A. G. DESPAROIS & L. F. CHRISTIAN.

Combined Reaper and Harvester.

No. 220,354. Patented Oct. 7, 1879.

FIG. I

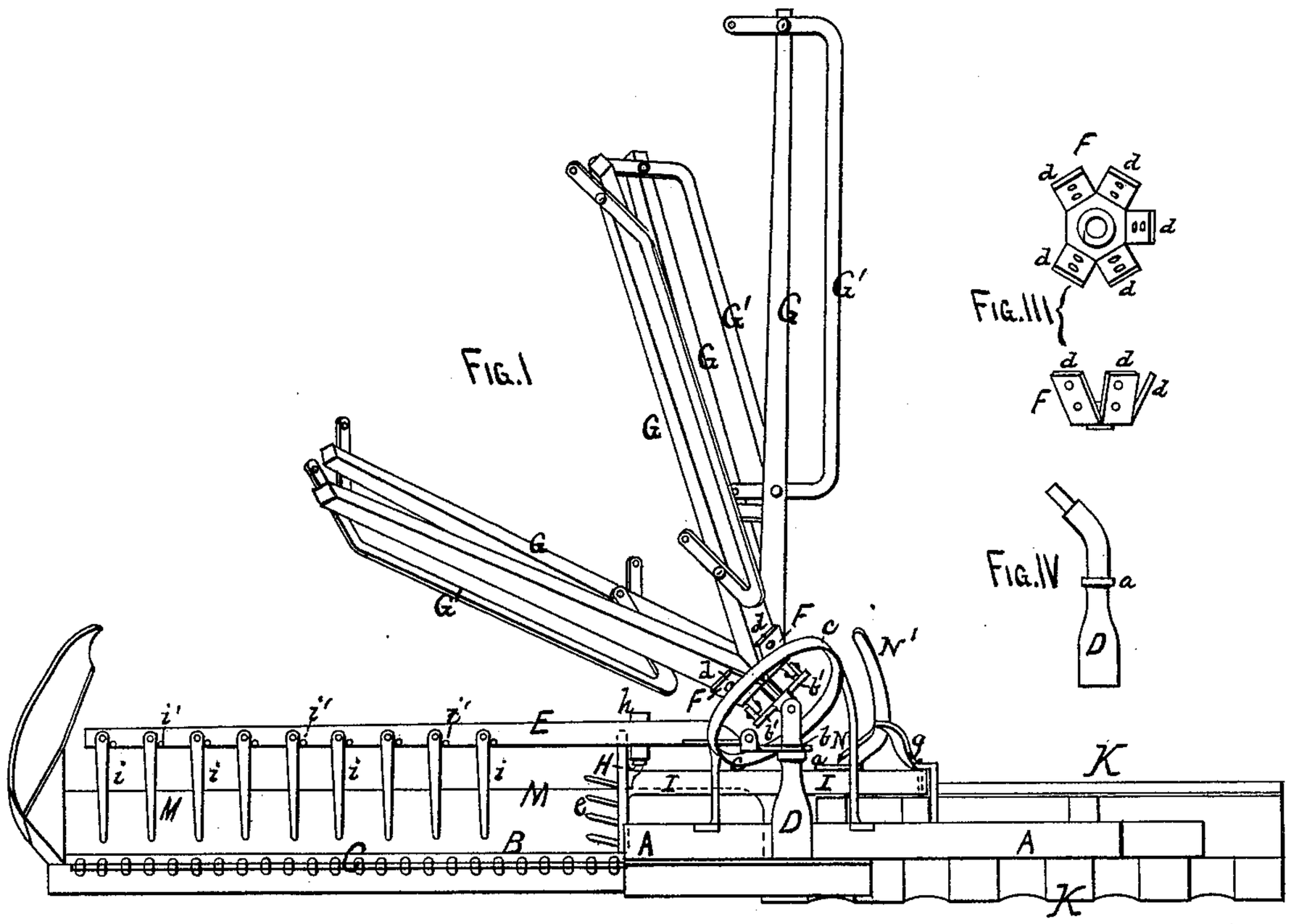
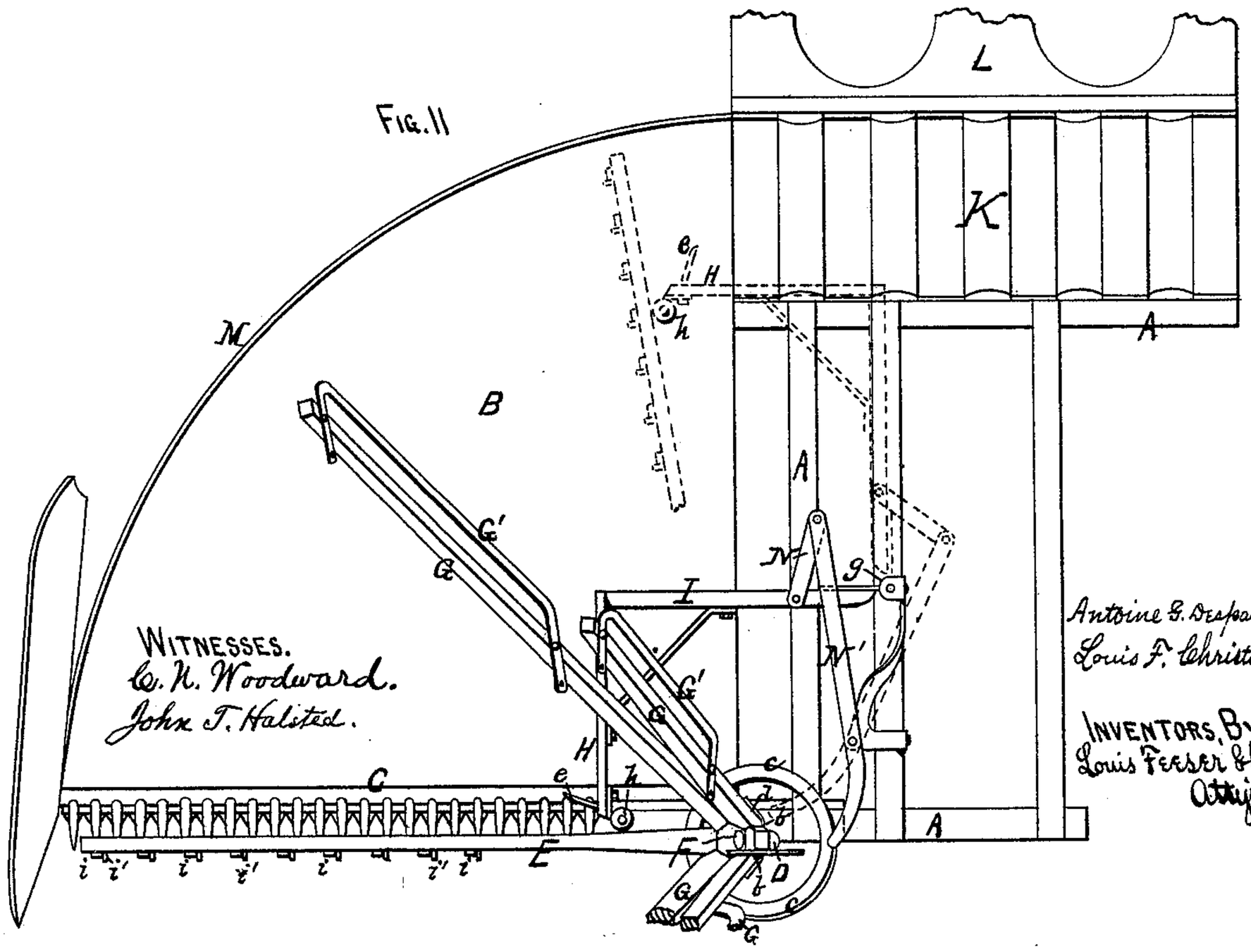


FIG. III

FIG. IV

FIG. II



WITNESSES.

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UNITED STATES PATENT OFFICE.

ANTOINE G. DESPAROIS AND LOUIS F. CHRISTIAN, OF ST. PAUL, MINNESOTA.

IMPROVEMENT IN COMBINED REAPER AND HARVESTER.

Specification forming part of Letters Patent No. **220,354**, dated October 7, 1879; application filed September 2, 1878.

To all whom it may concern:

Be it known that we, ANTOINE GIDEON DESPAROIS and LOUIS FRANK CHRISTIAN, both of St. Paul, in the county of Ramsey and State of Minnesota, have made certain new and useful Improvements in Combined Reaper and Harvester, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure I is a front elevation of a portion of a reaper with our improvements attached thereto. Fig. II is a plan view of the same; and Figs. III and IV detached detail views of the reel-standard and reel-head.

This invention consists in the arrangement of a gavel-compressing mechanism, operating simultaneously with and at right angles to a flexible-toothed rake-bar, whereby the gavel is compressed into a bundle and conveyed into a binding-receptacle at one operation, as set forth.

The invention further consists in the arrangement of the reel and rake heads and the mechanism by which they are driven, as set forth.

A is the frame, B the segmental platform, and C the cutter-bar, all arranged in the usual manner. D is a metal standard, (see Fig. IV,) having a shoulder, *a*, upon which the rake-head *b* rests. This head fits over the standard D, and is provided with a rake-bar, E, which is hinged to it in such a manner as to enable the rake to be lifted up (when the plate *b* is revolved) by riding upon the cam *c* in the usual manner.

Above the plate *b* the standard D is bent at an angle of about forty-five degrees in a vertical plane parallel with the cutter-bar C, and is surmounted with a metal reel-head, F. (See Fig. III.) This head F consists of a plate or disk, from which rise ears *d*—one for each reel-arm G—and to which the arms are bolted. The plate and ears are made in one piece, and connected to the rake-head by an interposed ring, *b'*, forming a universal joint, through which means the reel is revolved, the mechanism for operating the whole being connected to the rake-head *b*.

H is a gavel-compressor, having a number of teeth, *e*, upon its front end, and connected at the rear end by a bar, I, to a pin, *g*, upon the frame A. *h* is a roller upon the front end of the compressor, against which the rake-bar E strikes to operate it, as hereinafter described.

The pin *g* will be placed eccentrically to the sweep of the back M of the platform B, so that as the rake-bar E carries the compressor around with it the latter will gradually approach the back of the platform, and thus compress the gavel into a smaller compass.

The compressor is made with a long flat surface, as shown, and by means of the long connecting-arm I it is made to travel sufficiently near a line parallel with the back M to insure a large amount of friction upon the gavel to carry all the straw with it and keep the gavel in a compact and even shape. By this arrangement also the compressor is kept at right angles to the rake-bar, thereby insuring the even and square position of the butts and consequent symmetry of the bundles.

K is the grain-receptacle, which is made semicircular in form, and corrugated, as shown, to facilitate the removal of the grain, and L is the binding-table.

The arms G are provided with metal guards G', made in one piece, with two or more holes in each end, so that they may be adjusted farther from or nearer to the arms G, to adapt them to grain of different lengths.

The reel and rake will, as before described, carry the grain around upon the table B into the receptacle K. When the rake-bar strikes the compressor-roller *h* it will carry the compressor along with it, and, as before described, gradually compress the grain into a smaller compass. When the grain is being carried along by the rake E the compressor will at the same time move a portion of the grain at right angles to the motion of rake. Many of the butts will remain between the teeth *i*, and so, to prevent any unnecessary friction and breaking of the straw by this action of the compressor, we attach the teeth *i* loosely to the rake-bar by pins through their upper ends, so that they will be moved to one side when the grain is forced along them by the compressor. Stops *i'* are placed on the sides of the teeth next the compressor to prevent the teeth from moving in the wrong direction.

N N' are a system of levers, upon which the

rake-bar E acts in its movement around the cam *c* to cause the compressor to return to its former position, ready for another gavel.

A self-binder may be attached to the machine if desired.

The formation of the reel-head in one piece of metal is an important feature of our invention, as it enables us to make it much lighter and stronger without adding to the expense.

By our arrangement of the compressor H and rake-bar E, operating simultaneously upon the gavel, we are enabled to make the machine shorter than the ordinary reaper, thereby enabling the persons who bind the grain (when a self-binder is not used) to ride upon the machine without the necessity of altering the position of the driving-wheels to counterbalance their weight.

Under some conditions of the grain it is necessary to throw the gavels from the machine unbound and allow it to lie until it is dry enough, and then bind it up by hand. When this is the case our arrangement of the compressor and rake is found to operate very satisfactorily, as the gavel is discharged upon the ground in an even and straight shape, so that no time is lost in arranging the straws when binding. This even disposition of the straw cannot be obtained, however, unless the compressor and rake operate simultaneously and at right angles to each other.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The compressor H, provided with a long flat surface, to be presented bodily at all times in its action against the gavel of grain at right angles to the rake-bar E, and arranged to travel in a line convergent with the back M of the segmental table B, in combination with the rake-bar E, having the flexible teeth *i'*, substantially as set forth.

2. The combination and arrangement of the standard D, reel-head F *d*, rake-head *b*, and connecting-ring *b'*, arranged and operating in the manner and for the purpose substantially as set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

ANTOINE G. DESPAROIS.
LOUIS FRANK CHRISTIAN.

Witnesses:
C. N. WOODWARD,
LOUIS FEESER.