W. G. CROSS.

MACHINE FOR PRINTING RULERS.

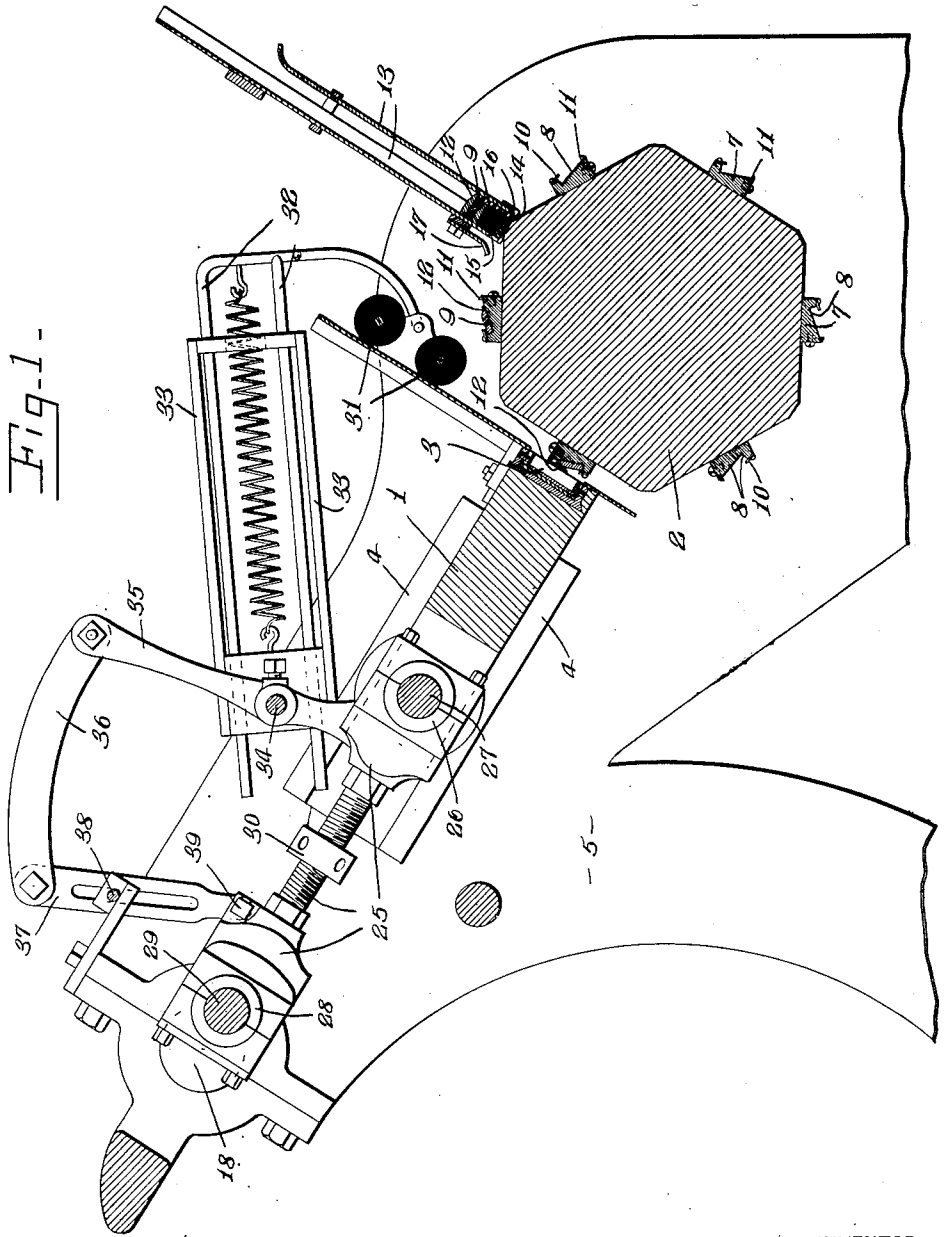
APPLICATION FILED NOV. 16, 1911.

1,110,112.

Patented Sept. 8, 1914.

3 SHEETS—SHEET 1.

Fig. 1.



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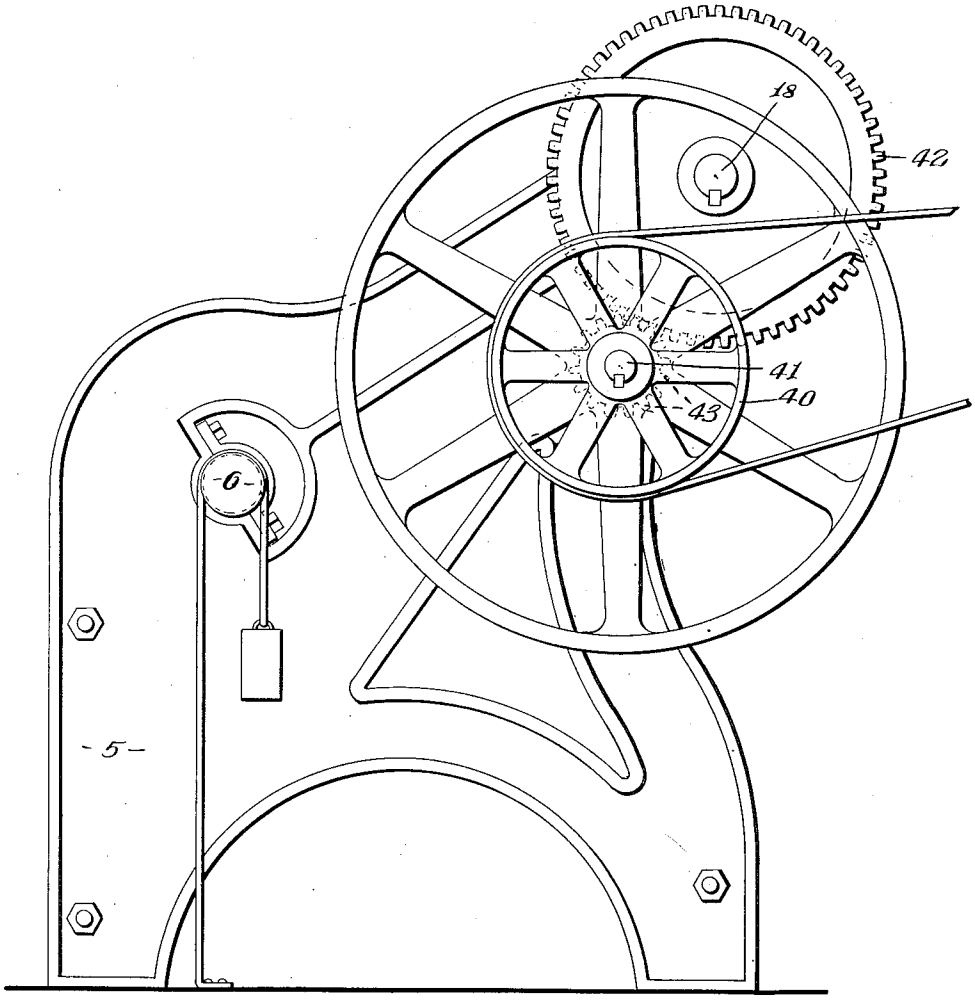
APPLICATION FILED NOV. 16, 1911.

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3 SHEETS—SHEET 2.

Fig. 2.



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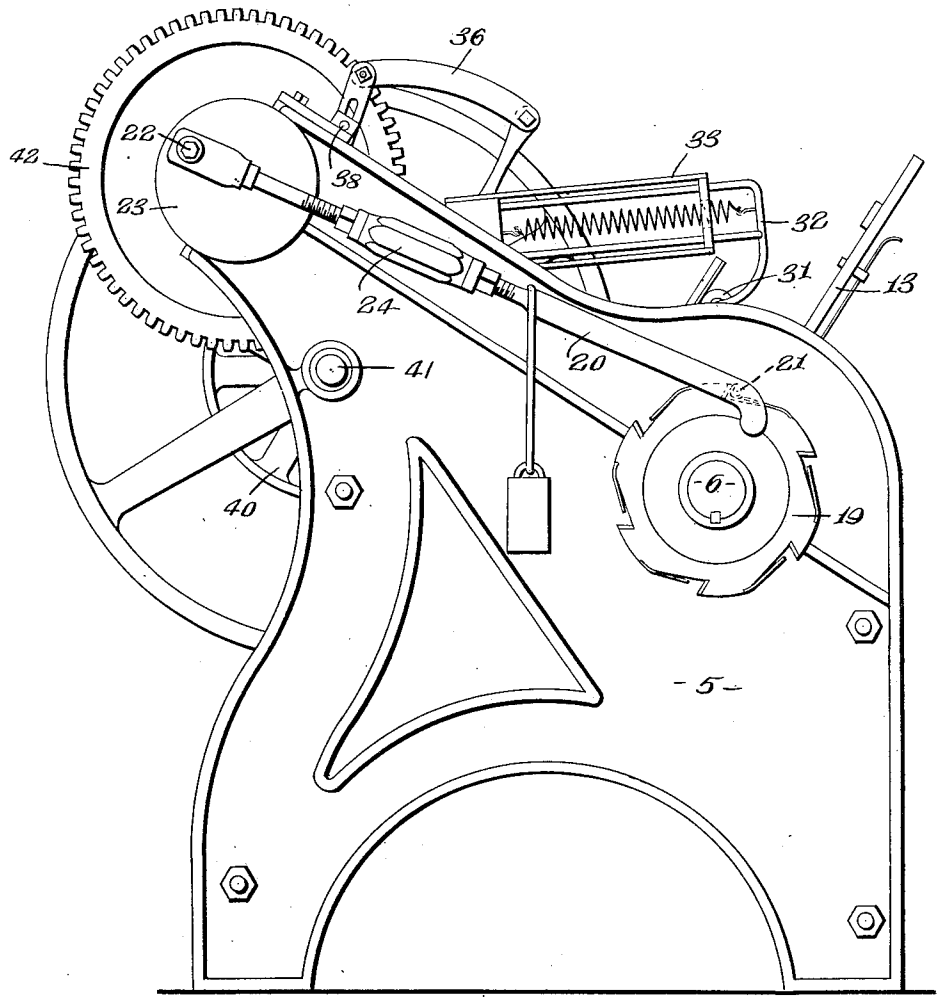
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3 SHEETS—SHEET 3.

Fig. 3.



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WILLIAM G. CROSS, OF SENECA FALLS, NEW YORK.

MACHINE FOR PRINTING RULERS.

1,110,112. Specification of Letters Patent. Patented Sept. 8, 1914.

Application filed November 16, 1911. Serial No. 660,598.

To all whom it may concern:

Be it known that I, WILLIAM G. CROSS, of Seneca Falls, in the county of Seneca, in the State of New York, have invented a certain new and useful Machine for Printing Rulers, of which the following is a specification.

This invention has for its object the production of a machine for printing on articles as rulers, and particularly means for adjusting the machine after operating on one class of articles, to operate on another class of articles, in which the faces receiving the imprints are of different inclination than the corresponding faces of the articles of the first class; and it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a sectional view of my machine. Figs. 2 and 3 are opposite side elevations thereof.

This printing machine comprises, generally, a type carrying element, a rotatable carrier for the articles, as rulers, to be printed, the carrier being provided with means on its periphery for holding the articles, and means for actuating the carrier to bring the holding means into and out of a position opposed to the type carrying element.

1 is the type carrying element, and 2 is a rotatable carrier, the parts 1 and 2 having relative movement toward and from each other for effecting the printing operation, and as here shown the printing element is reciprocally movable toward and from the periphery of the carrier 2 for bringing the type bed 3 thereof into and out of engagement with the articles to be printed on the carrier 2. The printing element 1 is movable in suitable guides as the guide 4 supported by the frame 5 of the machine, and is actuated in the guides as hereinafter described.

The rotatable carrier is here shown as in the form of a hexagonal drum having axles as the axle 6, these axles being journaled in suitable bearings in the frame 5.

The holding means for the articles, as rulers, to be printed, are members as strips 7 extending parallel to the axis of the drum and spaced apart at intervals on the periphery thereof. The members or strips 7 are mounted on the hexagonal faces of the carrier 2 midway between the edges of said faces, and each is formed with a channel 8 extending lengthwise thereof for receiving the article as the ruler 9, which is to be printed on, each holding member also having a shoulder 10 on the advance side of the channel 8, with respect to the direction of rotation of the carrier 2, the shoulder 10 overhanging the bottom of the channel. Each of the holding members is also formed with an additional shoulder 11 on the rear side of such channel for a purpose to be presently described. The bottom of the channel is flat to conform to the flat under sides of the rulers 9, and are arranged inclined with respect to the hexagonal faces of the carrier or to a plane radial to the axis of the carrier 2. Owing to the inclination of the bottoms of the channels, the beveled faces 12 of the articles, as rulers 9, are arranged substantially parallel to the hexagonal faces or at a right angle to said radial plane, and when brought into a position opposed to the type bed 3 of the printing element 1, said faces 12 are approximately parallel to such type bed. In the different styles of rulers these beveled faces are of different inclination so that to accurately adjust the machine to rulers having beveled faces of different inclinations, the adjusting means hereinafter described is employed.

The machine is preferably provided with a magazine 13 having one end opposed to the periphery of the carrier 2, such end being formed with a transverse passage 14 extending through front and rear sides thereof and with slots 15 and 16 in its front and rear sides, the passage connecting the slots. The passage 14 and slot 16 permit the shoulders 11 of the holding members 7 to engage the rear edge of the foremost or lowermost ruler in the magazine and push the same out of the magazine through the slot 15 and into the channel 8 of the holding member, the shoulders 11 passing through the passage 14. As the carrier 2 turns toward the printing element, the ruler 9 slides forward so that its forward edge moves under the retaining shoulder 10. The ruler is guided into the channel by means of a suitable shield 17 supported by the magazine.

The means for actuating the carrier 2 comprises a driving shaft 18 mounted on the frame, a ratchet wheel 19 mounted on one of the axles 6 of the carrier 2 and a reciprocat-

ing part between the driving shaft and the ratchet wheel, said part comprising a link 20 having a pawl 21 at one end for coacting with the ratchet wheel 19 and being pivoted at 22 eccentrically to a disk 23 mounted on the driving shaft 18. The link 20 is adjustable in a lengthwise direction, and as here shown comprises two sections which are connected by a right-and-left-hand screw thread connection as a turn buckle 24. By turning the turn buckle 24 to lengthen or shorten the link 20, the carrier 2 is adjusted about its axis to change the relative position of the holding members 7 relatively to the type bed 3 or to adjust the carrier so that the beveled faces 12 of the rulers are in exact parallelism to the type bed when in printing position. As different styles of rulers are made with beveled faces of different degrees of inclination, the adjustment of the carrier is particularly advantageous in that the machine can be easily adapted to such different beveled faces by shifting the carrier 2 about its axis. When the adjustment is effected by turning the turn buckle 24, it may be necessary to shift the type in the type bed or chase in order that the imprint will be made in the proper place on the ruler. The shifting of the forms or type in the type bed in order to change the printing line is readily effected as will be understood by those skilled in the printing art.

The driving shaft 18 is connected to the printing element 1 by means of a link 25 having a bearing 26 on a pivot pin 27 on said element and a bearing 28 on a crank 29 with which the shaft 18 is provided. The link 25 is in two sections which are adjustably connected by a right-and-left-hand threaded nut 30 connecting said sections which are formed with threads of opposite pitch. By turning the nut 30, the throw or travel of the type bed can be adjusted to a nicety relatively to the article to be printed, and by the use of such nut, the employment of buffer springs and the like is avoided.

The type bed 3 of the element 1 is inked by suitable means, as reciprocating inking rollers 31 carried by a frame 32 movable endwisely in a frame 33 which is movable about a shaft 34 carried between the ends of a lever 35, the lever 35 being pivoted at one end to the bearing 26 of the link 25 and being connected at its other end by a link 36 to the upper end of a lever 37 which has sliding engagement between its ends with a fulcrum 38 and which is connected at its other end at 39 to the bearing 28 of said link 25. Obviously during the reciprocation of the link 25, the rollers 31 will be carried back and forth over the type bed. As the inking mechanism forms no part of this invention further description is thought to be unnecessary.

The shaft 18 is actuated by a driving pulley 40 mounted on a shaft 41 journaled in the frame and is connected thereto by intermeshing gears 42 and 43 mounted respectively on the shafts 18 and 41.

My machine is particularly adapted to print the scales on the beveled faces of rulers, and in operation the rulers are placed in the magazine 13 and the machine started, and during the rotation of the carrier 2 the rulers are removed one by one from the magazine into a holder 7 and are carried thereby into a position opposed to the type bed 3, and during the intermittent stops of the carrier 2, effected by the ratchet and pawl connection 19 and 21, the printing element is moved into and out of engagement with the beveled face 12 of the ruler at the printing line. When it is necessary to adjust the machine to operate on rulers having beveled faces of different inclination from the beveled faces of the rulers to which the machine is adjusted, the turn buckle 24 is operated to shift the carrier 2 slightly about its axis.

What I claim is:

1. In a printing machine, a type carrying element, a movable carrier for the articles to be printed, the carrier being provided with means formed with a channel for receiving the articles, the channel extending transversely of the direction of movement of said means with the carrier, and said means being also formed with a shoulder overhanging the bottom of the channel at the advance side of the channel and means for effecting relative movement of the type carrying element and the carrier to effect printing on the face of the article, which face projects from under the shoulder overhanging the bottom of the channel, substantially as and for the purpose described.

2. In a printing machine, a type carrying element, a movable carrier for the articles to be printed, a magazine for delivering articles to the carrier, the carrier being provided with means formed with a channel for receiving the articles, the channel extending transversely of the direction of movement of said means with the carrier, and said means being also formed with a shoulder overhanging the bottom of the channel at the advance side of the channel, and with a shoulder at the rear side of the channel and projecting above the first-mentioned shoulder, the second named shoulder being arranged to engage the lowermost article in the magazine and push the same therefrom into the channel, such article sliding under the first-mentioned shoulder and being held in the channel thereby during the printing operation, substantially as and for the purpose specified.

3. In a printing machine, a type carrying element, a movable carrier for the articles to be printed, the carrier being provided

with means formed with a channel for receiving the articles, the channel extending transversely of the direction of movement of said means with the carrier, and said means being formed with a shoulder overhanging the bottom of the channel at the advance side of the channel, the bottom of the channel being inclined and opening through the upper face of said means whereby the channel is adapted to receive articles of different widths and the overhanging shoulder holds said articles in position, and means for effecting relative movement of the type carrying element and the carrier, one toward and from the other to effect the printing at a predetermined point on the face of the article, which face projects from under said shoulder, substantially as and for the purpose set forth.

4. In a printing machine, a type carrying element, a rotatable carrier for articles having beveled faces which receive the printing impressions, the carrier being provided with means for holding the articles with their beveled faces upward and being rotatable for carrying said articles into and out of the position in which the beveled faces thereof are exposed to the type carrying element, and means for intermittently actuating the carrier to bring the beveled faces of said articles into printing position, the actuating means including mechanism adjustable to shift the carrier about its axis to change the stopping position thereof to compensate for different inclines of the beveled faces, substantially as and for the purpose described.

5. In a printing machine, a reciprocating type carrying element, a rotatable carrier for articles having beveled faces which receive the printing impressions, the carrier being provided with means for holding the articles with their beveled faces upward and being rotatable for carrying said articles into and out of the position in which the beveled faces thereof are exposed to the type carrying element, means for intermittently actuating the carrier to bring the beveled faces of said articles into printing position, the actuating means including mechanism adjustable to shift the carrier about its axis to change the stopping position thereof to compensate for different inclines of the beveled faces, and means for adjusting the throw of the printing element to compensate for different thicknesses of the articles and the different inclines of the beveled faces thereof, substantially as and for the purpose specified.

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Seneca Falls in the county of Seneca, and State of New York, this 31st day of Oct. 1911.

WILLIAM G. CROSS.

Witnesses:
FRED L. STORY,
L. C. NEARPASS.