

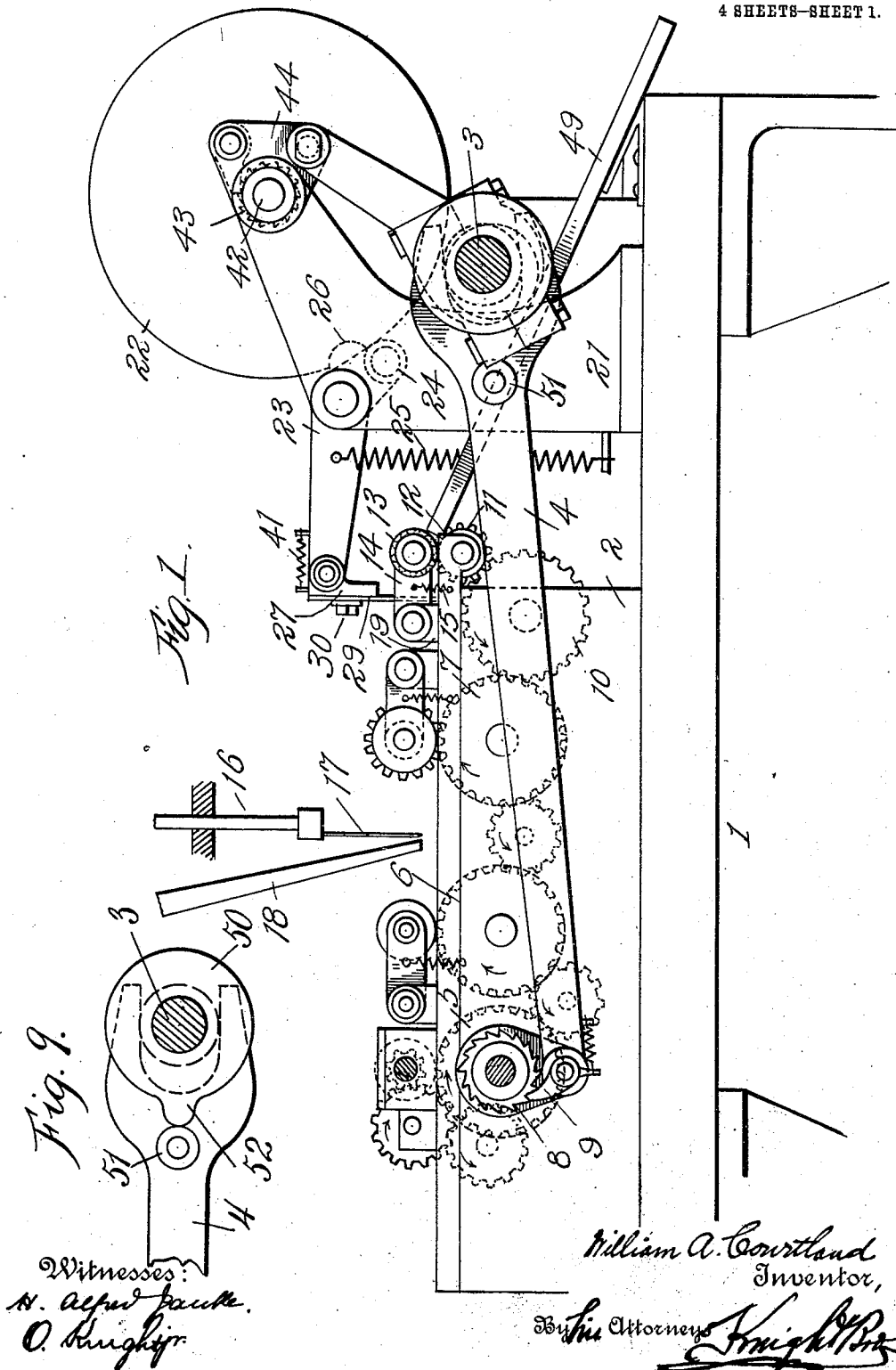
W. A. COURTLAND.
CUTTING MECHANISM.

APPLICATION FILED JUNE 27, 1907. RENEWED MAR. 16, 1910.

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Patented July 25, 1911.

4 SHEETS-SHEET 1.



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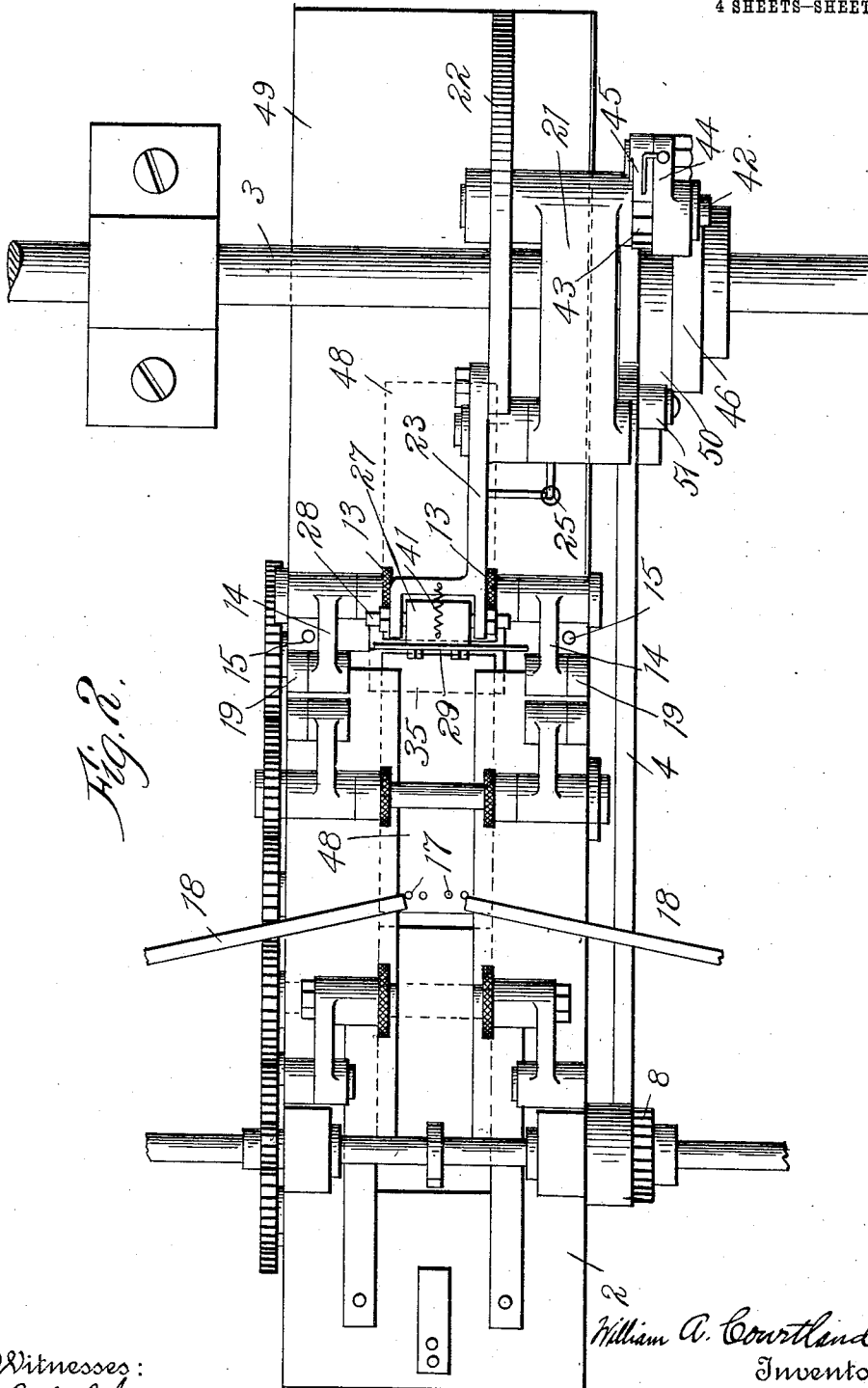


Fig. 2.

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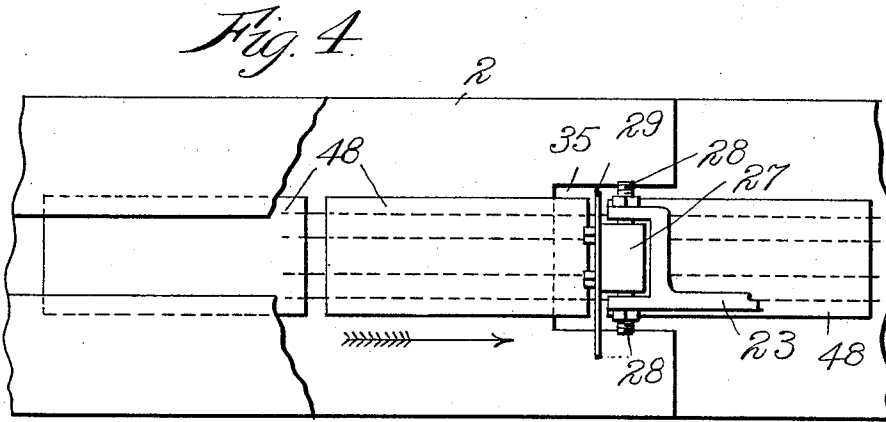
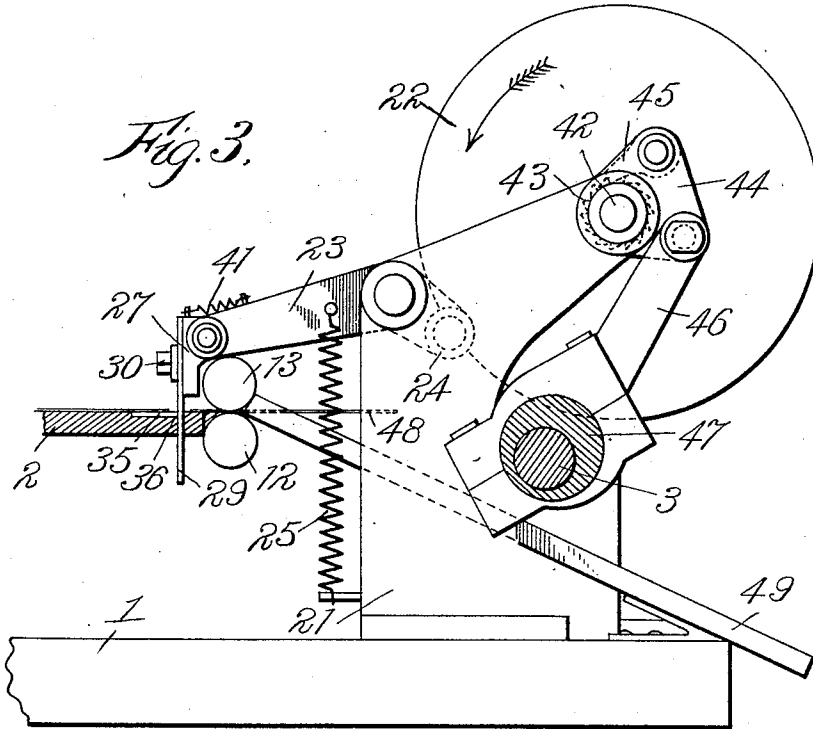
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4 SHEETS-SHEET 3.



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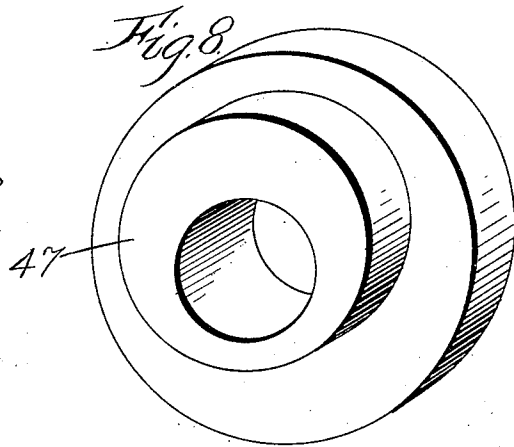
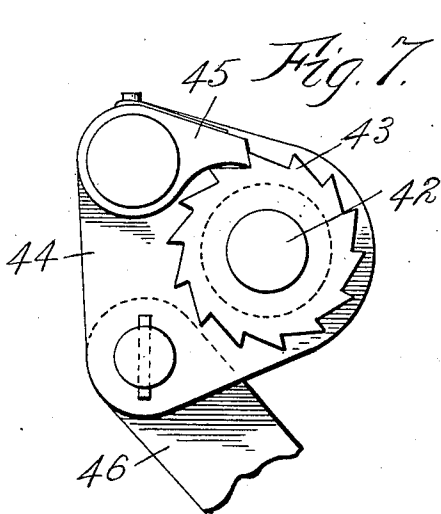
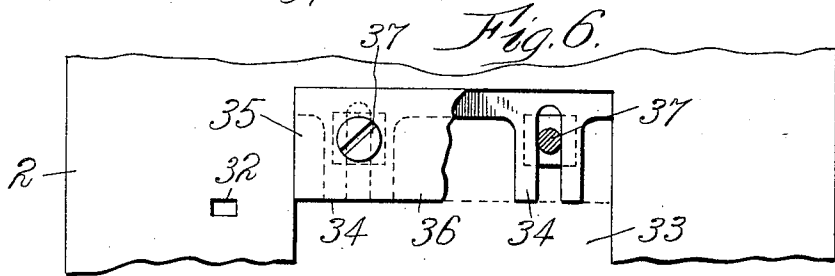
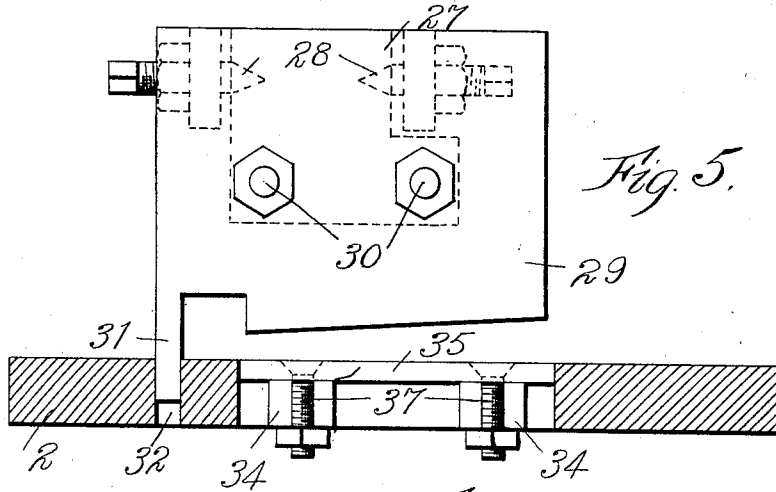
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WILLIAM A. COURTLAND, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CONNECTICUT HOOK & EYE COMPANY, OF WATERBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

CUTTING MECHANISM.

999,154.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed June 27, 1907, Serial No. 381,136. Renewed March 16, 1910. Serial No. 549,739.

To all whom it may concern:

Be it known that I, WILLIAM A. COURTLAND, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Cutting Mechanism, of which the following is a full and clear specification.

My invention relates in general to a cutting mechanism which may be employed in article feeding machines, in which it is required to cut the articles after leaving the feeding mechanism into certain predetermined lengths at a predetermined time.

My invention may be in particular employed in machines sewing hooks and eyes on cards for cutting the threads connecting the several cards after they have left the sewing mechanism, such as is shown, for instance, in the Patent No. 710,517 granted to George Rowbottom on October 7, 1902.

The device is clearly illustrated in the accompanying drawings, of which—

Figure 1 is a side elevation of the cutting mechanism as connected to the card feeding mechanism disclosed in the patent above referred to; Fig. 2 is a plan view thereof; Fig. 3 is a side elevation of the cutting mechanism showing the position of the knife immediately after the cutting; Fig. 4 is a plan view of a part of the table on which the cards are fed to the cutting mechanism, showing also the cards in their relative positions when leaving the sewing mechanism and approaching the cutting mechanism; Fig. 5 is a front elevation of the knife seen from the side from which the cards are fed; Fig. 6 is a plan view of the table on which the cutting takes place; Fig. 7 is a detail view of a part of the timing device for the cutting mechanism; and Fig. 8 is a detail view of the eccentric operating the cutting mechanism. Fig. 9 is a detail view of the connection between the cam and the arm operated by said cam.

In the drawings my cutting mechanism is shown attached to the sewing machine shown in the patent above referred to, and only the card feeding mechanism of said machine is shown in detail, the other parts of this machine not being necessary to make clear my invention.

In Fig. 1; 1 is a part of the table on which

the sewing table 2 carrying the feeding mechanism for the cards is mounted.

3 is the main shaft of the machine driving the different devices, on which is mounted cam disk 50 cooperating by means of its cam 52 with cam roll 51 disposed on forked arm 4, which in turn by the rocking motion thus imparted to same, operates the feed roll gears 5, 6 and 7, by means of ratchet wheel 8 and pawl 9 in a similar manner as in the patent above referred to, so that the cards are fed through the feeding mechanism in the direction indicated by the arrow.

The details of the sewing mechanism and of the mechanism for feeding the articles to be sewed on the cards are omitted in the drawings, said devices being merely indicated diagrammatically, since their construction has no bearing upon my invention.

In Figs. 1 and 2, 17 are the needles and 16 is the needle bar of the sewing mechanism. 18 indicates diagrammatically the means for feeding the articles, such as for instance hooks and eyes, to be sewed on the cards to the sewing line.

At the end of table 2 is suitably mounted gear wheel 10 in mesh with gear wheel 7 of the card feeding mechanism. Gear wheel 10 in turn is in mesh with gear wheel 11 which is mounted on the same shaft with feed rolls 12 against which the idle rolls 13 bear. Idle rolls 13 are each mounted on arms 14 pivoted at 19. On table 2 and each arm 14 is fastened a tension spring 15, so that idle rolls 13 will bear with a suitable pressure against the positively driven feed rolls 12. By this gearing feed rolls 12 will positively feed the card forward at the same speed as it is fed in the direction of the arrow by the feed rolls of the card feeding mechanism. On table 1 is further mounted at a suitable distance from the end of the sewing table 2, a bracket 21 which carries at its end a suitably journaled disk 22. In bracket 21 is further pivoted rocking lever 23, the right end of which is provided with roll 24 adapted to roll on disk 22, and held in contact with said disk by spring 25. Disk 22 is provided with a notch 26, through which roller 24 will roll on revolution of disk 22, so that rocking lever 23 will thus perform a rocking motion. On the left arm of rocking lever 23 is pivoted knife bracket 27 by means of

pivot screws 28 shown in Fig. 5 in dotted lines. The knife 29 is fastened to knife bracket 27 by means of screws 30 and provided at its left end (shown in Fig. 5) with a guide bar 31 protruding into a suitable opening 32 of sewing table 2, so that while rocking lever 23 performs its rocking motion, the knife 29 is guided at its upper end by the arm of rocking lever 23 and at its lower end by guide bar 31 as shown in Fig. 6. Sewing table 2 is provided with recess 33 of suitable width to receive the knife 29 and further provided at the bottom of this recess with the forked studs 34. The studs 34 are adapted to carry a plate 35 provided with a cutting edge 36 against which the shearing knife 29 operates. Plate 35 is fastened on studs 34 in their respective slots by screws 37, so that it may be adjusted relatively to shearing knife 29 into the proper cutting position. In order to hold the knife 29 at any time firmly against the cutting edge 36 of plate 35 (Fig. 3), a spring 41 is provided at the upper end of knife bracket 27, which will tend to press the knife firmly against edge 36 as desired.

On shaft 42 of disk 22 is fixed ratchet wheel 43, and on this shaft is further loosely mounted the triangular shaped plate 44, carrying pawl 45 engaging ratchet wheel 43. To the third corner of plate 44 is pivoted arm 46 which is on its other end operatively connected to the eccentric 47 mounted on main shaft 3, so that when this latter shaft performs one revolution pawl 45 will move ratchet wheel 43 and thus disk 22 one tooth forward in the direction of the arrow.

In the machine described in the patent above referred to, two stitches are made by the sewing mechanism on each full revolution of main shaft 3, and furthermore twelve pairs of hooks and eyes are sewed in one row on one card which requires twenty four stitches, one through each sewing eye of the hook and eye, and furthermore two idle stitches have to be made at the beginning and at the end of each row, so that altogether twenty-eight stitches are made by the machine in the card for one row of hooks and eyes. The pick up roll of the card feed described in said patent feeds the cards to the sewing mechanism, so that the next stitch after the twenty-eighth stitch will be made into the edge of the next card, so that the distance between two cards is equal to the distance between two stitches on the card. As the sewing operation goes on the cards would leave ordinarily the machine not provided with my cutting mechanism sewed together in one chain, the distance between two cards being always equal to the distance between two stitches on the card. It will be seen that in order to cut the thread between two cards, the shearing

knife has to descend after every twenty-eighth stitch of the sewing mechanism. Owing to shaft 3 making one revolution for every two stitches as stated above, ratchet wheel 43 is provided with fourteen teeth, so that after fourteen revolutions of shaft 3 disk 22 has performed one revolution, and consequently roll 24 of rocking lever 23 will drop into notch 26 of disk 22 every twenty-eight stitches of the machine and cause the shearing knife 29 to descend and cut the thread between two cards. The rocking motion of lever 23 is timed so that the knife will descend when an interval between two cards 48 (Fig. 4) is in the path of the knife to cut the thread of the cards bridging this interval. After a card has been cut loose from the chain of cards on the table, it is still held between feed rolls 12 and 13 and fed still forward beyond the end of sewing table 2 shown at 48 (Fig. 3), so that after it has passed feed rolls 12 and 13, it will drop on the inclined chute 49 disposed with its upper end close to feed rolls 12 and 13 and fastened on table 1, upon which it leaves the machine.

I claim:

1. In a mechanism of the character described, the combination with a device for feeding articles step by step, a shearing knife disposed to move substantially transversely to the direction in which the articles feed, a rocking lever having said knife pivoted to one of its arms and a shaft operating said feeding device; of a disk suitably journaled having rolling contact with the other arm of said rocking lever and having also a ratchet wheel fixed to its shaft, a bracket loosely fitted on said shaft having a pawl disposed to operate said ratchet wheel step by step, an eccentric on said feeding device operating shaft and a pitman operatively connected therewith imparting rocking motion to said loose bracket, the number of teeth on said ratchet wheel being in a predetermined proportion to the number of steps made by said feeding device, and a notch on said disk causing said rocking lever to rock after a predetermined number of steps have been made by said disk.

2. In a mechanism of the character described, the combination with a cutting table, a rocking lever, a shearing knife pivoted to one arm of said rocking lever having a guide bar, said table having a recess adapted to receive said guide bar to guide said knife, a shearing plate fixed on said table disposed to cooperate with said knife, and means for operating said rocking lever; of means for holding said knife in operative contact with said shearing plate during the cutting process.

3. In a mechanism of the character described, the combination with a cutting table, a rocking lever, a shearing knife pivoted to

one arm of said rocking lever having a guide bar, said table having a recess adapted to receive said guide bar to guide said knife, a shearing plate adjustably fastened on said table and disposed to cooperate with said knife and means for operating said rocking lever; of means for holding said knife in operative contact with said shearing plate during the cutting process.

10 4. In a mechanism of the character described, the combination with a cutting table, a rocking lever, a shearing knife pivoted to one arm of said rocking lever having a guide bar, said table having a recess adapted to receive said guide bar to guide said knife, a shearing plate adjustably fixed on said table and disposed to cooperate with said knife, and means for operating said rocking lever; of means between said knife and said rocking lever arm for holding said knife in op-

erative contact with said shearing plate during the cutting process.

5. In a mechanism of the character described, the combination with a cutting table, a rocking lever, a shearing knife pivoted to one arm of said rocking lever having a guide bar, said table having a recess adapted to receive said guide bar to guide said knife, a shearing plate adjustably fixed on said table and disposed to cooperate with said knife and means for operating said rocking lever; of a tension spring between said knife and said rocking lever arm for holding said knife in operative contact with said shearing plate during the cutting process.

WILLIAM A. COURTLAND.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."