

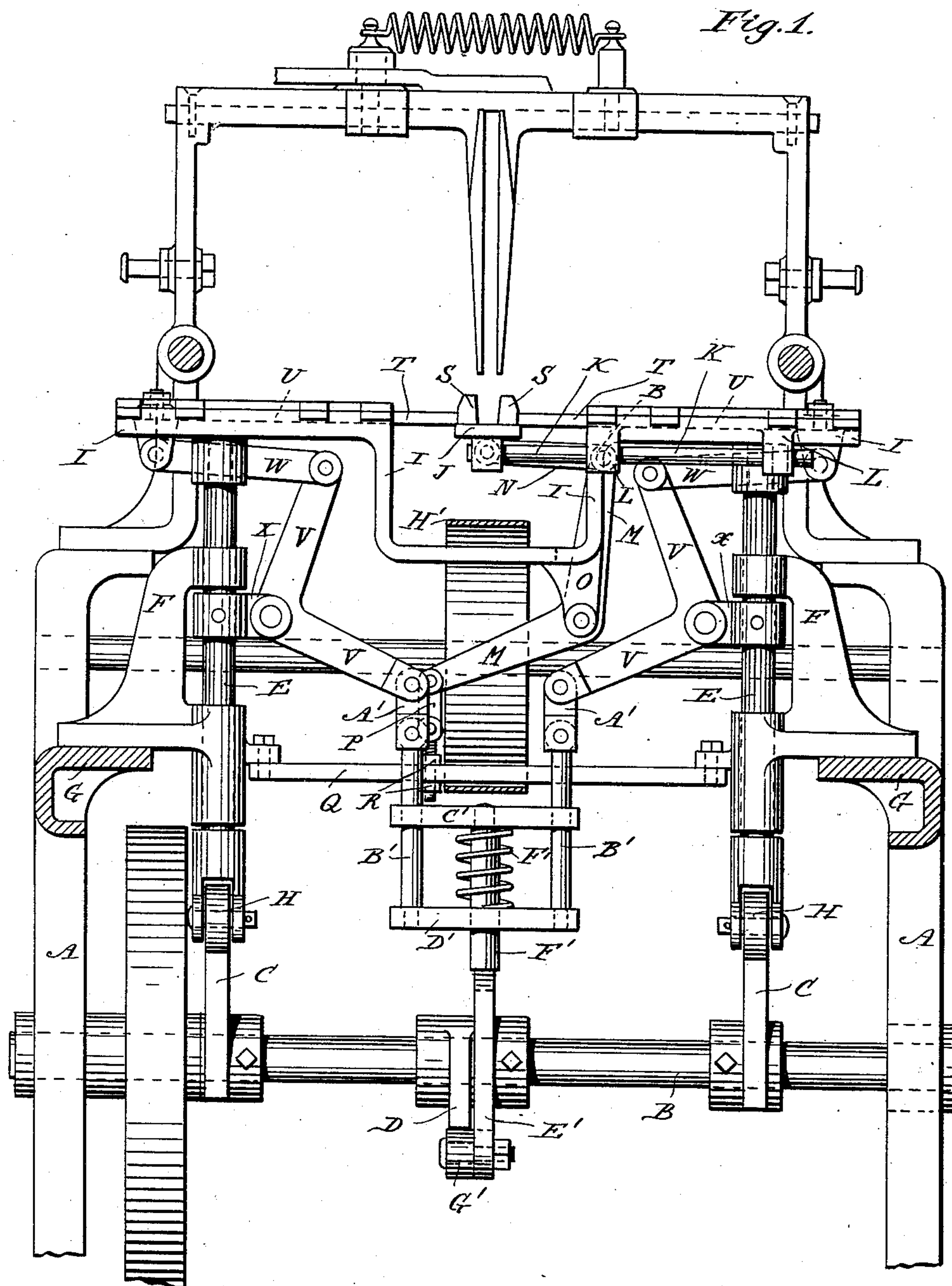
(No Model.)

2 Sheets—Sheet 1.

A. BREDENBERG.  
BOOK BINDING MACHINE.

No. 428,741.

Patented May 27, 1890.



WITNESSES:

D. C. Reusch  
Zofis Rutterband

**INVENTOR:**

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Alfred Bredenberg  
BY Phillips Abbott  
his ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

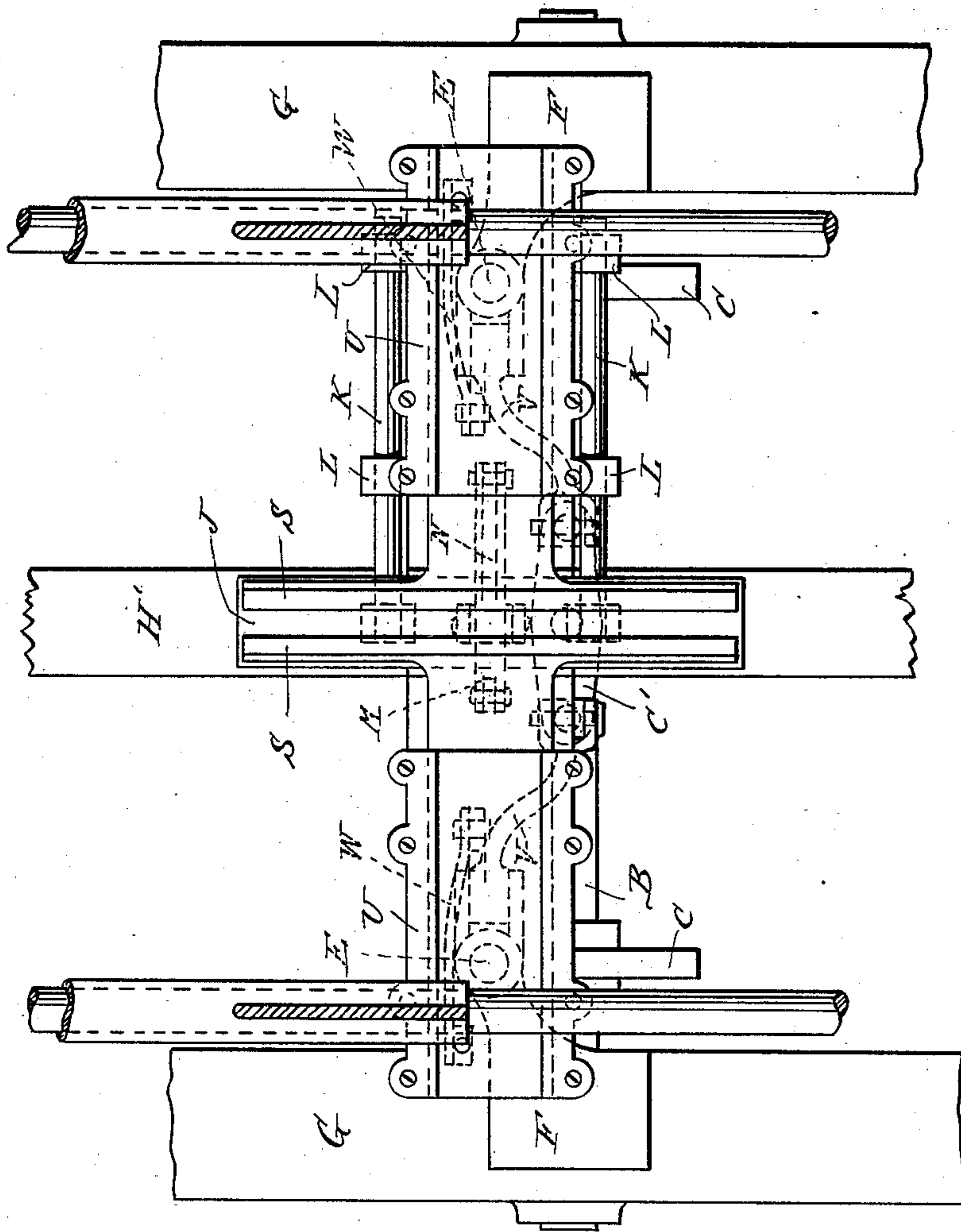
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Fig. 2.



WITNESSES:

*D. C. Reusch*  
*Johis Ritterband*

INVENTOR:

*A. Fred Bredenberg*  
BY *Phillips Abbott*  
his ATTORNEY



# UNITED STATES PATENT OFFICE.

ALFRED BREDENBERG, OF BROOKLYN, ASSIGNOR TO CHARLES W. LOVELL,  
OF NEW YORK, N. Y.

## BOOK-BINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 428,741, dated May 27, 1890.

Application filed February 8, 1890. Serial No. 339,691. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED BREDENBERG, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Book-Binding Machines, of which the following is a specification.

My invention relates to an improvement in automatic book or pamphlet binding machines of the class for which Charles W. Lovell and I filed an application for Letters Patent on July 18, 1889, it being known as Serial No. 317,944, and it relates to that part of the apparatus in which the covers, after having been attached to the back of the book, are pressed into intimate contact therewith and then folded up snugly against the sides of the book.

I refer to our said joint application for a general description of the machine, since it will not be necessary to describe in this patent or illustrate in the drawings more than those parts which refer to the present invention.

In the drawings hereof the same reference letters refer to the same parts.

Figure 1 illustrates a vertical cross-section of the machine immediately in rear of the coverfolding and stretching apparatus. Fig. 2 illustrates a top view of the parts shown in Fig. 1.

In both the figures the parts are shown in their closed or cover-pressing condition.

A A are the side frames of the machine.

B is a shaft revolving in journals on the frame. This shaft is the same as the shaft I set forth in said pending application.

C C are two cams keyed to the shaft B, and D is another cam keyed thereto.

E E are vertically-moving rods which slide through guides F, which are rigidly fastened to the frame G of the machine.

H H are rollers in the lower ends of the rods E.

I is a frame supported on the upper ends of the rods E, and has vertical movement therewith.

J is a plate supported on rods K K, which slide through lugs L L on the frame I.

M is a bell-crank lever connected to the base of the sliding plate J by a pivoted link N, pivoted to a bracket O, made on the frame I. The other end of the lever M is pivoted by means of a link P to a stationary bar Q. The connection between the link P and the bar Q is an adjustable one by means of a threaded bolt and nuts R.

S S are two clamps formed on the ends of sliding plates or bars T, which slide in suitable slideways U, made on the vertically-moving frame I.

V V are two bell-crank levers connected by means of links W W to the slide-plates T. The bell-crank levers V are pivoted to collars X X, fast on the rods E. At their lower ends they are connected by pivoted links A' A' to vertically-arranged rods B' B', which slide through holes made in a plate C', and at their lower ends are rigidly fastened to a plate D'.

E' is a spindle, which moves through a hole made in the plate D' and is rigidly fastened or is shouldered, as the case may be, to the plate C'.

F' is a spring interposed between the two plates C' and D'. At its lower part the rod E' is bifurcated, straddling the hub of the cam D, and at its lower part it is provided with a roller G', which engages with the face of the cam D.

Various other devices seen upon the drawings are the same as are fully described in the said prior application and do not require specific description here.

The operation of the apparatus is as follows: After the book has had the cover in unfolded condition attached to its back it is fed forward and is clamped by the clamps seen at the top of Fig. 1, as set forth in the said prior application, and is there temporarily held stationary. At this time, by the action of the cam C, the rods E are elevated, carrying upwardly the frame I and all parts attached to it. This occasions a rocking movement of the bell-crank N on its pivot, which causes the plate J to quickly slide under the book. The timing of the machine is such that the plate gets under the book before it has touched the book. At the same time the clamps S S are caused to move inwardly by reason of the



rocking of the bell-cranks V upon their central pivots, occasioned by the retention of their lower ends by the links A and rods B. The adjustment of the apparatus being such  
 5 that this effect is secured, and by the time the plate J has pressed the cover snugly up against the back of the book the clamps S, approaching at each side, squeeze the cover  
 10 sidewise against the side of the book adjacent to the back, thus squaring the back of the book and folding and setting the cover. The arrangement of these parts is such that a final squeeze is given by the clamps S S, because, as the roller G' goes over the extremity  
 15 of the cam D, the spring F' exerts a downward pressure upon the plate D', which pulls downward the lower ends of the bell-cranks V, thus subjecting the book to a spring-pressure between the clamps S S. This spring-pressure  
 20 is of course self-adjusting, and slight differences in thicknesses of books are compensated thereby and also rupture of any of the parts is prevented. I secure adjustment of the apparatus to accommodate books of greatly-  
 25 differing thickness in any suitable way now very well known in the arts. As soon as the cover has been thus properly attached to the book the plate J first recedes, then the clamps S, then the clamps shown at the upper part of  
 30 the machine release the book, which drops upon the belt-carrier H' below. This is substantially the same belt-carrier as shown in the said pending application. It will be observed that all of the operations of the ma-  
 35 chine are automatic.

I do not limit myself to the details of construction shown, since it will be obvious to those who are familiar with this art that various modifications may be made therein  
 40 and still the essence of my invention be employed.

I claim—

1. In a book or pamphlet binding machine,

automatic cover-attaching devices comprising, essentially, clamps, whereby the book is  
 45 held stationary, a vertically-moving plate which presses the cover against the back of the book, and laterally-acting clamps which fold and press the cover against the sides of the book, substantially as set forth. 50

2. The combination, in a book or pamphlet binding machine, of clamps which hold the book stationary, a plate which presses the cover against the back of the book, and laterally-acting clamps which fold and press the  
 55 cover against the sides of the book, substantially as set forth.

3. The combination, in a book or pamphlet binding machine, of a laterally and vertically moving plate adapted to move under and also  
 60 away from the book and press the cover against its back, and laterally-acting clamps adapted to fold and press the cover against the sides of the book, substantially as set forth. 65

4. The combination, in a book or pamphlet binding machine, of automatically-acting vertically and horizontally moving clamping devices, whereby the cover is pressed upon the  
 70 book, substantially as set forth.

5. The combination, in a book or pamphlet binding machine, of devices adjusted to attach the cover to the book, comprising, essentially, an automatically-acting plate which  
 75 presses the cover against the back of the book, and automatically-acting clamps which subsequently press the cover against the sides of the book, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 4th day  
 80 of February, A. D. 1890.

ALFRED BREDENBERG.

Witnesses:

PHILLIPS ABBOTT,  
 FREDERICK SMITH.