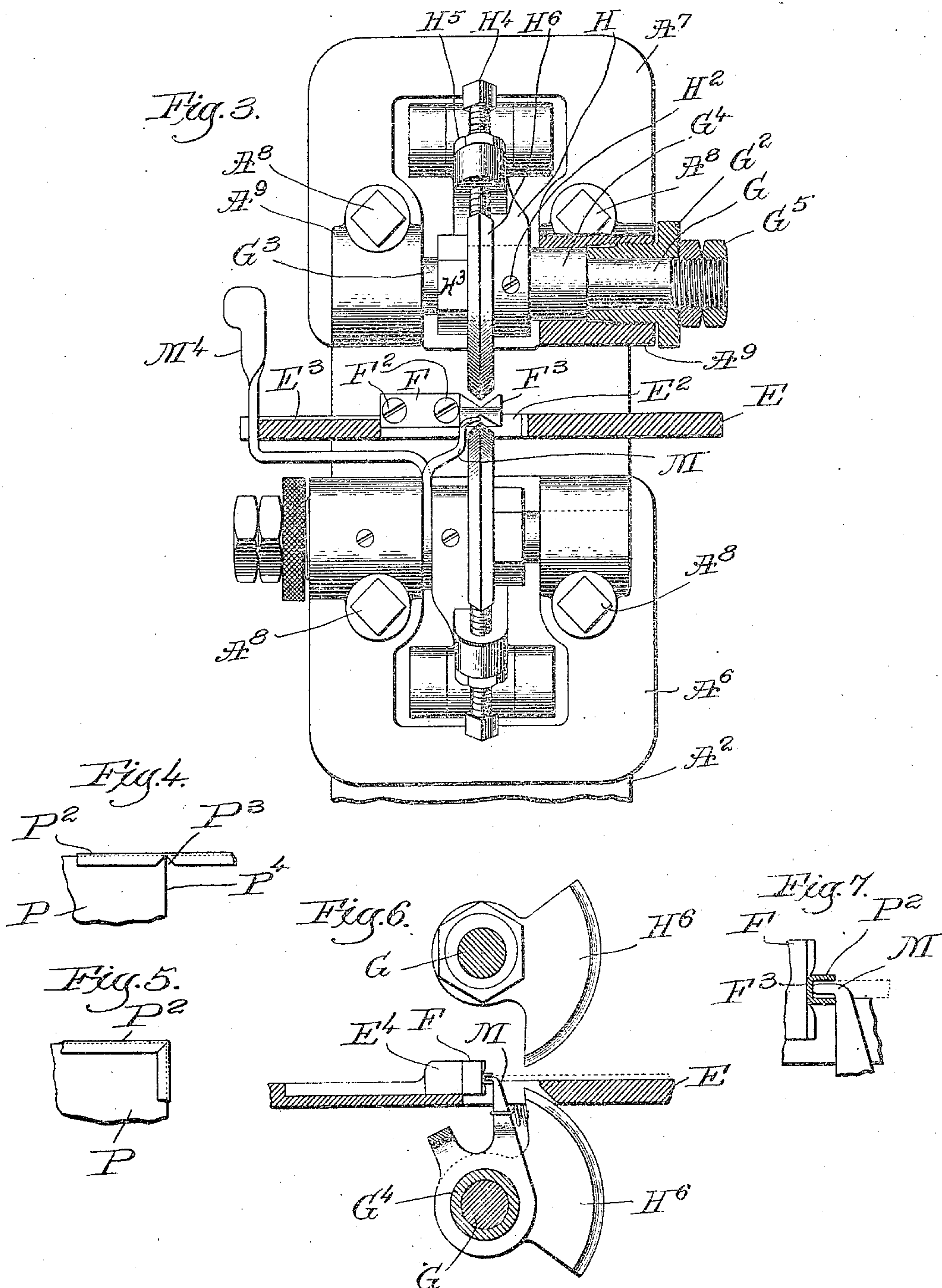


942,934.

E. E. SANBORN.
 BINDING NICKING MACHINE.
 APPLICATION FILED DEC. 16, 1908.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 2.



Witnesses.
 Thomas J. Drummond,
 Joseph M. Ward.

Inventor.
 Elmer E. Sanborn,
 by Henry S. Gump, atty's.

UNITED STATES PATENT OFFICE.

ELMER E. SANBORN, OF LYNN, MASSACHUSETTS.

BINDING-NICKING MACHINE.

942,934.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed December 16, 1908. Serial No. 467,797.

To all whom it may concern:

Be it known that I, ELMER E. SANBORN, a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented an Improvement in Binding-Nicking Machines, of which the following description, in connection with the accompanying drawing, is a specification, like reference characters on the drawing representing like parts.

This invention relates to a machine for cutting or nicking a strip of binding material, such as the ordinary metallic binding employed in binding the edges of shoe patterns and similar articles, so that the binding may readily be bent and fitted around a corner.

It is the object of the invention also to cut or nick the binding while it is being applied to the edge of the article to be bound, and to place the cut or nick at exactly the right point, so that when the binding is bent around the corner it will fit and conform exactly to the edge of the article to be bound.

The machine of this invention is designed primarily for use in the work of binding shoe patterns with a narrow strip of brass, but it is obvious that it may be used in any other connection where work of generally similar character is to be performed.

The nature of the invention will appear more fully from the accompanying description and drawings and will be particularly pointed out in the claims.

The drawings represent the preferred embodiment of the invention in a machine for cutting or nicking the bindings of shoe patterns.

In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a top plan view. Fig. 3 is a front end elevation partly in cross-section. Fig. 4 is a view of one corner of an article, such as a shoe pattern, showing the binding in position after cutting or nicking and before bending around the corner. Fig. 5 is a view similar to Fig. 4 showing the binding bent around the corner. Fig. 6 is a detail view in side elevation, partially in cross section, to show the position of the cutting and gaging elements. Fig. 7 is a detail in side elevation to show the position of the guide finger.

The machine is shown as comprising a heavy and powerful frame or standard presenting a somewhat elongated base and correspondingly elongated overhanging arm,

with the cutters mounted at the end of the base and overhanging arm, thus permitting the work being bound to swing in between the base and overhanging arm.

The machine may be operated in any suitable manner by hand or foot or by power, but is herein illustrated as designed to be operated by power. It is controlled by a clutch mechanism providing a single operation of the machine after the clutch is released, but by holding the clutch operating mechanism out of operation and continuing the application of the power the machine will run continuously, making one cut at each revolution.

The heavy frame or standard of the machine is indicated at A. This standard is hollow and comprises the lower forwardly projecting elongated base portion A², with the corresponding overhanging arm A³. These parts are made heavy of cast-iron and the frame or standard may be bolted in place to a table or other support by means of the lugs provided at A⁴.

The main driving shaft B passes transversely through the frame A, and carries at one side thereof a loose pulley B² driven from any suitable source of power. A rotary clutch member B³ is mounted on the shaft B, and when moved toward the pulley B² serves to lock the pulley to the shaft, and when moved away from the pulley allows it to run free on the shaft. The spring B⁴, the strength of which is controlled by the adjustable nut B⁵, serves to move the clutch member B³ toward the pulley. A second shaft C is mounted in the frame A back of and parallel with the shaft B, and carries at one end a clutch arm C². The shaft C is normally turned to cause the clutch arm C² to engage the clutch member B³ by means of a rearwardly projecting arm C³, connected at its ends to the machine frame by a spring C⁴. The shaft C is moved to raise the clutch arm C² by means of a rod C⁵ depending from the arm C³ and operated in any suitable manner, as by means of a foot lever.

The clutch member B³ has a cam groove B⁶ therein, and the end of the clutch arm C² is cam shaped to cooperate with said groove, the construction being such that when the clutch arm C² rests upon the clutch member B³ under the influence of the spring C⁴ the end of the arm C² will drop into the cam groove B⁶ at the proper period of rotation of the shaft B, and shift the clutch member

B³ on the shaft away from the pulley, thus stopping the machine. The cam groove is so arranged that the machine is stopped after one complete revolution.

5 In order to prevent the parts being carried out of position by their momentum a suitable brake mechanism is provided, herein shown as a friction band D, pivoted at D², and having its ends adjustably and yield-
10 ingly connected at D³. A friction wheel is carried on the shaft B between the members of the friction band D. There being nothing novel in this brake mechanism it need not be further illustrated or described.

15 The cutting or nicking operation in both edges of the binding is performed simultaneously, and for this purpose two cutting mechanisms are necessary. In the construction illustrated each cutting instrumentality
20 comprises a fixed cutter and a movable cooperating cutter. The two fixed members are herein shown as united in a single cutter block, while the movable cutters are shown as pivotally mounted one above and one be-
25 low the cutter block to cooperate therewith. The upper surface A⁵ of the forwardly projecting base A² of the machine frame is provided with a bed-plate E, upon which the work being bound is adapted to be sup-
30 ported and turned. This bed-plate E is apertured or open at its central portion E², and is provided on its upper surface with a recess E³, adapted to receive the bound edge of the article so that the article may lie flat
35 upon the bed-plate. The cutter block F is secured by means of screws F² to a projection E⁴ from the bed-plate, and is arranged to present its cutting face over the aperture E² near the center of the bed-plate.

40 The cutting block F presents a V-shaped notch at its upper and lower surface, the front edges of the notch in each instance being cutting edges, and the angle of the notch being the angle of the nick to be cut in the
45 binding. The cutter block on its front face is also grooved transversely between its notched cutting edges, as indicated at F³, to receive and position the folded edge of the binding. The upper and lower cutters are
50 both preferably constructed, mounted and operated in the same manner, so that but one need be described.

The projecting base A² and overhanging arm A³ are each provided at their forward
55 ends with bracket plates A⁶ and A⁷, respectively, bolted thereto by means of the bolts A⁸, and the cutters are mounted respectively in these bracket plates. The bracket plate in each instance is provided
60 with forwardly projecting bearings A⁹. A shaft or pin G is mounted at one end in the bearing A⁹ and at its opposite end in a thimble G², and carries between the end of the thimble G² and a shoulder G³ a rota-
65 table sleeve G⁴. The thimble G² is screw-

threaded into the bearing A⁹ and the end of the shaft is provided with locking nuts G⁵.

A cutter head H is mounted upon and made fast to an eccentric portion of the sleeve G⁴ by means of the set-screw H².
70 The cutting or nicking blade H⁶, shown as of general segmental shape, fits over the eccentric portion of the sleeve G⁴ against the cutter head H, and is locked in place by the nut H³ screw-threaded to the eccentric por-
75 tion of the sleeve G⁴. A set-screw H⁴, provided with a locking nut H⁵, passes through a projection of the cutter head and bears against the cutting or nicking blade H⁶. Each cutter head H has a pivotal connection
80 H⁷ with the arms of a U-shaped link K, extending through the base and overhanging arm. This link K near its middle portion is pivotally connected at K² with a bell-
85 crank lever K³, fulcrumed at K⁴ in the frame, and pivotally connected at K⁵ with an eccentric strap K⁶, operated by an eccentric K⁷ on the main shaft B.

The cutting edge of the cutting or nicking blades H⁶ is V-shaped to correspond ex-
90 actly with the V-shaped notches in the cutter block F, so that in cooperation therewith a V-shaped nick will be cut from the opposite edges of the binding. The periphery of
95 these blades H⁶ is also formed on an arc having its center at the axis of the pivotal movement of the blades. Hence the blades may be sharpened at any time by simply grinding the cutting face back, maintaining
100 the radial angle.

It will be seen that by the construction already described an accurate means of ad-
justing the movable or pivoted cutting or nicking blades H⁶ vertically, laterally and
105 rotarily or longitudinally is provided, so that the cutting edge may be brought at all times into exact cooperation with the notch in the cutter block. The vertical adjustment is se-
cured by means of the eccentric portion of the sleeve G⁴, for upon loosening the screw
110 H² the relative position of the cutter head and the eccentric may be changed, thus raising and lowering the cutting blade. The lateral adjustment is secured by means of
115 the thimble G², and the rotary or longitudinal adjustment is secured by means of the set-screw H⁴.

The guiding finger M is pivotally mounted on the lower sleeve G⁴ with its guiding
120 point projecting in front of the middle of the cutter block F and in such position that when the edge of the article to be bound abuts against the guiding point the binding
will be placed in the proper position for
125 cutting or nicking. This guiding finger is normally thrown out of the way of the nicking instrumentalities by means of a spring M², connected therewith and at its other end to a hook M³ projecting from the bed-plate,
and it is thrown up into position when it
130

is desired to position the article by means of a handle M^4 .

In Figs. 4 and 5 is represented the corner of an article, such as a shoe pattern P , to be bound. The binding shown in cross section at Fig. 7 is composed of a flat strip of metal P^2 , bent into general U-shape. This binding is pressed in any suitable manner on to the edge of the article P , so as to be firmly secured thereto. When a corner is arrived at the binding is left projecting straight and then by means of this machine the nicks P^3 are cut at the corner. The projecting portion of the binding is then turned about the corner on to the edge and pressed into position, as shown in Fig. 5.

The operation of the machine will be apparent from the foregoing description. After the pivoted or movable cutters have been adjusted so as to cooperate properly with the cutting edges of the cutter block the machine is ready for operation. The article to be bound being in the stage illustrated in Fig. 4 but without the notches P^3 , is placed upon the bed-plate E with the binding resting in the groove E^3 , and with its rear or curved edge resting against the groove F^3 in the cutter block, as shown in Fig. 7. The operator then seizes the handle M^4 and throws the guiding finger M up against the binding, pressing it against the cutter block F , and moves the article P along until its edge P^4 comes against the guiding finger M . The article is then in proper position for cutting. The handle M^4 is then released, and the rod C^5 depressed, as by the foot of the operator. The depression of the rod C^5 raises the clutch arm C^2 , and clutch member B^3 under the influence of the spring B^4 at once locks the pulley B^2 to the shaft B . The machine is set in operation and through the intermediate mechanism fully described the pivoted or movable cutting or nicking blades H^6 are swung down simultaneously so that their cutting edges catch under the edges of the binding, press the edges of the binding up against the cutter block F , and pass through the binding simultaneously forming the nicks P^3 in opposite edges of the binding. Meanwhile the clutch arm C^2 , unless it has been held elevated by continued depression of the rod C^5 , falls back on the clutch member B^3 under the influence of the spring C^4 , drops into the cam groove B^6 and upon the completion of one rotation of the shaft B moves outwardly the clutch member B^3 , unclutching the pulley B^2 , and the machine comes to rest.

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

1. A binding nicking machine comprising, two oppositely disposed movable nicking cutters, two fixed cutters oppositely nicked

to cooperate therewith, and means for simultaneously operating the movable cutters to cause them to catch the opposite edges of the binding, lay the edges against the fixed cutters, and cut from each a nick.

2. A binding nicking machine comprising, two oppositely disposed movable nicking cutters, two fixed cutters oppositely nicked to cooperate therewith, means for simultaneously operating the movable cutters to cause them to catch the opposite edges of the binding, lay the edges against the fixed cutters, and cut from each a nick, and means for positioning the binding with respect to the fixed cutters.

3. A binding nicking machine comprising, two oppositely disposed movable nicking cutters, two fixed cutters oppositely nicked to cooperate therewith, means for simultaneously operating the movable cutters to cause them to catch the opposite edges of the binding, lay the edges against the fixed cutters, and cut from each a nick, and a movable guide finger to abut against the unbound edge of the article being bound and define the position of the binding with respect to the cutter block.

4. A binding nicking machine comprising, two oppositely disposed movable nicking cutters, a cutter block nicked at opposite edges to cooperate therewith, and means for simultaneously operating the cutters to cause them to catch the opposite edges of the binding, lay the edges against the cutter block, and cut from each a nick.

5. A binding nicking machine comprising, a bed-plate having an opening therein and adapted to support the article being bound, a cutter block nicked at opposite sides to form cutters, and mounted to present said cutters at said opening, two movable nicking cutters, one above and the other below the bed-plate, and means for simultaneously operating the movable cutters to cause them to catch the opposite edges of the binding, lay the edges against the cutter block, and cut from each a nick.

6. A binding nicking machine comprising, a bed-plate having an opening therein and adapted to support the article being bound, a cutter block nicked at opposite sides to form cutters and mounted to present said cutters at said opening, two movable nicking cutters, one above and the other below the bed-plate, means for simultaneously operating the movable cutters to cause them to catch the opposite edges of the binding, lay the edges against the cutter block, and cut from each a nick, and a movable guide finger adapted when moved into position to come in contact with the article being bound and position it in proper position for cutting the binding.

7. A binding nicking machine comprising, a cutter block nicked at opposite edges to

provide cutters, two cutter heads pivotally mounted one above and the other below the cutter block, a nicking cutter mounted on each cutter head, means for simultaneously
5 operating the movable cutters to cause them to coöperate with the cutters of the cutter block.

8. A binding nicking machine comprising, a fixed cutter block nicked at opposite edges
10 to provide cutters, two cutter heads pivotally mounted one above and the other below the cutter block, a nicking cutter mounted on each cutter head, means for simultaneously operating the movable cutters to cause
15 them to coöperate with the cutters of the cutter block, and means for adjusting the position of the cutting edge vertically of the movable cutter with respect to the cutting edge of the fixed cutter to bring the same
20 into proper coördination.

9. A binding nicking machine comprising, a cutter block nicked at opposite edges to provide cutters, two cutter heads pivotally mounted one above and the other below the
25 cutter block, a nicking cutter mounted on each cutter head, means for simultaneously operating the movable cutters to cause them to coöperate with the cutters of the cutter block, and means for adjusting the position
30 of the cutting edge of the movable cutter vertically, laterally and longitudinally.

10. A binding nicking machine comprising, a frame presenting a base and overhanging arm, a bed-plate mounted upon the
35 base, two fixed cutters oppositely nicked and mounted on the bed-plate, a cutter head pivotally mounted beneath the bed-plate on the base, a similar cutter head pivotally mounted above the bed-plate on the overhanging
40 arm, nicking cutters carried by said cutter heads, a U-shaped link extending through the base and overhanging arm and pivotally connected at its ends to the cutter heads, means connected with said link for causing
45 therethrough the simultaneous operation of the cutter heads to cause the nicking cutters carried thereby to coöperate with the fixed nicking cutters.

11. A binding nicking machine comprising, two oppositely disposed movable nick- 50
ing cutters, a cutter block nicked at opposite edges to coöperate therewith, means for simultaneously operating the cutters to cause them to catch the opposite edges of the binding, lay the edges against the cutter 55
block and cut from each a nick, and a movable guide finger to abut against the unbound edge of the article being bound and define the position of the binding with respect to the cutter block. 60

12. A binding nicking machine comprising, two oppositely disposed fixed cutters oppositely nicked to form cutting edges, two oppositely disposed pivotally mounted nicking cutters provided with V-shaped per- 65
ipheries presenting cutting edges to coöperate with said fixed cutters respectively, the said peripheries being formed concentric to the axis of said pivotally-mounted cutters whereby the cutting edges may be ground 70
off to sharpen the cutters without disturbing their coöperation with the fixed cutters.

13. A binding nicking machine comprising, a bed-plate having an opening therein and adapted to support the article being 75
bound, a cutter block nicked at opposite sides to form cutters, and mounted on said bed-plate to present said cutters at said opening, two cutter heads pivotally mounted one above and the other below the cutter 80
block, a nicking cutter mounted on each cutter head and provided with a V-shaped periphery formed on an arc concentric with the pivotal axis of the cutter head and presenting a V-shaped cutting edge to coöper- 85
ate with the cutter block whereby the nicking cutter may be sharpened without disturbing its coöperative relation to the cutter block.

In testimony whereof, I have signed my 90
name to this specification, in the presence of two subscribing witnesses.

ELMER E. SANBORN.

Witnesses:

MABEL PARTELOW,

THOMAS J. DRUMMOND.