Sept. 9, 1924. 1,508,182

E. P. GUTHRIE

REELING AND UNREELING DEVICE

Filed April 7, 1923 3 Sheets-Sheet 1

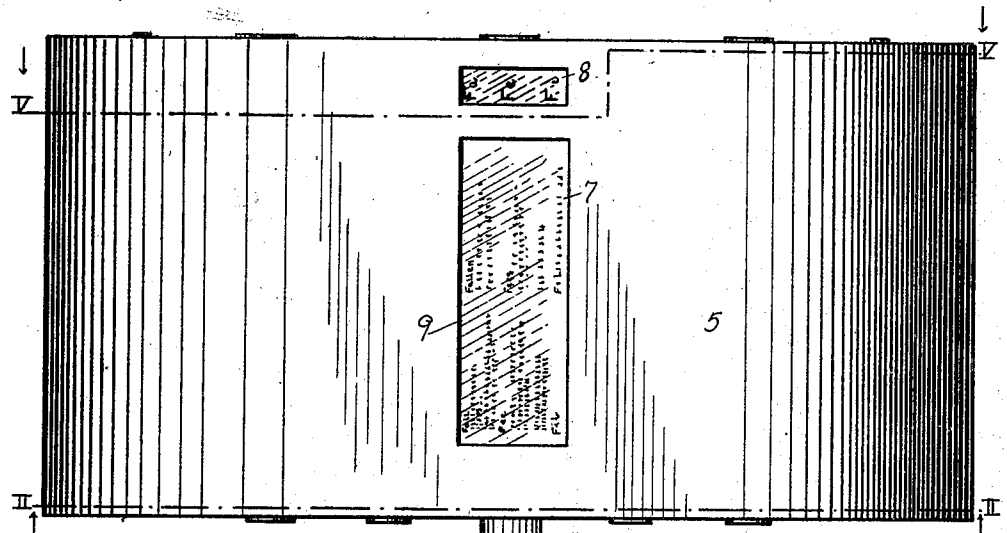


Fig. I.

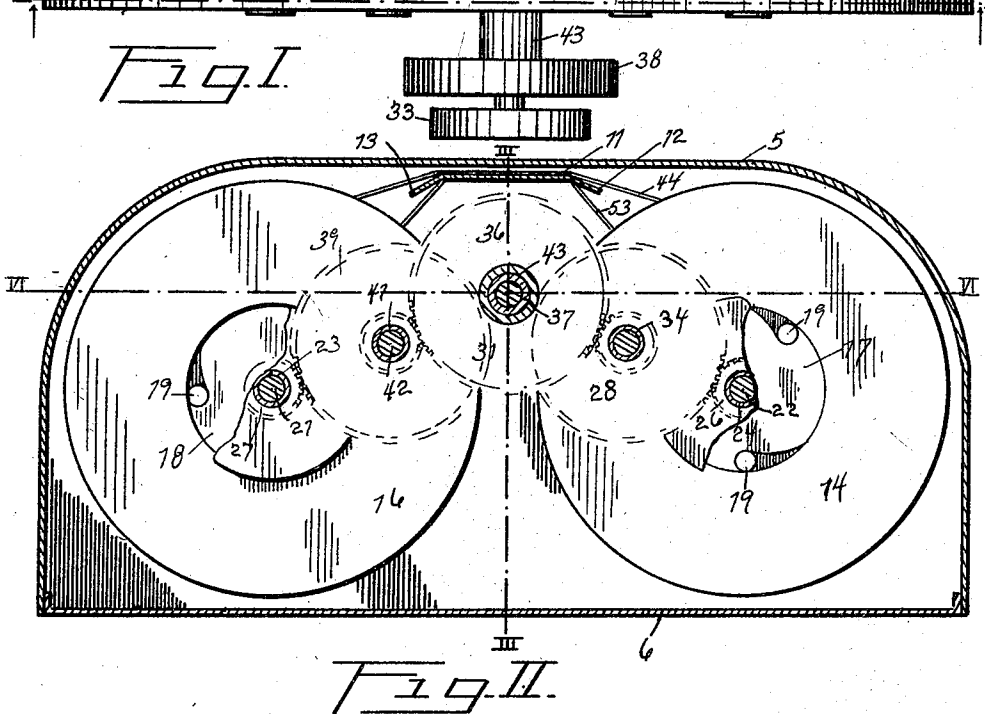


Fig. II.

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Filed April 7, 1923 3 Sheets-Sheet 2

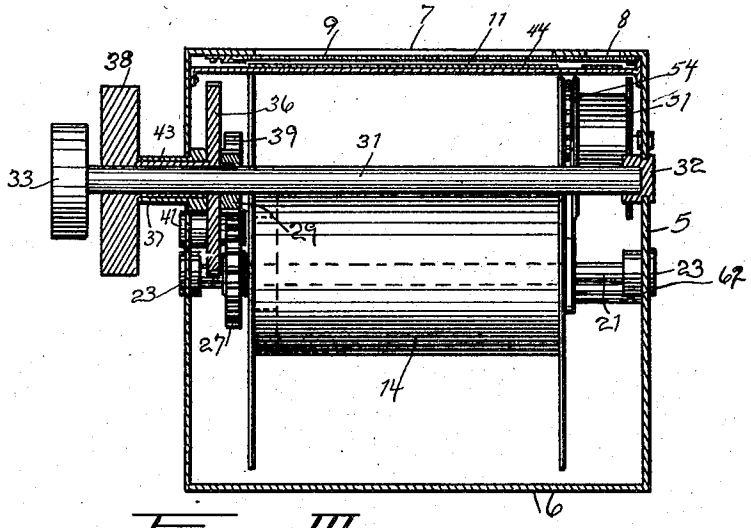


Fig. III.

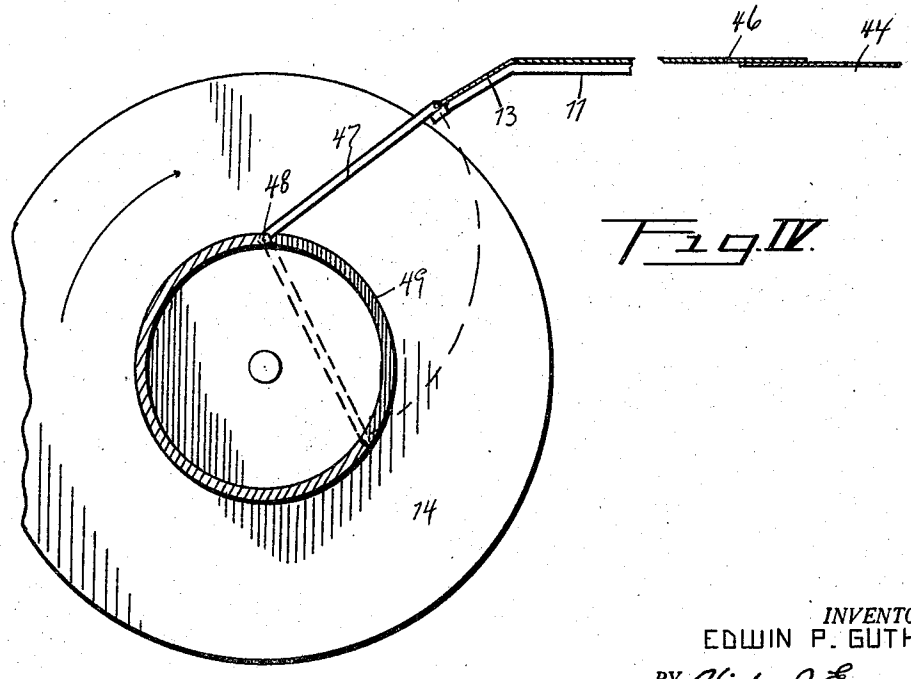


Fig. IV.

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REELING AND UNREELING DEVICE

Filed April 7, 1923 3 Sheets-Sheet 3

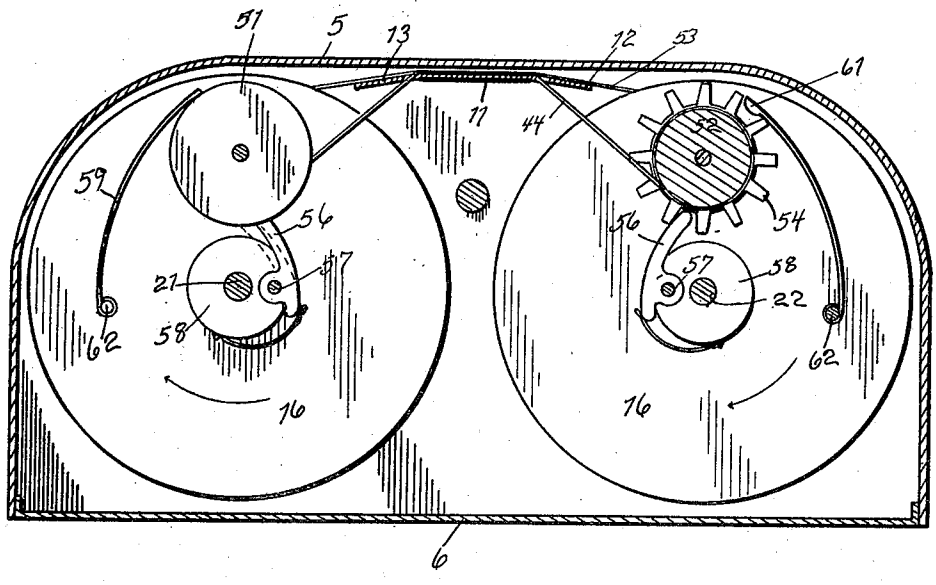


Fig. V.

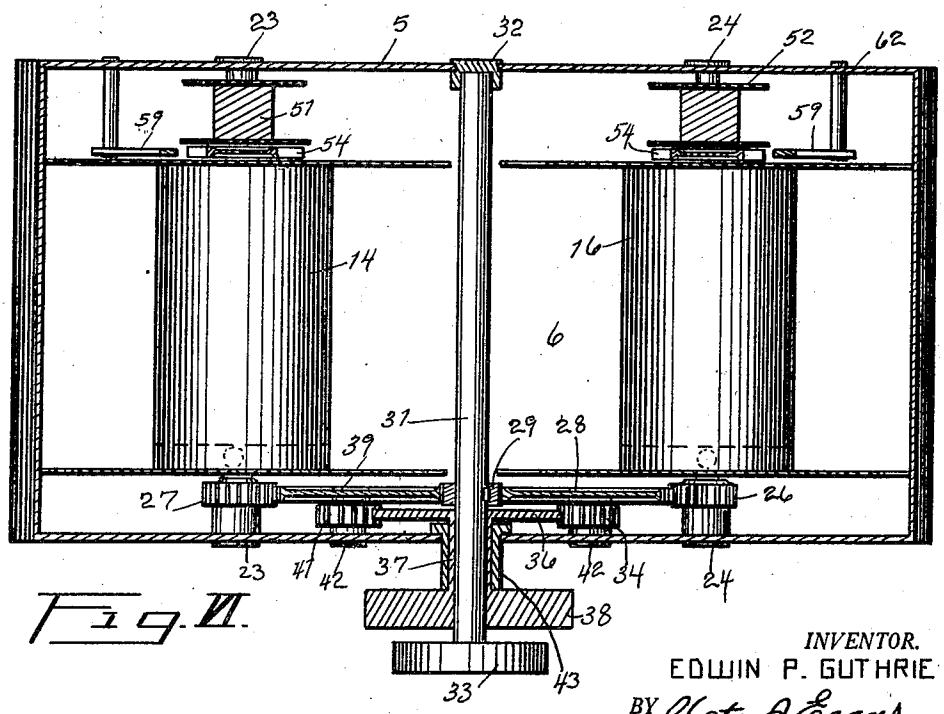


Fig. VI.

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Patented Sept. 9, 1924. 1,508,182

UNITED STATES PATENT OFFICE.

EDWIN P. GUTHRIE, OF SAN FRANCISCO, CALIFORNIA.

REELING AND UNREELING DEVICE.

Application filed April 7, 1923. Serial No. 630,573.

To all whom it may concern:

Be it known that I, EDWIN P. GUTHRIE, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Reeling and Unreeling Devices, of which the following is a specification.

This invention relates to improvements in reeling and unreeling devices, and has particular reference to a device of this character for the purpose of displaying a portion of tape which is being passed between the reels, which tape has printed thereon words and their definitions such as found in ordinary dictionaries.

The principal object of this invention is to provide a simple device of this character wherein a web is passed beneath a window, which web moves at a high speed, while an index is intermittently moved beneath a similar window, the intermittent movement giving time for the eye to catch the letters contained upon the index web.

Another object is to produce a device which is simple in construction and therefore cheap to manufacture.

Another object is to provide means whereby the direction of rotation of the web will automatically take place with a reversal of the turning element and a device which will maintain a substantially uniform tension upon the web.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a top plan view of Figure 2,

Figure 2 is a cross section taken on the line 2—2 of Figure 1,

Figure 3 is a vertical cross section taken on the line 3—3 of Figure 2,

Figure 4 is an enlarged detail view of the stop mechanism associated with one of the drums,

Figure 5 is a cross section taken on the line 5—5 of Figure 1, and

Figure 6 is a cross section taken on the line 6—6 of Figure 2.

Dictionaries at best are cumbersome books and many times it is a slow process to find the proper place particularly if the person is holding a book or other papers in one hand, while trying to locate the sought for word in the dictionary.

I have therefore provided a web having words and their definitions printed thereon, and I have also provided an index web having the first letter of the word printed thereon, together with the first vowel of the word and I have further provided means for moving these webs simultaneously beneath windows, the web having the words thereon moving continuously while the web having the index thereon moves intermittently and at a much slower speed than the other web, the result being that by turning a single knob it is possible to bring any given word upon the web beneath the window and without undue effort.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates a casing having a removable bottom 6. This casing is provided with a window 7 and extending substantially across the casing.

A window 8 of smaller dimension is positioned adjacent one end of the window 7. A transparent pane of glass 9 serves to close the opening made by the windows 7 and 8. This pane is held to the casing 5 in a suitable manner.

Mounted below the transparent member 9 is a guide plate 11 having downturned ends 12 and 13. At 14 and 16 I have shown spools, which spools consist of hub portions having flanges for the purpose of retaining the web to be later described thereon.

Within one end of each of the hub portions is located a clutch member as shown at 17 and 18 and each have recesses within which balls 19 are employed which balls are adapted to be forced into wedging action with the hub of the spool for the purpose of locking the clutches to the hub portions as will be later seen.

It will be noted that these clutches operate in opposite directions so that only one clutch operates at a time. Each of these spools is freely rotatably mounted upon the shaft as shown at 21 and 22, while the clutch members 17 and 18 are each securely fastened upon their respective shafts. These shafts are mounted in suitable bearings 23 and 24, mounted upon the casing 5.

A gear 26 is secured to the shaft 22, while a gear 27 is secured to the shaft 21. An intermediate gear 28 meshes with the gear

26 and also with a gear 31. The turning element consists of a shaft having one end mounted in a bearing 32 upon one side of the casing 5 and having its opposite end provided with a knob 33. This intermediate gear 28 has a gear 34 of smaller size secured thereto, which gear in turn meshes with a gear 36 secured to a tubular portion 37 surrounding the turning element 31 and terminating in a knob 38.

An intermediate gear 39 is interposed between the gears 27 and 29 and also carries a reduced gear 41 meshing with the gear 36. Suitable bearings 42 serve to support the gears 28—34 and the gears 39—41. A suitable bearing 43 is secured to the casing 5 and surrounds the tubular portion 37.

By referring to Figure 4, it will be noted that the numeral 44 represents the end of the web being reeled and unreeled. This web being made of relatively thin paper would not stand the abrupt stopping when the end is reached. It is therefore cemented or otherwise secured to the end of a cloth piece 46, which cloth piece is in turn secured to a hinged member 47. This hinged member is in turn hinged as at 48 to the hub of the drum, it is of course understood that this arrangement is the same on both drums.

An opening is cut as shown at 49 in the hub of the drum so that the hinged member may assume the dotted line position, while the web is reeled thereon. This hinged member is of sufficient length to abut the downturned end 13 of the guide plate 11, with the result that the motion of the drum is arrested.

By now referring to Figures 5 and 6, it will be noted that I have provided index spools 51 and 52. These index spools are supported upon suitable bearings secured to the casing 5 and are adapted to have an index web 53 passed therebetween. This index web also passes over the guide plate 11. In order to rotate these index spools I have provided a tooth wheel 54 which tooth wheel is interposed between the end of the drums and each of the index spools. These tooth wheels are adapted to be contacted by a spring held finger 56 pivoted as at 57 to a disc 58 secured upon one end of the drum. The arrangement is similar upon both drums with the exception that the spring pressed fingers are reversed as to position.

At 59 I have shown a spring member having an enlarged end 61 which spring member is adapted to lie against the ends of the tooth wheels for the purpose of preventing too rapid a rotation of the same and thereby maintaining a substantially uniform tension upon the index web. These spring fingers 59 are supported upon rods 62 secured to the side of the housing 5.

The operation of my device is as follows:

Assuming that the device has been assembled or that it is desired to locate the word "fee," the knob 38 is grasped and rotated, with the result that rotary motion is transmitted through the gear 36 to the gears 34 and 41, which motion is in turn transmitted through the gears 28 and 39 to which the gears 34 and 41 are secured, to the gears 26 and 27 secured upon the shafts 21 and 22.

The direction of rotation desired will determine the direction of movement of the web 44, as one of the clutches, for instance the clutch 17 will function to connect the shaft 22 to the spool 16. At the same time that this rotation of the spool 16 takes place, the spring finger 56 will contact one of the teeth of the tooth wheel 54, which will intermittently transmit movement to the index wheel 52, with the result that as the web 44 travels rapidly past the window 7, the index web will travel in the same direction or at a slower speed and will be intermittently moved. As soon as the person has reached the point where the "fee" appears upon the index, the turning of the knob is stopped and then the knob 33 is grasped and slowly rotated, with the result that slow motion is then imparted from the gear 29 to the gears 26 and 27 through the intermediate gears 28 and 39. This slow motion enables the operator to slowly turn the web 44 when he has reached the approximate locality of the word he is searching for.

When the direction of rotation is reversed, the clutch 17 will be released and the clutch 18 will take hold, consequently, the device will operate in both directions with equal ease.

It will thus be seen that I have provided a very simple mechanism whereby two webs are fed past a window, one at a high speed and one at a lower intermediate speed, thus enabling a person to quickly find a given point upon the high speed web.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a device of the character described, a casing, a plurality of spools mounted within said casing, two of said spools being adapted to reel and unreel a web therebetween, two other of said spools being adapted to reel and unreel a web therebetween, said first mentioned web being of greater width than said second mentioned web, means for rotating said webs simultaneously, one of said webs traveling at a high rate

of speed, the other of said webs traveling at a lower rate of speed, and intermittently, and means for imparting slow movement to said high speed web after said high speed web has been brought to a point of rest.

2. In a device of the character described, a casing, spools mounted within said casing, shafts extending through said spools, a clutch mounted on each of said shafts, said clutches being adapted to operate in reverse directions for the purpose of locking said spools to said shafts, a turning element interposed between said shafts, a gear secured to said turning element, a gear secured to each of said shafts, an intermediate gear mounted between each of said gears on said shafts and the gear on said turning element, a freely rotatable gear mounted on said turning element and meshing with said intermediate gears, means for turning said freely rotatable gear, a second set of spools mounted in said casing, a web extending between said second mentioned spools, a web extending between said first mentioned spools and means for imparting intermittent movement to said first mentioned web, while said second mentioned web is being moved from one of said first mentioned spools to the other of said first mentioned spools.

3. In a device of the character described, parallel spaced shafts, a spool rotatably mounted on each of said shafts, clutch means interposed between said spools and said shafts, means for rotating said shafts at a high rate of speed, means for rotating said shafts at a low rate of speed, index spools mounted adjacent the ends of said first mentioned spools, a tooth wheel secured to each of said index spools, and a spring finger associated with each of said first mentioned spools, said spring fingers being adapted to contact the teeth of said tooth wheels, for the purpose of transmitting intermittent movement thereto when said first mentioned spools are rotated.

In testimony whereof I affix my signature.

EDWIN P. GUTHRIE.