

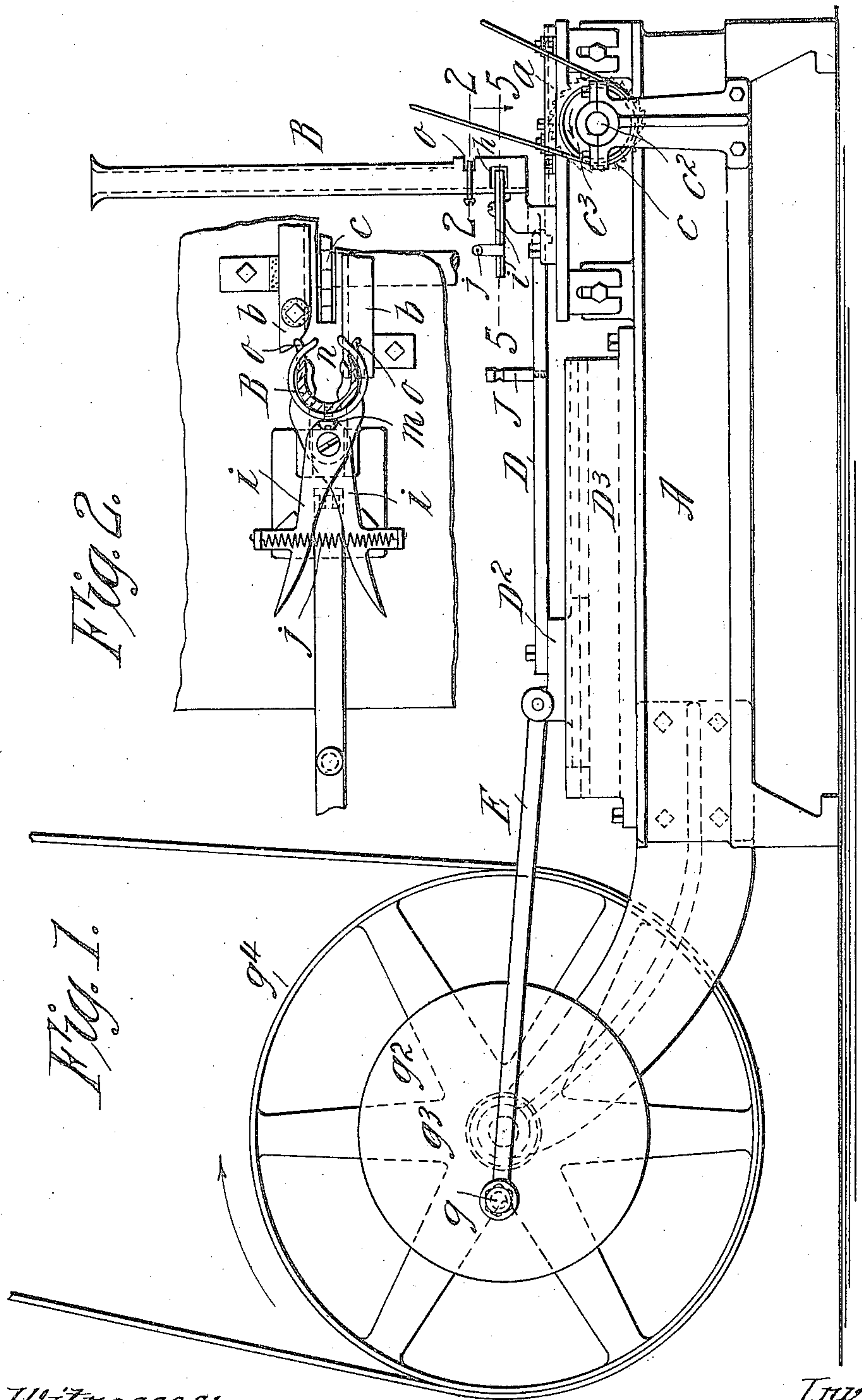
No. 875,327.

PATENTED DEC. 31, 1907.

D. S. COURTNEY.  
BOBBIN SLOTTING MACHINE.

APPLICATION FILED JUNE 14, 1907.

2 SHEETS—SHEET 1.



Witnesses:  
H. L. Sprague.  
G. R. Kriecoll.

Inventor,  
Dana S. Courtney,  
by *[Signature]*  
Attorney.

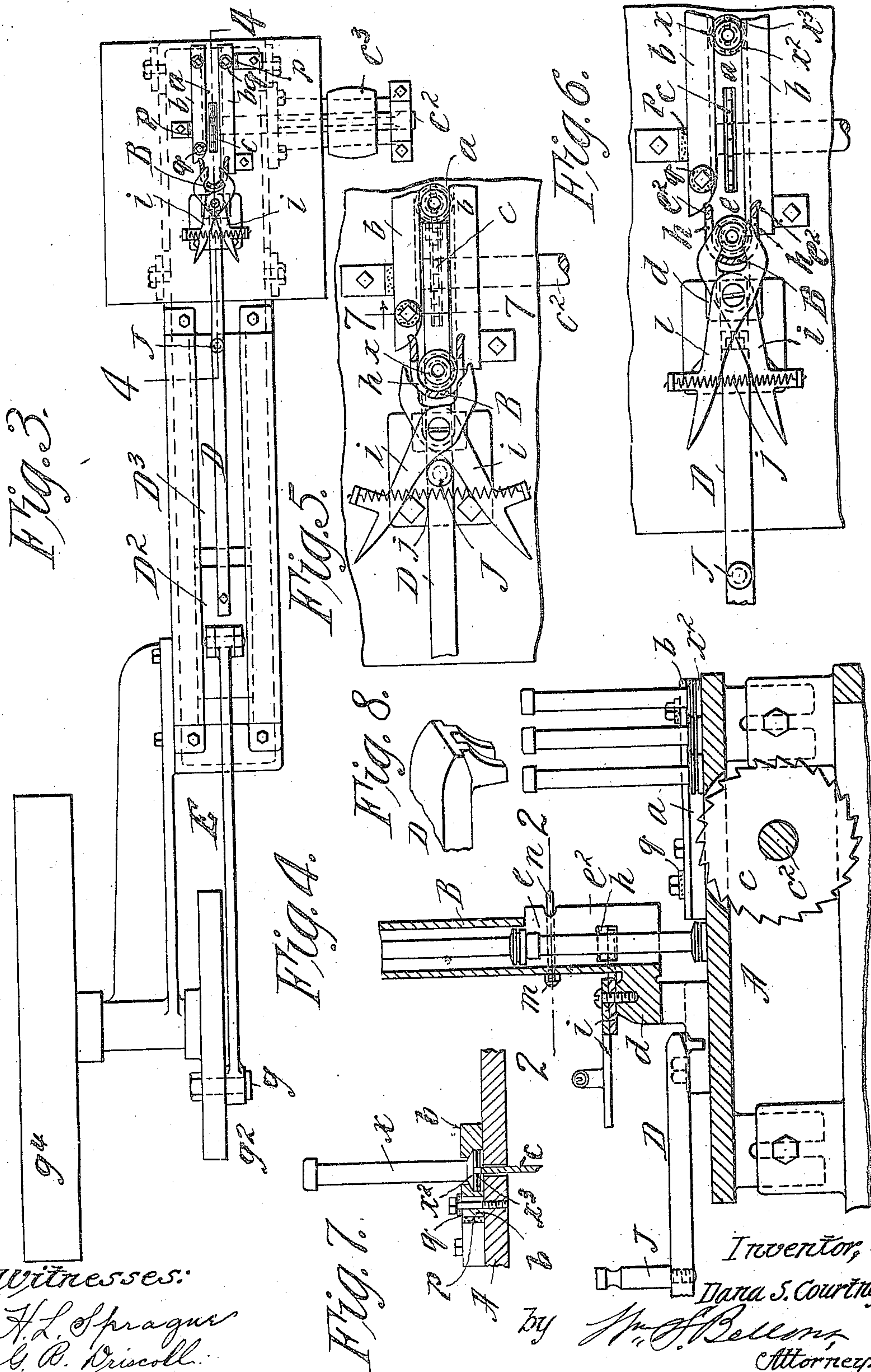
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G. R. Priscoll.

Fig. 7.

by

Inventor,  
Dana S. Courtney,  
Attorney.



# UNITED STATES PATENT OFFICE.

DANA S. COURTNEY, OF CHICOPEE, MASSACHUSETTS.

## BOBBIN-SLOTTING MACHINE.

No. 875,327.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed June 14, 1907. Serial No. 378,927.

*To all whom it may concern:*

Be it known that I, DANA S. COURTNEY, a citizen of the United States of America, and resident of Chicopee, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Woodworking or Bobbin-Slotting Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements in a wood working machine especially designed for the forming of the cross slot in the enlarged lower end or base of a bobbin or spool.

The object of the invention is to provide a machine of comparatively simple and inexpensive character which will have the capability of receiving the bobbins in a vertical stack in a feed tube therefor, and of automatically successively delivering the bobbins one at a time, and advancing the same to the slot cutting action of a circular saw.

The especial advantages aimed at and attained by the exercise of this invention are that a boy, or unskilled help, only is required for supplying the bobbins into the feed tube, no other duty being imposed upon him; that the bobbins will have the slots cut across the base end thereof with uniformity and excellence; that the machine is capable of the performance of a greater amount of work in a given time than could be done by a skilled man operating manually; and the avoidance of the fatigue and care necessary for manually slot cutting the spindles is avoided.

The invention consists in the combinations and arrangements of parts and the constructions of certain of the parts all substantially as hereinafter fully described and set forth in the claims.

In the accompanying drawings,—Figure 1 is a side elevation of the machine; Fig. 2 is a horizontal sectional view as taken on line 2—2, Figs. 1 and 4, of a portion of the machine showing other parts in plan, below the plane of section, all on a larger scale. Fig. 3 is a plan view of the machine on the same scale as Fig. 1. Fig. 4 is a vertical longitudinal sectional view of the forward portion of the machine, on the larger scale, as taken on line 4—4, Fig. 3. Fig. 5 is a horizontal sectional view and partial plan, similar to Fig. 2, but taken on the plane indicated by the line 5—5, Fig. 1. Fig. 6 is a view like Fig. 5, but showing different positions of some of

the parts. Fig. 7 is a cross section showing parts in detail as taken on the line 7—7 Fig. 5. Fig. 8 is a perspective view showing the formation of the forward end of the bobbin pusher.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings,—A represents a bed or low table having on the upper portion of a forward part thereof a horizontal longitudinal guide way *a* constituted by the inner edges of a pair of parallel bars *b b*,—the inner or facing edges of said bars being undercut, as shown in Fig. 7. Said guide way is open at both of its ends and is adapted to have bobbins slid therethrough,—the overhanging flanges or ledges at the upper portions of the bars which contract the groove-like guide way constituting a means for engaging the base flanges *x*<sup>2</sup> of the bobbins *x* to prevent their rising whereby they would be forced away from the action of the circular saw *c* which cuts the cross slot *x*<sup>3</sup> in the bobbin bases. Said saw is represented as having its location in a vertical plane longitudinally coincident with the median line of the guide way *a*, the same being carried on a suitable rotary shaft *c*<sup>2</sup> carrying the driving pulley *c*<sup>3</sup>.

Above and slightly to the rear of the guide way *a* is an endwise open vertical bobbin guiding and feeding tube or hopper B, the same being immovably supported on the bracket *d* therefor, with the lower open end of such tube located at a sufficient distance above the top of the table. The said bobbin guiding tube B has an opening *e* through the front lower portion thereof, the upper end of which opening is as much or slightly more above the top of the table than the length of one of the bobbins. The said guide tube is constructed at the opposite boundaries of said front opening *e* with forwardly extended lips *e*<sup>2</sup>, *e*<sup>2</sup>.

D represents a pusher bar horizontally and longitudinally arranged, and carried by and forwardly extended beyond a slide D<sup>2</sup> which works in a horizontal slideway D<sup>3</sup> therefor, mounted on the bed; and a regular reciprocatory movement is imparted to the said slide and pusher bar by the pitman rod E connected to the slide and to the wrist pin or crank stud *g* revolvably carried on the wheel *g*<sup>2</sup> which is mounted on a shaft *g*<sup>3</sup> provided with driving pulley *g*<sup>4</sup>.

The pusher bar has a movement from a



point to the rear of the bobbin guiding tube, under the open lower end of such tube fully to or in advance of the location of the circular saw; and the forward bobbin engaging and pushing end of the bar is made of the form represented in Fig. 8, that is with a depending bifurcated formation for a straddling relation to the saw.

The guide tube B near its bottom has openings *h h* through its opposite sides; and a pair of levers *i i*, the forward arms of which constitute bobbin supporting jaws or detents, are intermediately pivotally mounted on the aforementioned tube supporting bracket in crossing, or tongs like, arrangement for swinging movements in the same, or substantially the same horizontal plane. The spring *j* connecting the rear members of the said intermediately pivoted levers causes normally, a positioning of the levers so that their forward jaws protrude through and have locations within the aforementioned opposite side openings in the bobbin guide tube and across the vertical passage down through said tube, to support the bobbins by their base flanges only.

The bobbins, one at a time, may be let down to fall at the bottom of the tube when the levers *i* are swung from their normal, bobbin-intercepting, position shown in Fig. 6, to the bobbin-releasing or bypass position shown in Fig. 5; and as a very simple means for periodically and momentarily opening the jaws to the position of Fig. 5, a stud *J* is shown as upstanding at a suitable point in the length of the pusher bar, the same in the extreme forward movements, only, of such bar, impinging against the levers in the crotch thereof, the spring immediately retracting the levers on the rearward retirement of the pusher bar.

In operation, it is only required that a boy will place bobbins in the vertical tubular hopper with their flanged bases downward, the stack of bobbins being for part of the time sustained on the inwardly protruding jaws of the levers *i i*. Assuming that the pusher bar has been moved to its forward limit and its stud has opened the lever jaws, the lowermost tube is liberated to descend, not fully down onto the table top, but onto the top of the pusher bar which is still beneath the opened lower end of the tube. As the pusher bar moves rearwardly to its limit of retiring motion, its forward end is rearwardly withdrawn from supporting engagement under the lower end of the liberated lowermost bobbin which falls for a short distance only, equal to the thickness of the pusher bar, onto the table to the rearward and in the central longitudinal line of the guideway *a*, and is in readiness now on the next forward movement of the pusher bar to be carried into and along the guideway past and subject to the action of the circular saw

*c* which cuts the cross slot in the enlarged base of the bobbin.

It is to be remarked that it is regarded as of great advantage in the operation of this machine to render the falling movements of the lowermost bobbin of the stack intermittent or distributed through separated periods for the reason that in the last short drop, especially, which the bobbin has when it comes onto the table and is in readiness to be forced forward to the saw, it will not be likely to acquire any rocking or tilting motion to prevent its proper and easy entrance, in perfectly upright position into the saw guide having the undercut opposite edges to which attention has heretofore been called.

It will be explained that the closing movements of the lever jaws shown in Fig. 6 are limited by the contact of the jaw edges against adjacent boundaries of the opening *h h* in the opposite sides of the guide tube, so that after a bobbin has been permitted to drop,—its enlarged base passing below the jaws on the opening of the latter,—the jaws can have no gripping action on the shank of the bobbin to prevent the latter from further falling to the level of the guide way when the pusher is rearwardly displaced from beneath the bobbin.

As shown in Figs. 2 and 4 a C-shaped spring wire, or band, encircles the bobbin guide tube at a level near the upper end of,—but somewhat below,—the top of the front opening *e*, the same being held in place by a set screw *m* while its extremities have forwardly convergent relations, the same being disposed through recesses *o o* therefor in the vertical forwardly projecting lips *e*. These opposite spring members prevent any toppling of the bobbin while in the position shown in Fig. 4, a tendency to which toppling of the lowermost bobbin might be induced from being struck by other bobbins thereabove, or otherwise. The forwardly projecting lips *e* constitute short guides to insure, immediately the pusher bar forces a bobbin forward, that such bobbin will move to engagement, by its base flange, with the undercut guide *a*, in conjunction with which guide the circular saw coacts.

The bars *b, b*, constituting the side walls of the guideway *a*,—within which the saw operates,—are made one or both slightly yieldable laterally, the same being held on the table by bolts, the shanks of which pass loosely through holes therefor in the bars, and cushioning blocks *p* of rubber are interposed between the outer edges of the bars and stop lugs therefor. The bars may also yield slightly in an upward direction, as rendered possible by placing rubber washers *q* between the heads of the bolts and the tops of the bars secured thereby. While these yielding movements in practice are very slight, they are of advantage for the avoid-



ance of chipping or splintering the somewhat fragile base flanges of the bobbins which are forcibly moved through the guideway.

I claim:—

5 1. In a machine of the character described, the combination with a bed or table having an endwise-open, horizontal, guideway thereon, and a saw operative at the base of the guideway, of a vertical cylindrical bobbin-  
10 feed-tube toward the rear of said horizontal guideway having a delivery opening at its lower portion, and a periodically acting pusher for forcing delivered bobbins through said guide-way.

15 2. In a machine of the character described, the combination with a bed or table having an endwise-open, horizontal, guideway thereon, and a saw operative at the base of the guideway, of a vertical cylindrical bobbin-  
20 feed-tube toward the rear of said horizontal guideway having a delivery opening at its lower portion, a periodically acting pusher for forcing delivered bobbins through said guide-way, and means for preventing the  
25 bobbins from rising in the guide way.

3. In a machine of the character described, the combination with a bed or table having a horizontal guideway thereon, and a saw operative at the base of the guideway, of a  
30 bobbin-pusher for advancing bobbins into said guideway, a vertical bobbin-feed-guide adapted to deliver bobbins vertically in succession to said pusher, and means distinct from the pusher and located adjacent the  
35 lower portion of said bobbin-feed-guide for temporarily arresting the descent of each lowermost bobbin after the preceding bobbin has been advanced by the pusher.

4. In a machine of the character described,  
40 the combination with a bed or table having a horizontal guideway thereon, and a saw operative at the base of the guideway, of a bobbin-pusher for advancing bobbins into said guideway, a vertical bobbin-feed-guide  
45 adapted to deliver bobbins vertically in succession to said pusher, and means distinct from but operated by the pusher and located adjacent the lower portion of said bobbin-feed-guide for temporarily arresting the de-  
50 scent of each lowermost bobbin after the preceding bobbin has been advanced by the pusher.

5. In a machine of the character described, the combination with a bed or table having  
55 a horizontal guideway thereon, and a saw operative at the base of the guideway, of a bobbin-pusher for advancing bobbins into said guideway, a vertical bobbin-feed-guide adapted to deliver bobbins vertically in suc-  
60 cession to said pusher, and means distinct from said pusher and operating through the side of the lower portion of said bobbin-feed-guide for temporarily arresting the descent of each lowermost bobbin after the preceding  
65 bobbin has been advanced by the pusher.

6. In a machine of the character described the combination with a bed or table having a horizontal guideway thereon, and a saw operative at the base of the guideway, of a vertical bobbin-feed-guide adapted to deliver  
70 bobbins vertically in succession toward the rear of said guideway, a bobbin-pusher for advancing the bobbins so delivered into said guideway, and a detent associated with the lower portion of said bobbin-feed-guide, said  
75 pusher and detent being adapted and arranged to receive successively each lowermost bobbin in its descent after the preceding bobbin has been advanced by the pusher.

7. In a machine of the character described,  
80 the combination with a bed or table having an endwise-open, horizontal, guideway thereon, and a circular saw operative at the base of the guideway, of a vertical bobbin-feed-guide above and to the rear of said  
85 guideway open at its bottom and having an opening through its forward side adjacent its bottom, and also having an opening above its bottom, through its side, a bobbin supporting member, movable through said  
90 side opening to positions across the vertical tube passage, and outwardly free therefrom, a reciprocatory bobbin pusher movable in the line of said guideway, under and away  
95 from under said vertical bobbin feed guide, and means for actuating said bobbin supporting member.

8. In a machine of the character described, the combination with a bed or table hav-  
100 ing an endwise-open, horizontal, guideway thereon, and a circular saw operative at the base of the guideway, of a vertical bobbin-feed-guide above and to the rear of said guide-way open at its bottom and hav-  
105 ing an opening through its forward side adjacent its bottom, and also having an opening above its bottom, through its side, a bobbin supporting jaw, pivotally mounted adjacent and movable through said side  
110 opening to positions across the vertical tube passage, and outwardly free therefrom, a spring for maintaining the jaw in position across the tube passage, and a reciprocatory bobbin pusher movable in the line of said  
115 guideway, under and away from under said vertical bobbin-feed guide, carrying a stud operative in an advanced movement of the pusher to engage said jaw and remove it from the tube passage.

9. The combination with a bed having an  
120 endwise-open, horizontal, guideway thereon, and a circular saw operative within the guideway, of a vertical bobbin-guide-tube above and to the rear of said guide-way,  
125 open at its bottom, having an opening through its forward side adjacent its bottom, and also having openings above its bottom, through its opposite sides, a pair of levers,—comprising bobbin supporting jaws,—inter-  
130 mediately pivotally mounted adjacent, and



movable through, said side openings to approached positions across the vertical tube passage, and outwardly free therefrom, a spring connecting arms of said levers and for normally maintaining the jaws in their positions across the tube passage, and a reciprocatory bobbin pusher horizontally movable in the line of said guideway, under and away from under said vertical bobbin-feed guide, carrying a stud operative in an advanced movement of the pusher to engage said levers and open the jaws thereof from their positions across the tube passage.

10. In a machine of the character described, the combination with a bed or table having an endwise-open, horizontal, guideway thereon, and a saw operative at the base of the guideway, of a vertical bobbin-feed-guide tube toward the rear of said horizontal guideway, having an opening through its front adjacent its bottom, and having vertical forwardly extended lips at the opposite sides of said front opening, said lips being distinct from said guideway, and a periodically acting pusher for forcing delivered bobbins through said guideway.

11. In a machine of the character described, the combination with a bed or table having a shallow-horizontal guideway thereon, a saw operative at the base of the guideway, and means for advancing bobbins into said guideway, of a vertical bobbin-feed-guide tube toward the rear of said guideway, said tube having an opening through its front adjacent its bottom, and forward-projecting lips at the two sides of said opening which extend upward above the shallow guideway.

12. In a machine of the character described, the combination with a bed or table having an endwise, open horizontal, guideway thereon, and a saw operative at the base of the guideway, of a vertical bobbin-feed-guide tube constructed and positioned to permit the bobbins to drop endwise in succession upon the table in rear of the guideway, said tube having a delivery opening through its front, adjacent its bottom, and provided with a pair of outward yieldable members contracting the said front opening to prevent toppling of the bobbins as the latter stand upon the table, and a periodically acting pusher for forcing delivered bobbins through said guideway.

13. In a machine of the character described, the combination with a bed or table having an endwise-open, horizontal, guideway thereon, comprising separated parallel bars having undercut inner edges, one thereof being capable of a slight vertical movement, and a cushion arranged to oppose such movement of the bar, and a saw operative within the guideway, of a vertical bobbin-feed-guide above and to the rear of said guideway having a delivery opening at its lower portion, and a periodically acting pusher for forcing delivered bobbins through said guideway.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

DANA S. COURTNEY.

Witnesses:

WM. S. BELLOWS,  
G. R. DRISCOLL.