April 8, 1930. C. G. KRONMILLER 1,753,894

TAPE CUTTER

Filed April 6, 1929 2 Sheets-Sheet 1

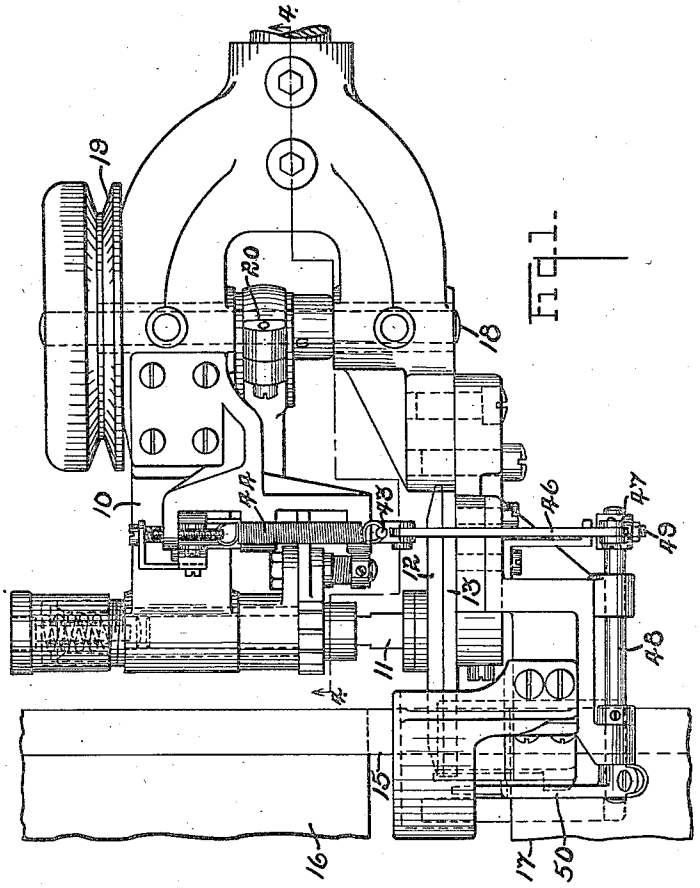


Fig. 1.

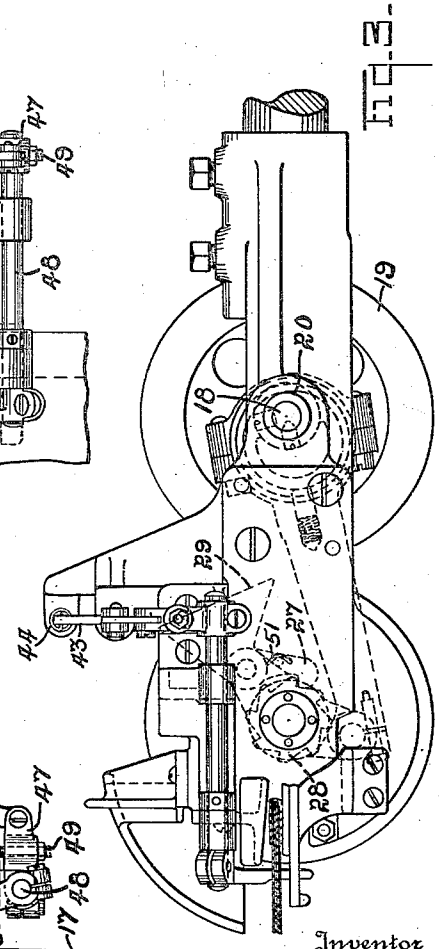


Fig. 3.

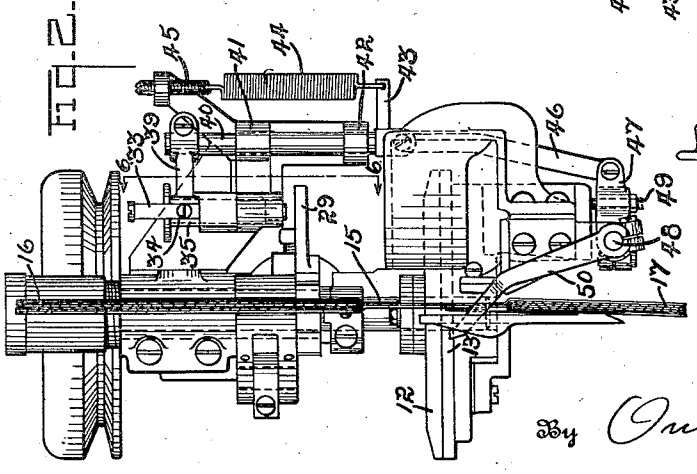


Fig. 2.

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TAPE CUTTER

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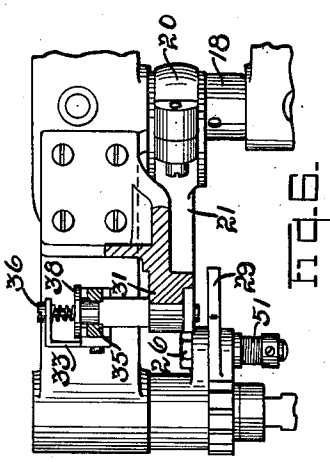


Fig. 6.

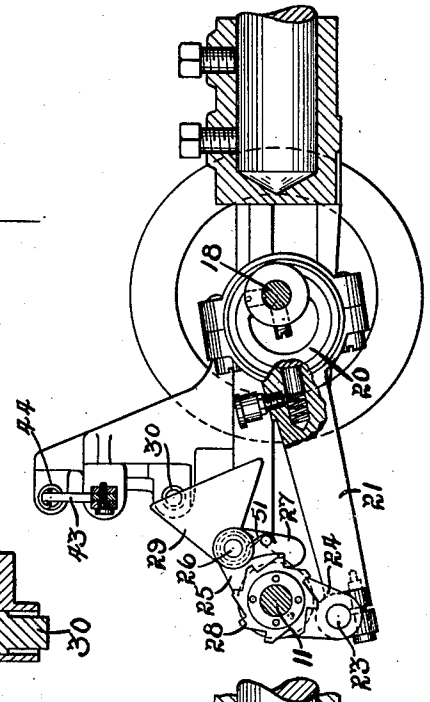


Fig. 4.

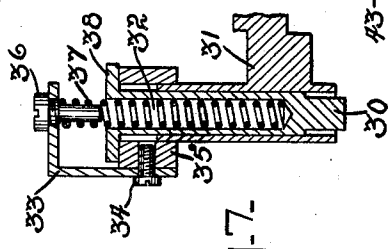


Fig. 7.

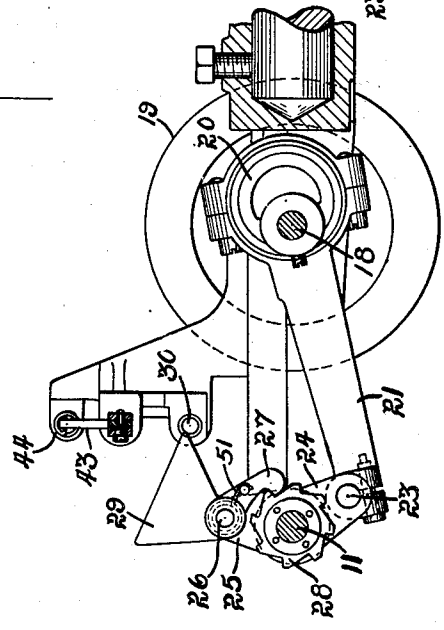


Fig. 5.

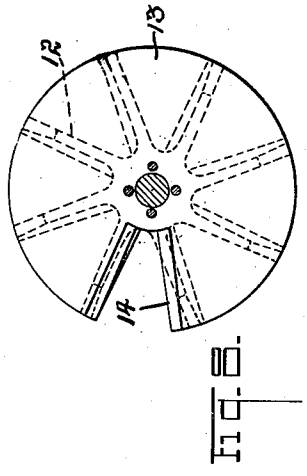


Fig. 8.

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Patented Apr. 8, 1930 1,753,894

UNITED STATES PATENT OFFICE

CARL G. KRONMILLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO ST. REGIS PAPER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

TAPE CUTTER

Application filed April 6, 1929. Serial No. 352,943.

This invention relates to tape cutters and more particularly to a cutter adapted to cut a connecting tape, or the like, between a series of bags, or the like.

This invention is related to and is in the nature of an improvement over the tape cutter disclosed and patented in U. S. Letters Patent No. 1,649,238, issued November 15, 1927. The object of the invention is to insure more positive action of the stop device for the cutter than is insured by the device of the foregoing patent. Details of the invention will appear as the description proceeds.

In the accompanying drawings forming a part of this specification, Figure 1 is a plan view of a cutter embodying this invention; Fig. 2 is an elevation of the cutter viewed from the left of Fig. 1; Fig. 3 is an elevation of the cutter viewed from the lower side of Fig. 1; Fig. 4 is a partial section substantially on the line 4—4 of Fig. 1; Fig. 5 is a section similar to Fig. 4, but showing the parts in a different position; Fig. 6 is a sectional plan of a portion of the detent mechanism substantially on the line 6—6 of Fig. 2; Fig. 7 is a section through the detent pin; Fig. 8 is an end elevation of the cutting device.

The mechanism in connection with which the invention is disclosed is intended to be placed adjacent the path of a series of articles connected by a tape or the like, and to sever the tape between successive articles. The cutting device is mounted on a frame 10, which may be secured to the machine in any desired manner. A cutting shaft 11 drives a star wheel cutter 12 in cooperative relation with a disk 13 having therein a cutting notch 14 through which the tape to be cut 15 passes, this tape connecting successive articles, such as bags 16 and 17.

Mounted in the frame there is a drive shaft 18 driven by a pulley 19, or other suitable means. Shaft 18 is provided with an eccentric 20 connected by a link 21 to a pivot 23 on an arm 24 oscillatable about shaft 11. Connected with arm 24 there is an arm 25 carrying a pivot 26 for a pawl 27 adapted to engage notches in a ratchet 28. Pawl 27 is provided with a governing extension or heel 29 which moves in operative relation to a detent pin 30. Pin 30 is reciprocably mounted in a bracket 31 and is preferably hollow for a considerable distance, as indicated at 32. A small bracket 33 is attached by a screw 34 to a controlling arm 35 which is adapted to reciprocate upon bracket 31. A pin 36 through the end of bracket 33 slides within and positions the outer end of a spring 37 which extends into the hollow of pin 30. A flange 38 upon the end of pin 30 normally contacts arm 35 and limits the movement of pin 30 under the pressure of spring 37.

An upward extension 39 of arm 35 is attached to the end of a slide rod 40 mounted slidably in lugs 41 and 42 on the frame. Arm 43 on the other end of rod 40 is connected by a spring 44 to a screw 45, which is adjustable in a lug on the frame.

The end of rod 40 to which arm 43 is attached is connected to a link 46 which is pivoted at its other end to an arm 47 mounted on a rock shaft 48. A set screw 49 in arm 47 forms an adjustable stop for limiting the movement of the arm and rod 40 in response to the tension of spring 44. On the other end of rock shaft 48 there is a trip arm 50 adapted to ride over successive bags and drop into each successive space therebetween.

In the operation of the above described device, it will be understood that the drive shaft is continuously operated and that the tape and bags are, or may be, moved continuously past the device. At each revolution of eccentric 20, arm 25 carrying pawl 27 is oscillated a sufficient distance to move ratchet wheel 28 one notch, there being one notch on the ratchet wheel for each arm on star wheel 12. Thus, an arm of the star wheel is given a cutting stroke at each revolution of shaft 18 unless the stop mechanism described below operates to prevent this operation.

When arm 50 is raised by a bag 16 or 17, it oscillates rock shaft 48 and moves slide rod 40 against the tension of spring 44. This movement of rod 40 moves arm 35 towards the path of the heel 29 of pawl 27. This movement of arm 35 allows pin 30 to move in the same direction. If this movement takes place while heel 29 is in front of pin 30, as

indicated in Fig. 4, the pin contacts the side of heel plate 29 and thereafter spring 37 is compressed. As eccentric 20 continues to move and the pawl is rocked to the position in which it is shown in Fig. 5, pin 30 is snapped by spring 37 into the path of the heel. Upon the return movement of the pawl, the contact of heel 29 with pin 30 raises the pawl away from ratchet 28 against the tension of a suitable spring 51 so that it cannot hook over the next tooth on ratchet member 28 and consequently its subsequent oscillations are idle as long as the pin remains in its stopping position.

When trip member 50 drops into the space between bags 16 and 17, spring 44 promptly oscillates shaft 48 and slides rod 40 to carry arm 35 away from heel 29, as shown in Figs. 2 and 6. It will be seen that the movement in this direction is caused by a comparatively strong spring 44 and promptly follows when trip member 50 rides off of a bag. Immediately after pin 30 is thus withdrawn, spring 51 snaps pawl 27 up against ratchet member 28 and upon the next movement thereof in operating direction, the star wheel is given a cutting movement. This movement is repeated at each revolution of shaft 18 until the trip member 50 rides up on the next bag, when the stop is returned to stopping position in the manner previously described. The pin is returned to position by spring 37 while heel plate 29 is out of its path so that there is no resistance to this movement of the pin. The next oscillation of arm 25 carries heel plate 29 against the side of pin 30 so that it is positively stopped and the pawl is forced out of engagement with the ratchet member. This insures that the cutting action is stopped immediately after the trip rides up on a bag. Any movement initiated before the trip thus rides up on the bag is allowed to be completed, because the pin does not become operative as a stop pin until heel 29 is moved to the end of its cutting stroke, as shown in Fig. 5; but no other cutting stroke can take place thereafter as long as trip member 50 remains raised.

It will be thus seen that this construction insures certain stopping of the cutter when the trip rides up on a bag and at the same time reliably actuates the cutter to form a cut as soon as the trip rides off of a bag and continues to repeat the cut at frequent intervals until the trip is again raised. While one specific embodiment of the invention has been disclosed in detail, it will be understood that various modifications can be made within the scope of the appended claims.

What I claim is:

1. In apparatus of the character described, a cutter, means to feed past the cutter spaced articles connected by a tape, driving means comprising a member having an alternate working stroke and idle stroke and adapted normally to impart a cutting movement to said cutter during its working stroke, a trip normally in the path of the article approaching the cutter, and a pin actuated by said trip, when moved from the path of the article, said pin being thus actuated into the path of movement of said member and preventing the movement thereof in its normal working path until the next period of normal working movement after the trip returns to its normal position.

2. In apparatus of the character described, a stationary cutter having a notch therein, a rotary cutter having arms thereon movable successively past said notch, intermittently engaged actuating means adapted to rotate the cutter at each engagement a sufficient distance to move one of its arms past said notch, means to feed past the cutter a series of spaced articles connected by a tape with the tape passing through said notch, a trip in the path of the articles, and means connected to the trip and comprising a pin movable into the path of said actuating means in position to prevent its re-engagement while the trip is in contact with the article.

3. In a tape cutter, a driving device for a cutter comprising a shaft having a ratchet wheel thereon, an arm oscillatable about the shaft, means for oscillating the arm, a pawl carried by the arm, a detent pin movable into the path of a portion of the pawl, a trip member connected to said detent pin and operable to move the pin into or out of the path of said portion of the pawl, the pin, when in said path, preventing the operating engagement of the pawl with the ratchet without interfering with the oscillation of said arm.

4. In a tape cutter, a driving device for a cutter comprising a shaft having a ratchet wheel thereon, an arm oscillatable about the shaft, means for oscillating the arm, a pawl carried by the arm, a detent pin movable into the path of a portion of the pawl, a trip member connected to said detent pin and operable to move the pin into or out of the path of said portion of the pawl, the pin, when in said path, preventing the operating engagement of the pawl with the ratchet without interfering with the oscillation of said arm, said portion of the pawl having a flat surface on its side against which the pin may rest when the portion is in the path of the pin and said pin having a yielding connection for allowing it to yield when the trip moves it towards the pawl while the pawl is in its path and for snapping it into the path of the pawl when the pawl is moved out of the path of the pin.

In testimony whereof I have hereunto signed my name to this specification.

CARL G. KRONMILLER.