

Thomas C. Robinson  
Assignor to Geo. H. Sanborn  
Self Clamping Paper Cutter.

97816

Fig. 1.

PATENTED DEC 14 1869

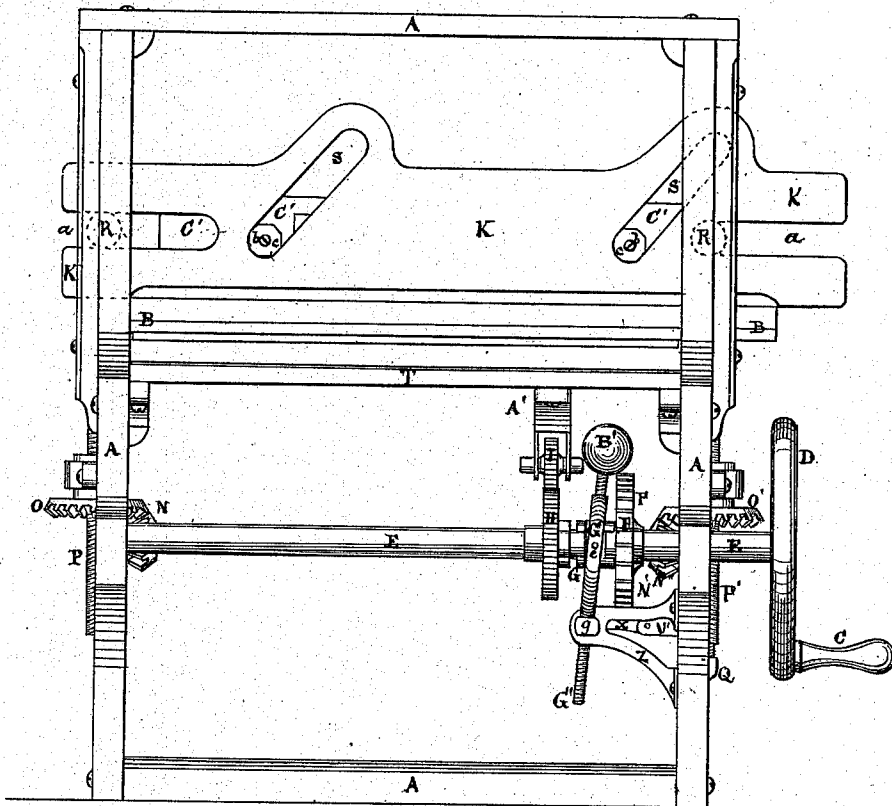


Fig. 2.

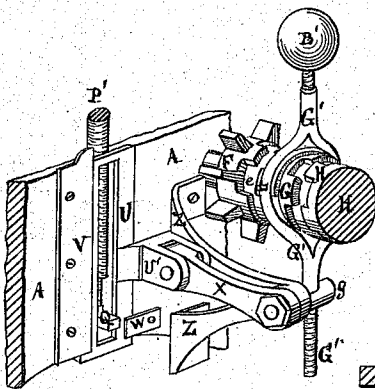
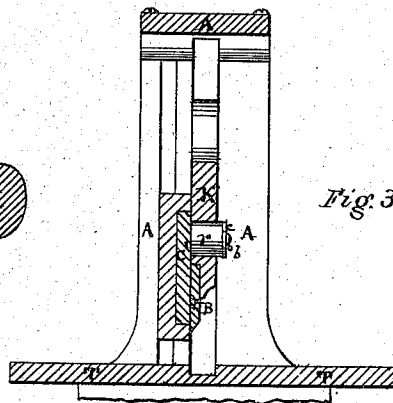


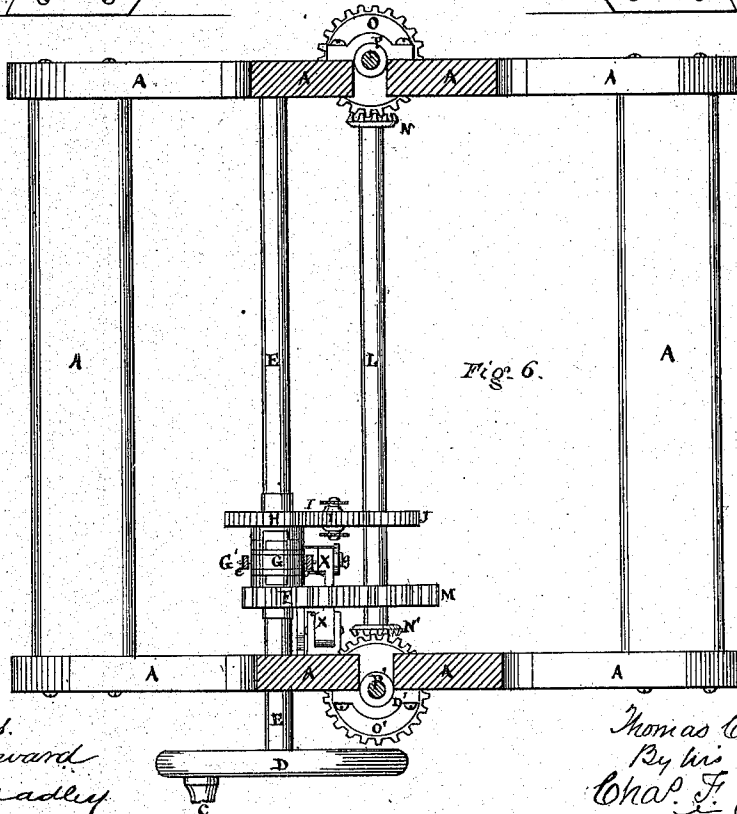
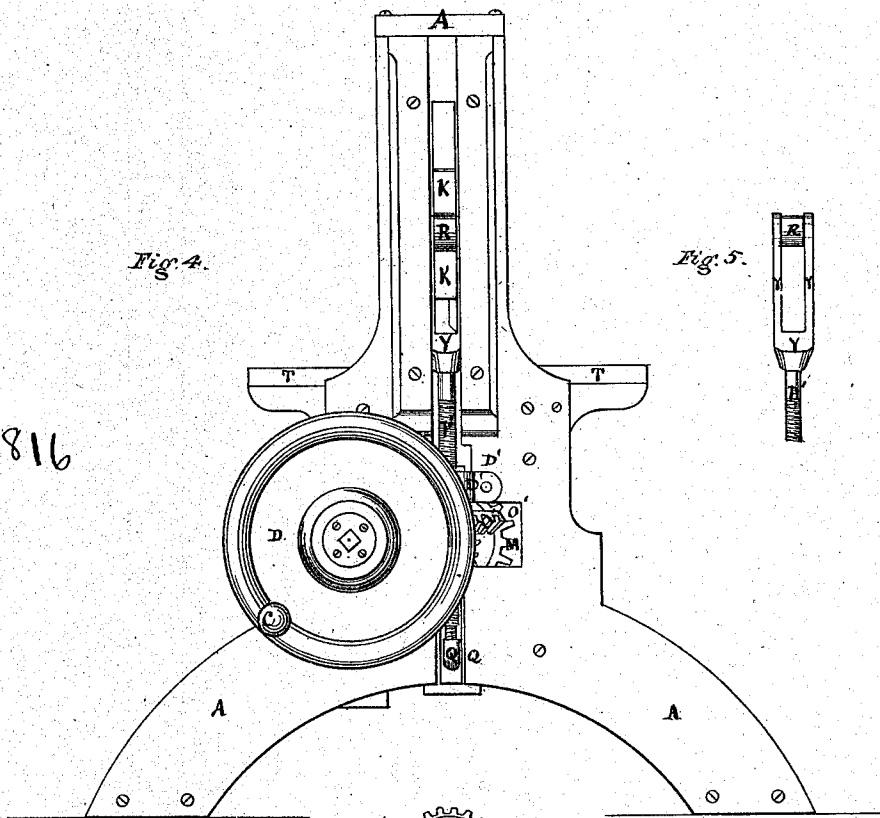
Fig. 3.



Witnesses  
C. W. Howard  
A. Bradley

Thomas C. Robinson  
By his Attorney  
Chas. F. Mansbury

Thomas C. Robinson Assignor to Geo. H. Sanborn, Self Clamping Paper Cutter.



Witnesses.  
J. H. Howard  
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# United States Patent Office.

THOMAS C. ROBINSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO  
GEORGE H. SANBORN, OF NEW YORK CITY.

Letters Patent No. 97,816, dated December 14, 1869.

## IMPROVEMENT IN PAPER-CUTTING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, THOMAS C. ROBINSON, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Self-Clamping Paper-Cutter; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the machine;

Figure 4 is an end view;

Figure 6, a top view or plan; and

Figures 2, 3, and 5, details.

The same letter indicates the same part wherever it occurs.

The nature of the invention consists in the operation of the knife by screws, which work it in both directions, their motion being automatically reversed, at the end of the up and down stroke of the knife, by a clutch.

To enable others to make and use my improved cutting-machine, I will proceed to describe its construction and operation.

A strong frame, A, of the character and form represented, supports the table T and the operative parts.

A winch, C, and disk-wheel, D, indicate the point of application of the driving-power to the main shaft E, which extends across the machine, from side to side, as shown.

On this shaft are the loose gears F and H, and the clutch G, which plays between them on a feather attached to the shaft. By engagement with the clutch, either of the loose gears is fixed to the shaft, and made to turn with it.

The gear H engages an intermediate gear I, hung to a bracket on the bottom of table T, which engages with gear J, on shaft L.

Gear F engages with gear M, on shaft L.

The gears J and M are both fixed to the shaft L, and on the ends of that shaft are the bevelled pinions N N', engaging, respectively, with the bevelled wheels O O'.

These wheels are hung to the sides of the frame in brackets D'.

Their naves are threaded, and receive the screws P P', which are driven up or down, as the wheels O O' rotate in one or the other direction.

To the upper ends of the screws P P' are attached the yokes Y, (see fig. 5,) carrying the rollers R at their upper extremities.

The yokes have a vertical-reciprocating movement in guides in the frame. They carry with them the knife-stock K, which has a slit, a, in each end, to receive the roller R, attached to the top of the yoke. This construction allows the yoke to communicate an up-and-down movement to the knife-stock, without interfering with its lateral movement.

The knife-stock K has a vertical-reciprocating movement in slots in the main frame. To its lower edge is attached the knife-blade B, the edge of which is received in a groove in the table T.

The knife-stock has two inclined slots, S S', which receive two rollers r attached to the clamp C'. (See figs. 1 and 3.)

These rollers are confined to their axes by nuts c and screws b.

The clamp C' works vertically in ways in the frame, parallel to the slots in which the knife-stock moves. It results from this construction and connection of the knife-stock and clamp, that as the knife-stock descends, it increases the pressure of the clamp upon the paper below it. When this pressure more than equals the force necessary to impart lateral movement to the knife, such lateral movement takes place, and forms, with the downward motion of the knife, the "draw-cut." Thus the maximum of pressure is applied to the mass of paper under operation at the moment when the draw-cut renders it most necessary to clamp the paper tightly.

The reversal of the direction of motion of the knife-stock is effected by means of the clutch G and its shifting-mechanism, which is clearly represented in figs. 1 and 2.

The clutch G is pivoted, at e e, to a librating yoke, G', having a ball, B', on its upper end, to assist its motion, and an arm on its lower end, by which it is operated.

On the lower end of screw P' is a toe, Q, adjustable by being screwed into the end of P'.

A slotted slide, U, has vertical movement in guides V W, on the inside of the side framing, in obedience to the impulses of the toe Q, which plays up and down in the slot of slide U, and alternately comes into contact with the upper and lower sides of that slot.

To an arm, U', of the slide U, is pivoted the arm X, the opposite end of which is fixed to the bolt g, so that the bolt cannot turn in the arm as this is moved.

The bolt g passes through a hole in the outer end of the bracket Z, and then receives the lower arm of yoke G', which is screwed into it.

As the bolt g is turned in bracket Z by the movement of arm X, the yoke G' is thrown to one side or the other, carrying with it the clutch G, which engages either with gear F or gear H, according to the direction in which the yoke G' is thrown.

The arm X receives its motion from the slide U, to the arm of which it is pivoted.

The operation is as follows:

Power being applied to the main shaft, and the clutch G thrown into gear with the wheel H, motion is imparted to shaft L, through gears I and J, and the wheels O O' are set in motion by the pinions N N'.

The motion of wheels O O' is communicated to the

screws P P', which draw down the knife-stock K, and with it the clamp C.

The clamp holds the paper being operated upon firmly on the table while it is being cut by the blade B, the pressure of the clamp upon the paper constantly increasing, until it becomes sufficient, by the operation of the rollers r upon the inclined slots S S', to impart a lateral movement to the knife-stock, and thus give a "draw-cut" to the blade.

When the knife has reached the bottom of its stroke, the toe Q comes into contact with the bottom of the slot in slide U, and forces down arm X, which, by the help of the weight B', throws the clutch G into engagement with wheel F, which, through gear M, reverses the motion of shaft L and screws P P', thus lifting the knife from the table preparatory to a repetition of the operation.

When the knife-stock reaches its highest position, the toe Q comes into contact with the upper end of the slot in slide U, and raises the slide, again revers-

ing the position of the clutch G, and giving a descending movement to the knife.

Having thus fully described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. The yokes Y, constructed as described, in combination with the screws P P' and the knife-stock K, having the slits a a in its ends, as and for the purpose stated.

2. The automatic reversing-mechanism for operating the clutch, the same consisting of the combination and arrangement of the toe Q, slide U, arm X, bolt g, yoke G', and weight B', in the manner specified.

The above specification of my said invention signed and witnessed at Washington, this 11th day of May, A. D. 1869.

T. C. ROBINSON.

Witnesses:

A. C. BRADLEY,

CHAS. F. STANSBURY.