Oct. 21, 1924.

1,512,202

L. K. DAVIS.

CUT-OFF MECHANISM

Original Filed May 16, 1921 - 2 Sheets-Sheet 1

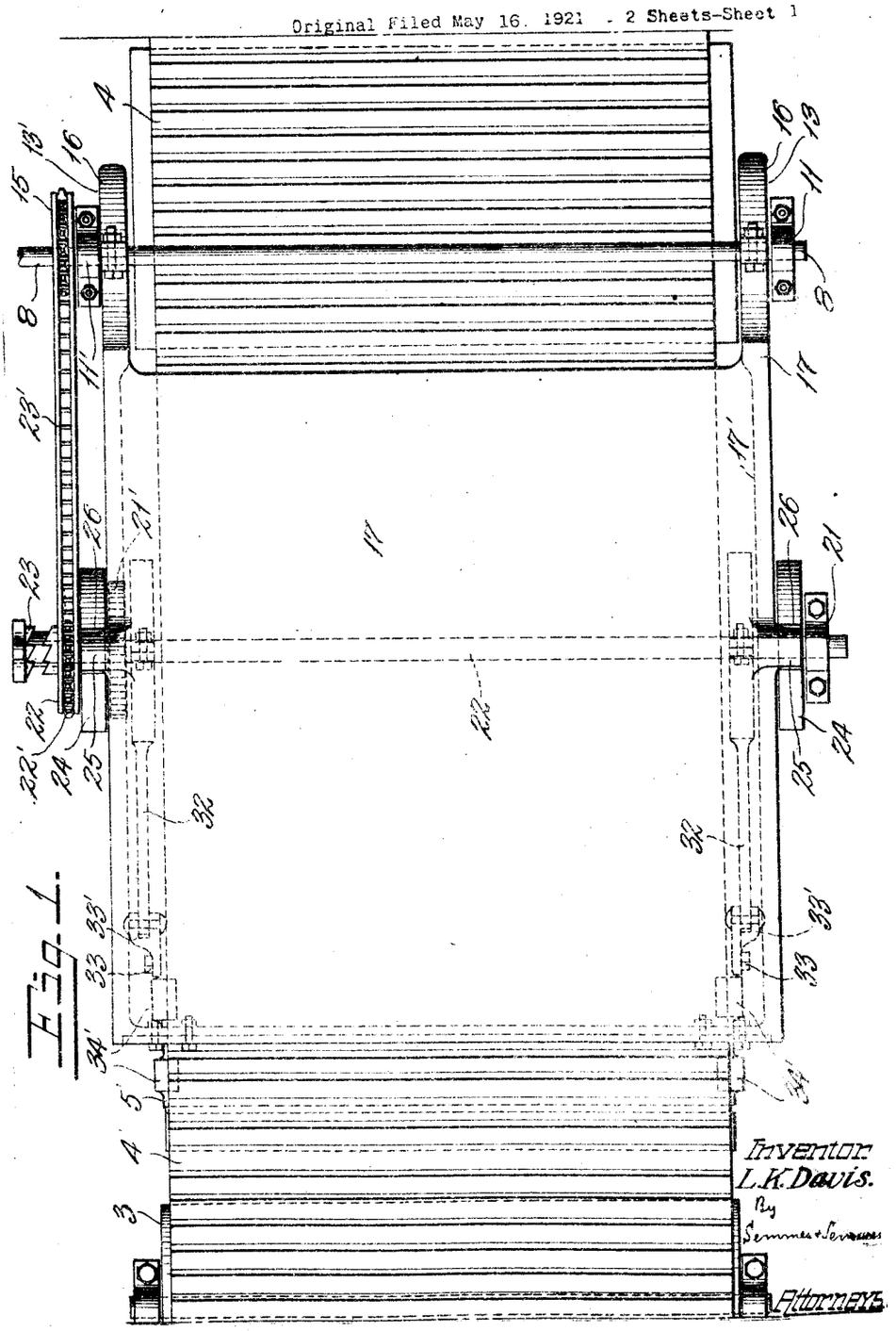


Fig. 1.

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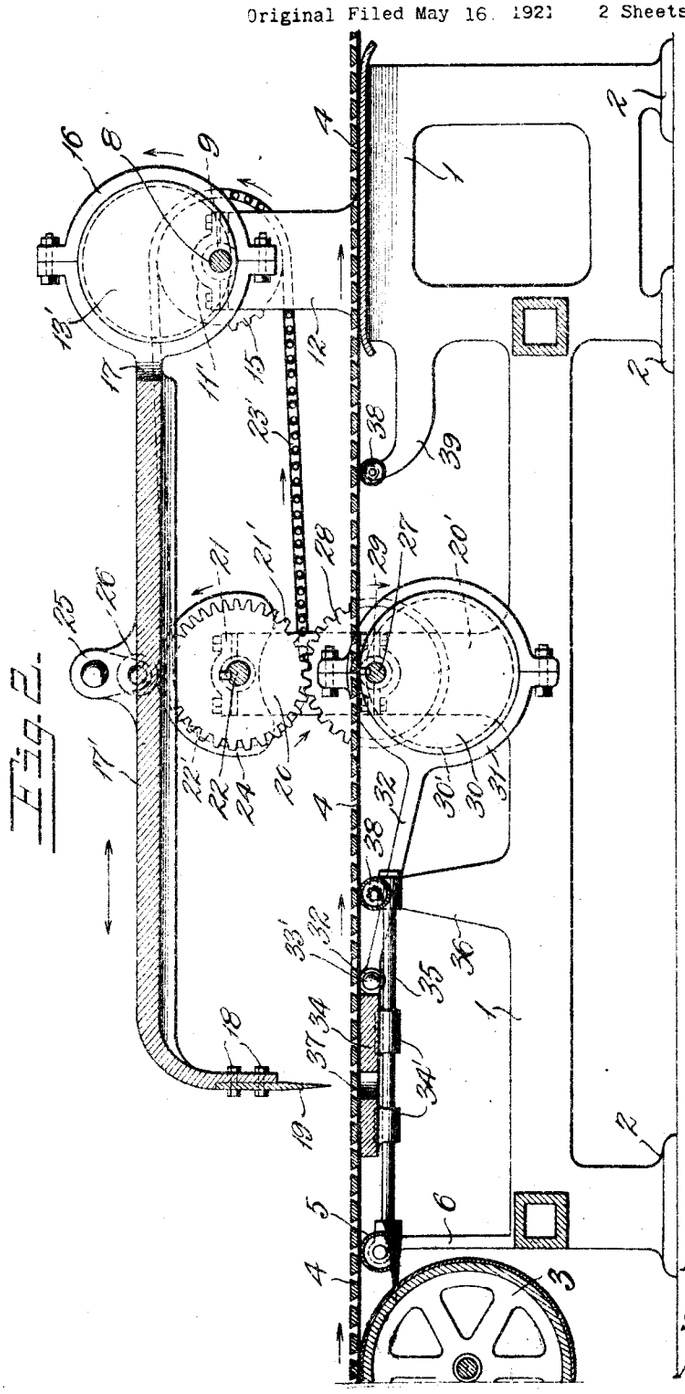


Fig. 2.

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Patented Oct. 21, 1924. 1,512,202

UNITED STATES PATENT OFFICE.

LEWIS K. DAVIS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO VAUGHN CAMP, OF NORFOLK, VIRGINIA.

CUT-OFF MECHANISM.

Refiled for abandoned application Serial No. 470,058, filed May 16, 1921. This application filed March 17, 1923. Serial No. 625,869.

To all whom it may concern:

Be it known that I, LEWIS K. DAVIS, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Cut-Off Mechanism, of which the following is a specification.

This invention relates to certain new and useful improvements in cut-off mechanism and it has particular relation to a device designed for the purpose of cutting into certain lengths the finished product which passes through a fabricating machine, such, for instance, as that shown in my co-pending application filed on the 17th day of May, 1921, Serial No. 470,470. This application is filed in place of my abandoned application 470,058, filed May 16, 1921.

The device shown in my co-pending application gives satisfactory results and is adapted to travel upon a carriage which goes back and forth synchronously with the fabric to avoid any buckling of the latter when the knife descends in the act of cutting.

In the present invention I secure the backward and forward movement and also the vertical movement of the blade by a simplified mechanism quite different from that shown in the application above referred to, and with very satisfactory results.

With these and other objects in view which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several elements comprising my invention, may be varied in construction, proportions and arrangement, without departing from the spirit and scope of the appended claims.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements in their useful applications to the particular constructions, which for the purpose of explanation, have been made the subject of illustration.

In the drawings:

Figure 1 is a plan view of my device showing the fabric passing through the machine.

Fig. 2 is a vertical sectional view of the same.

The numeral 1 refers to the frame of the machine having feet 2 upon which it rests. As shown in Fig. 2 there is mounted upon one end of the frame 2, a cylinder or roller 3 over which the fabric 4 travels as it comes from the forward part of the machine (not shown) and passes over a guide roller 5 mounted in a support 6 of the frame 1.

The numeral 8 refers to a shaft, receiving power from any suitable source, and having a bushing 9. This shaft extends transversely of the machine and is mounted in bearings 11 and 11′, upon uprights 12. Mounted near each end of said shaft and adjacent the edge of the frame of the machine are grooved eccentrics 13 and 13′ and on the farther side of the frame and beyond the bearing 11′ is a sprocket wheel 15. The split collars 16 and 16′ are contained in the grooved eccentrics 13 and 13′, one side of said split collars comprising the bifurcated extensions 17 of the blade supporting bar or member 17′. The forward end of this bar turns downwardly and adjustably secured to its end by means of bolts 18, is a cutting blade 19 extending transversely of the machine.

The eccentrics mounted as above set forth impart reciprocating motion to the bar 17′ and this movement is timed so as to co-operate synchronously with the movement of the fabric 4, supported upon a moving table 20, so that when the blade descends in the act of cutting any buckling of said fabric is entirely prevented.

Upon each side of the machine are standards 20′ having bearings 21 thereon, in which is mounted a shaft 22, having near one end a gear 21′. On the outer end of said shaft is a sprocket wheel 22′ and clutch members 23. The outer end of the shaft 8 is also provided with a pulley 15 and the two sprocket wheels are connected by a sprocket chain 23′ whereby motion is imparted to the gear 21′ and to the cam 24 to be presently referred to.

The reciprocating bar 17′ is of considerable weight, and on each side is provided an upstanding arm or member 25 having at its lower end a roller 26 to travel upon the outer surface of the cams 24, one on each side of the machine mounted upon the shaft 22. By this arrangement while the eccentrics 13 and 13′ give to the bar 17′ a reciprocating motion, the cams cause said bar to move vertically; downwardly to cut the fabric and

then immediately upwardly again to what may be termed its normal position above the traveling fabric 4.

Located below the shaft 22 and extending transversely of the machine is another shaft 27 mounted in bearings 29 upon the standards 20'. A gear 28 is keyed on the shaft 27 and is in mesh with and rotated by the gear 21'. Said shaft 27 also operates eccentrics 30, one located on each side of the machine and having a circumferential groove 30' in which the split collars 31 upon the ends of the eccentrics rods are secured. The other ends of said eccentrics rods are attached by bolts 33 to the bifurcated ends of side bars or ears 33' attached to opposite sides of the movable table 34.

As clearly seen in Fig. 2, this table is provided with sleeves 34', attached thereto or formed integrally therewith and adapted to embrace and travel over horizontal guide rods 35 mounted in supports 6 and 36 of the main frame.

The movable table 34 is slotted as seen at 37, and as the blade descends through the fabric it descends into said slot. The movement of the blade and the table 34 are coordinated so as to be synchronous and enable the cutting of the fabric to be done while the table moves and thus any buckling of the fabric is avoided.

It is to be noted that by providing several cams 24 each similar to, but varying in size from the other, the operator will be enabled by a change of the cam to cut the fabric into different predetermined lengths. The rollers 38 carried by the frame members 36 and 39 are for the purpose of supporting the fabric as it progresses through the machine.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many modifications and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

I claim as my invention:

1. In a device of the character described, the combination with a base, of a movable table thereon over which a fabric is adapted to travel, a blade, a supporting bar on which the blade is mounted, a cam to actuate said bar vertically, said cam being independent of said means to admit adjustment of intervals of operation, whereby the fabric may be cut into predetermined lengths without any buckling thereof, and means to reciprocate said bar synchronously with the fabric.

2. In a device of the character described, the combination with a base, a movable table and supporting rollers mounted on the base over which the fabric is adapted to travel, a pivotally mounted blade supporting bar and a blade mounted on one end thereof adapted to move synchronously with the fabric, of means to impart reciprocating motion to said bar and means intermediate the ends of the blade supporting bar to impart at the same time a vertical movement thereto whereby the fabric may be cut into predetermined lengths without any buckling thereof.

3. In a device of the character described, the combination with a base, a movable table and supporting rollers mounted on the base over which the fabric is adapted to travel, a blade supporting bar and a blade mounted upon one end thereof adapted to move synchronously with the fabric, and an arm projecting from said bar, of means at the other end of said bar to impart reciprocating motion thereto, a cam below the projecting arm with which said arm engages, whereby a vertical movement is imparted to the bar synchronously with the reciprocating movement whereby the fabric may be cut into predetermined lengths without any buckling thereof.

4. In a device of the character described, the combination with a base, a movable table and supporting rollers mounted thereon, over which the fabric is adapted to progress, a blade supporting bar one end of which is provided with a cutting edge and the other end of which is connected through intermediate means with a power shaft by which it is given a reciprocating motion, of a projecting arm intermediate its ends, a cam with which said arm engages to impart vertical movement to the blade synchronously with its reciprocating movement whereby the fabric may be cut into predetermined lengths without any buckling thereof.

5. In a device of the character described, the combination with a base, supporting rollers mounted thereon, over which the fabric is adapted to travel, a detachable cutting blade mounted upon the downwardly curved end of a reciprocating bar, and an arm projecting therefrom between the ends of said bar, of means at the other end of the bar, to impart reciprocating motion thereto, a cam below the projecting arm with which said arm engages to impart a vertical movement to the blade synchronously with its reciprocating movement whereby the fabric may be cut into predetermined lengths without any buckling thereof.

6. In a device of the character described, the combination with a base, a movable table mounted thereon over which fabric is adapted to travel, of a cutting blade adapted to move synchronously with the table and fabric and means to actuate the blade simultaneously in a horizontal and vertical plane whereby the fabric may be cut into predetermined lengths without buckling thereof,

said blade and said table being independently mounted on said base.

7. In a device of the character described, the combination with a base, a movable table thereon over which fabric is adapted to travel, a blade supporting bar pivotally mounted on said base and a blade adapted to move synchronously with the table, of a power shaft adapted through intermediate means to impart reciprocating movement to said bar, and a cam co-operating with said bar to give it a vertical movement at the same time whereby the fabric may be cut into predetermined lengths without any buckling thereof.

8. In a device of the character described, the combination with a base, a movable table thereon over which fabric is adapted to travel, a blade supporting bar mounted on said base, a blade on one end of said bar adapted to move synchronously with the table and means to impart reciprocating motion to said bar, of means intermediate the ends of the bar to impart a vertical movement thereto at the same time, whereby the fabric may be cut into predetermined lengths without buckling thereof.

9. In a device of the character described, the combination with a base, a movable table thereon, over which the fabric is adapted to travel, a curved blade supporting bar adapted to move synchronously with the table and means to impart a reciprocating movement to the other end of said bar, of an arm projecting from the central part of the bar, a cam thereunder with which said arm co-operates to give a vertical movement to the supporting bar simultaneously with the reciprocating movement whereby the fabric may be cut into predetermined lengths without any buckling thereof.

In testimony whereof I affix my signature.

LEWIS K. DAVIS.