

C. L. TRAVIS.
Grain-Binder.

No. 224,744

Patented Feb. 17, 1880.

Fig. 1.

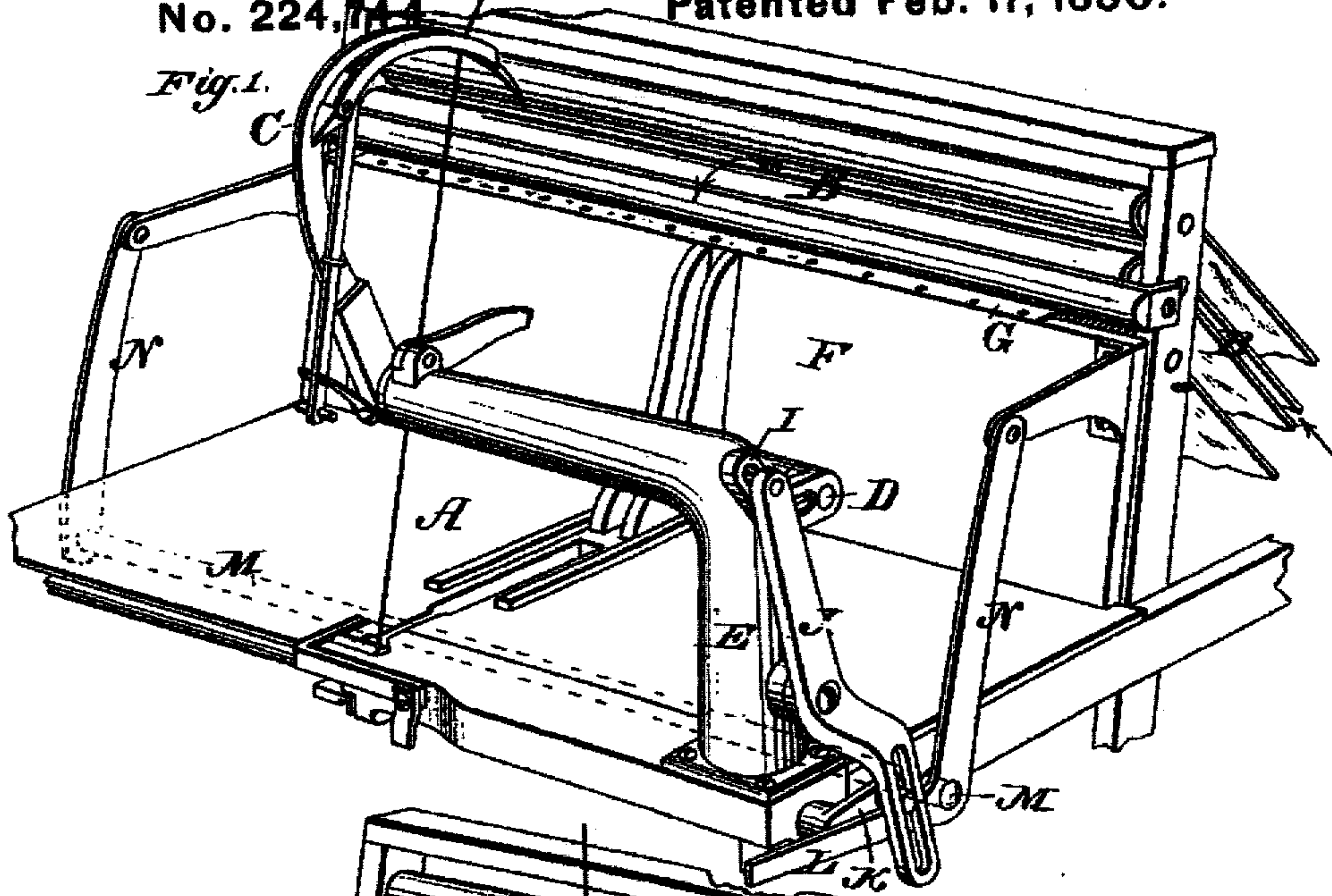
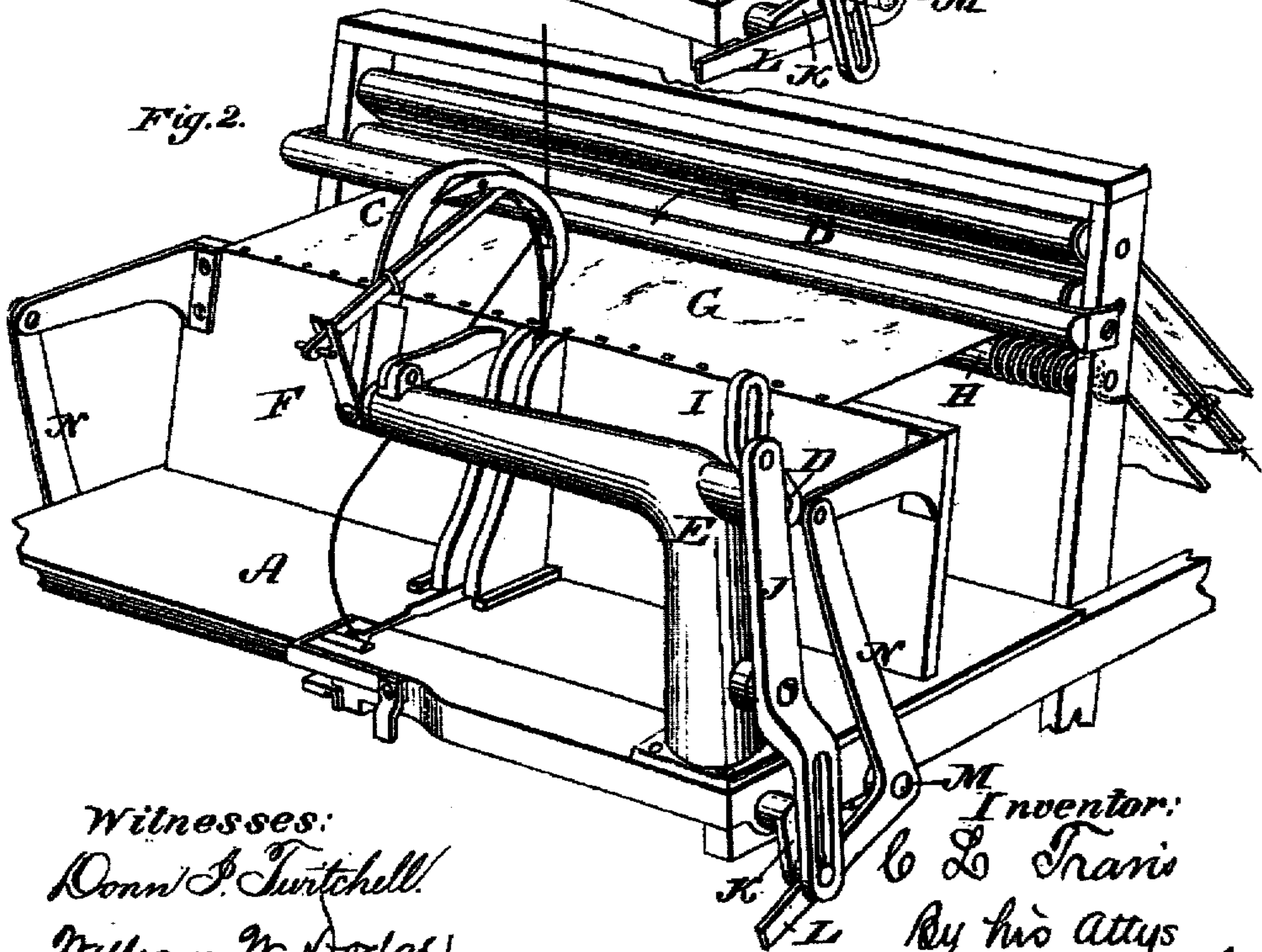


Fig. 2.



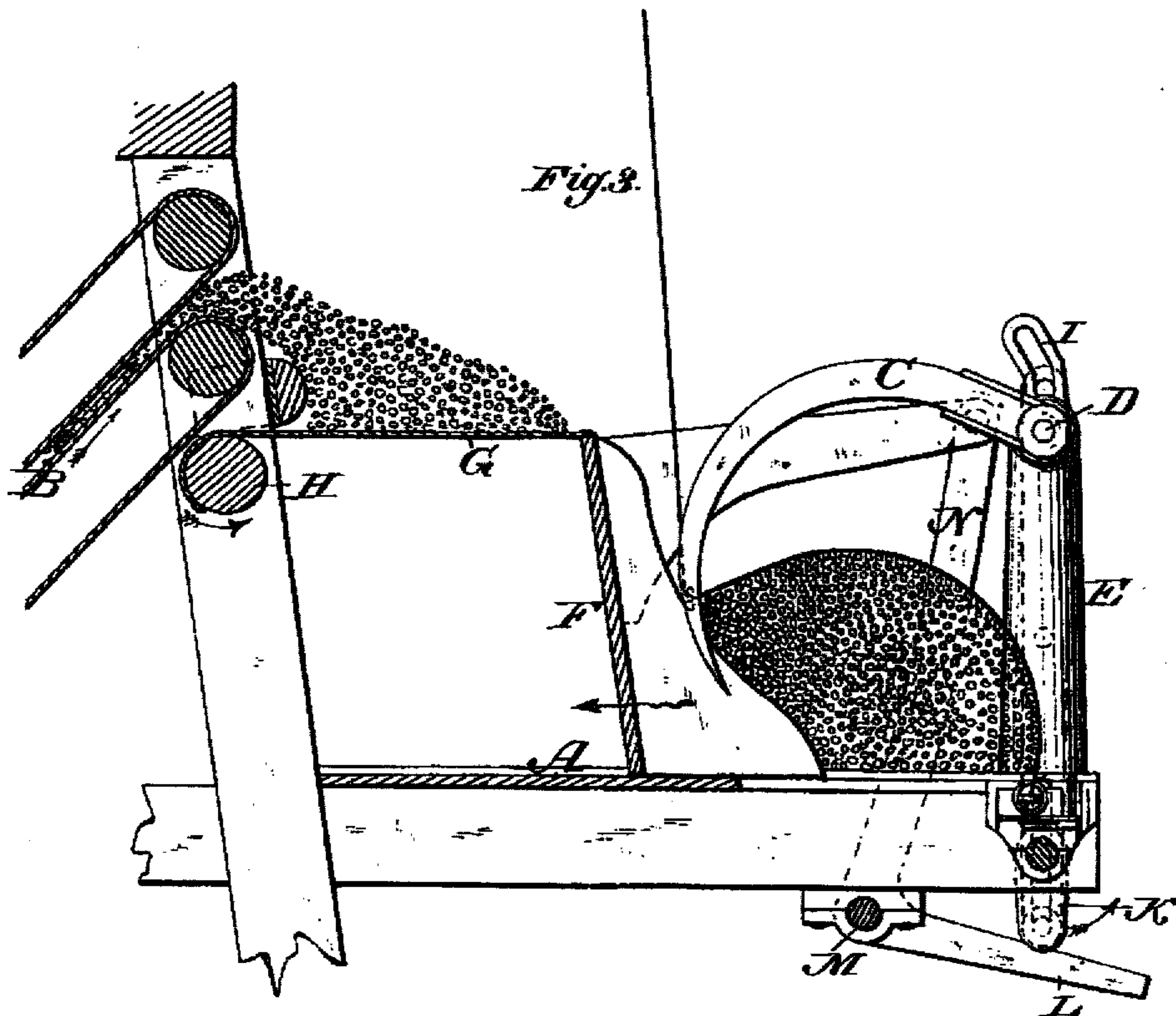
Witnesses:
Donn J. Twitchell.
William W. Dodge.

Inventor:
C. L. Travis
By his Atty
Dodge & Son

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UNITED STATES PATENT OFFICE.

CHARLES L. TRAVIS, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE
MINNEAPOLIS GRAIN BINDER COMPANY.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 224,744, dated February 17, 1880.

Application filed November 15, 1879.

To all whom it may concern:

Be it known that I, CHARLES L. TRAVIS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Grain-Binding Machines, of which the following is a specification.

My invention relates to that class of grain-binding machines in which elevating or raking mechanism delivers a continuous stream of grain, which requires to be separated into proper quantities to form bundles. In the division of the grain it is necessary that each bundle shall be divided cleanly and wholly from the loose grain.

It is to accomplish this result and present the grain properly to the binding-arm, and at the same time render the machine simple in construction, that my invention is designed; and to this end it consists in a reciprocating carrier and divider arranged between the grain elevating or delivering mechanism and the binding-arm in such manner that it receives the loose grain from the elevator and carries the same forward in proper quantities to the binder-arm, holding back the loose incoming grain at the same time.

The invention also consists in various peculiarities and details of construction.

My improvement may be modified and changed in form; but the drawings represent the construction which is preferred. As the band-fastening devices, spools, take-up, and tension devices may be of any ordinary construction, and form no part of my invention, they are omitted.

Figure 1 represents a perspective view of my improved machine with the carrier in position to receive the loose grain; Fig. 2, a similar view of the parts in position for the binder-arm to grasp the grain; Fig. 3, a vertical cross-section, showing the binder-arm in the act of binding the bundle.

A represents the grain table or receiver, and B the elevating or conveying aprons, having their ends arranged to deliver the grain some distance above the table. C represents the vertically-vibrating binder-arm, mounted on a rock-shaft, D, in a fixed standard, E, overhanging the outer side of the grain-table, as shown.

The binder arm may be of any suitable form and actuated by any suitable mechanism, but should in every instance be located at such distance from the elevator or other delivering mechanism that the latter will not deliver the grain within its reach.

F represents my dividing-board, mounted edgewise upon the table in the direction of the length of the grain, and free to move to and fro between the binder-arm and elevator. At its upper edge the board is secured to one edge of a flexible horizontal apron, G, which has its opposite edge attached to a take-up roll, H, located beneath the end of the elevators.

The roll will be provided with a spring, as shown in the drawings, or connected with actuating mechanism to cause it to keep the apron taut and wind it up as the board F recedes toward the elevator.

The binder-arm and the dividing-board are connected with mechanism which causes the board to advance from the elevators to a point close to the path of the binder-arm before the latter descends, and then causes it to move back again after the binder-arm has grasped the gavel.

This connecting mechanism may be of any suitable character; but in the drawings the binder-arm shaft is provided with a slotted arm, I, acted upon by a stud on a vibrating lever, J, which latter has its lower end slotted and driven by a crank, K. This crank acts upon an arm, L, attached to a rock-shaft, M, which is provided also with two arms, N, connected to arms on the end of the board F, so that the single crank serves to impart motion both to the board and the binder-arm.

The band-fastening devices may be of any approved style, located beneath the binder-arm.

When the binder-arm is in its elevated position the dividing-board stands directly below the end of the elevator with the apron wound upon the roll, as shown in Fig. 1. The loose grain falls from the elevator to the table in front of the board F, and when a sufficient amount has accumulated to form a bundle the board moves forward and carries the same within reach of the binder-arm, at the same time extending the apron, which serves as a

bridge in rear of the board to receive and sustain the loose grain falling from the elevator and prevent the same from falling behind the board. After the binder-arm has seized the grain in front of the board the latter recedes, and the accumulated grain falls in advance of the board and is carried by its next advance to the binding-arm, the grain accumulating meanwhile upon the apron for the next bundle, and so on repeatedly. In this manner each bundle is separated perfectly from the flowing stream, and this without the use of a movable binding mechanism or other expensive mechanism usually employed to effect the separation and delivery of the grain from the elevator to the binder-arm.

The form of the board and manner of mounting and operating the same may be modified.

The apron may be made of any suitable material, or in place of the apron a series of straps, flexible rods, or pivoted and crossed rods may be used, provided they serve, like the apron, as a horizontal self-adjusting bridge between the dividing-board and the elevator-frame.

In order to prevent the grain from the elevator from working back under the lower roll, I place a rounding or semicircular breast in front of and below the lower roll, as shown. The grain passing over the breast lodges thereunder and is prevented from working upward.

I am aware that slats and other devices have been employed to throw the grain away from the roll; but I find by practical tests that the breast, as shown, is decidedly the best and most effective.

The construction of the binder-arm and the devices mounted thereon constitutes no part of the present invention, but is embraced in another application bearing date prior hereto.

Having thus described my invention, what I claim is—

1. The combination of the binder-arm mounted in fixed supports, the sliding divider, the extensible apron or bridge, and the elevator.

2. The combination of a binder-arm, an elevated grain conveyer or elevator, and an intermediate reciprocating divider, and an extensible horizontal bridge to support the inflowing grain during the advance of the divider.

3. The combination of the elevator or conveyer, the take-up roll, the apron, the divider-board, and a binder-arm.

4. The combination of a grain-delivering mechanism, means for delivering the grain from the conveyer to the binder-arm, and an extensible bridge or apron to sustain the flowing grain during the advance of the conveying devices.

5. The combination, in a grain-binder, of the spring-driven roll, the apron, and the upright divider-board.

6. In combination with the elevator-apron, the breast-piece, constructed and arranged as shown.

7. In combination with the reciprocating divider, the rock-shaft having three arms, and the crank arranged to actuate the same.

8. The combination of a grain-delivering mechanism, a binder-arm located at a distance therefrom, and an intermediate divider and carrier, arranged to move bodily to and fro in a horizontal direction and sustain the inflowing grain as the bundle is carried to the binder-arm.

CHARLES L. TRAVIS.

Witnesses:

WILLIAM W. DODGE,
LYMAN R. CASEY.