

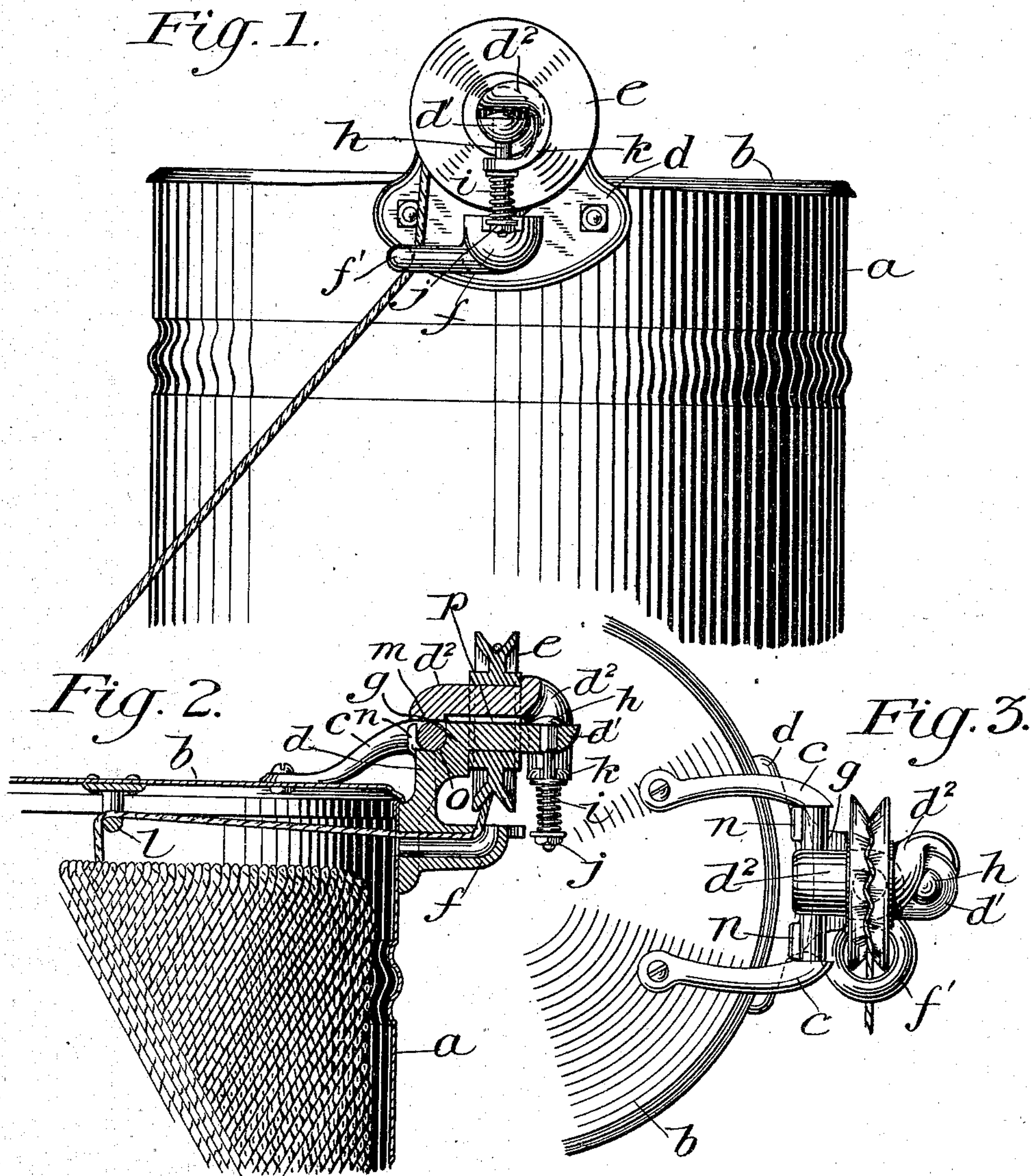
No. 681,140.

Patented Aug. 20, 1901.

C. A. A. RAND.
TENSION DEVICE FOR TWINE OR CORD.

(Application filed Dec. 22, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES A. A. RAND, OF CHICAGO, ILLINOIS.

TENSION DEVICE FOR TWINE OR CORD.

SPECIFICATION forming part of Letters Patent No. 681,140, dated August 20, 1901.

Application filed December 22, 1900. Serial No. 40,748. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALFRED ANDERSON RAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tension Devices for Twine or Cord; and I 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, reference being had to the accompanying drawings, forming a part of this specification.

The invention relates to tension devices used on machines for binding grain, corn, &c., where a number of balls of cord or twine have their ends tied together and are stacked up in the can, from which the strands run through the tension device to the eye of the needle or binder arm.

The object of my invention is to provide a tension that shall be adjustable and at the same time automatic in its operation, so that when the cord or twine catches or kinks, so as to produce an increased tension tending to break it, the tension produced by the device may be removed.

In the drawings, Figure 1 is an elevation of the upper end of the can, showing an end view of the tension device. Fig. 2 is a section of the parts shown in Fig. 1, taken vertically through the tension device; and Fig. 3 is a top plan view of the parts shown in the other figures.

Referring to the views, *a* represents the can. It is provided with the hinged lid *b* and is of any ordinary size, shape, and construction. The lid *b* is provided with a bail-like hinge *c*, on which it swings in opening and closing. At one side, near the top of the can, is provided a bracket *d*, having the projection *d'*, forming a portion of the trunnion for the sheave or wheel of the tension device, and just below this trunnion portion there is also a guide-eye *f* for leading the twine or cord to the wheel and another guide-eye *f'* for determining the direction of the twine as it is drawn from the wheel. In the construction herewith

illustrated these guide-eyes are made in one part with the bracket *d*; but obviously this is a matter of convenience and economy, and one or both may be separate therefrom, if desired. For economy, simplicity, and convenience of construction I also utilize the trunnion-bracket *d* for the bearing *g* of the hinge *c* of the lid. This bearing is best formed by the lugs or ears *n*, rising inside of a groove *o*, formed at the upper end of the bracket *d* at or near the inner end of the trunnion portion *d'*. The pintle of the bail-like hinge *c* fits in this groove *o* and is removably held therein by the toe-piece *m* on the inner end of the movable section *d²* of the trunnion, which will presently be described. This said toe-piece *m* overlies the groove *o*, and thus closes the bearing and prevents the accidental displacement of the hinge without interference with the free swinging movement necessary to open and close the lid.

The sheave or wheel is of any suitable diameter and has a V-shaped groove in its periphery, that lies in a sort of zigzag manner around the circumference, as clearly shown in Figs. 2 and 3, the object of this construction of the groove being to prevent the cord or twine from slipping over the periphery without turning the wheel.

The trunnion proper is split or divided longitudinally into sections *d'* and *d²*, adapted to fit loosely the bore of the sheave or wheel *e*, which is journaled thereon. The section *d'* of the trunnion is a rigid extension of the bracket *d*. The section *d²* is a separate piece. It is provided with a slight projection or toe-piece *m* on one end, which serves as a fulcrum. This leaves an opening *p* between the rigid section *d'* and the movable section *d²*, allowing the latter the desired latitude of movement. The outer end of the section *d²* is deflected laterally, as shown in Figs. 1 and 3, and has the downward projection *k*, which underlies the end of the rigid section *d'*.

Seated in the outer end of the fixed section of the trunnion *d'* is a rod or bolt *h*, that extends downwardly through the slotted end of the extension *k* of the movable section. Bear-

ing against the under side of the slotted end of the extension *k* and encircling the bolt *h* is the spring *i*. The lower end of the bolt *h* is provided with a nut *j*, adapted to screw against the lower end of the spring *i*. By this construction, as described, it will be readily understood that by tightening up the nut *j* against the spring *i* a yielding pressure is produced tending to expand or force apart the two sections of the trunnion, causing them to bear with more or less friction against the inner surface of the bore of the tension-wheel.

As is well understood, the cord or twine unwinds from the center of the balls, as shown in Fig. 2, and I provide an eye or loop *l* on the under side of the cover at the center and lead it upwardly without kinking into proper alignment with the guide-eye *f*, already described. The twine from the guide-eye *f* is delivered to the tension-wheel at a point in a vertical line through the center and is drawn therefrom through the guide-eye *f'* in a line or direction substantially parallel thereto. By this arrangement if for any reason the twine is caught or kinked anywhere between the device and the source of supply, so as to produce an increased tension on the twine delivered from the device, the movable section *d*² of the trunnion is pulled down, so that the friction of the fixed trunnion against the bore of the wheel is removed, and the wheel is allowed to revolve freely.

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

1. In a tension device for twine, cord, or the like the combination of a sheave or wheel, a bearing for said wheel divided longitudinally into sections, a resilient body adapted to react between the sections of said bearing, a guide-eye to lead the twine to the wheel and a guide-eye to determine the direction of the twine as it is drawn from the wheel, the location of said guide-eyes causing the tension of the twine to oppose the action of the resilient body.

2. In a tension device for twine, cord, or the like the combination of a sheave or wheel, an expansible trunnion, on which the said wheel is journaled, a resilient body adapted to expand said trunnion, a guide-eye to lead the twine to the wheel, and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eyes so located that the tension on the twine will oppose the action of the resilient body.

3. In a tension device for twine, cord, or the like the combination of a sheave or wheel, a trunnion, on which the said wheel is journaled, longitudinally divided into sections, a spring adapted to react between the sections of the said trunnion, a guide-eye to lead the twine to the wheel and a guide-eye to determine the direction of the twine as it is drawn

from the wheel, said guide-eyes so located that the tension of the twine will oppose the action of the spring.

4. In a tension device for twine, cord, or the like the combination of a sheave or wheel adapted to engage the twine, a trunnion, on which the said wheel is journaled, longitudinally divided into a movable section and a relatively rigid section, a spring adapted to react between the sections of the said trunnion, means for adjusting the tension on said spring, a guide-eye to lead the twine to the wheel, and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eyes so located that the tension on the twine shall oppose the action of the said spring.

5. In a tension device for twine, cord, or the like the combination of a sheave or wheel having a zigzag V-shaped groove in its periphery, a trunnion on which the said wheel is journaled, longitudinally divided into a movable section *d*² and a relatively rigid section *d'*, the movable section *d*² having a projection extending to one side and beneath the rigid section *d'*, a bolt or rod seated in the end of the rigid section *d'* and extending through the slot or hole in the said projection of the movable section *d*², a spring encircling the bolt and adapted to react between the nut of said bolt and the said projection of the movable section *d*², a guide-eye to lead the twine to the wheel and a guide-eye to determine the direction of the twine as it is drawn from the wheel, said guide-eye so located that the tension on the twine may oppose the action of the said spring, all combined substantially as described.

6. In a tension device for twine, cord, or the like the combination of a can, a projection at one side forming a trunnion, a sheave or wheel journaled thereon, a guide-eye to lead the twine to the wheel, a guide-eye to determine the direction of the twine as it is drawn from the wheel, said trunnion being longitudinally divided into sections, and a spring adapted to react between the said trunnion-sections.

7. In a tension device for twine, cord, or the like the combination of a can having a hinged lid, a projection at one side thereof forming a trunnion, a sheave or wheel journaled thereon, a guide-eye to lead the twine to the wheel, a guide-eye to determine the direction of the twine as it is drawn from the wheel, said trunnion being longitudinally divided into sections, a bearing for the hinge of the lid formed in the rigid section of said trunnion, and a spring adapted to react between the said trunnion-sections.

8. The combination with a can having a hinged lid and a bail-like hinge, of a tension device comprising a projection at one side of the can forming a trunnion, a sheave or wheel journaled thereon, a guide-eye to lead the

twine to the wheel, a guide-eye to determine the direction of the twine as it is drawn from the wheel, said trunnion being longitudinally divided into sections, a bearing for the pintle
5 of the bail-like hinge formed in the rigid section, a toe-piece or fulcrum formed on one end of the movable section adapted to overlie the said bearing and hold the pintle in place, and a spring on the opposite side of

the wheel from the hinge adapted to react between the said sections of the trunnion, all combined substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES A. A. RAND.

Witnesses:

CHAS. N. CHAMBERS,
WM. A. DREFFEIN.