No. 708,958. Patented Sept. 9, 1902.

A. COWAN.

SHEET DELIVERING APPARATUS.

(Application filed Dec. 7, 1901.)

(No Model.) 2 Sheets—Sheet 1.

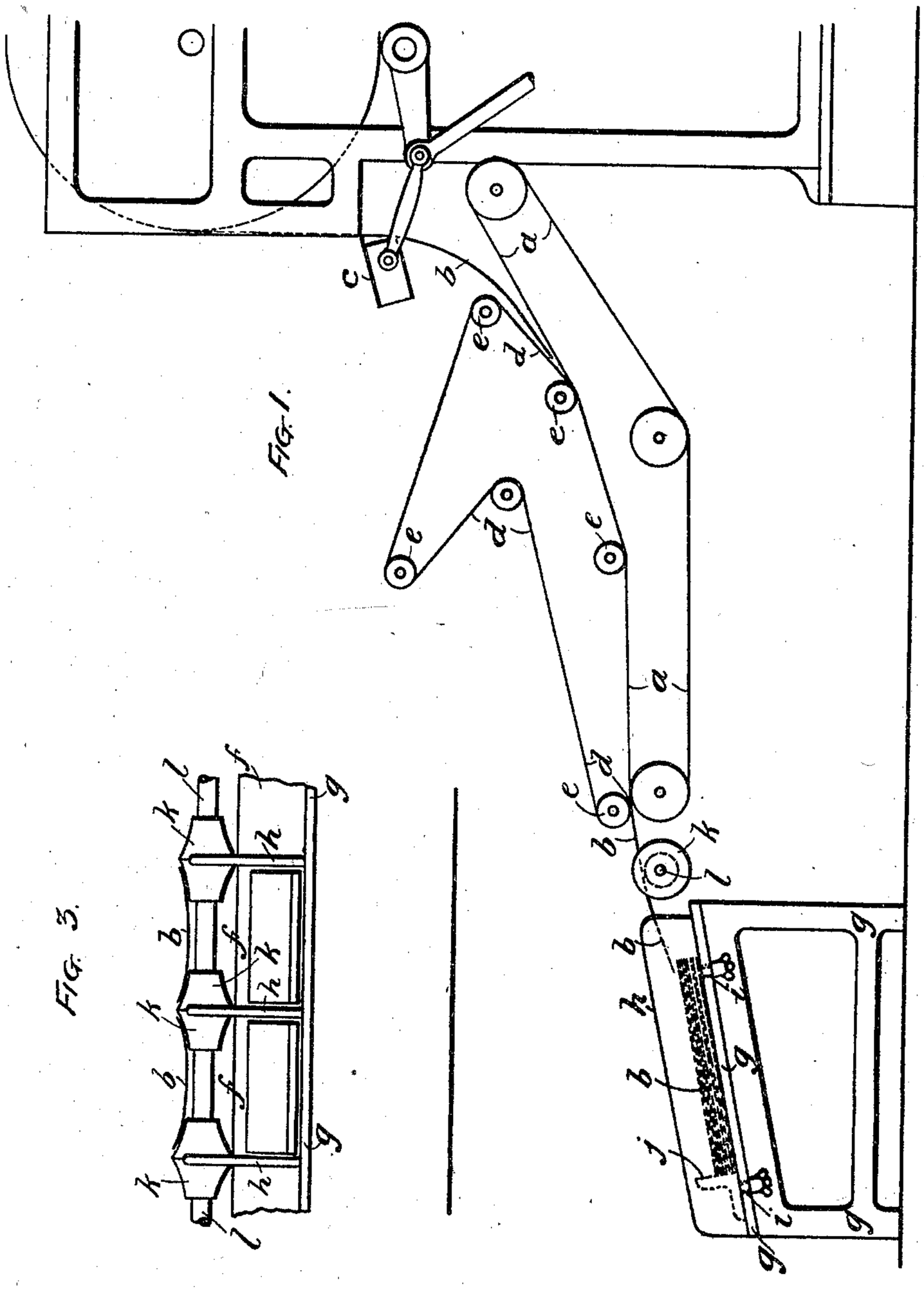

FIG. 1.

FIG. 3.

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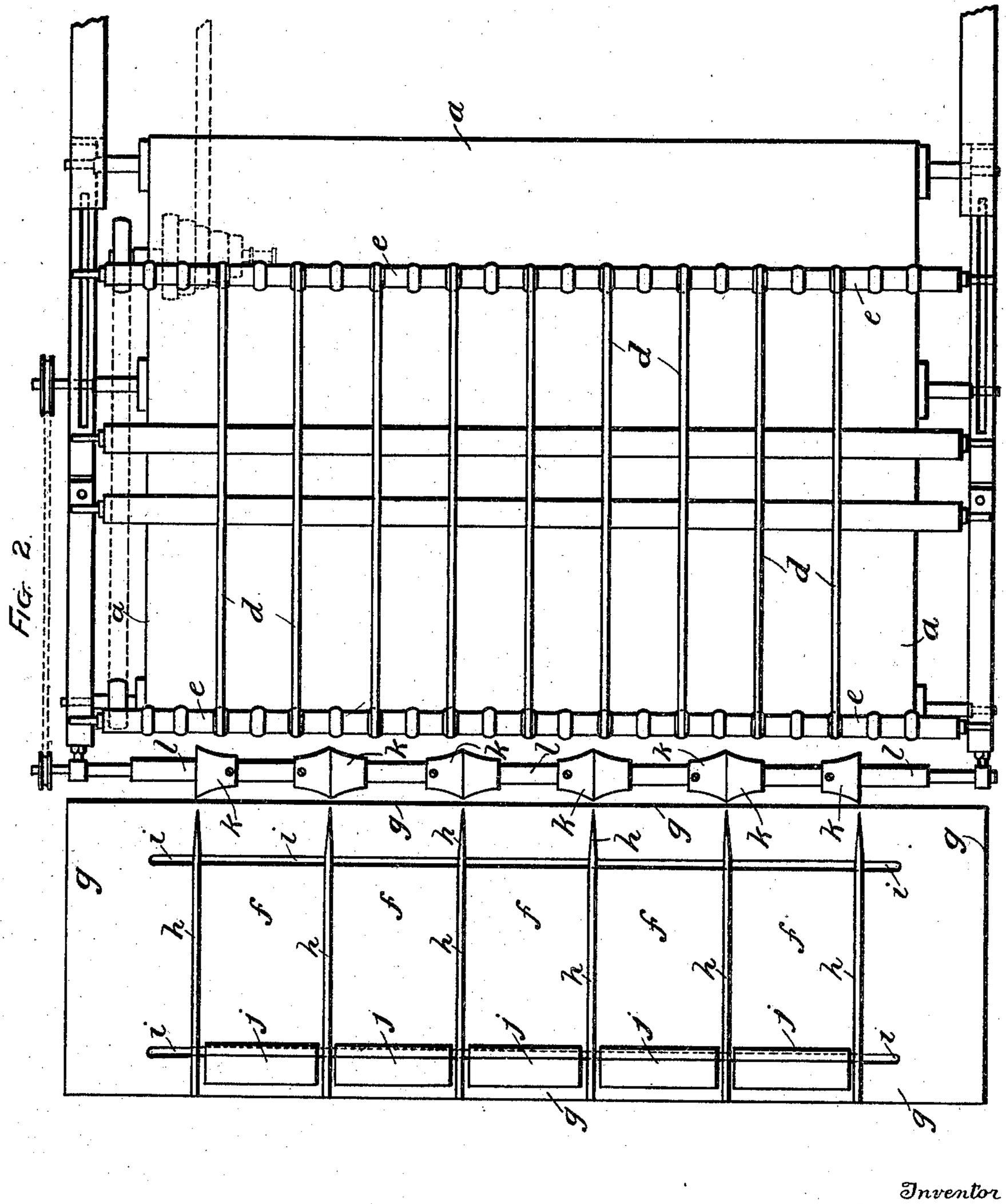
(No Model.) 2 Sheets—Sheet 2.

FIG. 2.



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UNITED STATES PATENT OFFICE.

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SHEET-DELIVERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 708,958, dated September 9, 1902.

Application filed December 7, 1901. Serial No. 85,007. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER COWAN, a citizen of the United Kingdom of Great Britain and Ireland, residing at Valleyfield Paper Mills, Penicuick, Mid-Lothian, Scotland, have invented certain new and Improved Sheet-Delivering Apparatus, (for which application for patent has been made in Great Britain, No. 10,061, dated May 15, 1901,) of which the following is a specification.

The invention relates to apparatus for delivering sheets of paper from paper-making, paper-cutting, or like machines, and more especially paper sheets cut from the web, into boxes or compartments on a table, from which the paper is at intervals lifted in piles. In apparatus of this class commonly in use the sheets have to be guided by hand to insure that they shall be piled or superimposed with their edges in register, and they are liable to be crushed or creased and soiled through defective handling.

The object of the present invention is to overcome these objections by so constructing the apparatus that the sheets are suitably guided and automatically piled in register as they are delivered, so that attendants are not required for adjusting the sheets in the compartments, while in addition to the saving of labor an increase of work is obtained, as the speed of the cutting-machine can be enhanced.

In the accompanying drawings, Figure 1 is an end elevation, and Fig. 2 a plan, of a part of a paper-cutting machine, showing my invention applied thereto. Fig. 3 is a transverse elevation of the conical guide-rolls and delivery-table.

As shown by the drawings, the apparatus comprises the usual endless traveling apron *a*, upon which the sheets *b* of paper as they fall from the knife *c* are received and are guided and kept flat when necessary by sets of endless tapes *d*, carried on guiding and stretching rollers *e*, provided with the usual means of varying adjustment.

According to my invention I provide at the line where the sheets *b* pass out from between the tapes *d* and apron *a* a series of guide-rollers *k* of conical or double-cone formation and preferably formed slightly concave, as shown particularly at Figs. 1 and 3. These conical guide-rollers *k* or double cones *k* are adjustably secured upon a rotating shaft *l* in such a position that the outer edges of each sheet rest upon two cones *k*, while the longitudinal central position of each sheet *b* sags or droops, as shown at Fig. 3, so that the sheet assumes a curved formation as viewed transversely and is made rigid and properly guided by the cones *k* at the moment of delivery into the compartment *f*, provided for its reception. The sheets *b* as they are delivered and piled on each other thus lie flat and regular without the need for manipulation by an attendant. The cones may be set on their shaft *l* to suit varying widths of sheets. The compartments *f* for the reception of the sheets *b* are formed upon a table *g* by fitting thereon upright partition-boards *h*, which are adjustable along slots *i* in the table *g* to vary the widths of the compartments *f* to correspond with the widths of the sheets *b*. The table *g* may be horizontal or slightly inclined, and when necessary the amount of inclination of the table may be regulated by screws or wedges controlled by suitable mechanism. At the receiving end the partition-boards *h* taper to a thin edge, as shown particularly at Fig. 2, so that the compartments *f* are slightly wider at that end to admit of the sheets *b* readily passing in between the boards *h*. At the farther or delivery end cross-bars or stops *j* are fitted, of sufficient weight to resist the impact of the sheets *b* as they fall against them. The end guide-rollers are formed with bulbous swellings for keeping the tapes in proper position laterally on the traveling apron, on which they press and by which they are driven.

The conical rollers *k* for delivering the sheets *b*, as described, may be applied to single-sheet or revolving cutting machines or to any other machine from which paper is delivered in sheets.

Having now described the invention, what I claim, and desire to secure by Letters Patent, is—

A mechanism of the class described com-

prising an endless traveling apron adapted to receive the cut sheets, endless guide-tapes, a transverse rotatable shaft having a plurality of conical guide-rolls disposed to receive the sheets from the apron and a delivery-table having slots therein and upright partitions adjustably engaged in the slots and tapered at their ends to a thin wedge whereby compartments are formed, said compartments being arranged to receive said sheets.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALEXANDER COWAN.

Witnesses:

WALLACE FAIRWEATHER,

JNO. ARMSTRONG, Jr.