

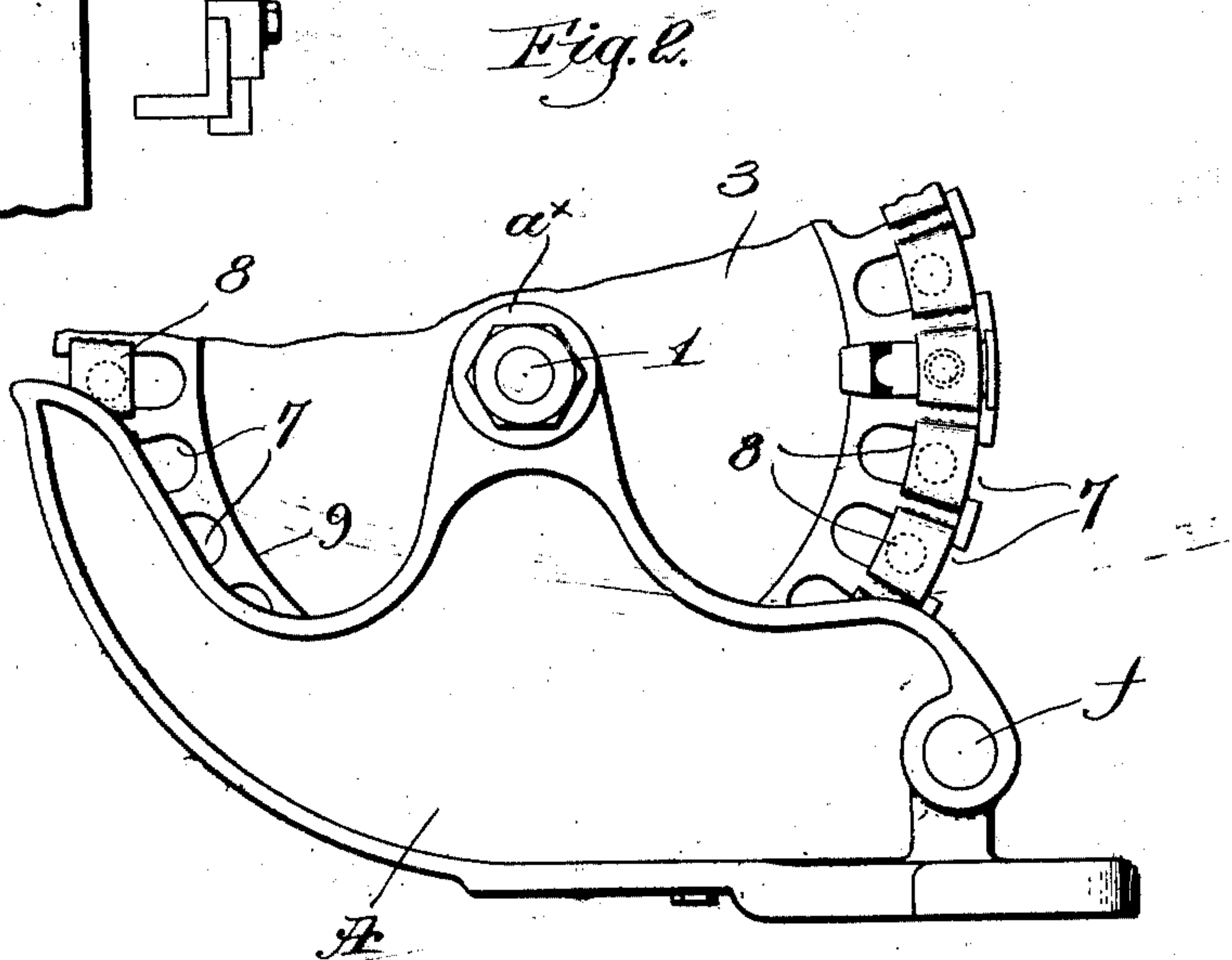
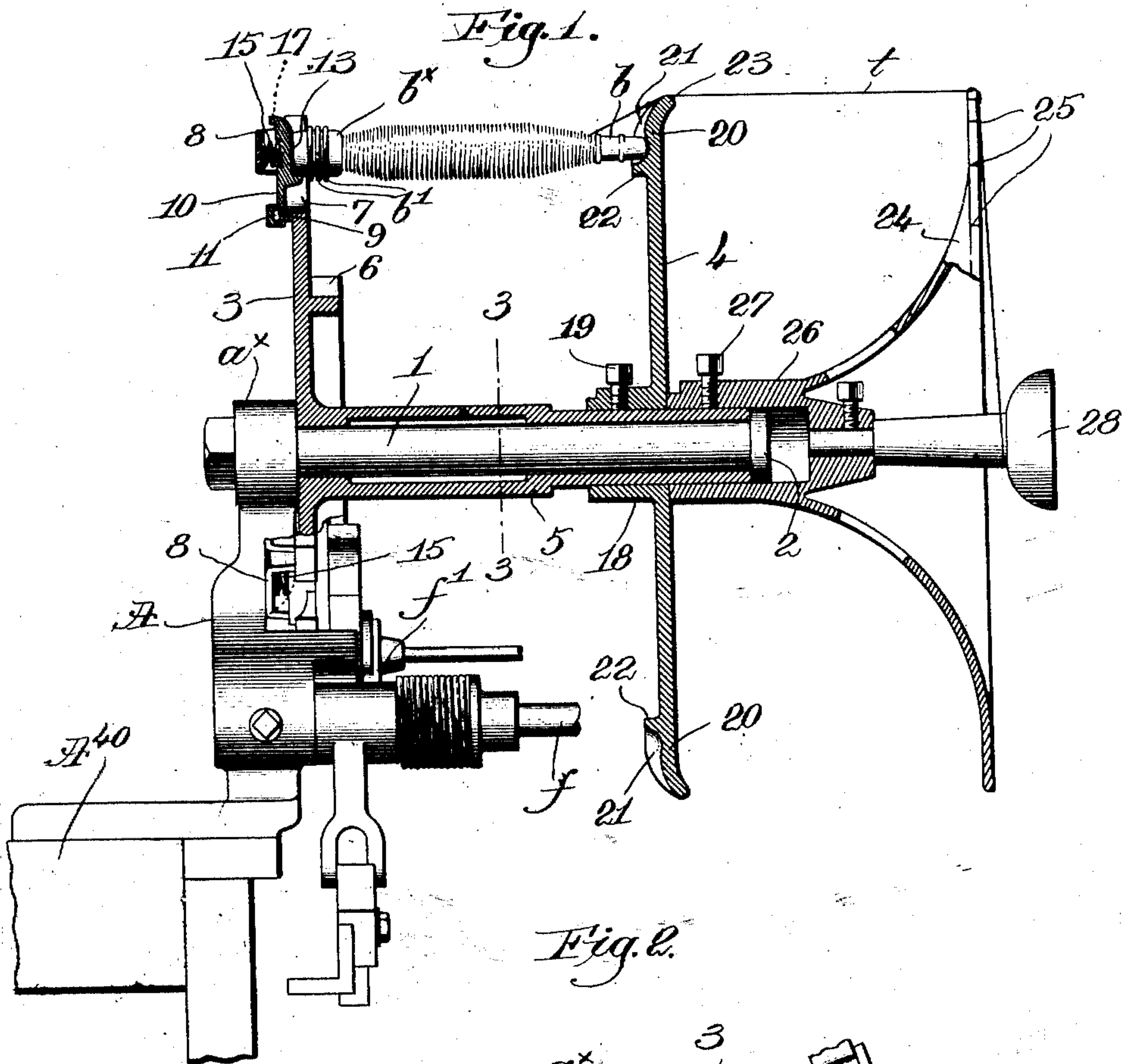
No. 888,686.

PATENTED OCT. 15, 1907.

E. S. STIMPSON.  
FILLING FEEDER FOR FILLING REPLENISHING LOOMS.

APPLICATION FILED MAR. 30, 1907.

2 SHEETS—SHEET 1.



Witnesses.  
*Thomas Drummond*  
*Joseph M. Ward.*

Inventor.  
*Edward S. Stimpson,*  
*by Lewis H. Rogers*

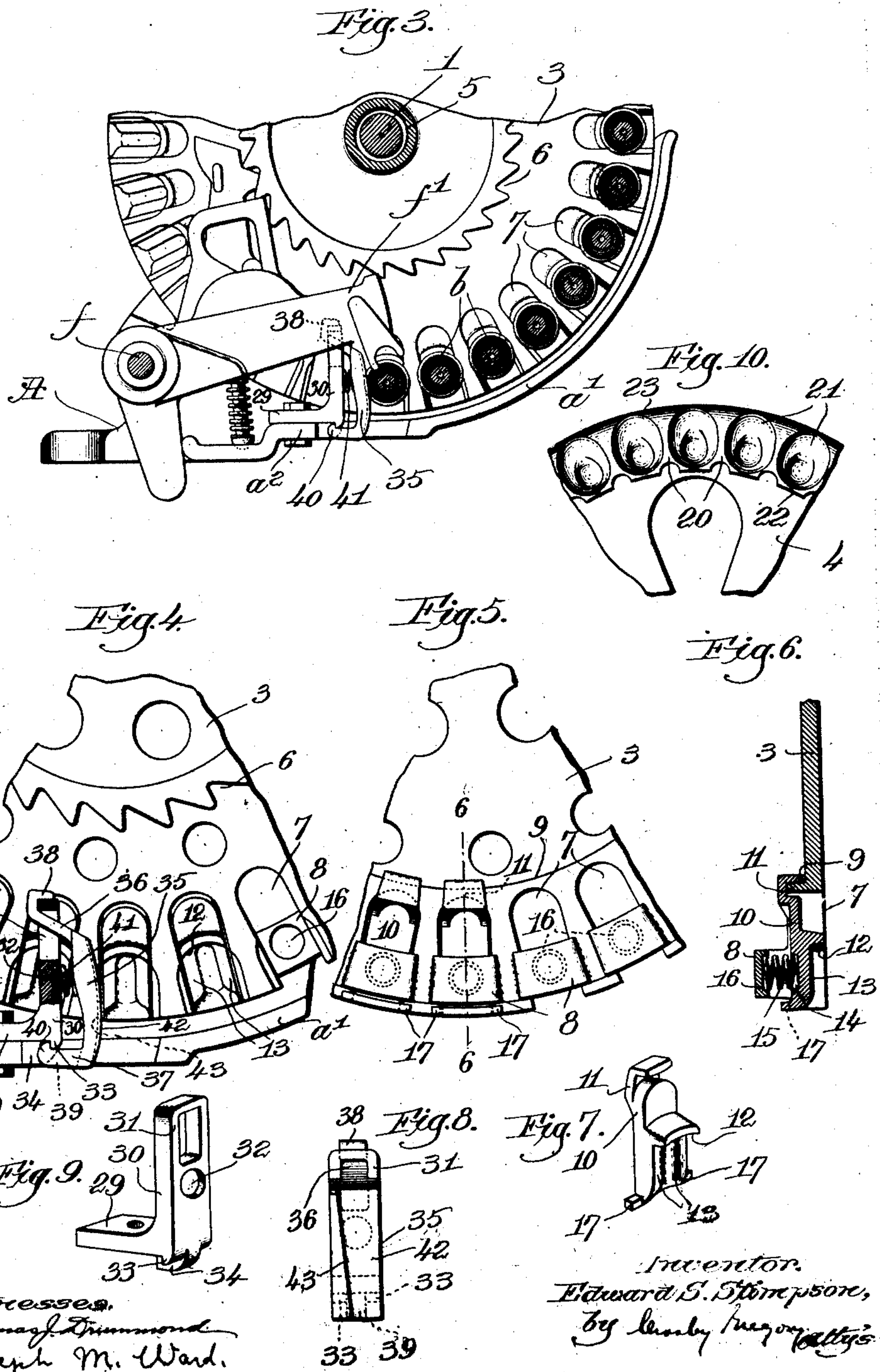
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Witnesses.  
Thomas J. Drummond  
Joseph M. Ward.

Inventor.  
Edward S. Stimpson,  
by Lemly H. H. H. H. H.



# UNITED STATES PATENT OFFICE.

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OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

## FILLING-FEEDER FOR FILLING-REPLENISHING LOOMS.

No. 868,586.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed March 30, 1907. Serial No. 365,439.

To all whom it may concern:

Be it known that I, EDWARD S. STIMPSON, a citizen of the United States, residing in Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Filling-Feeders for Filling-Replenishing Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

10 This invention relates to looms wherein the running shuttle is automatically replenished with filling by the insertion therein of a fresh filling-carrier or bobbin when occasion demands, the filling-carriers in reserve being held in a suitable magazine or feeder, from which they are transferred or removed one by one to the running shuttle.

15 My present invention has for its object the production of novel and improved means for holding the reserve supply of filling-carriers.

20 One of the novel features of my invention comprehends the means for holding the tips of the filling-carriers in the filling-feeder so that there is nothing to catch or interfere with the filling-ends, led from the tips of the filling-carriers to a suitable end-holder.

25 Another novel feature of the invention is the means for holding the butts of the filling-carriers in proper position and preventing the turning of the same upon their axes, thereby preventing any tendency of the filling to unduly tighten or loosen in the feeder.

30 I have also devised a novel and efficient support or abutment for the leading filling-carrier of the series in the feeder, said abutment guiding the filling-carrier at the time of transfer and being so mounted that it may yield in practically any direction toward the front of the loom, to accommodate itself to slight irregularities in the butt of the filling-carrier or the rings thereon, but the abutment has no sidewise movement.

35 The abutment maintains an even pressure on the filling-carrier both in the feeder and during its transfer therefrom.

40 These and other novel features of construction will be fully described in the subjoined specification and particularly pointed out in the following claims.

45 Figure 1 is a front elevation and vertical section of a filling-feeder embodying one form of my present invention, the stand on which the feeder is rotatably mounted being shown in elevation; Fig. 2 is an inner end elevation of the stand and a portion of the adjacent plate of the feeder; Fig. 3 is a transverse sectional view on the line 3—3, Fig. 1, looking toward the left; Fig. 4 is an enlarged detail of the lower part of the mechanism shown in Fig. 3, to more clearly show the abutment and the seat therefor; Fig. 5 is a detail of the opposite face of the plate of the feeder shown in Figs. 3 and 4; Fig. 6 is a sectional detail on the line 6—6, Fig.

5. taken through one of the butt-holders; Fig. 7 is a perspective view of one of the butt-holders; Fig. 8 is a rear face view of the abutment and the seat therefor; Fig. 9 is a perspective view of the abutment seat; Fig. 10 is an enlarged detail of the inner face of the tip-sustaining plate of the feeder, showing the tip-receiving sockets or seats.

Referring to Figs. 1, 2 and 3 the stand A, mounted on the breast-beam A<sup>40</sup> of the loom, and the stud f fast in the stand and having mounted thereon the transferer f' to remove the filling-carriers one by one from the feeder to the running shuttle, said stand A having at its lower part a curved flange a', are all substantially well known in the art, and are similar to the structure shown in United States Patent No. 834,945 granted to me November 6, 1906.

An elongated stud 1, headed at its outer end at 2, Fig. 1, is fixedly held in the stand A and extends therefrom horizontally, the filling-feeder being rotatably mounted on the stud and advanced or rotated step by step by well known means and forming no part of my present invention.

The feeder comprises two plates 3, 4 connected to rotate together, the inner plate 3 having an elongated sleeve-like hub 5 extending from the plate to the head 2, the latter and the hub-like portion a<sup>x</sup> of the stand A preventing endwise movement of the feeder on the stud.

Plate 3 has on its outer or right hand face, Fig. 1, an annular flange provided with ratchet teeth 6, clearly shown in Fig. 3, and the plate is provided with radial slots 7 extending to the periphery of the plate, each slot being crossed by a bridge or spring-seat 8 on the inner face of the plate, meaning the face nearer the stand A.

At the inner ends of the slots 7 the plate 3 is shaped to present an annular shoulder 9, for a purpose to be described, the slots being wide enough to receive therein the butts b<sup>x</sup> of the filling-carriers or bobbins b, one of the carriers being shown in position in Fig. 1, the usual annular projections or rings b' being shown on the butt of the filling-carrier.

Upon the plate 3 I mount a series of circularly-arranged butt-holders, one of which is shown separately in Fig. 7, comprising an elongated body 10 which is freely movable in one of the slots 7 and transversely grooved at its inner end at 11 to embrace and rock on the rib formed by the shoulder 9 and the adjacent inner end of a slot 7.

The outer end of the holder is shaped at 12 to present a substantially U-shaped pocket having a flattened bottom 13, the side walls of the slot 7 serving as sides for the pocket, and on the back of the holder directly behind the pocket is a socket 14, to receive one end of a coiled spring 15, the opposite end of the spring resting



in a recess 16, Fig. 6, in the spring-seat 8. The butt-holder is thus in a manner interposed between the spring-seat 8 and the plate 3, and is movable within one of the slots 7, rocking about the shoulder 9, the outer end 5 of the holder having lateral lugs 17 adapted to bear against the portions of the plate 3 between the slots 7.

If unopposed the spring 15 operates to press the butt-holder into the slot as far as it will go, such movement being limited by the stop-lugs 17 and the rocking connection at 9 of the inner end of the butt-holder with the plate.

The plate 4 at the outer end of the feeder has a short inturned hub 18 which slips onto the sleeve 5 and is held in adjusted position thereon by a set-screw 19, Fig. 1, so that the distance between the plates 3 and 4 may be varied to accommodate filling-carriers of different lengths.

The plate 4 is provided with tip-sustaining means, and herein I have shown the plate as peripherally thickened at 20, the thickened portion having a series of circularly-arranged cup-like depressions or seats 21 formed therein at the inner side of the plate, and by reference to Fig. 1 it will be seen that the part 20 is of greatest thickness toward the center of the plate. This provides a rather deep curved lip 22 at the inner end of each pocket, to radially support the tip of a filling-carrier, as shown in Fig. 1.

Owing to the relatively large size of the depressions or seats 21 it is unnecessary for the weaver to be particularly accurate in seating the tips when placing filling-carriers in the feeder, as the tip will naturally and readily seat itself properly when introduced to a depression.

As will be seen from Fig. 10 the tip-sustaining plate 4 has a continuous or unbroken circular edge or periphery 23, and there are no movable parts, springs or other devices adjacent thereto, so that there is nothing to catch or pinch the filling-end either before or during transfer of a filling-carrier from the feeder to the shuttle.

The filling-end *t*, Fig. 1, is led directly from the tip end of the filling-carrier over the continuous edge 23 of the plate 4 to the filling-end holder, to be referred to, and finds its own resting place on said plate. This economizes the time of the weaver very appreciably, first because there are no notches or recesses on the plate 4 to receive the filling-end, and secondly because the weaver does not have to decide which notch to use.

With feeders having filling guides or notches on the plate forming the outer end of the feeder it often happens in practice that the weavers use the wrong guides or notches, causing improper operation of the mechanism when a filling-carrier is transferred, such as mis-threading when the filling-carrier is inserted in the shuttle.

The end-holder is shown as a bell-shaped disk 24 having its periphery notched at 25, as usual, the hub 26 being clamped by a set-screw 27 onto the end of the sleeve-like hub 5, which extends beyond the plate 4, as shown in Fig. 1.

By loosening the set-screws 19 and 27 the plate 4 and the end-holder can be moved toward or away from the plate 3, to accommodate the particular length of the filling-carriers to be used, and the end-holder can be also adjusted independently of and with relation to the plate 4.

The filling-end *t* is led over the smooth edge of the plate 4 to and over the edge of the disk 24, being positioned thereon by a notch 25, and the end is brought to and wound around a stud 28 secured to the disk 24, as shown in Fig. 1.

From the foregoing description it will be clear that the tip-sustaining devices for the filling-carriers are fixed with relation to the plate 4, and hence relatively to the filling-feeder, and that the butt-holders are movably mounted on the feeder, and controlled by the springs 15.

A filling-carrier may be placed in the feeder by first inserting the tip into one of the depressions 21 and then the butt *b* is pushed into the open end of the pocket 12 of the opposite butt-holder, pushing the latter away from the plate 3 as the filling-carrier is finally positioned.

The spring 15 is located directly back of the longitudinal axis of the filling-carrier when positioned, and practically concentric with such axis, and when the carrier is in place the holder seats directly and wholly upon the butt end thereof, and not upon any part of the plate 3, as will be plain from Fig. 1. In other words the butt-holder is held away from its ordinary seat on the plate, with the result that the flat end of the butt comes in contact with the flattened bottom 13 of the pocket of the holder, the consequent firm frictional engagement acting to prevent any turning of the filling-carrier while in the feeder.

As the butt-holder is seated wholly upon the butt of the filling-carrier the pocket bottom is inevitably squarely against the end of the butt, at right angles to the axis of the carrier.

The butt-holder can rock about the shoulder 9 as a fulcrum when a filling-carrier is being positioned and thereafter the holder is moved bodily to unseat the bottom of the notch or groove 11 from the part of the plate 3 adjacent the shoulder.

I have herein provided a novel and efficient abutment for the leading filling-carrier of the series in the feeder, so sustained that it can yield in practically any direction toward the front of the loom, in order to accommodate itself to slight irregularities in the shape or size of the butts of the filling-carriers or the rings thereon.

Upon the shelf-like portion *a*<sup>2</sup> of the stand A I bolt the foot 29 of a substantially L-shaped seat having an upright body 30, clearly shown in Figs. 3, 4 and 9, made to present a loop 31 at its upper end and having a spring seat 32 in its face below the loop.

A transverse lip or ledge 33 is formed on the bottom of the body, which is also provided with a central depending fin 34, see Figs. 4 and 9.

The abutment is made as a casting having a body 35 provided with extensions 36, 37 at its upper and lower ends, the extension 36 being reduced in width to pass through the loop 31 and hooked at 38 to engage the top of the loop, which latter prevents lateral displacement of the abutment at its upper end. The extension 37 has a central notch 39 to straddle the fin 34 on the seat, and said extension is upturned to form hooks 40 which cooperate with the lips 33, a coiled spring 41 seated in the recess 32 acting against the body of the abutment to press it rearward, maintaining the hooks 38 and 40 in engagement with the adjacent portions of the seat, the hooks of the abut-



ment being slidably connected with the cooperating parts of the seat. At such time the abutment is positioned as shown in Figs. 3 and 4, the exposed face 42 of the abutment being slightly convexed from top to bottom and also having a diagonal rib or guide 43 thereon see Fig. 8, the guide being inclined toward the inner end of the filling-feeder.

The butt of the leading filling-carrier of the series in the feeder engages the abutment, as shown in Fig. 3, so that as the transferer  $f'$  is operated to remove such filling-carrier and insert it in the shuttle the abutment will guide and support the butt during transfer.

Owing to the location of the supporting spring 41 for the abutment the latter may tip or rock thereon, it may be moved forward bodily, or it may be governed by a combination of such movements, in order to adapt or accommodate itself to the butt and the rings as the latter slide over its convex face 42.

The abutment is easily removable in case of wear, and its spring acts thereupon to maintain an even pressure on the filling-carrier while in the feeder and also during transfer.

In practice the rings  $b'$  travel along the face 42 adjacent the diagonal guide 43, which latter directs the filling-carrier and causes each one when transferred to leave the feeder in the same position. That is, if a filling-carrier should be a little short, for instance, the rings would be nearer the plate 4 at the beginning of the transfer, but as they passed downward alongside of the guide 43 it would act to longitudinally move the filling-carrier slightly, toward the plate 3 of the feeder. By such arrangement the rings are always properly positioned to enter the shuttle as the filling-carrier passes beyond the lower end of the abutment, notwithstanding some slight accidental variations in the lengths of the filling-carriers.

My invention is not restricted to the precise construction and arrangement herein shown and described, as various changes or modifications may be made in different details by those skilled in the art without departing from the spirit and scope of my invention as set forth in the appended claims.

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

1. A filling-feeder comprising two connected plates, one of them having circularly-arranged seats to sustain the tips of a series of filling-carriers, a series of radially-disposed butt-holders, mounted on the other plate, opposite the series of seats, individual springs for said holders, each spring being located directly back of the butt of a filling-carrier when operatively positioned in the feeder, whereby the flat end of a filling-carrier contacts squarely with the holder and unseats it from the plate against the spring, preventing rotative movement of the filling-carrier, and means connecting the butt-holders and the plate while permitting movement of the holders upon their springs.

2. A rotatable filling-feeder having means to sustain the tips of a circularly-arranged series of filling-carriers, and a series of spring-controlled butt-holders mounted on the feeder and independently movable thereon, to engage and sustain the butts of the filling-carriers and press their tips against the tip-sustaining means, the butt-holders being seated wholly upon the flat ends of the filling-carriers when the latter are positioned in the feeder.

3. A filling-feeder comprising two connected plates one of which has a continuous, circular periphery over which the filling-end is led, means on said plate to sustain the

tips of a circularly-arranged series of filling-carriers, a series of butt-holders movably mounted on the other plate, to engage and sustain the butts of the filling-carriers, individual springs for the butt-holders, to retain them seated on the plate when empty and to permit unseating when engaged by the butt of a filling-carrier, a holder so engaged seating wholly upon the flat end of its filling-carrier and compressing the corresponding spring, and a filling-end holder adjacent the tip-supporting plate.

4. A filling-feeder having means to fixedly sustain the tips of a series of filling-carriers, and an oppositely arranged series of spring-controlled butt-holders to engage and sustain the butts of the filling-carriers.

5. A filling-feeder having means to fixedly sustain the tips of a series of filling-carriers, an oppositely arranged series of butt-holders to engage and sustain the butts of the filling-carriers, and an independent controlling spring for each butt-holder, acting thereupon directly in alignment with the longitudinal axis of a filling-carrier when engaged by a butt-holder.

6. A filling-feeder having means to fixedly sustain the tips of a series of filling-carriers, oppositely arranged butt-holders having pockets to receive and sustain the butts of the filling-carriers, springs acting upon the holders directly back of the pockets, to cause a firm-frictional contact between the end of a filling-carrier and its butt-holder and prevent rotation of the carrier, and means to limit movement of a butt-holder against its spring.

7. A filling-feeder, having means to sustain the tips of a series of filling-carriers, a series of butt-holders opposite the tip-sustaining means, a combined support and guide for and on which the butt-holders are mounted, a spring to press each holder inward and seat it on the support unless engaged by a filling-carrier, the latter at such time unseating the holder and supporting it against the pressure of its spring, and means to limit movement of a holder relative to the combined support and guide.

8. A rotatable filling-feeder having means to fixedly sustain the tips of a circularly-arranged series of filling-carriers, oppositely arranged butt-holders, to engage and sustain the butts of the filling-carriers, and a coiled spring cooperating with each butt-holder to press the same toward the tip-sustaining means and acting upon the holder concentric with the longitudinal axis of a filling-carrier held thereby.

9. A filling-feeder comprising a plate having a continuous, circular edge, and adapted to sustain the tips of a series of filling-carriers, a connected plate having oppositely arranged radial openings, butt-holders movably mounted on the plate within said openings, to receive and sustain the butts of the filling-carriers, springs to engage said holders directly back of the butt-engaging portions thereof and press the holders inward, and a filling-end holder on the feeder adjacent the tip-sustaining plate, the filling-ends being led over the continuous edge of the said plate to the end-holder.

10. A filling-feeder comprising a plate having a continuous circular edge and provided on its inner face with a circularly-arranged series of cup-like tip-sustaining sockets, a connected plate, a series of butt-holders movably mounted thereon opposite the sockets, to engage and sustain the butts of the filling-carriers, each holder having an open ended pocket, a controlling spring for and engaging each holder directly behind its pocket, means to limit in and out movement of the butt-holders relatively to their supporting plate, and means on the outer end of the feeder to hold the filling-ends led over the continuous edge of the tip-sustaining plate.

11. A filling-feeder comprising two rigidly connected plates, means on one plate and fixed with relation thereto to sustain the tips of a series of filling-carriers, and spring-controlled holders on the other plate to engage and sustain the butt-ends of the filling-carriers, each controlling spring acting upon its holder directly in the line of the axis of a filling-carrier.

12. A filling-feeder for looms, having means to sustain the tips of a series of filling-carriers, a series of butt-holders movably mounted on the feeder and each having a flat-bottomed pocket, to receive and sustain the butts of



the filling-carriers, and controlling springs acting on the holders directly back of the pockets, whereby when a filling-carrier is positioned the flat end thereof will rest squarely upon the pocket bottom, the holder at such time seating only on the filling-carrier and compressing the corresponding controlling spring.

13. A filling-feeder for looms, comprising two opposite plates one of which has an elongated, sleeve-like hub on which the other plate is adjustably mounted and beyond which said hub extends, means on said plates to engage and sustain the tips and butts of a series of circularly-arranged filling-carriers, a stand, a headed stud extended through the sleeve-like hub and fixedly secured to the stand, the feeder rotating on the stud, and a filling-end holder adjustably mounted on the outer projecting end of the sleeve-like hub.

14. A filling-feeder for looms, comprising a circular, tip-sustaining plate having a continuous periphery, a second plate having an elongated hub extended through and beyond the tip-sustaining plate, means to hold the latter plate in adjusted position on the hub, means on the second plate to engage and sustain the butts of a series of filling-carriers, a stand, a headed stud extended through the elongated hub and fixedly secured to the stand, and a filling-end holder having a hub adjustably mounted on the projecting outer end of the elongated hub, the head of the stud acting against the outer end of the hub and limiting outward movement of the feeder.

15. In a filling-feeder for looms, a plate having a series of radial slots, a spring-seat crossing each slot on the outer face of the plate, a butt-holder mounted in each slot between the plate and the spring-seat, to move in and out bodily relatively to the plate, each butt-holder having on its inner face an open-ended pocket with a flat bottom, to receive the butt of a filling-carrier with its end resting squarely upon the bottom of the pocket, and a spring interposed between each spring-seat and the adjacent holder and acting upon the latter directly back of the bottom of the pocket.

16. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an abutment against which rests the leading filling-carrier of the series, and a yielding support for and upon which the abutment can tip or move bodily as a filling-carrier is removed from the feeder, the yielding support engaging the abutment between its ends.

17. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an upright abutment and guide to cooperate with the butt of the leading filling-carrier, a fixed seat for said abutment, and a spring cooperating with the latter to normally maintain it seated yet permitting the abutment to move relatively to its seat when a filling-carrier is removed from the feeder.

18. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an abutment against which rests the leading filling-carrier of the series, a spring upon which the abutment can move to accommodate itself to the filling-carrier as it is removed from the feeder, and a fixed seat to cooperate with the abutment and normally position the same under the stress of the spring.

19. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an abutment against which rests the leading filling-carrier of the series, the abutment having on its face a diagonal guide to cooperate with rings on the butt of the filling-

carrier and accurately position the same as it leaves the feeder, and a yielding support for the abutment.

20. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, having rings on their butts, a yielding abutment to engage the butt of the leading filling-carrier of the series, and a diagonal guide on the face of the abutment, to cooperate with the rings and properly position the butt of the filling-carrier as it is removed from the feeder.

21. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an abutment for the leading filling-carrier, said abutment having forwardly extended hooks on its upper and lower ends, a fixed seat having lips to be detachably engaged by said hooks, and a spring interposed between the abutment and the seat and maintaining the abutment seated while permitting limited rocking or bodily movement thereof with relation to its seat.

22. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an abutment for the leading filling-carrier, a seat for the abutment, and a spring interposed between the seat and abutment to maintain them detachably connected while permitting movement of the abutment relative to the seat.

23. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, an abutment for the leading filling-carrier, the abutment having a narrow forward extension at its upper end terminating in a hook, a fixed seat having a loop through which the extension passes, the hook engaging the top of the loop, a sliding connection between the lower end of the abutment and the seat, and a spring acting upon the abutment to maintain it yieldingly in its operative position.

24. A filling-feeder comprising a plate having a continuous circular edge and provided on its inner face with a circularly-arranged series of cup-like tip-sustaining sockets, a connected plate, a series of butt-holders movably mounted thereon opposite the sockets to engage and sustain the butts of the filling-carriers, a controlling spring for and engaging each holder, and means on the outer end of the feeder to hold the filling-ends when led over the continuous edge of the tip-sustaining plate.

25. A rotatable filling-feeder having means to fixedly sustain the tips of a circularly-arranged series of filling-carriers, and an oppositely arranged series of spring-controlled butt-holders to engage and sustain the butts of the filling-carriers.

26. In a loom, a rotatable filling-feeder adapted to contain a circularly-arranged series of filling-carriers, and an abutment against which rests the leading filling-carrier of the series, said abutment having on its face a diagonal guide to cooperate with means on the butt of the filling-carrier and accurately position the same as it leaves the feeder.

27. A filling-feeder having means to sustain the tip end of a filling-carrier, and means for sustaining the butt end of a filling-carrier, including an end-holder, its seat and a spring for the holder acting thereupon in alignment with the longitudinal axis of the filling-carrier, to cause the end-holder to engage squarely with the flat end of the butt.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

EDWARD S. STIMPSON.

Witnesses:

CLARE HILL DEAPER,  
EUGENE BEAUDRY.