Aug. 2, 1938. R. J. KIRKPATRICK 2,125,728

PAYROLL MACHINE

Filed Dec. 27, 1935 6 Sheets-Sheet 1

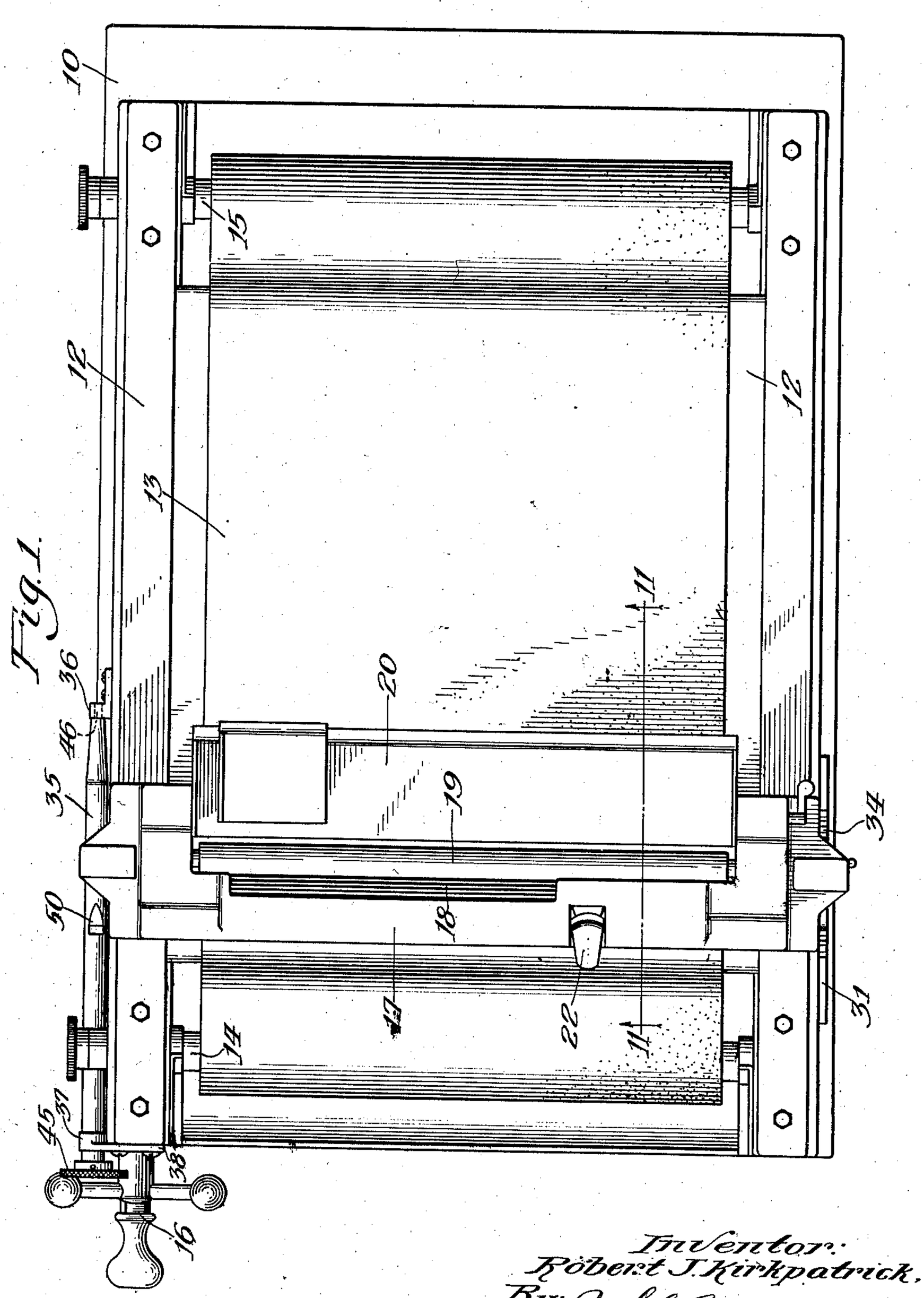

Fig. 1.

Inventor:
Robert J. Kirkpatrick,
By: Zabel, Carlson & Wells
Attorneys

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PAYROLL MACHINE

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Fig. 2.

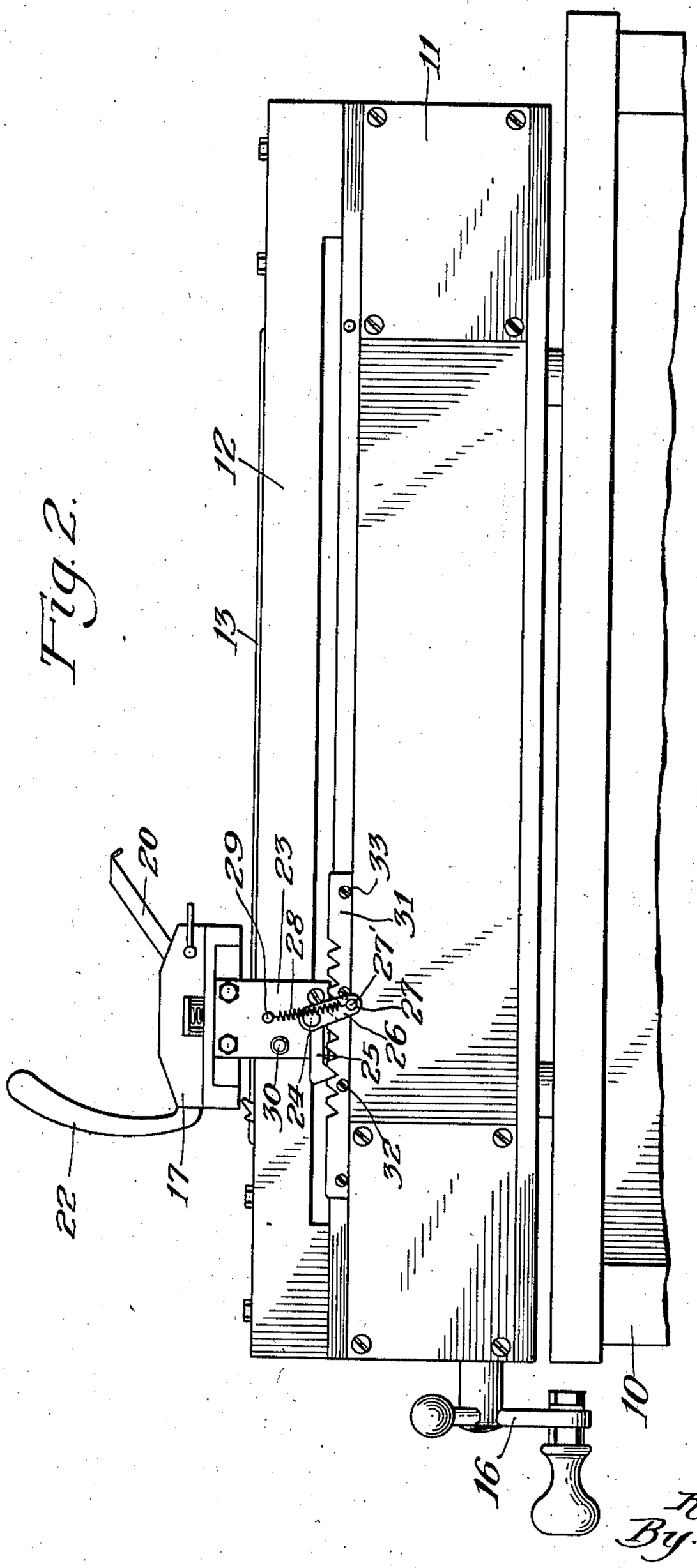


Fig. 5.

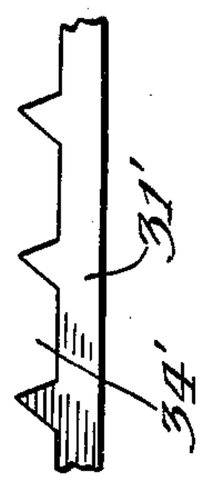


Fig. 4.

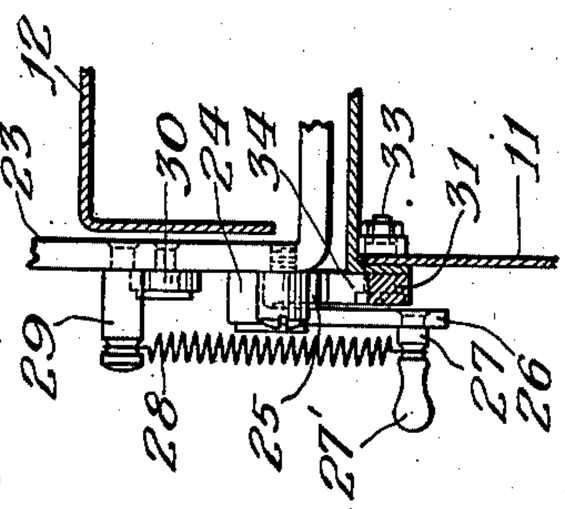
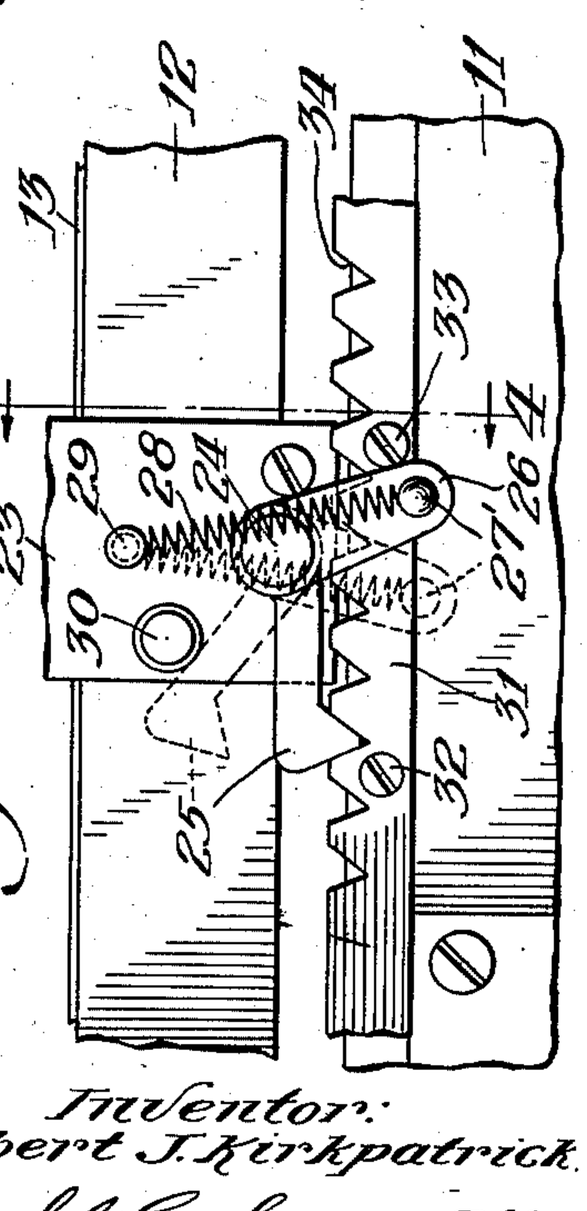


Fig. 3.



Inventor:
Robert J. Kirkpatrick
By: Zahl, Carlson & Wells,
Attorneys

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PAYROLL MACHINE

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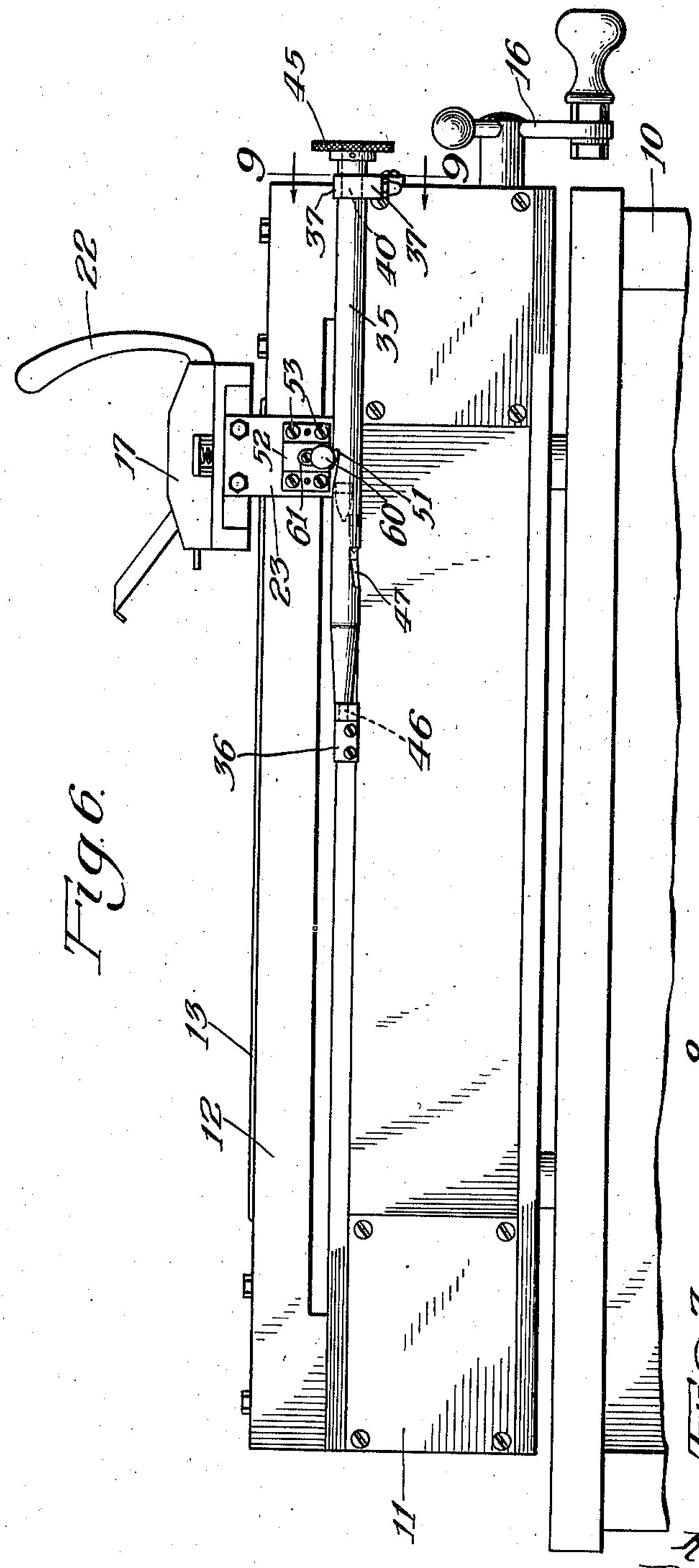

Fig. 6.

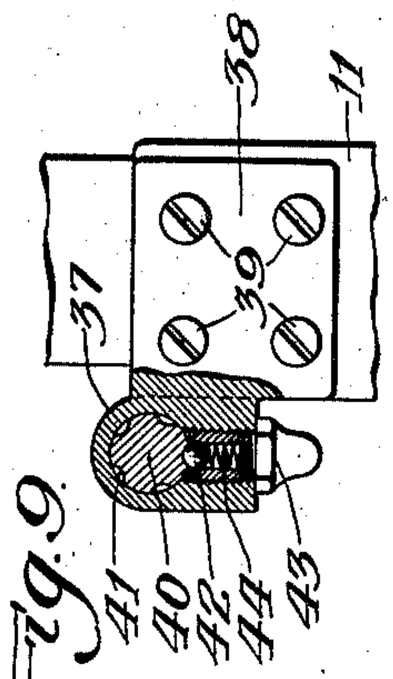

Fig. 9.

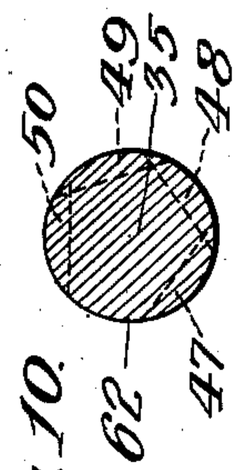

Fig. 10.

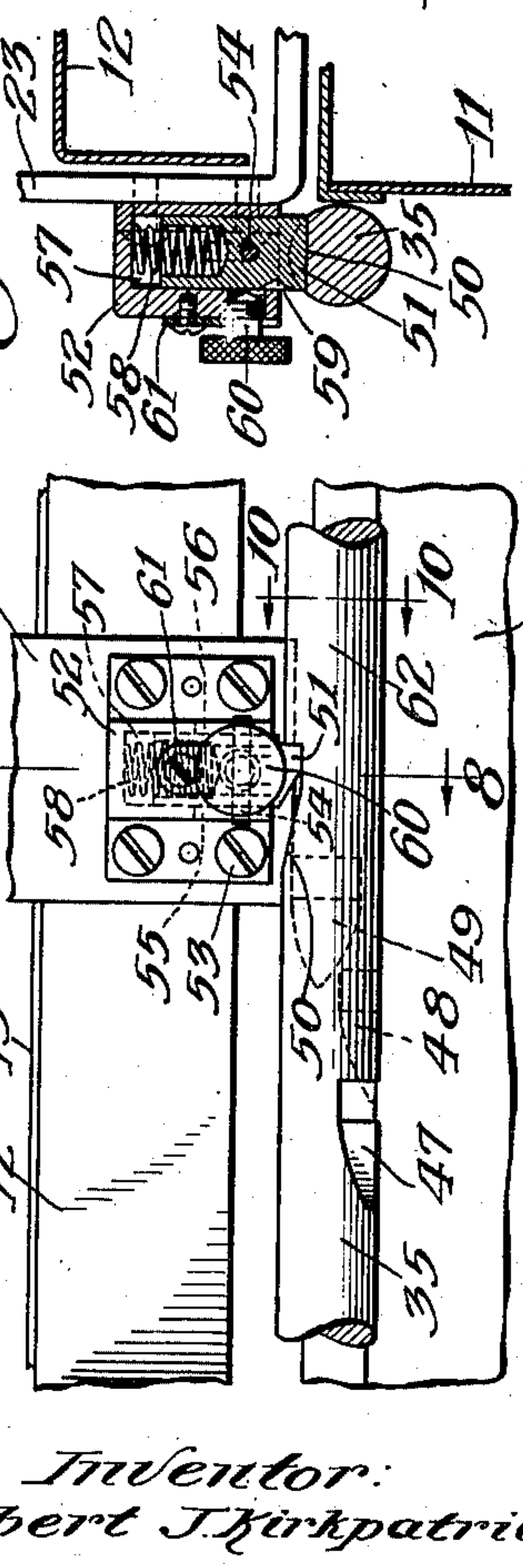

Fig. 8.

Fig. 7.

Inventor:
Robert J. Kirkpatrick.
By: Zabel, Carlson & Wells.
Attorneys.

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PAYROLL MACHINE

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Fig. 11.

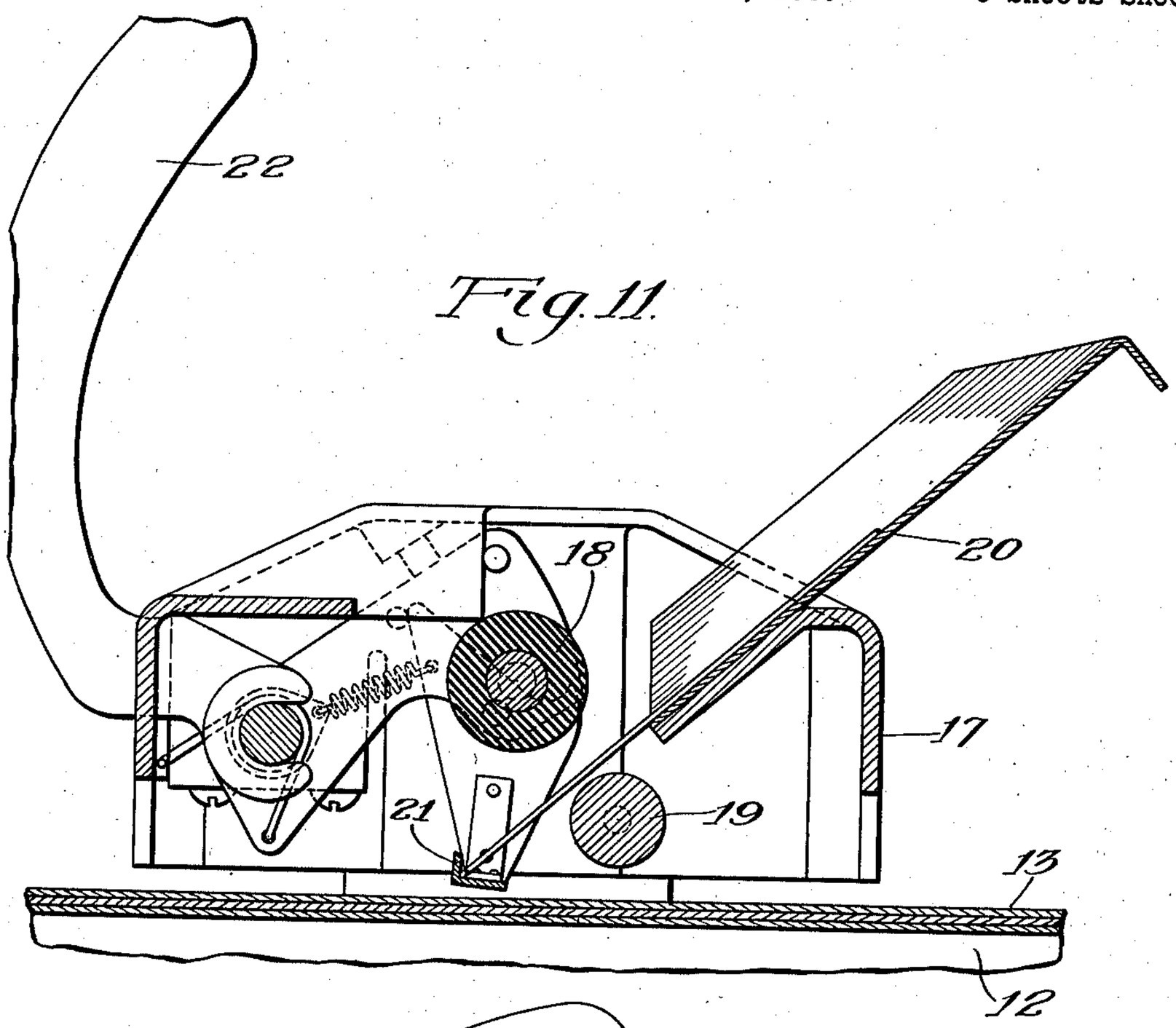
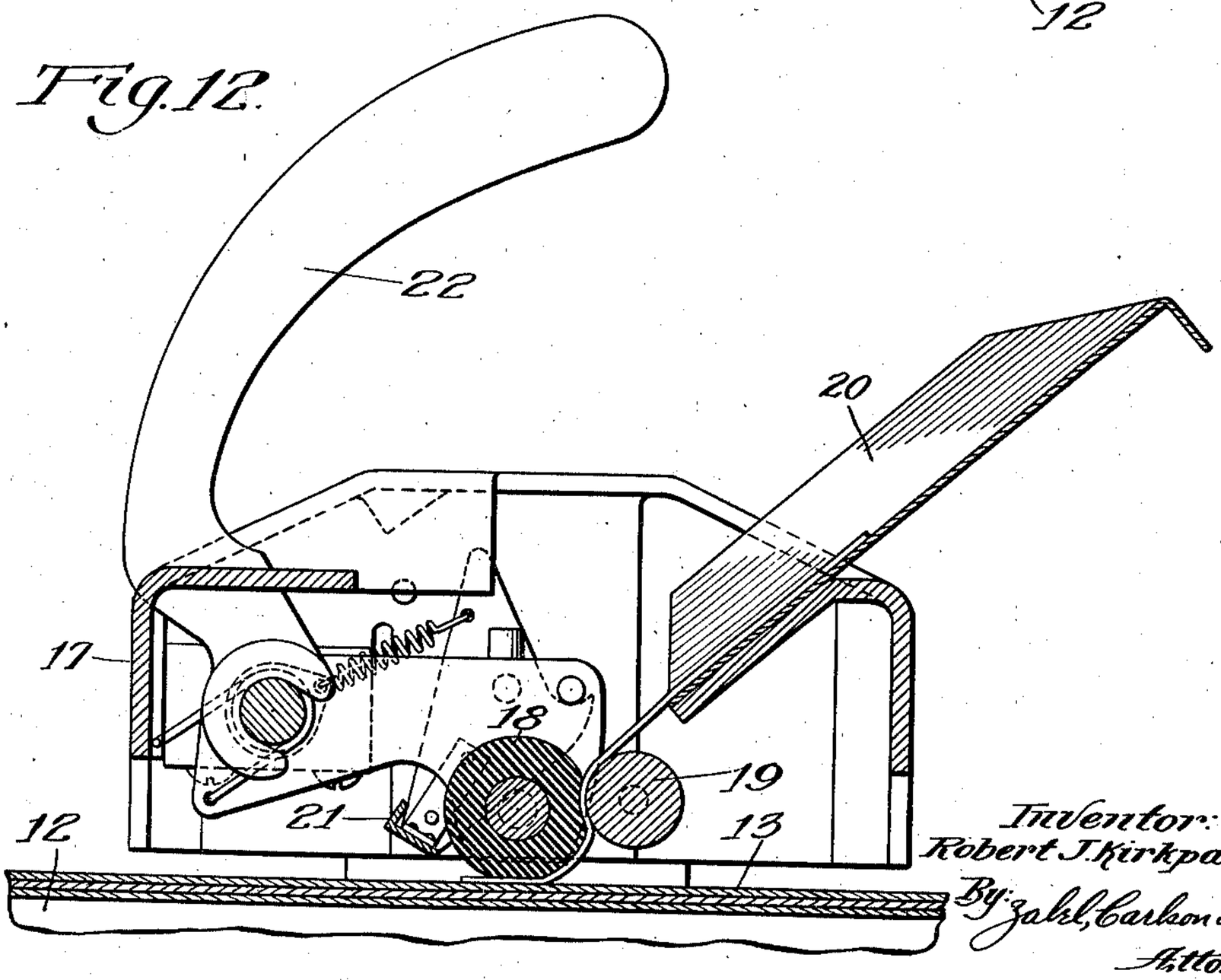


Fig. 12.



Inventor:
Robert J. Kirkpatrick
By: Zahl, Carlson & Wells
Attorneys

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PAYROLL MACHINE

Filed Dec. 27, 1935 6 Sheets-Sheet 5

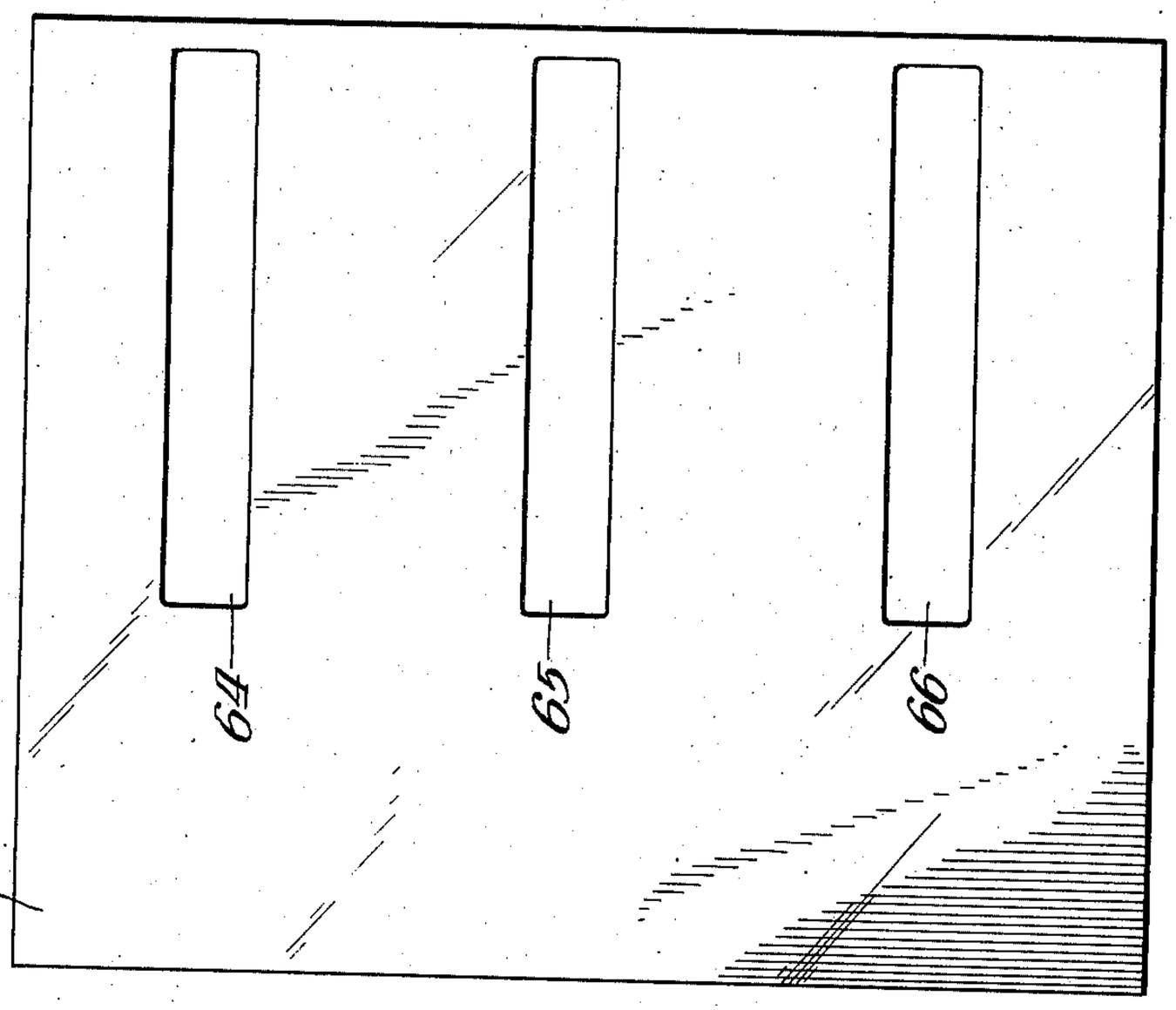

Fig. 15.

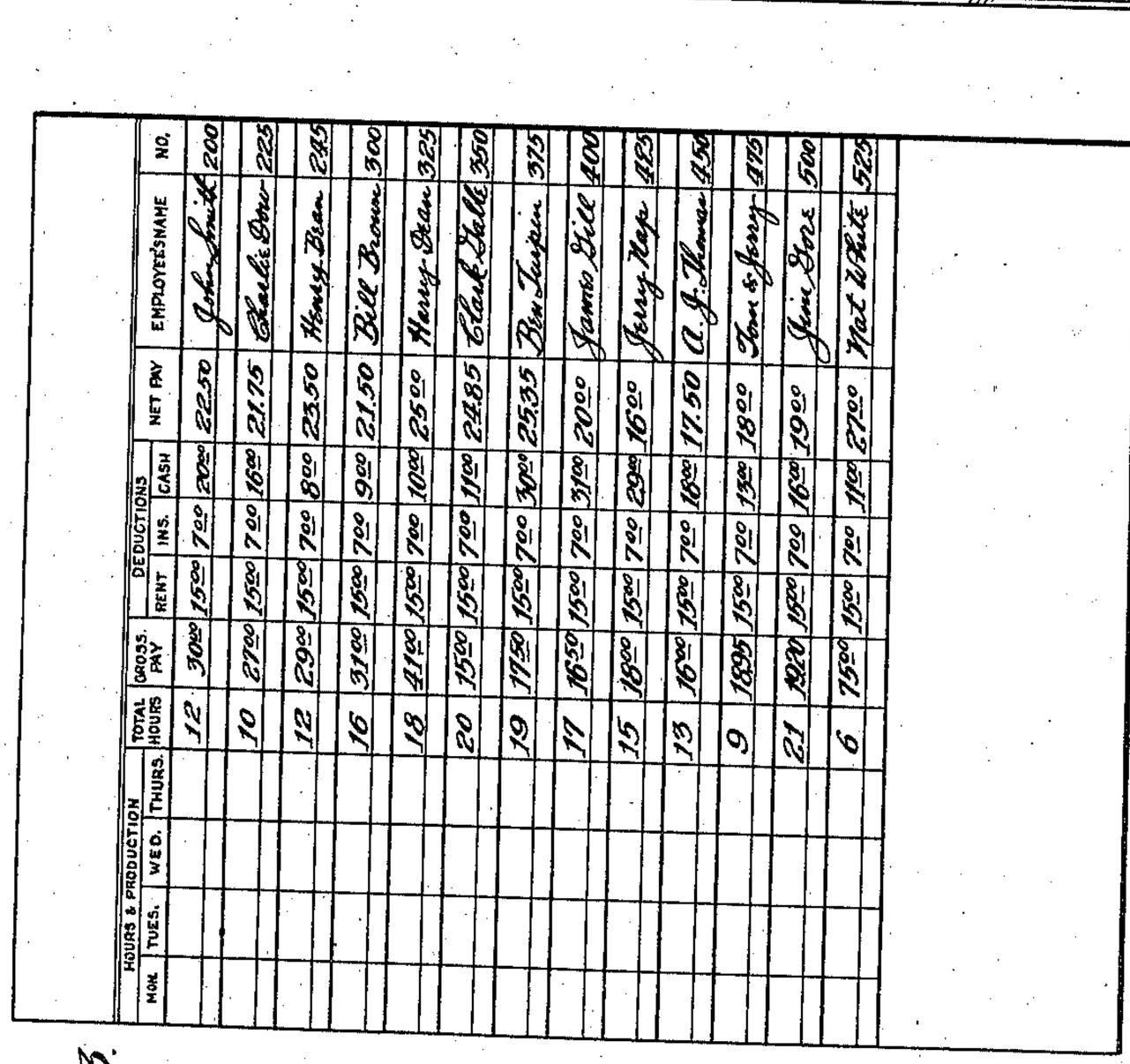

Fig. 13.

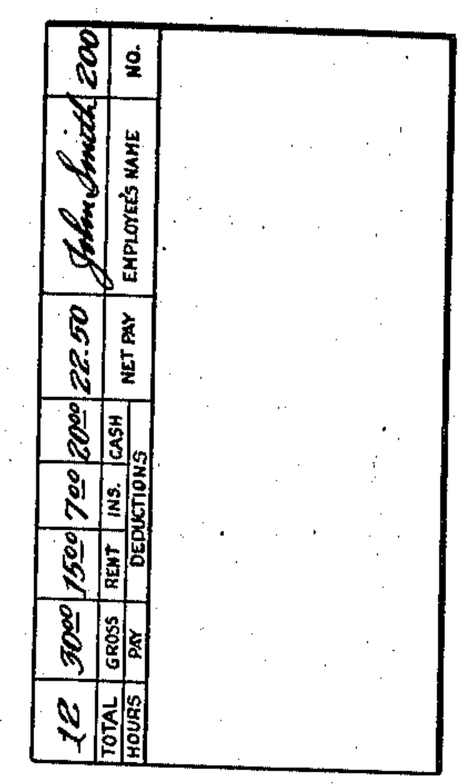

Fig. 14.

Inventor:
Robert J. Kirkpatrick
By: Zabel, Carlson & Wells
Attorney.

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PAYROLL MACHINE

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Fig. 17.

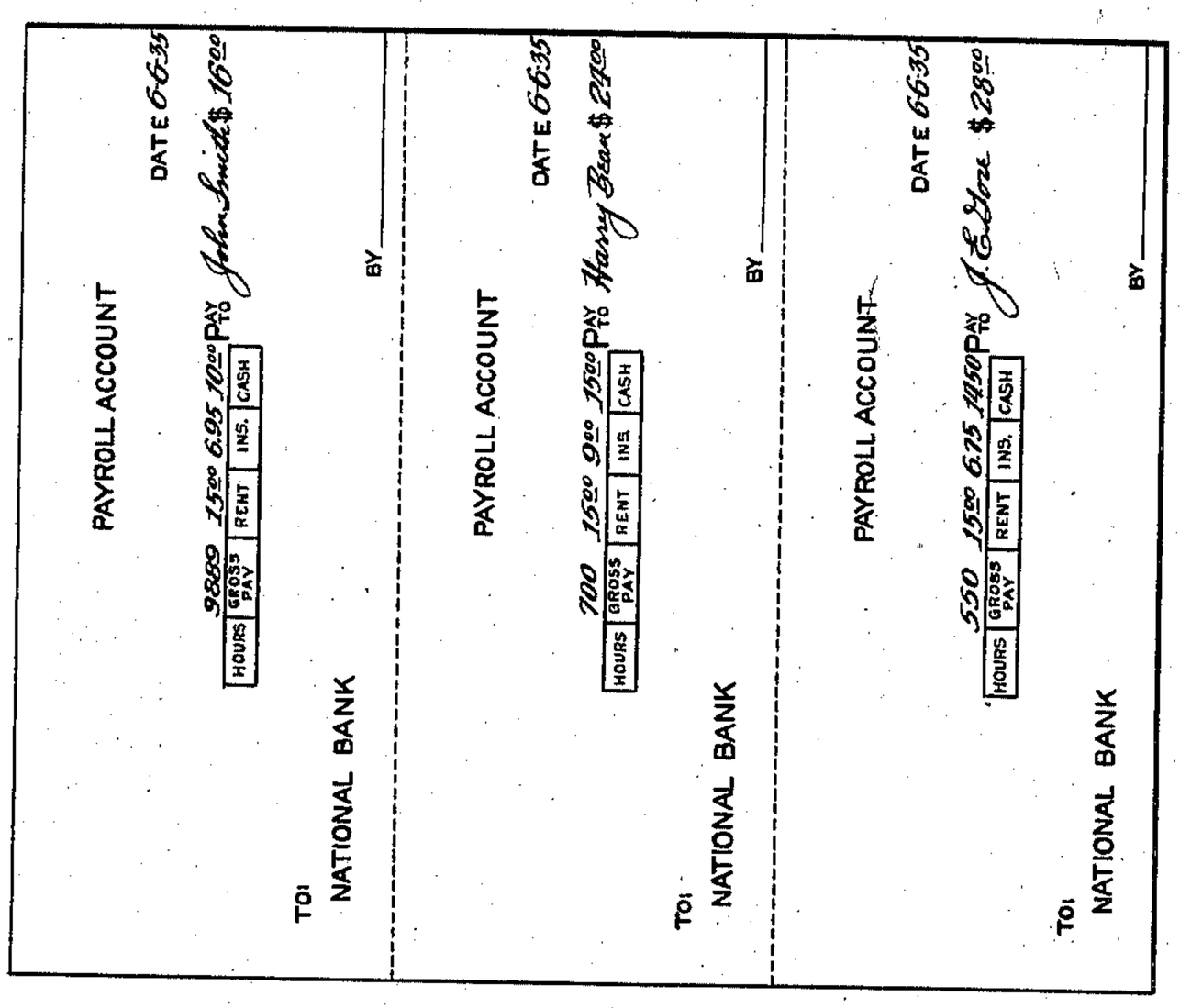

Fig. 16.

PAYROLL ACCOUNT

HOURS & PRODUCTION MON.	TUES.	WED.	THUR.	TOTAL HOURS	GROSS PAY	DEDUCTIONS RENT	INS.	CASH	EMPLOYEE'S NAME & NUMBER	NET PAY
										6635
					9889	150	695	100	John Smith	1600
										6635
					1000	150	700	800	Charlie Gore	1800
										6635
					800	150	795	900	Henry Bean	2000
										6635
					600	150	785	1100	Bill Brown	2200
										6635
					700	150	900	1500	Harry Bean	2400
										6635
					850	150	875	1350	James Hill	2800
										6635
					750	150	925	1700	Jerry Knapp	2950
										6635
					650	150	995	1410	A. J. Homan	3400
										6635
					550	150	675	1450	J. E. Gore	2800
										6635
					900	150	585	1475	D. Morton	3900
										6635
					975	150	525	3000	Wm Mann	1795
										6635
					995	150	610	2000	John Gore	2760

Inventor:
Robert J. Kirkpatrick,
By: Zabel, Carlson & Wells
Attorneys.

Patented Aug. 2, 1938

2,125,728

UNITED STATES PATENT OFFICE

2,125,728

PAYROLL MACHINE

Robert J. Kirkpatrick, Atlanta, Ga., assignor to Ditto, Incorporated, Chicago, Ill., a corporation of West Virginia

Application December 27, 1935, Serial No. 56,352

12 Claims. (Cl. 101—133)

This invention relates to duplicating machines and more particularly to certain improvements in said machines particularly adapted to facilitate the use of the machines for the purpose of filling out the necessary information needed on pay roll envelopes and pay checks.

While not limited strictly thereto, the present invention is particularly useful in connection with duplicating machines of the flat bed type like that shown in the patent to Marchev et al., United States Patent #2,007,473, issued July 9, 1935 on Duplicating machine.

One form of the invention is embodied in a duplicating machine of the above mentioned type which includes a platen over which a gelatin band is disposed when in use, a carriage slidably mounted in the frame of the machine so that it may be reciprocated over the platen bed, spindles at the ends of the platen bed upon which the gelatin band is wound and a suitable mechanism for transferring the gelatin band from one spindle to the other across the platen bed.

The present invention comprises cooperating mechanisms on the frame of the machine and on the reciprocating carriage whereby a single line or a plurality of lines of a master copy on the gelatin band may be transferred to a pay envelope or a pay check, and successive lines of the master copy on the gelatin band may be readily applied to pay envelopes and checks by the simple step of advancing the carriage to a new position after one line or group of lines has been copied from the gelatin band.

The invention further comprises cooperating parts on the frame of the machine and on the carriage frame operating to provide adjustable stop positions for the carriage in its reverse movement after a printing operation which cooperating parts are readily placed in such position as not to interfere with the use of the machine in its normal function of making full copies from the gelatin band.

Other features and advantages of the invention will become apparent as the following description progresses, reference being had to the accompanying drawings wherein—

Fig. 1 is a plan view of a duplicating machine of the flat bed type and embodying the invention;

Fig. 2 is a side elevation of the machine, the stand therefor being broken away;

Fig. 3 is an enlarged detailed view in side elevation of a part of the mechanism shown in Fig. 2;

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a detailed view of a modified form of rack to be used in place of the rack shown in Fig. 3;

Fig. 6 is a side elevation of the duplicating machine showing the opposite side from that shown in Fig. 2;

Fig. 7 is an enlarged fragmentary side elevation of a part of the mechanism shown in Fig. 6;

Fig. 8 is a fragmentary sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a fragmentary view partly in section taken on the line 9—9 of Fig 6;

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 7;

Fig. 11 is a sectional view taken vertically through the carriage taken on line 11—11 of Fig. 1 showing one position of the platen and pressure roller of the carriage;

Fig. 12 is a sectional view like Fig. 11 showing the platen roller lowered to press a copy sheet against a gelatin band on the platen bed;

Fig. 13 is a view of a master sheet showing the pay records of the number of employees assembled on a single sheet;

Fig. 14 is a view showing a pay envelope with the necessary information thereon for the employee;

Fig. 15 is a view illustrating a block out sheet utilized in taking off the single line copies from a record;

Fig. 16 shows a master sheet in the form of a pay roll account; and

Fig. 17 shows a block of pay checks onto which the information on the master sheet shown in Fig. 16 is to be transferred.

Referring now in detail to the drawings, the machine to which the invention is applied is illustrated in the drawings as a hectograph machine of the flat bed type. In the machine as shown, the numeral 10 indicates a stand upon which a frame 11 of the machine is mounted. A platen bed is indicated by the numeral 12 and a hectograph band 13 is extended over the platen bed and wound upon suitable spindles 14 and 15 located at the opposite ends of the frame 11. Suitable mechanism, not shown, connects the spindles with an operating handle 16 for transferring the band 13 from one spindle to the other.

A copying carriage 17 is mounted for reciprocation on the frame. This carriage, as shown best by Figs. 11 and 12, has a soft sponge rubber

platen roller 18, a pressure roller 19 cooperating therewith, and a guide tray 20 for guiding sheets between the platen roller 18 and the pressure roller 19 to an automatic margin bar 21 also mounted in the carriage 17. A handle 22 is adapted to control raising and lowering of the platen roller 18 in a manner which is well understood in the art. When the platen roller 18 is lowered, it is flattened out as shown in Fig. 12 because it is softer than the gelatin band or the platen bed.

The carriage 17 is supported for reciprocating movement by a U-shaped bar 23. As shown in the prior patent above referred to, this bar extends across the frame of the machine beneath the platen bed 12 and has means cooperating with the frame for guiding the carriage in its reciprocating movement over the platen bed 12.

The bar 23 on the side of the machine, shown in Fig. 2, carries a stud 24. A pawl 25 is pivoted on the stud 24. Integral with the pawl 25 is a downwardly extending arm 26. The arm 26 at its free end has a pin 27 thereon and the pin 27 is connected by means of a spring 28 to a pin 29 on the bar 23.

The pin 27 is extended and provided with a handle portion 27' as shown best in Fig. 4. The pin 29 is vertically in line with the stud 24 so that when the arm 26 is moved to one side of a vertical line through the pin 27 and stud 24, the spring tends to maintain it on that side and when the arm 26 is moved to the other side of the vertical line, the spring snaps over and maintains it on that side. This action is illustrated clearly in Fig. 3 where the full line positions and dotted line positions assumed by the arm 26 and the pawl 25 are shown.

When the pawl 25 is in the dotted line position shown in Fig. 3, it engages a stop pin 30 on the bar 23. When the pawl 25 is in the full line position, shown in Fig. 3, it engages a notch in a rack 31 which is mounted on the side of the frame 11 by suitable screw bolts 32 and 33.

It will be noted from an inspection of Fig. 3 that the rack 31 is provided with a plurality of notches 34. It will also be noted that the face of the notch 34 closest to the left hand of the machine as shown in Fig. 2, is more nearly vertical than the other face so that the pawl 25 may be more easily pushed to the right by the carriage than to the left.

As an example of the relative slope of the two faces of the notch, the left hand face may be made at 20° to the vertical and the right hand at 40°. The spacing of the notches 34 is preferably such, that advancement of the carriage to transfer the pawl 25 one notch advances the carriage a distance equal to the spacing of the lines of figures on the master sheet shown in Fig. 13.

In utilizing the mechanism just described, a master sheet like that shown in Fig. 13 is first laid on the gelatin band 13 in the usual manner, the pawl 25 being raised into its dotted line position shown in Fig. 3 during this operation. After the master sheet has been left on the band 13 long enough to transfer the characters thereon to the band, the master sheet is removed in the usual manner. The carriage is returned to home position and the pawl 25 is let down into the first or left hand notch of the rack 31. A pay envelope such as is shown in Fig. 14 is then inserted between the platen roller 18 and pressure roller 19 against the margin bar 21 as shown in Fig. 11 and the handle 22 is pressed forward to lower the platen roller to the position shown in Fig. 12. The result of this operation is to press the top edge of the envelope down against the line on the band corresponding to the top line of the master sheet shown in Fig. 13.

The platen roller is then lifted and the envelope is removed and by shoving on the handle 22, the operator advances the carriage one step by forcing the pawl 25 out of the first notch into the second notch. The pawl 25, of course, clicks as it drops into the second notch and the operator is ready to feed a second envelope in the same fashion as he fed the first one. This time, however, the platen roller in descending is in a new position with respect to the gelatin band and presses the second envelope against the line on the band corresponding to the second line on the master sheet shown in Fig. 13. In this fashion, the operator can make out single envelopes for each line of information on the master sheet without applying a new master sheet to the gelatin band.

In case it is necessary to advance the platen roller slightly to obtain say two lines from the master upon the copy sheet, it may be desirable to use the alternative form of rack shown in Fig. 5 at 31' instead of the rack 31. In this form of rack, the notches 34' are elongated and permit advance of the carriage 17 a short distance before the pawl 25 must be raised. The operation however, is practically the same with both racks and will not be further described.

On the side of the machine shown in Fig. 6, a further mechanism is provided for permitting step by step advance of the home position of the carriage 17 so that the same machine may be utilized to make copies of a plurality of lines of data from the gelatin band and to select the lines which will be duplicated. This mechanism is particularly useful in connection with a block out sheet such as shown in Fig. 15 to make out pay roll checks such as shown in Fig. 17 from a pay roll account such as shown in Fig. 16. This mechanism comprises a cam rod 35 mounted on the frame 11 by means of suitable brackets 36 and 37.

The bracket 36 is fastened by means of screws to the side of the frame 11 and the bracket 37 has a portion 38 extending across the front of the frame 11 and secured thereto by a plurality of screws 39. The bracket 37 is apertured to receive a reduced section 40 of the rod 35 and this reduced section is provided with a plurality of recesses 41 with which a spring pressed ball 42 cooperates to yieldingly retain the rod 35 in any one of a plurality of selected positions. The ball 42 is held in place by a member 43 screw threaded into the bracket 37. Member 43 is provided with a suitable recess for housing a spring 44 that is adapted to press the ball 42 upwardly. A suitable knurled head 45 is secured to the front end of the cam rod 35. The rod 35 has a reduced end portion 46 rotatably mounted in the bracket 36.

Cooperating means are provided on the cam rod 35 and the bar 23. This means comprises a plurality of recesses 47, 48, 49 and 50 (see Fig. 10) spaced circumferentially about the rod 35 and also spaced from each other longitudinally from the rod. The means also comprises a pawl 51 mounted on the bar 23 and adapted to cooperate with the recesses just described.

The pawl 51 is supported in a block 52 which is secured by screws 53 to the bar 23. A pin 54 is secured in the pawl 51 and passes through

a suitable pair of openings 55 and 56 at opposite sides of the block 52. These openings are elongated vertically of the block to permit vertical movement of the pawl 51 in a recess 57 of the block 52. A spring 58 presses the pawl 51 downwardly.

For the purpose of locking the pawl 51 in raised position, the pawl is provided with a recess at 59 which is substantially cone shaped. The block 52 carries a set screw 60 having a cone shaped tip for engaging in the recess 59. A plate 61 is mounted on the block 52 to prevent complete removal of the set screw 60.

The various recesses 47, 48, 49 and 50 are utilized in providing variable positions for the carriage 17 in a manner which will now be described. We have already described how the machine may be utilized to make copies of one or two succeeding lines of data from the gelatin band as for example, copying single lines from the gelatin band onto a pay envelope. The necessity for greater speed in taking off information from the master copy provided on the gelatin band as for example in the making out of pay checks, makes it desirable to make out a number of checks or envelopes at a single operation of the machine.

For the purpose of illustration as to how this may be accomplished, there is shown in Fig. 16 a master sheet in the form of a pay roll account which sheet carries certain data that should be provided on the pay roll checks. Fig. 17 illustrates a block of checks in the form in which they are normally provided.

Now in utilizing the present invention, the master sheet shown in Fig. 16 is applied to the gelatin band 13 in the usual manner so as to provide a copy in reverse in the gelatin band from which copies may be obtained. For this purpose, the carriage 17 is operated from its normal home position and the rod 35 is so set that a smooth portion 62 thereon lies directly beneath the pawl 51.

After the master sheet shown in Fig. 16 has been applied to the gelatin band, a block out sheet 63 shown in Fig. 15 is applied to the gelatin band. This block out sheet is preferably constructed of suitable transparent material which is also flexible to a certain degree and the sheet has openings 64, 65 and 66 provided therein, the openings being spaced in accordance with the spacing of the names upon the master sheet shown in Fig. 16 so that when the opening 64 is aligned with the top name for example, the opening 65 will be aligned with the fifth name from the top and the opening 66 will be aligned with the ninth name from the top. Therefore, when the block out sheet 63 is laid upon the gelatin band, the data in the first, fifth and ninth lines of the master copy on the gelatin band will be available through the openings 64, 65 and 66. The date numbers above the right hand column following each man's name on the master sheet shown in Fig. 16, will also be exposed through the openings in the block out sheet 63. In laying the block out sheet, however, the rod 35 is first turned to bring the recess 50 uppermost and the carriage is moved forward out of home position until the pawl 51 drops into the notch 50. The block out sheet is then fed to the carriage and laid on the gelatin band 13 by the carriage 17. When laid in this fashion, the block out sheet 63 exposes the first, fifth and ninth names on the gelatin band as hereinbefore described.

When the block out sheet is in position, a sheet of checks such as shown in Fig. 17 is placed in the carriage 17 while the carriage is in the new home position with the pawl 51 resting in the recess 50 on the rod 35. The operator then can operate the carriage 17 in the usual fashion by pressing down upon the handle 22 and advancing the carriage to press the sheet of checks against the block out sheet 63 and print on the checks the names and dates and other data exposed through the openings 64, 65 and 66.

To print a second group of checks, the operator removes the block out sheet 63 and turns the rod 35 one step in a counterclockwise direction to bring the recess 49 uppermost and advances the carriage until the pawl 51 drops into the recess 49. He then lays the block out sheet 63 upon the gelatin band 13 in the same manner as before but owing to the advance of the carriage, the block out sheet in the new position will expose the second, sixth and tenth names and their corresponding days through the openings 64, 65 and 66. After laying the block out sheet, the operator returns the carriage to the new home position where it is stopped by the pawl 51 engaging in the recess 49 and a second sheet of checks such as shown in Fig. 17 is laid over the block out sheet to fill in the required data upon this second sheet of checks.

The block out sheet is again stripped from the gelatine band and laid in a new position by turning the rod 35 to bring the recess 48 uppermost after which another sheet of checks is filled out in the same manner. The block out sheet 63 is then again removed from the gelatin band and the carriage set in a new home position by turning the rod 35 to bring the recess 47 uppermost.

The operations hereinbefore described can be repeated again with the carriage limited to its new home position and the block out sheet in this instance will permit copying of the fourth, eighth and twelfth names on the gelatine band to complete the copying of the data provided on the gelatine band from the master sheet shown in Fig. 16.

The machine is readily placed in condition for laying a new master sheet on the gelatine band by the turning of the rod 35 to bring the smooth portion 62 thereof uppermost after which the carriage 17 may be returned to its normal home position and the gelatin band 13 advanced by means of the handle 16 to provide a fresh surface for a new master sheet. If it is desired to use the machine independently of the rod 35, that is, for normal copy work, the pawl 51 may be locked in raised position by means of the set screw 60 as will be readily understood.

While certain embodiments of the invention have been shown and described, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement of the parts may be made without departing from the spirit and scope of the invention as disclosed in the appended claims, of which it is my intention to claim all novelty inherent in my invention as broadly as possible, in view of the prior art.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. In a machine of the character described the combination of a frame, a platen mounted on said frame, a carriage movable over said platen from a home position at the front end thereof, a platen

roller movably mounted in said carriage, a handle for moving said platen roller to said platen, a bar on said carriage extending downwardly at the side of said frame, a pawl carried by said bar, and a member carried by said frame and having a plurality of recesses adapted to receive said pawl and selectively limit the movement of the carriage toward home position without preventing it from being advanced over the platen.

2. In a machine of the character described the combination of a frame, a platen mounted on said frame, a carriage movable over said platen from a home position at the front end thereof, a platen roller movably mounted in said carriage, a handle for moving said platen roller to said platen, a bar on said carriage extending downwardly at the side of said frame, a pawl carried by said bar, and a member carried by said frame and having a plurality of recesses adapted to receive said pawl and selectively limit the movement of the carriage toward home position without preventing it from being advanced over the platen, said pawl and said member being operable to bring any one of said recesses into operative engagement with said pawl.

3. In a machine of the character described the combination of a frame, a platen mounted on said frame, a carriage movable over said platen from a home position at the front end thereof, a platen roller movably mounted in said carriage, a handle for moving said platen roller to said platen, a bar on said carriage extending downwardly at the side of said frame, a pawl carried by said bar, and a member carried by said frame and having a plurality of recesses adapted to receive said pawl and selectively limit the movement of the carriage toward home position without preventing it from being advanced over the platen, said bar having means thereon to hold said pawl in inoperative position whereby to release the carriage for return to home position at the will of the operator.

4. In a machine of the character described the combination of a frame, a platen mounted on said frame, a carriage movable over said platen from a home position at the front end thereof, a platen roller movably mounted in said carriage, a handle for moving said platen roller to said platen, a bar on said carriage extending downwardly at the side of said frame, a pawl carried by said bar, and a member carried by said frame and having a plurality of recesses adapted to receive said pawl and selectively limit the movement of the carriage toward home position without preventing it from being advanced over the platen, said member being movably mounted on the frame to bring any one of said recesses into functionally operative position with respect to said pawl.

5. In a duplicating machine, a frame, a platen thereon, a duplicating band on said platen, a carriage movable over said platen, means on the machine providing a permanent home position stop for said carriage at the front of said platen, a platen roller movably mounted in said carriage and movable to and from the platen, said platen roller being more yielding than the duplicating band whereby it may be flattened substantially by pressing it against said band, and co-operating means on the frame and carriage providing step by step copying of lines on said duplicating band by successive alternate advancing of the carriage and flattening of the platen roller upon a copy sheet interposed between it and said band, said co-operating means comprising a member for pressing the platen roller downwardly toward the platen and lifting it away from the platen, and pawl and rack mechanism interconnecting the carriage and frame, the rack having stops engaged by the pawl to successively prevent reverse movement of the carriage after it has been moved a limited amount away from home position.

6. In a duplicating machine, a frame, a platen mounted therein, a carriage mounted on said frame for movement over said platen, a platen roller in said carriage, a member at the side of said frame having a plurality of notches, a pawl carried by said carriage and engaging said member, said notches being arranged circumferentially about said member and spaced lengthwise thereof, and said member being rotatably mounted on the frame whereby to bring any one of said notches into functionally operative position with respect to said pawl.

7. In a duplicating machine, a frame, a platen mounted therein, a carriage mounted on said frame for movement over said platen, a platen roller on said carriage, a member at the side of said frame having a plurality of notches, a pawl carried by said carriage and engaging said member, said notches being arranged circumferentially about said member and spaced lengthwise thereof, and said member being rotatably mounted on the frame whereby to bring any one of said notches into functionally operative position with respect to said pawl, and said member having a surface extending substantially the length thereof and parallel to the path of travel of said carriage, which surface is movable into position to engage said pawl by rotation of said member.

8. In a duplicating machine, a frame, a platen thereon, a duplicating band on said platen, a carriage movable over said platen, means on the machine providing a permanent home position stop for said carriage at the front of said platen, a platen roller movably mounted in said carriage and movable to and from the platen, said platen roller being more yielding than the duplicating band whereby it may be flattened substantially by pressing it against said band, and co-operating means on the frame and carriage providing step by step copying of lines on said duplicating band by successive alternate advancing of the carriage and flattening of the platen roller upon a copy sheet interposed between it and said band, said co-operating means comprising a pawl on the carriage, and a member on the frame having a plurality of stops to engage said pawl and successively limit movement of the carriage toward home position after each advance thereof.

9. In a duplicating machine, a frame, a platen mounted therein, a carriage mounted on said frame for movement over said platen, a platen roller in said carriage, a member at the side of said frame having a plurality of notches, a pawl carried by said carriage for engaging in said notches, said pawl and said notches having cooperating portions for limiting movement of the carriage in one direction without preventing it from being advanced in the other direction, and manually controlled means to hold the pawl out of engagement with the notches.

10. In a duplicating machine, a frame, a platen mounted therein, a carriage mounted on said frame for movement over said platen, a platen roller in said carriage, a member at the side of said frame having a plurality of notches, a pawl carried by said carriage and engaging said member, said pawl and the notches having cooperat-

ing faces offering substantially greater resistance to movement of the carriage toward home position than to advance of the carriage.

14. In a machine of the character described, the combination of a frame, a platen mounted on said frame, a carriage movable over said platen from a home position at the front end thereof, a platen roller movably mounted in said carriage, a handle for moving said platen roller to said platen, and cooperating means on the frame and carriage rendered operative in succession by advance of the carriage farther from home position to successively limit the movement of the carriage toward home position.

12. In a machine of the character described, the combination of a frame, a platen mounted on said frame, a carriage movable over said platen from a home position at the front end thereof, a platen roller movably mounted in said carriage, a handle for moving said platen roller to said platen, and cooperating means on the frame and carriage acting as the carriage is advanced to successively limit the movement of the carriage toward home position, said means comprising a spring pressed pawl and a rack having teeth whose pawl engaging faces are steeper on one side than on the other.

ROBERT J. KIRKPATRICK.