G. BEUTLER.

MACHINE FOR PRINTING PRICE CARDS, LABELS, TICKETS, TAGS, AND THE LIKE.

APPLICATION FILED NOV. 22, 1913.

1,115,380.

Patented Oct. 27, 1914.

5 SHEETS—SHEET 1.

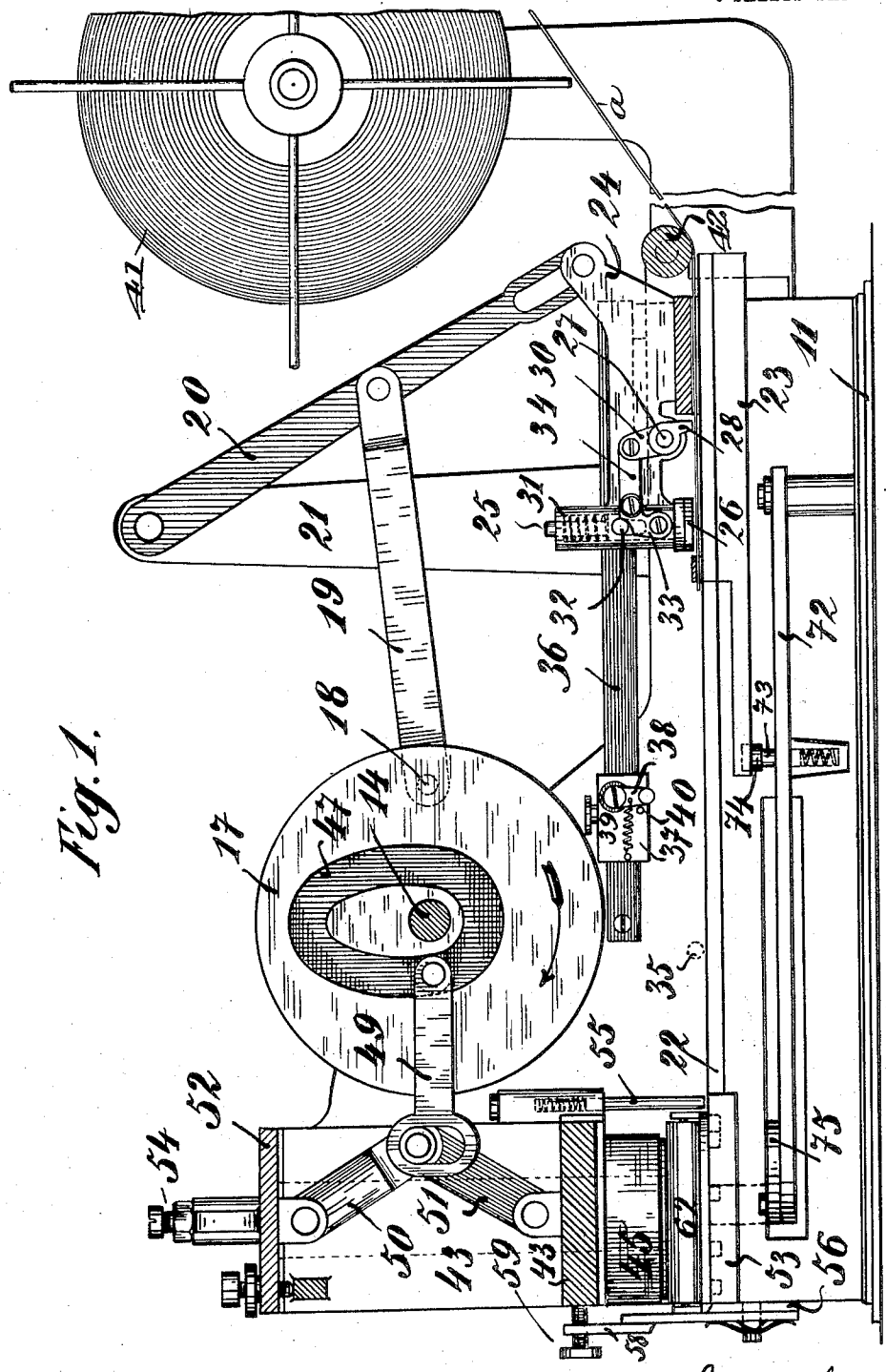

Fig. 1.

Witnesses,
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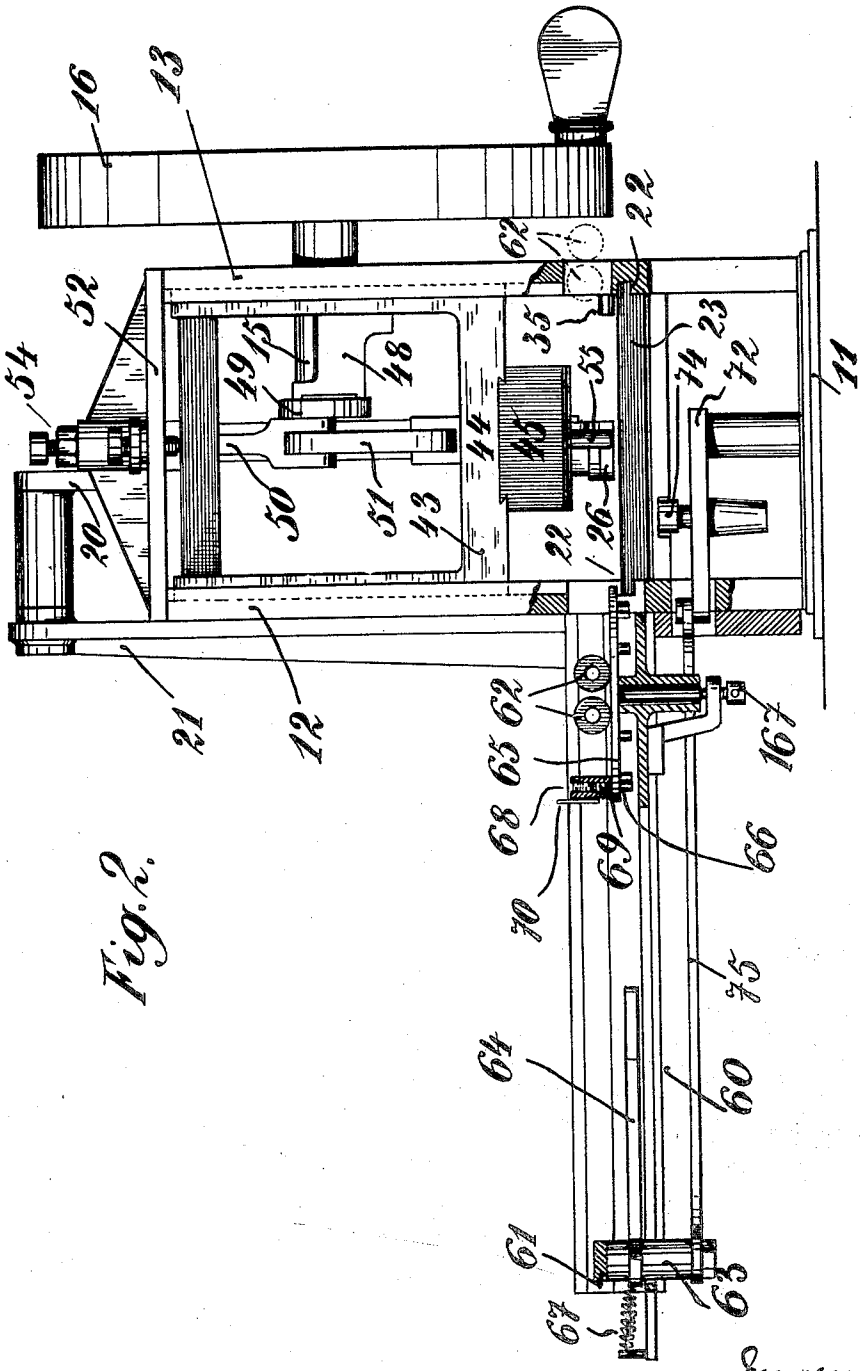

Fig. 2.

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Fig. 3

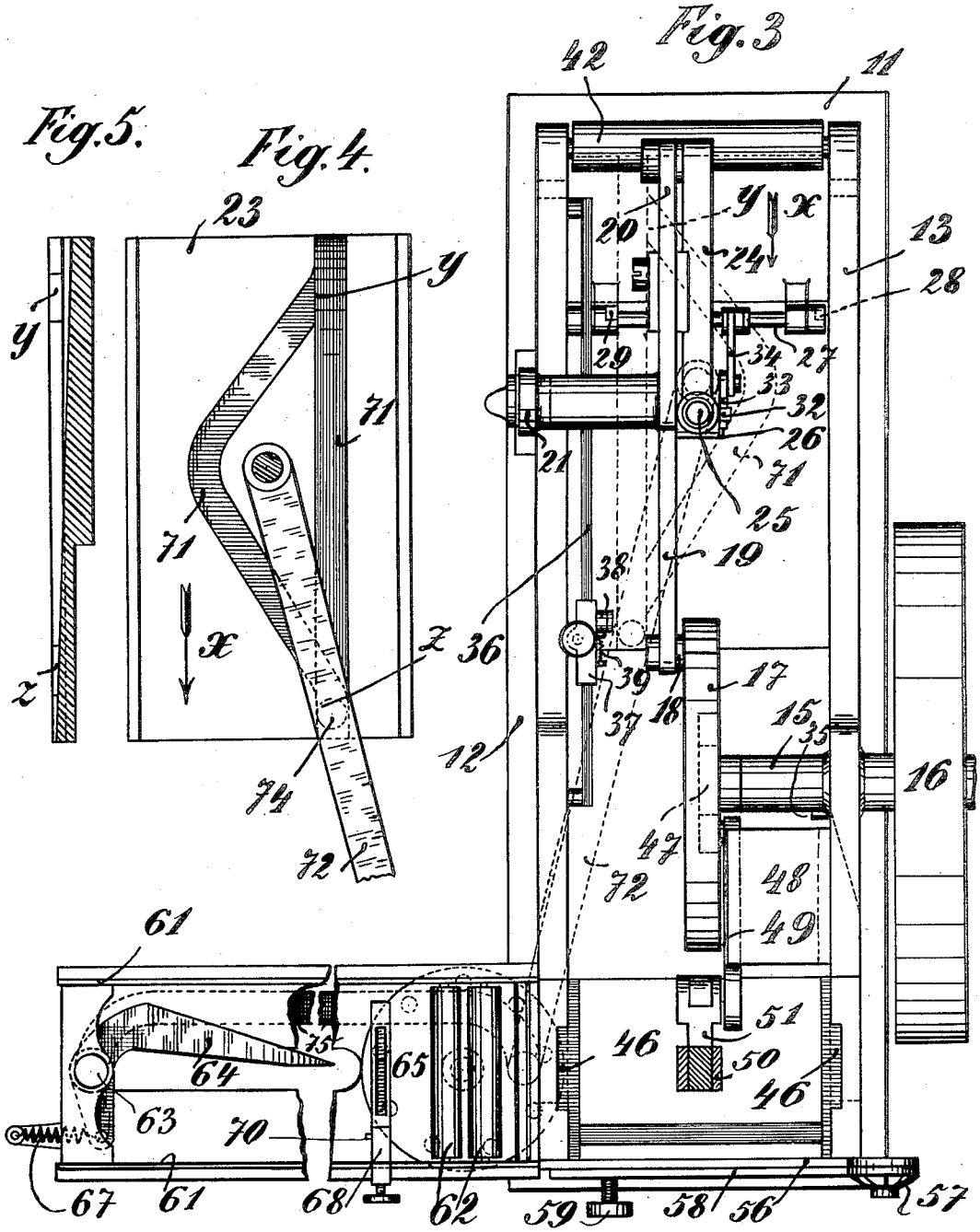

Fig. 5.

Fig. 4.

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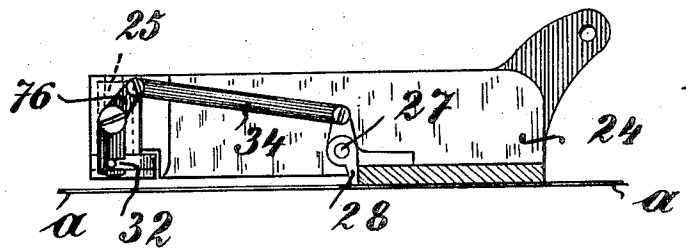


Fig. 6.

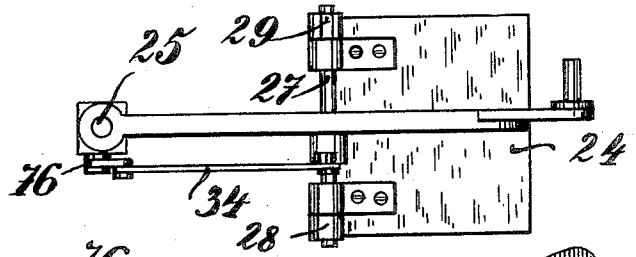


Fig. 7.

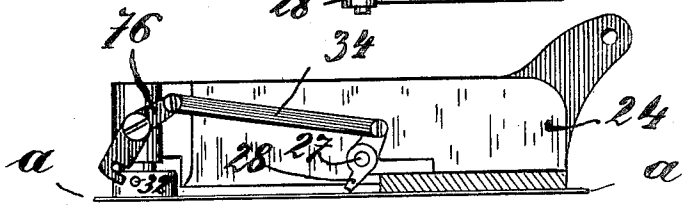


Fig. 8.

Fig. 9.

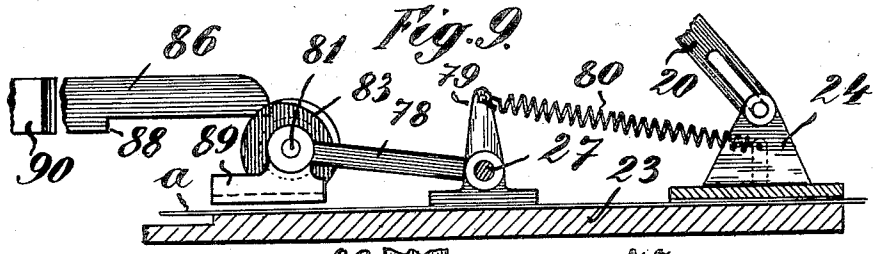
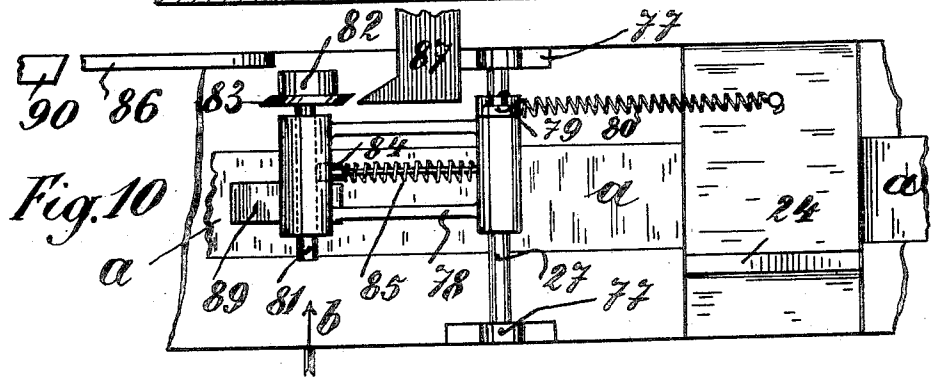


Fig. 10.



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5 SHEETS—SHEET 5.

Fig. 11

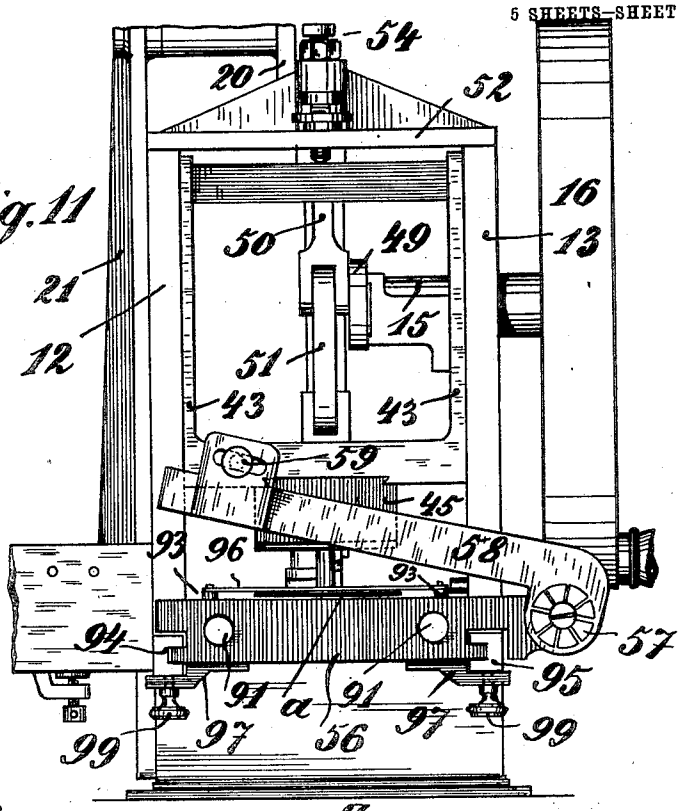


Fig. 13.

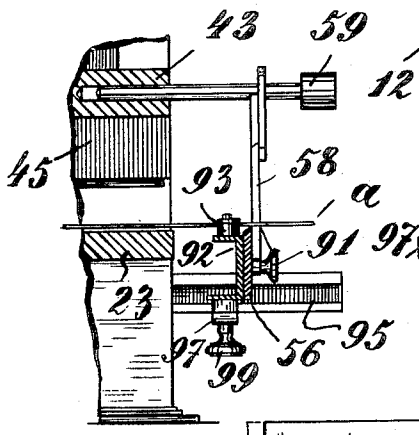


Fig. 12.

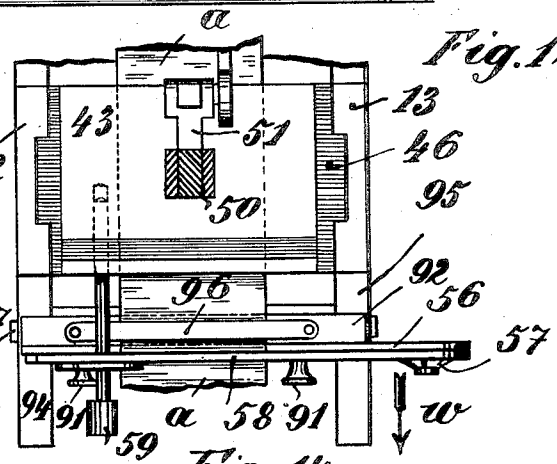
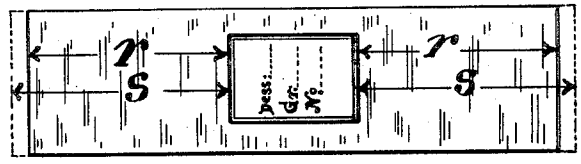


Fig. 14.



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UNITED STATES PATENT OFFICE.

GUSTAV BEUTLER, OF BERLIN, GERMANY, ASSIGNOR TO BERLINER SPECIAL-MASCHINEN-INDUSTRIE VICTOR STERNBERG, OF BERLIN, GERMANY.

MACHINE FOR PRINTING PRICE-CARDS, LABELS, TICKETS, TAGS, AND THE LIKE.

1,115,380. Specification of Letters Patent. Patented Oct. 27, 1914.

Application filed November 22, 1913. Serial No. 802,532.

To all whom it may concern:

Be it known that I, GUSTAV BEUTLER, manager, a subject of the Emperor of Germany, residing at 21 Bülowstrasse, Berlin, W. 57, Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Machines for Printing Price-Cards, Labels, Tickets, Tags, and the like, of which the following is a specification.

In businesses, particularly in sales rooms price cards, labels, tickets, tags, name cards, cards with information and the like referring to the goods are required which, in smaller businesses are written by hand, whereas in larger businesses they are made by means of stencils, rubber stamps and other appliances or they are printed with ordinary type. In this case the printing is rather tedious, troublesome and therefore also expensive. As the conditions are frequently changing, it will often occur, that such cards, labels, tags and the like which have been made in advance have to be altered or to be entirely discarded.

The present invention, now, relates to a machine, which prints such price cards, labels, tickets, tags and the like on an endless web of paper or a roll of paper and simultaneously cuts these cards from the said strip of paper. The advance of the paper is varied according to the size of the card to be printed. The printing is done with printer's ink or with any other suitable ink by aid of an inking gear, so that the prints dry quickly and may be immediately used. The form itself is made up of either electros or type or by typewheels or any combination of such parts; it can be readily exchanged at any moment.

In the accompanying drawing the present invention is exemplified in a constructional form.

Figure 1 is a longitudinal section, Fig. 2 is a front view, partly in section, Fig. 3 is a top view of the machine. Fig. 4 is a bottom view of the slide for advancing the paper. Fig. 5 is a longitudinal section through this slide. Figs. 6 to 8 illustrate another constructional form of the slide in side and top view and two operative positions respectively. Figs. 9 and 10 are a third constructional form of the said slide in two different views. Figs. 11 to 13 illustrate a modification of the cutting device in three different views. Fig. 14 is a printed price card.

The machine, according to the present invention, comprises the following essential parts: the driving gear, the gear for feeding the paper, the printing and cutting gear, and the inking gear.

All parts are arranged between two side frames 12 and 13 secured to a bedplate 11.

The driving gear consists of the driving shaft 14, which is journaled in the sleeve 15 of the one side frame 13, of the flywheel 16 and the driving disk 17. Both the flywheel and the disk are rigidly fitted to the shaft 14.

The disk 17 is fitted on its outer side with a crankpin 18, on which the connecting rod 19 is fitted. The other end of this connecting rod 19 is linked to a rocking lever 20 which is pivoted to the bracket 21, so that when the flywheel is turned, the disk 17 produces a given oscillation of the rocking lever 20.

The paper feed is effected without need of the usual feed rollers in the following simple manner: In two grooves 22 in the side frames 12 and 13 a slide 23 travels, which has at its rear end a suitably shaped part 24 to which the free end of lever 20 is coupled by means of a roller and a slot, so that the slide 23 is reciprocated by the lever 20. To the part 24 is fitted a spring bolt 25 which has a foot 26 with a rubber pad. In part 24 is also fitted a shaft 27 with cams 28, 29 attached thereto and a lever 30. Through the guide sleeve 31 of the spring bolt 25 is passed a pin 32. Vertically beneath this pin is the fulcrum of the cam lever 33, which is linked by means of a link 34 to the lever 30. On the right side frame 13, close above the groove 22 is rigidly screwed the abutment pin 35, and to the side frame 12 a bar 36 is projectingly secured, on which the adjusting slide 37 is fitted. On the latter is fitted the elastic lever 38, which bears under action of the spring 39 against the abutment 40. The free end of the paper roll 41 is passed under the guide roller 42 through part 24 and beneath the foot 26 of the spring bolt 25 so that the paper lies on the top of the slide 23. When, now, the machine is operated, the slide 23 moves to the left in Fig. 1. When the cam 29 has thus reached the

lever 38 the shaft 27 will be turned by the cam 29 striking against the lever 38, and by means of the parts 30 and 34 the cam lever 33 will be withdrawn from below the pin 32, so that the spring bolt 25 can snap down and hold the paper tight and carry it along or unwind it from the roll 41 until the cam 28 meets the resilient abutment pin 35 and the spring bolt is lifted and the paper released in consequence of the reversed rotation of the shaft 27 produced by the abutment of 28 against 35. By adjusting the slide 37 the gripping of the paper can be made to occur at an earlier or later moment, so that the paper is advanced to a greater or smaller length according to the larger or smaller size of the card to be printed.

The printing and cutting off gear is arranged as follows: The U-shaped printing head 43, into which the form-frame 45 with the electros or type for printing is fitted at 44, is vertically guided in the grooves 46 in the side frames 12 and 12. For vertically reciprocating it during the second half of a revolution of the crank the cam groove 47 (Fig. 1) cut into the driving disk 17 is provided, which cam groove controls by means of the connecting rod 49 moving in a guide 48 a toggle lever 50, 51, the upper lever 50 of which finds a rigid abutment on the cap 52, so that, when the toggle lever is straightened, the printing head 43 must move downward and print on the printing table 53. For accurately adjusting the imprint a screw 54 is provided in the cap 52. The printing head further holds the paper during the return of the slide 23, preparatory to a renewed feed. For this purpose the printing head has on its inner side a spring bolt 55 flattened at the bottom. This bolt touches the paper at the same moment at which the hereinbefore described feed gear releases it. When the printing head descends still further the bolt 55 will hold the paper still tighter, so that it is impossible for it to be returned with the slide; the bolt releases the paper only when the printing head 43 has, at the end of each revolution of the crank again reached its uppermost position. The printing head also operates the cutting-off device. The latter consists of a blade 56 secured to the two side frames and a movable blade 58 connected to it and pressed against it by means of a strap spring 57. This movable blade 58 is moved up and down by means of an inset pin 59 in the printing head, so that the cutting off of the printed and correspondingly advanced paper is effected simultaneously with the printing.

The inking gear is constructed in the following manner: In the casing 60 a frame 61 is displaceably fitted (Fig. 3). On the one end of this frame are fitted the two inking rollers 62, while there is a pin bolt 63, pointing downward, on the other end. On this bolt is pivoted a tongue 64, which serves to intermittently rotate the ink disk 65. For this purpose the ink disk, which is likewise journaled in the said casing is provided with a plurality of pins 66 arranged in a circle and pointing downward, between which the tongue 64 enters during the hereinafter described movement of the frame 61, and with its bevel thereby turns the said disk without any jerk by one division. A suitable brake is provided for the disk, so that on returning the tongue can, in consequence of its spring 67, yield a little and drop off the next pin, and engage behind it with its point when it advances again. As the ink disk serves to distribute the ink, the inking rollers must travel over it under a certain pressure. This pressure can be adjusted by means of the screw 167. (Fig. 2).

For supplying fresh ink to the ink disk an ink box 68 is provided. In this box is arranged a soft roller 69 (Fig. 2) which bears against the ink disk under action of a spring, and is rotated by the rotation of the disk. The circumference of this roller 69 reaches into the cavity of the box which is filled with ink, so that by the rotation of the roller continuously fresh ink is transferred to the disk. By the small lever 70, Fig. 2, the ink box can be intermittently lifted, so that the roller is no more in contact with the disk. By such means the ink supply can be controlled at wish.

For moving the frame 61 which carries the inking rollers, the cam groove 71 is cut into the lower surface of the slide 23. In this cam a roller 74 travels which is fitted on a resilient bolt 73 in the horizontal lever 72. At its free end the lever 72 is linked by means of a rod 75 to the frame 61.

Because, as hereinbefore described, the second half of a revolution of the crank is utilized for operating the printing and cutting devices, the inking must take place during the first half revolution of the machine.

As soon as the slide 23 starts to travel in the direction of the arrow x (Figs. 3 and 4) the frame 61 is moved to the right by means of cam 71 and lever 72 as seen in Fig. 3, and the inking rollers transfer ink to the printing form 45. Shortly before the slide 23 completes its forward stroke, the roller 74 reaches the point y of the cam 71 (Figs. 3 and 4) and the return stroke of the frame 61 is almost completed. While, now, the slide 23 commences its return stroke, which takes place during the second half of the revolution of the crank, the whole inking gear must remain stationary. For this purpose the roller 74 passes onto the straight section of the cam 71 exactly at the moment when the forward stroke of the slide 23 is

completed. This straight part is cut much deeper at *y* than the curved section of the cam groove, so that the roller 74 must under action of the spring of bolt 75 sink deeper at the point *y*, and therefore remains in the straight section of the cam when the slide returns, whereby the required stopping of the inking gear is obtained. The straight part of the cam again rises until the other end of the return of the slide 23 is reached, so that at the point *z* the roller 74 again is forced to enter into the curved part of the guide groove, as soon as the slide 23 again commences its forward stroke.

The modification of the feed gear according to Figs. 6 to 8 differs from the one shown in Figs. 1 to 3 in that in place of the cam lever 33 a double-armed lever 76 is pivotally arranged, which has in its lower end a notch, with which it engages under the stop pin 32 in the spring bolt 25. In all other details the arrangement is the same.

Fig. 6 shows the spring bolt in its arrested position, Fig. 8 shows the bolt in its released position at which it grips the paper *a* beneath it.

In the modification according to Figs. 9 and 10 the shaft 27 is journaled in bearings 77 fitted to the slide 23 and coupled to an angle 78, which is connected with its arm 79 to a spring 80 secured to the part 24. In the free end of the angle a pin 81 is fitted transversely to the paper web, which pin is displaceable and carries at its end a revoluble roller 82. Besides it is provided with a flange 83, which is beveled in both directions. In order to brake the displacement of the bolt 81 a second bolt 84, displaceable in the direction of the travel of the paper is provided, which is pressed by a spring 85 against the bolt 81. With this constructional form a bar 86 is fitted to the side frame 12, the length of which bar corresponds to the desired length of feed. When the slide 23 approaches the right end of its stroke the beveled collar 83 of the bolt 81 meets the correspondingly beveled abutment 87, and the said collar glides along the latter, so that the bolt moves in the direction of the arrow *b* and the roller 82 comes into the path of the bar 86. When, now, the slide moves to the left the roller 82 will, according to the length of the bar 86 pass under it at a sooner or later moment and be forced downward by the projection 88 of the bar so that the gripper 89 fitted to the rocking angle 78 is pressed against the paper *a* and carries the same along. At the end of the stroke to the left the collar 83 strikes against a lateral projection 90 of the bar 86, so that the bolt 81 is displaced in the opposite direction and thereby the roller 82 is removed from beneath the bar 86. The angle 78 is now free and swings upward under action of spring 80, so that the paper is released. The abutment 90, which is beveled, may also be separate from the bar 86, so that the abutment is stationary, the same as the abutment 87, and only the bar 86 is exchanged.

By means of the devices hereinbefore described price cards, labels, tickets, tags or the like are printed and are cut from the paper web immediately behind the imprint. Some times it is, however, desirable to arrange the print for instance as shown in Fig. 14 in the middle of a longer piece of paper, so that the latter projects with a margin *r* at either end of the imprint. For obtaining this the cutting gear is made longitudinally adjustable to the paper web *a* as shown in Figs. 11 to 13. By this adjustability and by means of the adjustability of the feed gear any desired length of the card may be obtained. In the present constructional form the side frames 12 and 13 have grooved projecting guide rails 94 and 95. In these the holder 92 for the lower blade 56 can be conveniently adjusted. For fixing it in its adjusted position angles 97 with set screws 99 are arranged below the holder 92, which engage from below over the rails 94, 95. When the set screws 99 are tightened, the under blade is fixed in its operative position. The top blade 58 is operated in the manner hereinbefore disclosed by the printing head 43 by means of the bolt 59 and has its fulcrum in the lower blade 56. When both blades are to be removed for grinding, only the screws 91 need be unscrewed, whereupon the pair of cutters can be removed. On the holder 92 a guide bar 96 is fitted by means of pins 93, which guide bar serves to guide the paper *a*. When, for instance, cards are to be made, which have at both sides a clear strip of the length *s*, the cutting gear must be displaced, after loosening the screws 99, by a corresponding distance in the direction of the arrow *w*. At the same time the paper feed must be accordingly adjusted.

In order that the printing head 43 may coact with the upper blade 58 at any position of the cutting gear the bolt 59 in it is made of a sufficient length (see Fig. 13).

I claim—

1. Machine for printing price cards, labels, tickets, tags and the like from a paper strip corresponding in width to the width of the printing, comprising a frame, a slide horizontally reciprocable on the frame, a bridge secured on the slide, a driving member for said slide, a rocking lever hinged at one end to said frame and at the other end to said bridge, a connecting rod between said member and said lever, a gripping member movably mounted on said bridge, and resting on the slide, means for holding said gripping member in raised position, means for releasing said holding means thereby letting down the gripping member to engage the

paper strip, and means for raising the gripping member at the end of the stroke.

2. Machine for printing price cards, labels, tickets, tags and the like from a paper strip corresponding in width to the width of the printing, comprising an adjustable paper feed gear and a printing gear, said feed and printing gears having a common drive, a cutting off gear operated by the printing gear and an inking gear operated by the feed gear, the said feed gear consisting of a slide provided with a cam groove and traveling under the paper web and a gripper above the paper, which is released at the moment of the feed and is automatically withdrawn at the end of the feed, the inking gear arranged in a frame movable transversely to the direction of travel of the slide, said frame coupled by levers to said cam groove in the slide, said cam groove having such a shape, that the inking gear frame is moved when the slide travels in the direction of the feed, and the inking gear remains stationary during the return of the said slide.

3. Machine for printing price cards, labels, tickets, tags and the like from a paper strip corresponding in width to the width of the printing, comprising an adjustable paper feed gear and a printing gear, said feed and printing gears having a common drive, a cutting off gear operated by the printing gear and an inking gear operated by the feed gear, the said feed gear consisting of a slide provided with a cam groove and traveling under the paper web and a gripper above the paper, which is released at the moment of the feed and is automatically withdrawn at the end of the feed, the inking gear arranged in a frame movable transversely to the direction of travel of the slide, said frame coupled by levers to said cam groove in the slide, said cam groove having such a shape, that the inking gear frame is moved when the slide travels in the direction of the feed, and the inking gear remains stationary during the return of the said slide, a revoluble inking disk arranged beneath inking rollers adapted to be intermittently turned by a resilient tongue rocking in the inking gear frame.

The foregoing specification signed at Berlin, Germany, this 10th day of November, 1913.

GUSTAV BEUTLER.

In presence of—
HENRY HASPER,
WOLDEMAR HAUPT.