

Feb. 5, 1957

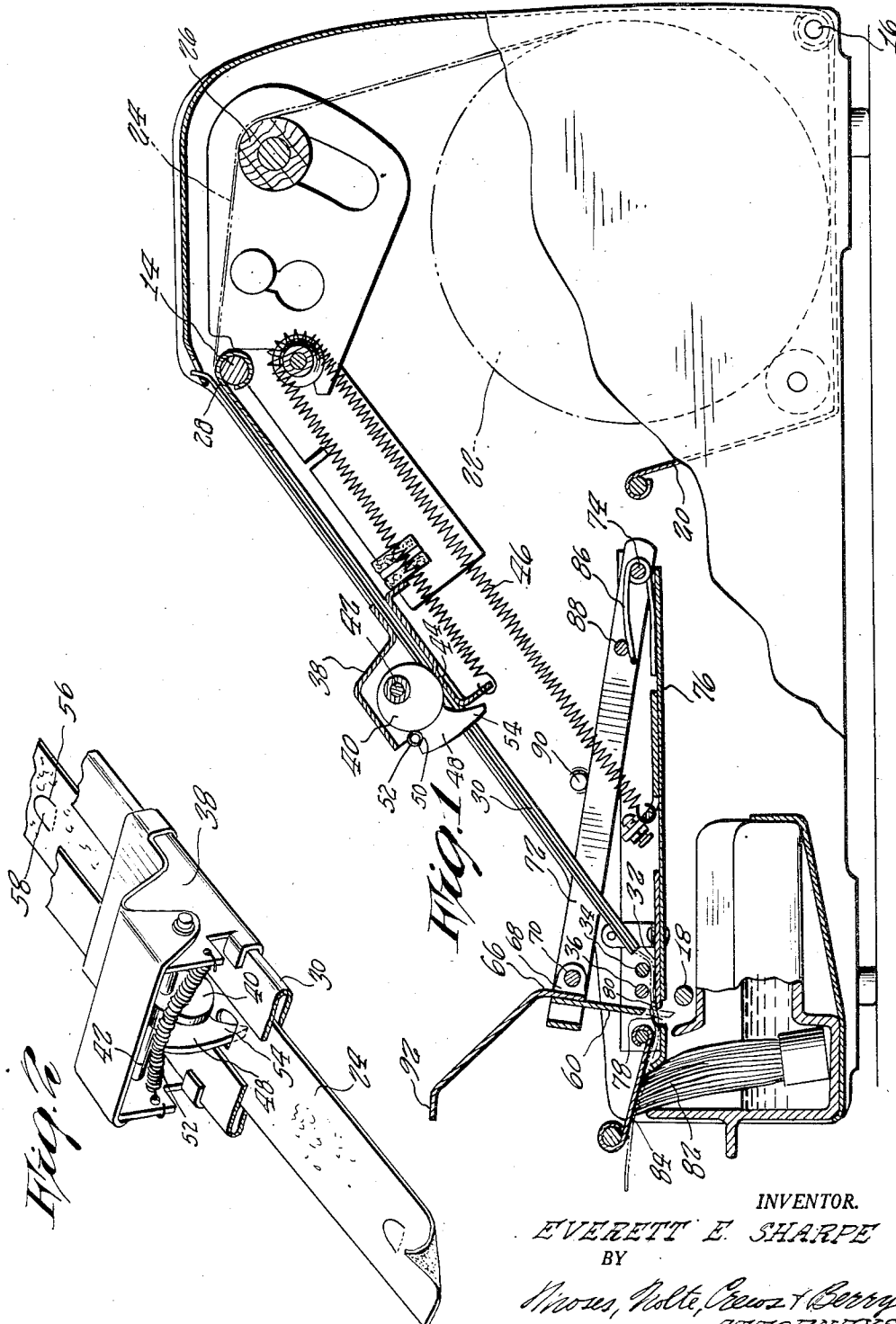
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2,780,286

TAPE SERVING MACHINE HAVING CUTTING MEANS

Filed Jan. 21, 1954

2 Sheets-Sheet 1



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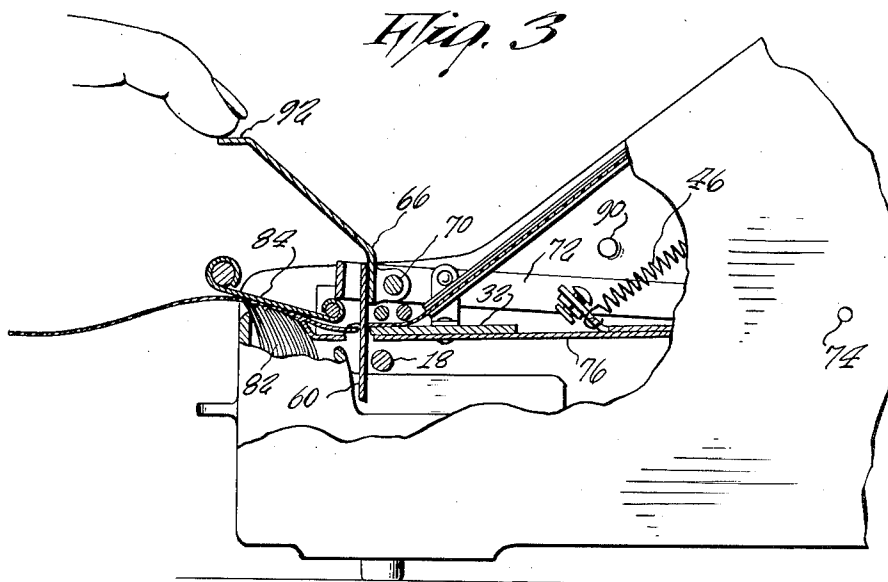
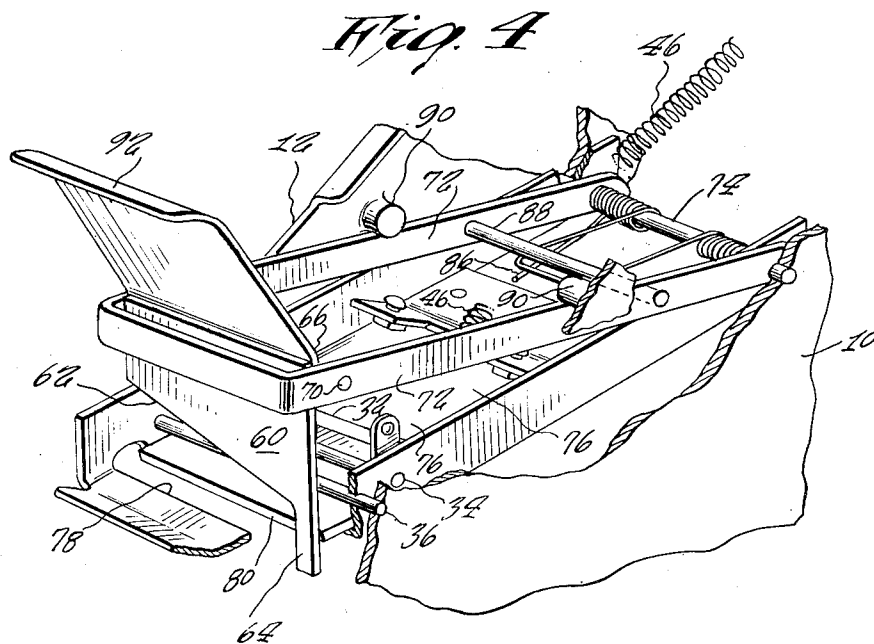
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2 Sheets-Sheet 2



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1

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TAPE SERVING MACHINE HAVING CUTTING MEANS

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Application January 21, 1954, Serial No. 405,304

2 Claims. (Cl. 164—43)

This invention relates to tape serving machines and more particularly to improved tape cutting instrumentalities embodied therein.

The principal object of the invention is to provide a tape serving machine with an improved tape shearing knife means in which the application of force to move the knife in cutting direction also causes the knife to bear with proper pressure against the edge of the ledger blade so as to sever the tape cleanly. Preferably the construction is such that the pressure is relieved on the inactive stroke of the knife so as to permit freedom of movement on the return stroke of the knife.

Other objects and advantages of the invention will appear in the course of the description of one preferred embodiment of the invention.

The invention is shown as applied to a tape serving machine having a guide for the tape and a carriage reciprocable along the guide for feeding the tape; but obviously the invention is applicable to other types of tape feeding machines.

In the accompanying drawings illustrating a preferred embodiment of the invention:

Figure 1 is a view in central vertical longitudinal section of a machine embodying the invention;

Figure 2 is a perspective view showing a portion of the tape guide and feed carriage;

Figure 3 is a side elevation of the front part of the machine with parts broken away to show the same in central vertical longitudinal section; and

Figure 4 is a perspective view of the tape severing construction with parts broken away.

The machine chosen to illustrate the invention is of the general type shown in patent to Krueger, No. 1,638,816, and patent to West No. 2,021,038, the feed construction being similar to the latter patent.

Referring to the drawings in detail, the machine illustrated comprises a pair of side plates 10 and 12 which are secured to spacing rods 14, 16 and 18 by means of screws. Mounted between the side plates is a tape cradle 20 in which is mounted a roll of tape 22. The strip of tape 24 coming from the roll passes upward over a roller 26 and over the curved edge 28 of an inclined slotted tape chute or guide 30 through which it passes downwardly until its lower end engages and slides over a plate 32, the tape passing under a pair of cross pins 34 and 36. The tape is fed down the chute 30 by a feed carriage 38 mounted to slide on the chute and carrying a tape gripping cam 40 eccentrically mounted on a shaft 42 carried by the carriage. The bottom of the carriage has a surface 44 against which the tape is pressed by the cam 40 and a spring 46 is provided to draw the carriage to the upper limit of its movement. The cam 40 carries a plate 48 which has a notch 50 at its upper end which is engaged by a spring 52 which tends to move the cam 40 into gripping engagement with the tape. The lower end of the plate 48 is provided with feeler finger 54 which normally rests on the surface of the tape and holds the cam in a position in which it will not grip the tape. The

2

particular tape shown is provided with a series of apertures 56 in which are flexible tongues 58. The feed carriage will move freely along the guide without gripping the tape until the feeler finger 54 enters one of the apertures 56 whereupon the cam 40 will be rotated into gripping engagement by the action of the spring 52. Further movement of the carriage after this has occurred will cause the tape to be fed forwardly in the chute.

For severing the tape when the desired length has been fed, a shear blade 60 is provided, the cutting edge 62 of which is preferably inclined as shown in Fig. 4. The blade also preferably has at one side a downwardly projecting tongue 64 located at one side of the tape path so that the tape does not engage such tongue. The blade 60 is preferably attached to a plate 66 having ears 68 at right angles thereto and mounted on a shaft 70 carried by a yoke 72 pivoted on a pin 74 carried by the side plates of the machine. Also carried on the side plates is a channel-shaped plate 76 extending forwardly of the machine from the region of the pin 74 to a position in front of the blade 60. Below the blade 60 this plate is provided with a transverse slot 78 through which the blade may be moved. The front part of the plate 32 constitutes a ledger blade having an edge 80 adapted to cooperate with the blade 60 so as to cut the tape with a shear action. The tape is projected forwardly over the plate 32 under the raised blade 60 and then passes between the brush 82 and the pivoted pressure plate 84, where it is moistened on its under surface in a well understood manner. The knife blade 60 and its carrying yoke 72 are normally held in raised position by means of a spring 86 mounted on the shaft 74, and having a portion bearing against the cross pin 88 carried by the yoke 72. Upward movement of the yoke is limited by a pair of stops 90 on the side plates.

In order to secure proper pressure between the blade 60 and the cutting edge 80 of the ledger blade on the down stroke of the cutter, while permitting such pressure to be relieved on the up stroke so as to provide for a free return action, the following construction is employed. The plate 66 is extended upwardly and forwardly to form a "pad" or finger pressure flange 92 so that when pressure is applied to such pad by the fingers in operating the cutter the tendency is to swing the cutter around the axis of the shaft 70 and thereby press the blade 60 firmly against the ledger blade. The cutter blade is held in registry with the edge of the ledger blade by the downwardly extending tongue 64 which is in contact with the ledger blade at all times and thereby guides the blade 60 in its downward movement. The spring 86 at all times resists such downward movement so that substantial pressure has to be applied to the pad 92 from the start of the downward movement of the yoke and blade. Owing to the leverage of the plate 66 the blade 60 is firmly pressed against the ledger blade before cutting the tape begins, and a clean shearing action is assured. The greater the pressure that may be necessary to force the blade through the tape, the greater will be the force on the pad 92 and therefore the tighter will the blade 60 be held against the ledger blade. Once the cut has been completed, however, the pressure is removed from the pad 92 and thereby pressure of blade 60 upon the ledger blade is relieved, and the yoke and knife are instantly thrown to upper position by the spring 86. There is thus no danger of the yoke and blade 60 sticking in a depressed position.

While a preferred embodiment of the invention has been illustrated and described in detail, it is to be understood that changes may be made therein and the invention embodied in other structures. It is not, therefore, the intention to limit the patent to the specific construction illustrated, but to cover the invention broadly in whatever form its principles may be utilized.

3

4

I claim:

1. In a tape dispenser, a tape guide, means for feeding tape through the guide and over a ledger blade, a knife coacting with the ledger blade to shear the tape, a movable knife carrying support, a lever member pivoted to said support to which the knife is attached, a presser pad carried by the lever member and projecting forwardly of the pivot axis whereby manual pressure on said lever member will actuate the knife and simultaneously press it into engagement with the ledger blade during the cutting movement of the knife, and spring means for returning the knife carrying support to initial position, said spring means resisting movement of said support in a direction to permit the knife to sever the tape, whereby sufficient pressure must be exerted on the lever means to press the knife firmly against the ledger blade prior to and throughout the cutting stroke.

2. In a tape dispenser, a tape guide, means for feeding

tape through the guide and over a ledger blade, a knife coacting with the ledger blade to shear the tape, a yoke shaped member pivoted for up and down swinging movement about an axis at a substantial distance in rear of the ledger blade, a spring for urging said yoke shaped member in upward direction, a pivot carried near the forward end of said yoke shaped member in a position above the ledger blade, a lever plate pivoted on said pivot member, said knife being attached to said lever plate adjacent to said pivot member, said lever plate extending forwardly of said pivot member and terminating in a finger pressure pad.

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15