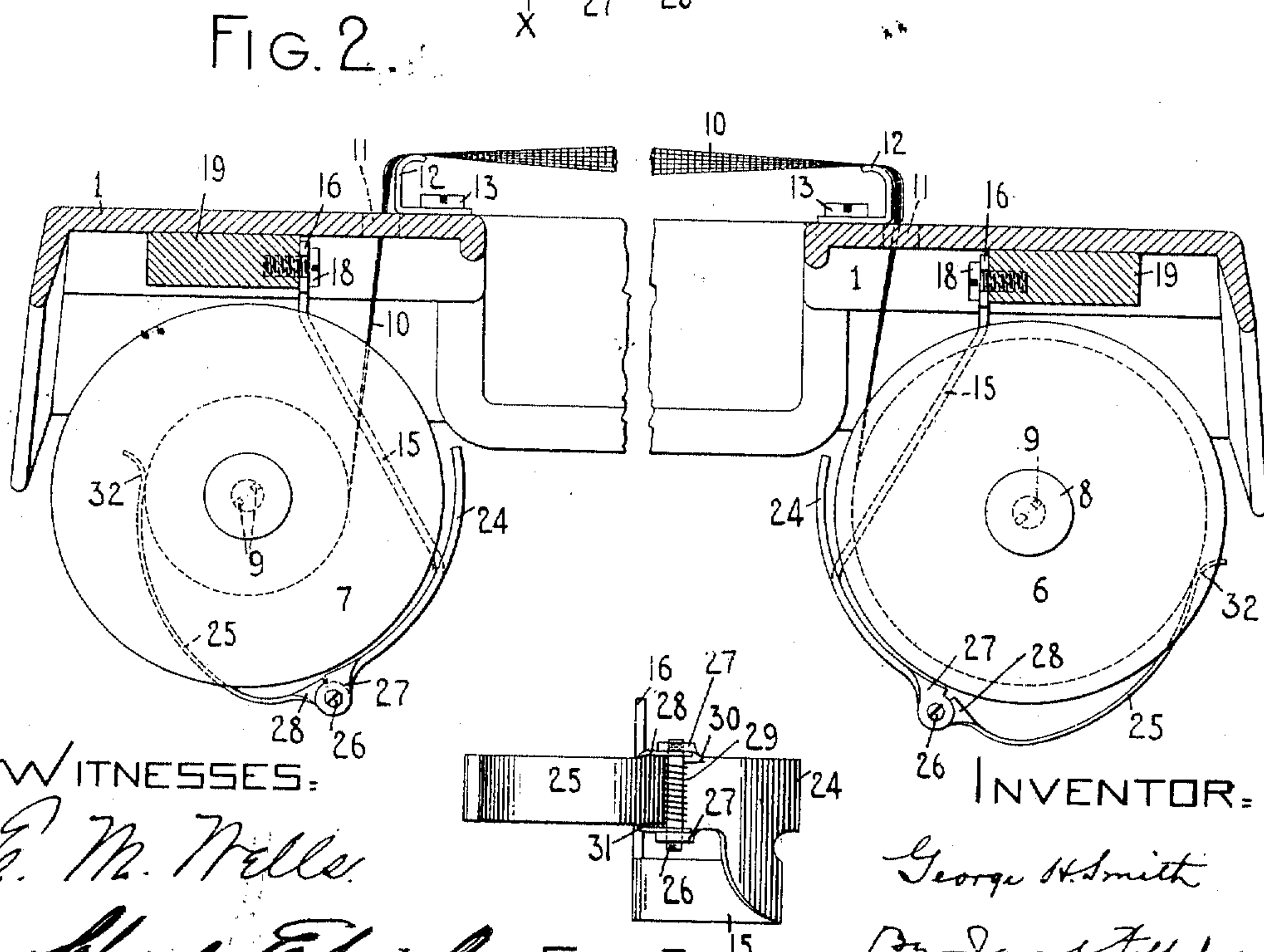
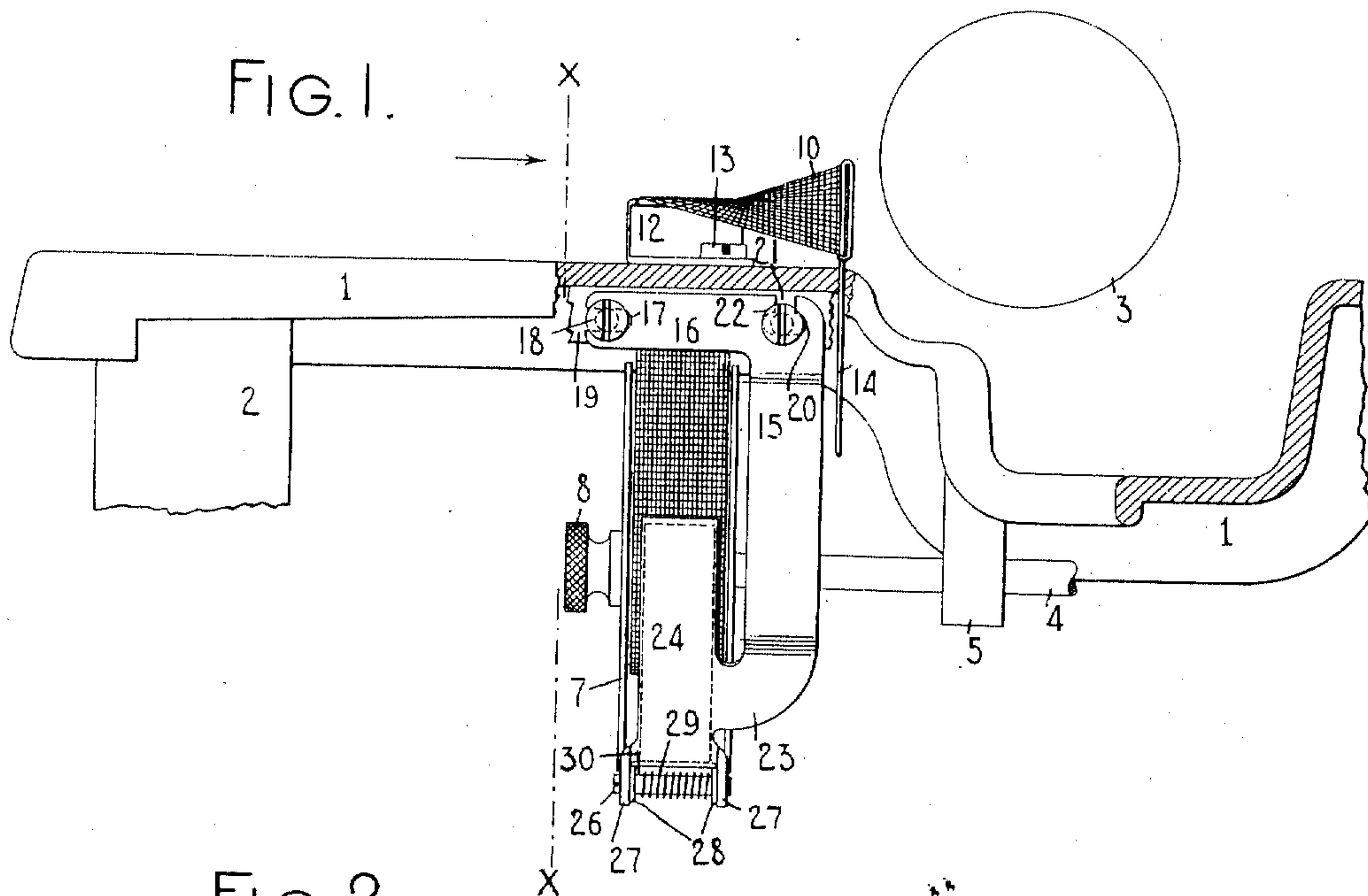


993,725.

Patented May 30, 1911.

2 SHEETS—SHEET 1.

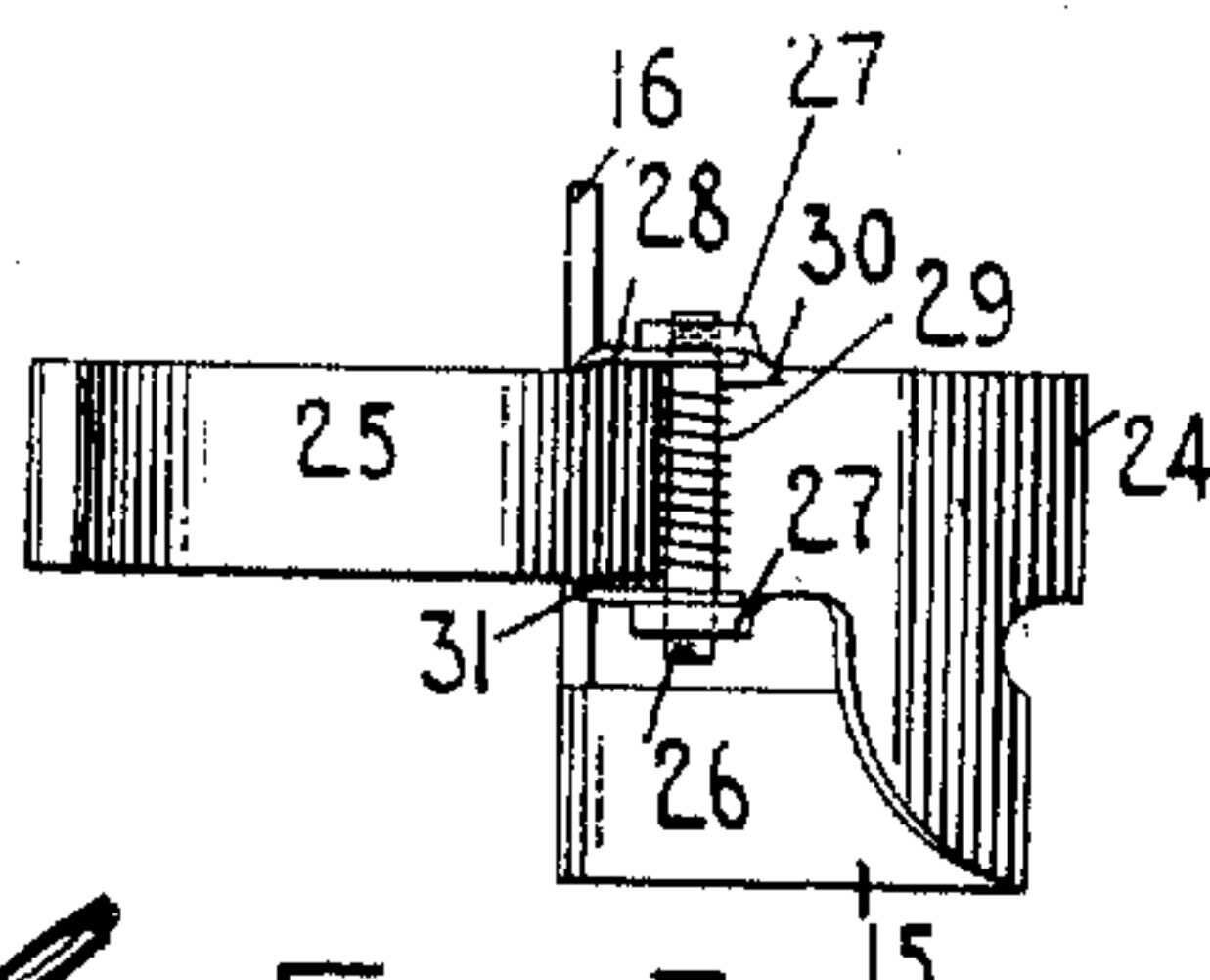


WITNESSES:

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*Charles Smith*

FIG. 3.



INVENTOR:

*George H. Smith*

*By Jacob F. Felt*

HIS ATTORNEY

G. H. SMITH.  
TYPE WRITING MACHINE.  
APPLICATION FILED DEC. 7, 1909.

993,725.

Patented May 30, 1911.

2 SHEETS—SHEET 2.

FIG. 5.

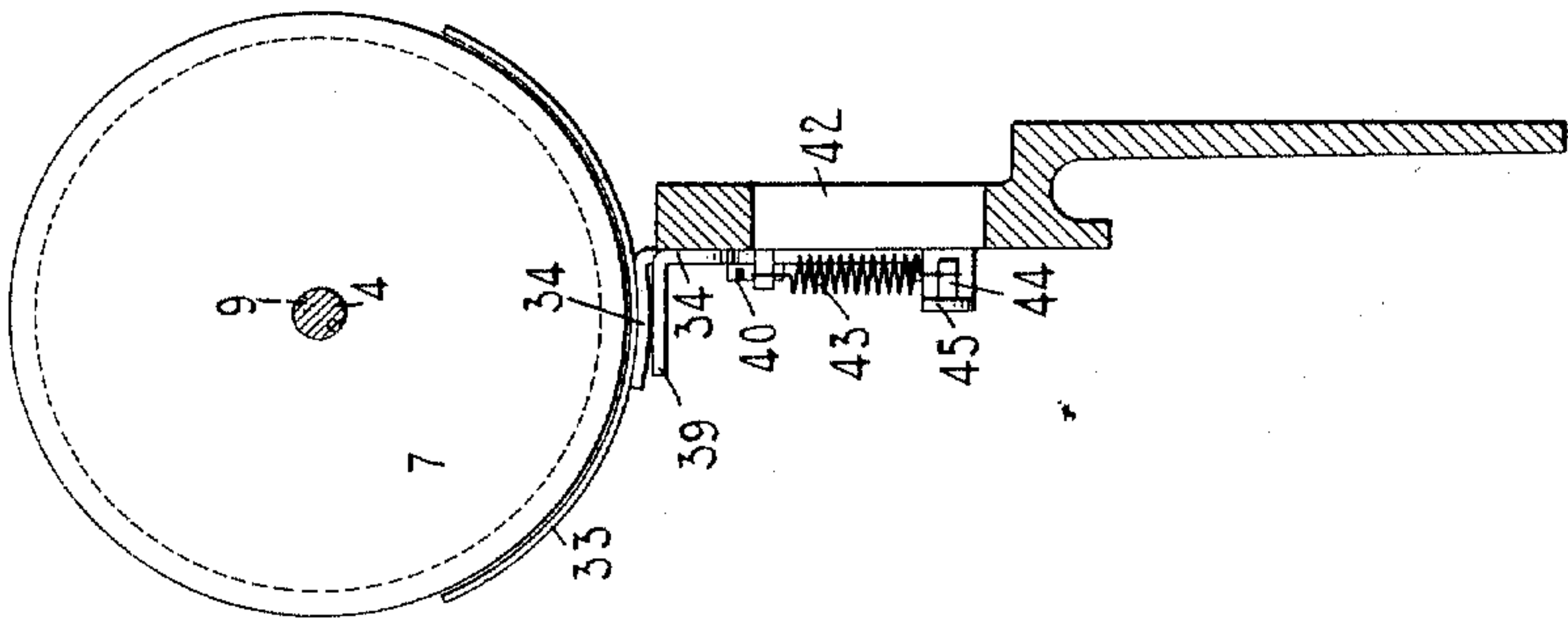
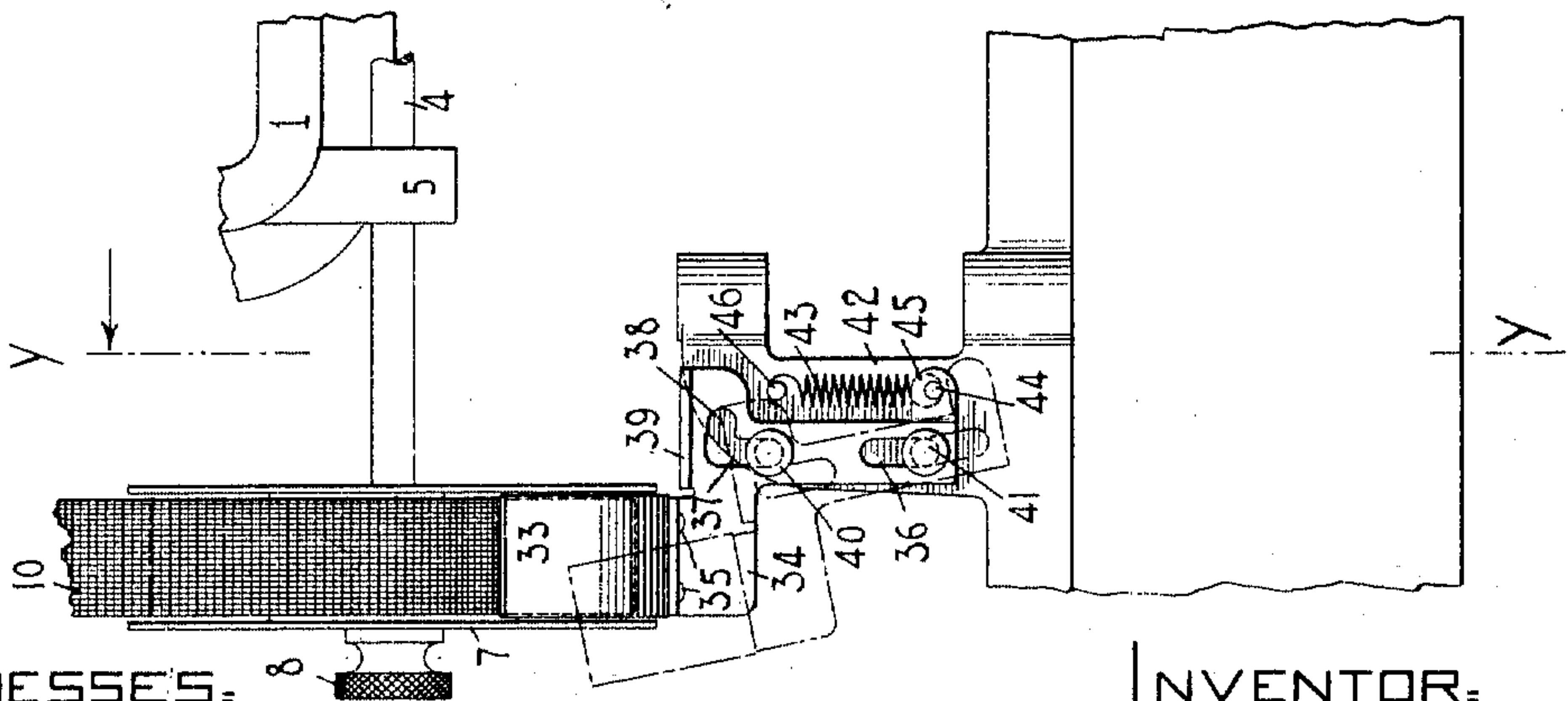


FIG. 4.



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# UNITED STATES PATENT OFFICE.

GEORGE H. SMITH, OF NUTLEY, NEW JERSEY, ASSIGNOR TO UNION TYPEWRITER COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## TYPE-WRITING MACHINE.

993,725.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed December 7, 1909. Serial No. 531,879.

*To all whom it may concern:*

Be it known that I, GEORGE H. SMITH, citizen of the United States, and resident of Nutley, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to typewriting machines and one object of my invention is to provide simple and efficient means for preventing the coils of ribbon on a vertically disposed spool, or one having a horizontal axis, from sagging and becoming displaced.

A further object of my invention is to provide means of the character specified which will afford a ready removal of the spool independently of the means for preventing displacement of the ribbon.

A still further object of my invention is to provide in connection with the foregoing devices braking means whereby the unwinding spool is controlled to prevent too free a movement thereof and to prevent the formation of loose coils of ribbon on the spool from which the ribbon is being unwound.

To the above and other ends which will hereinafter appear, my invention consists in the features of construction, arrangements of parts and combinations of devices to be hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a fragmentary side elevation, partly in section, showing a typewriting machine embodying one form of my invention, only so much of the typewriting machine being shown as is necessary to illustrate my invention. Fig. 2 is a transverse, sectional view of the machine shown in Fig. 1, the section being taken on the line  $x-x$  of Fig. 1 and looking in the direction of the arrow at said line. Fig. 3 is a detail end view of the guard finger, follower and supporting bracket shown in Figs. 1 and 2. Fig. 4 is a fragmentary detail side elevation showing parts of a typewriting machine embodying my invention in another form. Fig. 5 is a sectional view of the same taken on the line  $y-y$  of Fig. 4 and looking in the direction of the arrow at said line. Fig. 6 is a detail fragmentary perspective view showing a

portion of the guard finger and the supporting bracket therefor.

I have shown my invention embodied in a No. 10 Remington machine, although it should be understood that the invention may be embodied in various styles of typewriting machines employing vertically disposed ribbon spools, or ribbon spools which turn on horizontal axes.

A top plate 1 is supported on corner posts 2. A carriage (not shown) supports a cylindrical platen 3 for movement from side to side of the machine over the top plate. Suitably actuated horizontally disposed ribbon spool shafts 4 are mounted in bearings in depending brackets 5 at opposite sides of the machine. Ribbon spools 6 and 7 are detachably fixed to the forward ends of the ribbon spool shafts in the usual manner by thumb screws 8 whose threaded ends enter tapped openings in the end of the ribbon spool shaft. These thumb screws hold the ribbon spools against accidental detachment from the shafts. Suitably splined connections 9 are provided between the ribbon spools and their shafts to cause the ribbon spools to turn with the shafts. The vertically disposed ribbon spools are thus mounted for turning movement on horizontal axes and the ribbon 10 extends from one spool to another passing through openings 11 in the top plate of the machine and over bracket-like guides 12 secured to the top plate of the machine by screws 13. A vertically disposed ribbon vibrator 14 is situated centrally of the machine and receives and guides the ribbon therethrough in its passage from one ribbon spool to another.

Referring particularly to Figs. 1, 2 and 3 it will be seen that bracket arms 15 are provided at opposite sides of the machine, one being associated with each of the ribbon spools. These bracket arms are preferably formed of sheet metal and are provided with supporting or foot pieces 16 which extend fore and aft of the machine beneath the top plate and each is slotted at its forward end as at 17 for the reception of the stem of a headed screw 18 received at its threaded end in a tapped opening in a lug or block 19 which projects downwardly from the top plate of the machine. The rear end of each foot piece is likewise provided with a slot 20 in line with the slot 17 and connecting with



a transverse slot 21. The stem of a headed screw 22 is adapted to pass through the slot 21—20 in the foot piece as shown in Fig. 1 and the heads of the screws 18 and 22 bind against the face of the foot piece, when the bracket is adjusted in its proper position, to detachably secure the bracket in place. Each bracket arm 15 extends along one side of the rear flange of the associated ribbon spool and is off-set at its lower end as indicated at 23 where it connects with a segmental guard or finger 24 arranged beneath the ribbon spool and adjacent to the peripheries of the flanges of the spool as shown in Fig. 2. This segmental finger is likewise situated in a position where it lies between vertical planes passing through the flanges of the ribbon spool, as indicated in Fig. 1, so that the finger is in a position to receive and support any loose coils of the ribbon and prevent the escape of such loose coils from between the flanges of the spool to a position where the coils might engage the peripheries of the flanges of the spool or pass outside said flanges and finally wind upon the ribbon spool shaft. Each finger 24 is situated, preferably, at the inner lower quadrant of its associated ribbon spool, as shown in Fig. 2. In practice it has been found that this position of the guard finger is most efficient, as the uncoiling of the ribbon commences at the point where the ribbon leaves the spool and passes as a free length to the opposite spool. If the ribbon be guarded at or near this position undue uncoiling of the ribbon and escape thereof from between the flanges of the spool will be prevented. In addition to the guards or segmental fingers 24 I prefer to employ followers 25 which in the present instance are in the nature of segmental sheet metal strips which practically form continuations of the fingers 24 and are pivoted thereto as indicated at 26. The manner of pivoting each follower to the guard finger is preferably to form ears 27 on the guard finger to receive the pivot rod 26 threaded at one end into the ears 27. The follower is likewise formed with perforated ears 28 through which the pivot rod passes freely to pivotally support the follower on the fixed guard finger. A coiled spring 29 surrounds the pivot rod 26 and bears at one end 30 against the guard finger and at its opposite end 31 against the follower. The pressure of the spring is exerted against the follower to force the contact portion 32 to move toward the axis of the ribbon spool as the ribbon is unwound from the associated spool and to move away from the shaft as the ribbon is wound on said spool. The pressure thus exerted by the follower on the surface of the ribbon upon the spool acts as a brake to prevent the spool from which the ribbon is being unwound from turning too freely with its shaft

during the unwinding of the ribbon, thus tending to prevent the ribbon from forming loose coils on the ribbon spool. It will be observed that the ribbon spools may be readily detached from their shafts by removing the thumb screws 8 and that the guard fingers 24 do not interfere with such removal of the spools. When a spool is to be removed it is merely necessary to maintain the associated follower against its spring pressure in a position where it will remain outside of or beyond the flanges of the ribbon spool when the spool may be readily the thumb screw.

I have shown a modified form of construction in Figs. 4, 5 and 6 in which the sheet metal segmental guard fingers 33 are riveted to brackets 34 as indicated at 35. Both brackets 34 and the parts associated therewith are constructed in a like manner so that the description of one applies to both. The guard fingers 33 are preferably situated beneath the ribbon spools and adjacent to the flanges thereof. These segmental fingers practically span the space between the flanges of the ribbon spools to prevent the loosened coils from dropping beyond the flanges of the spool. From an inspection of Fig. 5 it will be seen that there is a bare clearance between the flanges of the spool and the guard fingers 33 in order that the spools may be readily detached from the machine independently of the guard fingers. Each of the brackets 34 is provided with longitudinal slots 36 and 37 arranged in line with each other. A transverse slot 38 communicates with the slot 37 in each bracket. A lateral projection 39 is struck up from each bracket 34 to form a finger piece by which each bracket and its guard finger may be moved to the dotted line position shown in Fig. 4 as will hereinafter more clearly appear. Headed screws or pins 40 and 41 extend through the slots 36 and 37 of each bracket and are received in a fixed portion 42 of the frame. A contractile spring 43 is connected at one end to a pin 44 carried by an off-set arm 45 on the bracket. The opposite end of the spring is connected to a pin 46 which projects from the portion 42 of the frame of the machine. Each spring 43 exerts a pressure to maintain its bracket and the paper finger carried thereby in the positions shown in Fig. 4, the upward movements of the parts being limited by the lower ends of the slots 36 and 37 engaging the pins 41 and 40 respectively. Should the operator desire to throw a guard finger to the inoperative position shown in dotted lines in Fig. 4 in order to give better access to the ribbon on the spool, it is merely necessary to depress the finger piece 39 and at the limit of the downward movement of the bracket and guard finger



to shift the parts forwardly in order to bring the notch 38 into coöperation with the pin 40. This effects a movement of the parts to the dotted line position shown in Fig. 4 in which they are retained by the engagement of the pin 40 in the slot 38. The parts may be restored to normal or operative position by forcing the finger piece 39 rearwardly, thus disengaging the slotted portion 38 from the pin 40 and the bracket with the finger carried thereby may then be moved upwardly to the full line position by the spring 43.

What I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriting machine, the combination of a ribbon spool mounted to turn on a horizontal axis, and a segmental finger arranged beneath the spool but beyond and in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges.

2. In a typewriting machine, the combination of a ribbon spool mounted to turn on a horizontal axis, a guard arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, and means for affording a detachment of the spool independently of said guard.

3. In a typewriting machine, the combination of a ribbon spool mounted to turn on a horizontal axis, a segmental finger arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, said finger being removably fixed to the frame of the machine, and means for affording a detachment of the spool independently of said finger.

4. In a typewriting machine, the combination with the main frame of the machine, of a horizontally disposed ribbon spool shaft, a ribbon spool detachably fixed to said shaft, and a guard arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, said guard being fixed to the frame of the machine in such position that the spool may be readily detached from said shaft independently of said guard.

5. In a typewriting machine, the combination of a ribbon spool mounted to turn on a horizontal axis, a segmental finger arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of

ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, and a spring-pressed follower carried by said segmental finger and adapted to bear on the surface of the ribbon on the spool.

6. In a typewriting machine, the combination of a ribbon spool mounted to turn on a horizontal axis, a guard arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, means for affording a detachment of the spool independently of said guard, and a spring-pressed follower carried by and forming practically a continuation of said guard, said follower being received between the flanges of the spool and adapted to bear against the surface of the ribbon on the spool.

7. In a typewriting machine, the combination of a ribbon spool mounted to turn on a horizontal axis, a guard arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, means for affording a detachment of the spool independently of said guard, and a spring pressed segmental follower arranged beneath the spool and pivoted to and forming practically a continuation of said guard, said follower being received between the flanges of the spool and adapted to bear against the surface of the ribbon on the spool.

8. In a typewriting machine, the combination with the main frame of the machine, of a horizontally disposed ribbon spool shaft, a ribbon spool detachably fixed to said shaft, a guard arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges, said guard being fixed to the frame of the machine in such position that the spool may be readily detached from said shaft independently of said guard, and a spring-pressed follower carried by and forming practically a continuation of said guard, said follower being received between the flanges of the spool and adapted to bear against the surface of the ribbon on the spool.

9. In a typewriting machine, the combination with the main frame of the machine, of a horizontally disposed ribbon spool shaft, a ribbon spool detachably fixed to said shaft, a guard arranged beneath the spool in close proximity to the flanges thereof to prevent uncoiling layers of ribbon from dropping to a position where they may engage the edges



of the flanges of the spool or pass outside beyond said flanges, said guard being fixed to the frame of the machine in such position that the spool may be readily detached from  
5 said shaft independently of said guard, and a spring-pressed segmental follower arranged beneath the spool and pivoted to and forming practically a continuation of said guard, said follower being received be-  
10 tween the flanges of the spool and adapted to bear against the surface of the ribbon on the spool.

10. In a typewriting machine, the combination of a ribbon spool detachably mounted to turn on a horizontal axis, and a sheet metal bracket arm detachably fixed to the frame of the machine and having a segmental guard finger fixed thereto, said guard finger extending beneath the spool and adjacent to the flanges thereof in such position that the spool may be readily detached from the machine independently of the guard finger and its supporting bracket, the position of the guard finger being such that it  
25 prevents uncoiling layers of ribbon on the spool from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said flanges.

30 11. In a typewriting machine, the combi-

nation of a ribbon spool detachably mounted to turn on a horizontal axis, a sheet metal bracket arm detachably fixed to the frame of the machine and having a segmental guard finger carried thereby, said guard  
35 finger extending beneath the spool and adjacent to the flanges thereof in such position that the spool may be readily detached from the machine independently of the guard finger and its supporting bracket, the position of the guard finger being such that it  
40 prevents uncoiling layers of ribbon on the spool from dropping to a position where they may engage the edges of the flanges of the spool or pass outside beyond said  
45 flanges, and a spring-pressed follower pivoted to said guard finger at one end thereof and practically forming a continuation of the finger, said follower passing between the flanges of the ribbon spool and bearing  
50 against the ribbon on the spool.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 6th day of December, A. D. 1909.

GEORGE H. SMITH.

Witnesses:

J. B. DEEVES,  
CHARLES E. SMITH.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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