

Witnesses  
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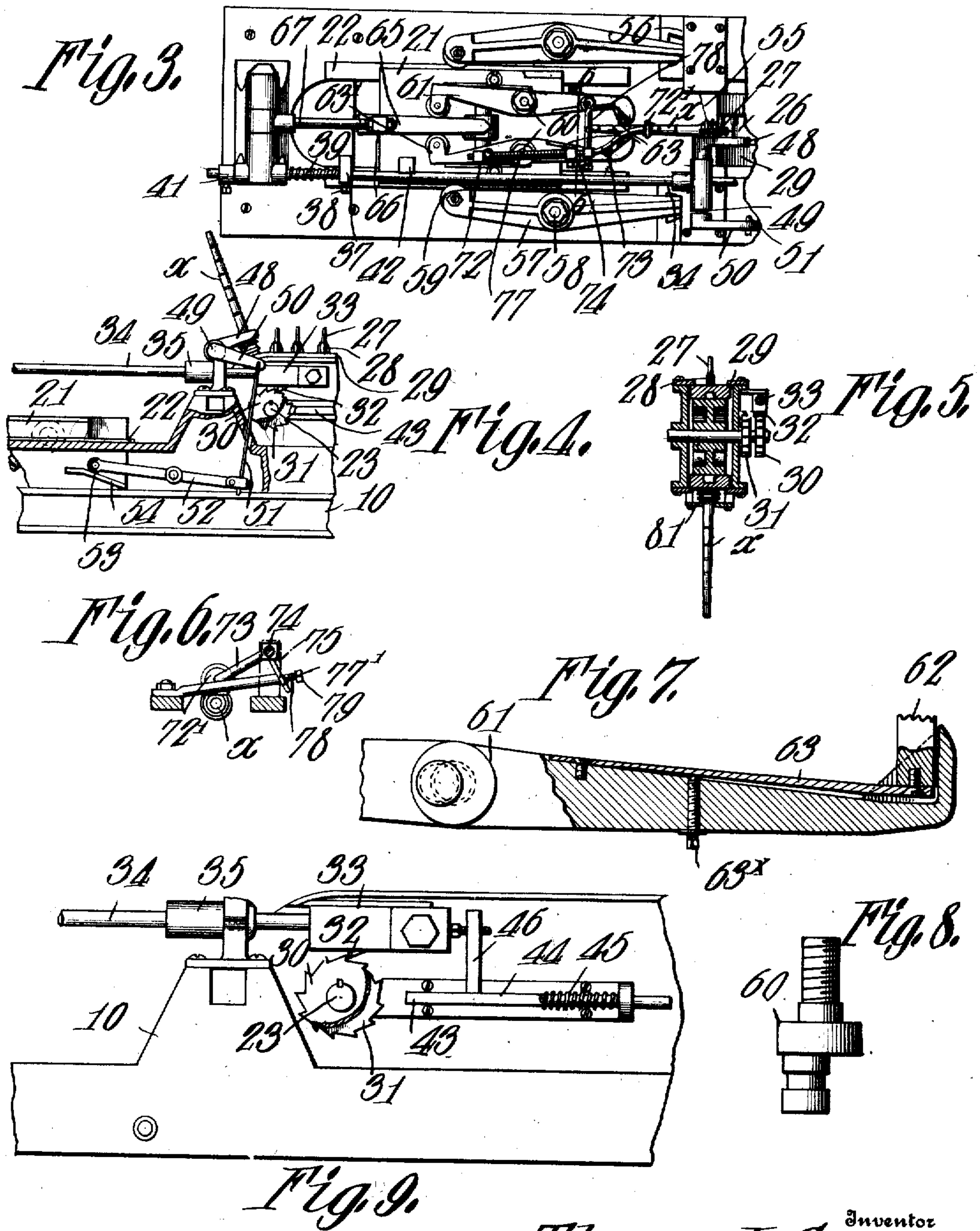
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 Attorneys



906,688.

T. L. CAMP.  
BOBBIN STRIPPER.  
APPLICATION FILED JAN. 11, 1908.

Patented Dec. 15, 1908.  
3 SHEETS—SHEET 2.



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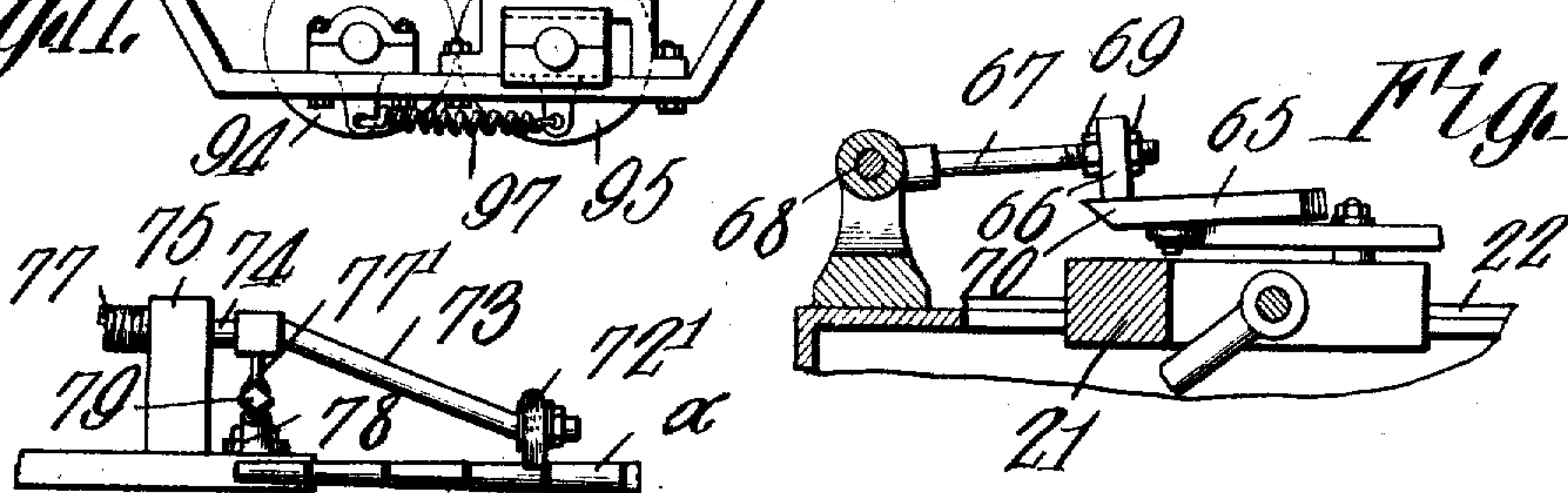
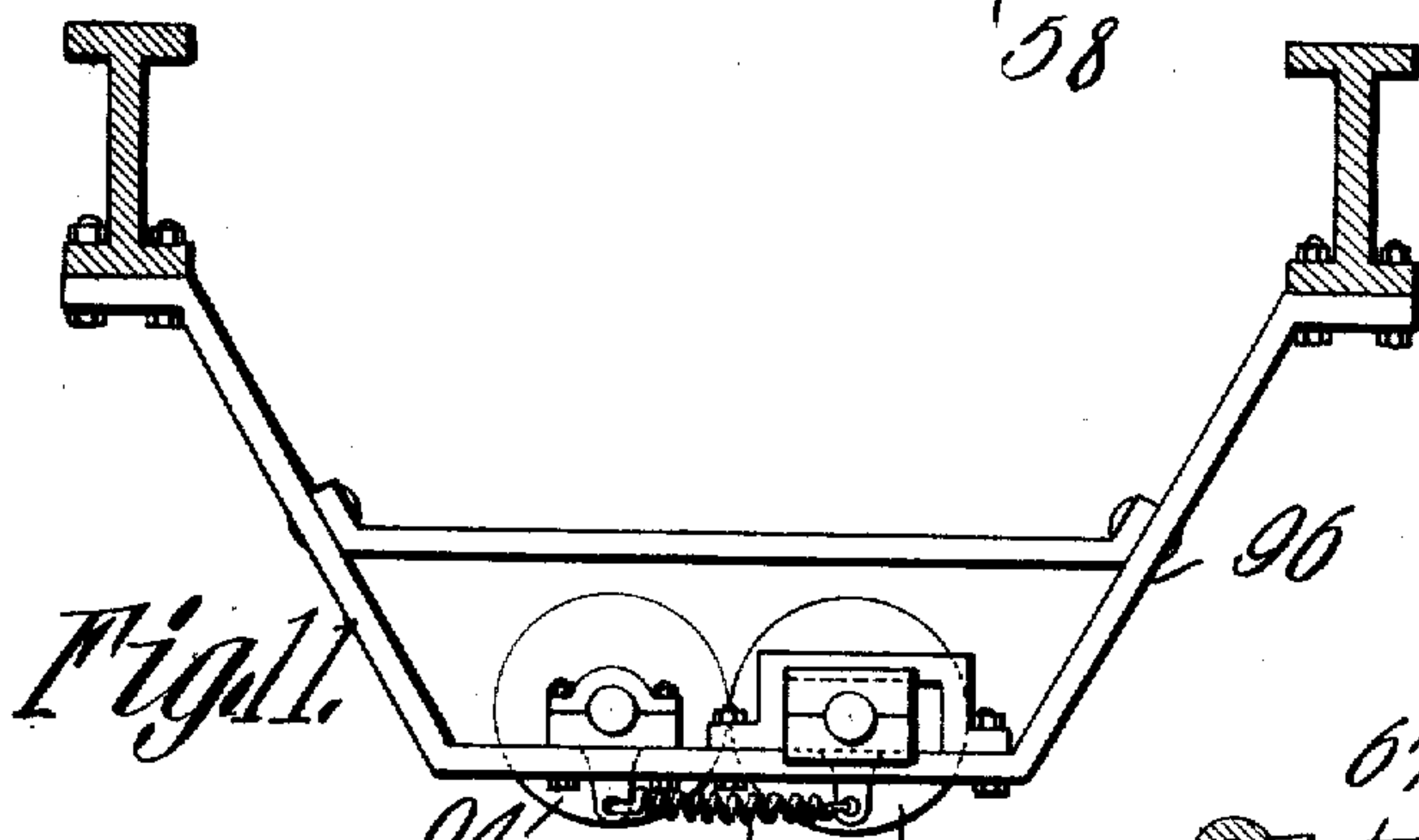
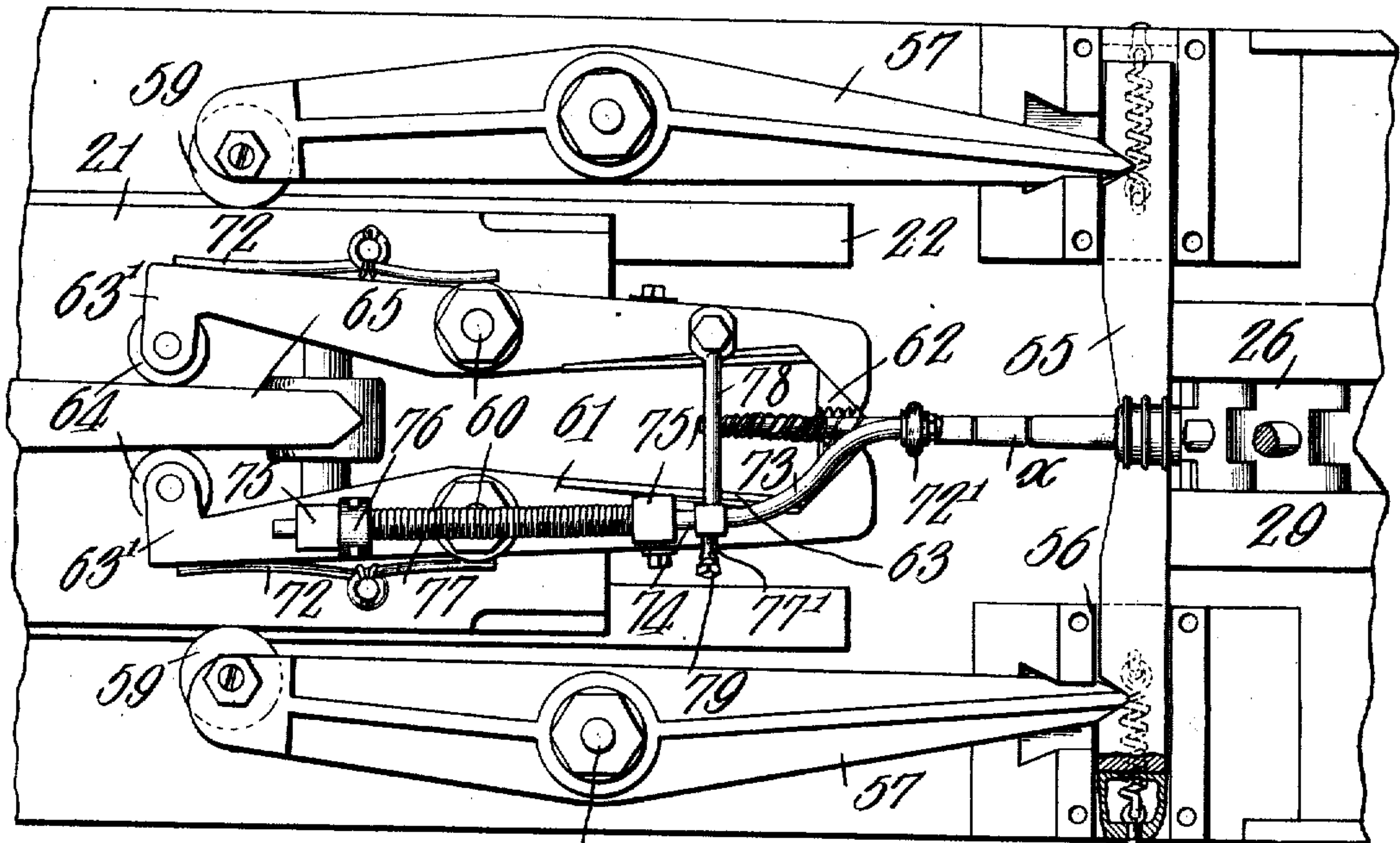
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# UNITED STATES PATENT OFFICE.

THOMAS L. CAMP, OF ATLANTA, GEORGIA.

## BOBBIN-STRIPPER.

No. 906,688.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed January 11, 1908. Serial No. 410,458.

*To all whom it may concern:*

Be it known that I, THOMAS L. CAMP, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Bobbin-Stripper, of which the following is a specification.

This invention relates to machines of that class employed for stripping bobbins or quills. As the quills are removed from the loom shuttles, a small quantity of yarn frequently remains in position, and it becomes necessary to strip this yarn from the bobbin or quill before rewinding.

The principal object of the present invention is to provide a machine which will readily and in a novel manner remove the yarn from the bobbins or quills without injury to the latter.

A further object of the invention is to provide an automatic stripping machine in which the stripping members are arranged to exert the same force on the bobbin from one end to the other, provision being made for compensating for the gradual taper from the heel to the tip of the bobbin.

A further object of the invention is to provide a machine embodying a number of spindles mounted on an endless belt and arranged to receive the bobbins and carry the latter to position in alinement with the stripping mechanism.

A still further object of the invention is to provide means for temporarily engaging and locking the butt or heel ends of the bobbins during the stripping operation.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a longitudinal sectional elevation of a bobbin stripping machine constructed in accordance with the invention. Fig. 2 is a plan view of the machine. Fig. 3 is a plan view of a portion of the machine showing the parts in different position. Fig. 4 is a vertical sec-

tional view on the line 4—4 of Fig. 2. Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 1. Fig. 6 is a transverse section on the line 6—6 of Fig. 3. Fig. 7 is a detail sectional view on an enlarged scale of the head of one of the stripping members. Fig. 8 is a detail view of the eccentric pivot on which each of the stripper levers is mounted. Fig. 9 is a side elevation on an enlarged scale of the mechanism for effecting step by step movement of the endless bobbing carrier. Fig. 10 is a plan view, on an enlarged scale, similar to Fig. 3, but partly broken away to show certain parts concealed from view in the latter figure. Fig. 11 is an end elevation of a portion of the apparatus, looking in the direction of the arrow in Fig. 1. Fig. 12 is a fragmentary detail view, partly in section, of a portion of the spreader tongue and certain mechanism coacting therewith. Fig. 13 is a similar view of the brush.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The working parts of the machine are supported on a suitable frame 10 that is provided with bearings for the reception of a main shaft 11, on which are fast and loose belt wheels 12, and adjacent to these belt wheels is a shifter fork 13 that is under the control of a rod 14 running alongside the machine, so that the operator may readily shift the belt from one wheel to the other to start or stop the machine. Mounted above the shaft 11 is a second shaft 15, carrying a gear 17 intermeshing with a pinion 18 on the main shaft, and the gear 17 is provided with a crank pin 19 that is connected by a rod 20 to a cross head 21 that is arranged to reciprocate on suitable guideways 22 carried by the frame.

Arranged at one end of the machine are bearings for a pair of transversely disposed shafts 23 and 24, carrying sprocket wheels 25, over which passes a link belt 26, and this link belt carries spindles 27 that are arranged for the reception of the bobbins or quills. In order to hold the bobbin or quill in position, each spindle is preferably provided with a pair of small leaf springs 28 that frictionally bind against the wall of the central opening in the bobbin. The opposite edges of the links which form the belt 26 extend into guideways 29 which may be formed of



sheet metal, these guideways serving further to prevent the entrance of yarn or lint within the belt.

At one end of the shaft 23 are secured two  
5 ratchet wheels 30 and 31 having teeth of an equal number, the teeth of one ratchet wheel facing in a direction opposite to that of the teeth of the other wheel. The teeth of the outer ratchet wheel 30 are engaged by a piv-  
10 oted pawl 32 carried by a block 33, that is disposed at one end of a slidable rod 34, the opposite ends of which are guided through openings formed in brackets 35 and 36 carried by the frame. Near the rear end of the  
15 rod is a collar 37 which may be adjusted lengthwise of the rod and locked in position by a set screw 38. Between this collar and the bracket 36 the rod is held by a helical compression spring 39 that tends to force the  
20 rod in the direction of the ratchet wheel, the extent of movement being limited by an adjustable collar 41 that is secured to the extreme rear end of the rod beyond the bracket 36. The collar 37 is disposed in the path of  
25 movement of a finger 42 that is carried by the cross head 21, and each time the cross head moves rearward, the finger will engage this collar and move the rod in the direction of its length for the purpose of imparting  
30 movement to the ratchet wheel, the wheel 30 being turned to the extent of a single tooth and advancing the link belt 26 to a corresponding extent, that is to say, to present another bobbin into position to be acted  
35 upon by the stripping mechanism.

The inner ratchet wheel 31 is engaged by a pawl 43 carried by a slidable rod 44 and normally urged into engagement with the ratchet wheel by a spring 45. The rod 44  
40 has an upwardly extending lug 46 that is disposed in the path of movement of the block 33, so that when the block 32 moves forward under the expansive force exerted by the spring 39 the pawl 43 will be moved out  
45 of engagement with the ratchet wheel 31. When the block 33 moves in the opposite direction for the purpose of imparting rotative movement to the ratchet wheel 30, the pawl 43 is allowed to move forward into engage-  
50 ment with the teeth of the ratchet wheel 31 and will be in a position to act as a stop for limiting the rotative movement of the shaft after the latter has been moved to the desired extent.

55 The stripping devices, as will hereinafter appear, operate in the horizontal plane of the axes of the shafts 23 and 24, and in order to insure proper positioning of the bobbins on their carrying spindles, an arm 48 is employed to engage with the enlarged butt  
60 ends of the bobbins and press the same down firmly on the spindles before the latter reach the stripping point.

The arm 48 is carried by a rock shaft 49  
65 that is journaled in the upper portion of the

bracket 35, and at the outer end of said shaft is secured an arm 50 that is connected by a link 51 to one end of a lever 52. The opposite end of the lever carries an anti-friction roller 53 that is arranged to be engaged by  
70 an inclined cam 54 at the front end of the cross head, so that as the latter moves forward, the arm 48 will be moved down and will engage with the butt end of the bobbin and force the same firmly on to the spindle. 75

In order to clamp and hold the bobbin during the operation of the strippers, a pair of clamping slides 55 are mounted in transversely disposed guides 56, these slides being  
80 disposed at diametrically opposite points with respect to the axis of the bobbin and serving to engage with the enlarged butt end of the bobbin and firmly grip the same. The slides are connected to the inner ends of a pair of levers 57 that are pivoted on pins 58  
85 carried by the frame, and at the rear ends of said levers are anti-friction rollers 59 which are arranged to be engaged by the opposite sides of the cross head or slide 21, as the latter moves forward, so that the gripping  
90 members will be moved inward to engage and hold the bobbin in place before the strippers arrive at operative position.

Projecting from the upper face of the cross bar or slide 21 are eccentric pins 60 of  
95 the construction best shown in Fig. 8, and on these pins are mounted stripper levers 61, so that the pins may be turned for adjusting the distance on the stripper levers from each other. The inner ends of said levers are  
100 provided with recesses for the reception of stripper blocks 62 that may be formed of brass or other soft metal in order to prevent injury to the bobbin or quill. These stripper blocks are pressed inward by small leaf  
105 springs 63 that are secured to the outer faces of the levers 61, and said springs may be adjusted by set screws 65 as shown in Fig. 7.

The rear ends of the levers 61 are provided with intumed arms 63', and these arms carry  
110 small anti-friction rollers 64 that are arranged to engage with a spreader tongue 65, the tongue being provided with walls that are tapered at an angle corresponding to the taper of the bobbin. The extreme forward  
115 end of the tongue 65 is tapered to a sharp point to effect the preliminary spreading of the rear ends of the levers, and the movement of the stripper block ends of said levers into engagement with the bobbin. This  
120 tongue is provided with an upwardly extending lug 66 having an opening for the passage of a rod 67, that is pivoted on a pin 68 carried by the bracket 36, and the pin 67 is threaded and provided with nuts 69, which  
125 engage the opposite sides of the lug 66 in order to hold the tongue in any position to which it may be adjusted. The rear end of the tongue is provided with a tapered wall  
70, under which the anti-friction rollers 64 130



pass when the cross head or slide reaches the limit of its rearward movement, and when the anti-friction rollers arrive at this point, the rollers move inward under the inclined face and lift the tongue up to an inclined position, so that the two rollers may move into engagement with each other, and thus spread the opposite ends of the tongues, so that the stripper blocks will remain in spaced relation until the completion of the next forward movement of the cross head and the arrival of the stripper blocks at the proper point for engagement with another bobbin. The rear ends of the levers 61 are engaged by springs 72, that tend to force them together, and the levers are spread apart as before described by the entrance of the tongue 65 between the two rollers 64.

During the operation of the machine as thus far described, the parts being in the position illustrated in Figs. 1 and 2, the cross head of the slide is ready to move back and the gripping levers 57 have moved the grippers 55 into engagement with the butt end of a bobbin, clamping the same in readiness for a stripping operation. As the cross head or slide moves back, the rollers 64 will ride against the pointed end of the tongue 65, and the rear ends of the levers will be spread, bringing their forward ends against the larger portion of the bobbin to be stripped. The clamping block 62 will be forced into engagement with the opposite sides of the bobbin and yieldably held thereagainst by the springs 63. As the rearward movement of the slide progresses, the rollers traveling on the tapered tongue 65 will be spread gradually apart, inasmuch as the taper of the tongue corresponds to the taper of the bobbin or quills, so that the force exerted by the block 62 on the bobbin will be precisely the same throughout the entire movement. The stripper blocks will engage with and remove any yarn or thread that may remain on the bobbin, and after they have passed beyond the tip of the bobbin, the rollers will have passed beyond the ends 70 of the tongue 65. As the rear end 70 of the tongue is inclined, the rollers 64 in passing thereunder will move the tongue up to an inclined position, until the rollers are brought into engagement with each other. During the next forward movement, the tongue will rest on these rollers, until the rollers have moved to a position beyond the pointed end of the tongue, and will drop into the plane of the rollers and remain in position to spread the latter at the next return movement.

In order to remove the thread or yarn which may cling to the bobbin after the passage of the strippers, a brush 72 is employed, said brush operating on the upper surface of the bobbin at a point somewhat to the rear of the stripper blocks. This brush is carried by the cranked end 73 of a rock shaft 74 that is

journaled in blocks 75 carried by one of the levers 61. The shaft 74 is provided with a collar 76, to which is secured one end of a torsion spring 77, the opposite end of said spring being secured to one of the stationary blocks 75. This spring tends to turn the rock shaft and move the cranked end of the same down in order to bring the brush into engagement with the bobbin. Depending from the rock shaft is an arm 77 having an opening for the passage of the reduced end of a finger 78 that is carried by the opposite lever 61. This reduced end 78 is threaded and receives a nut 79 that bears against the outer face of the arm 77, and the nut is so adjusted that when the stripper head ends of the levers are in spaced relation, as illustrated in Fig. 2, the arm will be drawn over, and the shaft rocked in order to raise the brush 72. When the levers are forced together by the action of the tongue 65, the reduced end of the finger 78 rides through an opening in the arm 77, and the torsion spring then acts to turn the rock shaft and hold the brush 72 yieldably in engagement with the bobbin, the brush remaining in engagement with the bobbin during the entire stripping movement of the slide, and serving to remove any yarn or thread that may cling to the bobbin after the passage of the stripper blocks.

When the cross head moves to its extreme rear position, it passes from engagement with the anti-friction rollers 59, and the clamping blocks 55 are then moved from engagement with the bobbin and immediately thereafter the finger 42 comes into engagement with the collar 37, and feeding movement is imparted through the pawl 32 and ratchet wheel 30 to the shaft 23. The link belt is thus advanced another step, and the clean bobbin is moved away from the stripping position, and another bobbin is moved to stripping position. The clean bobbin moves downward and its butt end passes between and is supported by a pair of strips 81 which extend parallel with the lower run of the link belt, the bobbin being supported in this manner until it reaches the ends of the strips 81. The bobbins are removed by a fixed tongue 82 carried by the frame and arranged to engage the extreme ends of the bobbins and force the same down from the spindles, the bobbins falling into any suitable receptacle.

In order to remove any particles of lint that may cling to the bobbins after the stripping operation, a pair of brushes 83 are employed, these brushes being formed of blocks or strips of felt or other suitable material that are carried by the approximately horizontal arms 84 of levers 85, that are carried by a transverse shaft 86. To the shaft 86 is secured a rocker arm 87 that is connected by a pitman 88 to a crank pin 89 on a disk 90. The disk 90 is carried by a shaft 91 driven by a belt 92 from the main shaft 11,



so that the brush will be swung frictionally in contact with the bobbins and any particles of yarn or lint which may cling thereto will be removed.

5 In order to discharge the yarn and lint, a pair of rollers 94 and 95 are employed. These rollers are carried by hangers 96, and the shaft of the roller 95 is yieldably held by springs 97 so that the roller 95 may move  
10 upward slightly from the roller 94 in order to permit the passage of knots or bunches of yarn. The two rollers are connected together at one end by gears 98. At the rear  
15 end of the shaft of roller 94 is a miter gear 99 that intermeshes with a miter gear 100 on the shaft 91, so that the rollers are positively driven and any yarn or lint that falls from the strippers, or is in any manner removed  
20 may be discharged into a suitable receptacle.

I claim:

1. In a bobbin stripping machine, a bobbin holder, a plurality of strippers arranged to engage the bobbin, means for moving said  
25 strippers longitudinally of the bobbin, and a stripper guide tapered to correspond to the shape of the bobbin.

2. In a bobbin stripping machine, a bobbin holder, a pair of stripping members arranged to engage the bobbin, means for moving said stripping members longitudinally of  
30 the bobbin, and a stationary tapered guide arranged to gradually force the stripping members toward each other to compensate for the gradual decrease in diameter of the  
35 bobbin from the base to the tip.

3. In a bobbin stripping machine, a bobbin holder, a reciprocatory slide, a pair of levers pivoted thereto, stripping members  
40 arranged at one end of said levers, and a stationary tapered tongue arranged to engage and spread the opposite ends of said levers, the taper of the tongue corresponding to that of the bobbin.

4. In a bobbin stripping machine, a bobbin holder, a reciprocatory slide, a pair of levers pivoted thereto, bobbin engaging  
45 members at one end of said levers, a tapered tongue with which the opposite ends of the levers engage, the tongue being tapered to correspond to the taper of the bobbin, and  
50 means for holding the ends of the levers in engagement with said tongue.

5. In a bobbin stripping machine, a bobbin holder, a reciprocatory slide, a pair of levers pivoted thereto, stripping blocks yieldably supported at one end of the levers and  
55 arranged to engage the bobbin, anti-friction rollers disposed at the opposite ends of the levers, and a tapered tongue with which said anti-friction rollers engage in order to move  
60 the stripper blocks into engagement with the bobbin.

6. In a bobbin stripping machine, a bobbin holder, a reciprocatory slide, a pair of

levers pivoted thereto, and having recessed heads, yieldable stripper blocks mounted in said heads, springs tending to force the blocks into engagement with the bobbin, anti-friction rollers arranged at the opposite ends of  
70 said levers, and a pivotally mounted spreading tongue with which said anti-friction rollers engage, the rear end of the tongue being inclined to permit inward movement of the anti-friction rollers, and the raising of the  
75 tongue at the completion of the rearward movement of the slide.

7. In a bobbin stripping machine, a bobbin holder, a reciprocatory slide, a pair of levers pivoted thereto and having recessed  
80 heads at one end, yieldable blocks mounted in said heads and arranged to engage the bobbin, leaf springs carried by the levers and bearing against said blocks, a pivotally mounted tapered tongue with which the rear  
85 ends of said levers engage, the rear end of the tongue being tapered or inclined to permit inward movement of the levers and the raising of the tongue at the completion of the rearward movement of the slide, and springs  
90 carried by the slide and tending to force the rear ends of the levers into contact with the tongue.

8. In a bobbin stripping machine, a bobbin holder, stripping members arranged to  
95 engage the bobbin, and a cleaning brush movable with the stripping members and engaging the bobbin at the rear of said stripping members.

9. In a bobbin stripping machine, stripping members, and an auxiliary cleaning device arranged to engage the bobbin to the rear of the stripper.

10. In combination, a bobbin stripping member, and a brush operating in the rear of  
105 said member to remove particles of lint or thread clinging to the bobbin.

11. In combination, a reciprocatory bobbin stripper, and a cleaning brush carried thereby and engaging the bobbin to the rear  
110 of the stripper.

12. In combination, a bobbin holder, a reciprocatory slide, a pair of levers pivoted thereto, stripping blocks carried by said levers, a rock shaft mounted on one of the levers  
115 and provided with a cranked portion, a brush carried by the cranked portion of the shaft, a spring surrounding said shaft and tending to move the brush into engagement with the bobbin, and means operable from  
120 the opposite lever for controlling the rocking movement of said shaft.

13. In a bobbin stripping machine, a bobbin holder, a reciprocatory slide, a pair of stripper levers carried thereby, a rock shaft  
125 journaled on one of said levers, a spring tending to turn the shaft, a brush supported by the shaft and movable by the spring into engagement with the bobbin, an arm depending from the shaft, a finger extending from the  
130



opposite lever and passing through an opening in said arm, and an adjustable nut carried by the finger and arranged to engage said arm.

14. In a bobbin stripping machine, a link belt, a plurality of bobbin receiving spindles carried thereby, a bobbin stripping means, mechanism for imparting a step by step movement to the belt, and means for locking the spindles consecutively in alinement with the stripping mechanism.

15. In combination, a link belt, a plurality of bobbin receiving spindles carried thereby, a stripping mechanism, means for imparting a step by step movement to the belt to present the spindles successively in alinement with the stripping mechanism, and clamping members arranged to engage and hold the bobbin in stripping position.

16. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, a stripping mechanism, means for imparting a step by step movement to the belt to present the spindles successively in alinement with the stripping mechanism, a pair of bobbin clamps for holding the bobbin in stripping position, and means operable by the stripping mechanism for moving said clamps.

17. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, a ratchet wheel connected to the belt, a pawl engaging said ratchet wheel, a reciprocatory stripping mechanism arranged to actuate said pawl, and a bobbin clamping means operable by said stripping mechanism.

18. In combination, an endless belt, a plurality of bobbin receiving spindles supported thereby, sprocket wheels over which said belt passes, shafts carrying said sprocket wheels, a ratchet wheel on one of said shafts, a pawl engaging said ratchet wheel, a reciprocatory stripping device, a finger projecting therefrom, and a spring actuated rod carrying the pawl and arranged to be engaged by said finger.

19. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, sprocket wheels supporting the belt, shafts carrying said sprocket wheels, a pair of ratchet wheels arranged on one of the shafts and having their teeth facing in opposite directions, respectively, a reciprocatory stripping mechanism, a pawl engaging one of the ratchet wheels and operable from said stripping mechanism, and a locking pawl arranged to engage the other ratchet wheel and stop the belt at the completion of each of its movements.

20. In combination, an endless belt, a plu-

rality of bobbin receiving spindles carried thereby, a pair of sprocket wheels supporting the belt, shafts carrying said sprocket wheels, a pair of ratchet wheels on one of said shafts, the teeth of such ratchet wheels facing in opposite directions, respectively, a pawl engaging one of said ratchet wheels, a reciprocatory stripping mechanism for moving said pawl, and a locking pawl engaging the other ratchet wheel.

21. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, means for actuating the belt, a stripping mechanism, and means engaging the bobbins in advance of the stripping mechanism for forcing said bobbins down on to the spindles.

22. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, a reciprocatory slide, stripping mechanism carried thereby, means for actuating the belt, a bobbin depressing finger, a shaft carrying the same, an arm on said shaft, a pivoted lever having one end connected to the arm, and a cam arranged on the slide and arranged to engage the opposite end of said lever.

23. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, a reciprocatory stripping mechanism, means for supporting the bobbins on the spindles after they pass beyond the stripping mechanism, and a pair of cleaning brushes arranged to engage said bobbins after the stripping operation.

24. In combination, an endless belt, a plurality of bobbin receiving spindles carried thereby, means for actuating the belt, a pair of spaced guide plates arranged to hold the bobbins on the spindles while passing over the lower run of the belt, a stripping mechanism, a pair of pivoted levers, brushes carried thereby and arranged to engage the bobbins after they pass beyond the stripping point, and means for actuating said levers.

25. In combination, an endless belt, a plurality of bobbin receiving spindles supported thereby, a stripping mechanism, means actuating the belt, means for retaining the bobbins in position on the spindles, and a discharging finger arranged to engage the empty and clean bobbins and force the same from the spindles.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

THOMAS L. CAMP.

Witnesses:

J. A. CAMP,

THOS. J. EUBANKS.