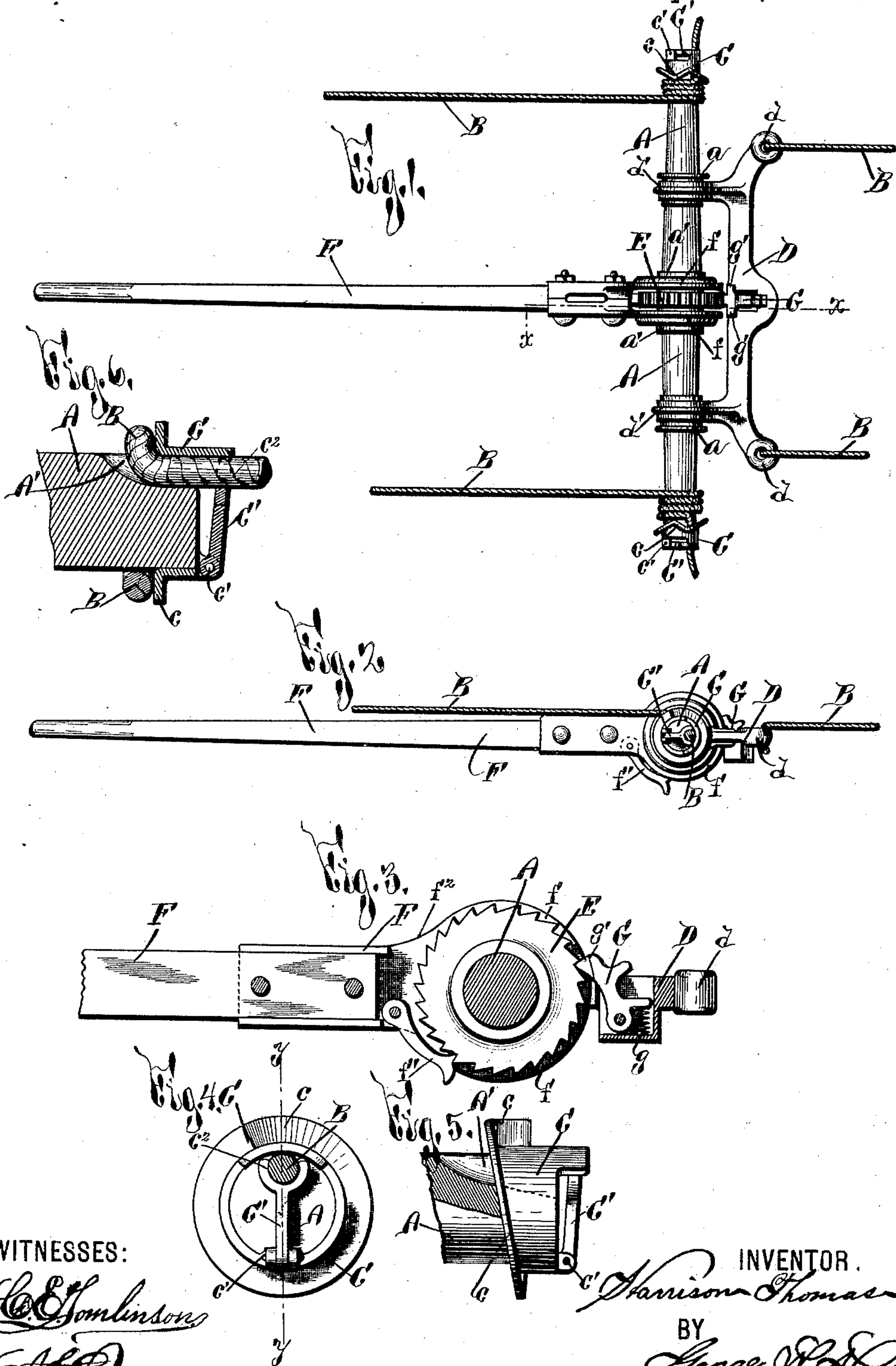


(No Model.)

H. THOMAS.  
BINDER.

No. 426,608.

Patented Apr. 29, 1890.



WITNESSES:

*C. E. Robinson*  
*A. Parsons*

INVENTOR.

*Harrison Thomas*  
BY  
*George W. Dyer*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

HARRISON THOMAS, OF LAFAYETTE, NEW YORK.

## BINDER.

SPECIFICATION forming part of Letters Patent No. 426,608, dated April 29, 1890.

Application filed October 23, 1889. Serial No. 327,932. (No model.)

*To all whom it may concern:*

Be it known that I, HARRISON THOMAS, of Lafayette, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Binders, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved binder, and has for its object the production of a simple and effective device especially adapted for tightly binding or drawing together a load of hay, straw, or like material; and to this end it consists, essentially, in ropes passed around the substance to be bound, a rotary spindle having one extremity of said ropes secured thereto, a support loosely mounted on said spindle and having secured thereto the opposite extremities of said ropes, and a lever or other means for rotating said spindle.

My invention furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part thereof, in which like letters indicate corresponding parts in all the views.

Figure 1 represents a top plan view of my improved device shown in the position assumed when operatively mounted upon a load of hay or other substance to be bound. Fig. 2 is an edge view of the parts as illustrated in Fig. 1. Fig. 3 is an enlarged longitudinal sectional view taken on line *x x*, Fig. 1. Fig. 4 is an enlarged end view of the rotary spindle. Fig. 5 is an enlarged elevation, partly in section, of the detached end of said rotary spindle; and Fig. 6 is an enlarged sectional view taken on line *y y*, Fig. 4, for the purpose of illustrating the rope as held by the end of the rotary spindle.

It is well known that when drawing hay, straw, bark, and other loose substances there is a great tendency for the wagon or rack to tip over, which is especially due from the height to which the looseness of the substance raises the load and the consequence elevation of the center of gravity. For tightly binding together loads of this character there have been devised binders which are subject to various disadvantages, the principal ones

being a great liability of the breaking of the parts, inability to readily remove the binder from the rack when not required for use, and insufficient operation, owing to its position upon the load. Having in view these disadvantages, I have devised a binder which is entirely different in operation from those previously devised and is mounted directly on top of the load, enabling the pressure to be applied with the greatest effectiveness, thus securely binding the load at the top. Moreover, this device is readily placed in operative position and removed therefrom when not required for use.

A represents a rotary spindle, which, although it may be of suitable size, form, and material, is preferably composed of wood, having its extremities slightly tapered toward the center. Ropes B, of suitable material, are securely fastened at one extremity to the ends of the spindle A, in order that when the same is rotated said ropes shall be wound upon the inclined extremities of the spindle and toward the center. The ropes B may be fastened to the ends of the spindle in any desired manner; but, as illustrated, I prefer to use end pieces C, formed of a suitable metal ring capping or socketing over the ends of the spindle A. Provided in the ends of the spindle are the passages A', through which the extremity of the ropes are passed and then turned in the desired direction by an inclined flange or shoulder c, formed upon said end pieces C. The ropes are prevented from pulling out of said apertures A' by means of a suitable catch consisting of a lever C', hinged at c', and having at its upper free extremity the cut-out c<sup>2</sup>. By reference to Fig. 6 it will be seen that this lever contacts with the rope before the same is in a vertical position, and that as strain is applied to the rope the lever is approximated toward its vertical position, and the rope is thus the more tightly held from slipping.

Secured to the spindle A, and preferably to the central portion thereof, is a suitable support or bracket D, formed with engaging points or eyes d, to which the opposite extremity of said rope is secured. The preferable manner of mounting this support upon the spindle consists in forming the same with a collar or collars d', which fit around the spindle upon metallic wearing-rings a, ar-



ranged at either side of the center thereof. As this support is loose upon the spindle A, it will readily be understood that when the said spindle is rotated no motion is communi-  
5 cated to said support.

Secured to the spindle A, and preferably at the center thereof, are engaging-teeth, preferably formed into a ratchet E, and loosely mounted at said point upon the said spindle  
10 is a suitable lever F, preferably formed with hubs *f*, working on collars or sleeves *a'* upon either side of said gear.

Secured to the lever F is an actuating-dog *f'*, which engages the top of said ratchet E.  
15 In operation the lever is brought to a suitable elevation, whereupon gravity engages the dog *f'* with the ratchet E, and the lever is then forced downward, partially rotating said spindle. The spindle is held in its desired  
20 position by means of a catch or dog G, which is here illustrated as mounted in the support D and engaged with said ratchet E by means of a spring *g*.

In order to allow of the ready disengage-  
25 ment of the dog and teeth of the ratchet, when desired to loosen the binder, the dog may be suitably disengaged, if desired; but the preferable manner consists in providing said dog with a shoulder *g'*, projecting later-  
30 ally therefrom and engaged by the hub or hubs of the lever F. As this lever is brought from the position in Fig. 3 upward and then downward, the said shoulder *f'* will contact with the shoulder *g'*, and will automatically  
35 force outward said dog G.

The operation of my invention is as follows: After the forming of the desired load the binder is placed on the top thereof, ropes are then passed beneath the rack, and their  
40 opposite extremities are connected, as described, to the ends of the spindle and to the support D. The lever F is then operated upward and downward, thus rotating the spindle A and winding the ropes upon its inclined  
45 extremities. My binder is thus mounted on the top of the load, and the strain is applied in both directions toward the front and toward the back, and by the peculiar construction and arrangement of the parts the load is  
50 readily bound, as desired, by the great amount of leverage. There is no support for the binder which would tend to become broken; but by applying the strain equally on either side great durability of the parts is effected.  
55 It will be understood, however, that instead of a single rope separate ropes might be secured to eyes or other suitable engaging means at the front and back of the rack, and that their free extremities might be engaged  
60 with my binder in exactly the same way as the continuous rope hereinbefore described.

It will be understood that considerable change may be made in the detail construction and arrangement of the parts of my in-  
65 vention; hence I do not limit myself to its precise form and construction.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a binder, the combination of a rotary  
70 spindle having a rope removably engaged thereby and adapted to be wound thereupon by the rotation of the spindle, a support or bracket loosely mounted on said rotary spin-  
dle and adapted to be engaged by the oppo- 75 site extremity of said rope, engaging-teeth rigidly secured to said spindle, a lever loosely mounted on said spindle, a dog secured to said lever for engaging said engaging-teeth secured to the spindle and thereby rotating 80 the spindle, and a catch secured to said loosely-mounted support or bracket for engaging said teeth upon the spindle, substantially as and for the purpose set forth.

2. In a binder, the combination of a rotary  
85 spindle having a suitable rope engaged thereby and adapted to be wound thereupon by the rotation of the spindle, a ratchet-wheel rigidly secured to said spindle, a support or bracket loosely mounted on said rotary spin- 90 dle, a dog secured to said loosely-mounted bracket for locking the ratchet, and a lever loosely mounted on said spindle and having a dog adapted to engage said ratchet and rotate said spindle, substantially as and for the 95 purpose specified.

3. In a binder, the combination of a rotary  
spindle having a suitable rope engaged there- by and adapted to be wound thereupon by the rotation of the spindle, a support or 100 bracket loosely mounted on said rotary spindle and adapted to be engaged by the opposite extremity of said rope, shoulders on said spindle for preventing lengthwise movement of said support along the spindle, a ratchet 105 mounted on said spindle between said shoulders, a dog secured to said loosely-mounted bracket for locking the ratchet, and a lever loosely mounted on said spindle and adapted to engage said ratchet and rotate the spindle, 110 substantially as and for the purpose set forth.

4. In a binder, the combination of a rotary  
spindle having its opposite extremities en- gaged by the opposite extremities of a suit- able rope adapted to be wound thereupon by 115 its rotation, a support or bracket D, having eyes loosely mounted on said spindle and engaging-points *d* engaged by the opposite ex- tremity of a rope, substantially as specified.

5. In a binder, the combination of a rotary  
120 spindle having a suitable rope engaged thereby and adapted to be wound thereupon by the rotation of the spindle, a support or bracket loosely mounted on said spindle and adapted to be engaged by the extremity of 125 said rope, a ratchet mounted on said spindle, a dog secured to said bracket for locking the ratchet, a lever mounted on said spindle and adapted to engage said ratchet, and a shoulder on said lever for forcing backward the dog 130 and disengaging the same from the ratchet, substantially as and for the purpose set forth.

6. In a binder, the combination of a rotary  
spindle having a suitable rope engaged there-



by and adapted to be wound thereupon by the rotation of the spindle, and an opening in the end of the spindle through which the rope is passed, an end piece C, a locking-lever C' for engaging the rope and preventing the same from slipping, a support or bracket mounted on said spindle and adapted to engage the opposite extremity of said rope, and a lever for rotating said spindle, substantially as and for the purpose set forth.

7. In a binder, the combination of a rotary spindle having end pieces thereon, and a passage in the end of said spindle through which the extremities of said ropes are passed, a locking-lever C' for locking the rope in said end pieces, a support or bracket D, having

eyes d' loosely mounted on said spindle and engaging-points d engaged by the opposite extremity of said rope, a ratchet mounted on said spindle, a dog secured to said bracket for locking the ratchet, and a lever mounted on said spindle for rotating said ratchet, substantially as specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 20th day of June, 1889.

HARRISON THOMAS.

Witnesses:

CLARK H. NORTON,  
A. E. PARSONS.