2 Sheets--Sheet 1.

DAVID PIRIE & A. CROOM.

Paper Trimming Machine.

No. 124,155. Patented Feb. 27, 1872.

Fig. 1.

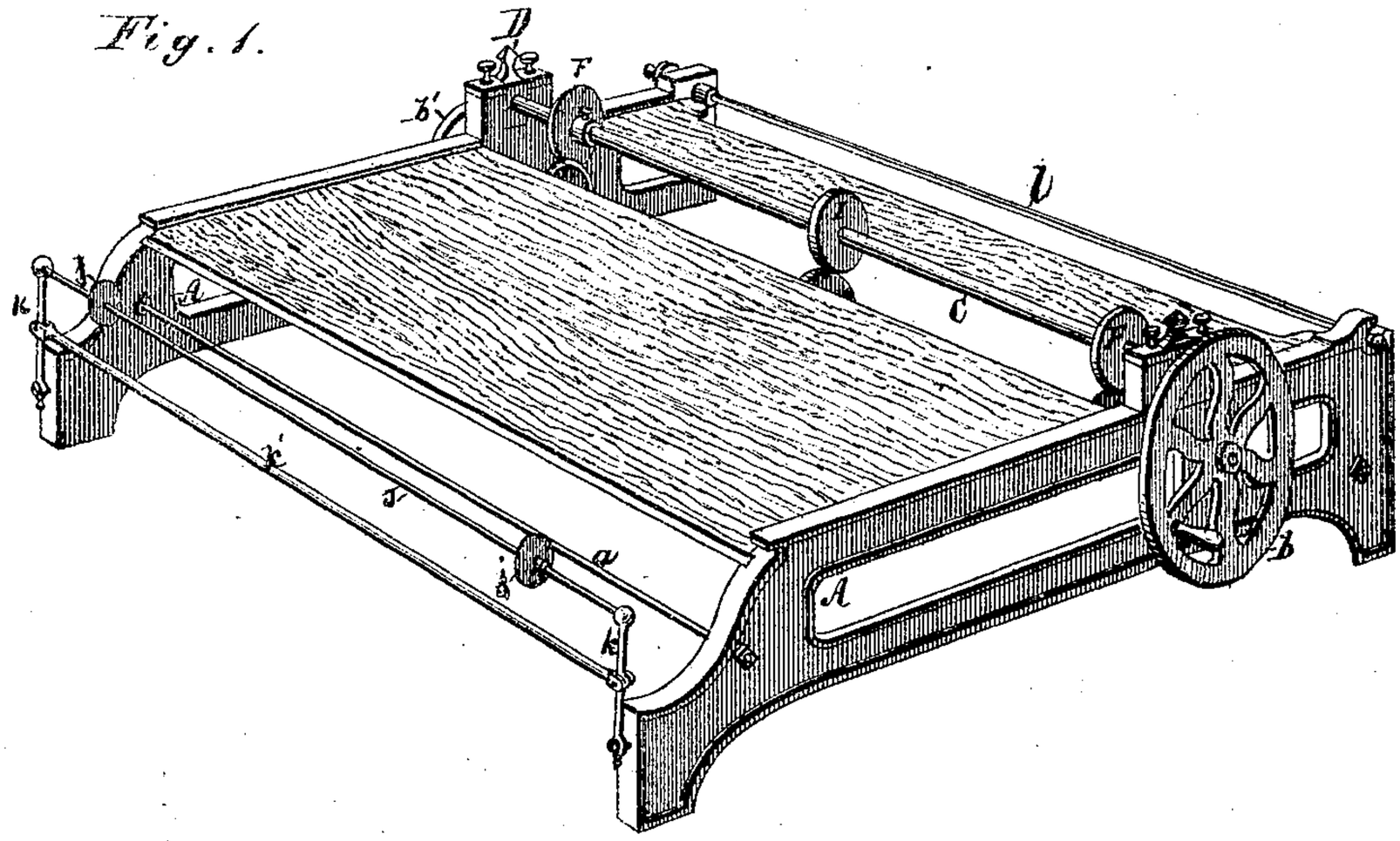
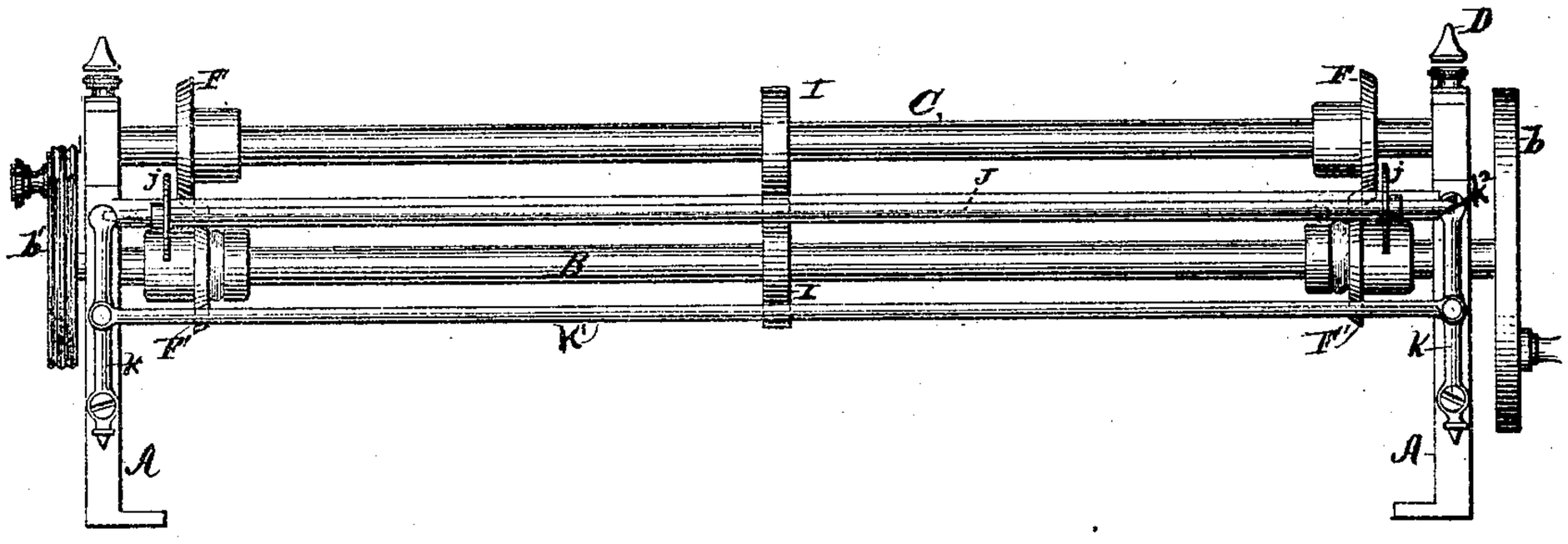


Fig. 2.



Witnesses.

C. F. Brown

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Atty.

2 Sheets--Sheet 2.

DAVID PIRIE & A. CROOM.

Paper Trimming Machine.

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Fig: 3.

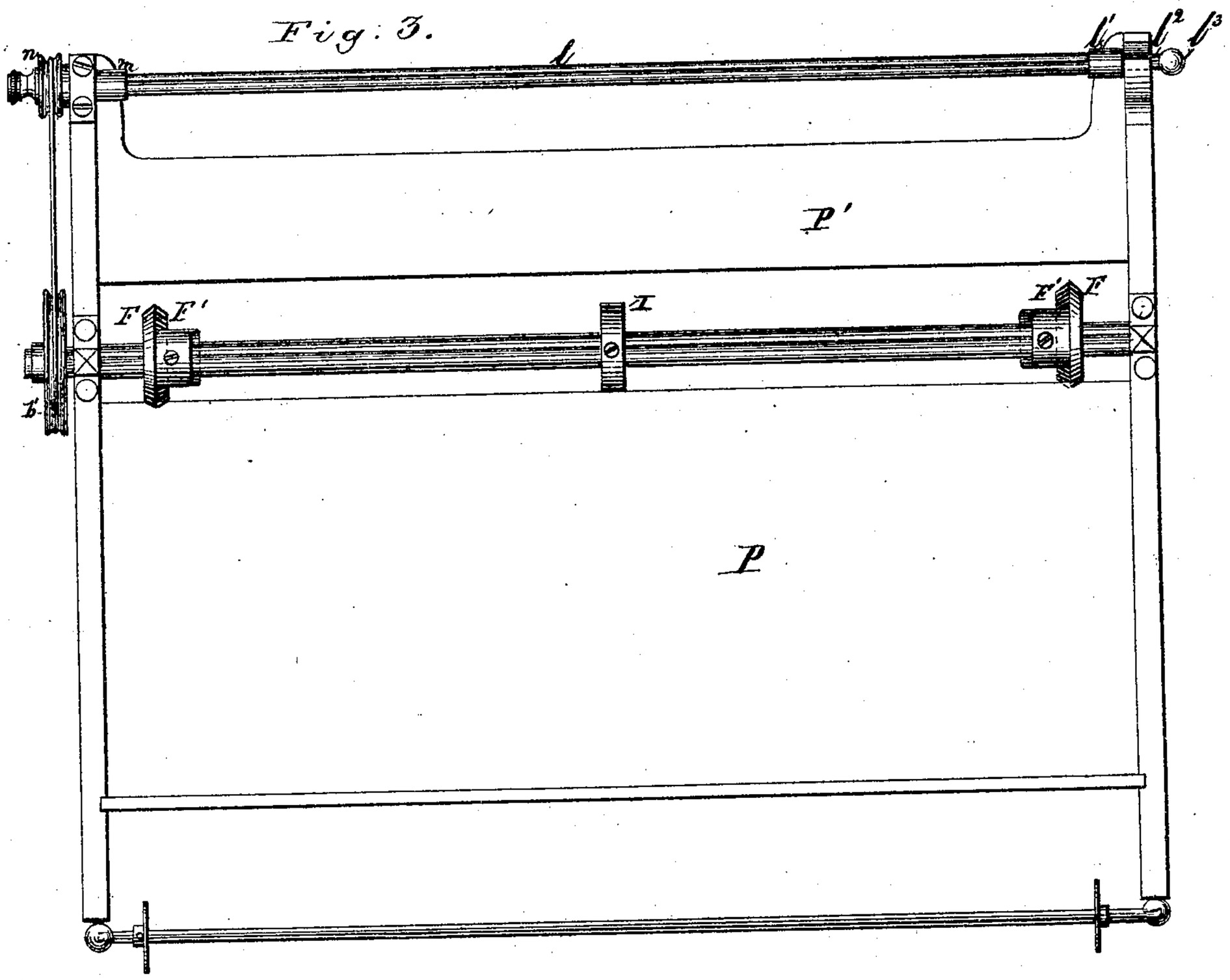


Fig. 4.

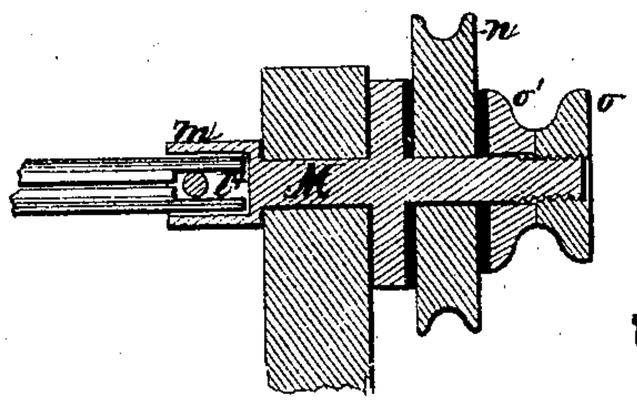


Fig. 5.

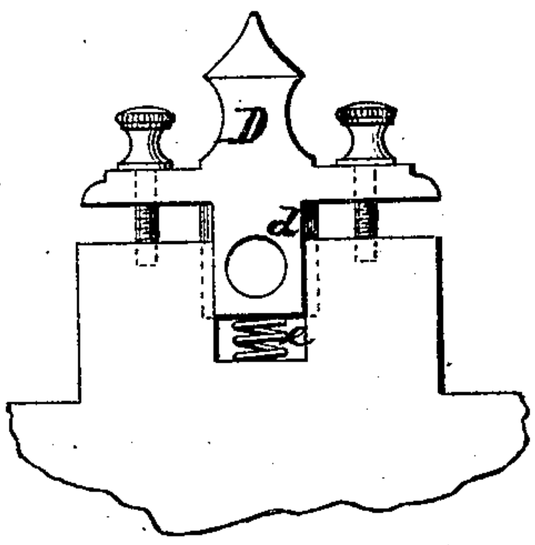
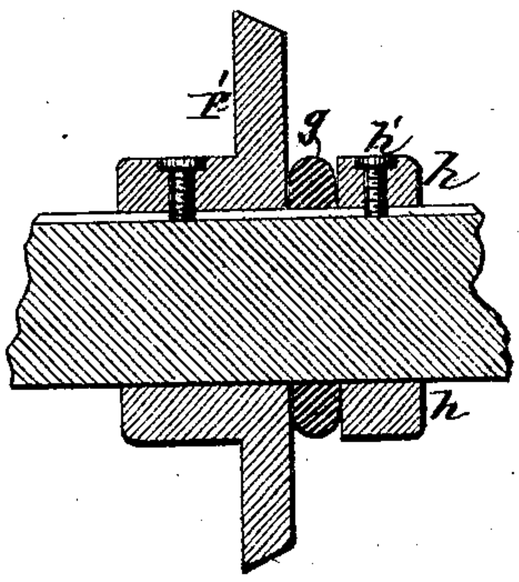


Fig. 6.



Witnesses.
C. F. Brown.
E R. Beadle

Inventors.
David Pirie & Alexander Croom
by H. W. Beadle
Atty.

124,155

UNITED STATES PATENT OFFICE.

DAVID PIRIE AND ALEXANDER CROOM, OF DUNDEE, NORTH BRITAIN.

IMPROVEMENT IN PAPER-TRIMMING MACHINES.

Specification forming part of Letters Patent No. 124,155, dated February 27, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that we, DAVID PIRIE, of Dundee, in the county of Forfar, North Britain, and ALEXANDER CROOM, of Dundee, in the county of Forfar, North Britain, have invented a new and Improved Machine for Cutting Paper-Hangings; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention relates to that class of machines which are designed for trimming paper-hangings, &c.; and it consists in certain details of construction, which will be fully described hereinafter.

In the drawing, Figure 1 represents a perspective view of our improved machine; Fig. 2, a front elevation; Fig. 3, a plan view; and Figs. 4, 5, and 6, views of parts detached.

To enable others skilled in the art to make and use our invention, we will now proceed to describe fully its construction and operation.

A A represent side frames, constructed of proper material and suitable size, and adapted to support the remaining parts of the machine; which frames are rigidly clamped together by rods, one of which is shown at *a*. B, Fig. 2, represents the main shaft, adapted to revolve in proper bearings in the side frames, the ends of which, extending beyond the sides A, are provided at one end with the hand-wheel *b*, and at the other with the pulley *b'*. C represents an auxiliary shaft, located in line over the shaft B, and having adjustable bearings D, as shown in Figs. 1 and 5. These bearings are provided with a central projection, *d*, having the opening for the reception of the shaft C, which projection is provided upon each side with a ridge resting in a corresponding groove in the side pieces. The projection rests upon a spring, *e*, held in a suitable socket in the side pieces A, as shown in Fig. 5. The vertical position of the bearing is regulated by means of thumb-screws, as clearly shown in the drawing. F F′ represent the cutters located upon the shafts B and C, which cutters consist of flat disks having inclined edges, as shown, and a collar, by means of which latter they are secured to the shafts, as shown in Fig. 6, a set-screw being employed, the point of which, passing throught the collar, rests in a groove in the shaft, as clearly indicated in the drawing. By means of this construction the disks are secured to and compelled to revolve with the shaft, but they may be readily moved to any extent longitudinally upon it. The lower disks are preferably, however, secured in a different manner, as will be described. *g*, Fig. 6, represents a flexible washer interposed between the disk F′ and the loose collar *h*, provided with set-screw *h'*. By means of the flexible washer an elastic bearing is obtained, so that the disk yields readily, if circumstances render it necessary. Upon each shaft, also, is located a central nipping-roller, I, by means of which the paper is drawn through the machine. These are made adjustable longitudinally upon the shaft by means of a set-screw, and they may be of any proper width and suitable material. They may, if desired, be covered with felt or other similar material. J represents the spindle, upon which is placed the roll of paper to be cut, which spindle is provided with adjustable gauges or stops *j j*, one of which is provided with means for fixing it in any desired position. This spindle, when in place, rests in sockets in vertical rods K K united by the cross-rod K^1 and pivoted to the side frames, as shown clearly in Figs. 1 and 2. One of the sockets is open at the top, as shown at k^2, Fig. 2, by means of which construction the spindle is readily removed when desired. *l* represents the spindle for receiving the paper after it has been trimmed. It consists of a rod split nearly its entire length into equal parts; one end, however, is solid, and is provided with a shoulder, l^1, recess l^2, and head l^3; the other end is provided with a recess, l^4, as shown in Fig. 4. The split end of the rod is held by means of a socket, *m*, in the journal M, the latter being adapted to turn in bearings in one of the side frames, as shown. The other end of the spindle rests in an open socket in the other side frame, its shoulder l^1 and head l^3 holding it securely from longitudinal displacement. The journal M receives motion from the pulley b^1 by means of a crossed belt moving over the pulley *n*, which latter is loosely placed upon the shaft or journal M, but is secured

thereto by means of the screw-nut *o* pressing against the washer *o'*. By means of this construction a friction device is secured, by which the operator is enabled to adjust the speed of the spindle *l*, as may be desired. P P' represent boards, which are held in grooves in the side frames, the same being readily removed when desired.

The operation of our improved machine is as follows: The cutters are first adjusted upon the shafts to suit the width of the paper which is to be cut, this adjustment being easily performed by unloosing the securing set-screws. The proper method of adjusting the cutters is, first, to place the upper cutters in position, and then to slide the lower cutters against the upper, as indicated in Fig. 2, and then, while pressing them to their place with one hand, to secure them in place with the other. For the purpose of reaching the cutters easily, the boards P P' may be removed by sliding them out of the grooves. The cutters having been properly adjusted, the pressure of the nipping-rollers upon each other is regulated by turning the thumb-screws of the adjustable bearings D. The pressure should vary to suit different kinds of paper; for instance, in cutting flock or embossed paper, the pressure should be eased somewhat, in order that the rollers may not leave an impression upon the paper. The necessary adjustments having been properly made, the paper is placed in the machine as follows: The spindle *k* is removed from its sockets, and, one of the gauges having been removed from it, it is thrust through the center of the roll of paper, and, the gauge having been slipped upon it, it is replaced in its sockets. The left-hand gauge should be so adjusted upon and rigidly fixed to the spindle that the center of the paper, when the end of the roll is pressed against it, will be in line with the nipping-rollers, the rods *k k* being vertical. A little of the paper should be then unrolled, and, the end being folded back for a few inches, it should be pushed into the nipping-rollers with the left hand, while the hand-wheel should be turned with the right until the paper is drawn through far enough to reach the split spindle *l*, which latter being removed, the paper may be inserted between its blades, after which it should be replaced.

The described operation having been completed, the machine is now ready to work. The left hand is placed upon the right end of spindle J, with the fingers pressing the loose stop or gauge against the end of the roll of the paper, the knob of the vertical rod being held between the fore finger and thumb. By means of this position a steady pressure may be exerted upon the roll of paper, and the spindle J may be moved to either side by swinging its supports K, for the purpose of properly guiding the paper. The roll, after being cut, is wound more or less tightly upon the spindle *l*. If it is desired to wind the paper tightly, the tension device, Fig. 4, should be tightened. Thin papers should not be rolled as hard as thick ones. It is not absolutely essential that the paper should be wound in a roll after cutting; it may, if desired, be received in any convenient receptacle. The number of the cutters employed is not essential; a series of them may be employed for cutting borders, if desired.

By means of the construction described a simple and most efficient machine is obtained, by means of which any width of paper may be readily cut. One very important advantage of this construction is, that the paper can be easily regulated in its movement. The central nipping-rollers serve as a pivot-point, upon which the paper may be swung to either side, and thus permit the position of the paper to be quickly and easily changed when it is running incorrectly.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a machine for trimming paper-hangings, of the following elements: *i. e.*, a spindle adapted to swing from side to side to shift the position of the roll of paper, a pair of nipping-rollers adapted to press only upon the center of the paper, and suitable cutters for trimming the edge, for the purpose set forth.

2. The removable spindle J, in combination with the vertical rods K pivoted to the side frames and the rod K^1, as described.

This specification signed and witnessed this 29th day of August, 1871.

DAVID PIRIE.
ALEXANDER CROOM.

WILLIAM MCINTYRE, *of No. 72 King st., Dundee, Scotland, clerk, witness.*
ROB. MACKENZIE, *of No. 49 Small's Wynd, Dundee, Scotland, clerk, witness.*