

(No Model.)

3 Sheets—Sheet 1.

A. H. & E. C. BALES.

MACHINE FOR WEAVING THATCHING.

No. 365,424.

Patented June 28, 1887.

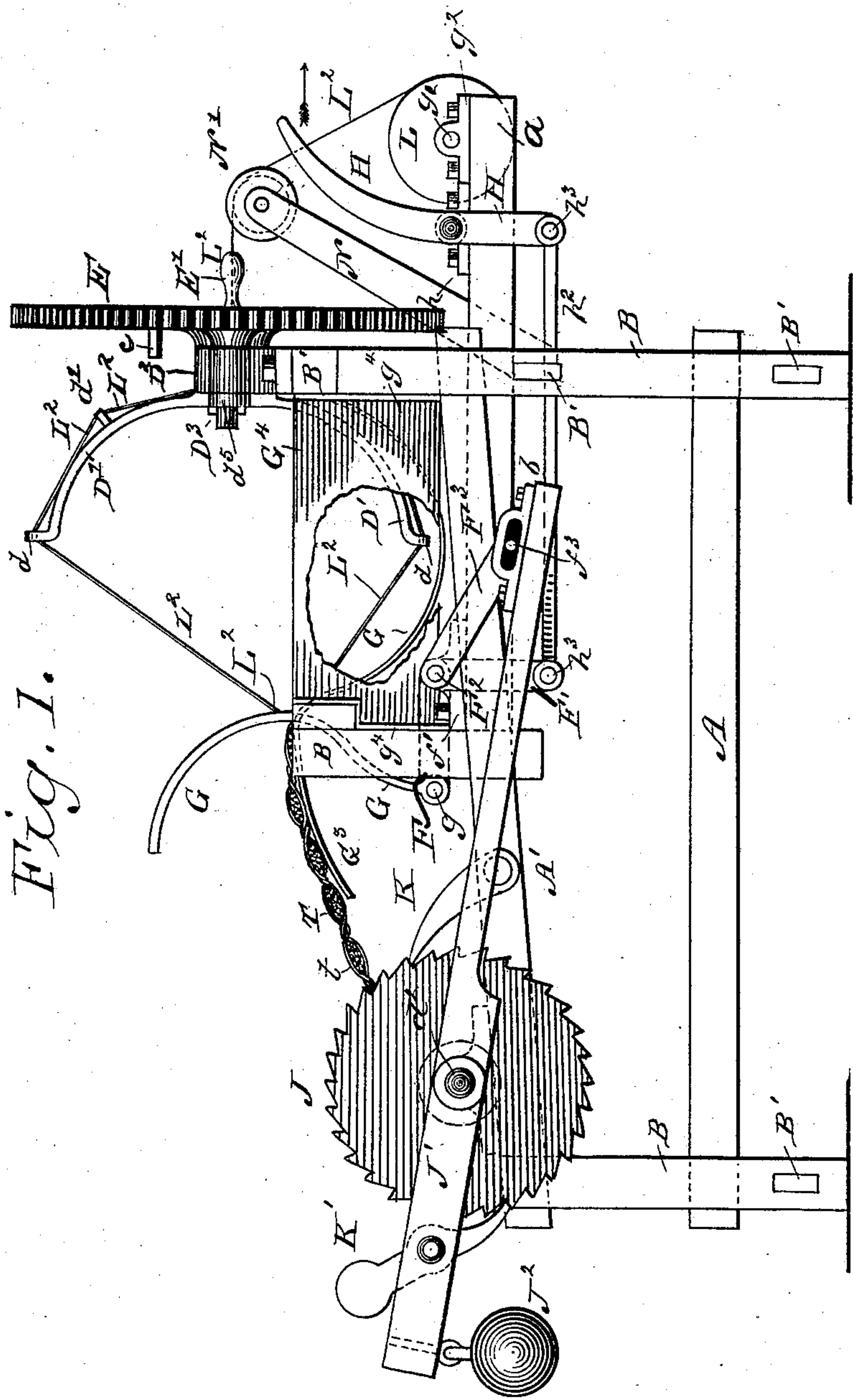


Fig. 1.

Fig. 4.



Witnesses
John C. Miller,
A. Charles Newman.

Inventors.
Alanson H. Bales
Edward C. Bales
By S. C. Fitzgerald
Attorney

(No Model.)

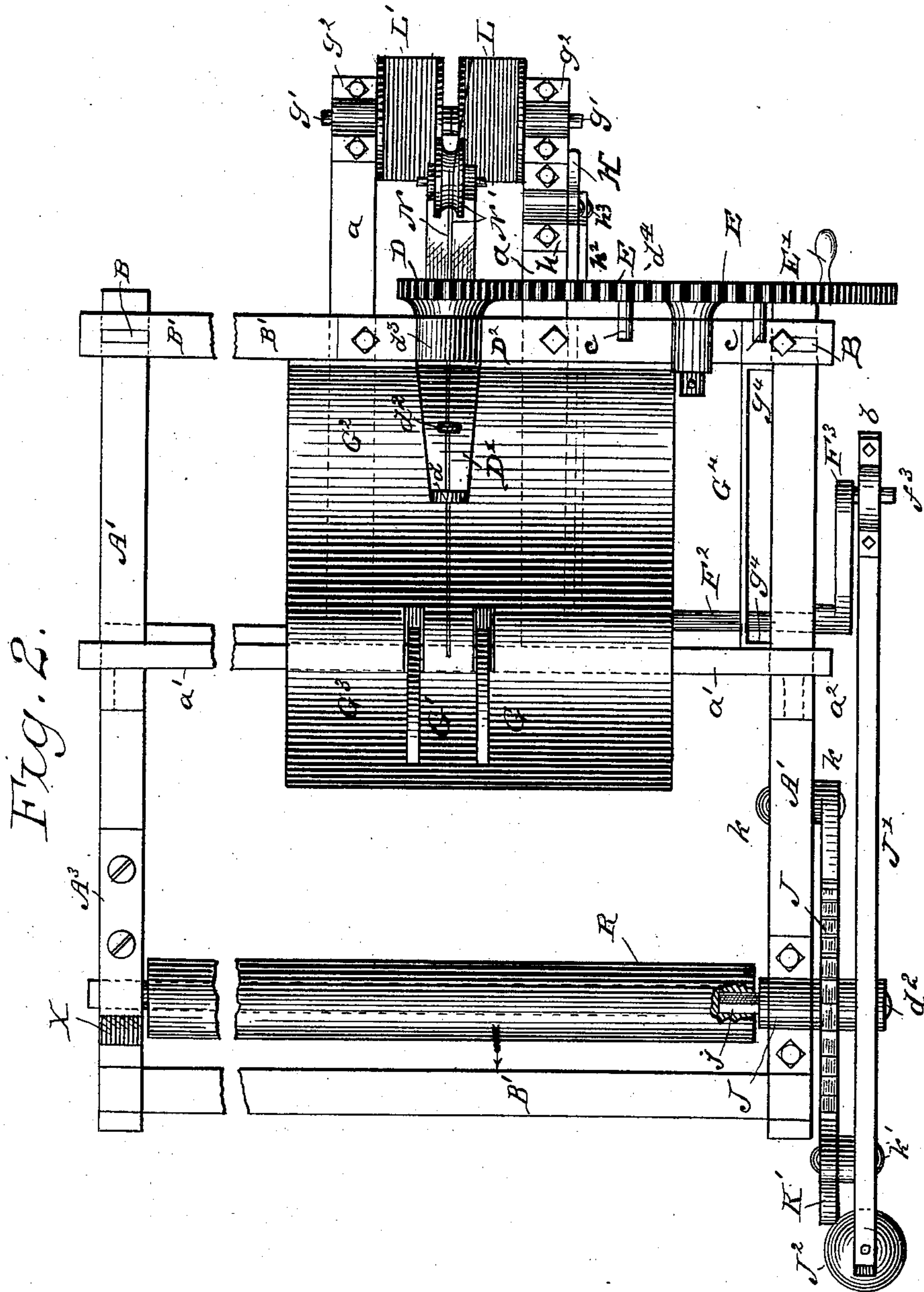
3 Sheets—Sheet 2.

A. H. & E. C. BALES.

MACHINE FOR WEAVING THATCHING.

No. 365,424.

Patented June 28, 1887.



Witnesses

John C. Miller,
A. Charles Newman.

Inventors

Alanson H. Bales
Edward C. Bales

By their Attorney

S. J. Fitzgerald

(No Model.)

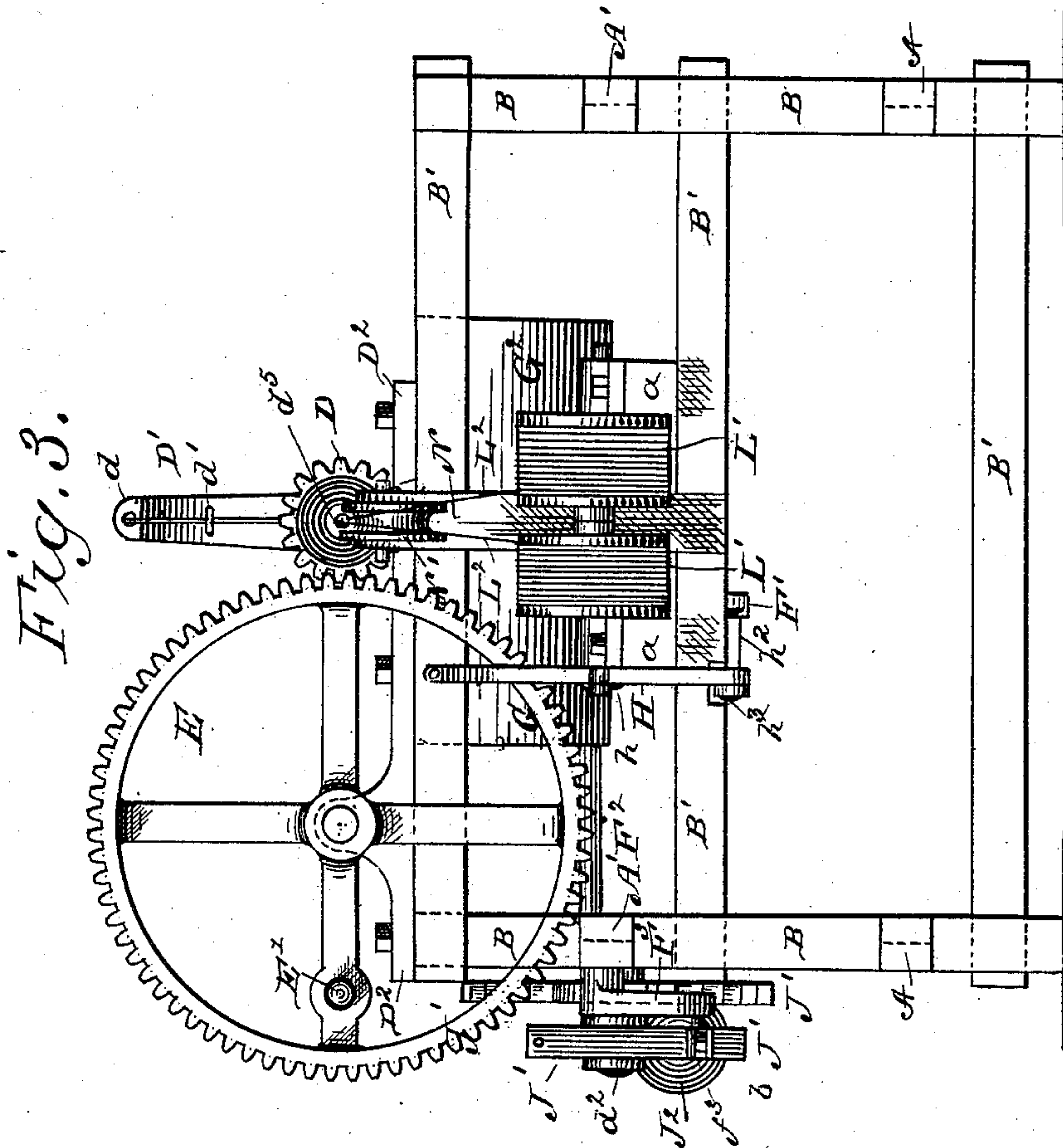
3 Sheets—Sheet 3.

A. H. & E. C. BALES.

MACHINE FOR WEAVING THATCHING.

No. 365,424.

Patented June 28, 1887.



Witnesses

John C Miller.

A. Charles Newman,

Inventors

Inventor
Alanson H. Bales

Edward C. Bales

By their Attorneys

S. L. Fitzgerald

UNITED STATES PATENT OFFICE.

ALANSON HOWARD BALES AND EDWARD CLARKSON BALES, OF WASHINGTON, KANSAS.

MACHINE FOR WEAVING THATCHING.

SPECIFICATION forming part of Letters Patent No. 365,424, dated June 28, 1887.

Application filed August 16, 1886. Serial No. 211,007. (No model.)

To all whom it may concern:

Be it known that we, ALANSON HOWARD BALES and EDWARD CLARKSON BALES, citizens of the United States, residing at Washington, in the county of Washington and State of Kansas, have invented certain new and useful Improvements in Machines for Weaving Thatching for Roofing Purposes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to the manufacture of thatching of straw, grass, &c., for roofing purposes; and the object of our invention is to produce a machine which shall rapidly and continuously bind the bundles in proper form and in connected series and form them into rolls for convenient handling and use.

To the above purpose our invention consists in the peculiar and novel construction and arrangement of parts, as hereinafter described and claimed.

In order that our invention may be fully understood, we will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side elevation, partly broken out, of our improved machine. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation of the same, looking toward the right-hand end of Figs. 1 and 2. Fig. 4 is a detached sectional view of a portion of the thatching.

In the said drawings, A A' designate horizontal timbers, which extend longitudinally of the machine-frame; and B' B' designate horizontal timbers which extend transversely of said frame, said timbers being supported by legs or uprights B at the corners of the frame, as shown.

a a designate longitudinal frame pieces, which extend horizontally outward from the front end of the machine-frame, and the inner ends of which are suitably secured to a transverse beam, a'.

Upon the upper cross-piece, B', at the front end of the machine-frame, is set a block, D², having two journal-boxes, d³ d⁴, in the former of which is set the hollow hub d⁵ of a gear-pinion, D.

Upon the rear end of the hub d⁵ is secured a U-shaped casting, D', the arms of which serve as fliers and move rigidly with the gear-pinion, as hereinafter described. At their extremities the arms D' are formed with eyes d, and eyes d' are also formed upon the outer sides of said arms, the purpose of these eyes being to guide the binding-wires, as shown.

E designates a gear-wheel, which is journaled in the bearing d⁴, and has a handle, E', by means of which the gearing is operated. The teeth of the gear-wheel E mesh with those of the gear-pinion D, and on its rear side the gear-wheel is provided with two pins or studs, c, which engage alternately with the block D², so as to limit the movements of the gear-wheel to one-quarter of a revolution, the relative dimensions of the gear-wheel to the pinion being preferably such that about a quarter-revolution of the former will produce a full revolution of the latter.

F² designates a shaft, which extends horizontally beneath the trough G², (to be hereinafter particularly described,) and the ends of which rest in bearings f' f', as shown. At its inner end the shaft F² carries a bell-crank, the arm F' of which is connected by a link, h², to the lower end of a lever, H, as shown at h³, said lever H being fulcrumed in a box, h, upon one of the frame-pieces a, before referred to. The other arm, F, of the bell-crank has fixed thereto at its outer end, at g, the lower ends of a pair of curved arms or fingers, G, to be hereinafter more particularly described. The outer end of the shaft F² carries a crank-arm, F³, the outer end of which carries a pin, f³, which works in a slotted guide-box, b, secured upon the front end of a lever, J', to be hereinafter more particularly described.

G² designates the trough before referred to, which is connected at one edge to the upper front piece, B', and the opposite edge of which extends rearwardly over the cross-piece a', as at G³, in order to properly support the thatching during its travel out of the trough. A longitudinal plate, G⁴, is mounted upon the machine-frame contiguous to one end of the trough G², and serves to even the end of the bundle of straw or other material while being bound. The fingers or arms G, before referred to, are curved, as shown in Fig. 1, so that

when thrown forward they shall lie closely upon the bottom of the trough, and while moving toward the rear of the machine they serve to retain the thatching and guide it properly over the extension G^3 . The trough G^2 is slotted near the cross piece a' , so as to admit the fingers G and permit their proper movements, the latter being accomplished by throwing the lever H backward and forward.

R designates a drum, which extends transversely of the machine at its rear end, and is journaled at one end in a bearing, A^3 , which is open, as shown at X , to permit of the removal of the drum when desired. At its opposite end the drum R is detachably connected to the hub j of a ratchet-wheel, J , by a stud, j' , which enters a corresponding socket in the end of the drum. The outer side of the ratchet-wheel J is formed with a central boss, d^2 , upon which the lever J' is fulcrumed, the said lever extending rearward beyond the periphery of ratchet J , and carrying at its rear extremity a weight, J^2 , for counterbalancing said lever. Two pawls, $K' K'$, are disposed oppositely, one upon the lever J' and the other upon the frame-piece A' at opposite points of the periphery of the ratchet-wheel J , the pawl K' serving to rotate said wheel and the drum R as the lever vibrates, as hereinafter explained.

$L L'$ designate the reels or spools from which the wire is taken, said spools being mounted on a spool-shaft, g' , which in turn is mounted in bearings g^2 , (upon the frame-pieces a .) The wires enter the hollow hub d' and are acted upon by a guide-pulley, N' , which is carried by an arm, N , as shown, for properly guiding the wire, said wires emerging obliquely in opposite directions through holes in the inner part of the hub and extending through the eyes in the arms, as before described.

In operating the machine, the lever H is thrown forward in the direction indicated by the arrow in Fig. 1, so as to throw the fingers G down upon the bottom of the trough, the arms D' being in the position shown in Fig. 1. The straw T , in the form of a wisp, is now placed in the trough between the wires L^2 ,

leading from the two arms D' , and then the fingers G are raised. Then the arms D' are revolved to form the twist t , after which the fingers G and arms D' are returned to their original positions, the same operations are repeated, and a new bundle is formed, as before. Each backward movement of the lever H , acting through link h^2 , the bell-crank arm F' , shaft F^2 , and crank-arm F^3 , throws the lever J' upward at its front end and downward at its rear end, and thus by the action of the pawl K' upon the ratchet J turns the drum R in the direction of the arrow in Fig. 2, so as to wind the thatching upon said drum.

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

1. The combination of the hollow pinion having its flier arms, the gear-wheel for driving the same, the trough for receiving the straw, the fingers or arms for feeding the same out of the trough, the bell-crank connected to said fingers, the lever for operating said bell-crank, and the rod or link connecting the lever to the bell crank arm, substantially as described.

2. The combination, with the machine-frame and its slotted trough and transverse plate G^4 , of the operating-lever H , the shaft, with its bell-crank $F F'$ and crank-arm F^3 , the link h^2 , connecting the lever H to the arm F' , the fingers $G G$, connected to the arm F and working in the slots of the trough, the gear B , the flier-arms D' , and hollow pinion D , the studs $c c$ upon the gear E , the windlass having the ratchet-wheel, the lever carrying the pawl for moving said ratchet, and the detent upon the frame, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

ALANSON HOWARD BALES.
EDWARD CLARKSON BALES.

Witnesses:

D. M. EVANS,
GEORGE E. ROSS.