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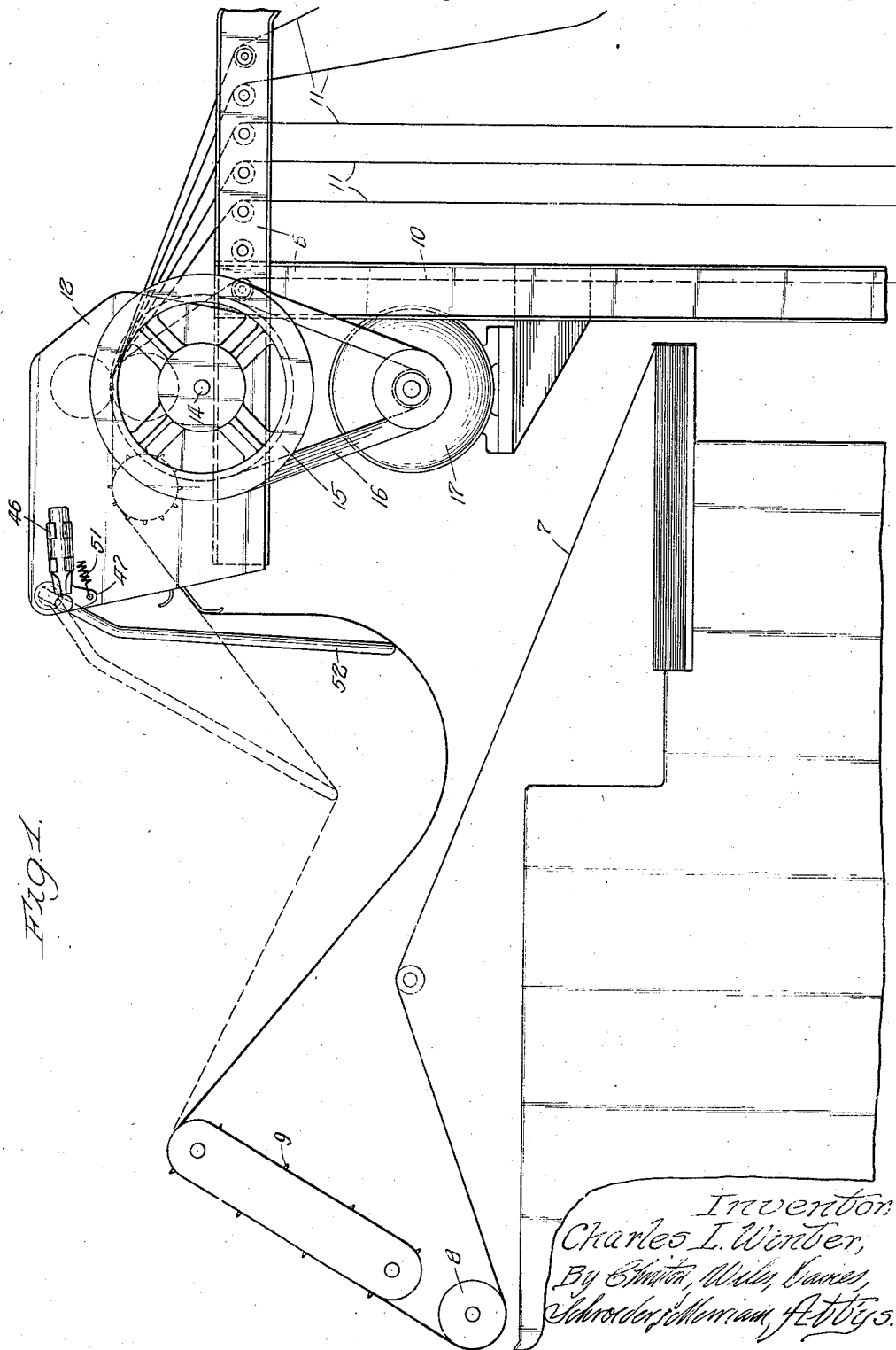
C. L. WINTER

2,390,907

STATIONERY FEEDING AND TRIMMING DEVICE

Filed April 10, 1944

4 Sheets-Sheet 1



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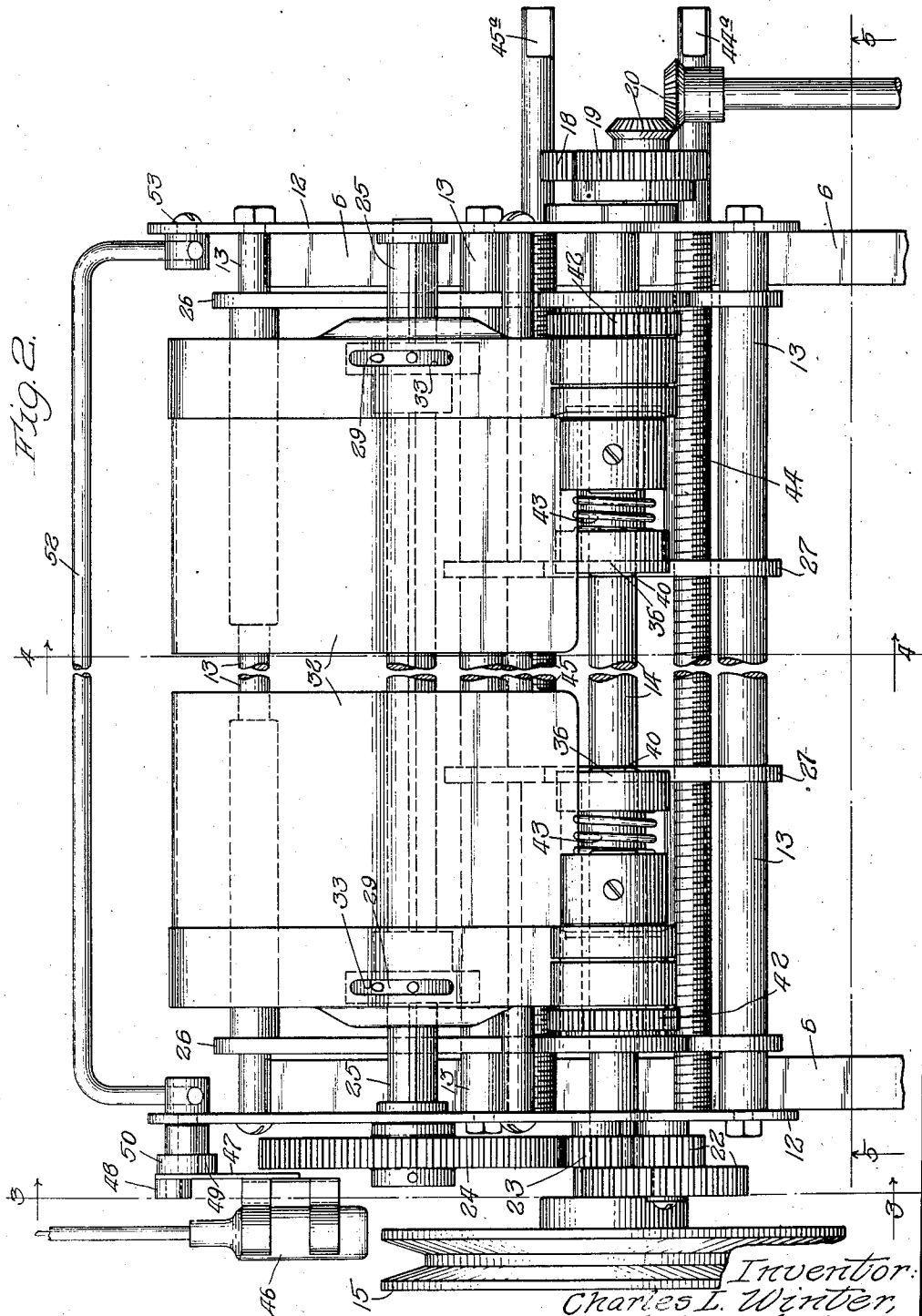
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STATIONERY FEEDING AND TRIMMING DEVICE

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4 Sheets-Sheet 2



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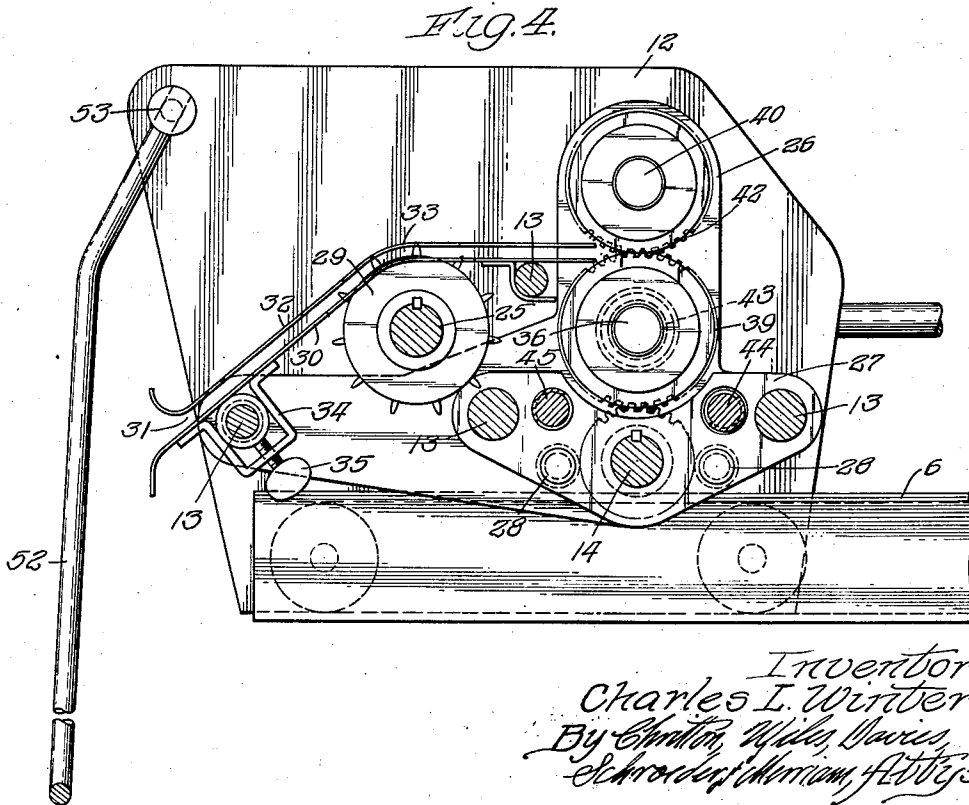
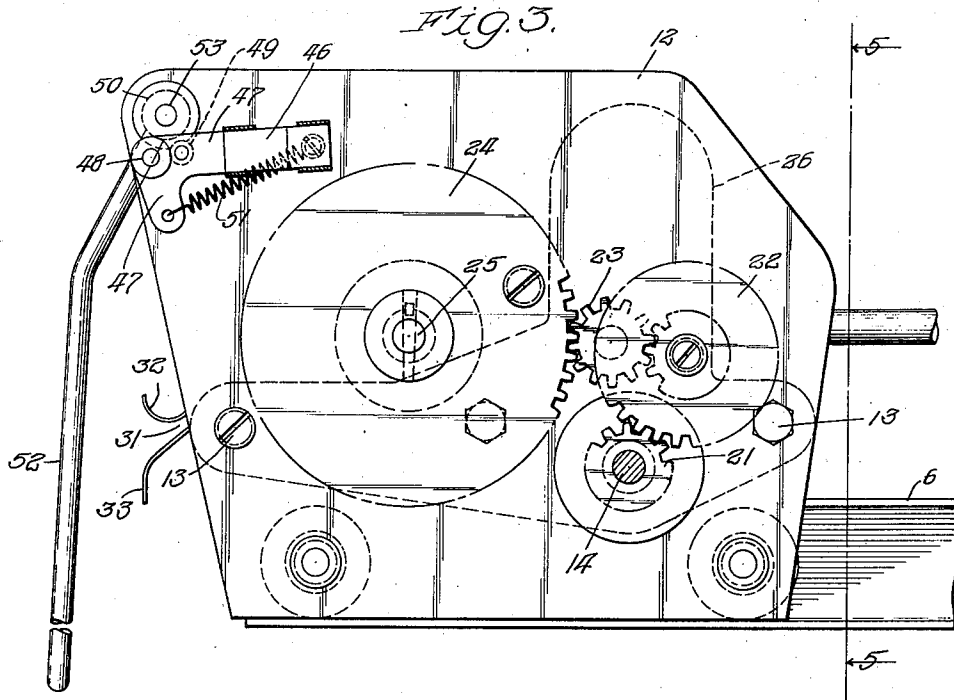
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STATIONERY FEEDING AND TRIMMING DEVICE

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4 Sheets-Sheet 3



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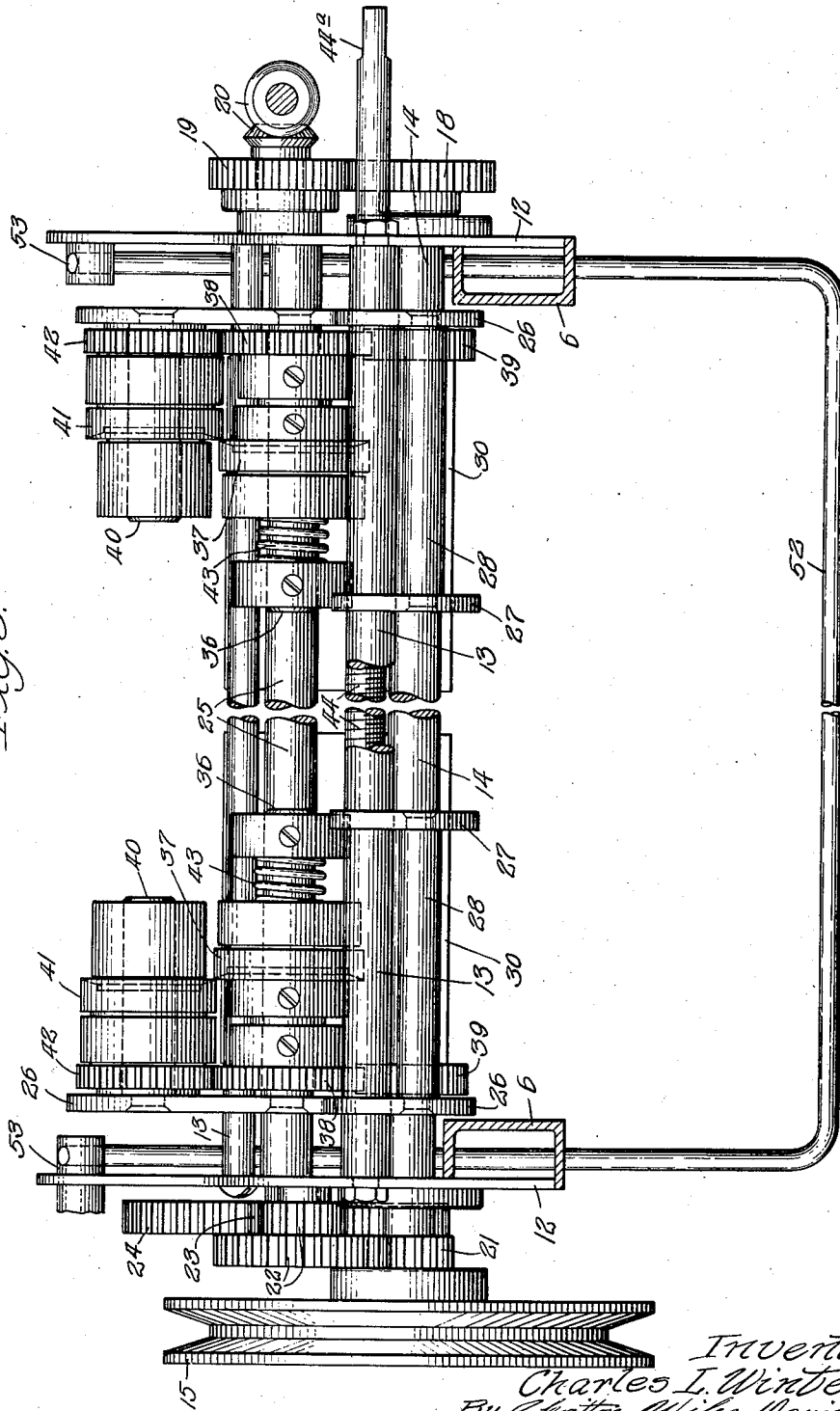
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STATIONERY FEEDING AND TRIMMING DEVICE

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Fig. 5.



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UNITED STATES PATENT OFFICE

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STATIONERY FEEDING AND TRIMMING
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Application April 10, 1944, Serial No. 530,267

6 Claims. (Cl. 164—61)

This invention relates to a machine for trimming off the punched marginal edge portion of stationery strips, after they have left a writing machine and are ready to be delevated of carbon strips and detached from each other.

The primary object of the invention is to provide an automatic trimming machine which may be placed in the rear of a tabulating machine or the like, and will automatically trim off the punched marginal edge portions of the stationery at whatever rate it is delivered from the tabulating machine.

Another object of the invention is to provide a pin wheel feed for controlling the advance of the stationery to rotary cutters, and to obtain better cutting by driving the cutter rolls at a substantially greater peripheral speed than that of the pin wheels.

Another object of the invention is to provide feeding and cutting units in the trimming device that may be readily adjusted laterally and with respect to each other to accommodate different weights of stationery.

The present invention is an improvement on the trimming device of a carbon delevating machine of the type shown in Euth Patent 2,280,224, issued April 21, 1942.

The invention is illustrated in a preferred embodiment in the accompanying drawings in which—

Figure 1 is a fragmentary side elevational view of a machine embodying the invention, and showing diagrammatically how it may be mounted to cooperate with the positive feeding device on a tabulating machine or the like; Fig. 2, a fragmentary plan view of the same; Fig. 3, a fragmentary sectional view taken as indicated at line 3—3 of Fig. 2; Fig. 4, a fragmentary sectional view taken as indicated at line 4—4 of Fig. 2; and Fig. 5, a sectional elevational view taken as indicated at line 5—5 of Fig. 2.

In the embodiment illustrated, the feeding and trimming device may be mounted on a frame 6, which may be part of a delevating machine. It will be understood that the device may be placed in the rear of a writing machine, such as shown diagrammatically in Fig. 1, and manifold stationery 7 can be drawn around a platen 8, by means of a positive pin feeding device 9, which engages punch holes in the stationery and advances the stationery in timed relation to the rotation of the platen 8. After leaving the positive feeding device 9, the stationery is led into a chute in the trimming device which is slotted to permit the pin wheels to engage marginal punch

holes in the stationery and control the advance of the stationery through the pairs of rotary cutters, which trim off the marginal portions of the stationery, as indicated by the dotted lines 10, and free the remaining strips of carbons and stationery 11, as it advances into the delevating device.

The trimming device has a pair of side plates 12, which are secured to the frame 6, and afford bearings for the driving cross shafts. The side plates are secured together in proper spaced relation by means of tie rods 13, upon which the feeding and cutting units are slidably mounted.

The trimming device has a main driving shaft 14, which is provided at one end with a pulley 15, which is driven by belt 16 from a motor 17 supported on the frame 6. As shown in Figs. 2 and 5, one end of the shaft 14 is provided with meshing gears 18 and 19, which drive a pair of miter gears 20, which may operate the delevating mechanism which is not shown.

As best shown in Fig. 3, the main drive shaft 14 is provided with a pinion 21, which drives a compound gear 22 which is in mesh with an idler gear 23 to drive a gear 24 on a spline shaft 25.

The trimming device is provided with a pair of similar feeding and cutting units, which are slidably mounted on the tie rods 13. Each unit has an outer side plate 26 and an inner side plate 27, held together by spacing bars 28. Each feeding unit has a pin wheel 29 which is splined to the shaft 25, and has its peripheral portion extending through a slot in the lower guide member 30 of the chute 31, so that lateral movement of the pin wheel is controlled by the chute. As the upper guide member 32 has slots 33, it will be understood that the pins on the feed wheels 29 will engage marginal perforations in stationery led into the chute 31.

As shown in Fig. 4, the chutes are provided with keepers 34 and thumb screws 35, so that the units may be secured in an adjusted position. As thus shown in Figs. 4 and 5, each feeding and cutting unit has a lower stub shaft 36, on which is journaled a lower cutter roll 37 having a gear 38 which is driven by a gear 39. Gear 39 is splined to the main drive shaft 14 so that it may be moved along the shaft with the unit. The unit also has an upper stub shaft 40, which is secured to the side plate, and on which is journaled an upper cutter roll 41, which is driven by a gear 42, which is in mesh with gear 38 on the lower cutter roll. As shown in Figs. 2 and 5, the usual spring mechanism 43 is provided to hold the cutter rolls in contact and make them self-sharpening.

In order to facilitate lateral adjustment of the feeding and cutting units in order to accommodate various widths of stationery, a pair of screw shafts 44 and 45 are journaled in side plates 12 of the trimming device. As shown in Fig. 2, these shafts are extended outwardly, and provided with squared heads 44a and 45a to receive a small crank or hand wheel. The rear screw shaft 44 freely extends through holes provided in the plates 26 and 27 of the right feeding unit, as viewed in Fig. 5, and makes a threaded connection for the plate 27 of the left feeding and cutting unit. In like manner, the front screw shaft 45 makes a threaded connection with the right feeding and cutting unit, as viewed in Fig. 5, and freely extends through holes provided in the side plates of the left feeding and cutting unit. Thus it will be understood that after loosening the thumb screws 35, either of the feeding and cutting units may be adjusted laterally by rotating the proper screw shaft 44 or 45.

In order that the operation of the trimming device may be entirely automatic, the motor 17 is wired through a mercury switch 46 which is carried on a shaft member 47, which is pivotally mounted at 48 on the side wall 12. The member 47 is provided with an inwardly extending roller 49, to engage a cam slot in the cam member 50. The roller 49 is urged into engagement with the member 50 by the action of a tension spring 51, which extends from a downwardly extending finger on the member 47 to a stud on the side wall 12. A bail 52 is pivotally mounted on the side plate 12, as indicated at 53, and, as shown in Fig. 2, is provided with a trunnion which is secured to the cam member 50. When the bail hangs down, as indicated by the full lines in Fig. 1, the mercury switch permits the motor to run. However, as tension increases in the advancing webs, as indicated by the dotted lines in Fig. 1, the bail swings upwardly and the cam 50 forces the mercury switch to open against the action of spring 51. This snap action will shut off the motor until there is enough slack in the web to start it again automatically.

In operating the machine, it will be understood that the advance of the stationery is controlled by the positive feeding device 9. The stationery is tensioned between the positive feeding unit 9 and the pin wheels 29. When there is sufficient slack in a loop, the trimming device will begin to operate automatically. The pin wheels 29 completely control the travel of the stationery through the cutter rolls and even though the latter have a tendency to pull the paper, that action is restrained by the pin wheels and the cutting proceeds at a uniform rate in which the cutter rolls operate at a peripheral speed which is about fifty per cent greater than that of the pin wheels. This action produces a very clean straight line of cutting.

The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. A trimming device for marginally punched stationery comprising: a frame provided with a pair of driving cross-shafts; a pair of feeding and cutting units splined to said shafts so as to be adjustable laterally thereon, each of said units having a pin wheel to engage marginal punch holes in stationery led thereover and a pair of coacting cutter rolls to trim off the punched marginal edge portion of the stationery; and means connected to said drive shafts for driving the cutter rolls and pin wheels in timed relation with the cutter rolls at a faster peripheral speed than said pin wheels.

2. A device as specified in claim 1, in which a pair of screw shafts are journaled in the frame and each shaft has a threaded connection with one of the feeding and cutting units so that the units may be adjusted by rotating said screw shafts.

3. A device as specified in claim 1, in which each of the adjustable feeding and cutting units has a pair of guide members which forms a chute for the stationery, and said guide members being slotted to permit the pin wheels to project into the chute and engage the stationery.

4. In a machine for the purpose set forth: a positive feeding device having pins for engaging punched strips of stationery; a rotary cutting device in rear of said positive feeding device and having cutter rolls and a pin wheel for engaging said punched strips and controlling their advance between said cutter rolls; means for driving the pin wheel at a faster speed than the positive feeding device; and automatic means for starting and stopping the rotary cutting device controlled by the amount of slack in the strip extending between said positive feeding device and said pin wheel.

5. A machine as specified in claim 4, in which cutter rolls are driven at a peripheral speed of about 50% greater than that of the pin wheel.

6. A trimming device for marginally punched stationery comprising: a frame provided with a pair of driving cross-shafts; rotary cutter rolls splined to said cross-shafts; a third driving shaft in front of the cutter rolls geared to one of said driving cross-shafts; a pin wheel splined to said third shaft to engage marginal punch holes and control the advance of said strip; and means for shifting said rotary cutter rolls and pin wheel laterally as a unit.

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