Jan. 27, 1942. J. F. JIROUSEK 2,270,848

GAUGE FOR PAPER CUTTING AND LIKE MACHINES

Filed Aug. 19, 1940 3 Sheets-Sheet 1

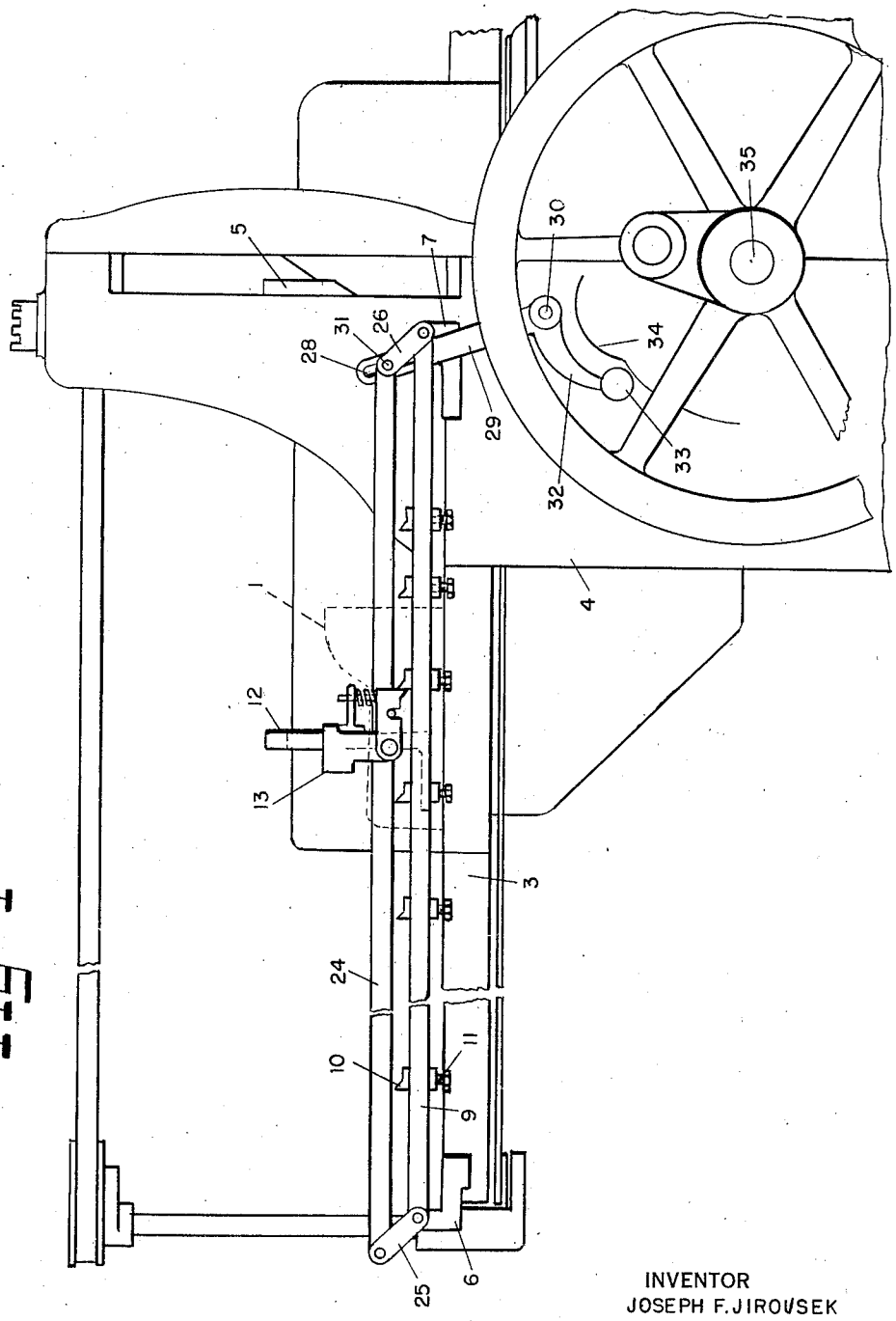


Fig 1

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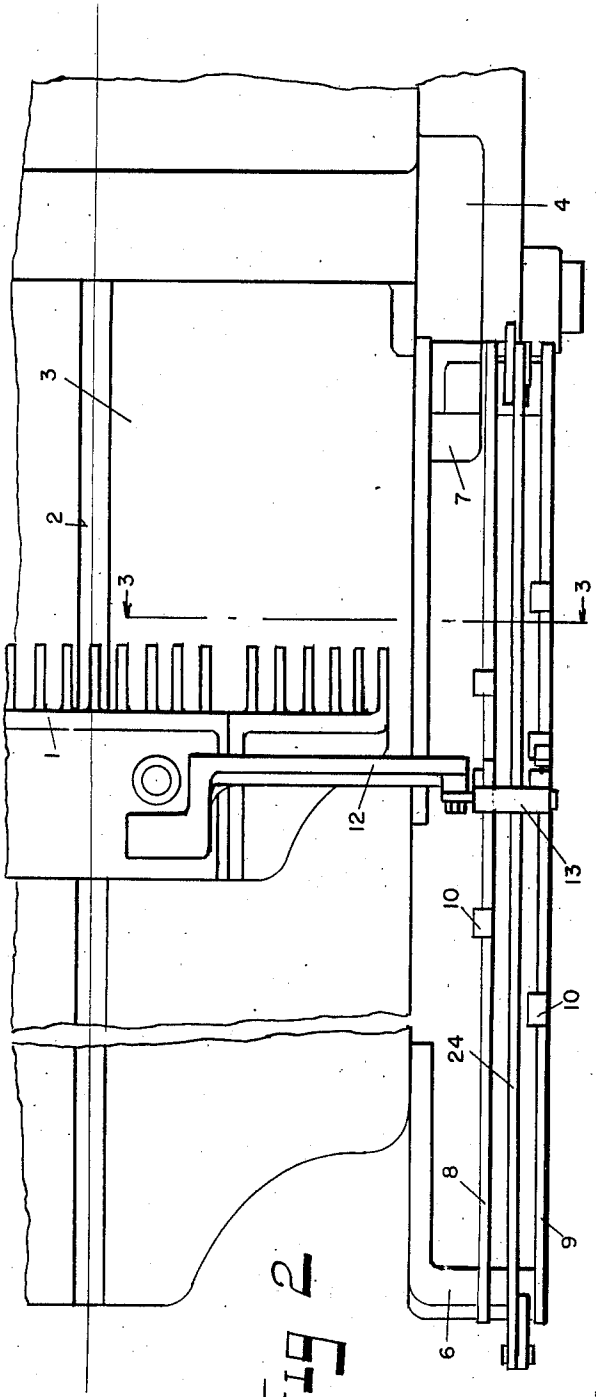


Fig 2

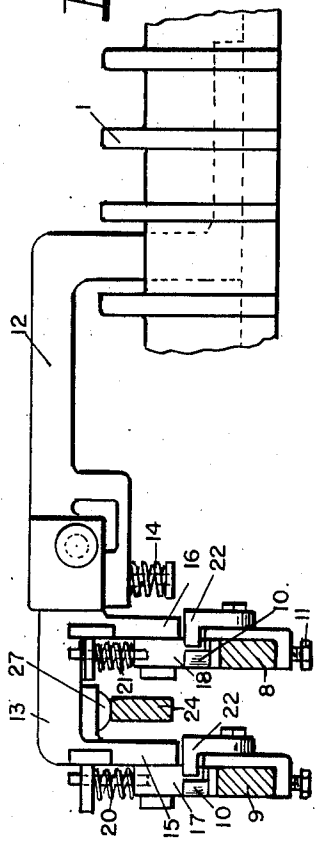


Fig 3

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Fig 4

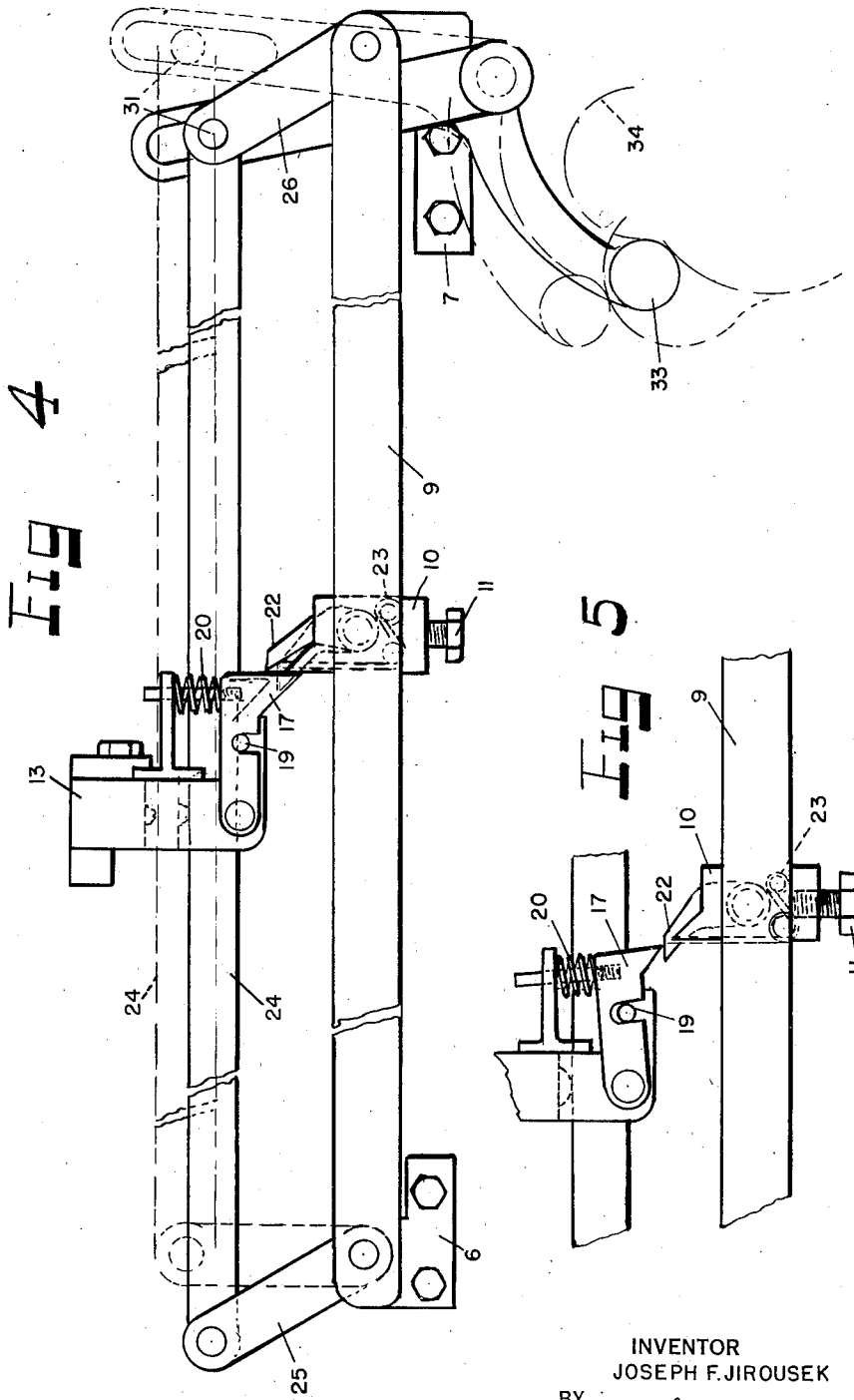


Fig 5

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GAUGE FOR PAPER CUTTING AND LIKE MACHINES

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Application August 19, 1940, Serial No. 353,271

11 Claims. (Cl. 164—59)

This invention relates as indicated to gauges for paper-cutting machines and the like and more particularly to means for positioning such gauges in relation to the knife or other fixed point.

Various means have been proposed in the past and certain of them have been employed whereby an extension of the gauge is caused to successively abut against a series of fixed stops and various rather complicated mechanisms have also been provided for releasing the gauge and permitting the same to be moved forward to the next stop. Such fixed stops are, of course, first set to the desired spacings and several series of the same may be employed to provide for trimming cuts since the bulk of the stop mechanisms prevent their being set closer together than a certain minimum interval.

It is a primary object of this invention to provide means for positioning a movable gauge for paper-cutting machines and the like, which means will be semi-automatic in operation, yet relatively simple in construction.

Another object of this invention is to provide simplified means for disengaging a stop carried by the gauge from one of the fixed stops to permit the gauge to be moved forward to the next setting.

A still further object is to provide such mechanism which will require a minimum of adjustment and time in setting.

Other objects of the invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then consists of the means hereinafter fully described and particularly pointed out in the claims. The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings:

Fig. 1 is a side elevational view of a conventional paper-cutting machine to which has been attached the gauge-positioning means of this invention; Fig. 2 is a fragmentary top plan view of the table of such machine illustrating the manner in which the parts of my new mechanism are affixed to such table and the gauge which is movable thereon; Fig. 3 is a vertical sectional view taken along the line 3–3 on Fig. 2 of my new stop mechanism; Fig. 4 is a side elevational view of the stop mechanism of my invention illustrating the manner in which the fixed stops and the counter-stop carried by the gauge are automatically disengaged; and Fig. 5 is a fragmentary view of the stop mechanism proper, as illustrated in Fig. 4, showing the manner in which the counter-stop is prevented from re-engagement with the fixed stop after having been disengaged therefrom.

Referring now more particularly to said drawings, and especially Figs. 1 and 2, a gauge 1 is slidably mounted in a guide-way 2 of table 3, carried by the main frame 4 of the machine. A knife 5 is operative to descend upon engagement of the clutch in the usual manner. Carried by brackets 6 and 7 laterally of said table are stop bars 8 and 9 disposed parallel to guide-way 2 and adapted to support a plurality of stops 10 thereon. Such stops are slidably mounted on such bars and adapted to be fixedly positioned by means of set screws 11.

A lateral extension 12 of gauge 1 supports a pivotally mounted bracket member 13. A coil spring 14 tends to inhibit upward pivotal movement of said bracket. Pivotally mounted on downwardly extending flanges 15 and 16 of said bracket are counter-stops 17 and 18 respectively adapted to engage the fixed stops carried by bars 9 and 8. Studs, such as 19 (see Figs. 4 and 5) serve to prevent downward movement of said counter-stops beyond the point determined thereby, while coil springs 20 and 21 tend to urge said counter-stops downwardly against such studs. Pivotally mounted on stops 10 are fingers 22 which are resiliently urged forward beyond the stop face of said fixed stops 10 by means of springs such as 23. When in advanced position (see Fig. 5), the upper surface of such fingers is slightly above that of the fixed stops.

Also supported by brackets 6 and 7 is a pantograph mechanism comprising a long rod 24 supported at each end by links 25 and 26, pivotally mounted on said brackets. Such rod is adapted to engage the curved under-surface of a boss 27 on bracket member 13. A slot 28 in lever 29, pivotally mounted on stub shaft 30, is adapted to engage a stud 31 at the point where the rod 24 is pivotally attached to link member 26. An angular extension 32 of lever 29 carries at its end a cam roller 33 adapted to engage the outer periphery of a cam 34, mounted on the main drive shaft 35 of the machine and adapted to turn therewith.

The operation of my new mechanism may now be readily understood. Stops 10 may be disposed as desired on either of bars 8 or 9 and they are fixedly positioned by tightening set screws 11. By employing stops on both bars 8 and 9, trimming cuts may be provided for, since obviously,

stops may be set on one of such bars but slightly in advance of stops on the other. The gauge is then moved forward either manually or by means of a power drive until one of the counter-stops carried by the extension 12 thereof engages the first fixed stop. When employing some forms of power drive, the power may be left on, the clutch being permitted to slip while the cut is being made, or various types of locking devices may be employed, if desired. When one of said counter-stops engages a fixed stop, finger 22 of such fixed stop will be pushed back against the resilient pressure afforded by its spring. The knife may now be caused to fall, making the cut, cam 34 revolving with the drive shaft 35. Such cam is so positioned as to be operative in the desired timed relation to the fall of the knife, it usually being desired to actuate the stop-tripping mechanism immediately after the descent of the knife. Such cam is operative to move cam roller 33 to the left, as viewed in Fig. 1, thus moving the opposite end of the lever 29 to the right. Such movement of the lever likewise causes reciprocation of the rod 24 and also vertical movement of such rod due to the pantograph action of link members 25 and 26. This vertical movement is operative to elevate bracket 13, tipping the same about its pivotal mount and cause counter-stop 17 to be disengaged from fixed stop 19 (see Fig. 4). When this occurs, resiliently mounted finger 22 is released and snaps forward into the position illustrated in Fig. 5, effectively interposing between said stops to prevent their re-engagement as rod 24 descends. The gauge may now be moved forward, counter-stop 17 dropping down against stud 19 under the impulse of spring 20 as soon as the finger has been passed and such counter-stop is now in operative position to engage the next fixed stop in series.

It will, therefore, be seen that a simple mechanism having relatively few working parts has been provided, which affords semi-automatic operation of the gauge-positioning means, whereby the gauge may be caused to make any variety of cuts desired. As is evident from the drawings, the fixed stops are so designed that the counterstops will ride over them when the gauge is moved back to starting position.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims or equivalent of such be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising an extension of said gauge a table, an extension of the table of such machine, a series of fixed stops carried by one of said extensions and disposed parallel to the line of movement of said gauge, a counterstop carried by the other of said extensions and adapted to engage said fixed stops in succession, means for disengaging said counterstop from a said fixed stop, and resiliently actuated finger means automatically operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement.

2. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, means for disengaging said counterstop from a said fixed stop, and means automatically operative upon disengagement of said stops to move between said stops to prevent their re-engagement.

3. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, cam actuated means for automatically disengaging said counterstop from a said fixed stop, and means automatically operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement.

4. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, cam actuated means for automatically disengaging said counterstop from a said fixed stop, and spring actuated finger means automatically operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement.

5. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, cam actuated means for automatically disengaging said counterstop from a said fixed stop, finger means pivotally mounted on said fixed stops, and resilient means automatically operative upon disengagement of said stops to interpose said finger means between said stops to prevent their re-engagement.

6. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, finger means resiliently mounted on said fixed stops and adapted to be pushed back when said counterstop engages a said fixed stop, said finger means being operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement, and cam actuated means for automatically disengaging said counterstop from a said fixed stop.

7. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a plurality of rows of fixed stops located parallel to the line of movement of said gauge and laterally thereof, a plurality of counterstops carried by an extension of said gauge respectively adapted to engage said fixed stops in succession, means for disengaging a said counterstop from a said fixed stop, and means automatically operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement.

8. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, pantograph means for dis-

engaging said counterstop from a said fixed stop, and means automatically operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement.

9. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, cam actuated pantograph means for automatically disengaging said counterstop from a said fixed stop, and means automatically operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement.

10. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, finger means resiliently mounted on said fixed stops and adapted to be pushed back when said counterstop engages a said fixed stop, said finger means being operative upon disengagement of said stops to interpose between said stops to prevent their re-engagement, and cam actuated pantograph means for automatically disengaging said counterstop from said fixed stop.

11. In combination, a movable gauge for paper cutting machines and the like and positioning means therefor comprising a series of fixed stops located parallel to the line of movement of said gauge, a counterstop carried by an extension of said gauge and adapted to engage said fixed stops in succession, finger means resiliently mounted on said fixed stops and adapted to be pushed back when said counterstop engages a said fixed stop, said finger means being operative upon disengagement of said stops to interpose between said counterstop from said fixed stop, and cam tograph means for automatically disengaging said counterstop from said fixed stop, and cam means operative in timed relation with the fall of the knife of such paper cutting machine to actuate said pantograph means.

JOSEPH F. JIROUSEK.