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L. P. BOUVIER & A. J. PHILLIPS.

MACHINE FOR COVERING CARD BOARD BOXES WITH PAPER.

No. 422,285. Patented Feb. 25, 1890.

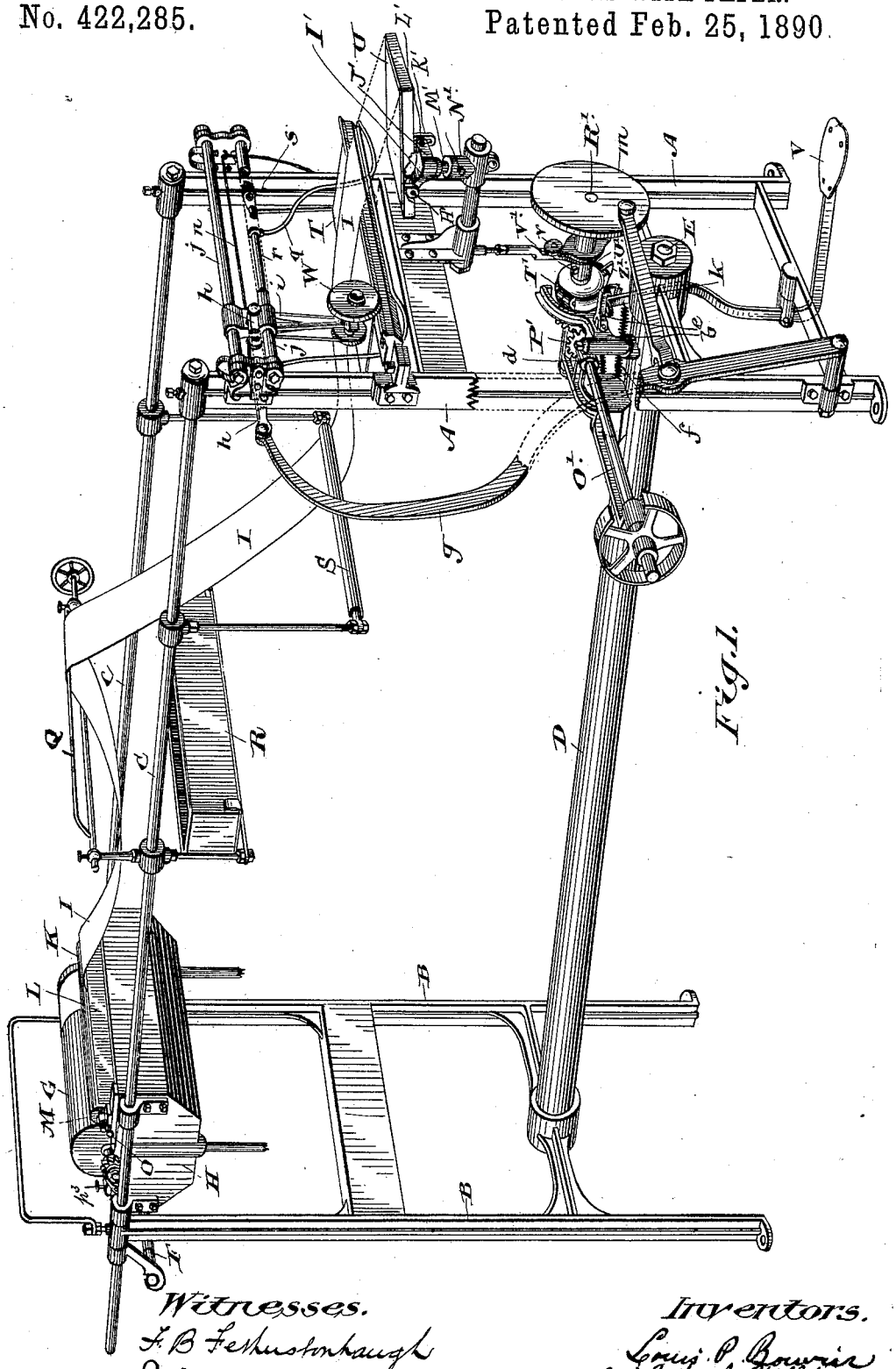

Fig. 1.

Witnesses.
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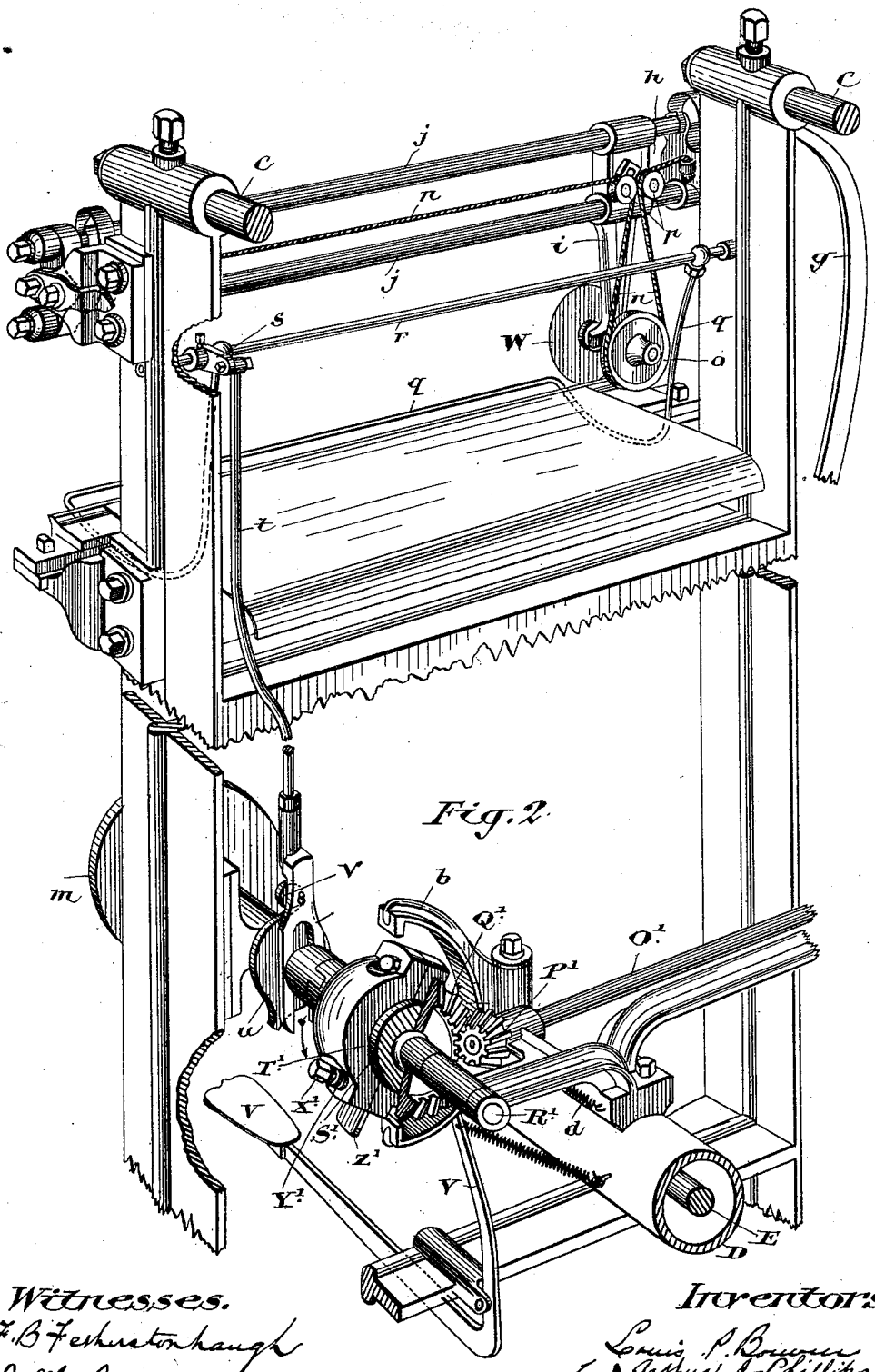

Fig. 2.

Witnesses.
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L. P. BOUVIER & A. J. PHILLIPS.

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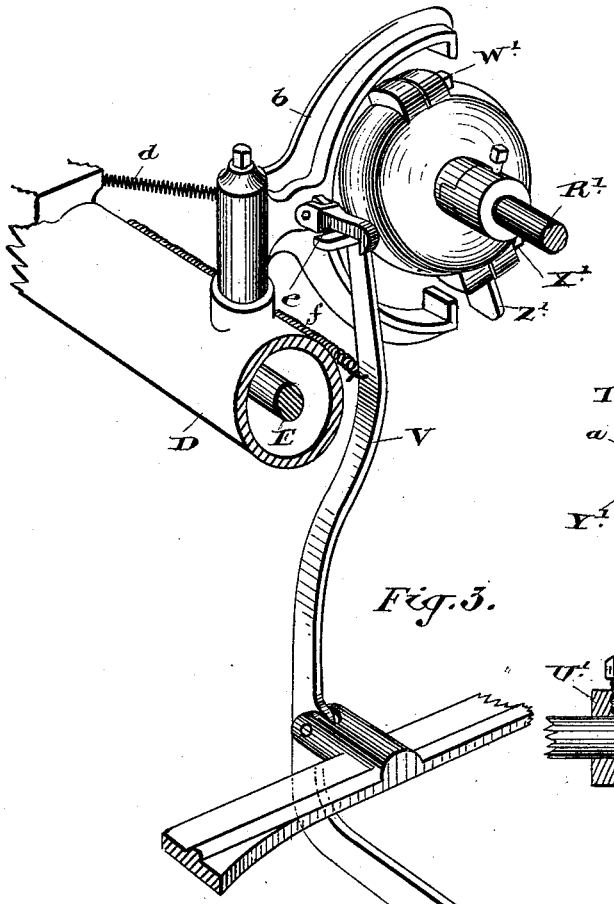

Fig. 3.

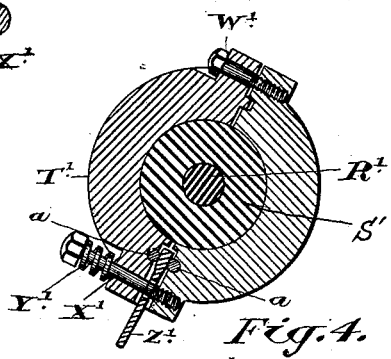

Fig. 4.

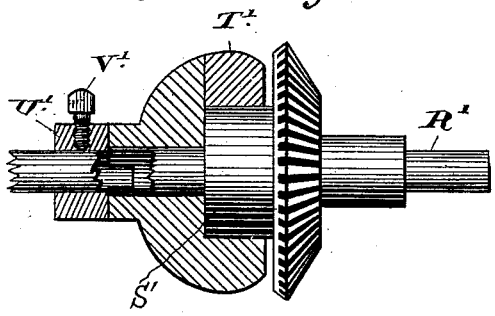

Fig. 5.

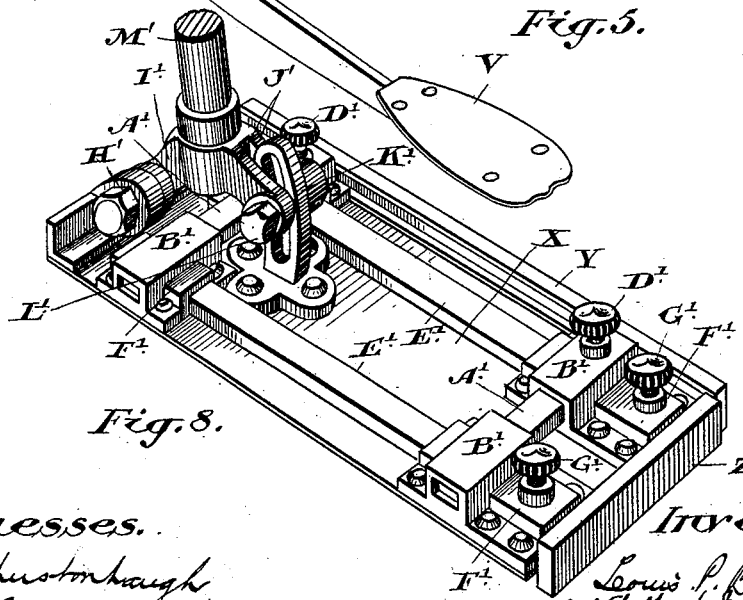

Fig. 8.

Witnesses.
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(No Model.) 5 Sheets—Sheet 4.

L. P. BOUVIER & A. J. PHILLIPS.

MACHINE FOR COVERING CARD BOARD BOXES WITH PAPER.

No. 422,285. Patented Feb. 25, 1890.

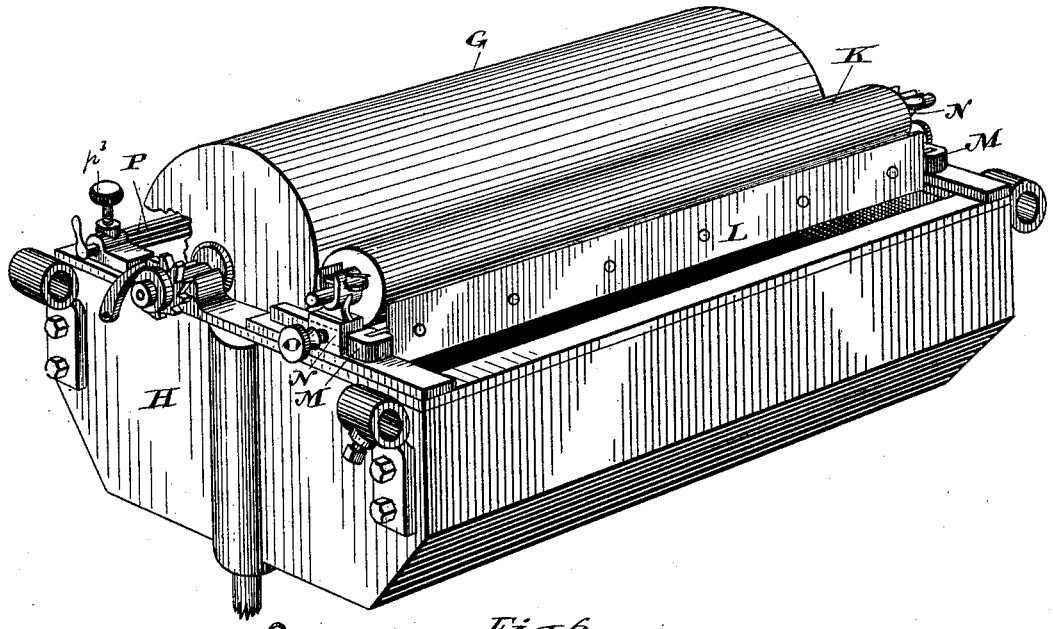

Fig. 6.

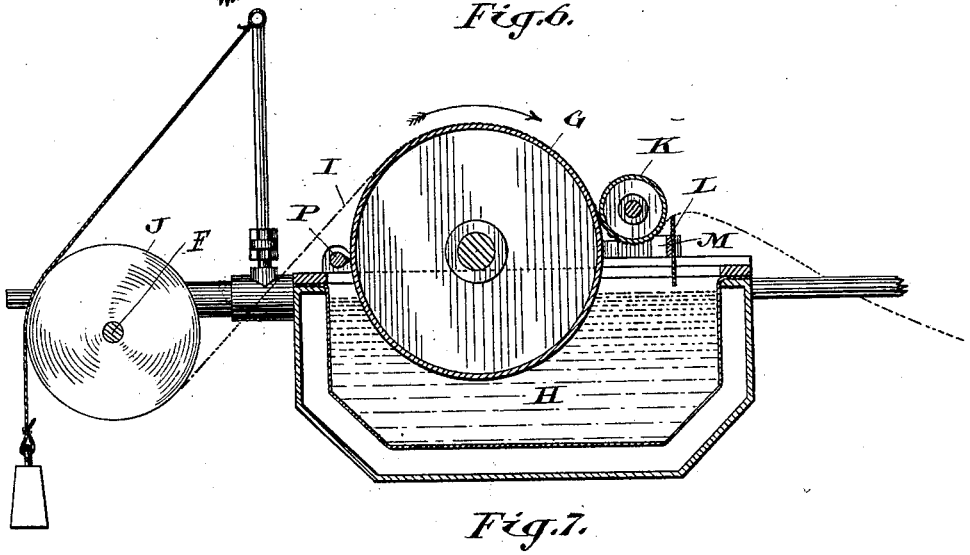

Fig. 7.

Witnesses.

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(No Model.) 5 Sheets—Sheet 5.

L. P. BOUVIER & A. J. PHILLIPS.

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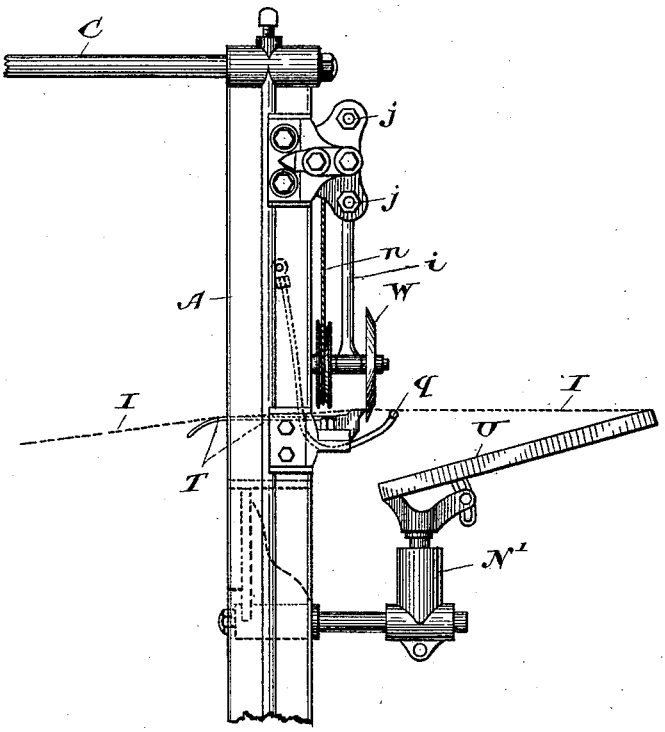

Fig. 9.

Witnesses.

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Chas. N. Riches.

Inventors.

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UNITED STATES PATENT OFFICE.

LOUIS P. BOUVIER AND ARTHUR J. PHILLIPS, OF TORONTO, ONTARIO, CANADA.

MACHINE FOR COVERING CARD-BOARD BOXES WITH PAPER.

SPECIFICATION forming part of Letters Patent No. 422,285, dated February 25, 1890.

Application filed February 9, 1888. Serial No. 263,471. (No model.)

To all whom it may concern:

Be it known that we, LOUIS PETER BOUVIER and ARTHUR JAMES PHILLIPS, both machinists, and both of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have jointly invented certain new and useful Improvements in Machines for Covering Card-Board Boxes with Paper, of which the following is a specification.

The object of the invention is to simplify the mechanism and improve the operation of the machine; and it consists in the arrangement and adaptation of parts, as hereinafter more particularly explained.

Figure 1 is a perspective elevation of the machine embodying our improvements. Fig. 2 is an enlarged inside view of the end of the machine, showing the mechanism for operating the cutting-knife and its connections. Fig. 3 is an enlarged detail of the treadle and its connections by which the driving-clutch for the cutting-knife mechanism is thrown into or out of action. Fig. 4 is a sectional detail of the clutch. Fig. 5 is a detail of the clutch and its driving-pinion, the former being shown in section. Fig. 6 is an enlarged perspective detail of the gumming-roller and its connections. Fig. 7 is a cross-section of Fig. 6 with the roll of paper and its supports added. Fig. 8 is a perspective bottom view of the box-supporting table. Fig. 9 is a side view showing the relative positions of the supporting-table and the main table.

Although our invention is involved more in the peculiar construction of the mechanical details of the machine, a brief reference to the general construction and operation of the machine will assist in the better understanding of our improvements.

The frame of the machine consists of two pairs of vertical legs A and B, connected together by the horizontal rods C, and the centrally-located horizontal tube D, through which a bolt E passes to brace the two pairs of legs together.

F is a spindle journaled in arms adjustably supported upon the horizontal rods C. This spindle carries the roll of paper used in covering the boxes.

G is a gumming-roller suitably journaled in a gum-dish H, which is adjustably supported upon the horizontal rods C. The paper I passes over the top side of the roller G, and is held against the surface of the said roller by the tension on the paper leaving the roll J and by the small roller K, below which it passes.

L is a scraper supported on arms M, which pass through slotted passage-ways in the brackets N, and are adjustable therein, being held at any desired point by the set-screws O, in order that the scraper L may be moved nearer to or farther from the roller K.

P is a scraper journaled behind the roller G, and is shaped, as shown in Fig. 7, so that it may be brought in contact with or moved from the roller G by simply turning it in its journal. The scraper P is held in its adjusted position by means of the set-screw p^3.

The operation of this part of the machine is as follows: The paper I is arranged around the rollers, as shown in Figs. 1 and 7, and when drawn upon it will cause the roller G to revolve in the direction indicated by arrow in Fig. 7. As the bottom side of the roller G is immersed in the gum contained in the dish H, it will as it revolves carry a supply of gum. Should the operator find that more gum is raised than required, he has simply to adjust the scraper P, and if he finds that more gum has adhered to the paper I after it has passed the roller K he adjusts the scraper L closer to the roller K, which scraper will thus remove any surplus gum which has adhered to the bottom of the paper I; or if he wishes the scraper L to act lightly on the paper I he adjusts the said scraper away from the roller K. After leaving the roller K the paper I passes over the supporting-rod Q, and as in passing over this rod a certain quantity of gum may be scraped from the bottom surface of the paper, we place a drip-dish R below the said rod. The paper I then passes below the roller S, and thence on top of the table T, from which it is drawn by the operator, who stands in front of the machine and gums the paper first on the end of the box U, and then by pressing on the treadle V operates the mechanism hereinafter described, which causes the revolving disk-knife W to pass over and cut

the paper off the required length, a supporting-bar being simultaneously carried below the paper, so as to support its loose end while the operator is smoothing it upon the top surface of the box. The table on which the box is supported is set at an angle, so that its outer edge shall be substantially on a level with the table T, while its inner end is considerably below said table, so that the operator may spread the paper evenly over the box from the point where it first comes in contact with it. If the box were perfectly horizontal, the inside end of the paper where it is cut off would fall onto the box before the operator had an opportunity of smoothing it down.

In order that the machine may be used for various sizes of boxes, we arrange the supporting-table X so that it may be adjusted to fit various sizes of boxes. The manner of this adjustment will be understood by reference to Fig. 8. In this figure it will be noticed that one side Y and one end Z of the table X are adjustably connected to the said table, the side Y being connected to the bars A′, which pass through sleeves B′, fastened to the bottom of the table X.

Set-screws D′ are screwed into the sleeves B′, so as to enable the bars A′ to be nipped when desired, in order that the side Y may be held at any desired distance from the table X, to accommodate the said table to suit any desired width of box. The end Z is provided with similar bars E′, which pass through sleeves F′, fastened to the table X, and have set-screws G′ screwed in them for the same purpose as the set-screws D′.

In order that the end of the table X may always be kept substantially level with the table T, notwithstanding any alteration in the length of the said table X, we pivot the said table at H′ on the bracket I′, and form clamping-jaws J′ on the said bracket to grip the horn K′, which is fastened to the bottom of the table X, and is slotted, as shown, to permit the passage of the bolt L′, used to clamp the jaws J′ against the horn K′, and thus hold the table X at any desired angle at which it may be set. The bracket I′ is also provided with a spindle M′, which is adjustably held in a socket N′, so that the height of the table X may be readily adjusted.

The shaft O′ is connected to and driven by any suitable motor and is constantly kept in motion; but as the mechanism in the machine it is used for driving is intended to operate only at certain intervals, as decided by the operator, we have designed a simple and effective clutch mechanism, by which the motion of the shaft O′ may be utilized for the purpose of driving the said mechanism at the intervals desired. On the end of the shaft O′ we key or otherwise fasten a bevel-pinion P′, which meshes with a bevel-pinion Q′, loosely journaled on the counter-shaft R′. A hub S′ is attached to the pinion Q′, which hub projects into the split clutch T′, (see Figs. 4 and 5,) which split clutch is connected to the counter-shaft R′ by engaging with the collar U′, which is held on the counter-shaft R′ by the set-screw V′. (See Figs. 2 and 3.)

On reference to Fig. 4 it will be noticed that the two parts of the split clutch T′ are held together on one side by the screw-bolt W′ and on the opposite side by the screw-bolt X′. A spring Y′ is placed on the bolt X′ between its head and the portion of the clutch through which it passes. The two parts of the clutch are screwed together sufficiently tight to grip the hub S′ and form a connection between the split clutch T′ and the counter-shaft R′. As it is not intended that this connection shall be permanent, we place the spring Y′ on the bolt, as shown and described, and between the halves of the clutch T′, at the point where the bolt X′ passes, we insert a plate Z′, as indicated in Fig. 4. A hole is made in this plate to permit the passage of the bolt X′, and in the position as shown in Fig. 4 it does not touch either half of the split clutch T′, being fulcrumed on the pins or projections *a*, and when in this position the split clutch T′ grips the hub S′ sufficiently tight to connect the latter with the counter-shaft R′.

b is a forked bracket, which is pivoted on its support, as indicated in Figs. 1, 2, and 3. A spring *d* is connected to the pivoted forked bracket *b*, so as to hold it in its normal position immediately over the split clutch T′, so that when the said clutch revolves the plate Z′ may come in contact with one of the forked ends of the bracket *b*. The revolving of the split clutch T′ is thus arrested, and the pressure caused by the stoppage forces the plate Z′ against one half or the other of the split clutch T′, thus forcing the two halves apart, so as to remove the pressure of the split clutch T′ on the hub S′, and thus permit the bevel-pinion Q′ to revolve with the bevel-pinion P′ without imparting their motion to the counter-shaft R′. The upper end of the treadle V connects with the dog *e*, pivoted on the bracket *b*. The spring *f*, connected to the treadle V, as shown, holds the said treadle so that when in its normal position its end will always be connected to the dog *e*. When the operator desires to put the counter-shaft R′ into operation, the treadle V is pressed down, which action causes the forked bracket *b* to move on its pivot sufficiently far to remove the forked end of the bracket *b* away from the plate Z′. Immediately upon the removal of the plate Z′ the action of the spring Y′ causes the split clutch T′ to grip the hub S′, thereby forming, as before described, a connection between the shaft O′ and counter-shaft R′. The lever *g* is pivoted at its bottom end on the front of the frame A, and at its upper end is connected by the link *h* to the carriage *i*, which carriage is supported by the guide-rods *j*, and has journaled on its bottom end the spindle of the disk-knife W. A rod *k* connects the lever *g* to the disk *m*, which is fixed to the end of the counter-shaft

R′; consequently any rotary movement of the counter-shaft R′ will cause the lever *g* to rock on its pivot, the throw of the crank-pin on the disk *m* being arranged so as to cause the carriage *i* to travel from one side of the machine to the other upon each half-revolution of the disk *m*.

n is a cord fixed at both ends to the frame of the machine and carried around the pulley *o* on the spindle of the disk-knife W, and around the pulleys *p*, journaled on the carriage *i*′; consequently the movement of the carriage *i* will cause the disk-knife W to revolve.

q is a rod, bent as shown in Figs. 1 and 2, and connected to the rod *r*, which is journaled in the frame, as indicated, and has a crank *s* fixed to it, which crank is connected to the vertical rod *t*, having a forked lower end to fit over the counter-shaft R′ next to a cam *u*, which is fixed to the counter-shaft, as indicated. The downward movement of the treadle V draws, as before described, the forked end of the bracket *b* away from the plate Z′; but, owing to the fact that the bracket *b* turns upon a pivot, the dog *e* slips off the end of the treadle V, and the spring *d* acts so quickly on the bracket *b* that it is brought back into its normal position before the clutch T′ has completed half a revolution. The plate Z′ strikes the other fork of the bracket *b*, thereby instantly pushing open the clutch and releasing the counter-shaft.

Any suitable means may be provided to prevent the bracket *b* from going too far when brought back.

All the parts herein described are so set that the half-revolution of the clutch T′ causes the carriage *i* to travel from one side of the machine to the other, but no farther, and also causes the cam *u* to act on the roller *v* on the rod *t*, so as to cause the bent rod *q* to project beyond the table T during the period that the paper I is being cut by the disk-knife, and to instantly recede below the table T when the cutting of the paper is completed.

What we claim as our invention is—

1. In a box-covering machine, the combination of the table, the boxes on the under side of the table at each end thereof, having each a transverse and longitudinal passage as guides therein, the longitudinal bars fitting in the longitudinal passages of the boxes, and the transverse bars fitting into the transverse passages as guides of said boxes, whereby the boxes serve as transverse and longitudinal guides for the bars.

2. In a box-covering machine, the combination of the table, the slotted horn, the bracket pivoted to the table and having the clamping-jaws adjustable in the slotted horn, the boxes having the transverse and longitudinal guides or passages, the transverse and longitudinal bars adjustable in said boxes, and the screws in the boxes for securing the bars in their adjusted positions.

3. In a box-covering machine, the combination of the gum dish or receptacle, the gumming-roller mounted therein, the bearings adjacent thereto, the adjustable eccentric scraper mounted in said bearings, and a screw in one of said bearings adapted to engage the scraper and retain the same in the proper adjusted position, substantially as described.

4. In a box-covering machine, the combination of the gum dish or receptacle, the gumming-roller mounted therein, the slotted brackets carrying a roller, the arms adjustable in said brackets, the scraper carried by said arms, and the screws in the brackets for retaining the arms in the proper position, substantially as described.

Toronto, January 31, 1888.

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In presence of—
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