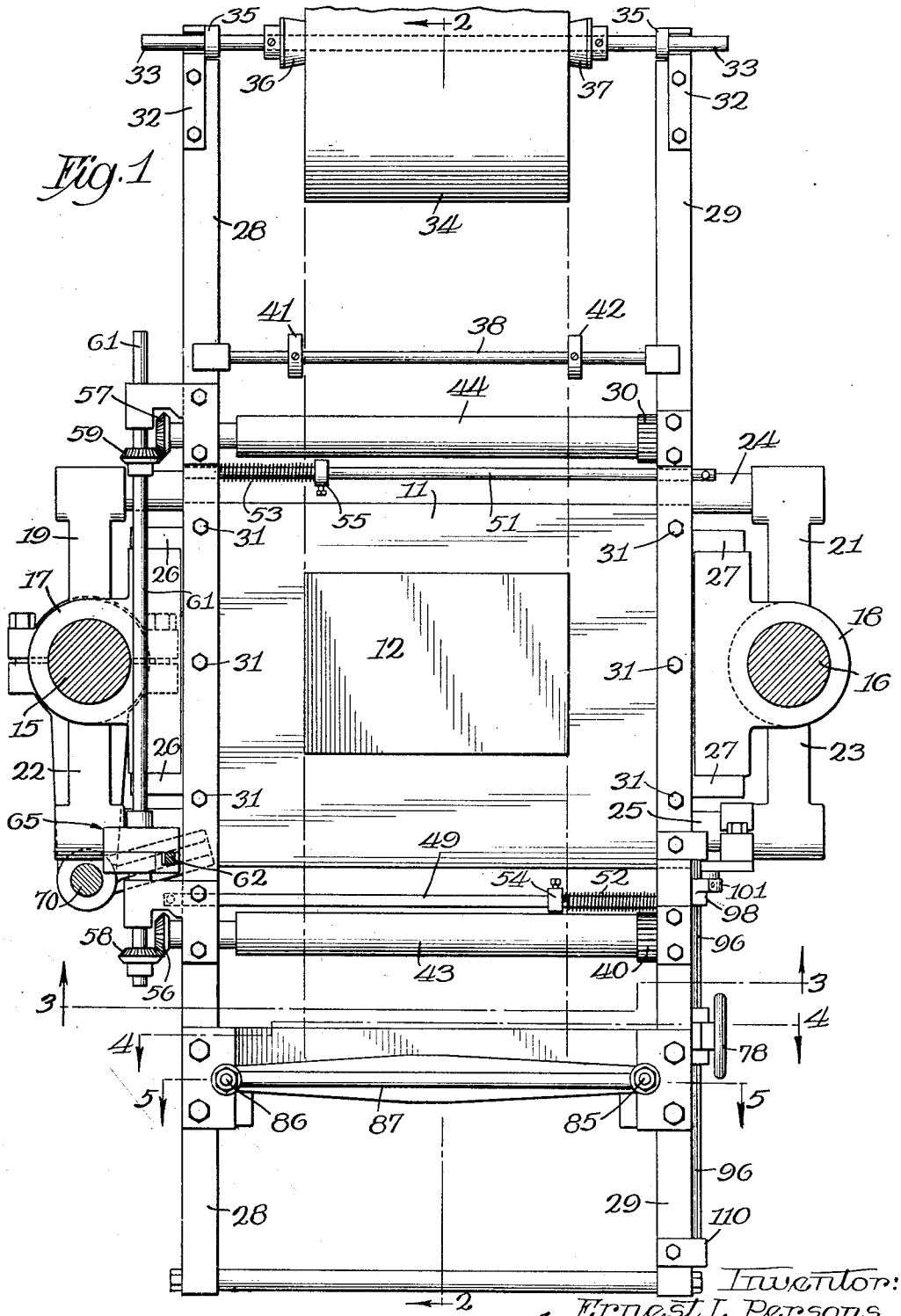
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FEEDING ATTACHMENT FOR BOOKBINDER PRESSES

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Fig. 1



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FEEDING ATTACHMENT FOR BOOKBINDER PRESSES

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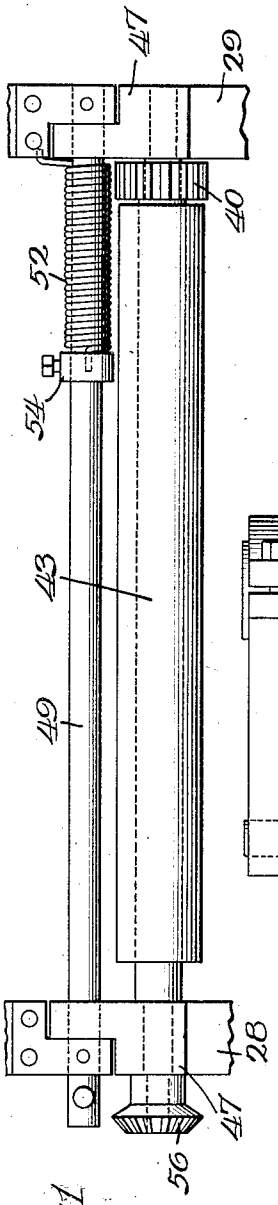


Fig. 11

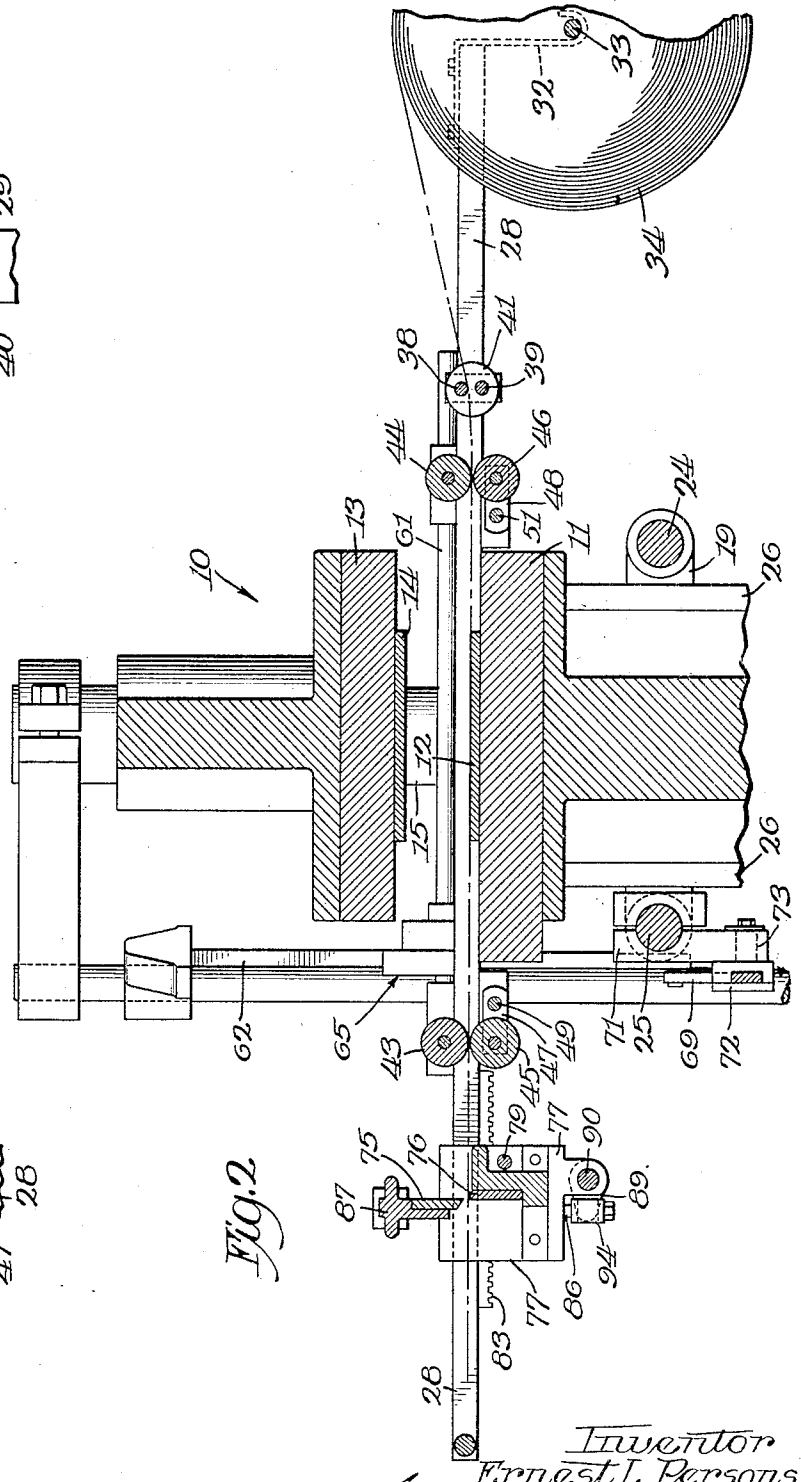


Fig. 2

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FEEDING ATTACHMENT FOR BOOKBINDER PRESSES

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Fig. 12

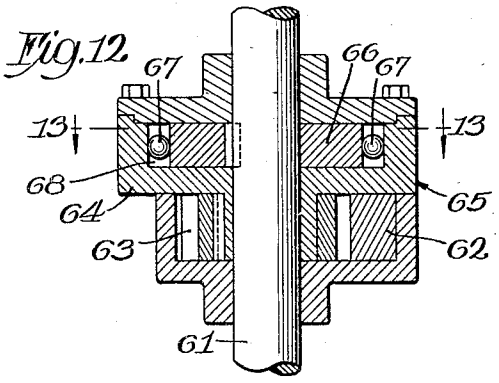


Fig. 13

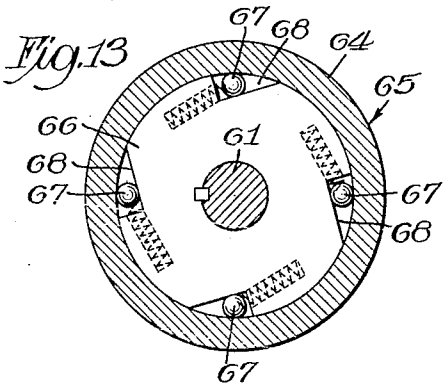
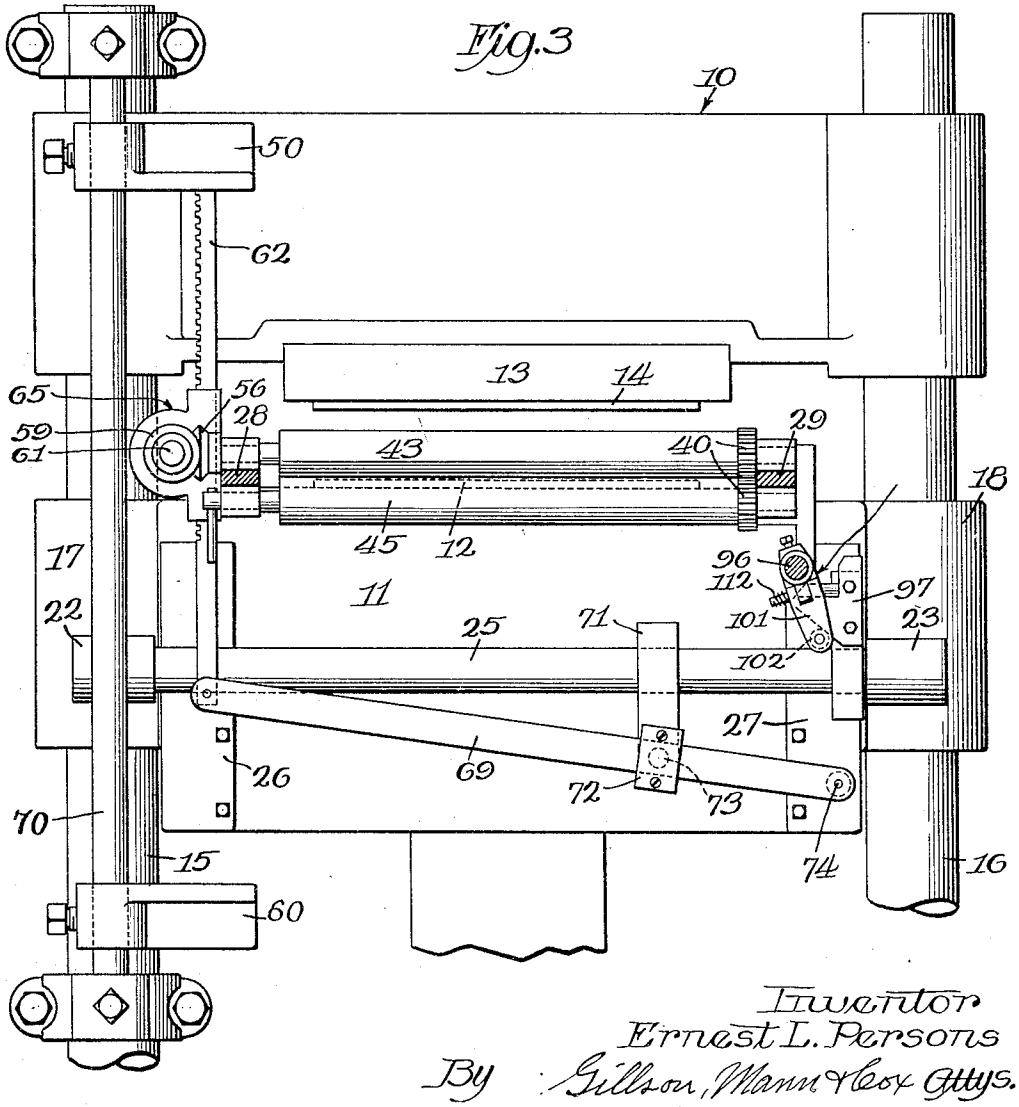


Fig. 3



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FEEDING ATTACHMENT FOR BOOKBINDER PRESSES

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Fig. 4

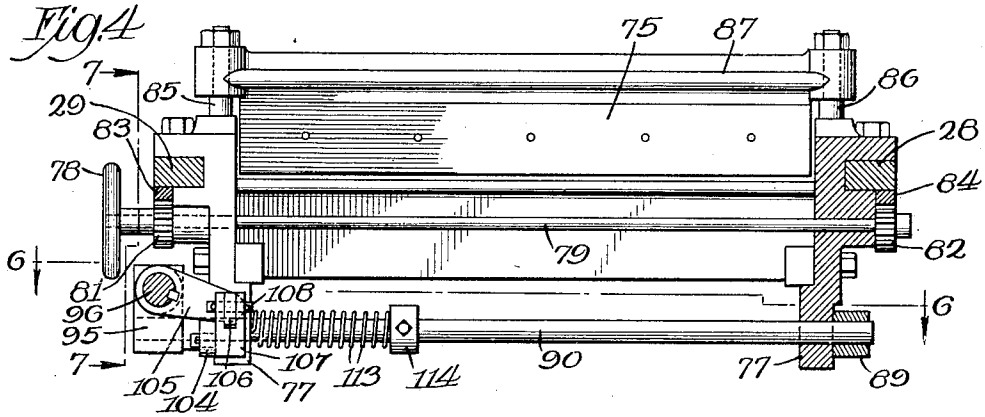


Fig. 5

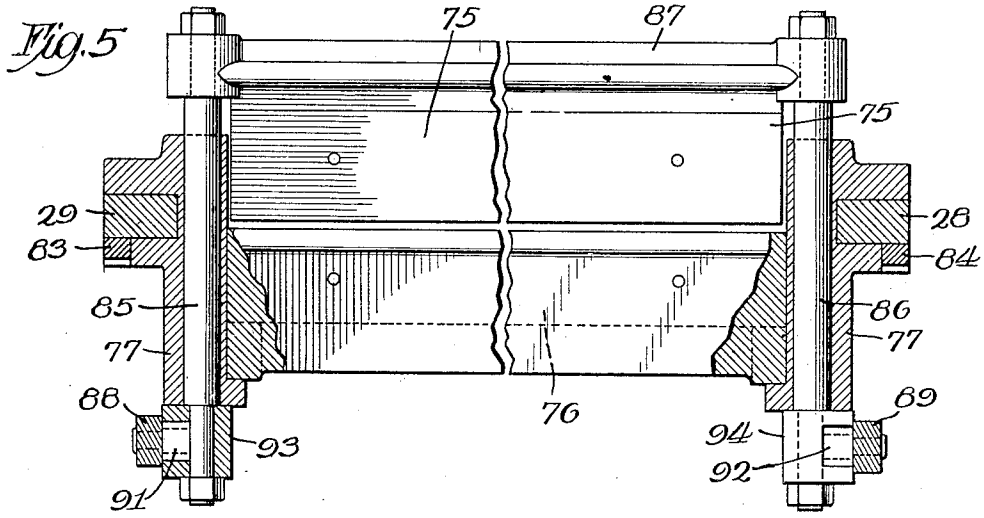
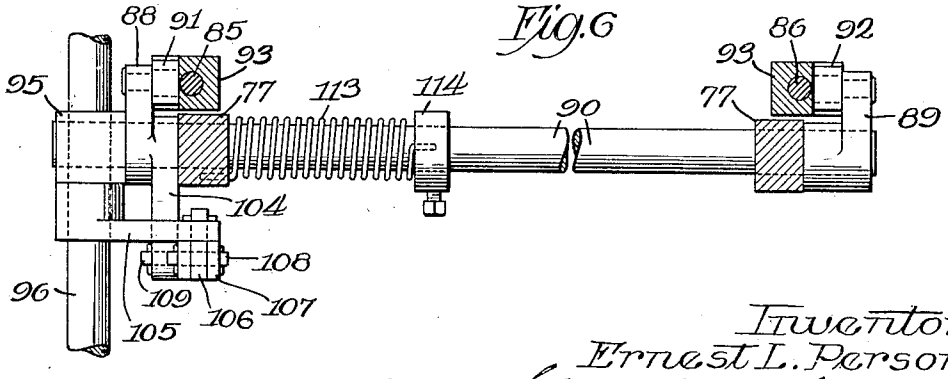


Fig. 6



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FEEDING ATTACHMENT FOR BOOKBINDER PRESSES

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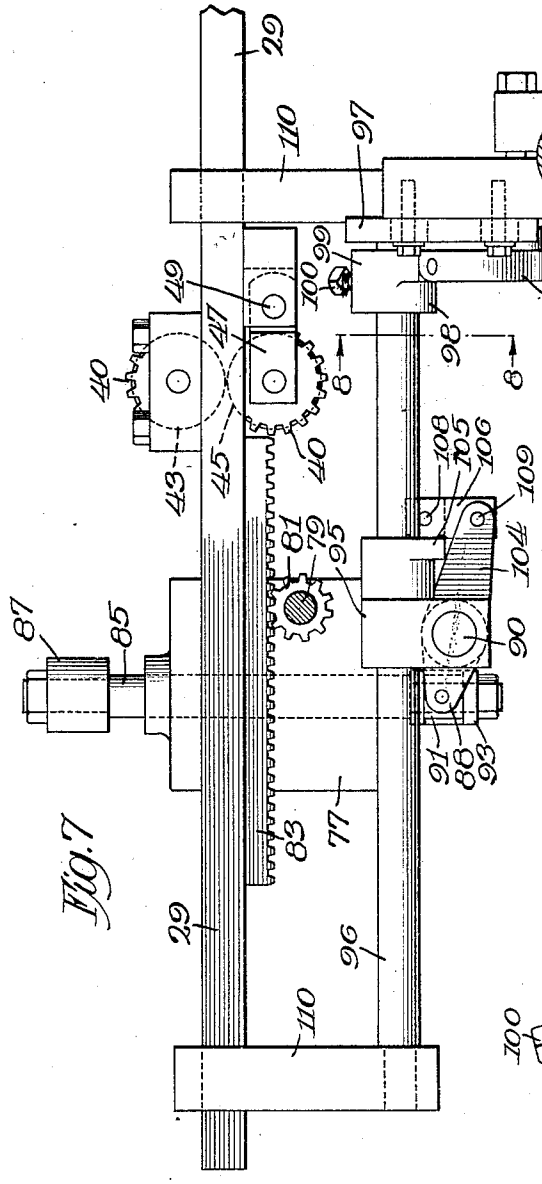


Fig. 7

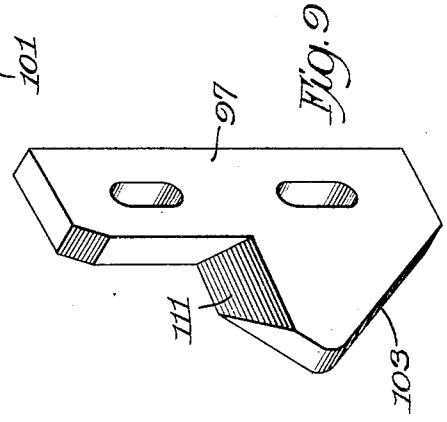


Fig. 9

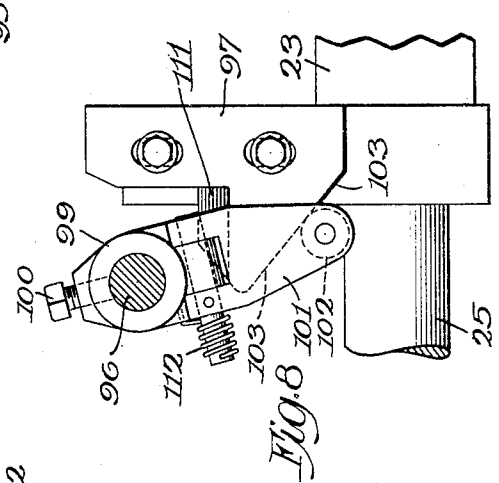


Fig. 8

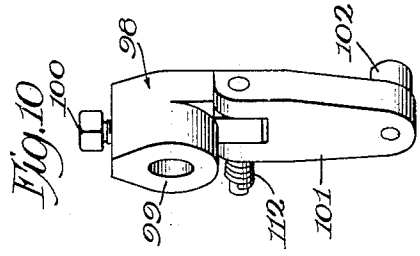


Fig. 10

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1,863,165

UNITED STATES PATENT OFFICE

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FEEDING ATTACHMENT FOR BOOKBINDER PRESSES

Application filed July 13, 1928. Serial No. 292,511.

This invention relates to bookbinder presses and more particularly to feeding attachments therefor.

One of the objects of the invention is the provision of a new and improved feeding mechanism for bookbinder presses that is adapted to automatically intermittently feed the book cover material forwardly as it is embossed by the press.

Another object of the invention is the provision of a new and improved attachment for bookbinder presses that is adapted to automatically emboss and cut to proper lengths, from a roll of material, book covers and the like.

A further object of the invention is the provision of a new and improved feeding attachment for bookbinder presses that is simple in construction, cheap to manufacture, easily attached to the press, and that is accurate and efficient in operation.

Other and further objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a horizontal section in a plane between the dies of a bookbinder press, showing the invention in position thereon;

Fig. 2 is a vertical section on line 2—2 of Fig. 1;

Fig. 3 is a vertical section on line 3—3 of Fig. 1;

Fig. 4 is a section on line 4—4 of Fig. 1;

Fig. 5 is a section on line 5—5 of Fig. 1;

Fig. 6 is a section on line 6—6 of Fig. 4;

Fig. 7 is a section on line 7—7 of Fig. 4;

Fig. 8 is a section on line 8—8 of Fig. 7;

Fig. 9 is a perspective view of the cam member;

Fig. 10 is a perspective view of the latch;

Fig. 11 is a bottom plan view of one set of the feed rollers with the frame at each side of the rollers broken away;

Fig. 12 is a longitudinal section of one of the clutch members; and

Fig. 13 is a section on line 13—13 of Fig. 12.

It is common practice in the bookbinder art to provide presses for embossing the covers and to feed the presses by hand. This arrangement is objectionable because it requires the services of an additional man and requires accurate placing of the covers between the dies.

The present invention seeks to eliminate this difficulty by the provision of means for automatically feeding the book covers to the embossing press.

Referring now to the drawings, the reference character 10 designates generally a bookbinder's press which comprises a lower reciprocating bed plate 11, on which is secured one of the dies 12, and an upper head plate 13 to which is secured the cooperating die 14. The supporting standards of the press are shown at 15 and 16 on which are mounted the guides 17 and 18 having the arms 19, 21, 22 and 23. The arms 19 and 21 are rigidly connected together as by means of a brace 24, and the arms 22 and 23 are rigidly connected together by brace rod or bar 25. Rigidly attached to the bed plate 11 are plates 26 and 27 which are adapted to overlap each side edge of the guides 17 and 18 for guiding the reciprocating movement of said bed plate. The bed plate 11 is caused to reciprocate vertically in any suitable manner.

Since the details of the bookbinder press constitute no part of the present invention, it is not thought necessary to further describe or illustrate the same.

The present invention constitutes an attachment for the press and is so constructed that the material for forming the book covers may be supplied to the device in rolls and the attachment will automatically emboss the material, feed it forwardly and cut it to the proper lengths.

In the form of the construction selected to illustrate one embodiment of the invention, the device comprises frame members comprising a pair of side bars 28 and 29 constituting what for convenience of description will be termed a base support. These bars are detachably connected to the bed plate 11 by any suitable means as by screws 31. The rear ends of the bars 28 and 29 are provided with hangers 32 (see Figs. 1 and 2) in which is journaled a shaft 33 on which the roll 34 of book or cover material is mounted. Collars 35 are rigidly mounted on shaft 33 for pre-

venting endwise movement of the same. Cone shaped holding members 36 and 37 are adjustably mounted on the rod 33 and are adapted to position the roll 34 on said rod. These members are also adapted to frictionally engage the roll to prevent its rotating too freely.

Preferably, though not necessarily, a pair of spaced parallel guide rods 38 and 39 having adjustable guides or collars 41 and 42 thereon are provided for positioning or guiding the web of material 30 from which the book covers are stamped.

Suitable means are provided for intermittently feeding the web forwardly to the dies. As shown, two pairs of feed rollers are employed for this purpose. One pair is anterior to the embossing mechanism and the other is posterior thereto. This feeding mechanism comprises upper rollers 43 and 44 which are caused to rotate about fixed axes, and the lower movable rollers 45 and 46 which are mounted on arms 47 and 48 respectively. The arms 47 and 48 are rigidly secured to shafts 49 and 51 respectively.

The rollers 45 and 46 are resiliently pressed against the rollers 43 and 44 respectively by means of tortion springs 52 and 53, the tensions of which may be adjusted by means of the collars 54 and 55, see Figs. 1 and 11. Each set of rollers is caused to rotate together by any suitable means as the gears 30 and 40, respectively.

The rollers 43 and 44 are automatically rotated during the lowering movement of the bed plate 11 in a manner that will now be described.

Mounted on the outer ends of the shafts of the rollers 43 and 44 are the beveled gears 56 and 57, see Fig. 1, which are adapted to mesh with and be operated by corresponding beveled gears 58 and 59 mounted on a countershaft 61. The shaft 61 is intermittently operated by a rack gear 62 that engages a pinion 63 carried by one member 64, of a clutch member, designated generally by reference character 65, see Figs. 12 and 13. The other member 66 of the clutch is rigidly connected to the shaft 61 as clearly shown in Fig. 13 of the drawings. The inner member 66 of the clutch is connected to the outer member 64 by means of spring pressed balls 67 engaging the inclined recesses 68 whereby when the outer clutch member 64 is turned counterclockwise, in Fig. 13, the clutch will operate to turn shaft 61, and when the outer member 64 turns clockwise, the balls will be forced into the larger part of the recesses and will disconnect the outer wedge member 64 from the inner clutch member 66 as will be evident from an inspection of Fig. 13.

The rack member 62 is caused to reciprocate vertically by means of a lever 69 which is pivotally connected to the brace rod 25 by means of a fulcrum sleeve 71, the lower portion of the sleeve 71 being provided with a loop member 72 through which the arm 69 extends. The loop member 72 is pivotally connected to the arm 69 as at 73. The inner end of the arm 69 is pivoted as at 74 to the plate 27 so that when the bed plate 11 reciprocates, it will cause the rack bar 62 to reciprocate vertically. The parts are so constructed that when the bed plate 11 moves downwardly, the rack bar will be moved upwardly and through the clutch will cause predetermined rotation of the rollers 43 and 44 to feed the web forwardly. When the bed plate 11 moves upwardly to emboss the material, the rack bar 62 will move downwardly and since this movement will release the clutch, the rollers 43 and 44 will remain stationary while the bed plate 11 ascends to emboss the material.

By adjusting the sleeve 71 along the brace rod 25, the length of the stroke of the rack bar 62 may be varied whereby the proper length of material will be fed forwardly at each reciprocation of the bed plate. That is by moving the sleeve 71 to the right in Fig. 3, the reciprocation of the plate 27 will cause an increase in the distance moved by the rack bar 62, and by moving it to the left, the distance moved by the rack bar will be decreased thereby.

Suitable means are provided for severing the material after it is embossed. Any suitable means may be employed for this purpose. In the form of construction shown, a reciprocating knife 75 cooperating with a stationary knife 76, is employed, see Fig. 2.

The knife 76 is mounted on a carriage 77 which is provided at each side thereof with grooves for engaging the side bars 28 and 29 on which the carriage is adapted to slide, see Fig. 5.

When a change is made in the length of the embossed material, it is necessary to adjust the carriage 77 so that the knives will sever the strip or web at the proper place. The carriage 77 is adapted to be adjusted along the bars 28 and 29 by means of hand wheel 78 on the end of a rod 79 on which are rigidly secured the pinions 81 and 82, see Fig. 4. These pinions engage corresponding racks 83 and 84 rigidly attached to said carriage.

The knife 75 is adapted to be reciprocated for severing the embossed material in timed relation to the operation of the advancing mechanism. One form of mechanism for accomplishing this purpose will now be described.

The lower or stationary knife 76 is rigidly mounted on the carriage 77. The carriage 77 is provided with a bore at each end thereof in which are slidably mounted the knife operating rods 85 and 86, see Fig. 5. The knife 75 is rigidly connected to a bar 87 having apertures in the ends thereof for receiving the upper ends of the operating rods 85 and

86. The rods 85 and 86 are raised and lowered by arms 88 and 89 rigidly connected to a rock shaft 90. The outer ends of the arms 88 and 89 are provided with laterally extending anti-friction bearings 91 and 92 which are adapted to engage in recesses in the sleeves 93 and 94 rigidly mounted on the lower ends of knife operating rods 85 and 86.

The shaft 90 is journaled in the lower portion of the carriage 77, see Figs. 4 and 6, and passes through sleeves 95 slidable along a rocking shaft 96, see Fig. 7. The rocking shaft 96 is suitably journaled and supported beneath the side bars by hangers 110 secured to said bars. The shaft 96 is rocked for operating the shaft 90 by means of the cam mechanism shown in Figs. 8, 9 and 10. The cam plate 97 is rigidly connected to the stationary part of the machine and a cooperating member 98 is rigidly connected to the shaft 96. As shown, the cooperating member 98 is provided with a sleeve 99 mounted on said shaft and held in fixed position by a set screw 100. The sleeve 99 is provided with a projection to which a spring-pressed arm 101 is pivotally connected. The arm 101 is provided with a lateral projection on which a roller 102 is mounted. The roller 102 is adapted to engage the cam or inclined surface 103 on cam plate 97 while the bed plate 11 is being elevated for the purpose of rotating the shaft 96. The shaft 90 is rotated by the shaft 96 for lowering the knife 75 through the arm 104 rigidly connected to the shaft 90, an arm 105 slidably keyed to the shaft 96, and a connection between said arms comprising an eye-bolt 106 swiveled to the arm 105 and pivoted to the forked end of a link 107 by the pin 108. The opposite end of the link 107 is pivoted to the arm 104 by the pin 109, see Figs. 4 and 6.

It will thus be seen that during the upward movement of the bed plate 11 for performing the embossing operation, the shaft 96 will be oscillated to lower the knife 75 to sever the web.

In order that the knife 75 shall not be operated during the lowering movement of the bed plate 11 and the arm 101, the cam plate 97 is provided with an inclined surface 111 which is adapted to be engaged by the end of the roller 102 for moving the arm 101 laterally outwardly against the tension of the spring 112. The spring will return the roller 102 beneath the inclined surface 103 when said arm and roller have been lowered to permit of such action, without affecting the shaft 96. During this return movement of the arm 101 and the roller 102 the knife 75 is returned to its elevated position by means of a tortion spring 113 mounted on shaft 90. The tension of the spring 113 may be varied by collar 114.

Before beginning the operating of the device the web 30 from the roll of material 34 is placed in position and the fulcrum member 71, see Fig. 3, is adjusted along the rod 25 and lever 69 to cause the web 30 to be advanced by the reciprocation of the lever 69 and rack 62 the required distance to make a book cover of the desired length. The knife carriage 77 is then adjusted longitudinally of the side bars 28 and 29 to properly position the severing device relative to the web so that the embossed portion will be properly located on the severed strip.

In the operation of the device, the web is advanced by the rack bar and feed rollers as the bed plate 11 is lowered. As the bed plate 11 is elevated to emboss the material, the reciprocating knife 75 is caused to descend to cooperate with the stationary knife 76 to sever the web into uniform predetermined lengths.

Suitable stops 50 and 60, see Fig. 3, adjustable along a rod 70 supported from the standard 15, may be and preferably are employed to limit the upward and downward movement of the rack bar 62. By properly adjusting these stops and the fulcrum 71 the lengths of the severed strips or book covers are accurately determined, and such an arrangement insures uniformity in the dimensions of said covers.

It is thought from the foregoing taken in connection with the accompanying drawings that the construction and operation of my device will be apparent to those skilled in the art, and that various changes in size, shape, proportion and details of construction may be made without departing from the spirit and scope of the appended claims.

I claim as my invention:

1. In combination, a bookbinder's press including a reciprocating lower bed plate, frame members secured to said plate, a roll of book cover material, means for supporting said roll on said members, means anterior of and posterior to said bed plate for advancing a web from said roll across said plate a predetermined distance during the reciprocation of said plate and means mounted upon the frame members for severing the web.

2. In combination, a bookbinder's press, comprising a bed plate adapted to be raised and lowered for embossing material, frame members rigidly secured to said plate and extending to opposite sides thereof, a roll of book cover material on the forward ends of said members, a severing device on the rear ends of said members, feed rollers, and means for operating said rollers in timed relation to the operation of said severing device.

3. In combination, a bookbinder's press comprising stationary and movable plates, embossing dies carried by said plates, a frame, means for detachably connecting said frame to said movable plate, a pair of feed

rollers at each side of said plates and adapted to hold a strip of book cover material between them in position to be embossed, and means operated by the movement of said movable plate for simultaneously rotating said rollers for advancing said strip of material while said movable plate moves in one direction.

4. In combination, a bookbinder's press comprising stationary and movable plates, embossing dies carried by said plates, a frame, means for detachably connecting said frame to said movable plate, a plurality of rollers in pairs for advancing a strip of material to be embossed, one roller of each pair being spring-pressed against the other; means for operating said rollers for advancing said strip simultaneously with the operation of said plate in one direction, and means for varying the amount of rotation of said rollers.

5. In a bookbinder's press comprising stationary and movable plates and embossing dies carried by said plates, the combination means including a lever for automatically intermittently advancing a web of bookbinding material between said dies, said means comprising a rack and pinion and an overrunning clutch for said pinion, and means including an adjustable fulcrum for said lever for varying the length of movement of said rack.

6. In a book cover embossing device comprising a pair of cooperating dies and means for operating said dies, the combination of mechanism for feeding a web of book cover material to said dies, and means for severing said web into predetermined lengths, said means comprising a member having a plurality of cam surfaces, a shaft, an arm on said shaft for engaging one of said cam surfaces when said first named means moves in one direction, for rotating said shaft, and for engaging another of said cam surfaces when said first named means moves in another direction for restoring said arm to normal position in engagement with said first named cam surface, a reciprocating knife, and means operated from said shaft for operating said knife for severing said web.

7. In a book cover embossing device comprising a pair of relatively movable cooperating dies and means for moving one of said dies, the combination of mechanism for intermittently feeding book cover material to said dies, means for severing said web into predetermined lengths, said means comprising a member having a cam surface, a shaft, an arm on said shaft for engaging said cam surface when said means moves in one direction for operating the web severing means, and means for restoring said arm to a position beneath said cam surface.

8. In a book cover embossing device comprising a pair of relatively movable cooperating dies and means for moving one of said dies, the combination of mechanism for intermittently feeding book cover material to said dies, means for severing said web into predetermined lengths, said means comprising a member having a cam surface, a shaft, an arm on said shaft for engaging said cam surface when said means moves in one direction for operating the web severing means, and means for restoring said arm to a position beneath said cam surface, rollers for feeding said web forwardly, and means for operating said rollers in timed relation to the operation of the web severing means.

9. In a book cover embossing device comprising a pair of relatively movable, cooperating dies and means for operating said dies, the combination of mechanism controlled by the operation of said dies for intermittently advancing a web of book cover material between said dies, a carriage, a support therefor, means for adjusting said carriage along said support, a knife on said carriage, and means for reciprocating said knife for severing said web in uniform lengths.

10. In a bookbinder's press comprising a fixed and movable plate and a pair of cooperating dies mounted on said plates, the combination of mechanism for feeding a web of book cover material forwardly between said dies, said mechanism comprising a shaft for supporting a roll of material, a pair of feed rollers for gripping and advancing said web, and means for intermittently rotating said rollers, including a rack and pinion, an overrunning clutch associated with said pinion, a lever attached to a non-moving part of the press for reciprocating said rack, and means carried by a reciprocating element of the press for adjusting the fulcrum along said lever.

11. A feeding attachment for an embossing device comprising a frame, means for detachably mounting said frame on said device, means on said frame for supporting a roll of book cover material, a plurality of feed rollers on said frame, means for positively operating both of said rollers for advancing the web from said roll, mechanism for severing said web at intervals, and a lever pivotally mounted on said frame and adapted to be connected to said device and to said last-named means for intermittently and simultaneously rotating said feed rollers for advancing said web and for severing the same in timed relation.

12. An attachment for an embossing device comprising a frame, means for detachably connecting said frame to said device, means for mounting a roll of book cover material on said frame, feed rollers on said frame for advancing said material, mechanism on said frame for severing said web at intervals, said means comprising a carriage

adjustable along said frame, and a reciprocating knife mounted on said frame, means for positively intermittently operating each of said feed rollers and said mechanism, and means for adjusting said mechanism longitudinally of said frame.

13. An attachment for a reciprocating embossing press, including a unitary frame, means for detachably connecting said frame to said press whereby said frame may be removed as a unitary structure, means mounted on said frame for advancing said material, said means comprising a forward pair of feed rollers and a rearward pair of feed rollers spaced from said forward pair, means for operating said rollers simultaneously and intermittently, means including a lever arm and a rack and pinion for operating said last named means, means for varying the position of the fulcrum of said lever whereby the operation of said rollers may be varied and means controlled by the reciprocation of said press for severing said material in timed relation to the operation of said arm.

In testimony whereof I affix my signature.

ERNEST LEON PERSONS.