No. 852,761. PATENTED MAY 7, 1907.

H. E. BODINE.

STRIP APPLYING MACHINE.

APPLICATION FILED JAN. 27, 1906.

4 SHEETS—SHEET 1.

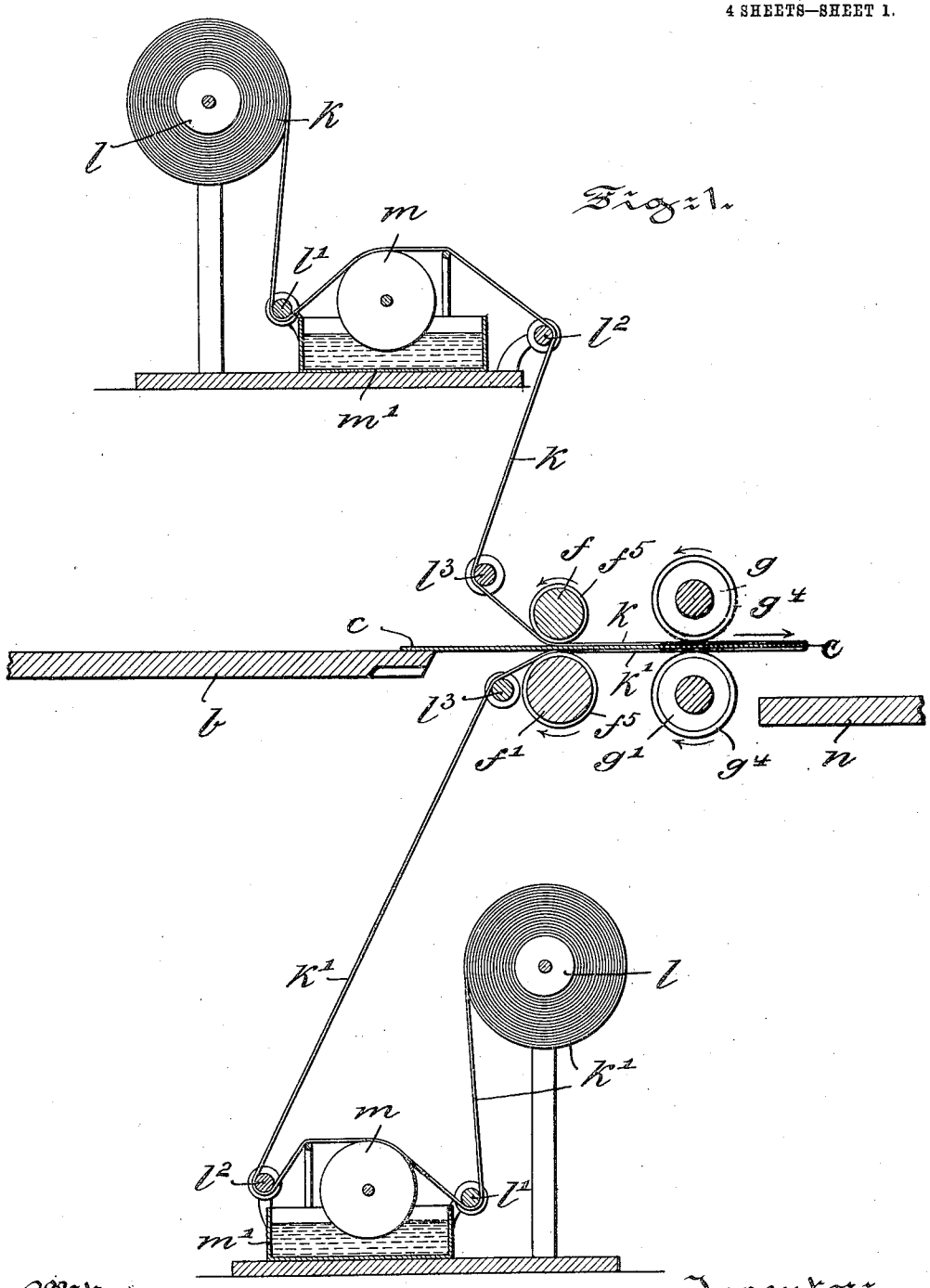


Fig. 1.

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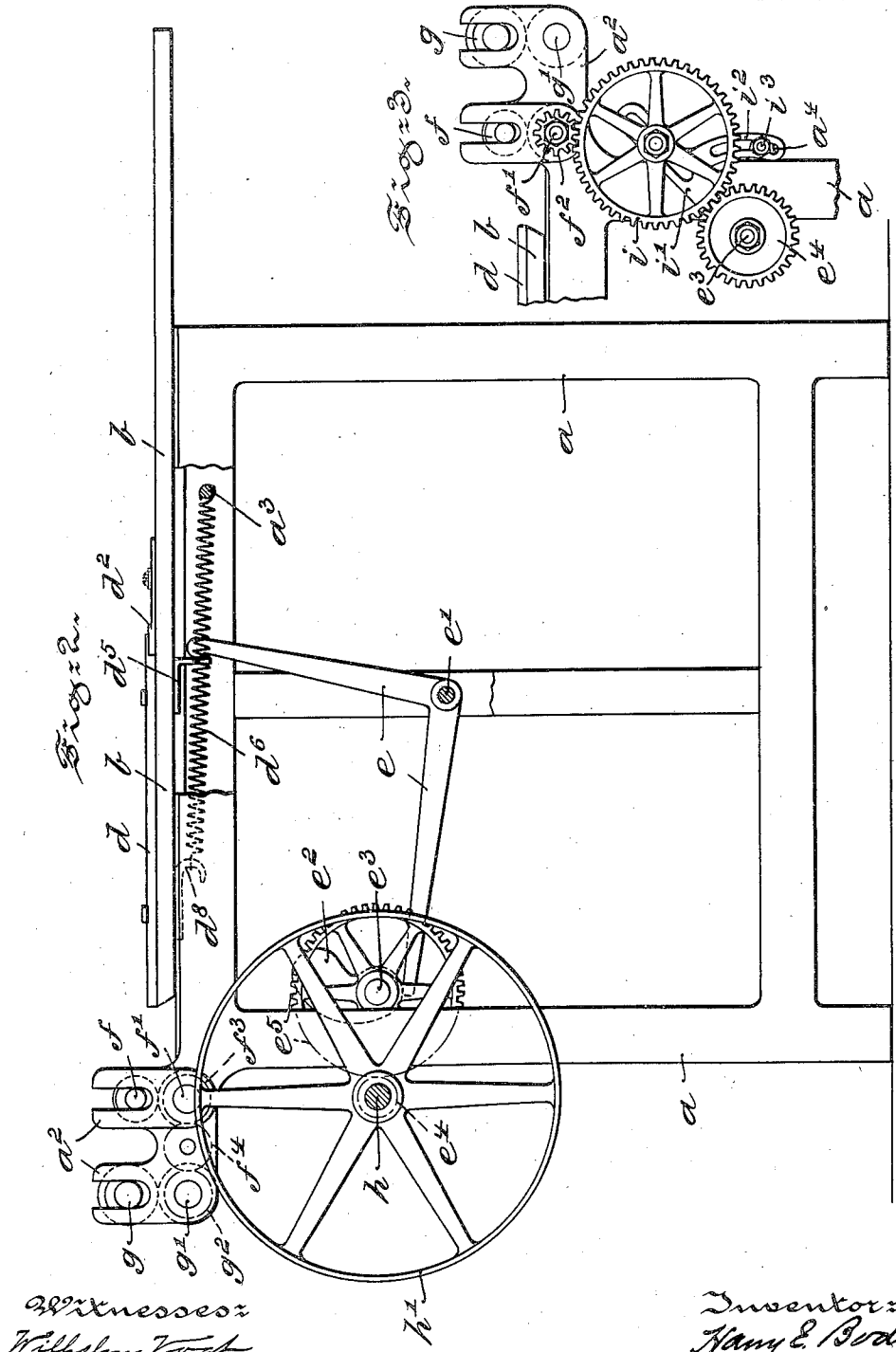
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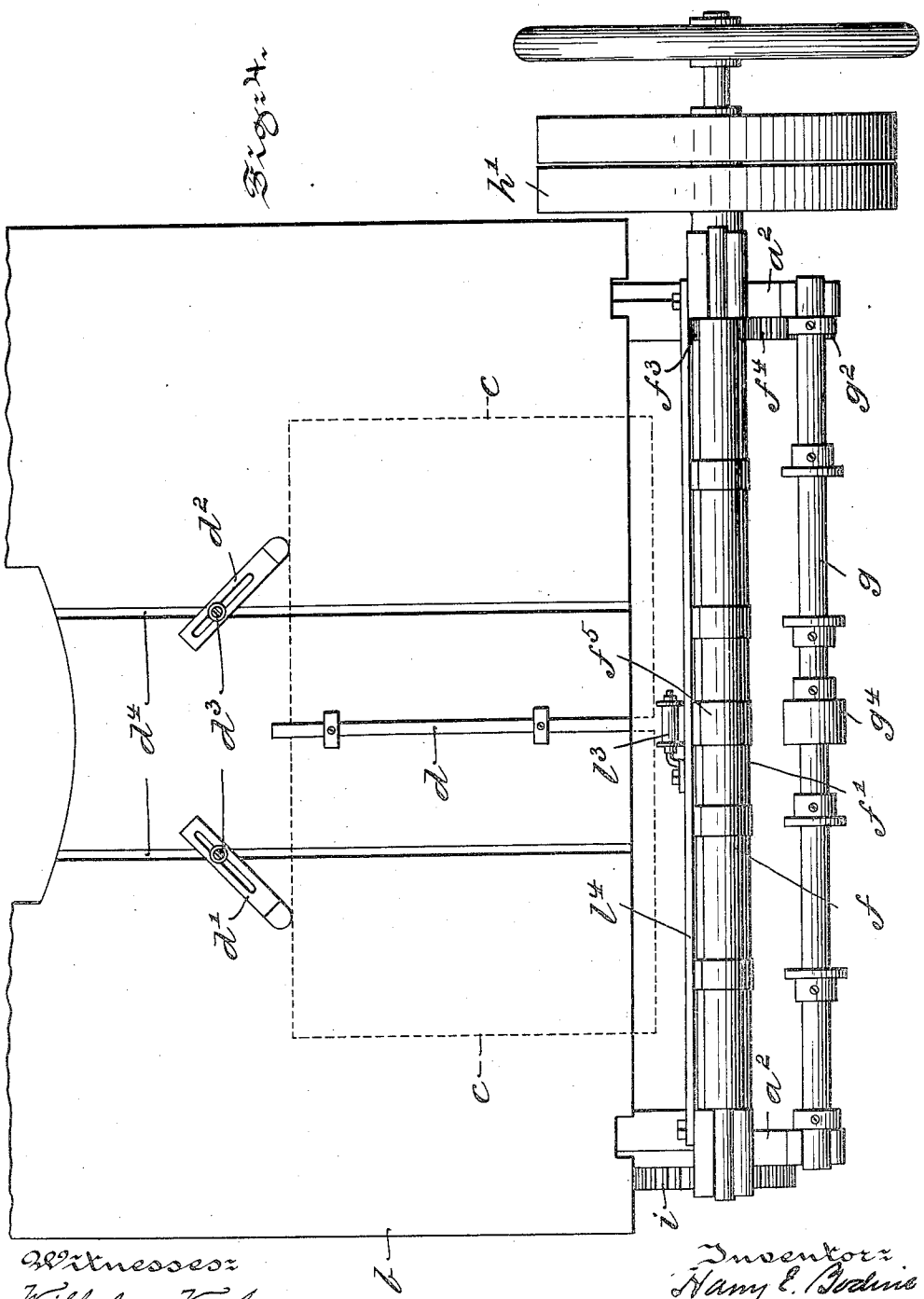
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4 SHEETS—SHEET 3.

Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

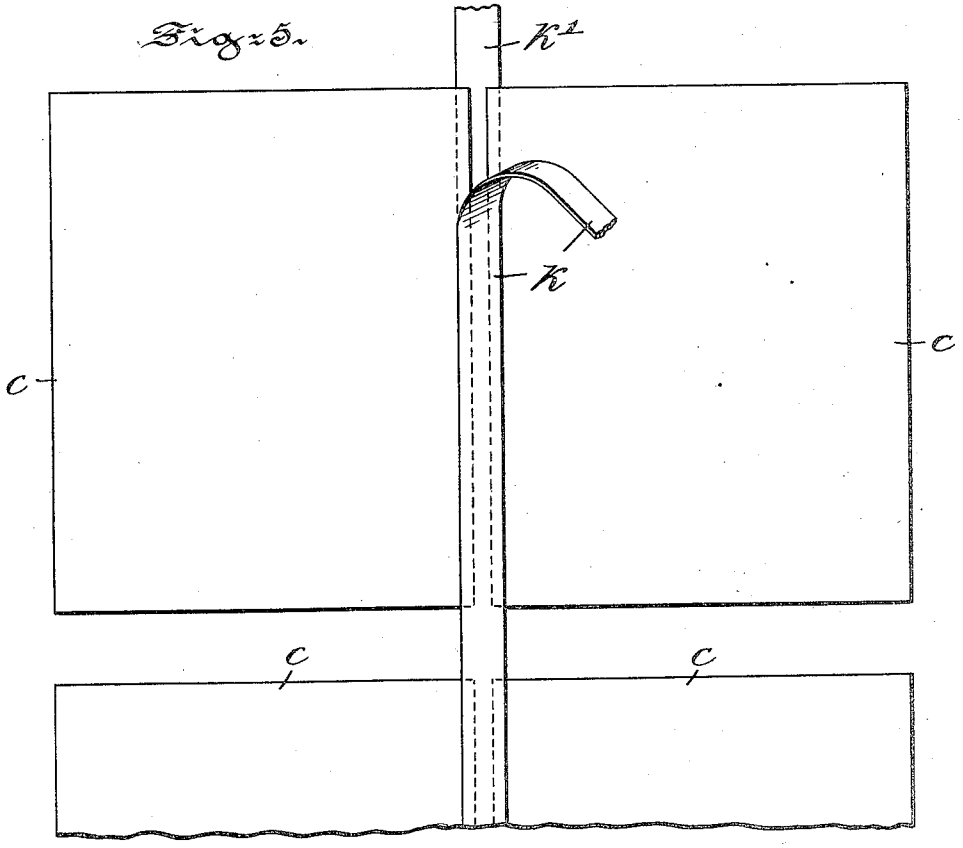
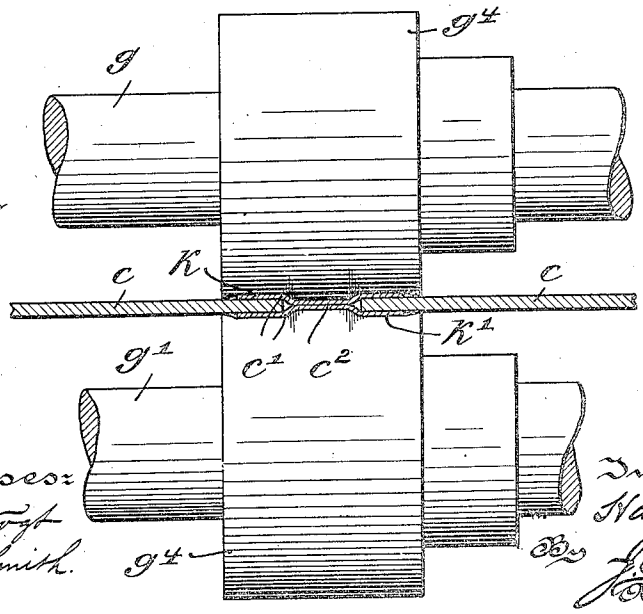


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY E. BODINE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE UNITED STATES SAMPLE BOOK COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

STRIP-APPLYING MACHINE.

No. 852,761. Specification of Letters Patent. Patented May 7, 1907.

Application filed January 27, 1906. Serial No. 298,283.

To all whom it may concern:

Be it known that I, HARRY E. BODINE, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Strip-Applying Machines, of which the following is a specification.

My invention has relation to a machine for applying binding strips to card-board or other material; and in such connection it relates particularly to the construction and arrangement of such a machine for said purposes.

The principal objects of my invention are first, to provide a machine for joining sheets of card-board or other similar material with tape or strips of muslin or linen for the purpose of binding the same; second, to provide a machine for such purpose, with a reciprocating feed table to feed the sheets of card-board or the like to mechanism for applying fillets of tape or narrow strips to either or both sides thereof; third, to provide a machine with mechanism to guide the tape or strips and to press the same onto the card-board or the like and against each other; fourth, to provide a machine with an interchangeable gear-mechanism to regulate the speed of feed and pressure rollers with respect to the table; and fifth, to provide the pressure rollers with a yielding covering to bend the strips or tapes over the edges of the paper and to unite the same with each other in the space between the sheets and also to impart to the pressure rollers a slight increase in circumferential speed over the feed rollers so as to pull or force the sheets of card-board or the like forward against the tension of the feed rollers.

The nature and scope of my invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, in which

Figure 1, is a diagrammatic view, illustrating partly in side elevation and partly in vertical section the feed table and receiving table for the sheets of card-board or the like, the feed and pressure rollers interposed between the tables, the means for conducting tape or strips of muslin or linen to the under and upper sides of the sheets and to the feed rollers, and means for moistening an adhesive coating of the strips or tapes prior to their application to the sheets, all embodying main features of my present invention. Fig. 2, is a view, illustrating partly in side elevation and partly in section of the machine for applying binding strips to card-board or the like, certain parts being removed therefrom. Fig. 3, is a detail view, illustrating in side elevation the gear-mechanism for actuating the feed and pressure rollers and the gear for regulating the speed of the rollers. Fig. 4, is a top or plan view of the machine shown in Fig. 2. Fig. 5, is a detail view enlarged, illustrating in top or plan view two sheets of card-board joined by strips of flexible material from opposite sides, one of the strips being shown as partly removed from the sheets; and Fig. 6, is a similar view, illustrating partly in elevation and partly in section the pressure rollers, two sheets of card-board and strips passing between the same and the manner of bending the strips over the edges of the sheets and uniting the strips to each other between the same, by the yielding covering of the rollers.

Referring to the drawings, *a*, represents the standard of the machine, upon which is arranged a table *b*, adapted to receive and to feed in a forward direction in the present instance, sheets of card-board *c*, to be joined together. In order to hold the sheets of card-board *c*, a certain distance apart, from each other, and in a certain position, on the table *b*, the same is provided with an alining-bar *d*, and gage-arms d^1 and d^2, against which the sheets of paper *c*, are placed by hand or machinery, as shown by dotted lines in Fig. 4. The gage-arms d^1 and d^2, are adjustably secured to the table *b*, by means of bolts d^3, which are slidably arranged in grooves d^4, of the table. Sheets of card-board of varying sizes can thus be readily alined on the table *b*, with the aid of the gage-arms d^1 and d^2, and bar *d*, which can be replaced by another alining-bar, if the space between the sheets *c*, is to be increased or decreased. The preferred means for reciprocating the table *b*, on the standard *a*, consists of a bell-crank lever *e*, pivotally secured in the point e^1, to the standard *a*, which lever at one end is engaged by a cam e^2, secured to a shaft e^3, and at its other end abuts against a bracket d^5,

secured to the table b, as shown in Fig. 2. During the rotation of the shaft e^3, the cam e^2, thereof, shifts the table b, from right to left in Fig. 2, by which movement the end of the sheets c, of card-board projecting beyond the table b, are brought into engagement with feed rollers f and f^1, and by the same into engagement with pressure rollers g and g^1, mounted in brackets a^2, preferably formed integral with the standard a. A spring d^6, connected by a hook d^8, to the table d, and by a bolt a^3, to the standard a, serves to return the table to its inoperative position. The shaft e^3, by means of gear-wheels e^4 and e^5, such as are indicated by dash and dotted lines in Fig. 2, is connected with the driving shaft h, and is thus rotated by the same. The shaft h, by means of a pulley h^1 is driven by any suitable source of power, not shown, and serves to rotate the rollers f^1 and g^1, with variable speed by the following preferred gear-mechanism:—As shown in Fig. 3, to the shaft e^3, is secured a gear-wheel e^1, which meshes with a gear-wheel i, removably connected with a bracket i^1, which is pivotally mounted on the shaft e^3. The bracket i, is provided with a slotted extension i^2, which by means of a bolt i^3, is adjustably secured to a boss a^4, of the standard a, for a purpose to be presently described. The gear i, meshes with a gear-wheel f^2, secured to the lower feed-roller f^1, which by means of a gear-wheel f^3, secured thereto and an idler gear-wheel f^4, meshing with a gear-wheel g^2, of the lower pressure roller g^1, transmits its rotary movement thereto. The upper feed roller f, and pressure roller g, are rotated by frictional contact from the lower positively driven feed roller f^1, and pressure roller g^1, or by the sheets c, of card-board fed forward by the lower rollers, as will be readily understood from Fig. 2.

The feed rollers f and f^1, also serve to conduct strips k and k^1, of flexible material, such as muslin or linen to the sheets c, and to apply the same from either or both sides to join or connect the sheets c, with each other in the manner shown in Fig. 5. As shown in Fig. 1, each of the strips k and k^1, is wound upon a reel l, from which the same by means of guide rollers l^1, l^2 and l^3, is conducted over a roller m, arranged in a tank m^1, filled with water, which moistens the adhesive coating of the strips prior to their conduct to the feed rollers f and f^1. The guide rollers l^3, are preferably carried by a bar l^4, secured to the bracket a^4, as shown in Fig. 4. As soon as the sheets c, of card-board are brought into contact with the feed rollers f and f^1, the same are engaged by the rollers and fed forward by the same. The moistened strips k and k^1, which are conducted over projections f^5, of the rollers f and f^1, are applied and forced by the same against the sheets c, by the weight of the upper roller f, and are bent as at c^1, over the edges of the card-board and united with each other as at c^2, in the space between the boards by the yielding covering g^4, of the pressure rollers g and g^1, by passing through the same, as shown in Fig. 6. In order to hold the sheets c, of card-board under proper tension during the passage of the same through the feed rollers f and f^1, and pressure rollers g and g^1, and during the application of the strips k and k^1 thereto, the yielding covering g^4, of the pressure rollers g and g^1, is of slightly greater diameter than the projections f^5, of the feed rollers f and f^1. Thus the circumferential speed of the pressure rollers g and g^1, is increased which tends to pull or force the sheets c, of card-board forward against the tension of the feed rollers f and f^1, and in this manner effectually prevents buckling of the sheets by holding the same under proper tension during their passage between the rollers. The sheets c, leaving the rollers are conducted by the same over a receiving table n, placed in front of the pressure rollers g and g^1, on which the strips k and k^1, between two sets of joined sheets are cut to disconnect the same from each other by any suitable cutting or severing means, not shown, as will be readily understood from Fig. 5, of the drawings.

Instead of providing the strips k and k^1, with an adhesive coating prior to applying to the card-board, such strips may be supplied with an adhesive from the tank m^1, by means of the rollers m. Instead of card-board any other material such as wood or leather may be joined or connected by means of the strips k and k^1.

Having thus described the nature and objects of my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the character described, a table for receiving and supporting material to be joined, a plurality of feed and pressure rollers, means for conducting flexible adhesive coated strips to said feed rollers and means for reciprocating said table to conduct the material to said feed rollers and between the strips; said feed rollers adapted to conduct said material and strips to said pressure rollers.

2. In a machine of the character described, a table for receiving and supporting material to be joined, a plurality of feed and pressure rollers, the diameters of said pressure rollers being greater than the diameters of said feed rollers, means for conducting flexible adhesive coated strips to said feed rollers and means for reciprocating said table to conduct said material to said feed rollers and between said strips; said feed rollers adapted to conduct said material and strips to said pressure rollers and said pressure rollers adapted to hold said strips and material under tension during the application of said strips to said material.

3. In a machine of the character described, a table for receiving and supporting material to be joined, a plurality of feed and pressure rollers, the diameters of said pressure rollers being greater than the diameters of said feed rollers, means for conducting flexible adhesive coated strips to said feed rollers, means for rotating the lower feed and pressure rollers at equal speed and means for reciprocating said table to conduct said material to said feed rollers and between said strips; said feed rollers adapted to conduct said material and strips to said pressure rollers and the latter adapted to hold said strips and material under tension during the application of said strips to said material.

4. In a machine of the character described, a table for receiving and supporting material to be joined, a set of superposed feed rollers and a set of superposed pressure rollers, the diameters of said pressure rollers being greater than the diameters of said feed rollers, means for rotating certain of said feed and pressure rollers, means for conducting flexible adhesive coated strips to said feed rollers and means for reciprocating said table to conduct said material to said feed rollers and between said strips; said feed rollers adapted to apply said strips to said material and to conduct the same to said pressure rollers and the latter adapted to hold said strips and material under tension to assist in uniting said strips to said material and to each other.

5. In a machine of the character described, a table for receiving two sheets of material to be joined, means carried by said table for holding the same a certain distance apart and to aline the sheets with respect to each other, a set of superposed feed rollers and a set of superposed pressure rollers, said pressure rollers provided with yielding coverings, means for rotating certain of said feed and pressure rollers, means for conducting flexible adhesive coated strips to said feed rollers and means for reciprocating said table to conduct said sheets to said feed rollers and between said strips; said feed rollers adapted to apply said strips to said sheets and to conduct the same to said pressure rollers and the latter adapted to hold said strips and sheets under tension and to bring said strips into engagement with each other between said sheets by the yielding of the coverings of said pressure rollers.

6. In a machine of the character described, the combination of a suitable frame, a bed, means to reciprocate said bed lengthwise of the machine, a gage strip located in the center of the bed, a sheet-engaging device adjustably secured to the bed, a series of pressure rolls and means for supplying two flexible strips to said rolls, whereby the strips will be applied to sheets fed to the bed, substantially as described.

In witness whereof, I have hereunto set my signature in the presence of two subscribing witnesses.

HARRY E. BODINE.

Witnesses:
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THOMAS M. SMITH.