

Dec. 13, 1927.

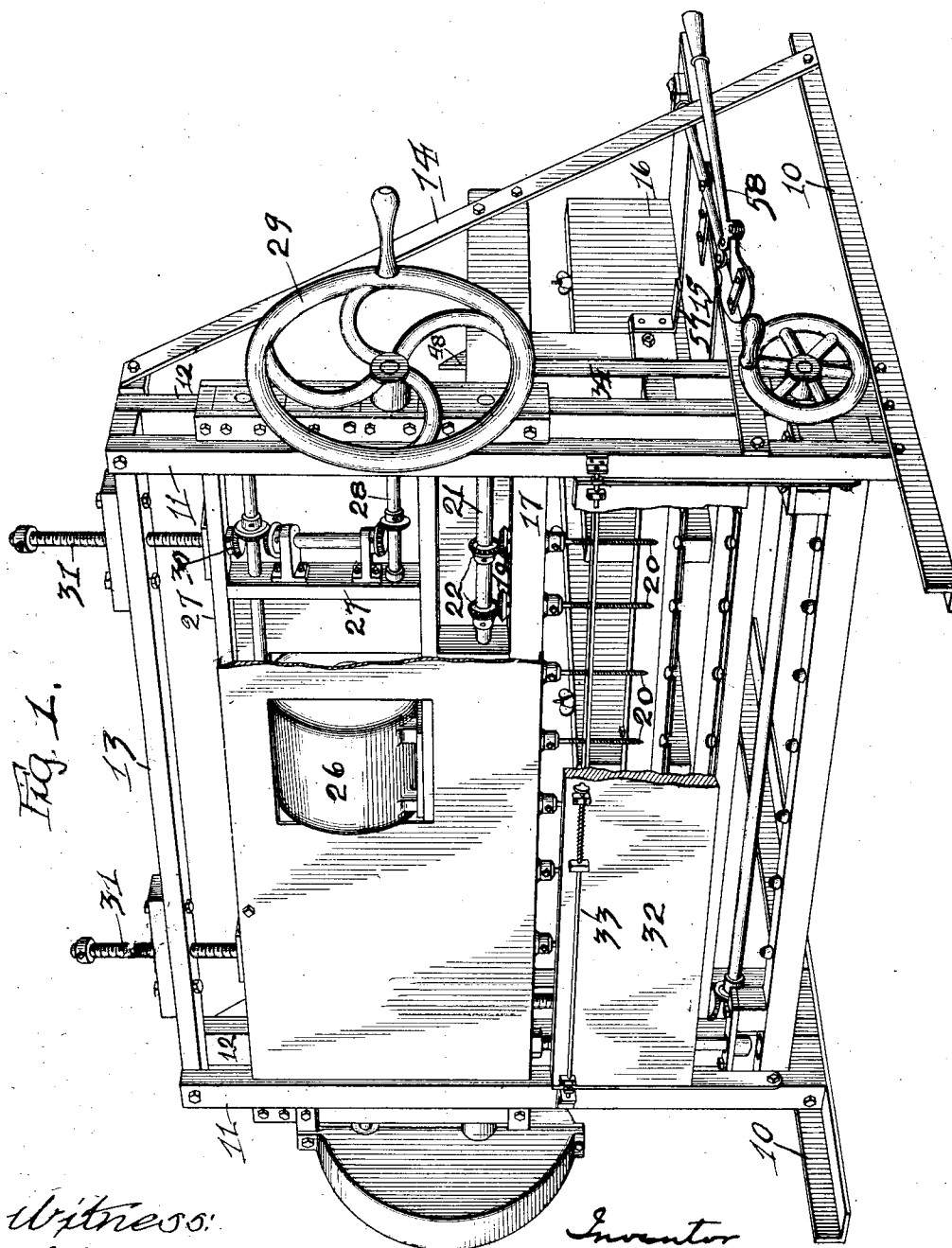
C. F. McBEE

1,652,724

BOOKBINDING MACHINE

Original Filed Dec. 30, 1918

6 Sheets-Sheet 1



Witness:
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Inventor
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Dec. 13, 1927.

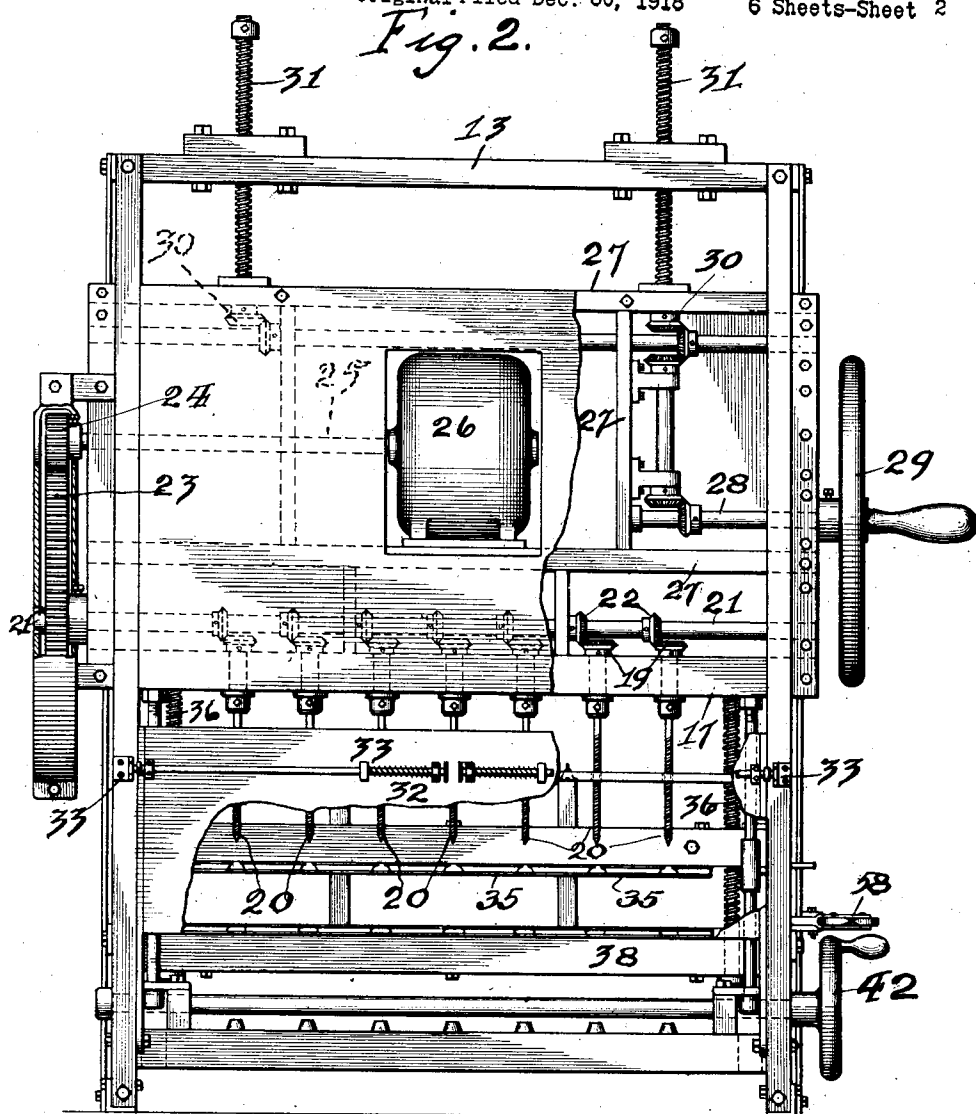
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BOOKBINDING MACHINE

Original Filed Dec. 30, 1918

6 Sheets-Sheet 2



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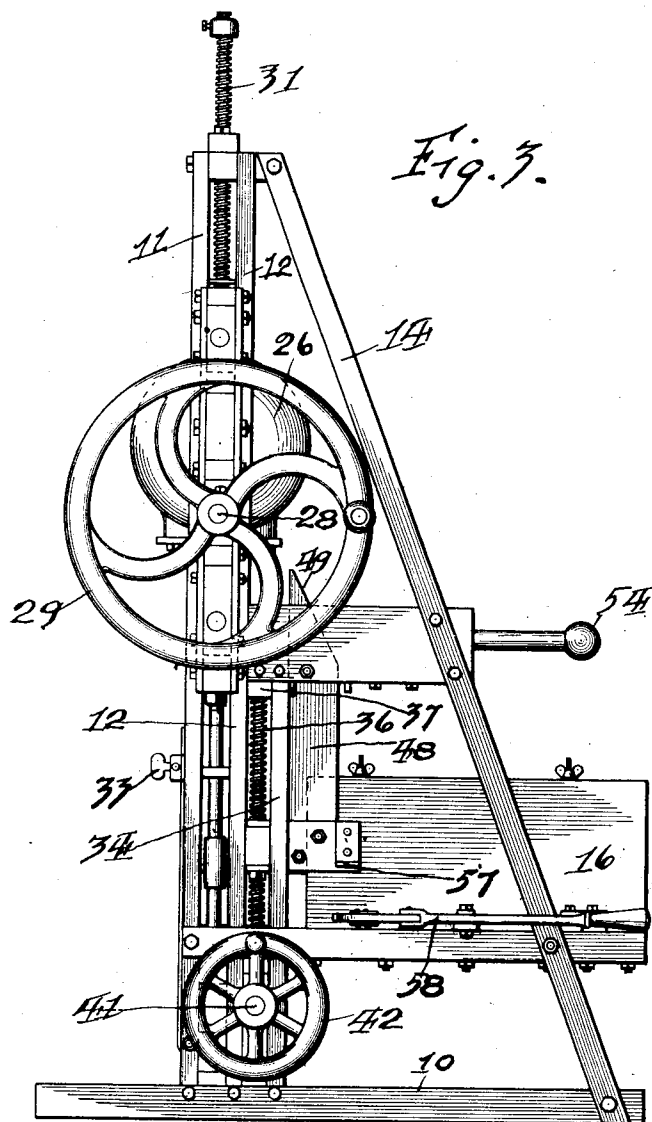
1,652,724

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BOOKBINDING MACHINE

Original Filed Dec. 30, 1918

6 Sheets-Sheet 3



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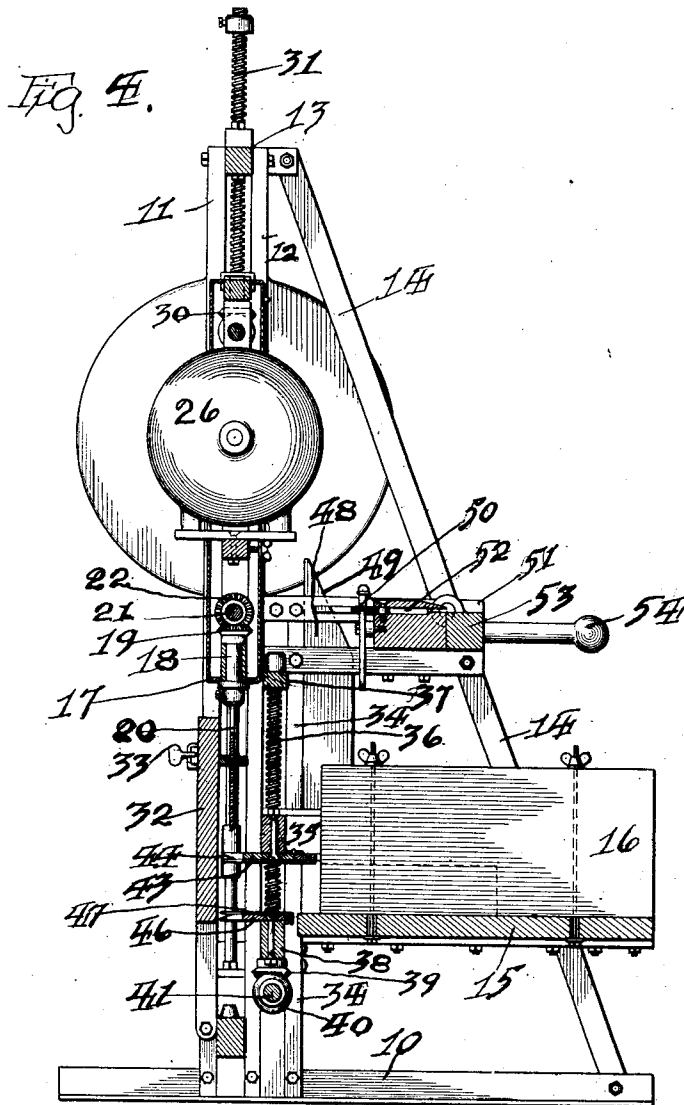
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BOOKBINDING MACHINE

Original Filed Dec. 30, 1918

6 Sheets-Sheet 4



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1,652,724

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BOOKBINDING MACHINE

Original Filed Dec. 30, 1918

6 Sheets-Sheet 5

Fig. 5.

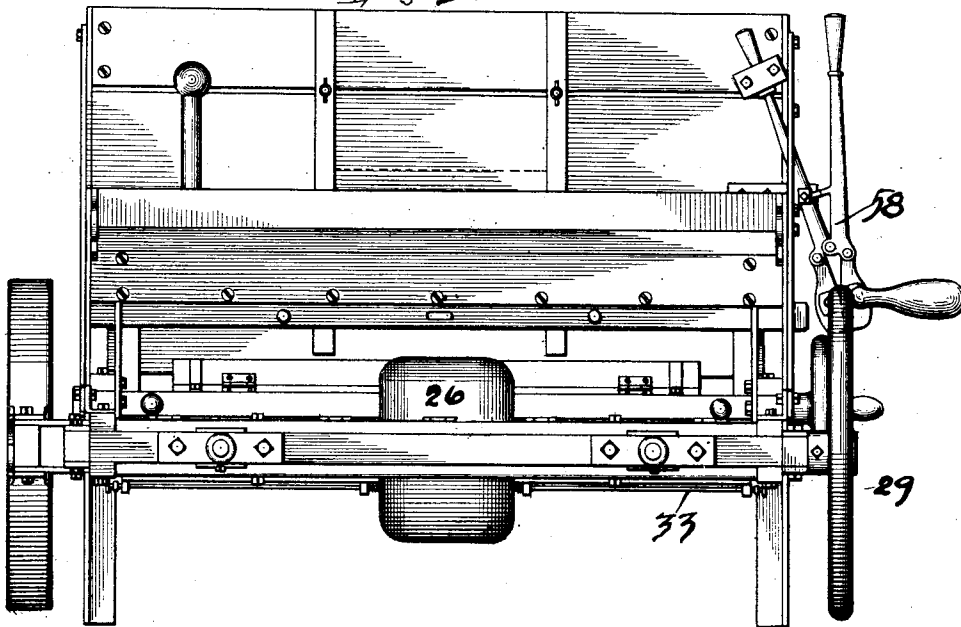
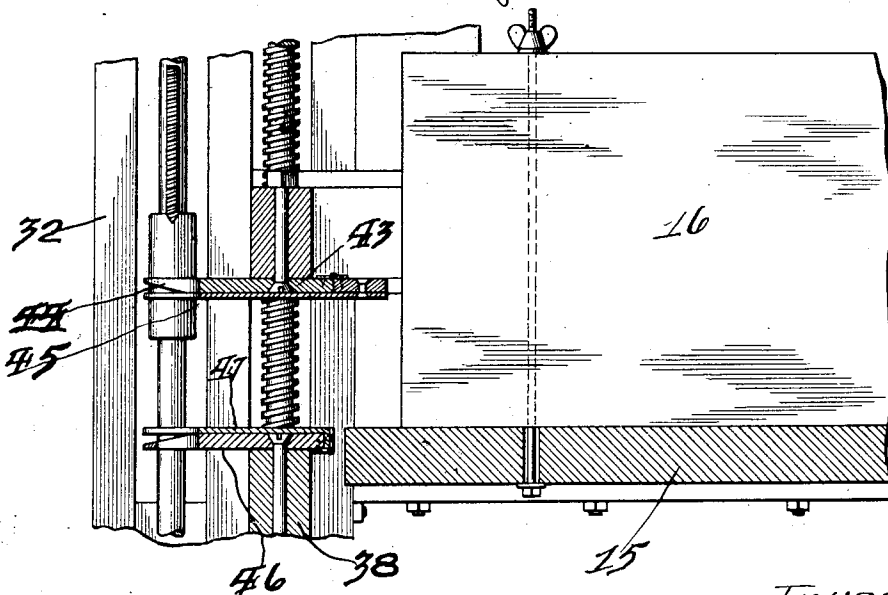


Fig. 6.



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BOOKBINDING MACHINE

Original Filed Dec. 30, 1918

6 Sheets-Sheet 6

Fig. 7.

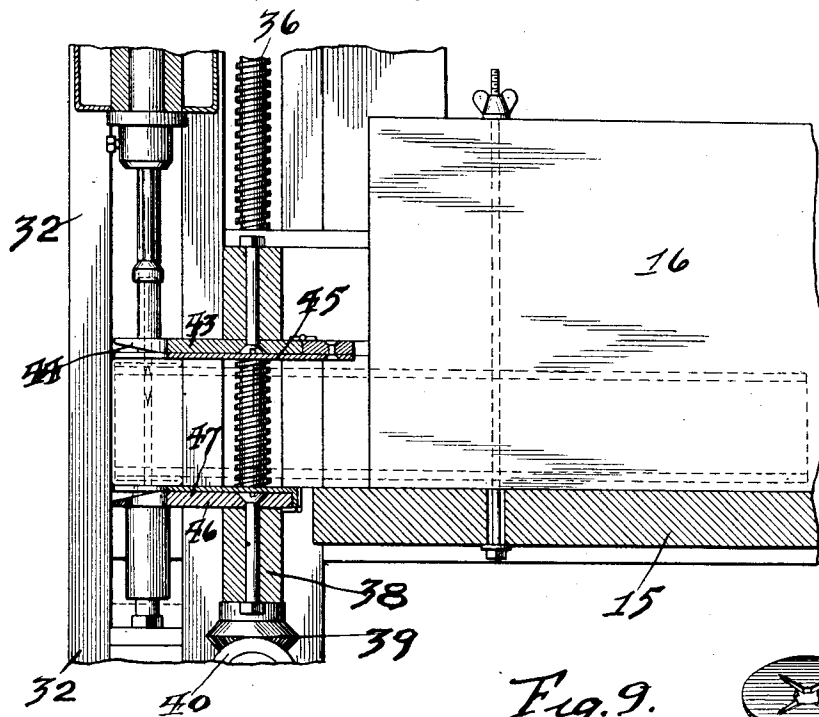


Fig. 8.

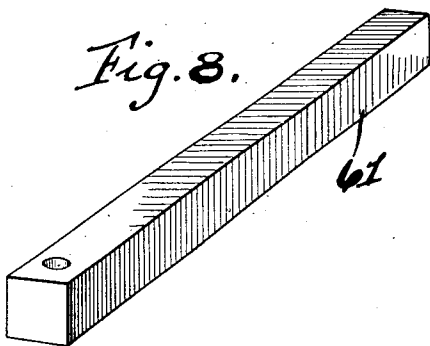


Fig. 9.

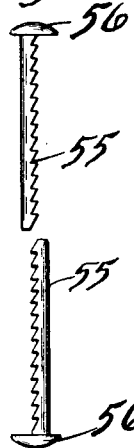
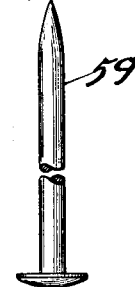


Fig. 10.



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UNITED STATES PATENT OFFICE.

CHARLES F. McBEE, OF ATHENS, OHIO, ASSIGNOR TO THE McBEE BINDER COMPANY,
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BOOKBINDING MACHINE.

Application filed December 30, 1918, Serial No. 269,008. Renewed May 7, 1927.

My invention relates to binding machines adapted to receive papers, covers and a back, to hold them in proper position under pressure and to drill and bind them into a volume. My object is to produce such a machine adapted to use stock metal backs and measure and shape same and to measure and cut the binding rivets into proper lengths.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims and illustrated in the accompanying drawings, in which Figure 1 shows a perspective view of my improved machine, a part of the evenner board being broken away;

Figure 2 shows a front elevation view of my machine, a part of the evenner board and housing being broken away;

Figure 3 shows a side elevation view of my machine;

Figure 4 shows a vertical sectional view of the same;

Figure 5 shows a plan view of the same;

Figure 6 shows an enlarged detail view in section, of my means for receiving and holding a back in position;

Figure 7 shows an enlarged detail view of my means for receiving and holding a metal back in position during the drilling, the dotted lines indicating the back, covers and sheets in position, the drills penetrating them;

Figure 8 shows a tool I employ to firmly seat a lock clasp on a binding nail;

Figure 9 shows a toothed, or ratchet, rivet which may be used for the binding means; and

Figure 10 shows the usual binding nail, and lock clasp therefor, which I employ.

Referring to the accompanying drawings the reference numerals 10 are used to indicate the supporting frame of the machine, provided near its forward end, on each side, with a pair of parallel vertical standards 11 and 12, their upper ends being joined by a cross bar 13. Extending downwardly and rearwardly from each set of vertical standards to a connection with its respective supporting frame is a supporting bar 14. An assembly base 15 extends horizontally from the forward standards to the bar 14 and is provided with movable side boards 16. This base and its side boards constitute my

assembly box for receiving and straightening the papers and covers I desire to form into a volume.

Mounted within the space formed by the parallel standards 11 and 12, and extending from one set of said standards to the other set, is a horizontal cross bar 17, in which are rotatably mounted a series of shafts 18, provided with pinions 19, at their extremities and drill receiving and securing means at their lower ends, in which are secured drills 20. A shaft 21, provided with driving gears 22 designed to drive the pinions 19, is rotatably mounted between the standards 11 and 12, and obviously is located slightly above the cross bar 17. One end of said shaft 21 extends beyond the frame of the machine and a gear wheel 23 is secured thereon which meshes with, and is driven by a pinion 24 secured on the end of a shaft 25 connected with, and driven by, a motor 26, suitably mounted on the machine.

The cross bar 17 depends from a frame 27 slidably mounted between the two sets of standards 11 and 12, and extending horizontally across the machine, and is provided with a train of gears and shafts, operated by the shaft 28 and its hand wheel 29, which train of gears is connected with, and operates simultaneously, the like pinions 30, mounted on the lower ends of their respective screw threaded shafts 31, mounted for rotation and screw movement in the cross bar 13. By this arrangement it is obvious the frame 27 is lowered and raised by rotation of the hand wheel 29. An evenner board 32 is hinged to the front of the machine in such manner that in operative position it is vertical and assumes a position slightly in advance of the line of the drills 20, but when it is not to operate as an evenner board, it can be lowered so as to be out of the way of the operator. Locking means 33 are provided to retain the evenner board in vertical position.

To the rear of each of the upright standards 12 I have provided an upright parallel standard 34, secured to the base 10, the assembly base 15 and at its upper extremity secured to its respective standard 12. Within this space created between the parallel standards 12 and the standards 34, and extending horizontally across the machine, I have mounted, for upward and downward

movement, a pressure bar 35, which is threaded upon a pair of rotatable screw shafts 36, one on each side of the machine, their upper ends being journaled in a cross bar 37, and their lower ends journaled in a cross bar 38, their lower extremities projecting therethrough, and having a bevel gear wheel 39 thereon, which is driven by the meshing pinions 40 secured on a common shaft 41, journaled in the sides of and extending horizontally across, the machine. One end of the shaft 41, extends beyond the side of the machine and is provided with a hand wheel 42.

The pressure bar 35 is positioned slightly in the rear of the line of the drills 20, and secured to its lower extremity and projecting forwardly therefrom to a point in close proximity to the even board when it is locked in its vertical position, is a plate 43, its forward end being beveled upwardly, as shown at 44. A second thin metal plate 45, designed to have a certain flexibility from its mounting, is secured at the rear of the plate 43 and underlies the said plate, projecting forwardly in conformity to the plate 43. The plate 43 and the plate 45 are provided with orifices, or recessed, to permit the passage of the drills 20.

To the cross bar 38 is secured a plate 46, on which is secured a thin metal plate 47, the construction being similar to that of the plates 43 and 45, and projecting forwardly in the same plane, the plate 46 being beveled downwardly, however, at its outer end, and the two plates 46 and 47 being provided with orifices, or recessed to permit the passage of the drills 20. The cross bar 38 is so mounted that the thickness of the plates 46 and 47, mounted, as shown, on the upper surface thereof, will cause the plate 47 (which is mounted on top of the plate 46) to be on a line with the horizontal assembly surface of the assembly base 15, and to form a continuation thereof.

Secured near each end of the pressure bar 35, and extending upwardly in a vertical plane therefrom, is a measuring bar 48, their upper ends being inclined upwardly on an angle from the rear to the front, as shown at 49. These inclined surfaces are designed to contact and position a movable plate 50, mounted in a frame 51 which is secured to, and projects horizontally rearward from, the standards 11 and 12 of the machine. The plate 50 operates in a slot 52 constructed of sufficient width to receive a metal back, and at the rear end of said slot is mounted, for hinged movement, a shaping lever 53, provided with a handle 54. The construction of these parts is such that the position of the pressure bar determines the point of contact of the inclined surface 49 with the plate 50 thus determining the position of the said plate in its slot 52. By pre-deter-

mination this is designed to be the right position for determining the extent to which a metal back (shown by the dotted lines in Figure 7) may be inserted into the slot and shaped at the point where it comes out of the slot, at a right angle by the shaping lever 53 to form one flange on the back to fit over, and engage one of the covers in the volume under construction. When one flange is formed, the other end of the metal back is inserted and the other flange formed. Obviously a uniform size of stock metal back is used and is shaped with flanges to fit the particular volume under construction.

In securing the back, covers and papers together, mating toothed, or ratchet rivets 55 may be used. Obviously such rivets are provided with heads 56 and it is not desired to have their shafts extend through the volume. In order to measure and cut these rivets for the volume under construction I have secured a measuring arm 57 to one end of the pressure bar 35, and it extends outwardly and rearwardly therefrom. A pair of metal cutting shears 58 is secured to the assembly base 15 and positioned so that the cutting blades will underlie the arm 57. By this construction a certain distance will be provided between the arm on the pressure bar and the metal cutting shears, determined by the thickness of the volume under construction. By construction this distance will be less than the thickness of the volume. The toothed rivets to be used are then held in contact with the lower surface of the arm 57, and the superfluous length of same cut off.

It is customary however to use the ordinary headed nail 59 which is projected upwardly through the perforation in the volume and secure it with a lock washer 60. When such means are employed the usual tool 61 is used to seat the lock-washer and turn the projecting metal in the nail.

The operation of my machine is obvious from the foregoing explanation of the construction.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States, is:

1. A book binding machine comprising in combination an assembly base for receiving the sheets of a volume to be bound, means to compress said sheets upon said base, means to perforate the sheets held by the compressing means, measuring means carried by said compressing means for measuring rivets to be used in the binding, and cutting means located in juxtaposition to said measuring means for cutting excess material from said rivets, the position of said measuring means with respect to said cutting means being determined by the thickness of the volume under construction.

2. A book binding machine comprising an

assembly base for receiving the back and sheets of a volume to be bound, a pressure bar for securing the material upon said base, means operated by the movement and position of the pressure bar for properly positioning a back measuring and shaping means, means carried by said pressure bar for measuring rivets used in said binding, and means, located in juxtaposition to the last mentioned measuring means, for cutting said rivets, the position of said measuring means with respect to said cutting means being determined by the position of the pressure bar.

3. In a book binding machine adapted to compress, perforate and bind the material to be bound, the combination of an assembly base and a pressure bar for compressing material thereon, and a device for measuring the binding rivets to be used, said device being operated and positioned by the positioning of the pressure bar.

4. In a book binding machine adapted to receive, compress and perforate material to be bound and to shape a metal back for the volume under construction and to measure and cut the binding rivets to be used in the binding thereof, the combination of a pressure bar for compressing the work to be bound, a beveled measuring bar secured thereto and projecting upwardly therefrom, a measuring device to receive material to form the back, a movable measuring plate in said measuring device, said measuring plate adapted to be engaged and positioned by said beveled bar, the positioning of said pressure bar determining the position of said beveled bar, rivet measuring means carried by said pressure bar, and cutting means for said rivets, the amount of material to be cut from

said rivets being determined by the position of said pressure bar.

5. In a book binding machine adapted to receive, compress and perforate material to be bound and to shape a metal back for the volume under construction and to measure and cut the binding rivets to be used in forming the volume, the combination of an assembly base, a pressure bar movable toward said base for compressing matter to be bound, an upwardly projecting measuring bar carried by said pressure bar, said measuring bar provided with a beveled edge surface, of a back measuring device comprising a movable plate, means whereby the beveled measuring bar controls the movement of said movable plate, an outwardly projecting rivet measuring lug secured to said pressure bar and movable therewith and a cutting device positioned in alignment with said lug whereby binding rivets held by said lug will be engaged and cut the proper length by said cutting device.

6. In a book binding machine adapted to compress, perforate and bind material to be bound, the combination of a pressure bar, a rivet measuring device comprising a lug secured to, and projecting from, the pressure bar of the machine, and movable therewith, and a cutting device secured to the machine and in line with the projecting lug, the positioning of the pressure bar adapted to position the lug at proper distance from the cutting device to measure the proper lengths for the cutting of the binding rivets.

In testimony whereof I have signed the foregoing specification.

CHARLES F. McBEE.