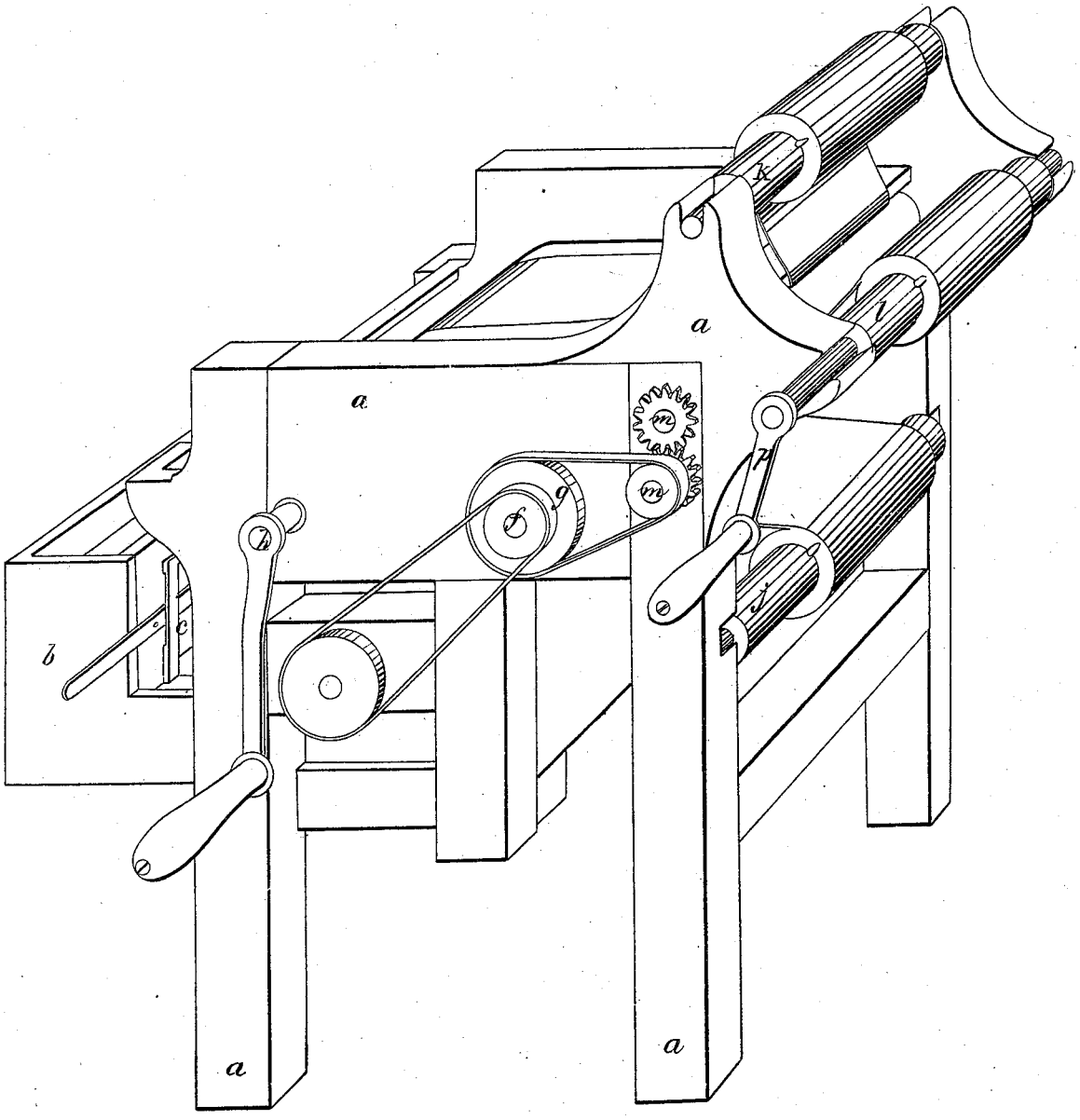
E. L. Perkins. Sheet 1. 2 Sheets.

Pasteboard Mach.

No. 1,679. Patented Jul. 10, 1840.



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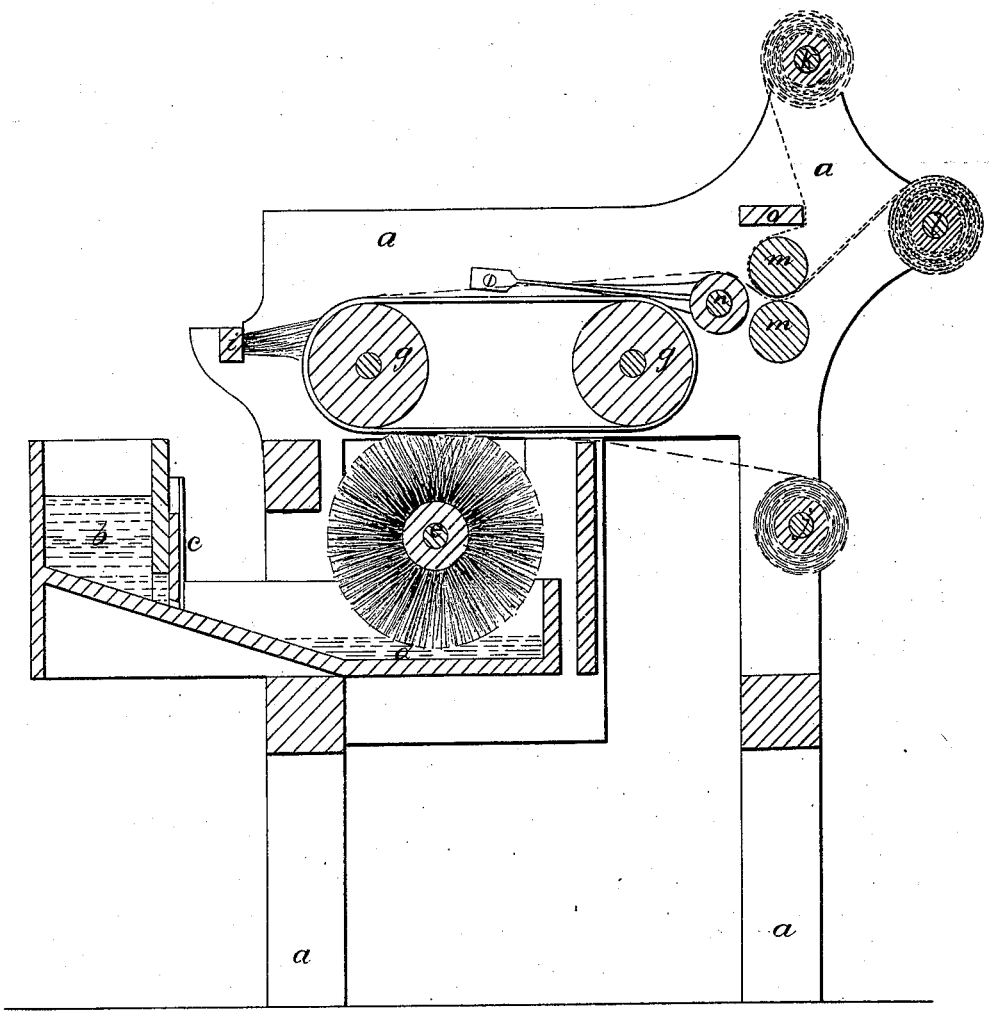

UNITED STATES PATENT OFFICE.

EDWARD L. PERKINS, OF BOSTON, MASSACHUSETTS.

MACHINE FOR MAKING CARD-PAPER.

Specification of Letters Patent No. 1,679, dated July 10, 1840.

To all whom it may concern:

Be it known that I, EDWARD L. PERKINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful machine, called a Card-Paper Machine, of which the following is a true and exact description.

Reference being had to the drawings hereto annexed, and made a part of this specification, *a* is a strong frame of wood, or other material, to sustain a cistern, or vat, for the purpose of containing paste, on one end, and elevations for journals of the rollers at the other.

The machine may be made of any convenient height and dimensions, but in the construction hereinafter described, I have made it thirty inches between the rollers, from journal to journal, and the proportions of some of the parts should be varied according to the increase, or decrease, of the card paper which it is desired to make, if only one uniform width is required.

b represents the cistern, or paste box, which is an elevated fountain of paste to be filled with paste of a proper consistency.

c is a gate, or valve, made to open or close, more or less, or entirely, by a lever or other means, so that the quantity of paste necessary to flow, into the bed below the cylindrical brush may be regulated at pleasure.

d is the paste bed, into which the paste flows down an inclined plane or broad trough, through the gate *c;* and it is then taken up by the cylindrical brush to be placed upon the paper.

e is the cylindrical brush, made of bristles or other appropriate materials, and of a convenient size according to the size of the machine, made to revolve in such manner as to take the paste from the bed below and to place it on the bed above, in the manner hereafter described—in the machine herein described, it is eleven inches in diameter, and revolves from left to right and contrary to the motion of the paper, and it is made to revolve by a belt, passing over the drum *f*, as shown in the perspective view, and the drum *f*, to communicate motion, is fixed upon one of the drums or barrels marked *g*.

g, *g*, are two drums or barrels as long as the machine is wide, connected by a belt, or band of leather, or other suitable material, which belt is as wide as the drums are long; and which is intended to receive and convey the paper which is intended to be pasted, as hereinafter described. Upon the shaft of one of the drums or barrels *g* is fixed a crank *h*, as shown in the perspective view, which gives motion to the whole machine— or if other than hand power should be required, a proper drum may be fixed upon the same shaft instead of the crank.

i is a smoothing brush, as long as the drums *g*, fixed firmly in the frame, with sufficient pressure to smooth distribute, or equalize the paste, after it has been placed upon the paper by the cylindrical brush *e*.

j is a shaft, or mandrel, of wood, or other substance, which turns in appropriate journals or boxes in the frame, and upon this is to be placed or rolled the paper, intended to be pasted, which paper should be the finest and stoutest paper, which forms the outside of the card paper, when it is made of three layers or sheets.

k is another shaft or mandrel, also turning in a journal or box in the frame, upon which is placed another roll of paper, to be united with another roll of paper on the shaft *j*, and if there is a difference in the paper, that on the shaft *k* should be the weakest and coarsest.

l is the shaft or mandrel, to receive the paper, after it has been pasted from the roll *j* and united with that from the roll *k*, and has been pressed together by the pressing rollers *m*, *m*.

m m are two pressing rollers, metallic, to press the paper firmly together, after one sheet has been pasted and united with the other. The lower roller *m*, turns steadily in a journal in the frame. The upper roller *m*, turns in a half journal or box, which is made to slide, or move up and down in a slot or groove in the frame, and the half box or journal being on the top of the roller is pressed downward by a spiral or other spring to give pressure in addition to the weight of the roller, and to yield upward so that paper of any required thickness may pass through and be pressed. Motion is communicated to the rollers *m* by a belt from the drum *g* as shown in the perspective view, passing over a drum on the lower roll *m* and the two pressing rollers *m*, are connected together so as to secure a steady motion, by geared or toothed cog wheels.

n is conical metallic roller as long as the machine is wide, of one piece formed as the segments of two cones, with their bases united in the middle as shown in elevation

of conical roll. The proportion I have adopted for this machine is three inches diameter in the middle, and tapering truly to two inches and seven-eighths of each end; and the purpose of the roll is to receive the pasted paper, with a gentle pressure and to extend it sideways, so as to keep it from curling and wrinkling as it unites with the other sheet and passes through the pressing rollers; and for this purpose the journals should be placed upon springs to press lightly upward. The journals of the shaft *j*, *k* and *l* should be so constructed that the shafts may be easily removed or replaced at pleasure.

o is a top rail inserted in the frame, to be adjusted so as to receive the paper from the roll *k*, and extend it with a gentle pressure.

p is a crank upon the shaft *l* for the purpose of winding up the paper after it has been doubled and pressed. The proportion of the different journals, rollers, shafts and drums, must vary according to the size of the machine, but must be made to keep an equable motion throughout. The paper passes from the shaft or roll *j* between the brush *e* and the broad belt on the drums *g* where it is pasted, then between the drum *g* and the brush *i*, where the paste is smoothed and evened; then over the roll *n*, by which it is kept straight and extended sidewise; then it is united with the paper from the shaft *k* and the two sheets are pressed together by the rollers *m*, and conducted to be wound up on the shaft *l*, and two or more thicknesses may be thus united, and the operation may be repeated till the requisite number of sheets, are made into one sheet of card paper in a long or continuous sheet.

Another mode of using and adapting this machine is to affix a brush, similar to the smoothing brush *i*, opposite to it, and at some convenient place over the other drum *g*, for the purpose of keeping the paper even and straight and free from wrinkles, then to pass it over a straight wooden roller instead of the conical roller *n*, which in conjunction with the brush will in many cases answer that purpose; and the lower roller *m*, with its connecting belt may be removed, and the paper may be wound off, with such rapidity and force as to obtan the necessary pressure from the upper roller *m*, the rest of the machine operating and remaining as before described. Either method may be adopted, according to the kind of paper, and card paper to be manufactured.

What I claim as my invention and desire to have secured by Letters Patent, is—

1. The arrangement of the barrels, belts and rollers, which carry the sheet of paper to receive the paste, in combination with the brush *e*, and the brush *i*, and the bed and reservoir of paste.

2. I also claim this arrangement in combination with the roller which carries the second sheet of paper, and with the pressing rollers, and this last combination I also claim in combination with the brush *e* for laying on the paste, all as herein described.

EDWARD L. PERKINS.

Witnesses:

E. C. PURDY,

CHAS. H. LOCKE.