Sept. 22, 1953 J. E. GODECK 2,652,988

MAGAZINE ARRANGEMENT FOR RECORD-RECEIVING MATERIAL IN STRIP OR WIRE FORM

Filed Jan. 16, 1951 4 Sheets-Sheet 1

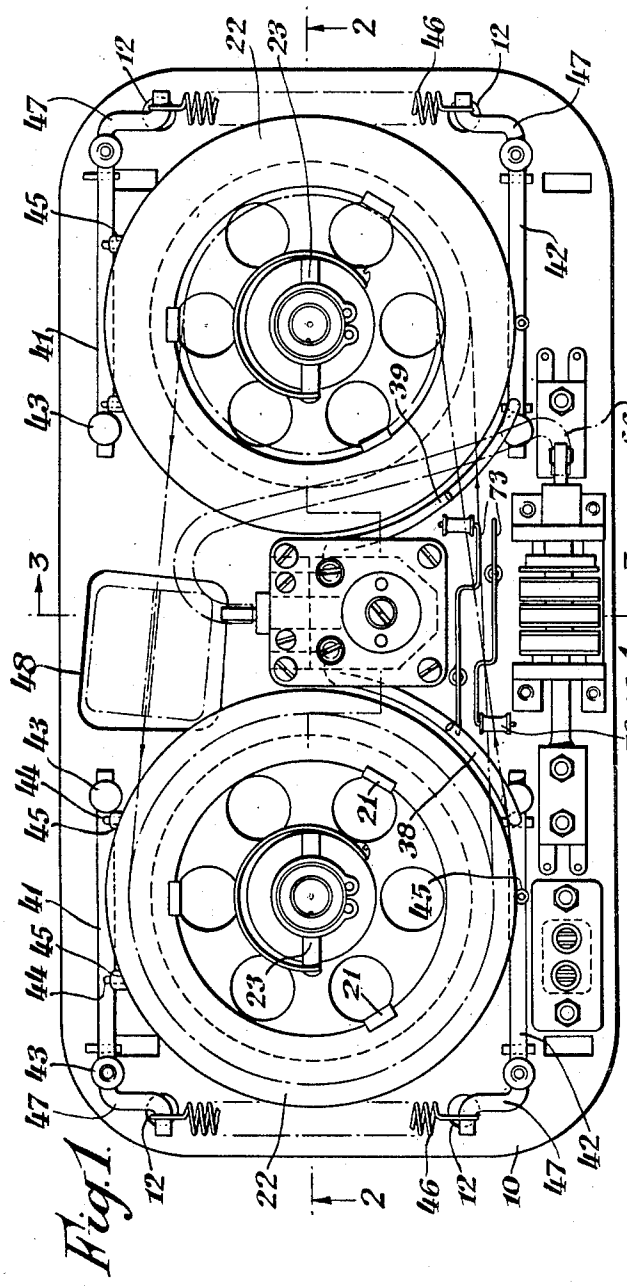


Fig. 1.

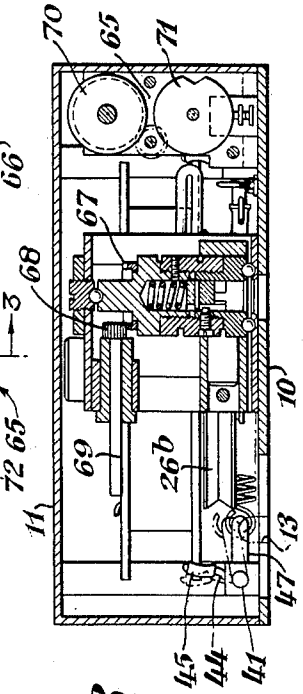


Fig. 3.

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4 Sheets-Sheet 2

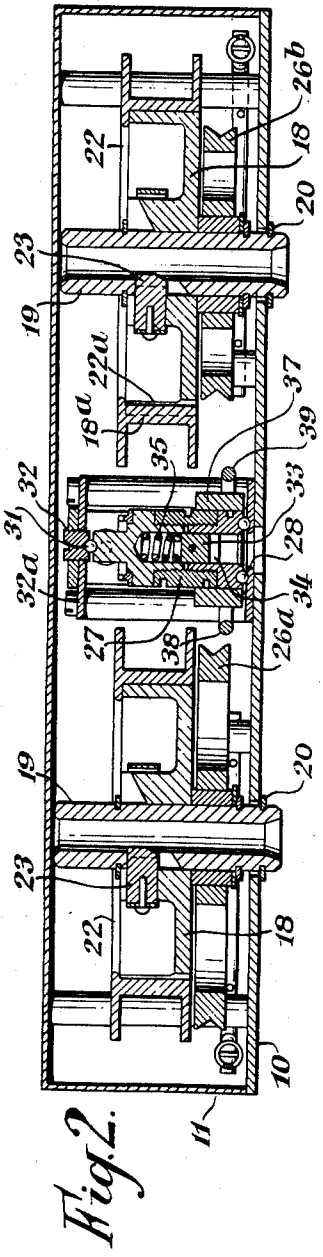


Fig. 2.

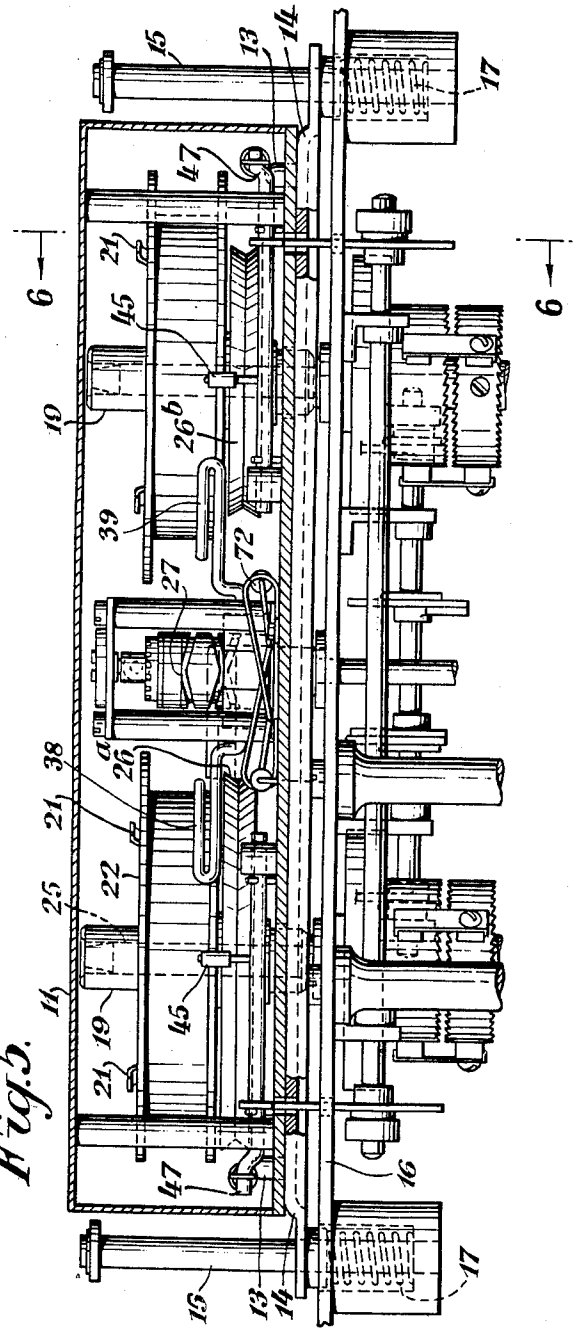


Fig. 5.

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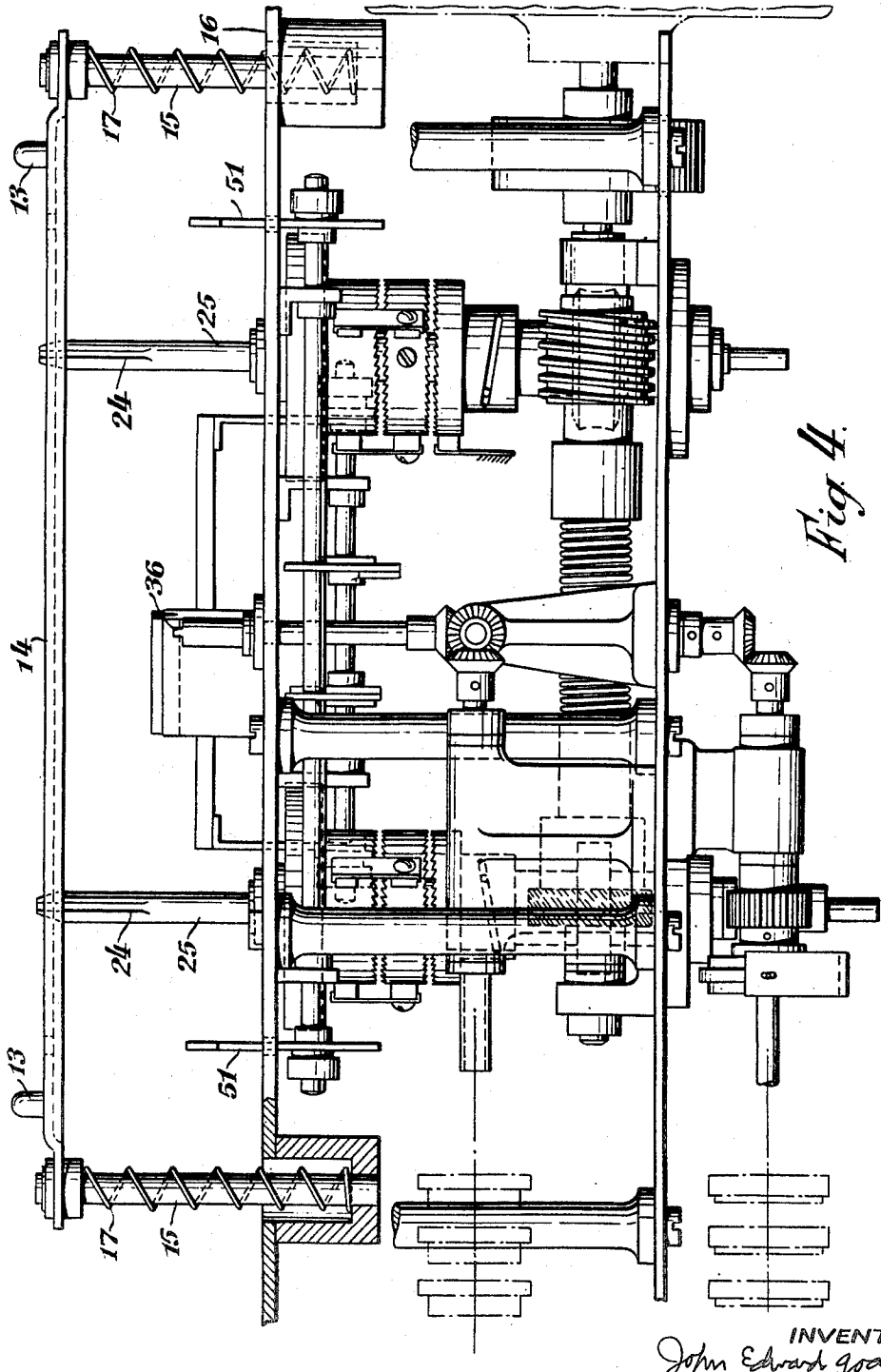


Fig 4.

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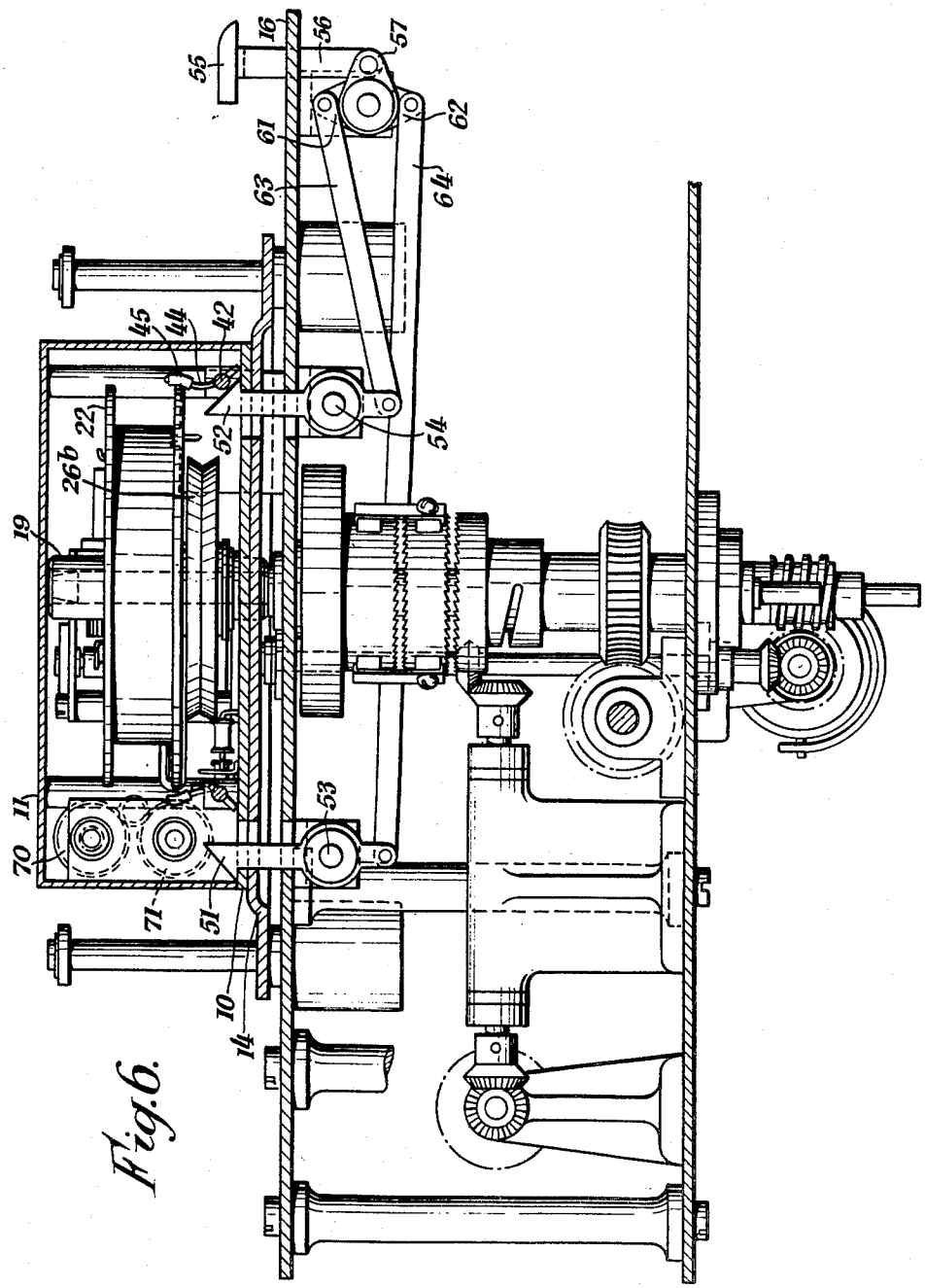


Fig. 6.

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UNITED STATES PATENT OFFICE

2,652,988

MAGAZINE ARRANGEMENT FOR RECORD-RECEIVING MATERIAL IN STRIP OR WIRE FORM

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Application January 16, 1951, Serial No. 206,133
In Great Britain May 5, 1948

1 Claim. (Cl. 242—54)

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This invention relates to means for locating and securing, on recording installations, magazines for record-receiving material in strip or wire form, such magazines being of the kind in which the record receiving material is initially wound on a take-off reel, spool or like holder, and is fed past a recording point on to a receiving holder, the holders being contained within the magazine, and being held against movement, when the magazine is detached from the recording installation, by braking devices which are automatically released when the magazine is placed in position on the installation.

The invention is especially applicable to electric dictating installations in which matter spoken into a microphone is recorded magnetically on a metallic wire or tape, but is also adapted for use in other recording apparatus using a strip record-receiving material.

The invention consists in means for locating and securing a magazine of the kind referred to in position on a recording installation, said means comprising a platform guided for rectilinear movement on said installation, and interfitting locating means on said magazine and platform, said magazine being attached to the installation by being located on the platform and moved with said platform to displace the latter against resilient means, said movement engaging the reels, spools or the like with the driving means on the installation and bringing the magazine into a position in which it is engaged by latch means to hold it in place.

The invention is hereinafter described with reference to the accompanying drawings, in which:

Figure 1 is a plan view of one form of magazine according to the invention, for use with an electric dictation installation in which matter spoken into a microphone is recorded magnetically on a metallic wire or tape, the lid of the magazine being omitted;

Figure 2 is a sectional elevation of the magazine shown in Figure 1, taken on the line 2—2 of Figure 1;

Figure 3 is a sectional elevation of the magazine on the line 3—3 of Figure 1;

Figure 4 is a partial elevation, with some parts in section, of an electric dictation installation with which the magazine is adapted for use;

Figure 5 is a view showing the magazine in position on the installation; and

Figure 6 is a sectional elevation on the line 6—6 of Figure 5.

Referring to the drawings, the magazine is in

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the form of a flat plate 10 which is conveniently pressed from sheet metal, and is closed by a lid 11, the plate 10 being apertured at 12 to receive dowels 13 projecting from a platform 14 (Figures 4 and 5) which is slidable on pillars 15 on the frame of the recording unit 16, the platform 14 being urged outwardly away from the unit 16 by springs 17 surrounding the pillars 15. The dowels 13 serve to locate the magazine accurately on the platform 14. Two reel-holders 18, 18 (Figure 2) are fixedly mounted on tubular spindles 19, 19 passing through holes 20, 20 in the base of the magazine, each holder 18 having resilient clips 21 (Figure 1) to secure thereto a reel such as 22 (Figure 2) and being grooved as at 18^a to receive ribs 22^a on the reel. Each tubular spindle 19 is slotted at its upper end to receive a key or dolly 23 which is spring urged inwardly so as to enter, when the magazine is mounted on the recording unit, between splines 24 (Figure 4) on the upper end of a spindle 25 projecting upwardly through the platform 14, the spindles being so located as to enter the tubular spindles 19. Each tubular spindle 19 has a guide pulley mounted thereon below the reel-holder 18, the pulley 26^a on one spindle 19 being larger than the pulley 26^b on the other spindle, and both pulleys being freely rotatable on their tubular spindles 19.

Between the two tubular spindles 19 there is mounted a cross-threaded worm 27 (Figure 2) located at its lower end by a ball bearing 28, and at its upper end by a single ball 31 having an adjustable abutment 32 mounted in a fixed support 32^a. The worm 27 has an axial hole extending from its lower end and closed at its upper end, a plug 33 located against rotation in the hole having a diametral slot 34 in its lower end and being urged downwardly by a spring 35 to engage the slot 34 with a tongue on the upper end of a driving spindle 36 (Figure 4) on the driving unit. A follower 37 mounted on the worm carries two wire guides 38 and 39.

Rods 41, 42 (Figure 1) are journalled in bearings 43 carried by the base of the magazine, the rods 41 each carrying two substantially radial arms 44 on which are mounted brake shoes 45 (Figure 3) adapted to bear on the edge of one of the reels 22, whilst each rod 42 carries a single arm 44 and brake shoe 45. Each reel 22 is located between a rod 41 and a rod 42, and is held in position by the brake shoes 45 when the latter engage with its rim. Movement of the shoes 45 into or out of engagement with the reel is effected by rocking the rods in their bearings. A

tension spring 46 attached at one end to a cranked portion 47 of the rod 41 and at the other end to a cranked portion 47 of the rod 42 tends to rock the rods 41 and 42 in such directions as to apply the brake shoes to the reels. The cranked portions 47 are each engaged by one of the dowels 13, when the magazine is placed in position on the recording unit, to rock the rods against the pull of the springs 46, and so release the brakes. Between the tubular spindles 19 and in front of the cross threaded worm 27 there is provided (see Figure 1) a pair of pulleys 72 mounted on resilient arms 73 and arranged so as to press the strip or wire in a downward direction, thereby maintaining a tension on the strip to prevent the formation of a loop or loops of slack wire, and also so as to absorb shock in the wire when winding either reel.

The base of the magazine has an aperture 43 (Figure 1) through which, when the magazine is in position on the recording unit, an electromagnetic recording, reproducing and wipe-out head projects into the magazine.

The two spindles 25 and the spindle 36 are driven through gearing by an electric motor, the drive being applied to only one spindle 25 at any particular time, by the mechanism described in my co-pending patent application Serial No. 206,131, filed January 16, 1951.

The magazine is loaded by placing a reel 22 loaded with wire on the reel holder 18 which is mounted on tubular spindle 19 which carries the larger pulley 26ª and an empty reel 22 on the other reel holder 18, the wire from the full reel being led through the wire guides 38, round the pulley 26ᵇ on the spindle carrying the empty reel, round the pulley 26ª on the spindle carrying the full reel, and through the other wire guide 39 to the empty reel, to which the end of the wire is attached. Between the two guide pulleys 26ª and 26ᵇ the wire passes over the aperture 43. The reels are held in position by the brake shoes 45. The loaded magazine is placed on the platform 14, with the dowels 13 entering the apertures 12, and is pressed towards the machine, thus compressing the springs 17. The spindles 25 enter the tubular spindles 19, and the spindle 36 enters the hole in the worm, the drive-transmitting devices coming into engagement immediately or as soon as the spindles begin to revolve. When the magazine is pressed fully home, latch members 51, 52 which are mounted on shafts 53, 54 (Figure 6) pivotally mounted in the recording unit and pass through slots in the platform and magazine base, move automatically to a latching position, and hold the magazine in place. The recording, reproducing the wipe-out head, which is mounted on the recording unit, projects through the aperture 43 into the magazine, and the wire enters a groove in the head as the magazine is placed in position.

The wire is wound from the take-off reel on to the receiving reel during recording of dictated material thereon, being spread evenly over the surface of the receiving reel by one of the wire guides, which is caused to travel up and down over the width of the reel by the travel of the follower 37 up and down the worm 27. If the recorded material is to be "read back" for transcribing or checking, the wire is first rewound on to the take-off reel by reversing the electric motor, the wire being spread evenly over the surface of the take-off reel during rewinding, by the second wire guide 38.

When the wire has been completely used, and is all wound on to the receiving reel, the magazine is removed from the recording unit and replaced by a second magazine containing a full take-off reel, or is itself reloaded and replaced. To remove the magazine, the latch members 51, 52 are released, the magazine then being lifted, by the springs acting on the platform 14, clear of the driving spindles, so that it can be easily lifted off the platform. The latch members are released by depressing a push-button 55 on the recording unit, the button 55 being connected by a link 56 to an arm 57 on a shaft 58 rotatable in bearings in the unit, the shaft 58 having radial arms 61, 62 connected by links 63, 64 to similar arms on the shafts 53 and 54.

A counter 65 (Figure 1) is mounted in the magazine, and is driven by a flexible shaft 66 from the cross-threaded worm 27, which has a crown wheel 67 (Figure 3) mounted on its upper end to mesh with a pinion 68 on one end of the flexible shaft 69. Each disc of the counter 65, one of which is shown at 70 in Figure 6, is geared to an auxiliary disc 71 so that the two revolve together, the disc 71 being notched to co-operate with a spring-loaded detent acting to control electric contacts arranged in series in the circuit of a relay controlling the electric motors the arrangement being such that all of the contacts are closed simultaneously when the whole of the wire in the magazine has been wound on to the receiving reel, to actuate the relay and stop the motor.

I claim:

A recording-and-reproducing system for recording upon and reproducing a recording upon a tape and the like having, in combination, a base, two rotatable spindles mounted upon the base upon which take-off and receiving reels may be mounted for rotation, a recording-and-reproducing mechanism mounted upon the base between the spindles, means for rotating one of the spindles to carry the tape and the like from the take-off reel on to the receiving reel past the recording-and-reproducing mechanism, a plurality of guide posts provided with terminal stops mounted upon the base, a platform having spindle openings for receiving the spindles and guide openings for receiving the guide posts, means for normally maintaining the platform away from the base yieldingly in engagement with the terminal stops, the platform being provided with a position-locating device for mounting a magazine containing the take-off and receiving reels thereupon with the reels over the spindles in order that the magazine and platform may be forced as a unit toward the base in opposition to the action of the yielding-maintaining means, and means for latching the magazine and platform to the base upon the platform becoming adjusted to a predetermined position adjacent the base.

JOHN EDWARD GODECK.

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