

Feb. 4, 1930.

B. RABINOWITZ

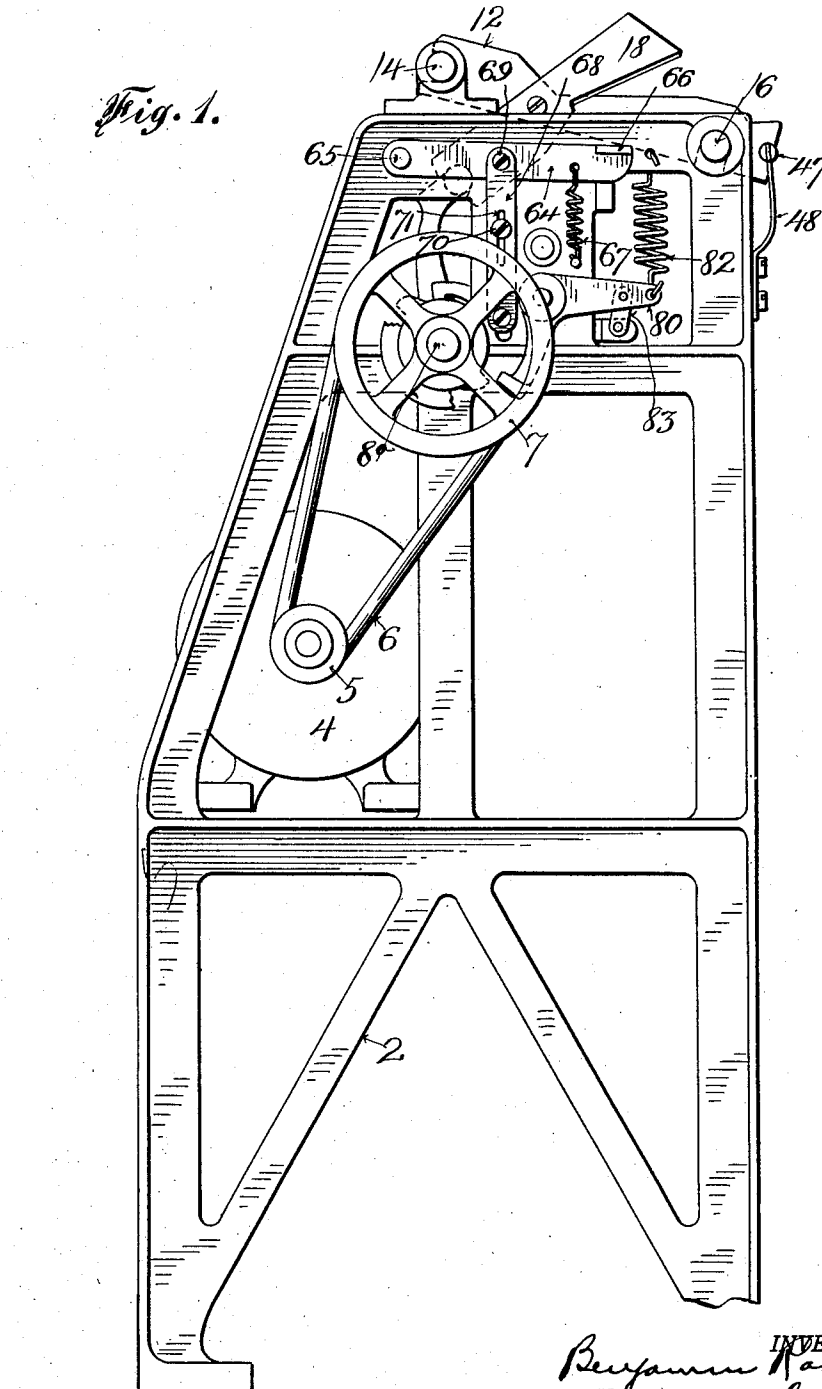
1,745,504

CUTTING MACHINE

Filed Sept. 17, 1926

4 Sheets-Sheet 1

Fig. 1.



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Feb. 4, 1930.

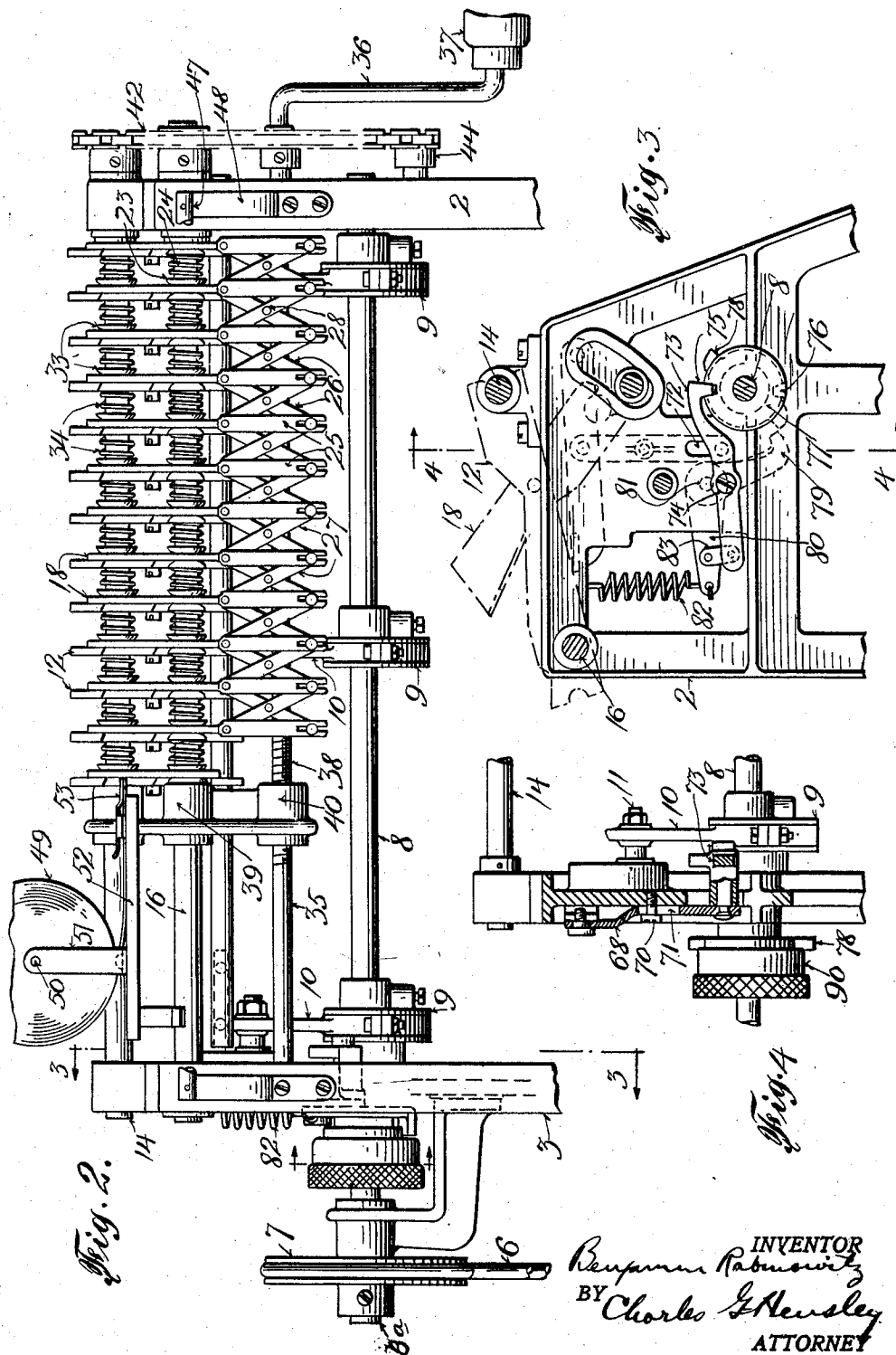
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CUTTING MACHINE

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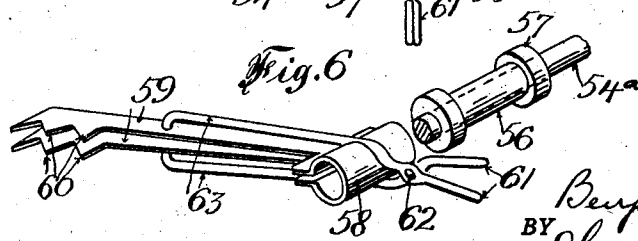
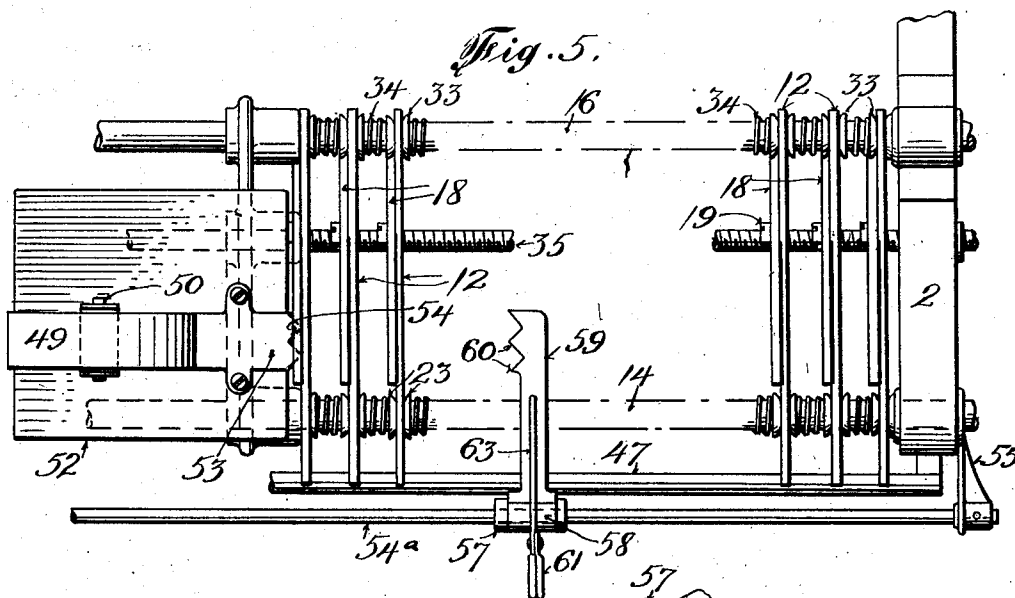
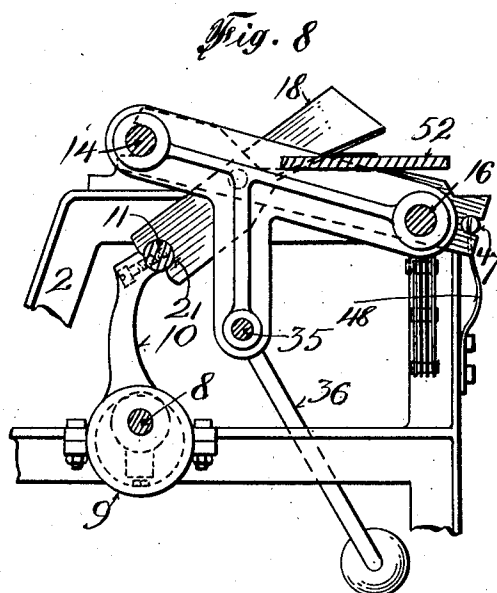
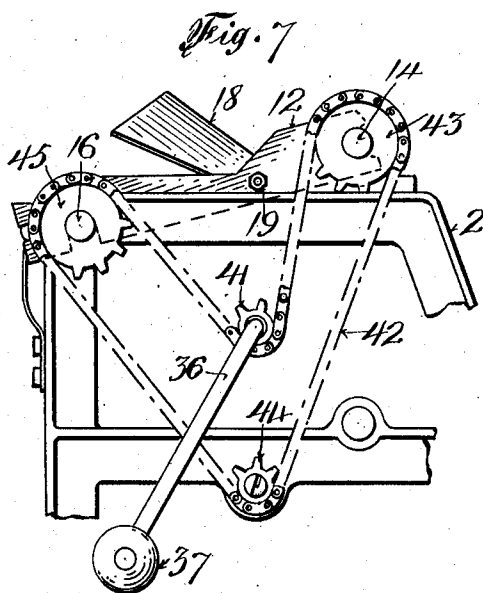
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CUTTING MACHINE

Filed Sept. 17, 1926

4 Sheets-Sheet 3



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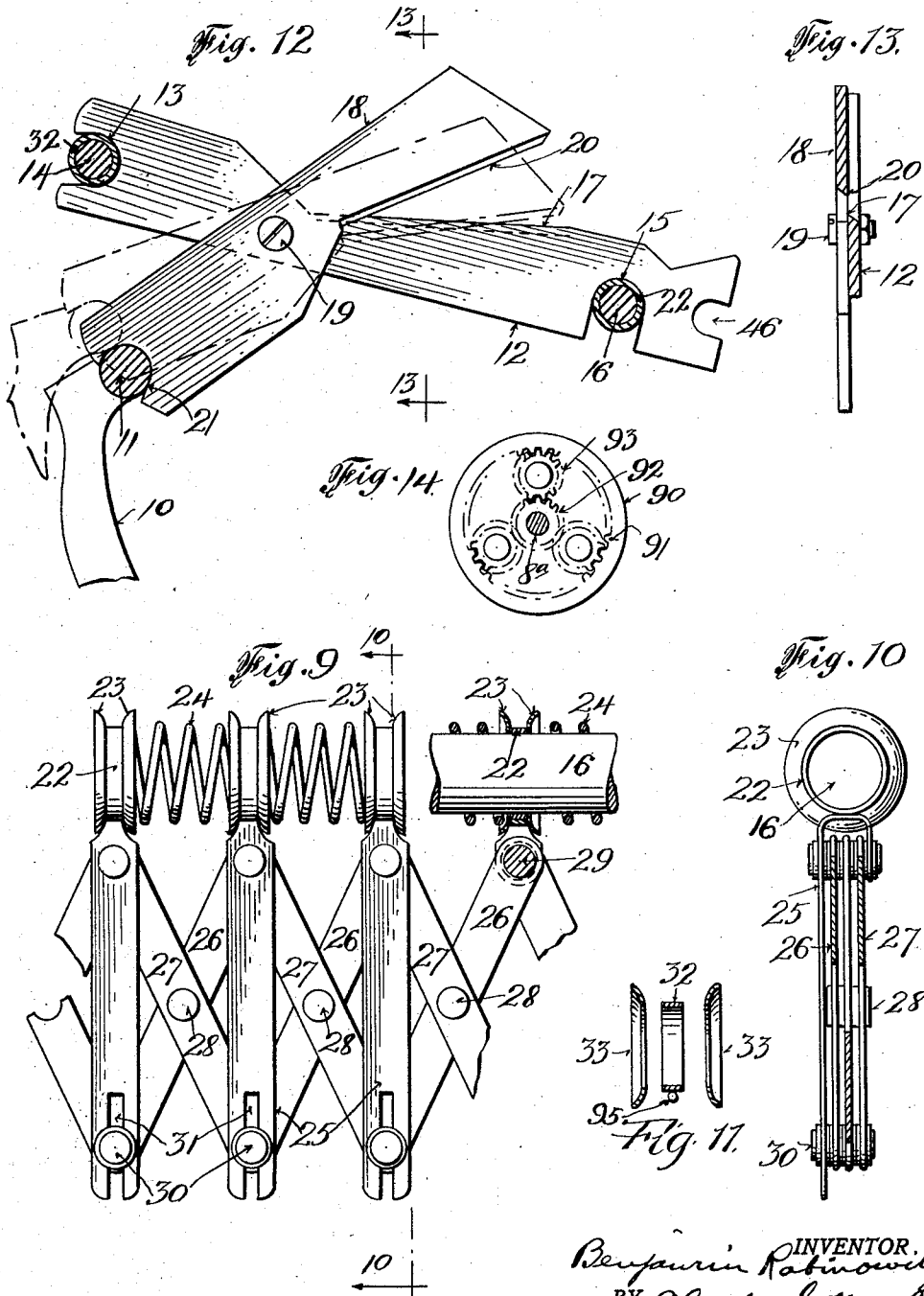
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CUTTING MACHINE

Filed Sept. 17, 1926

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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CUTTING MACHINE

Application filed September 17, 1926. Serial No. 136,038.

The object of my invention is to provide a machine for cutting a strip into a plurality of sections of equal length. One of the principal uses of my invention is for cutting or subdividing a label strip into equal units. It is common practice to employ woven or printed cloth labels which are formed in long strips and which are individually cut from the strip and are sewn upon garments, underwear and the like, to form simple labels or to form hangers and labels. Heretofore, it has been common to individually cut the separate labels from the long strips by hand and in manufacturing plants where thousands of labels are used each day this entails considerable hand labor. It has not been practicable to provide a machine for successively and individually cutting separate labels from the strip by revolving means, because the individual labels are not uniform owing to the variable character of the fabric. If a machine of such character were set to cut labels say two inches long, and the operation proceeded in a continuous order, the slight variations in the lengths of the individual units on the strip of labels would vary and these variations would be cumulative, so that the machine, after operating for a short time, would be cutting through the labels instead of between the ends of adjacent labels. The object of the present machine is to simultaneously cut a plurality of individual labels from a continuous strip, the strip being set by manual operation for each cut. The cut is therefore determined by the operator the same as in hand cutting but instead of a single label being cut at each operation a number of labels are cut from the strip. While the labels on the strip as a whole may vary, the variations over a short length of the strip may be negligible and with the present machine there is all the advantage of manual control for determining the points of cutting without having the irregularities accumulate over the whole length of the label strip. My invention therefore includes primarily a plurality of cutting members or shears in gang formation, each pair of shears being adapted to preferably cut simultaneously through a strip of fabric; and I provide means for readily and simultaneously adjusting the distances between the several shears in order to increase or decrease the length of cut according to the length of the individual labels. The several shears may be collectively adjusted in their relative positions by a single adjusting means and this operation may be performed very quickly so that the machine may be readily adjusted for labels of different lengths. While two or more adjacent labels on the strip may vary slightly in their positions or lengths, the variation between adjacent labels is slight as compared with the total variation in the whole strip of labels. Therefore a number of labels may be simultaneously severed from the strip without substantial variation, but as the strip is manually positioned each time a set of labels is cut, the inaccuracies are not cumulative in the operation of cutting the whole strip into individual labels.

My invention also includes a single device for drawing the strip into position across the several shears and it also comprises means for operating the shears by power where that is desired. Other objects and advantages will be set forth in the following detailed description of my invention.

In the drawings forming part of this application,

Figure 1 is an end elevation of a machine embodying my invention in the preferred form,

Figure 2 is an elevation of one side of the machine, a portion of the frame being broken away,

Figure 3 is a sectional view taken on the line 3—3 of Figure 2,

Figure 4 is a sectional view taken on the line 4—4 of Figure 3,

Figure 5 is an enlarged plan view of a portion of the shears and the device for positioning the strip of fabric in relation to the shears,

Figure 6 is a perspective view of the device for drawing the strip of fabric across the path of the shears,

Figure 7 is an end view of a portion of the machine,

Figure 8 is a cross sectional view showing the mechanism for operating the shear blades,

Figure 9 is an enlarged elevation of the devices for regulating the spacing of the shears,

Figure 10 is a sectional view thereof taken on the line 10—10 of Figure 9,

Figure 11 is a sectional view of certain sleeves and collars with which the spacing springs co-operate,

Figure 12 is an elevation of one of the pairs of shears, and

Figure 13 is a sectional view thereof taken on the line 13—13 of Figure 12.

Figure 14 is a section of a planetary gear device.

In the drawings I have shown the operating parts of the machine mounted on a frame 1 consisting of end sections 2, 3 suitably connected by longitudinal members; and this frame supports the mechanism in the working relation hereinafter set forth. Where the cutting action is to be performed by power I prefer to employ a motor 4 supported on one end of the frame, and the pulley 5 on the shaft of this motor operates a belt 6 which engages around a pulley 7 arranged upon the shaft 8 extending longitudinally of the machine. There are shown three eccentrics 9 mounted upon this shaft and with each eccentric there is associated an upwardly extending arm 10 and on the free ends of these arms there is carried a longitudinally extending shaft 11 which operates on all of the several shears for operating the blades of the shears to close and open them to perform the cutting operation.

Each pair of shears includes a plurality of blades as shown in Figures 12 and 13. One of these blades 12 is provided with a notch 13 at one end to receive therein the shaft 14 and adjacent the other end there is a notch 15 extending inwardly from one of the side edges to receive the shaft 16 therein. This shear blade has a cutting edge 17 with which the other blade of the pair co-operates. The other blade of the shear is shown at 18 and it is pivoted to the first blade by means of a bolt 19; and this blade has a cutting edge 20 co-operating with the cutting edge 17. This second blade, which is the movable or swinging blade of the pair, has a notch 21 at one end to receive therein the longitudinally extending shaft 11 which performs the function of swinging this blade upon its pivot 19 for the purpose of closing and opening the blades of the shear. This construction of shear blades is the same for each pair and there may be any desired number of shears in the gang. In the embodiment of my invention shown herein there are thirteen such pairs of shears although, as above stated, the number may be increased or decreased.

The shear blades 12 are stationary while the machine is in operation and the blades 12 are supported at one end by the shaft 14 and at the opposite end by the shaft 16. In order

to maintain the several pairs of shears equally spaced apart and to permit them to be adjusted different distances apart I employ a mechanism which includes a lazy-tong device. This is shown more in detail in Figures 9 to 11. On the shaft 16 there is arranged for each pair of shears a sleeve 22 which loosely fits the shafts and the thickness of which is the same as the shears, and which sleeve is adapted to be moved lengthwise along this shaft. At opposite sides of each of these sleeves I have provided spring cups 23 facing alternately in opposite directions, each of which forms an abutment member for one end of the coiled spring 24, these cups being also freely movable lengthwise of this shaft. Between the opposing cups of each set there is a coiled spring 24 surrounding the shaft 16 and pressed between the opposing cups so as to exert an outward or spreading pressure against each set of cups. The lazy-tong device is connected with and supported by the sleeves 22 which are mounted on the shaft 16 as above described. There is a vertical bar 25 fixed to or made integral with each sleeve 22 and each such bar hangs downwardly from its sleeve and collectively they support the lazy-tong device. The lazy-tong device consists of a series of lever arms 26 and 27 each pair crossing the other and pivoted together by means of the pivots 28. One end of each arm 26 is pivoted to the vertical bar 25 by means of the pin 29 and the opposite or lower end of the same arm is pivoted by means of the pin 30 to the lower end of the vertical bar 25 the latter pin being arranged to slide vertically in the slot 31 of the bar to allow for the opening and closing of the lazy-tong levers, the upper ends of the levers remaining in fixed relation to the shaft 16. It will be understood that there are two lever arms 26, 27 connected with each pivot pin 29 and there are also two lever arms connected with each sliding pin 30. It will be apparent that if the sleeves 22 are moved along the shaft 14 to increase or decrease the spacing of these sleeves, the vertical bars 25 will also be moved toward or from each other, and if the several levers of the lazy-tong device are of equal length, as shown in the drawings, the sleeves 22 will always be spaced equal distances apart one from the other throughout the whole series. In other words, if the spacing between any two of the sleeves is altered the same adjustment will take place between all of the others. In the construction shown herein the several springs 24 are always under compression so that they are always tending to force the cups 23 and therefore the sleeves 22 in opposite directions or away from each other.

The shaft 14 is supplied with sleeves, springs and cups very similar to those on the shaft 16 although it is not necessary to dupli-

cate the lazy-tong arrangement just described. On this shaft I have shown a sleeve 32 for each pair of shears and on each side of the sleeve there is a spring cup 33 the sleeves and cups being freely slidable upon the shaft. Between opposing cups and between adjacent pairs of shears there are coiled springs 34 surrounding the shaft 16 and exerting an opposite thrust on the cups of each set. These sleeves and cups are shown in detail in Figure 11 and as above stated, they differ from the previously described members in that the lever arrangement of Figure 9 may be omitted.

The opposite ends of the stationary blade of each shear is carried by one of the sleeves. For instance, the notch 15 in one end of the shear blade 12 receives therein one of the sleeves 22 on the shaft 16 so that this end of the shear is supported from this shaft through the sliding sleeve; and the blade of the shear lies between two of the adjacent spring cups 23 so that the shear may be shifted longitudinally of the shaft through the action of the spring cups. At the opposite end the stationary blade receives in the notch 13 one of the sleeves 32 which is mounted upon the shaft 14 and this end of the shear blade lies between adjacent spring cups 33 so that this end of the shear blade may be shifted longitudinally of the shaft through the action of these spring cups. It will be apparent that when the stationary blade is shifted laterally it will carry the movable blade 18 with it and when this occurs, the movable blade may slide along the shaft 11 which is the member which opens and closes the shear blades.

There is a shaft 35 extending longitudinally of the machine and it is adapted to be manually operated by means of a crank 36 and handle 37 outside one of the end frames. This shaft is threaded as shown at 38 and there is a compressing member 39 mounted to slide along the shaft 16 and it is provided with a threaded hub 40 through which the threaded shaft 35 engages, so that when the latter shaft is revolved the compressing member 39 is shifted either to the right or left along the shaft 16 in Figure 2. If this compressing member is moved to the right in Figure 2 it will act upon the left hand pair of shears and as the movement of the compressing member is continued by the revolution of the shaft 35 the action will be transmitted from one pair of shears to the other through the intermediate coiled springs 24 and 34.

In order to facilitate the shifting of the several shears, sleeves and spring cups upon the shafts 14, 16, when acted upon by the compressing member 39, I have found it desirable, if not absolutely necessary, to rapidly revolve the shafts 14, 16 on which these several members are supported in order that the

sleeves, springs and spring cups will not bind upon these shafts, but will adjust themselves in order to facilitate an equal spacing of the several pairs of shears. For this purpose I have provided a sprocket wheel 41 on the shaft 35 which is the one operated by means of the hand crank 36, and this sprocket drives a chain 42 which is endless. This chain passes around the sprocket 43 fixed on the shaft 14, thence around an idler sprocket 44, thence around the sprocket 45 on the shaft 16 and back to the sprocket 41. It will be apparent from this that whenever the shaft 35 is revolved to alter the position of the compression member 39 the shafts 14, 16 will also be revolved and this will facilitate the automatic or individual adjustment of the several sets of shears.

I have shown a notch 46 in the end of each of the stationary shear blades 12 and there is a shaft 47 held by spring fingers 48 attached to the frame of the machine, and this shaft engaging in these slots serves to hold the stationary shear blades from being dislodged from the shaft 16 while the machine is in operation.

The roll of tape 49 from which the labels are to be cut is mounted on an arbor 50 which is supported by the bracket 51 from a platform 52 arranged approximately in line with the blades of the shears. The end of the tape is brought from this roll under the guide plate 53 which is also attached to this platform. The forward end of this guide plate is provided with serrations 54 the points of which terminate adjacent the first pair of shears. The tape is drawn forwardly from this guide plate between the jaws of the shears; and in Figures 5 and 6 I have shown a device for gripping the end of the tape and drawing it across the shears. There is a shaft 54^a mounted in the brackets 55 and this serves as a guide for a sleeve 56 which slides along the shaft. This sleeve has flanges 57 at each end and there is a split sleeve 58 which is snapped over the sleeve 56 to lie between the flanges 57 so that the sleeve may slide together along the shaft 54^a. The outer sleeve 58 is provided with projections or fingers 59 which reach over into the line of the guide plate 53 and one edge of each of these fingers is provided with serrations 60 which are adapted to move in between the serrations 54 of the guide plate. There is a tong arrangement comprising levers 61 hinged to each other at the point 62 and the forward ends of these levers serve as handles, whereas the opposite ends 63 are turned inwardly and are riveted respectively to the arms 59. By pressing the handles 61 together the arms 63 spread apart and they spread the fingers 59 in order to release the label strip from the ends of the latter, whereas when the finger pieces 61 are released the fingers 59 spring toward each other and grip the label strip.

between them. By means of the finger pieces 61 the gripping device may be slid along the shaft 54^a.

The shears are adapted to be closed and opened by means of the motor 4, in the present arrangement, and I have provided a clutch device for causing the motor to revolve the shaft 8 one revolution and then come to a stop automatically. In Figure 1 I have shown a lever 64 pivoted to the frame at the point 65 and provided with a finger piece 66 by which this lever may be raised in opposition to the spring 67 which has a tendency to draw this lever downwardly. There is a link 68 which is pivoted to this lever at 69 and this link is guided by means of a screw 70 which engages in the elongated slot 71 of the link. The lower end of this link is connected by a pin and slot connection 72 with the pawl lever 73 which is pivoted to the frame at the point 74; and on the end of this pawl lever there is a pawl 75 which is adapted to engage in one of the notches 76 of the clutch member 77 arranged upon the shaft 8. The casing member 90 is provided with a projection 78 which is adapted to engage the hooked end 79 of the lever 80 which is pivoted to the frame at the point 81. Another arm of this lever is drawn upwardly by coiled spring 82 having one end attached to this lever and the other end to a part of the frame. One arm of the pawl lever 73 is connected to the lever 80 by a short link 83. The electric motor 4 may be operated continuously and when it is desired to actuate the shears to cut the strip of labels the starting lever 64 is lifted by hand and this acts through the link 68 to raise the pawl lever 73 so that the pawl disengages from the slot 76 in the clutch member 77. This causes one end of the lever 73 to move downwardly in Figure 3 and the motion is transmitted through the short link 83 to the lever arm 80 and the other arm of this lever carries the hook 79 toward the shaft 8 so that it comes into the path of the projection 78 for the purpose of arresting the casing 90 while the shaft 8 makes a complete revolution. When the starting lever 64 is released, the spring 67 will move this lever downwardly and allow the pawl 75 to enter the notch 76 and thus hold the shaft 8 from revolving with the shears in the open position. This same action allows the spring 82 to draw on its lever and withdraw the hook 79 from the path of the projection 78 so that the casing 90 is free to rotate.

Operation

The reel 49 containing the strip of label material is mounted upon the arbor 50 and the leading end of the strip is moved under the plate 53 until the extreme end of the strip aligns with the forward points of the serrations 54 in the guide plate. If the machine has not been previously adjusted to suit the

dimensions of the labels on the strip, the operator may proceed to make the necessary adjustment, but first it is desirable to carry the strip across between the blades of the shears in order to observe the effect of this adjustment. For this purpose the finger pieces 61 of the strip conveying device are grasped and are moved to the left in Figure 5 until the serrations 60 of the fingers 59 enter between the serrations 54 of the guide plate 53, the arms 63 at this time being spread by pressure upon the finger pieces 61. When the conveying device is thus positioned, the finger pieces 61 may be released, whereupon the fingers 59 will close upon the end of the label strip to grip the same and then the conveying device, consisting of the sleeves 56, 58 and the arms 59 are moved to the right in Figure 5 until the same comes near the right end of the shaft 54^a. As the conveying device is thus moved along the shaft 54^a the label strip is carried forwardly between the open blades of the several pairs of shears and the strip will be held in this position by the conveyor and by the guide strip 53 while the cutting action is being performed. The operator may now proceed to adjust the shears to suit the length of the individual labels on the strip. For this purpose the crank 36 may be turned clockwise or anti-clockwise for the purpose of rotating the threaded shaft 8. This will cause the compression member 39 to move either to the right or left in Figure 2. Let it be assumed that when the adjustment starts the compression member 39 is in the extreme left hand position and the shears are all separated from each other the maximum distance; then if the crank 36 is turned clockwise the shaft 8 is likewise revolved and the compression member 39 will move to the right in Figure 2. As this takes place, the compression member acts upon the left hand pair of shears in Figure 2 and causes the springs 24 and 34 upon the shafts 16, 14 to be compressed between their spring cups or between the first and second pairs of shears. Some of this movement will be transmitted to the next set of springs and in fact the movement will ultimately cause all of the springs to be compressed. The movement, in this adjustment of the shears, will be the greatest at the extreme left, whereas the movement of the next pair of shears will be slightly less and so on to the extreme right hand pair of shears which latter will remain stationary. As the several springs 24, 34 are thus compressed the several pairs of shear blades are shifted laterally upon their supporting shafts 16, 14, the sleeves 22, 32 and spring cups 23, 33 moving the shear blades. While this movement is taking place the several pairs of shear blades are maintained in equally spaced arrangement by means of the toggle lever device heretofore described. The turning of the crank 36 and the shaft 35 causes the chain

42 to act upon the sprockets 43, 45 and to revolve the shafts 14, 16 on which the several compression springs, spring cups and sleeves 22, 32 are mounted; and I find that by thus revolving these shafts while the shears are being adjusted laterally the binding of the springs, spring cups and sleeves on the shafts is avoided and this renders the lateral adjustment of the shears smooth and regular.

When the several shears have been laterally adjusted to correspond with the spacing of the labels upon the strip, as may be observed by the position of the cutting edges of the shears along the label strip, which is held between open blades of the shears, the adjusting device is then left in that position until such time as it is desired to cut other labels of different length. The cutting edges of the several pairs of shears will now be positioned between the individual labels on the strip at the points where the strip is to be severed to produce a number of individual labels. The operator now pulls up on the starting lever 64, and this operates the clutch device so that the shaft 8 is caused to make one revolution under the power transmitted from the motor 4; and at the end of this revolution the shaft 8 is arrested by the hook 79; and when the lever arm 64 is released the pawl 75 again engages the clutch disc 77 to hold the shaft 8 stationary until another cutting operation is to be performed. When the shaft 8 is making the revolution above described the eccentrics 9 are rocked and the arms 10 move upwardly and then downwardly to cause all of the several movable blades 18 of the shears to close in relation to the stationary blades 12; and thus each pair of shears cuts through the label strip and the separate labels fall away from the shears. One label will be held by the fingers 59 and this may be released by pressing the finger pieces 61. The strip conveying device may again be moved to the left along its shaft 54^a until the fingers 59 engage the end of the label strip, whereupon the conveying device may be again moved to the right to draw the label strip through the open blades of the several pairs of shears, and the above described operations may be repeated.

If it is desired to cut labels of greater length than those for which the machine has been set, the crank 36 is revolved counter-clockwise in Figure 7 and this will revolve the threaded shaft 35 in the direction necessary to move the compression member 39 to the left in Figure 2. As this compression member moves to the left the pressure on the several compression springs on the shafts 14, 16 is released and these several springs serve to force the shears apart so that all except the extreme right hand pair in Figure 2 move to the left along the supporting shafts. The crank 36 is turned until the shears have been spread apart to correspond with the length

of the labels which are now to be cut from the strip. During this shifting of the shears they are maintained equally spaced by the lazy-tong device.

From the above it will be apparent that I have provided a multiple shearing device for cutting a label strip into pieces of equal length simultaneously and that the machine may be adjusted to correspond with labels of varying lengths. It is not necessary to readjust the shears when they have once been set for the labels on a given strip because the variations between the number of individual labels which are cut at one operation are negligible. The strip, when drawn forwardly, may be gauged in relation to the shears so that the irregularities in the cutting of the strip need be only such as occur between the several labels which are cut at one operation. Therefore, the irregularities are not cumulative throughout the length of the strip as would be the case if a revolving cutting device were to act continuously upon the strip. On the other hand, it is possible at one operation to cut a number of labels from the strip, making the work much faster than if individual labels were cut by hand. While I have described the invention as used for cutting labels from a strip, it will be obvious that other articles may be cut with the machine where it is desired to produce individual pieces of equal length from a long strip.

The lazy tong device not only maintains the shears equally spaced during their adjustment, but they also fix the shears in position while the machine is in operation. If the shears were merely held by the springs they would be subject to lateral displacement when the machine is operating. They also maintain the shears equally spaced during adjustment, whereas if this depended solely on the springs the spacing would vary due to differences in the resistances of the springs on account of their lack of uniformity. The vertical bars 25 prevent the sleeves 22 from tilting and binding on the shaft 16.

The beads 95 on the sleeves 32 engage the shear blades 12 and prevent the sleeves from turning with the shaft 14.

The pairs of shears may be readily removed by disengaging the bar 47 and lifting off the shears from the supporting shafts. This may be done when the shears require resharpening. Some of the shears, say every alternate pair, may be removed, leaving only one half the usual number in operation, when it is desired to cut a strip having very long labels, that is, when the labels are longer than the distance the shears can be spaced apart when all of them are in position.

I prefer to use a planetary gear device to operate the shaft 8 from the shaft 8^a. In Figure 14 I have shown the casing 90 which is loose on the shaft 8^a, which is provided

with an internal gear 91. There is a small gear 92 fixed to the motor shaft 8^a; and this operates the three small gears 93. The latter act on the internal gear 91 to revolve the shell 90. If the shell 90 is held from rotating and shaft 8 is released, the shaft 8^a acts through these gears to operate the shaft 8.

Having described my invention, what I claim is:

1. A machine of the class described, including a plurality of cutting members arranged to cut a strip of material, springs interposed between said cutting members and forming the means for holding said cutting members in spaced relation to each other, means for compressing said springs by relative movement applied to the opposite ends of the plurality of cutting members whereby as the group of cutting members is compressed they will be maintained in substantially equal separation by said springs, and means for operating said cutting members to cause them to cut a strip of material into a plurality of sections.

2. A machine of the class described, including a gang of shears arranged to act on a strip of material, springs interposed between the several shears, intending to force them laterally apart and forming the means for holding said shears in spaced relation, a compressing member for compressing said springs by acting on opposite ends of the gang of shears so that the several shears are maintained substantially equally spaced by said springs, and means for operating said shears to cause them to sever said strip into a plurality of sections.

3. A machine of the class described, including supports, a plurality of shears mounted on said supports for lateral adjustment toward and from each other, springs interposed between the several shears tending to force them apart on said supports and adapted to act in succession, means acting on the several shears for compressing said springs in successive relation to move said shears laterally toward each other, so that the several springs maintain substantially uniform separation of the shears as they are moved on said support, and means for operating said shears to cause them to sever a strip into a plurality of sections.

4. A machine of the class described, including a plurality of supporting shafts, a plurality of pairs of shears, each pair having a blade mounted for lateral adjustment on said shafts, springs surrounding said shafts and interposed between said shears to force the same laterally apart, means for simultaneously compressing all of said springs to move said shears toward each other, and means for operating said shears to cut a strip into a plurality of sections.

5. A machine of the class described, in-

cluding a support, a plurality of cutting members mounted to shift on said support and adapted to act upon a strip of material, springs tending to force the several cutting members apart from each other on their supports, means for simultaneously compressing all of said springs to move said shears toward each other, means for maintaining said cutting members spaced equidistantly apart, and means for operating said cutting members to cause them to sever said strip into a plurality of sections.

6. A machine of the class described, including a plurality of pairs of shears, supporting shafts for said shears, springs tending to force said pairs of shears laterally apart on their supports, means for compressing said springs to move the pairs of shears laterally toward each other, means for maintaining said shears spaced equidistantly upon their supports, and means for operating said shears to cause them to sever a strip into a plurality of sections.

7. A machine of the class described, comprising supports, a plurality of pairs of shears slidably mounted on said supports, springs interposed between the several pairs of shears, tending to force them laterally apart, a lazy-tong device connected with said pairs of shears to maintain them in equidistant spacing, means for compressing said springs to adjust the spacing of said shears, and means for operating said shears to cause them to sever a strip into a plurality of sections.

8. A machine of the class described, including a plurality of supporting shafts, a plurality of pairs of shears slidably mounted on said shafts, springs surrounding said shafts and tending to force said shears apart, means acting on said springs to adjust the distance between the several pairs of shears, a lazy-tong device connected with said shears for maintaining them equally spaced apart, and means for operating said shears to cause them to sever a strip into a plurality of sections.

9. A machine of the class described, comprising supports, a plurality of pairs of shears slidably mounted on said supports, a lazy tong device mounted to act at one side on the several pairs of shears to maintain uniform spacing thereof, a guiding bar pivotally connected at one point with one side of said lazy tong device and having a sliding connection with the opposite side of said lazy tong device, and means for operating said shears to cause them to sever a strip into a plurality of sections.

10. A machine of the class described comprising supports, a plurality of pairs of shears slidably mounted on said supports, springs interposed between the pairs of shears and tending to force them laterally apart, a member for compressing said springs

to adjust the spacing between the pairs of shears, a threaded shaft for moving said compressing member, and means for operating said shears to cause them to sever a strip into a plurality of sections.

11. A machine of the class described comprising shafts, sleeves slidably mounted on shafts, a plurality of pairs of shears supported on said sleeves, opposed spring cups pressing on said sleeves, springs surrounding said shafts and interposed between said spring cups to force said pairs of shears apart, means for compressing said springs, and means for operating said shears to cause them to sever a strip into a plurality of sections.

12. A machine of the class described, comprising supports, a plurality of pairs of shears movably mounted on said supports, springs acting on said shears to alter the spacing between them, means for revolving said supports while the shears are being laterally adjusted, and means for operating said shears to cause them to sever a strip into a plurality of sections.

13. A machine of the class described, including a plurality of shafts, a plurality of pairs of shears slidably mounted on said shafts, springs on said shafts acting on the shears to force them apart, means for compressing said springs to vary the spacing of the pairs of shears, means for revolving said shafts while the shears are being adjusted laterally, and means for operating said shears to cause them to sever a strip into a plurality of sections.

14. A machine of the class described, comprising shafts, a plurality of pairs of shears slidably mounted on said shafts, springs on said shafts interposed between the pairs of shears to force them laterally apart, means for compressing said springs to vary the lateral spacing of said shears, means for maintaining said shears spaced equidistantly on said shafts, means for revolving said shafts while the shears are being laterally adjusted, and means for operating said shears to cause them to sever a strip into a plurality of sections.

15. A machine of the class described comprising shafts, a plurality of pairs of shears slidably supported on said shafts, springs on said shafts arranged to force said pairs of shears apart, a compressing member for compressing said springs, a threaded shaft for operating said compressing member, means for simultaneously revolving all of said shafts, and means for operating said shears to cause them to sever a strip into a plurality of sections.

16. A machine of the class described, comprising shafts, a plurality of pairs of shears slidably supported on said shafts, springs interposed between said pairs of shears to force them laterally apart, means acting on said

springs to move said shears toward each other, said pairs of shears each having a pivoted blade, a shaft having eccentrics, and arms on said eccentrics carrying a shaft, said latter shaft acting on said movable shear blades to cause them to co-operate with the opposing blades to sever a strip into a plurality of sections.

Signed at the city, county, and State of New York, this first day of September, 1926.
BENJAMIN RABINOWITZ.

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