(No Model.) 2 Sheets—Sheet 1.

R. SHACKLETON.

Machine for Making Card Board.

No. 237,055. Patented Jan. 25, 1881.

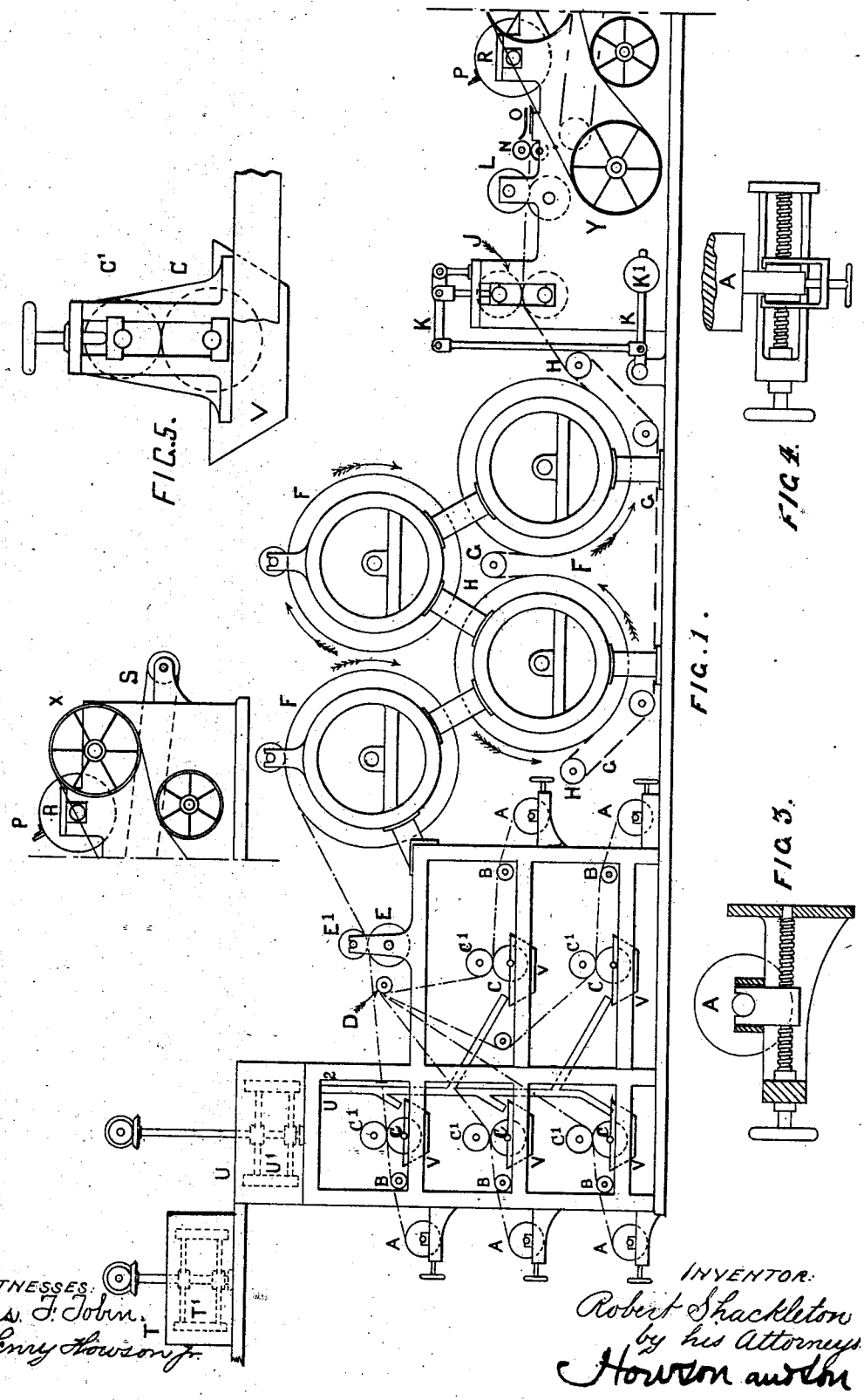


FIG. 1.

FIG. 5.

FIG. 4.

FIG. 3.

WITNESSES:
Jas. F. Tobin.
Henry Howson Jr.

INVENTOR:
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Howson and Son

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

R. SHACKLETON.

Machine for Making Card Board.

No. 237,055. Patented Jan. 25, 1881.

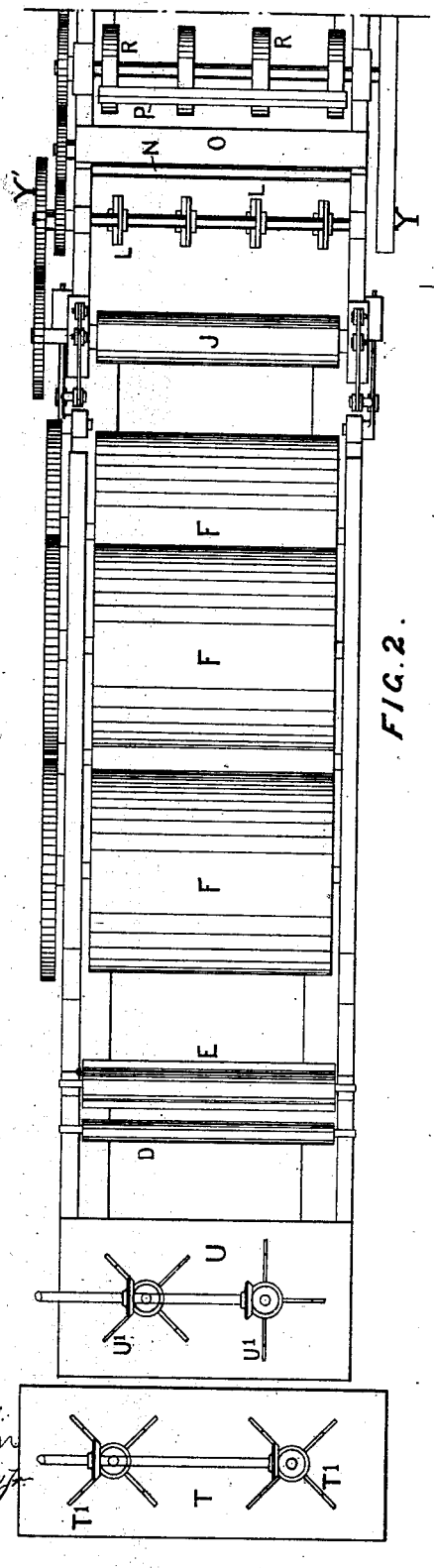
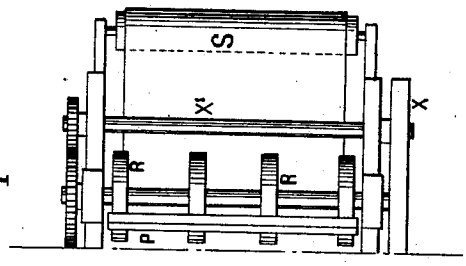


FIG. 2.



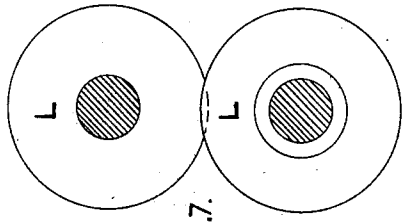


FIG. 7.

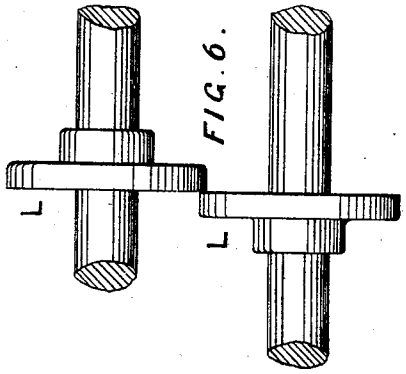


FIG. 6.

WITNESSES:
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INVENTOR:
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UNITED STATES PATENT OFFICE.

ROBERT SHACKLETON, OF BRADFORD, COUNTY OF YORK, ENGLAND.

MACHINE FOR MAKING CARD-BOARD.

SPECIFICATION forming part of Letters Patent No. 237,055, dated January 25, 1881.

Application filed September 17, 1880. (No model.) Patented in England May 27, 1880.

To all whom it may concern:

Be it known that I, ROBERT SHACKLETON, a subject of the Queen of Great Britain, and residing at Bradford, in the county of York, England, have invented certain Improvements in Machines for Making Card-Board, such as is used for jacquard and other similar purposes, (for which I obtained a patent in Great Britain, No. 2,159, May 27, 1880,) of which the following is a specification.

My invention relates to certain improvements in machines for making card-board, more especially such as is used for Jacquard machines; and the main object of my invention is to construct a machine which will automatically paste together two or more webs or sheets of paper, press dry and calender the card-board thus formed, and cut it longitudinally and transversely into cards of the proper size. Further objects of my invention are to improve the construction of the pasting devices, the calender-rolls, and the cutting devices. These objects I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1, Sheet 1, is a side view of my improved machine; Fig. 2, Sheet 2, a plan view; Figs. 3 and 4, enlarged views of the devices for adjusting the bearings of the rolls of paper on their supporting-brackets; Fig. 5, a side view of one set of pasting rolls and trough; Figs. 6 and 7, Sheet 2, views of the cutting-disks.

The webs or rolls A of paper to be pasted are mounted on shafts supported by brackets attached to the main frame-work. Each sheet of paper from the web is conducted over its respective guide-roll B to between the pasting-rollers C and C′, more fully described hereinafter. After the webs of pasted paper leave the rolls C and C′ they converge together and are conducted over guide-rollers D to between the pressure-rollers E and E′, thus subjecting the combined pasted webs to pressure, and converting the same into one sheet, the combined webs or sheets of paper thus compressed together and dried by being brought into contact with and traveling round the circumferences of a number of ordinary heated drying-cylinders F in the direction of curved arrows to the calender-rolls J.

In order to keep the combined pasted webs of paper in contact with the circumferences of the heated drying-cylinders F, I employ an endless web of porous felt, G, which is tightly drawn over rollers H, and is driven by frictional contact with the said cylinders, as are also the webs of paper A. Any steam arising from the pasted sheets while drying evaporates through the porous felt. The consolidated sheets of card-board pass from the drying-cylinders F to between a pair of steam-heated calender-rollers J under pressure, and are thereby finished, ready for cutting. Pressure is imparted to these rollers by means of the compound levers K and weights K′ acting on the yielding bearings of the upper roll, as shown in Fig. 1.

The web of card-board is slit into longitudinal strips by passing between revolving disk-knives L, which can be adjusted laterally to suit the width of card required. The slit card-boards, after leaving the disk-knives, pass between pressure-rollers N, and over a long stationary knife, O, whereby the transverse cuts are effected by a revolving shear-knife, P, secured to the circumference of disks R. The cutting-edge of this knife P passes close to the cutting-edge of the stationary knife, thus shearing or cutting the webs, the cards falling onto an endless carrying-belt, S, which delivers them into any vessel placed to receive them. These disks and shear-knife P can be so regulated in speed that cards of any length may be cut, the length of card varying in proportion to the time required to complete one revolution of shear-knife P, which is adjusted to the proper rate of speed by means of change-pulleys Y and change-wheels Y′, in conjunction with ordinary expansion-pulley X on intermediate shaft X′.

The paste is boiled, and is agitated by revolving arms T′ in cistern T, from which it is emptied into supply-cistern U, which is also fitted with revolving agitating-arms U′. From the under side of this cistern are a number of pipes, U^2, each of which is fitted with a tap for regulating the supply of paste to troughs V. The bottom pasting-rollers, C, revolve in the paste contained in the troughs V. These rollers are covered with a tight-fitting felt, which raises paste from the troughs and me-

chanically pastes one side of the web of paper. The circumferences of the top rollers, C′, are also covered with a tight-fitting felt, which, in conjunction with the bottom felt, forms a cushion, and, in addition, the circumferences of the rollers at the point of contact are somewhat flat, which gives more time for the paste to adhere. The quantity of paste required on the paper is regulated by the pressure placed upon the journals of the rollers C and C′.

I am aware that it is not new to combine drying and calender rolls with cutting devices in paper-making machines, and that it has also been proposed to combine in one machine pasting devices with pressure-rolls and cutters. I therefore do not desire to claim these features separately; but

I claim as my invention—

1. A machine for making card-board combining the following elements: two or more sets of pasting-rolls, pressure-rolls, drying-cylinders, calender-rolls, and cutting devices, all substantially as set forth.

2. The combination of the sets of pasting-rolls and their troughs with an elevated reservoir, stirrer, and distributing-pipes.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT SHACKLETON.

Witnesses:
JOHN GILL,
JOHN SHACKLETON.