

(No Model.)

2 Sheets—Sheet 1

S. J. MURRAY.

PROCESS OF MANUFACTURING PLAYING CARDS.

No. 548,216.

Patented Oct. 22, 1895

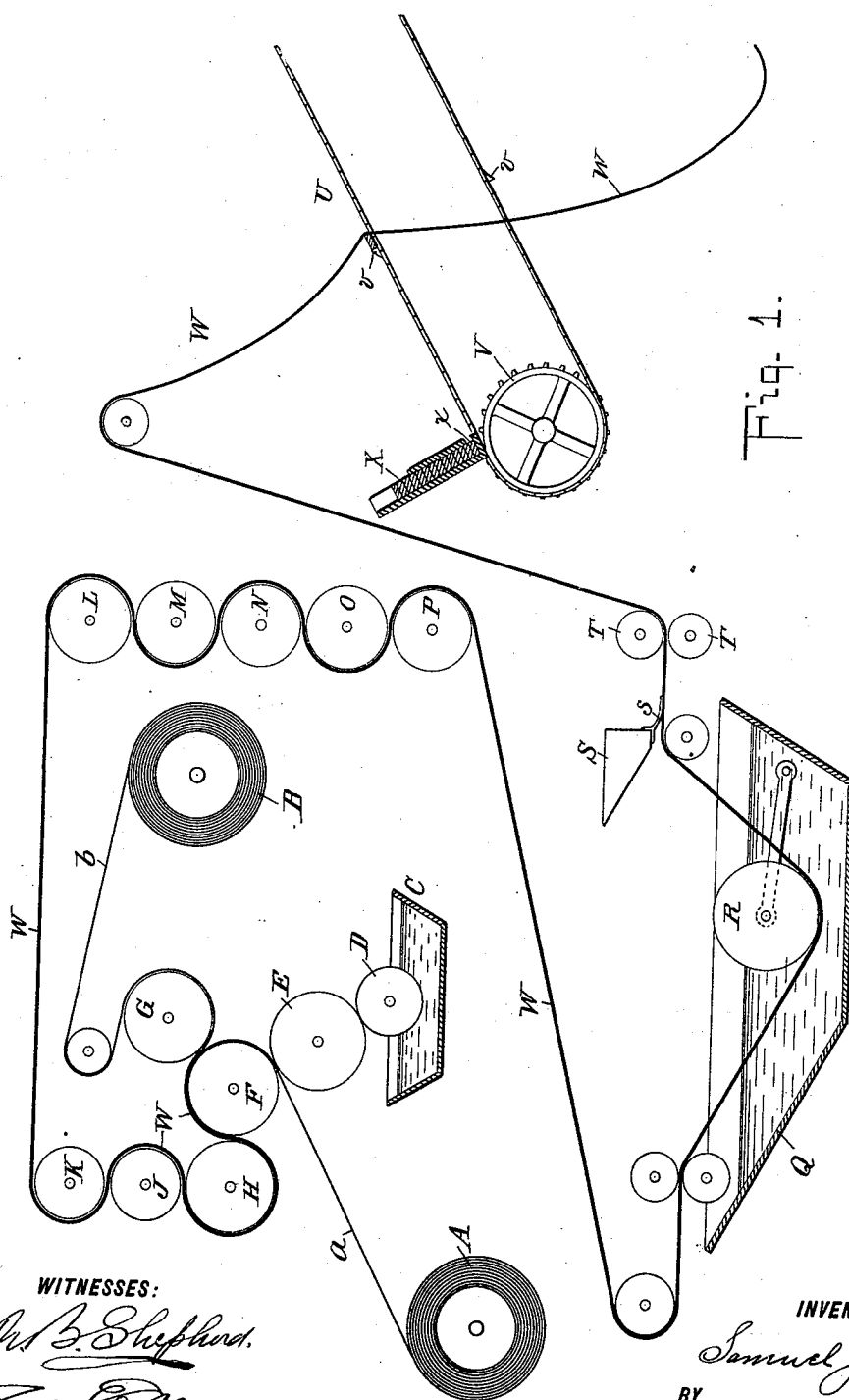


Fig. 1.

WITNESSES:

W. B. Shepherd.
Ed. C. Morgan.

INVENTOR

Samuel J. Murray,
BY *Bridges & Manth*

ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

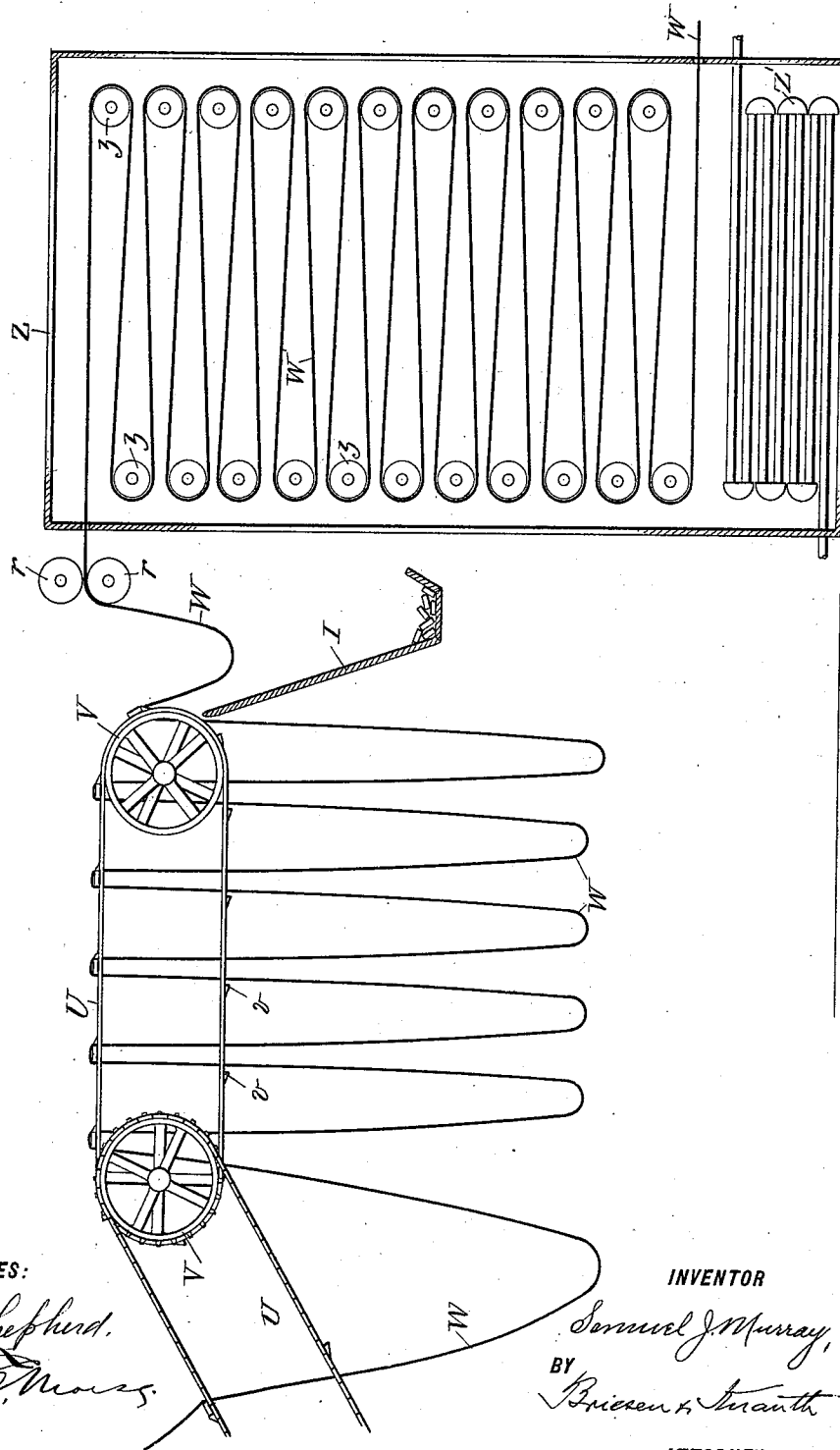
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Fig. 2.



WITNESSES:

B. B. Shepherd.
S. J. Murray.

INVENTOR

Samuel J. Murray,
BY *B. B. Shepherd*

ATTORNEYS

UNITED STATES PATENT OFFICE.

SAMUEL J. MURRAY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE UNITED STATES PRINTING COMPANY, OF CINCINNATI, OHIO.

PROCESS OF MANUFACTURING PLAYING-CARDS.

SPECIFICATION forming part of Letters Patent No. 548,216, dated October 22, 1895.

Application filed July 12, 1894. Serial No. 517,282. (No specimens.)

To all whom it may concern:

Be it known that I, SAMUEL J. MURRAY, a resident of Indianapolis, Marion county, and State of Indiana, have invented an Improved Process of Manufacturing Playing-Cards, of which the following is a specification.

My invention relates to the manufacture of playing-cards, and has for its object to produce playing-cards from paper in the roll in a rapid and economical manner.

Hitherto it has been customary to print playing-cards upon sheets of cardboard, from which the individual cards were afterward punched. This process required many manipulations of the sheet, and my invention is designed to obviate the disadvantages incident to such manipulations.

To this end my invention consists in the method or process of manufacturing playing-cards from paper in the roll in contradistinction to sheet-printing, as will be hereinafter fully described and set forth and more particularly pointed out in the claims.

In the accompanying drawings I have illustrated diagrammatically an apparatus for carrying out my invention, such parts only as are germane to the operations of manipulating the web being shown.

Figure 1 shows a pasting, pressing, and sizing mechanism which may be employed by me; and Fig. 2 illustrates the carrying and drying mechanisms, one figure being a continuation of the other.

In practicing my process I first take webs of paper and enamel them on one side and print the designs for the faces or backs of the cards on the enameled side of one or more of the webs. These webs, for the purposes of convenience in handling, are thereupon reeled into rolls. I then take two or more of these rolls A B and, taking the web of paper *a b* from each, paste the said webs into one continuous web by means of any suitable pasting mechanism, such as is shown in Fig. 1, wherein C is a paste-vat, D is a paste-roller revolving therein, and E is a pasting-roller which takes the paste from the roller D and applies it to one face of one of the webs, as *a*. The webs *a b* pass around and between rollers F G, which, subjecting the same to pressure, paste them together with their unenameled

surfaces in contact to form a pasted web W. From the rollers F G the pasted web passes around and between series of rollers H J K L M N O P, which subject the said pasted web to a gradually-increasing pressure, which has the effect of forcing out the air-bubbles from between the webs composing the pasted web and gradually forcing the paste into the body of the paper, which is of a bibulous character, and thus produces a finished elastic web.

A further effect of the action of the rollers on the web is to improve the enameled surface of the pasted web by a species of calendering action. From the last of the pressure-rollers the pasted web W passes to a vat Q and under a roller R, which roller is suspended in such a manner as to bear upon the paper and to form a tension device therefor.

In some varieties of cards it will be found advantageous to size the web at this stage of the process. Hence I may fill the vat Q with size, if desired, or may simply use the roller as a tension device, at my option. From the vat Q the web passes to a moistening device of suitable construction, shown in the present instance as consisting of a tank S, with which communicates a strip or strips of felt *s*, which felt removes water from the tank by capillary attraction and transfers it to the edges of the pasted web, thus moistening the edges, which are afterward pressed down by the drawing-rollers T T, which rollers are preferably faced with india-rubber and run at a somewhat greater speed than the pasting-rolls. From the drawing-rolls the web passes to a transferring device of suitable construction, shown in the present instance as sprocket-chains U U, passing over sprocket-wheels V and provided with lifts *v*, which lifts serve to remove sticks *t* from a receptacle X, which sticks serve to engage and carry the web W in festoons to the drying-room Z. From the last of the sprocket-wheels V the sticks are dropped into a suitable trough or receptacle *l*, and the web passes between tension-rollers *r r* and into the drying-room Z, which drying-room is provided with a suitable heating device Z' and rollers *z*, around which the web is carried to and from the drying-room, whence it issues completely dried.

Throughout the process it will be noticed that the web, after leaving the pasting-rolls, is at all times unwound and at no time are any enameled surfaces brought in contact 5 with each other by the operations of manipulating the web. After the web issues from the drying-room it is cut into sheets, which sheets may be finished in any suitable manner, which will, of course, vary with the varying 10 conditions of practice and which will depend largely upon whether or not the web has been printed and upon the grade of cards it is desired to produce. In ordinary practice I cut the web into sheets, print the backs, subject 15 the sheets to water proofing, powdering, brushing, and plating processes, and finally cut the individual cards from the sheets.

While I have described the operations and apparatus in positive terms throughout the 20 specification, I would have it understood that I do not mean to thereby limit myself to precisely the operations and apparatus described and shown herein, as other and analogous steps, and means for carrying the same into effect, will readily suggest themselves to those 25 who may desire to enjoy the fruits of my invention.

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

30 1. The process of manufacturing playing cards which consists in first enameling a web, pasting another web to the enameled web and subjecting the combined webs to an increasing pressure and drying the said compound web 35 while in an unwound condition, substantially as described.

2. The process of making playing cards which consists in enameling a continuous web on one side, pasting another web to the un- 40 enameled side of the enameled web, subjecting the pasted web to gradually increasing pressure and drying and cutting the same, substantially as described.

3. The process of manufacturing playing 45 cards which consists in enameling a continuous web, printing upon one side or face thereof the designs for one side of the cards, pasting another web to the unprinted side or face of

the printed web, subjecting the pasted web to gradually increasing pressure, drying the 50 web, cutting the web into sheets, the combined webs being unwound from the time the paste is applied, substantially as described.

4. The process of manufacturing playing 55 cards which consists in enameling a continuous web and printing the design for one side of the playing cards thereon, then pasting a web on the unprinted side of said printed web, subjecting the pasted web to a gradually increasing pressure and drying and cutting the 60 same, the combined webs remaining unwound from the time the paste is applied, and in thereupon cutting the same into sheets and finishing the sheets, as specified.

5. The process of manufacturing playing 65 cards which consists in enameling a continuous web and printing the designs for the faces of the playing cards thereon, then pasting another web on the unprinted side of the web, subjecting the pasted web to a gradually increasing pressure, drying the same and cut- 70 ting the same into sheets, the combined webs remaining unwound from the time the paste is applied, and in thereupon printing the backs of the playing cards on the sheets and 75 surface finishing the sheets, substantially as described.

6. The process of manufacturing playing cards which consists in enameling a continuous web and printing the designs for the faces 80 of the playing cards thereon, then pasting another web on the unprinted side of the web, subjecting the pasted web to a gradually increasing pressure, drying the same and cutting the same into sheets, the combined webs 85 remaining unwound from the time the paste is applied, and in thereupon printing the backs of the playing cards on the sheets and surface finishing the sheets, and punching 90 out the individual cards, substantially as described.

SAMUEL J. MURRAY.

Witnesses:

JAMES A. WALSH,
WILLIAM BEATLEY.