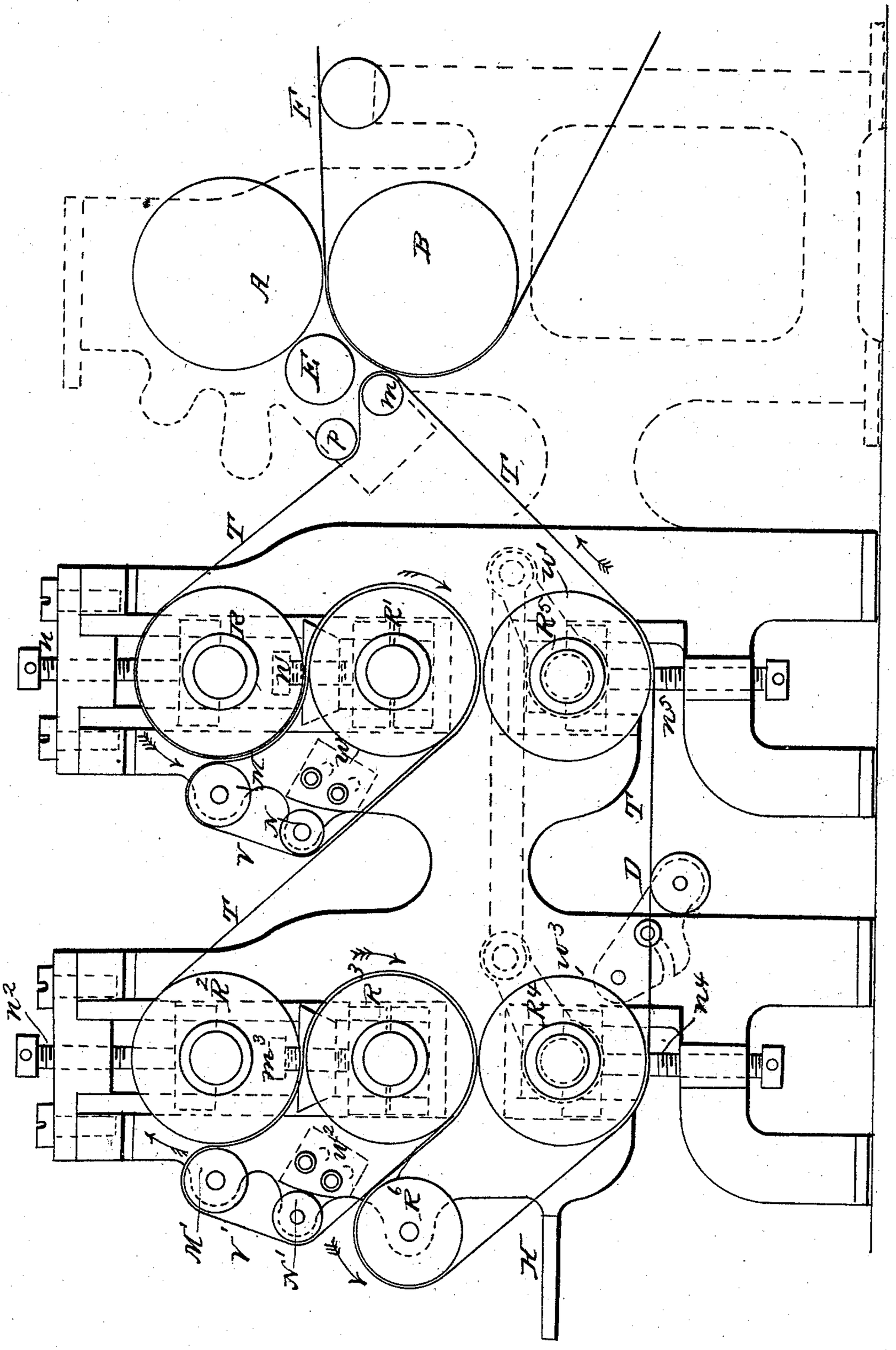
L. KOCH.

Paper Drier.

No. 16,928. Patented March 31, 1857.



UNITED STATES PATENT OFFICE.

LOUIS KOCH, OF NEW YORK, N. Y.

MACHINERY FOR PRESSING WATER OUT OF PASTEBOARD.

Specification of Letters Patent No. 16,928, dated March 31, 1857.

To all whom it may concern:

Be it known that I, LOUIS KOCH, of New York, in the county and State of New York, have invented a new and Improved Machine for Extracting the Water out of Pasteboard; and I hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my improvements consist in the arrangement of a series of rollers and endless felts in such a manner that the formed pasteboard shall always be between two felts while passing between the pressing rollers for the purpose of extracting the water contained in the board, so as to leave the same, after it has passed through the last pair of rollers, almost dry, said rollers being at the same time so arranged that the board shall pass between them in the opposite direction to which the extracted water will by its own gravity flow off.

Pasteboard which has been made either in square frames or by the winding up of paper web around a roller contains about two third parts of water, which by the present arrangement takes a very long time to be extracted therefrom.

In the accompanying drawing R R′ R^2, R^3, R^4 and R^5 represent pressing rollers, which run in suitable boxes and are acted upon by screws n, n', n^2, n^3, n^4, n^5 and by which the distance between each pair of rollers can be exactly regulated and consequently any desired pressure given to the pasteboard. Around these rollers as well as the roller R^6 and the rollers p, m an endless felt T passes and is stretched and regulated by the movable roller D. The rollers p and m are situated near the forming roller A and take the pasteboard after having been formed upon said roller A upon the felt T by which it is carried over and between the different pressing rollers.

N M and N′ M′ are rollers running likewise in suitable bearings in the frames of the machine, around which and the pressing rollers R′ and R^3, respectively, that is around N M R′ and around N′ M′ R^3 endless felts V and V′ are stretched. The rollers N and N′ are movable so as to be able thereby to stretch and regulate said felts V or V′. By this arrangement the felting is double from that point at which the rollers M M′ and the rollers R R^2 come in contact up to that point where the short felt bands V or V′ run over their respective rollers N or N′, so that the board after passing over the roller R, between the rollers R and R′ and until the same has passed between the rollers R′ and R^5 is between two felts, when the pressure of said rollers upon the board will press out the greater amount of water contained in the same. The board passes then over the roller R^2, when it comes again between the two felts T and V′ and passes between the same, through and between the rollers R^2 and R^3 and between the rollers R^3 and R^4, where the pasteboard is again under a great pressure, pressing out thereby as much of the remaining water as possible and leaving the board nearly dry, when the same passes over the roller R^6 and falls upon the table H ready to be carried to the drying room. The position and motion of the pressing rollers and the manner in which the felting passes around the same is such that the board in its course through said rollers comes always in the opposite direction to which the extracted water will naturally flow, thereby preventing the once extracted water to accumulate again in the pasteboard.

The manner of arranging the position of the pressing rollers is immaterial. The same may be arranged side by side or one above the other according to circumstances as long as the felting passing over said rollers is so arranged that the board while under pressure shall always be between two thicknesses of felting and allow the water to run off in the opposite direction to the introduction of the board.

The pressed out water is collected in channels w, w' w^2, w^3, which scrape the surfaces of the rollers and carry the pressed out water to the sides of the machine.

The rollers R^4 and R^5 are connected together and turned by machinery, which communicate through the endless felt motion to the other rollers, or all rollers may be connected together by gearing. By the screws n, n', &c., the distance of each pair of rollers and consequently the pressure upon boards of different thicknesses can be regulated and the same are so arranged and regulated that the pressure upon the board will gradually increase.

The rollers R^3, R^4 and R^6 can be so arranged as to be heated, whereby the pasteboard will be partially dried while passing over and between those rollers.

What I claim as my invention and desire to secure by Letters Patent is—

The combination of the pressing rollers in connection with the rollers N—M and N′—M′ arranged with endless felts in such a manner that the board shall be made to pass between the pressing rollers between two thicknesses of felting, to allow the water contained in the board to be pressed out of the same without injuring the board, during the pressing process the whole being arranged in the manner and for the purpose described.

LOUIS KOCH.

Witnesses:
HENRY E. BOEDER,
J. TOKENHAUSEN.