

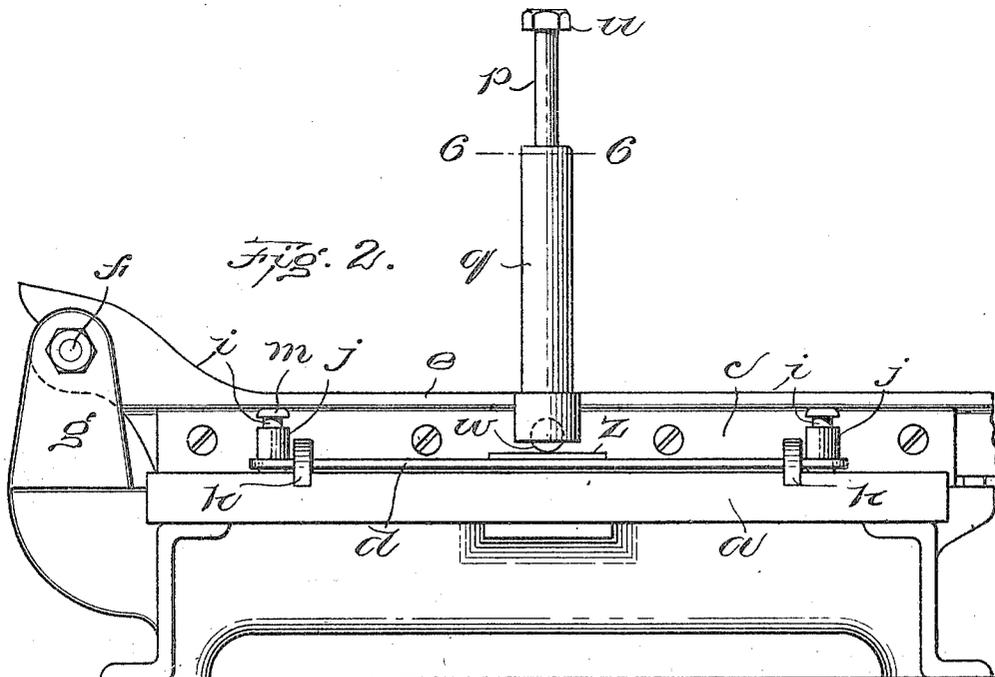
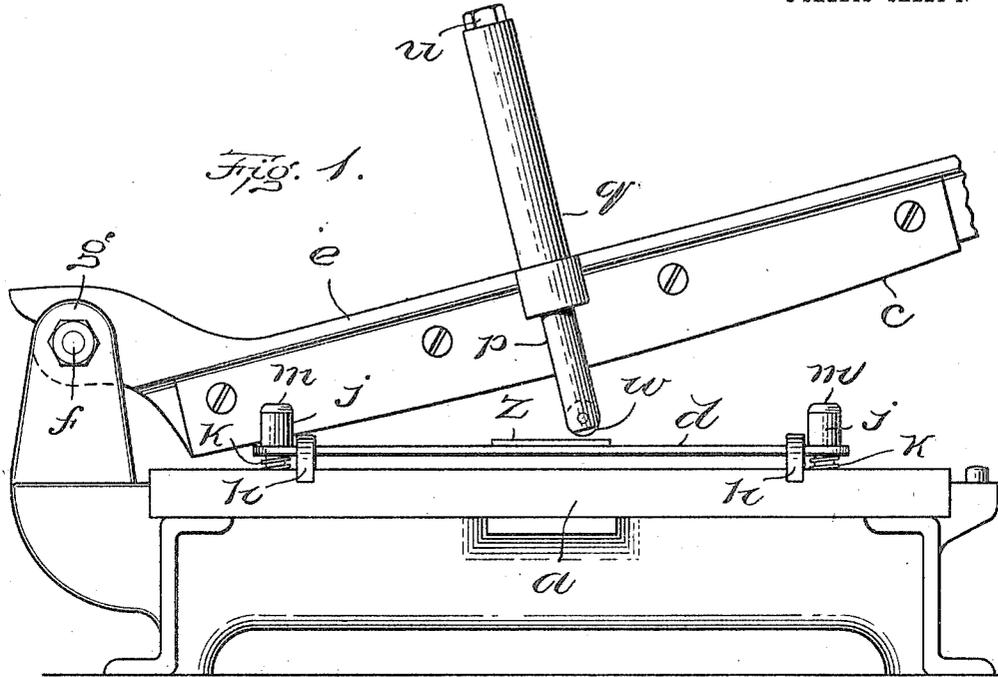
No. 811,940.

PATENTED FEB. 6, 1906.

C. H. MARSTON & A. P. HOLDEN.
MACHINE FOR CUTTING SHEETS.

APPLICATION FILED JULY 3, 1905.

2 SHEETS—SHEET 1.



Witnesses:
Walter O. Abell.
Lawrence E. Kennedy.

Inventors,
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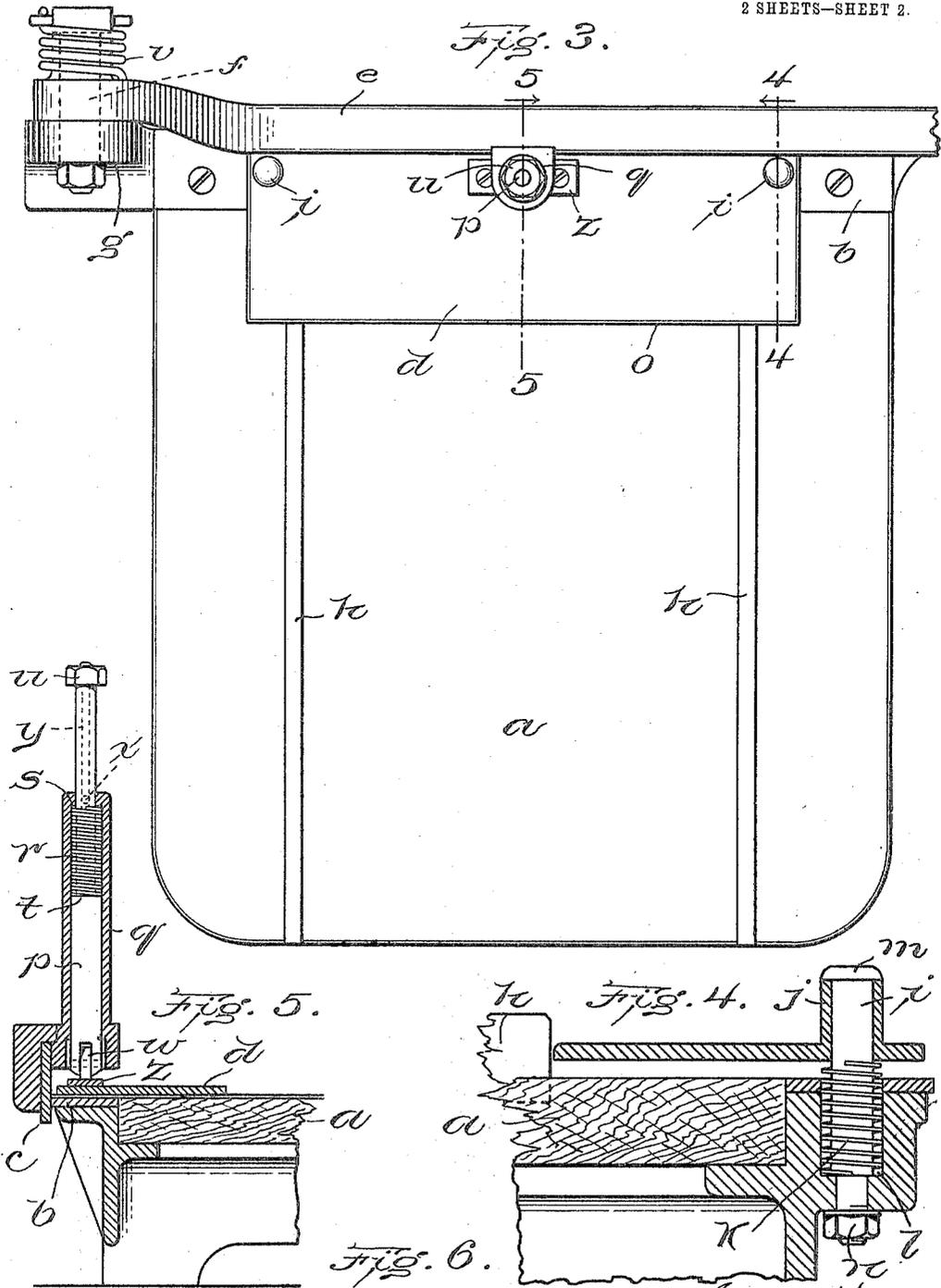
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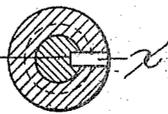
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Witnesses:
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Inventors
 Charles H. Marston
 and Arthur P. Holden,
 by Wright, Burrows, Quincy & May
 Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES H. MARSTON, OF READING, AND ARTHUR P. HOLDEN, OF MALDEN, MASSACHUSETTS, ASSIGNORS TO THE NATIONAL SHAWMUT BANK, OF BOSTON, MASSACHUSETTS.

MACHINE FOR CUTTING SHEETS.

No. 811,940.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed July 3, 1905. Serial No. 268,152.

To all whom it may concern:

Be it known that we, CHARLES H. MARSTON, of Reading, and ARTHUR P. HOLDEN, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Cutting Sheets, of which the following is a specification.

This invention relates to paper trimming or cutting machines, and is particularly designed for trimming the edges of sheets of bank-notes.

National-bank notes are printed with four or more notes on a sheet and are delivered to the banks without having the signatures of the bank officers printed and without being severed, the affixing of the signatures and separating the notes being done by the banks, and for those banks having a large circulation which issue a great many notes the signatures are printed on the notes by presses. Ordinarily the sheets have to be trimmed on one of their edges, so that they can be placed in a press and positioned by a stop in the press properly, so that the signatures may be printed in the spaces provided for them with accuracy.

It is therefore the object of the present invention to provide an apparatus by which the edges of all the bank-note sheets may be trimmed along a line at an invariable distance from the spaces left for the signatures on each sheet in order that the sheets may be fed into the signature-printing machine without necessitating readjustment of the machine to accommodate each sheet having an edge of slightly-different width from the other sheets. To this end we provide a paper-shearing apparatus with a gage, which is adapted to position the edge of the sheet to be trimmed and is also capable of being pressed upon the sheet to clamp it on the work-supporting table.

The details of the invention are described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 represents an elevation of an apparatus constructed to embody the principles of our invention. Fig. 2 represents a similar view, but showing the operating parts thereof in a different position. Fig. 3 represents a plan view. Fig. 4 represents a section taken

on line 4 4 of Fig. 3. Fig. 5 represents a section on line 5 5 of Fig. 3. Fig. 6 represents a horizontal section on line 6 6 of Fig. 2.

The same reference characters indicate the same parts in all the figures.

The apparatus comprises a table or bed *a*, the upper surface of which supports the sheets to be trimmed, shearing instrumentalities consisting of fixed and movable blades *b c*, and a combined clamp and gage *d*. The fixed blade *b* is attached to the table at one edge thereof, while the movable blade *c* is fixed to an arm *e*, which is pivoted at *f* to a bracket *g*, extending from one side of the table adjacent the fixed blade. Projecting above the work-supporting surface of the table are guides *h*, extending perpendicularly to the cutting edge of the fixed shearing-blade *b*, which are adapted to be engaged by the side of a sheet to position the latter, so that it may be trimmed squarely at right angles to its length.

The member *d* consists of a flat plate which is held in position by studs *i*, mounted in the table, and it has rigidly attached to it or formed integrally upon it sleeves *j*, which surround and engage the studs *i*. Springs *k* surround the studs *i* and bear against the under surface of the plate *d*, so as normally to hold the latter elevated above the surface of the table, to permit the sheets to be slipped under it, the springs being set into sockets *l* to permit sufficient compression thereof, so that the plate *d* may be pressed against the surface of the table. Heads *m* are formed on the studs *i* to project over and be engaged by the ends of the sleeves *j* when the gage *d* is elevated, so as to limit the amount of its elevation. This can also be regulated by adjusting the nuts *n*, which secure the studs to the bed. The edge *o* of the plate *d* which is most remote from the shearing-blades is made parallel to the cutting edges thereof and is the part which serves as the gage for positioning the sheets to be trimmed. This edge is located, preferably, at such a distance from the cutting edges that when a sheet of bank-notes is placed under it with the line on which the signatures are to be printed on the top note of the sheet coinciding therewith the edge to be trimmed will be properly placed, and after the trimming operation when the

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sheet is placed in the printing-press with its trimmed edge against the gage of the press the spaces for the signatures will be exactly placed to receive the impressions of the signatures; but it is to be understood that any other desired line or definite mark on the sheet may be used as a guide wherewith to place the sheet in position for proper trimming. After a sheet has been positioned by the gaging edge of the plate *d* and the arm carrying the movable shearing-blade *c* is depressed to perform the cutting operation the plate is forced against the work to act as a clamp and hold the work immovable while it is being cut. The means for forcing the plate against the work consists of a presser carried by the arm *e* and arranged to be brought into engagement with the plate when the arm has been moved sufficiently to bring the shearing-blades into position to begin the cutting operation. This presser has the form of a plunger *p*, which is contained in a tubular guide *g*, attached to the arm and projects below the guide, so that it may engage the plate. A spring *r* is located in the guide and presses against a flange *s* on the latter and a shoulder *t* on the plunger and normally tends to project the latter from the guideway, the outward movement of the plunger being limited by a stop-nut *u*, attached to the end of the plunger which projects above the end of the guideway, which nut strikes the end of the guideway when the plunger is projected. An antifriction-roll *w* is journaled on the lower end of the plunger and is the only portion of the latter which actually engages the plate. It is retained in a plane parallel to the plane of movement of the shearing-blade *c* by means of a pin *x*, which is attached to the guide *g* and extends into a keyway *y* in the plunger, preventing rotation of the latter. When the arm *e* is elevated, the plunger or presser *p* is out of contact with the clamping-plate, so that the latter is free and is held elevated by springs *k*. When, however, the arm is moved to bring the movable blade adjacent the fixed one to commence the cutting operation, the roll *w* comes in contact with the clamp *d* or with a wear-plate *z*, mounted thereon, and further movement of the arm causes the presser to force the clamping-plate down upon the work, the spring *r* being stronger than the combined force of the springs *k*, so as to be capable of moving the clamp in opposition to the latter springs. As the arm continues to move so as to carry all parts of the cutting edge or blade *c* past the stationary blade the spring *r* yields and the tubular guide *g* is moved downward about the plunger, the lower end of the latter being thereby caused to move toward the pivot of the arm, this movement being permitted without great frictional resistance by means of the roller *w*, which rolls upon the surface of the clamping-plate. A spring *v* surrounds

the pivot of the arm *e* and normally tends to hold the latter elevated away from the fixed blade *b*.

From the foregoing it will be seen that we have provided a device which is of value in that it has a simple contrivance for accurately gaging the work and at the same time clamping it upon the table and in also providing a simple device which operates the clamp at the same time that the cutting-blade is being moved and which is itself actuated by the same movement that actuates the cutter.

We claim—

1. A cutting-machine comprising a table, a stationary blade, a clamp mounted on the table and yieldingly held away from the work-supporting surface thereof, a movable blade pivotally mounted with respect to the table, and means carried by the movable blade arranged to engage directly upon the clamp upon actuation of said movable blade and press and hold the same against the work while the latter is being cut.

2. A cutting-machine comprising a table, a shear-blade fixed thereto, a movable blade pivoted thereto in shearing relation with the fixed blade, a clamp supported near the work-supporting surface of the table, and a presser carried by the movable blade arranged to engage and travel along the clamp to press the clamp against the work while said movable blade is being actuated to cut the work.

3. A cutting-machine comprising a table, a shear-blade fixed thereto, a movable blade pivoted thereto in shearing relation with the fixed blade, a clamp supported near the work-supporting surface of the table, and a presser carried by and yieldingly projected from the movable blade arranged to engage and press the clamp against the work while said movable blade is being actuated to cut the work.

4. A cutting-machine comprising a table, a shear-blade fixed thereto, a movable blade pivoted thereto in shearing relation with the fixed blade, a clamp yieldingly held away from the work-supporting surface of the table, a presser carried by the movable blade and capable of moving relatively thereto and arranged to engage the clamp when the movable blade is brought into operative relation with the fixed blade, and means for yieldingly holding the presser in contact with the clamp.

5. A cutter comprising a table, a stationary shear-blade fixed thereto, an arm pivoted to the table, a shear-blade mounted on the arm, a guideway formed on the arm, a plunger movably held in the guideway, yielding means tending to project the plunger, and a clamp held above the surface of the table in position to be engaged by the plunger and pressed against the work supported on the table during the movement of the arm which brings the shear-blades into operative relation.

6. A cutter comprising a table, a stationary shear-blade fixed thereto, an arm pivoted to the table, a shear-blade mounted on the arm, a guideway formed on the arm, a plunger movably held in the guideway, yielding means tending to project the plunger, an anti-friction-roll carried by the plunger, and a clamp held above the surface of the table in position to be engaged by the roll on the plunger and pressed against the work supported on the table during the movement of the arm which brings the shear-blades into operative relation.

7. A cutting-machine comprising a table, a plate having a gaging edge located above and movable perpendicularly with respect to the work-supporting surface thereof, yielding means holding the plate separated from the table, shearing-blades arranged to trim the edge of a sheet supported on the table, and yielding means of greater power than the first

said yielding means for pressing the plate against the sheet in opposition to said first yielding means when the sheet is being trimmed.

8. A cutting-machine comprising a table, cutting instrumentalities, guiding-studs mounted on the table adjacent said instrumentalities, a plate having a gaging edge for positioning the work located and guided by said studs, springs positioned by said studs normally holding the plate away from the table, and a spring-plunger for engaging and pressing the plate against the table when the cutting instrumentalities are operating.

In testimony whereof we have affixed our signatures in presence of two witnesses.

C. H. MARSTON.

ARTHUR P. HOLDEN.

Witnesses:

STEPHEN B. JACOBS,
JOSEPH SMITH.