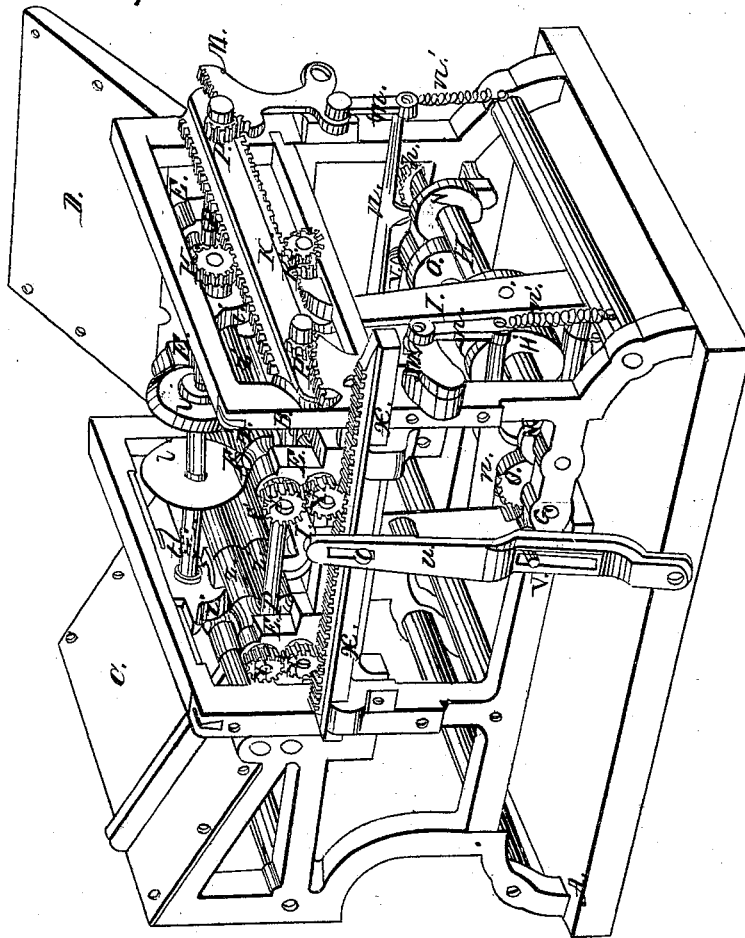


*Denny & Rice. Sheet 1, 2 Sheets.*

*Paper Cutting*

*N<sup>o</sup> 108,891. Patented Nov. 1, 1870.*

*Fig. 1.*



*Witnesses:*

*Frank G. Parker*  
*J. B. Quinn*

*Inventors*

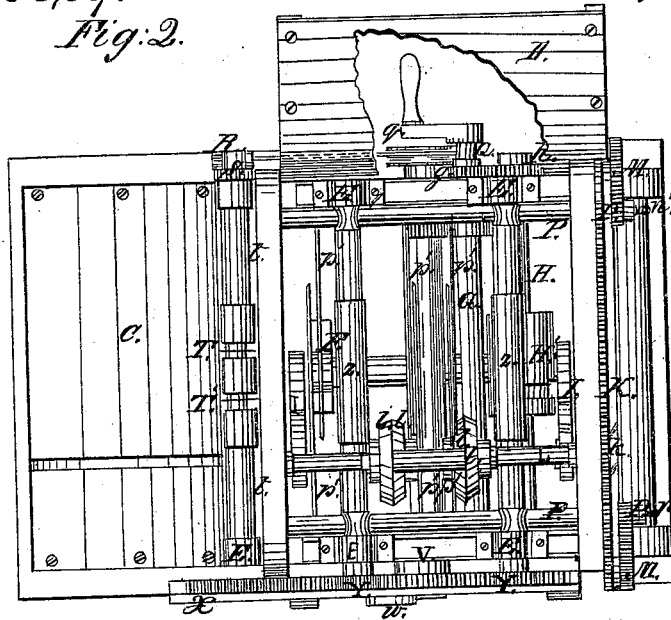
*J. Clair Denny*  
*Israel L. Rice*

Denny & Rice. *Sheet 2, 2 Sheets.*

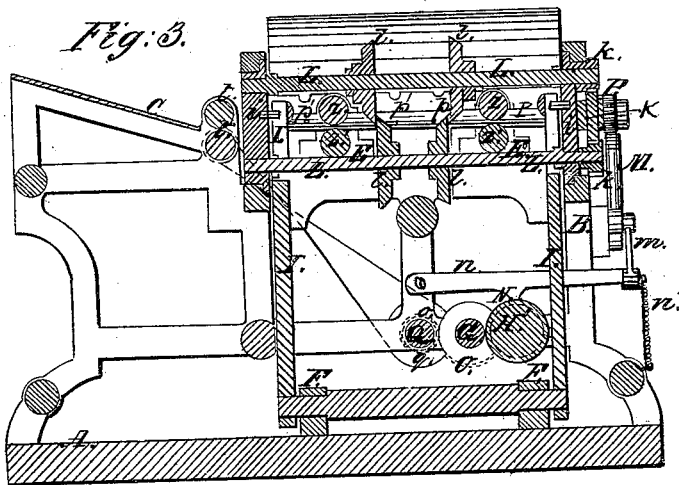
*Paper Cutting.*

*No. 108,891. Patented Nov. 1, 1870.*

*Fig. 2.*



*Fig. 3.*



*Witnesses:*

*Frederick W. Parker*  
*J. H. Guapert*

*Inventors:*

*Exclair Denny*  
*David L. Rice*

# United States Patent Office.

ST. CLAIR DENNY, OF PITTSBURG, PENNSYLVANIA, AND ISRAEL L. G. RICE, OF CAMBRIDGE, MASSACHUSETTS.

Letters Patent No. 108,891, dated November 1, 1870.

## 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 we, ST. CLAIR DENNY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, and ISRAEL L. G. RICE, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Machines for Cutting Cards, of which the following is a specification.

### *Nature and Object of the Invention.*

The nature of our invention consists in combining a series of revolving stripping-shears with a second series of revolving cutting-off shears, the two series being set at right angles to each other; also, in the combination of the mechanical devices for operating the same.

### *Drawing.*

Figure 1 is a perspective view of our machine  
Figure 2 is a plan of the same.  
Figure 3 is a longitudinal vertical section.

### *General Description.*

G represents the main or driving-shaft, from which motion is communicated to all parts of the machine.

The shaft Q has a crank, *v*, shown in fig. 1, which, operating in the slot of the lever *u*, as shown in fig. 1, serves to communicate a reciprocating motion to the rack *x*.

The motion of this rack *x* operating through the gears *y y' y y'* serves to revolve the transverse or feeding-roller *z z' z z'*.

The cam H' on the shaft H actuates the levers I I, which give a reciprocating motion to the carriages *i i*, in which the shafts L L L L are hung.

These shafts carry the cutters *l l l l*, and are actuated by the pinions *k k*, which traverse upon the fixed double ratchet K, as shown in fig. 1.

T T' are revolving shears on shafts *t t*, which serve to strip the card or paper, and may be actuated by a belt, as shown in fig. 3.

N N, figs. 1 and 3, are cams attached to the shaft H, which, operating through the lever *u u*, arms *m m*, sequent gears M M, pinions *p p*, and shafts P, serve to give vibratory motion to the fliers *p' p'*, shown more plainly in fig. 2.

C is a feeding-in table.

D is one of the side or delivery-tables.

The operation of my machine is as follows:

With a machine constructed as shown in the drawing, a sheet of card-board being fed in over the table C would be divided by the cutter T T', fig. 2, into three strips. These three strips passing in through the feed-rollers *z z'* would each be cut by the two sets of cutters *l l l l* into three pieces, making nine in all. This is done by the direct motion of the rollers *z z' z z'*.

Now, by the action of the lever *u* and ratchet *x* the revolution of these rollers is reversed, and the cards are sent back onto the fliers *p' p' p'*, the action of which is so timed as to throw out the cards upon the side tables D.

The number of sets of cutters may be varied at pleasure, so that the card-board may be cut into any desired number of pieces.

We claim as our invention—

1. The cutters T T', operating in conjunction with the feed-rollers *z z' z z'*, when combined with a series of cutters, *l l l l*, set at right angles with them, substantially as described, and for the purpose set forth.

2. The combination of the double ratchet K, carriages *i i*, and the pinions *k k*, the whole arranged to give a revolving motion to the series of cutters *l l l l*, substantially as described, and for the purpose set forth.

ST. CLAIR DENNY.  
ISRAEL L. G. RICE.

Witnesses:

FRANK G. PARKER,  
JAS. L. CONANT.