

No. 762,608.

PATENTED JUNE 14, 1904.

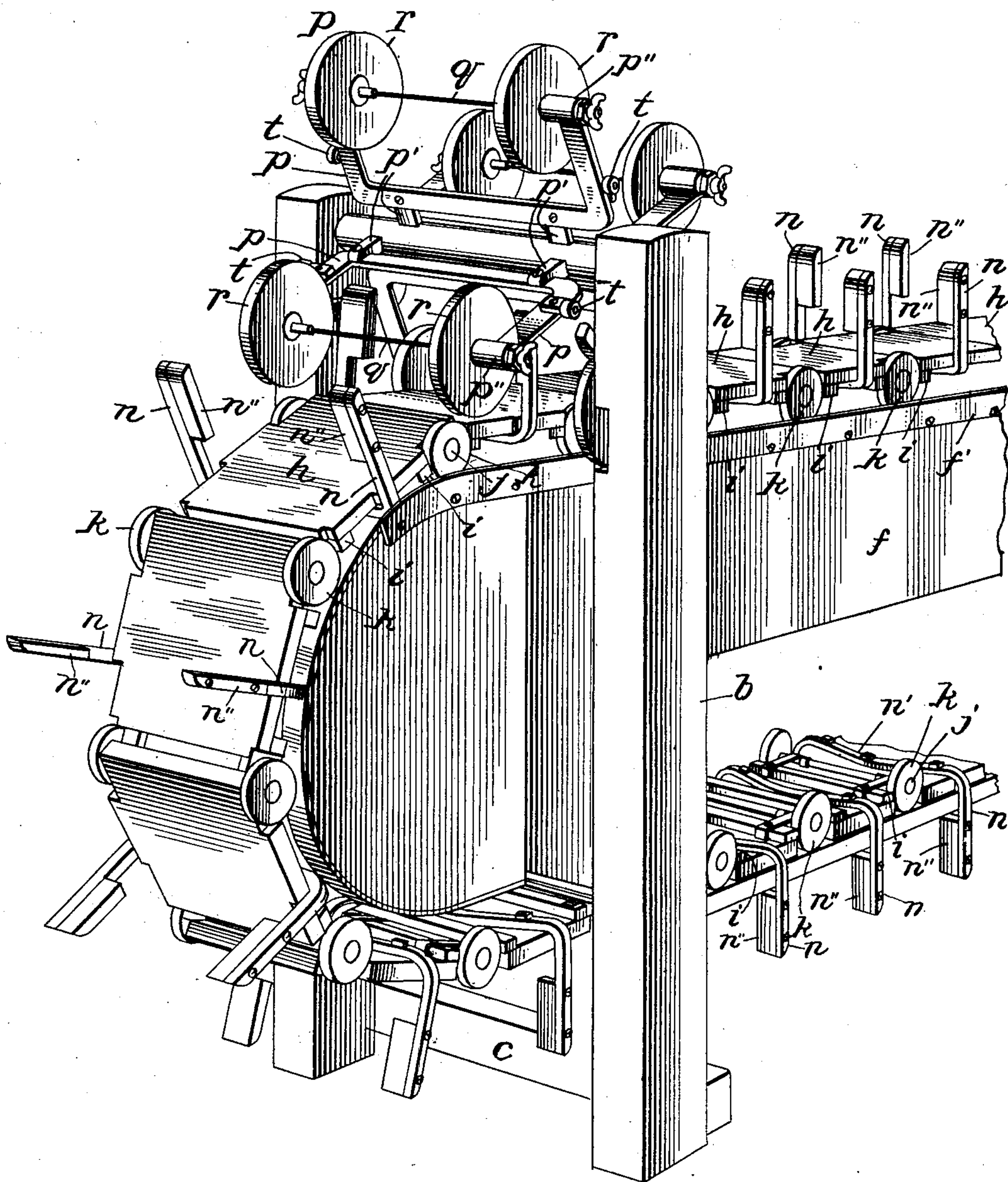
B. E. BECHTEL.  
BRICK CUTTER.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses;  
O. B. Bueler  
Chas. P. Wright, Jr.

Inventor:  
Byron E. Bechtel  
By Thos. P. Bechtel  
Atty

No. 762,608.

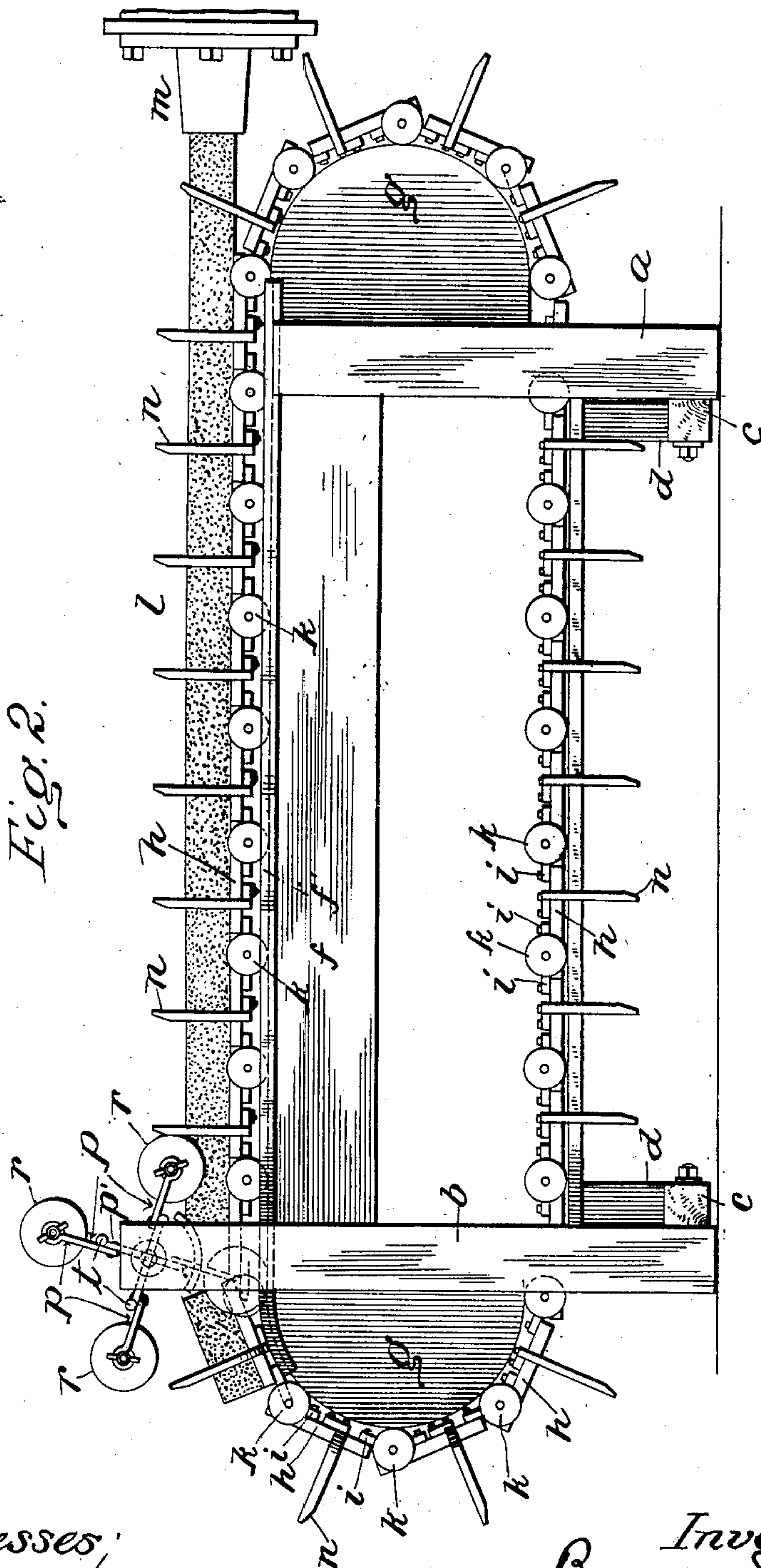
PATENTED JUNE 14, 1904.

B. E. BECHTEL.  
BRICK CUTTER.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses:  
W. E. Burdine.  
Chas. P. Wright.

Inventor:  
Byron E. Bechtel  
by Luther E. Beck  
Atty.



No. 762,608.

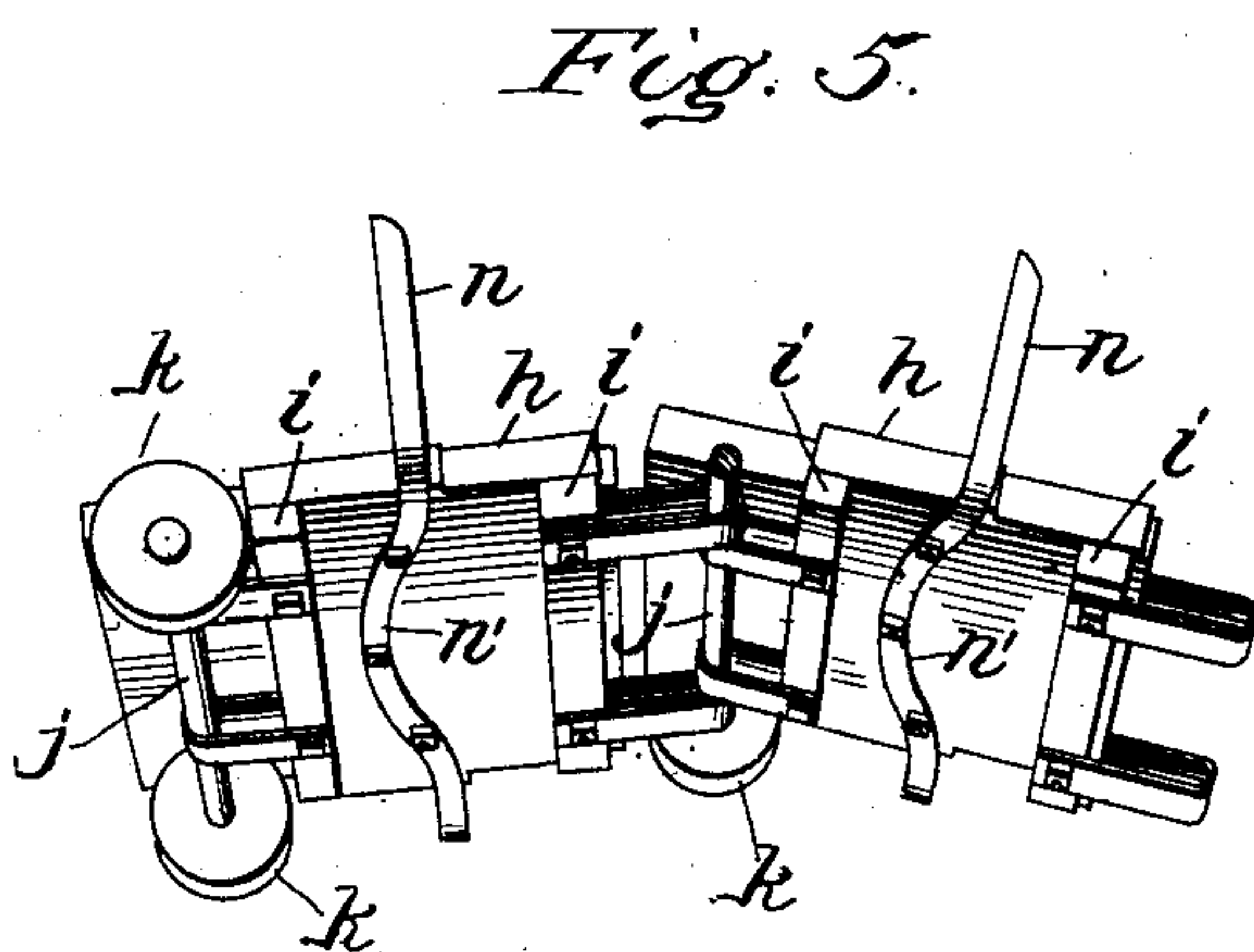
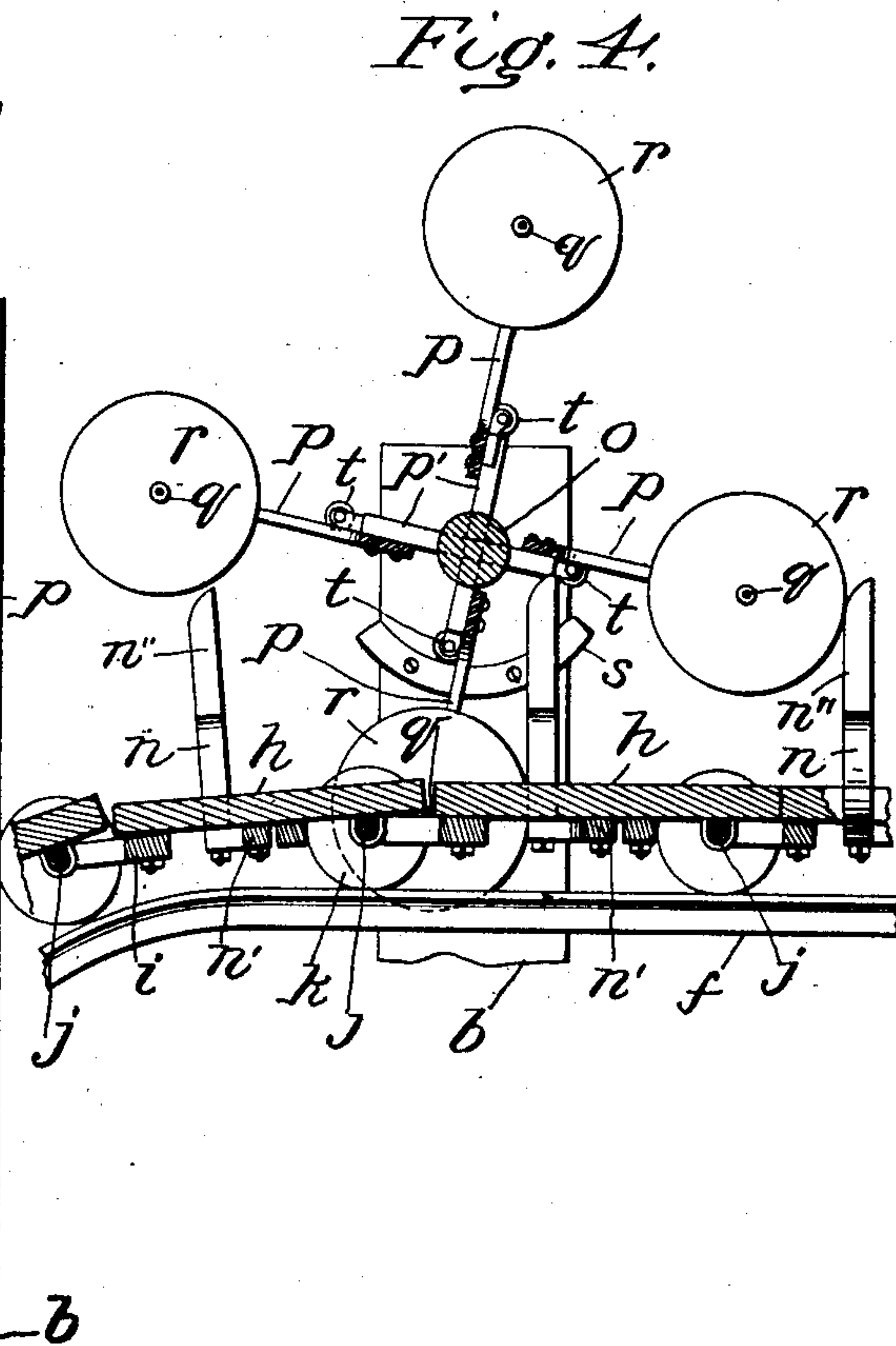
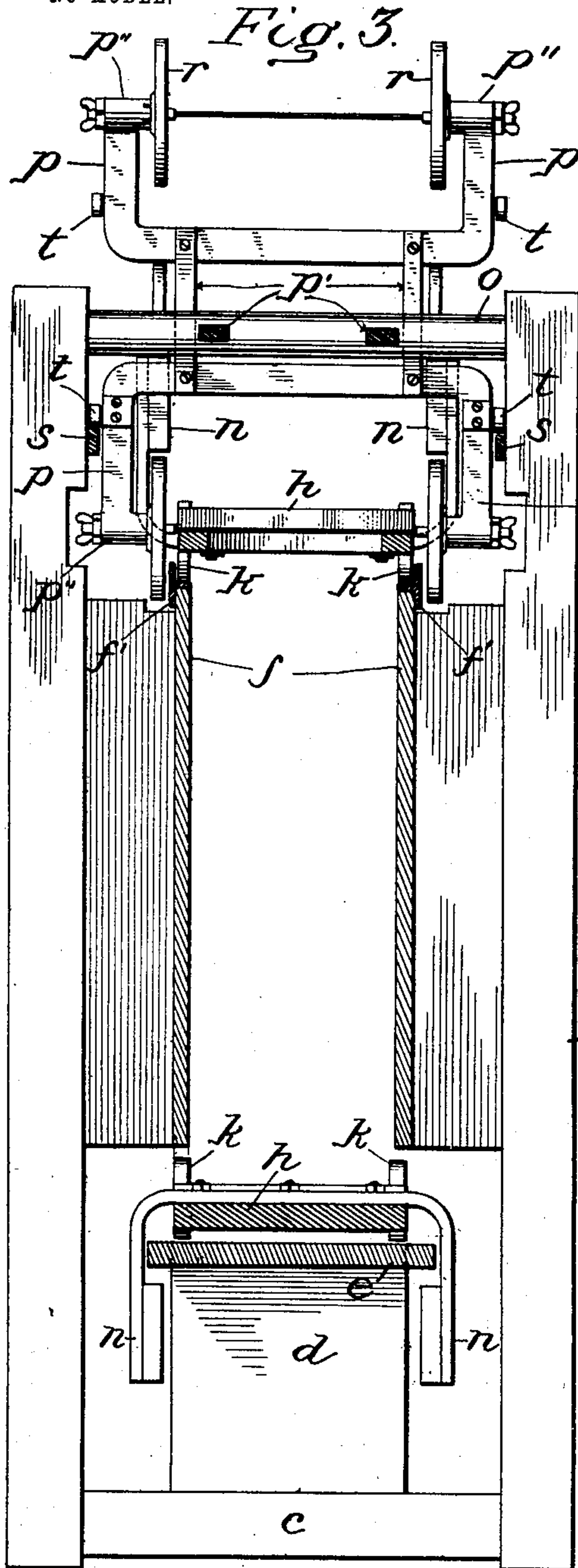
PATENTED JUNE 14, 1904.

B. E. BECHTEL.  
BRICK CUTTER.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

3 SHEETS—SHEET 3.



Witnesses  
Chas. P. Wright & Co.  
Chas. P. Wright & Co.

Inventor  
Byron E. Bechtel  
by Thos. H. Cook  
Atty



# UNITED STATES PATENT OFFICE.

BYRON ERB BECHTEL, OF WATERLOO, CANADA.

## BRICK-CUTTER.

SPECIFICATION forming part of Letters Patent No. 762,608, dated June 14, 1904.

Application filed July 29, 1903. Serial No. 167,455. (No model.)

*To all whom it may concern:*

Be it known that I, BYRON ERB BECHTEL, a subject of the King of Great Britain, residing at Waterloo, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Brick-Cutters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in automatic cutting-tables or improvements of what might be termed "cutters" employed in connection with brick, tile, or the like machinery; and the objects and nature of my invention will be readily understood by those skilled in the art in the light of the following description of the accompanying drawings, which show a construction merely as an example from among others within the spirit and scope of my invention for purposes of explanation.

An object of the invention is to provide an improved brick or tile cutter exceedingly durable and effective in construction and which will operate easily when propelled by the bar of clay projected or expressed from the die of a continuous-bar brick or tile machine.

The invention consists in certain novel features of construction and in combinations and arrangements of parts more fully and particularly set forth and pointed out hereinafter.

Referring to the accompanying drawings, Figure 1 is a perspective view of the brick-cutter. Fig. 2 is a side elevation thereof, a bar of clay being shown moving from a die onto and moving the endless table or carrier, a brick being shown as just cut from the bar of clay by the rotating cutting-reel. Fig. 3 is a vertical cross-section taken through the cutting-reel and endless table or carrier. Fig. 4 is a sectional view taken vertically through the cutting-reel and showing the curved guide track or stop of one of the uprights and engaged by the rollers of the radially or diametrically movable arms or frames carrying the cutting wires and guide-wheels. Fig. 5 is a detail perspective view of the under sides of two adjacent sections or blocks of the endless table or carrier.

In the drawings, *a* represents the parallel vertical uprights or posts at the front or receiving end of the frame of the machine.

*b* represents the two parallel uprights or posts at the rear or discharge end of the frame of the machine.

The posts *a b* of each pair are rigidly secured together at their lower ends by the cross bars or pieces *c*. Each cross-piece *c* between its ends is provided with an upwardly-projecting support *d*, to the top edge of which the horizontal parallel lower tracks or rails *e* are secured. These rails extend from one support *d* to the other support *d*, and the rails *e* usually overhang or project horizontally beyond the vertical end edges of the supports *d*, so as to leave spaces between the outer vertical edges of the rails *e* and the inner faces of the adjacent uprights or posts of the frame. The rails can be formed of metal or, if desired, can be composed of wooden bars provided with metal facings along their top sides to form the tracks on which the rollers of the endless table travel, as hereinafter described.

*f* represents the parallel horizontal upper rails of the machine secured to and carried by the end posts or uprights and projecting forwardly and rearwardly beyond said end posts. The roller-engaging surfaces or tracks of said upper rails *f* can be formed by the longitudinal angle-bars *f'*, having the outer vertical upturned longitudinal flanges. At both ends of the machine the top rails *f* terminate in the approximately semicircular end pieces *g*, projecting at the ends of the machine and having the curved outer edges forming continuations of the tracks of the top rails. The curved approximately semicircular track edges of the end pieces *g* are located in the same vertical planes as the track-surfaces on the respective sides of the machine of the upper rails *f* and the lower rails *e*. The endless traveling table or carrier moves over and is supported by these various track-surfaces, which cause the table to form the parallel horizontal upper and lower plies and the two curved end plies between the horizontal plies.

The table consists of a plurality of similar sections hinged or otherwise pivotally joined together. Each section consists of a flat



approximately oblong or rectangular block, plate, or board *h*. These plates are hinged together at their adjoining edges by suitable hinges or pivotal connections, although, as at present advised by experiment, I prefer to couple the plates together at their ends by hinges consisting of two leaves *i*, rigidly secured to the bottom faces or sides of the plates, each leaf consisting of a cross-bar and lateral arms rigid therewith and projecting therefrom, the two sets of arms of each hinge being loosely coupled together by a pivot bolt or pin *j*, arranged transversely of the table and at its ends projecting beyond said lateral arms to receive the supporting-rollers *k* of the table or carrier. In the construction illustrated each plate or section *h* is provided with two supporting-rollers *k*, arranged in recesses in the opposite side edges thereof and at the rear end thereof. The pivot rod or bolt *j* of each plate *h* is so arranged, preferably, that the rim or tread of the rollers is slightly in rear of or flush with the end edge of the plate. The rims or treads of the rollers project above and below the flat faces of the plates *h*, and said rollers travel on the upper, lower, and curved end tracks and support and carry the said plates and parts attached thereto. The hinge connections between the plates *h* are preferably so arranged that when the plates are traveling along the upper tracks *f'* their end edges will practically engage, and thus form the top ply of the table or carrier as a long flat horizontal table onto which the bar of clay *l* passes from the die *m* of the continuous-bar brick-machine. The continuous forward or feeding movement of this bar of clay resting on the table causes the table to move therewith, whereby the table is actuated or driven by the movement of the bar of clay. The pivotal joints between the plates *h* are preferably located a slight distance in advance of the rear end edge of each plate—that is, the axis of each hinge connection between two plates is located beneath the rear end of the forward plate and a distance in advance of the adjacent end edges of said plates. Hence the supporting-rollers *k* are removed from the planes of the meeting edges of the plates, and when the plates at the front ends of the machine start down along the curved tracks the adjacent meeting end edges of the plates will separate a considerable distance and afford ample space for the entrance of the cutting-wires hereinafter referred to and for the outward movement of said wires without interference with the adjacent edges of the clay bar or the severed portions thereof.

Each plate *h* is provided with the cutting-reel-actuating strikers or uprights *n*, usually two in number, extending upwardly from the opposite side edges of the plate and about midway the length thereof. In the example illustrated each pair of uprights *n* is composed of a stiff metal bar bent approximately

U-shaped, with the cross or transverse portion *n'* thereof extending transversely across and secured to the under face of the plate and with the ends *n* extending up at each edge of the plate and at right angles thereto. If desired, the central portion of the transverse part *n'* of the bar can be deflected laterally, about as shown, to increase the stiffness and rigidity of the uprights *n* against yielding movement when operating the cutting-reel. The upper portions of the uprights *n* are formed with inwardly-projecting guards *n''* to hold the bar of clay against lateral deflection or buckling, which might otherwise carry the same against the table-supporting rollers *k*. The uprights *n* also hold the under or bottom ply of the endless table to the lower tracks by extending down beside the outer vertical edges of said tracks, while the guards *n''* extend under the bottom rails and prevent any possible excessive upward movement of the under ply from said tracks.

The cutting-reel is mounted above the rear or discharge end of the top ply of the endless traveling table and in the upwardly-extended ends of the rear uprights *b*. *o* is the shaft of the reel, at its ends mounted to freely rotate in the uprights *b*. In the example shown this shaft carries four equally-spaced sets of radial arms *p*, which are provided with the brick-cutting wires *q* and the guide-wheels *r*.

Diametrically opposite sets of arms *p* are connected together to form, in effect, diametrical or approximately diametrical frames, so that the four sets of arms *p* form two frames crossing each other at right angles. Each set of arms *p* is formed by a U-shaped bar, and the opposite U-shaped bars are rigidly secured together by the connecting-links *p'*, usually two in number, passing diametrically through the shaft *o*, which is formed with diametrical openings or passages for that purpose and through which the links *p'* are free to slide. The links *p'* are of sufficient length to permit the diametrical movement necessary for each diametrical frame, and the movement of each said frame is limited by the engagement of the transverse portions of the U-shaped bars with the shaft *o* of the reel.

The outer end of each arm *p* is provided with a transverse eye *p''*, receiving the stud on which the guide-wheel *r* is confined to rotate, said wheels being located at the inner sides of said arms. The fastening and holding devices for the cutting-wires *q* pass through said studs on which the guide-wheels are mounted about as shown and described in United States Patent No. 719,722, issued to me February 3, 1903.

The two radially or diametrically movable frames, each carrying two cutting-wires and two pairs of guide-rollers, are movable independently of each other through the reel-shaft.

Suitable means are provided to limit or con-



trol the sliding or radial movement of each cutting-wire frame of the reel with respect to the movement of each section or plate of the endless table. As at present advised I do not wish to limit myself to any specific means for this purpose in so far as other features of my invention are concerned, but as an advantageous means for this purpose show the curved cams or guides *s* rigidly secured to the inner faces of the extended upper ends of the rear uprights *b* and arranged to be engaged by the lateral projections *t* from the arms *p* of the cutting-wire frames of the reel. These projections *t* are preferably provided with anti-friction-rollers, and each arm *p* is provided with one projection extending horizontally and outwardly therefrom at a point between its ends. The guides *s* are so arranged that as the reel revolves the projections *t* of a downwardly and rearwardly moving pair of arms *p* will move onto the front ends of said guides *s* and travel along the upper surfaces thereof, thereby holding the cutting-wire frame of which said arms form a part from dropping to their limit of downward movement until the projections *t* pass or drop from the rear ends of said guides *s*, whereupon the frame is free to slide or drop radially to its limit of downward movement.

The bar of clay rests longitudinally on the long flat surface formed by the top ply of the endless table and between the guards *n''* of the uprights of the sections of said table. The table is constantly moved around by the advancing bar of clay, the sections of the table moving rearwardly along the top tracks to the rear or discharge end, where each plate or section tilts downwardly from the horizontal position, with its supporting-rollers following downwardly around the curved tracks of the rear ends *g*, and from thence passing downwardly and forwardly to the rear ends of the lower tracks *e* with the plates reversed. At the front or receiving end of the machine the plates pass forwardly and upwardly from the lower horizontal tracks to the front ends *g*, and the rollers of the plates pass upwardly along the curved tracks of said front ends to the front ends of the horizontal top rails. As each plate of the table advances to the cutting-reel the uprights *n* of said plate engage a pair of guide rollers or wheels *r*, and thereby rotate the reel carrying the cutting-wire down through the bar of clay in the vertical plane of the meeting edges between said plate and the next plate to the rear in the direction of movement of the table. The projections *t* of the arms carrying said wire by resting on the guides *s* uphold the frame carrying said wire until the said projections slip off the rear ends of the guides, which movement does not take place until the plate has assumed the tilted position on the tracks of ends *g* and opened the space to receive the cutting-wire between the ends of the plates where the clay bar has just been cut.

As soon as the said two plates separate at their ends, the brick having been completely severed from the bar, the reel-frame drops down, carrying the cutting-wire down into said space between the ends of the plates and out of contact with the front end of the clay bar, and thereby preventing the cutting-wires damaging the ends of the bricks. The reel is kept in rotation by the advancing uprights of the endless table, as described in my hereinbefore-mentioned patent.

It is evident that various changes and modifications might be resorted to in the forms, constructions, and arrangements of the parts described without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is—

1. In combination, a frame having longitudinal upper tracks, longitudinal lower tracks, and curved vertically-arranged end tracks between the upper and lower tracks, an endless traveling table comprising plates hinged together and arranged end to end, each plate provided with a pair of supporting-wheels arranged at the side edges thereof and between and not projecting beyond the ends thereof, said wheels supporting the table on said upper and lower tracks and around said curved tracks, and a rotary cutting-reel having cutting-wires arranged to pass down between the ends of the plates.

2. In combination, a frame comprising longitudinal lower supporting-tracks, parallel sides having straight horizontal top edges and terminating in the semicircular vertical end pieces forming curved tracks, an endless traveling table comprising plates hinged together and each provided with a pair of supporting-rollers traveling on said tracks and on the top edges of said sides, the rollers projecting above and below the plates.

3. A brick-cutter comprising horizontal upper and lower and upwardly-curved end tracks, an endless traveling table entirely supported by and on said tracks and having supporting-rollers traveling on the tracks, and a cutting-reel, said table comprising pivotally-joined plates, each plate having side-edge recesses, the supporting-rollers being arranged in said recesses and projecting above and below the plates.

4. A brick-cutter comprising an endless traveling table composed of loosely-joined plates, each plate having a pair of supporting-rollers arranged just in advance of its rear end and projecting above and below the same, tracks on which said rollers travel and which entirely support the table, and cutting means.

5. In combination, a frame provided with upper, lower and curved end tracks, an endless traveling table comprising plates arranged end to end and pivotally united, each plate provided with a pair of supporting-rollers traveling on said tracks and arranged at the



side edges of the plate and projecting above and below the same, and with a pair of up-  
rights extending upwardly beyond the side  
edges of the plate, and a rotary cutting-reel  
5 comprising arms carrying the cutting-wires  
and provided with guide-wheels arranged to  
be engaged by said uprights, said wheels ar-  
ranged to move down beside the outer faces  
of said rollers.

10 6. In combination, a supporting-frame hav-  
ing tracks, an endless traveling table forming  
upper and lower plies and vertically-disposed  
curved end plies in traveling around said  
frame, said table composed of plates, means  
15 pivotally joining the plates end to end, each  
plate provided with a pair of supporting-  
rollers arranged between its ends and mount-  
ed on said means, and cutting means.

20 7. In combination, a supporting-frame hav-  
ing horizontal upper and lower tracks and  
connecting curved end tracks, an endless  
traveling table composed of loosely-joined  
plates, each plate having a pair of supporting-  
rollers arranged at its side edges and project-  
25 ing above and below the same and traveling  
on said tracks, and a rotary cutting-reel ac-  
tuated by said table.

30 8. In combination, a supporting-frame hav-  
ing tracks, an endless traveling table compris-  
ing plates, hinges loosely connecting said  
plates and arranged beneath the same and  
with the hinge-pivots out of line with the  
meeting or adjacent ends of the plates, said  
table provided with supporting-rollers mov-  
35 ing on said tracks, and cutting means.

40 9. In combination, a supporting-frame hav-  
ing tracks, brick-cutting means, and an end-  
less traveling table comprising plates, hinges  
loosely connecting the same, and supporting-  
rollers mounted on the hinge-pivots, said  
hinge-pivots being arranged in advance of the  
rear ends of the plates.

45 10. In combination, a supporting-frame  
having tracks, cutting means, and an endless  
traveling table comprising plates, hinges  
loosely joining the plates end to end, each  
hinge comprising leaves secured to the under  
faces of the plates and a pivot, said hinges  
so arranged that the pivots are beneath the  
50 under faces of the plates and in advance of the  
rear edges thereof, and supporting-rollers.

55 11. In combination, a supporting-frame, a  
rotary cutting-reel, and an endless traveling  
table comprising loosely-joined plates, each  
plate having a U-shaped bar secured thereto  
with upwardly-projecting ends forming reel-  
operating uprights, substantially as described.

60 12. In combination, a supporting-frame, a  
rotary brick-cutting reel, and an endless table  
comprising loosely-connected plates, each  
plate provided with a U-shaped metal bar se-  
cured thereto with upwardly-projecting ends  
forming reel-operating uprights, the trans-  
verse portions of the U-shaped bars deflected

laterally and secured across the under faces of 65  
the plates.

13. In combination, a supporting-frame, a  
rotary brick-cutting reel, and an endless trav-  
eling table comprising loosely-joined plates  
having supporting-rollers and side reel-oper- 70  
ating uprights provided with inwardly-pro-  
jecting guards, substantially as described.

14. In combination, a supporting-frame  
having tracks, a rotary cutting-reel, and an  
endless traveling table comprising loosely- 75  
joined plates, hinges connecting the plates  
end to end, each plate having supporting-roll-  
ers arranged near the rear end thereof and in  
advance of the rear edges thereof.

15. A brick-cutter reel comprising a cross- 80  
shaft having diametrical guide-openings  
therethrough and diametrically-arranged slid-  
ing frames provided with the guide-wheels  
and cutting-wires, said frames passing and  
slidable through the shaft and confined therein. 85

16. A brick-cutter comprising the rotary  
reel consisting essentially of a single cross-  
shaft, U-shaped bars provided at their outer  
ends with guide-wheels and cutting-wires,  
links rigid with and connecting opposite bars 90  
and passing loosely diametrically through in-  
termediate portions of said shaft.

17. In combination, a frame, an endless trav-  
eling table comprising loosely-joined sections  
provided with reel-operating uprights, a ro- 95  
tary cutting-reel comprising movable sections  
carrying cutting-wires and guide-wheels, and  
guides carried by said frame and controlling  
the downward movement of each movable sec-  
tion. 100

18. In combination, a frame, an endless trav-  
eling table comprising loosely-joined sections  
provided with reel-operating portions, a ro-  
tary cutting-reel comprising movable sections  
provided with cutting-wires and lateral pro- 105  
jections, and fixed guides engaging said pro-  
jections to uphold said movable sections dur-  
ing portions of the strokes thereof.

19. In combination, a frame comprising up-  
rights, an endless traveling table, a cross-shaft 110  
arranged horizontally and transversely above  
said table and extending between and at its  
ends mounted in said uprights, and a diamet-  
rically-sliding frame at its opposite ends pro-  
vided with the cutting-wires, said frame at its 115  
central portion arranged diametrically of the  
central portion of said shaft and loosely con-  
fined thereto to positively rotate therewith and  
independently moved diametrically thereof.

20. In combination, a frame comprising up- 120  
rights, a cutting-reel carried by said uprights  
and comprising movable frames provided with  
the cutting devices, curved guides carried by  
said uprights and engaging portions of said  
frames at predetermined portions of the path 125  
of movement thereof during the rotation of  
the reel, a table traveling under said reel, and  
means for rotating the reel.



21. In combination, a frame, a traveling table, a rotary cutting-reel arranged transversely above the same and comprising independently-movable members provided with the cutting-wires, a guiding device carried by said frame and engaging each member during a portion of its stroke to carry the cutting-wire thereof in an eccentric path, and means for rotating the cutting-reel.

22. In combination, a frame having parallel top tracks, parallel bottom tracks, and parallel end pieces having curved outer edges forming tracks between said upper and lower tracks, an endless traveling table supported by and moving along said tracks and around said end pieces and comprising sections arranged end to end and loosely hinged together, each section having uprights arranged at its side edges and a pair of rollers arranged at its side edges and projecting above and below the section and traveling on said tracks, said lower tracks arranged between the depending

uprights of the sections forming the lower ply of the table, and a cutting-reel arranged above the table.

23. In combination, a frame, a cutting-reel, an endless traveling table, means to support the same to form the horizontal top ply, said table comprising plates arranged end to end, and hinges loosely connecting said plates, each hinge comprising a leaf secured to one plate and extending across the adjoining ends of the two plates to a point between the ends of the adjacent plate and a leaf secured to an intermediate portion of said adjacent plate with the hinge-pivot intermediate the length of said adjacent plate.

In testimony whereof I affix my signature in presence of two witnesses.

BYRON ERB BECHTEL.

Witnesses:

JAMES C. HAIGHT,  
JACOB MAURER.