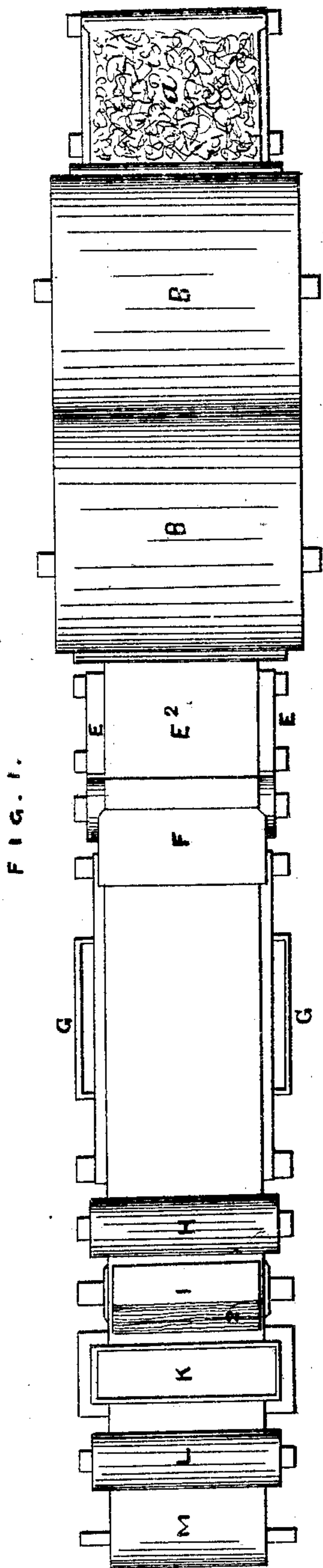
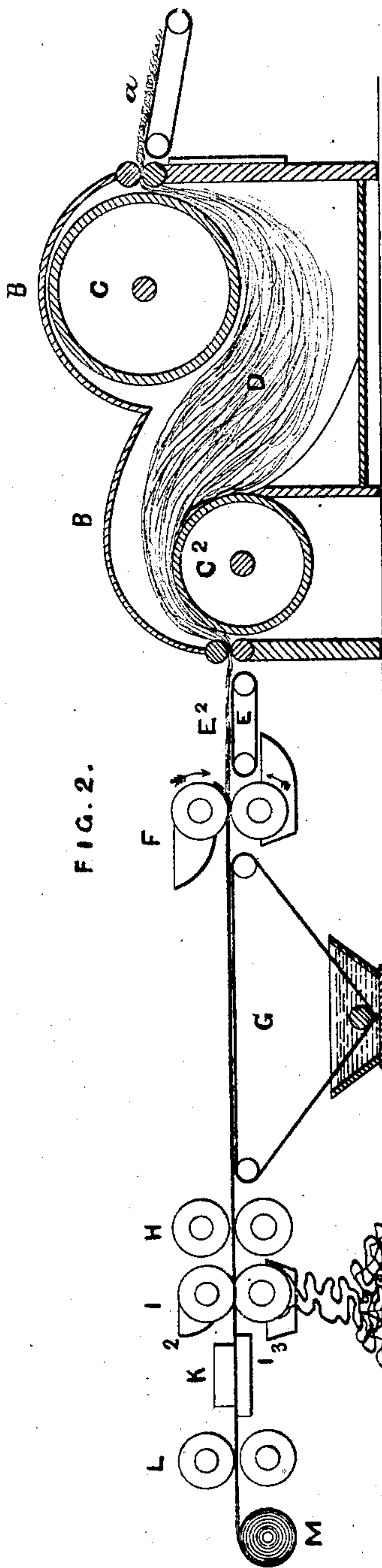


J. B. Hyde.
Forming Bats.
N^o 28489 *Patented May 29, 1860.*



Witnesses.
Henry Burr.
J. A. Macdonald.



Inventor.
J. Burrus Hyde.

UNITED STATES PATENT OFFICE.

J. BURROWS HYDE, OF NEWARK, NEW JERSEY.

MACHINERY FOR MANUFACTURING SHEATHING-FELT.

Specification of Letters Patent No. 28,489, dated May 29, 1860.

To all whom it may concern:

Be it known that I, J. BURROWS HYDE, of the city of Newark, county of Essex, and State of New Jersey, have invented new and useful Improvements for the Manufacture of Sheathing-Felt for Covering the Bottoms of Ships, Roofs of Buildings, and for other Purposes; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings and the characters of reference marked thereon.

In the apparatus patented April 24th 1840 by Thomas R. Williams for the manufacture of similar material from fibrous and adhesive material, and which patent has been subsequently owned and the invention employed by myself, several serious disadvantages have been encountered occasioning waste of material and great irregularity of quality; to overcome which difficulties forms the feature of my invention.

The patent before named, being in part for a new machine for forming an endless bat or sheet of fibrous material prepared for the adhesive mixtures, I have represented this machine in the drawings for the more clearly illustrating my improvements; at the same time, I do not intend to confine myself to this particular machine for forming the bat, for use with my improvements, as some other machine may be found to answer therefor. But after the bat is formed, and has left the machine to pass through the adhesive mixture, and thence to completion, I have found the invention of Williams in several respects objectionable and for which reason I have been compelled to substitute my own improvements therefor.

Figure I, in the drawing represents a plan view and Fig. II, a vertical view partly in section, the bat machine of Williams being shown at A, B, C, D, the fibrous material being picked and collected upon a perforated cylinder C², by an air exhausting apparatus, causing a current downward through the cylinder, which draws the fibers upon the upper part of the cylinder, and which are thence carried through the rollers shown in the form of an endless bat.

My first improvement consists in the introduction of a rotating apron E, to receive the bat shown at E², from the delivery roll, of the bat machine, and to carry it (without changing the position of the fibers, or the length of the bat) to the composition rolls

F, keeping the bat off the lower roll, and clear from the composition trough; which arrangement prevents the bat from sagging by its own weight and untenacious nature; and without which apron it is liable to drag behind the rolls and clog, or fall into the composition trough. Besides, as the successful working of the apparatus depends upon the equal speed of the several working parts with the length of the bat formed, and as this sagging is accumulative, it becomes necessary, if the apron is not used, to frequently stop the machinery to break out this excess of length, which often extended to the floor, thus causing loss of time and injury to the work.

My second improvement consists in the shape and arrangement of the composition troughs as seen at F. The top trough being placed against the upward motion side of the roll, which is (by the close fitting of the end of the trough thereto) made to answer as one of its sides; the bottom of the trough being curved so as to admit access to the working part of the roll below it. By this arrangement the roll carries the composition in proper quantity over and down upon the bat for saturating the upper half thereof, whereas when the trough was placed upon and above the roll as arranged by Williams, it was found impossible to regulate the supply of the composition, which was chiefly governed by gravitation alone. The lower trough I place behind the lower roll, which, while it carries up the proper quantity of composition to saturate the under side of the bat, leaves the front or delivery side of the roll free to the access of the workman. These rolls should be heated by steam admitted to their interior by the usual mode, to keep the composition hot and of proper consistency.

My third improvement consists in a contrivance to receive the saturated bat when it has passed the composition rolls, and to cool and dry the material and to convey it to a second pair of rolls for compressing it, without its sticking thereto, and without the necessity of handling it; as the felt on leaving the rolls F, is quite hot, and instantly swells from the elasticity of the fiber, becoming thereby spongy and soft, and adheres to the hand or any dry object with which it comes in contact; to obviate which, I employ a traveling apron with a working surface of six or eight feet in length. If the

material worked is of a hot and pitchy nature, I keep this apron wet by passing it under a third roller in a water trough as seen at G, and if it be of a pasty nature as for book board, when I employ glue or flour paste or other proper material soluble in water for the adhesive medium, this apron or carrier should be of woven wire, or gauze passed through a drying box arranged around the same, and heated by any convenient method. From the drying or cooling apparatus the fabric is received by a pair of pressure or condensing rollers H, and thence is passed to a third pair of rolls I, provided with circular steel cutting or shearing plates on the ends for trimming off the edges of the fabric. These cutters may however be placed upon the rolls H, instead of upon those named. If the manufactured article is for sheathing felt or for book boards, it is passed to a proper distance beyond the rolls I, to thoroughly cool or dry, and is then cut into proper sized sheets in any convenient manner, and if intended for architectural purposes it is rolled up as seen at M. It is usual after the felt is applied to a roof to cover it with a composition of coal tar and then to sprinkle with sand, but for many uses I prefer to give it a coating of sand while in the progress of manufacture, to accomplish which forms my fourth improvement. I attach to the rolls I troughs similar to those shown at F, and seen at 1, 2 and 3. In 1, 2, I employ a mixture of coal tar and peat as before described, or any other proper material or compound, the roll being heated with steam, and not allowed to press heavily upon the fabric; this will properly coat the upper surface with the composition. The

troughs 1, 3 are filled with water only. From the roll I, the fabric passes underneath the sand box K, from which it receives a proper coating of sand through the wire bottom thereof, and thence passes to the pressure rolls L, to embed the sand into the composition, and thence is rolled up as before described.

The uppermost parts should be strongly framed and all geared for exactly similar surface speed; and best if driven from one common prime mover, and the machine (for it forms but one) so arranged as to be started and stopped easily.

The fibrous material employed for the bat are of tow or other vegetable fibers, but should be cut to not exceed two inches long. Hair and fur or wool may also be used, but any of the materials named should be thoroughly picked or divided before placing it on the bat machine.

Having now described my invention, I wish it understood that I do not claim an apron moved over two or more rollers, nor do I claim the rolls used for the composition, nor for pressure as all such drivers have long been known, nor do I claim a sand box, but

What I claim as my invention is—

The apron E; the composition troughs F and 1, 2 and 3; the apron and trough G, the rolls H and L; the rolls I, and the sand apparatus, K; arranged substantially in the manner and employed for the purposes set forth.

J. BURROWS HYDE.

Witnesses:

HENRY BURT,

J. J. MACDONALD.