No. 745,834. PATENTED DEC. 1, 1903.

P. HANSON.

TWINE CAN FOR GRAIN BINDERS.

APPLICATION FILED SEPT. 22, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

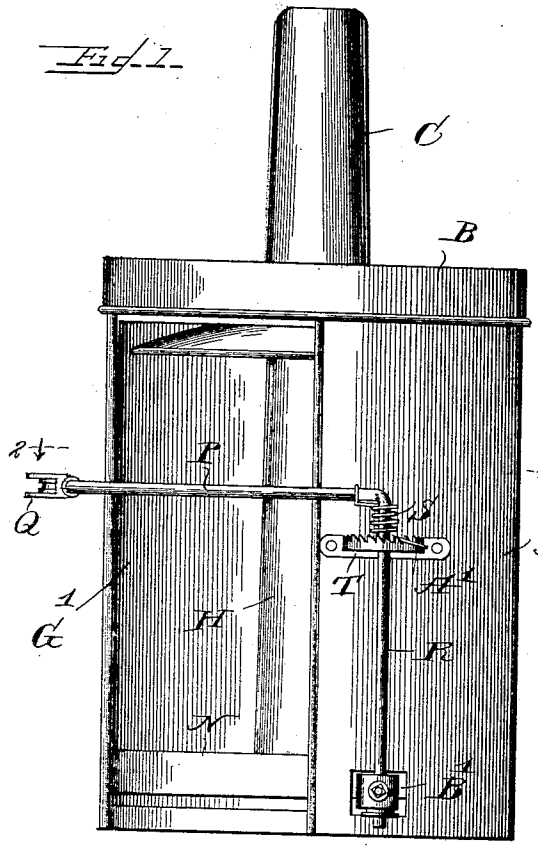


Fig. 3.

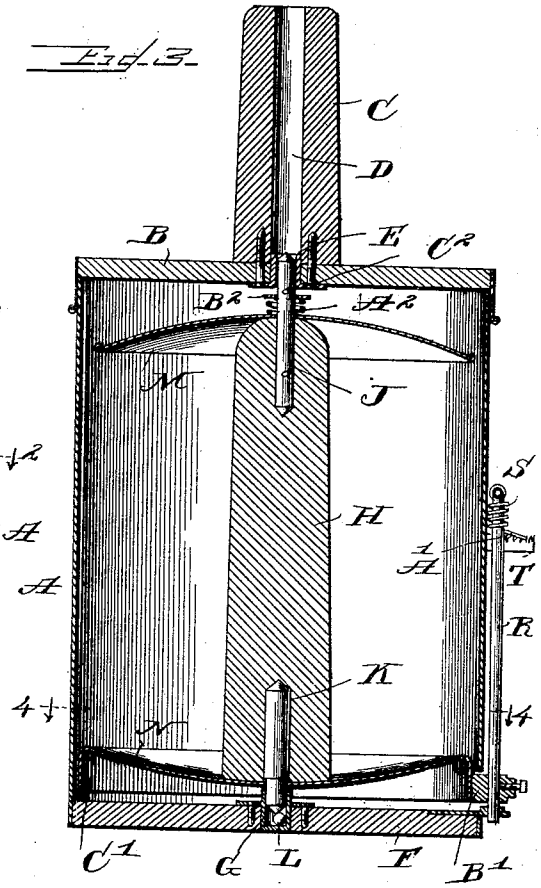


Fig. 2.

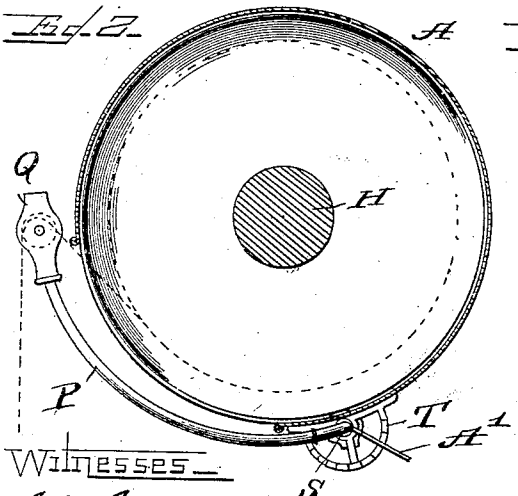
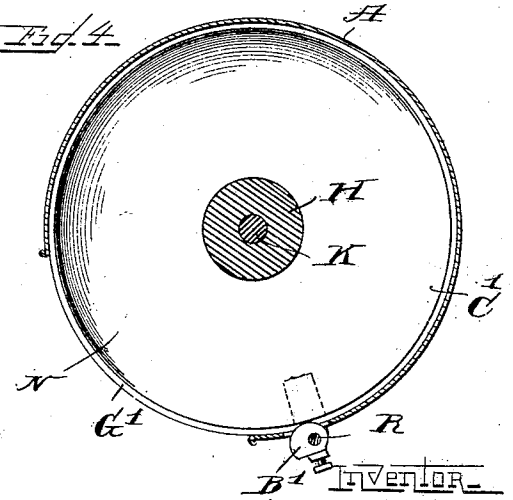


Fig. 4.



Witnesses

G. A. Paulsenschmidt

Chas. H. Seem

Inventor

Paul Hanson

By Brown & Darby

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 745,834. PATENTED DEC. 1, 1903.

P. HANSON.

TWINE CAN FOR GRAIN BINDERS.

APPLICATION FILED SEPT. 22, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

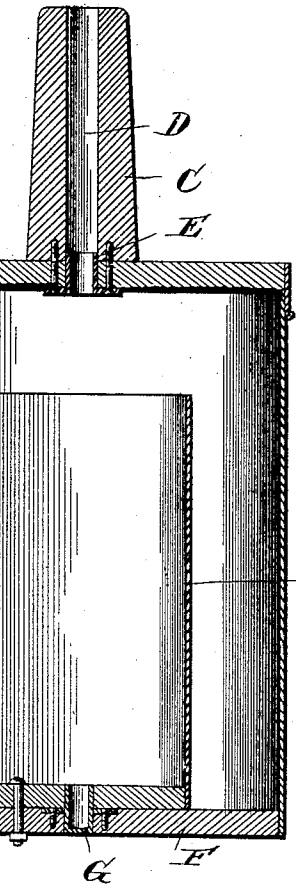


Fig. 8.

Fig. 6.

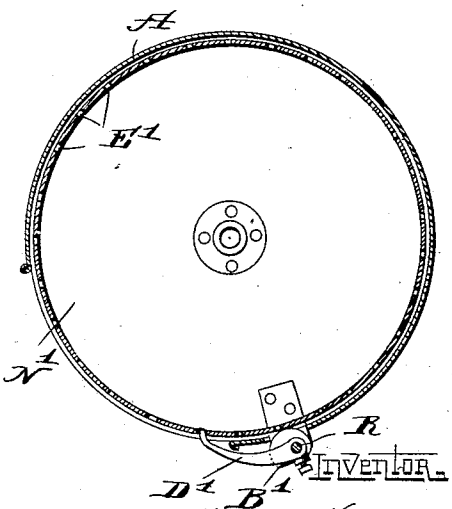
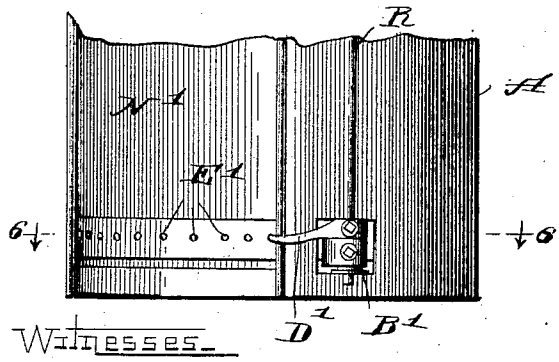


Fig. 5.



Witnesses.

G. A. Paubenschmidt

Chas. H. Seem

Inventor.

Paul Hanson

By Brown & Darby

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 745,834. Patented December 1, 1903.

UNITED STATES PATENT OFFICE.

PAUL HANSON, OF ST. PAUL, MINNESOTA.

TWINE-CAN FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 745,834, dated December 1, 1903.

Application filed September 22, 1902. Serial No. 124,487. (No model.)

To all whom it may concern:

Be it known that I, PAUL HANSON, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Twine-Can for Grain-Binders, of which the following is a specification.

This invention relates to twine-cans for grain-binders.

The object of the invention is to simplify and improve the construction and arrangement of twine-cans for grain-binders and to render the same more efficient in operation.

A further object of the invention is to provide means whereby undue unreeling of the twine from the cop or ball is prevented.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in side elevation of a construction of twine-can embodying the principles of my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal central section. Fig. 4 is a horizontal section on the line 4 4, Fig. 3, looking in the direction of the arrows. Fig. 5 is a view similar to Fig. 1, showing a slightly-modified arrangement embraced within the scope of my invention, the upper part of the can being broken off. Fig. 6 is a transverse section on the line 6 6, Fig. 5, looking in the direction of the arrows. Fig. 7 is a view similar to Fig. 3, showing the can adapted for use with ordinary Manila twine. Fig. 8 is a detached detail view of the removable cover-plate for the opening in the side of the twine-can.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In the accompanying drawings, reference-sign A designates the can or casing proper provided with a flange-top B, arranged to fit snugly and tightly over the top edge of the can or casing A, whereby it may be readily removed. Suitably secured centrally of the top B is a spout or plug C, adapted to carry an extra cop or ball of twine, said plug having a longitudinal central bore or opening D therethrough. A sleeve E is arranged to project into the end of the bore D from the inner side of top or cover B to form a bearing. In the bottom or floor F of the can is arranged a step-bearing seat G.

H designates a pin or rod, and in the ends thereof are mounted the dowels or studs J K. The dowel or stud J is arranged to be received in the bearing-sleeve E, as clearly seen in Fig. 3, while the dowel or stud K is stepped in the bearing-sleeve G in the bottom or floor F of the can. If desired, and preferably, the step-bearing dowel or stud K may be arranged to rest upon a ball L in order to reduce friction and to enable the pin H to readily and easily revolve. The bearing-sleeves E and G are arranged in alinement with each other and in the geometric center of the top or cover B and bottom or floor F of the can. Suitably mounted upon the pin H are the end plates M N. These plates or disks are preferably concaved on their opposed faces, as shown, to conform to the contour of the ends of a cop or ball of twine. These concaved end plates also serve to prevent spreading out of the ball or cop of twine under its own weight, and especially when said cop or ball becomes reduced in size. The upper end plate M is made removable, so as to enable the cop or ball of twine to be placed in position upon the pin H.

In operation the parts are assembled by applying the end plate N to the end of pin H and then stepping the dowel-pin K into the bearing-sleeve G. The cop or ball of twine is then slipped over the pin H, and the end plate M is applied to the other end of said pin H. The top or cover B is then applied to the can, with the dowel or stud J received in the bearing-sleeve E. Of course it is obvious that the cop or ball may be placed on the pin H while removed from the can, and then the end plates M N applied and the whole device placed in proper position within the can.

In the operation of a grain-binder in use the twine is reeled off from the cop or ball unevenly—that is to say, variable strains are

imposed upon the twine in a direction to reel the same off by reason of the variable movements of the needle, sometimes the twine being pulled off with a jerk. Any violent pull exerted upon the twine tending to unreel the same from the cop or ball imparts rotation to the ball, which under the influence of the momentum of the rotating ball is liable to cause too great a quantity of twine to be reeled off, thereby producing more slack in the twine than is necessary. Moreover, in the initial pull exerted on the twine an undue strain is placed thereon to impart the initial rotative movement to the cop or ball in order to rotate the same from a position of rest. It is among the special purposes of my invention to provide means whereby the twine is yielded evenly and smoothly from the cop or ball under the varying conditions of pull exerted thereon during the operation of the grain-binder in the field and also to provide means whereby an initial rotative movement is imparted to the cop or ball in unreeling and also brake the rotative movement of the cop or ball or to lock the same against rotative movement when the pull on the twine is relieved, so as to prevent undue reeling off of the twine under the momentum of rotative movement imparted to the cop or ball. These objects I accomplish by means of an arm P over a roller or through an eye Q, in the end of which the twine is led from the cop or ball, as clearly indicated in Fig. 2. This arm is preferably bent or curved somewhat to conform to the circular contour of the can and is provided with a stem portion R, suitably journaled in bearings mounted on the outer surface of the can A. A spring S is arranged to exert its tension upon the arm P to yieldingly press the same against or toward the side of the can. The tension of this spring may be adjustably regulated in any simple, suitable, or convenient manner—as, for instance, by means of a segment-plate T, having teeth, in any one of which the end A′ of the spring may be engaged. It is obvious that the tension of this spring may be adjusted in any other suitable manner. Mounted upon the stem R is a block B′, having a cam-surface and arranged to project through a slot or opening in the frame or casing A, so as to be brought into contact with the peripheral surface of disk or plate N. In the particular form shown, but to which my invention is not limited, the plates M N are stamped up out of thin sheet metal, and the plate N is provided with a depending flange C′, against which the cam-surface of block B′ engages. I do not desire, however, to be limited or restricted to the particular form or construction of disk or plate N employed so long as the parts are so relatively arranged that the cam-surface of block B′ may bear against the disk or plate. The cam-surface of block B′ is so relatively arranged as to form a clamp or brake to prevent rotation of disk N, and hence also of the cop or ball, when the arm P is held pressed against or toward the cylindrical casing A—that is, when said arm occupies the position thereof as shown in Fig. 2—the tension of spring S exerting a sufficient pressure of the cam-block B′ against the plate or disk N to arrest and to hold the same against rotation. This cam-block also performs the further function of imparting an initial rotative movement to the disk or plate N as the cop or ball whenever the arm P is swung outwardly or away from the can—as, for instance, under the pull exerted thereon by the needle of a grain-binder when advancing to its work—thereby relieving the twine itself of the pull necessary to start the cop or ball into rotation.

In Figs. 5 and 6 I have shown a slightly-modified arrangement wherein in addition to the braking effect of the cam-block B′ the plate or disk N is positively locked by means of a hook-lever D′, mounted upon stem R to rotate therewith, and having its end arranged to be projected or received in one of a series of seats or openings E′, formed in the disk or plate N′. Thus when the arm P is rocked or swung outwardly or away from the can the hook-lever D′ is disengaged from the seat or opening E′ to release the lock, and when the arm P swings in the opposite direction, or toward the can, the hooked end of lever D′ enters a seat or opening E′ and forms a positive lock.

The twine is led from the cop or ball of twine through an opening G′, formed in the side of the can A. In fact, in the particular construction shown an entire panel or section is omitted in the side of the can through which the twine is led to and over the anti-friction-roller Q in the end of arm P.

The twine-can above described is particularly well adapted for use with grass twine; but it may sometimes be desired to employ the ordinary Manila twine on the machine, and to avoid the necessity for using separate cans for each machine I provide means whereby the can above described may be readily adapted for use with Manila twine, and when employed as a holder for the ordinary Manila twine the pin H and its end plates N M are removed and replaced by a removable inner shell or casting H′ (see Fig. 7) of a sufficient diameter and size to receive the ordinary balls of Manila twine, such as is ordinarily employed for grain-binders' purposes, the twine being led from the ball through the bearing-sleeve E and bore D of stud C and thence through any ordinary or suitable tension device in the ordinary manner.

It is desirable that a yielding pressure be imposed upon the plate M, tending to press the same downwardly upon the end of the ball of twine. I have shown a simple means for accomplishing this result, wherein I interpose a spring A^2 between said plate M and a washer B^2, held in pintle J by a pin C^2. In

this manner the plate M is yieldingly pressed down upon to closely hug the end of the ball of twine.

If desired, the opening G′ in the side of the can-body A may be closed in any suitable manner. In Fig. 8 I have shown a removable cover for said opening. This cover consists of a removable plate or panel D^2, having lugs or flanges E^2, adapted to be turned over to form hooks to engage over the top edges of the can-body and at its lower end provided with lugs F^2 G^2 at each edge thereof, adapted to receive the adjacent edges of the can-body therebetween. This cover-plate being of metal can be readily sprung into place or removed when desired.

It is believed that the operation of the apparatus so far described will be readily understood from the description when taken in connection with the accompanying drawings.

It is obvious that many variations and changes in the details of construction and arrangement would readily occur to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details shown and described; but,

Having now set forth the object and nature of my invention and a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. The combination with a twine-can adapted to receive a cop or ball of twine and having a feed-opening at the side thereof, a support for an extra ball or cop of twine comprising a stem spout or plug mounted on the top of the can and upon which the extra cop or ball of twine is received, as and for the purpose set forth.

2. The combination with a twine-can adapted to receive a cop or ball of twine and having a feed-opening in the side thereof, a support for an extra cop or ball of twine comprising a spout or plug carried by the top of the can and upon which the extra cop or ball is received, said spout or plug having a longitudinal bore or opening therethrough, as and for the purpose set forth.

3. In a twine-can, a casing, means for rotatively mounting a cop or ball of twine therein, a tension-arm, means for yieldingly pressing said arm toward said can, said arm forming a tension-guide for the twine from said ball or cop, a cam connected to move with said arm and means arranged to be engaged by said cam to arrest the rotative movements of the ball or cop of twine, as and for the purpose set forth.

4. The combination with a twine-can of a pin arranged therein and adapted to receive a cop or ball of twine thereon and having end plates arranged to engage the ends of the cop or ball, and means for yieldingly pressing one of said plates against the end of the cop or ball, as and for the purpose set forth.

5. The combination with a twine-can having a top and a bottom, of a bearing-sleeve mounted in said top and a stop-bearing sleeve mounted in said bottom, a pin having pintles or studs adapted to be received in said bearing-sleeves, said pin adapted to receive the cop or ball of twine, as and for the purpose set forth.

6. The combination with a twine-can for binder-twine, of a top or cover and a bottom or floor, bearings arranged in said top or cover and bottom or floor, a pin having dowels or studs arranged to be journaled in said bearings, said pin adapted to receive the cop or ball of twine thereon, and end plates mounted upon said pin, as and for the purpose set forth.

7. The combination with a twine-can having a top or cover and a bottom or floor, bearings arranged in said top or cover and bottom or floor, a pin having bearing dowels or pintles projecting from the ends thereof and adapted to be received in said bearings, said pin adapted to receive thereon the cop or ball of twine, and end plates mounted on said pin, said end plates being concave upon the opposed surfaces thereof, as and for the purpose set forth.

8. In a twine-can, the combination with a support for the cop or ball of twine, a casing having an opening, and a swinging arm pivotally mounted outside of said casing and arranged in position to receive and lead the twine from the cop or ball directly through said opening, as and for the purpose set forth.

9. In a twine-can, the combination with a support for the cop or ball of twine, a casing having an opening, a yieldingly-pressed swinging arm pivotally mounted outside the casing and arranged in position to receive and lead the twine from the cop or ball directly through said opening, and means for adjusting the pressure of said swinging arm, as and for the purpose set forth.

10. The combination with a twine-can, of means for rotatively mounting the cop or ball of twine in said can, and means for imparting an initial rotative movement to the cop or ball of twine in unreeling the twine therefrom, as and for the purpose set forth.

11. In a twine-can the combination with means for rotatively mounting the cop or ball of twine, in said can, a tension device through which the twine is led from the cop or ball, and means actuated by the movement of said tension device for imparting an initial rotative movement to the ball of twine in unreeling the twine therefrom, as and for the purpose set forth.

12. In a twine-can, a casing adapted to receive rotatively a cop or ball of twine, a swinging arm arranged outside of said casing to receive and lead the twine from the cop or ball, means for yieldingly pressing said arm toward said casing, and a cam connected to move with said arm when the tension exerted by the pull of the twine upon said arm is relaxed, and means arranged to be engaged by

said cam when so moved to form a brake for the rotating cop or ball of twine, as and for the purpose set forth.

13. In a twine-can and in combination with means for rotatively mounting the cop or ball of twine in the can, of a swinging arm through which the twine is led from the cop or ball, means for yieldingly pressing said swinging arm toward the can, and a block actuated by the movements of said arm to impart an initial rotation to the cop or ball when said arm is moved away from the can and to brake or stop the rotations of the cop or ball when said arm is moved toward the can, as and for the purpose set forth.

14. The combination with a twine-can and means for rotatively mounting the cop or ball of twine therein, of a tension-arm through which the twine is led from the can, a cam-block actuated by said arm and operating to impart the initial rotative movement to the cop or ball of twine and to check or brake the rotative movement thereof, as and for the purpose set forth.

15. The combination with a twine-can and means for rotatively mounting the cop or ball of twine therein, including a rotating disk or plate, of a tension-arm through which the twine is led from the cop or ball, a cam-block arranged to be actuated by said arm and to engage the peripheral edge of said plate or disk, as and for the purpose set forth.

16. The combination with a twine-can and means for rotatively mounting the cop or ball of twine therein including a rotatable disk upon which the cop or ball is mounted, of a tension-arm through which the twine is led from said cop or ball, a cam-block actuated by said arm to engage said plate or disk, and a locking-lever also actuated by said arm and arranged to engage said disk for positively locking the latter when said arm is relieved of a strain or pull upon the twine, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 22d day of August, 1902, in the presence of the subscribing witnesses.

PAUL HANSON.

Witnesses:
CHAS. H. SEEM,
S. E. DARBY.