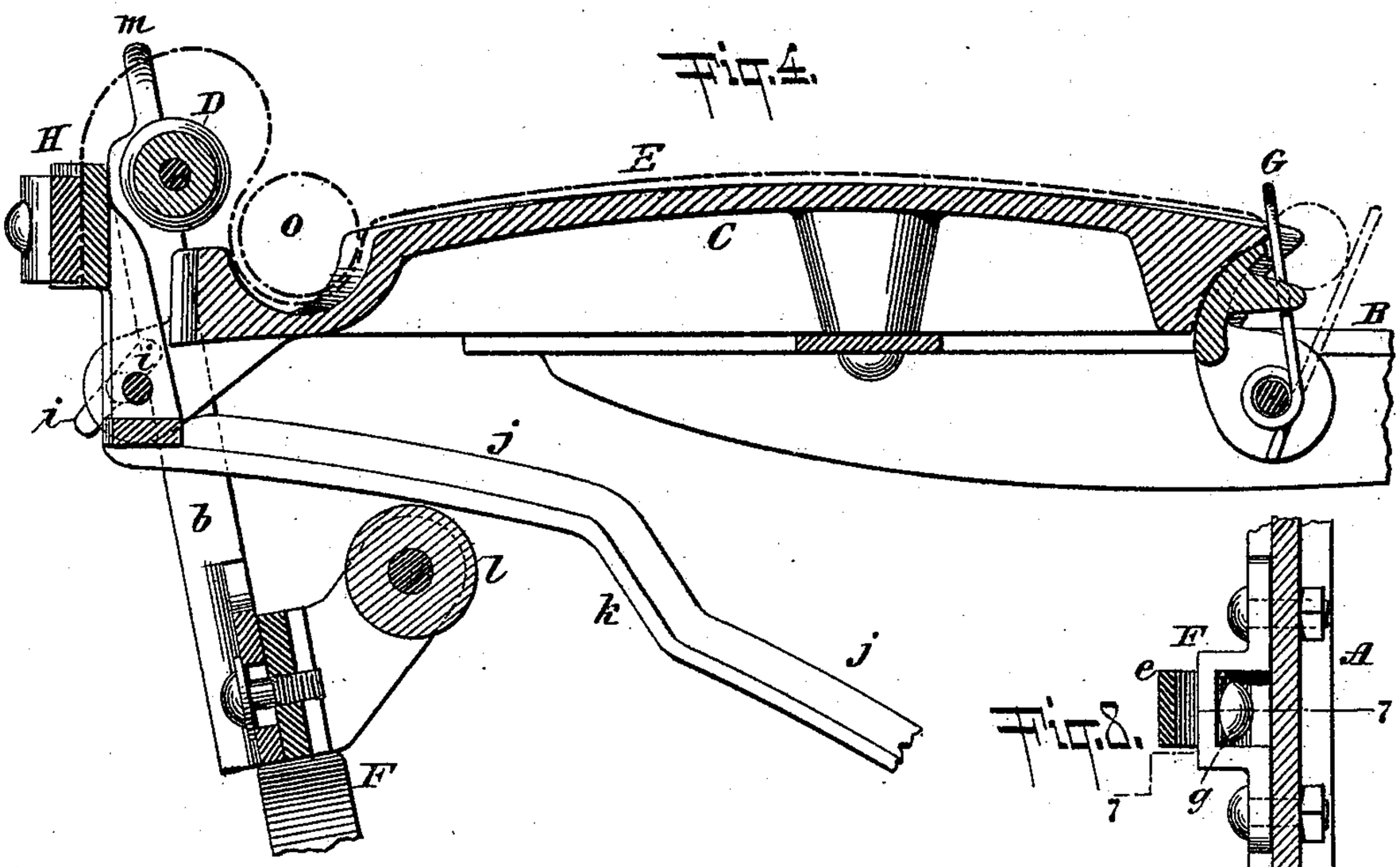


Fig. 8.

Fig. 5.

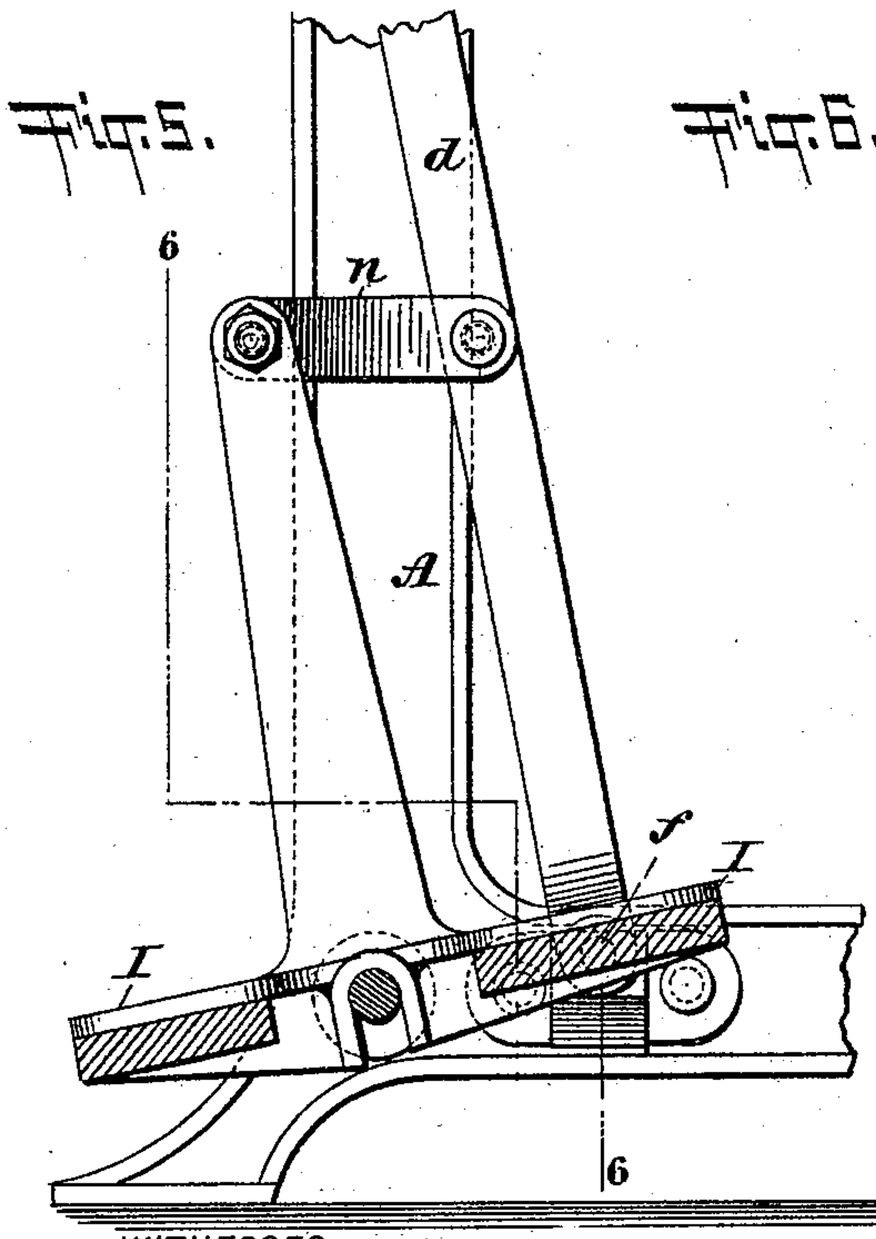


Fig. 6.

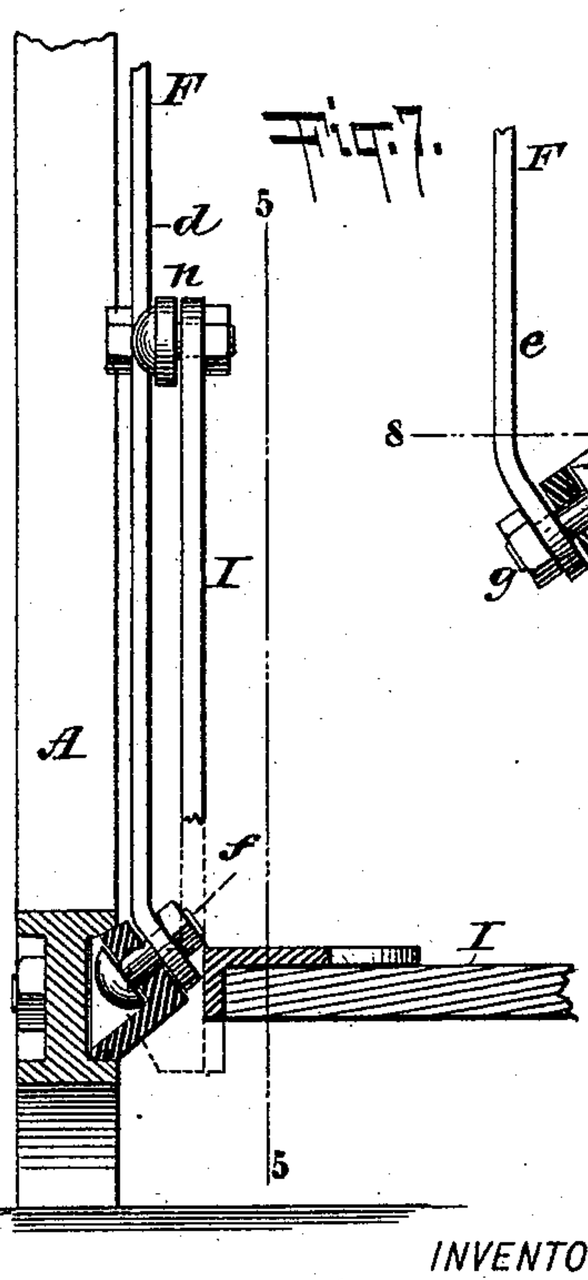
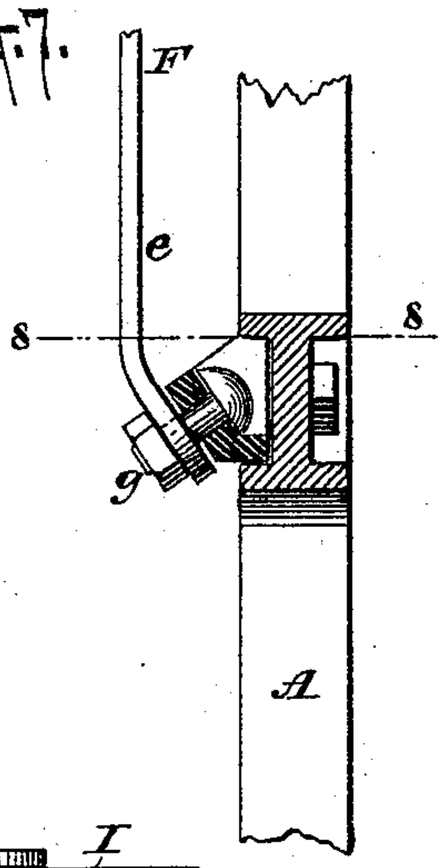


Fig. 7.



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UNITED STATES PATENT OFFICE.

ADOLPH C. SCHUTZ, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND NICHOLAS H. BORGFELDT, OF SAME PLACE.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 497,415, dated May 16, 1893.

Application filed November 1, 1892. Serial No. 450,683. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH C. SCHUTZ, residing in Brooklyn, Kings county, and State of New York, have invented an Improvement in Cigar-Bunching Machines, of which the following is a specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a front elevation of my improved cigar bunching machine. Fig. 2 is a side elevation of the same, partly in section, the line 2—2 Fig. 1 indicating the plane of section. Fig. 3 is a plan or top view of the same with part of the table broken away. Fig. 4 is an enlarged vertical cross-section on the line 4—4 Fig. 3. Fig. 5 is an enlarged section across the treadle, the line 5—5 in Fig. 6 indicating the plane of section. Fig. 6 is an enlarged detail vertical section on the line 6—6, Fig. 5, showing the lower pivotal connection of the roller-carrying-frame. Fig. 7 is a similar vertical section on the line 7—7 Fig. 8, showing the upper pivotal connection of said roller-carrying-frame; and Fig. 8 is a detail horizontal section on the line 8—8 Fig. 7.

The object of this invention is to produce apparatus for conveniently forming tapering long-filler cigar bunches, and the invention consists principally in the employment of a rolling-board having a convex curved upper surface, the curve extending from front to back of said rolling-board so that the surface of said rolling-board is lower in front and lower at the back than in the middle. Said rolling-board also is, when seen from above, of isosceles trapezoidal form, the two parallel lines of which border the sides of the rolling-board, while the two converging sides of said trapezoid constitute the front and back edges. With this rolling-board I am enabled to employ a tapering roller which is adapted when rolled over the surface of the board (in an apron of course) to keep its axis always directed to the point of convergence of the front and back edges of the rolling-board, while at the same time said roller travels up and then down over the curved surface of the rolling-board. By having the roller during its rotation describe an arc of a circle of which the point of convergence of the front and back edges of the table would be the center, I am enabled to roll the bunch of tobacco in the apron to the desired taper. At the same time the roller is forced to move the bunch over the convex surface of the rolling-board, whereby I gain the advantage that with a given length of rolling-board I obtain a more thorough rolling of the bunch, or, in other words, an actually increased rolling surface for the bunch.

The invention also consists in peculiar mechanism hereinafter described for moving the roller, and in other details of improvement that will be hereinafter more clearly pointed out.

In the accompanying drawings, the letter A represents the frame of my machine. The upper part of this frame supports a table B, which at the sides and back is by preference embraced by ledges *a*. At its front portion the table B is cut away to make room for the rolling-board C; yet this rolling-board may, if desired, be secured upon the surface of the table, in which case slots would be formed in the table alongside of the rolling-board to make room for the roller-carrying-arms and their movement. The rolling-board C is, as has already been stated, of isosceles trapezoidal form when inspected from the top, as clearly appears from Fig. 3, the converging sides of said trapezoid being the front and back edges of said table, as shown. The said rolling-board when looked at sidewise as in Fig. 2 and in section as in Fig. 4, shows a convex surface, it being lower at the front and at the back and highest in the middle.

D is the roller for carrying the loop of the apron E that contains the bunch to be formed over the rolling-board. This roller D is hung in arms *b* of a roller-carrying-frame F, which frame F is pivoted in the main supporting frame A. An examination of Fig. 1 will show that one leg *d* of the roller-carrying-frame F is longer than the other leg *e* of said frame, but the pivots *f g* by which these arms are respectively connected to the frame A stand inclined toward one other, as very clearly appears from Figs. 6 and 7, and so that a line drawn from one pivot to the other, as the dotted line *h* in Fig. 1 indicates, will pass through the axes of said two pivots; consequently the frame F when swung to bring the roller D backward and forward over the

surface of the rolling-board C moves on the pivotal line *h* which is not parallel with the surface of the table B, but, on the contrary, is inclined to said surface. It is very clear, therefore, that the roller-carrying-frame F swinging on the inclined line *h* describes an arc of a circle of which the line *h* is the center, and that consequently the roller D is moved in the same arc of the circle. Inasmuch, however, as the roller hangs in bearings in the roller-carrying-frame so as to occupy a substantially horizontal position, which is at an angle to the inclined pivotal line *h*, the narrow end of the roller which is nearest the pivot *g* moves on a sharper arc than does the broader end of the roller which is nearest the lower pivot *f*. On the curvature thus produced by the swinging of the horizontally located roller on the inclined pivotal line *h* the convex surface of the rolling-board C is constructed. Thus I have shown how a curvilinear motion is obtained for the roller D by the vibration of the roller-carrying-fame F. At the same time, however, the roller by frictional contact with the apron on the rolling-board, revolves on its own axis. It will be observed from Fig. 3 that in the initial position the roller is paralled with the inclined front edge of the rolling-board, and being a tapering roller, it retains as it moves toward the back of the rolling-board a direction which points to the line of convergence of the front and back edges of said rolling-board. Thus a tapering roller such as is shown and such as is used in this machine will have a rotation around its own axis, a displacement from one inclination to another inclination corresponding to the two inclined edges of the rolling-board, and a curvilinear motion which depends upon the inclination of the pivotal line *h*.

In Fig. 1 of the drawings the highest pivot *g* is shown about midway between the top and bottom of the frame A; but it is evident that the said pivot *g* may be elevated more or less, in which case the line of inclination *h* will be correspondingly varied and the difference between the curves described at the opposite ends of the roller correspondingly modified. Thus I am able to produce with the assistance of a proper apron E, which is fastened at both ends, a bunch having the desired taper, and to roll this bunch over an elongated surface of the convex rolling-board, until it may be received at the back end of said rolling-board by a suitable bunch-receiver G of ordinary construction. The apron E is secured at its back end to the back end of the rolling-board in any suitable manner, but its front end is fastened in a clamp H, which at *i* is pivoted to the rolling-board, or an extension thereof, or to the table B, or other part of the framing. This pivoted clamp H is provided underneath the rolling-board with an inwardly or rearwardly projecting arm *j* having a step or downward extension *k*, as shown in Fig. 2. The roller-carrying-frame F is provided with a frictional-roller *l* or analogous projection which, when said frame F is swung backward, moves under the lower face of the arm *j* until it strikes the step or set-off *k*, when, the frame F continuing in its backward motion, said roller *l* lifts the arm *j*, and thereby moves the clamp H forward *i. e.* outward, thus stretching the apron E and tightening it on the bunch, which at that time is already enveloped by the apron and on the convex portion of the rolling-board. Motion may be imparted to the frame F either by means of handles *m*, with which it is provided, or by means of a treadle I, or by both handles and treadle. The treadle I is shown pivoted to the frame A and connected by a link *n* with the long leg *d* of the frame F. In swinging the treadle on its pivot, it will by this link *n* cause the long leg *d* of the roller-carrying-frame F to be swung, and thereby, in fact, the whole frame F to be swung. The connections between the link *n* and the treadle and the leg *d* are by preference either or both slightly slotted, or the holes for the connecting pins are slightly enlarged so as to avoid any strain which otherwise would be caused by the horizontal vibrating treadle engaging with the roller-frame that swings on the inclined line *h*. This enlargement is indicated by dotted lines in Fig. 5.

Although I have described the roller-board C as having the isosceles trapezoidal form when examined from the top, it is nevertheless clear that if the parallel sides of the trapezoid be made slightly curved, the same final result would be obtained, and I therefore wish to have it understood that the expression "isosceles trapezoidal form" when applied to this rolling-board would include the modification just mentioned.

It is quite clear that a bunch *o*, Fig. 2, when enveloped in the fold of the apron by means of the advancing roller D, will find itself embraced in a tapering loop of the apron, and will continue in said tapering loop until it is finally delivered properly rolled in the bunch-receiver G. It is clear also that the apron E of this machine when inspected from above has the isosceles trapezoidal form already specified as the form of the rolling-board, or substantially the same, allowing, of course, for the difference in length between the apron and the rolling-board.

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

1. The combination of the rolling-board C having convex upper surface and substantially isosceles trapezoidal form, with an apron E, and with a tapering roller D, and means substantially as described for moving said roller, all as specified.

2. The combination of the isosceles trapezoidal rolling-board C, having convex upper surface, with the isosceles trapezoidal apron E, roller D, and means substantially as described for moving said roller in the embrace of said apron, as set forth.

3. In a bunching machine, the roller-carrying-frame F combined with a supporting frame A and inclined connecting pivots *f g*, all arranged so that the swinging line *h* or center of motion for the vibrating roller-frame F shall be inclined to the plane of the axis of the roller, as and for the purpose specified.

4. The rolling-board C having convex upper surface, combined with a tapering roller D, the roller-carrying-frame F, the main supporting frame A, and the connecting pivots *f g* between the roller-carrying-frame F and the supporting-frame A, said connecting pivots being placed at different elevations, so that the line *h* of motion of the roller-carrying-frame shall be inclined to the surface of the rolling-board, as and for the purpose specified.

5. The combination of the rolling-board C, the rolling-apron E and roller D with the roller-carrying-frame F having projection *l*, and with the pivoted clamp H engaging one end of the apron, said clamp H having stepped projection *j*, all arranged so that the roller-frame when advanced shall cause the clamp H to be moved in the opposite direction by the contact of the projection *l* with the stepped projection *j* of the clamp, as set forth.

ADOLPH C. SCHUTZ.

Witnesses:
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MAURICE BLOCK.