

A. TSCHOP.  
AUTOMATIC TENSION AND TAKE-UP LEVER IN GRAIN OR STRAW BINDING  
MACHINES.

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# UNITED STATES PATENT OFFICE.

ALBERT TSCHOP, OF POUGHKEEPSIE, NEW YORK.

AUTOMATIC TENSION AND TAKE-UP LEVER IN GRAIN OR STRAW BINDING MACHINES.

SPECIFICATION forming part of Letters Patent No. 467,550, dated January 26, 1892.

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*To all whom it may concern:*

Be it known that I, ALBERT TSCHOP, a citizen of the United States, residing at Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and useful Automatic Tension and Take-Up Lever in Grain or Straw Binding Machines, of which the following is a specification.

My invention relates to improvements in a tension and take-up device for self-binding harvesting-machines or straw-binders; and the object of my improvements is to insure an even and uniform tension of the cord while passing from the ball or spool around the sheaf or bundle, thereby preventing uneven or knotted twine from breaking, and to take up slack cord due to the backing out of the needle or other cause, thereby holding the twine uniformly taut and preventing its kinking or tangling. I attain these objects by the novel construction illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device, and Fig. 2 is a rear view thereof.

A indicates part of a self-binding harvester, in this case a portion of the twine-box lid, upon which the device is fastened.

B indicates the bracket, on which is hinged the take-up lever C. On the upper end of this lever is a pin or axle K, which has its bearing in a hub L, projecting from the bracket B. On the lower end of the lever C and on the opposite side from the axle K is rigidly secured a tension plate or jaw H.

E is a smaller lever, to the lower end of which is secured the movable tension plate or jaw I. The upper end of this smaller lever is curved to allow a pin O, rigid on said end, to pass the lever C far enough to strike a pend-ent arm or stop D, forming a part of or rigid on the bracket B. The two levers C and E are connected by a rivet or screw M, similar to that of a pair of shears.

N is a lug or arm on lever C, between which and the tension-plate I is placed a spiral spring P, which presses the tension-plate I against the plate H. Between these two plates the cord passes from the ball to the needle.

F is a coiled spring, one end of which engages one of a series of hooks *h h*, formed on bracket B, the other end of this spring engaging an eyebolt *e*, the other end of which passes

through a lug *g* on the take-up lever C, and has a nut *d* on the outside of said lug.

*b b b b* are guide-eyes through which the cord or twine X passes, as shown in the drawings.

The spiral spring P is sufficiently strong to hold the twine and keep it from slipping through the plates H and I until the latter are drawn up, so that the pin O on the lever E strikes the arm D, which relieves in part the grip of the plates and lets the cord pass on through or between them and around the bundle. Should a knot or any other enlargement of the twine appear, the tension-plates will move into the position indicated by the dotted lines in Fig. 1 of the drawings, lifting the jaw sufficiently to let said enlargement pass through between the jaws, the movable jaw immediately closing again upon the cord without relaxing the tension, which is thus made self-adjusting, the coiled spring virtually controlling the tension as well as the take-up capacity. By screwing up the nut *d* on the eyebolt *e* the tension of the spring F is tightened and the take-up power increased. Consequently there is always the same strain on the cord, whether the needle is drawing on it or the slack is being taken up.

When the take-up lever C is at rest or in its normal position, the lug *f* on said lever rests against a stop W on bracket B.

The twine X passes through the several guide-eye holes *h* to prevent tangling or kinking and to keep it between the jaws and tension-plates.

Ordinarily the bracket B is formed in one piece with its hub L, arm D, &c.; also the lever C with its jaw H and lug *g* and the lever E with its jaw and tripping pin or spur. The tension-plates, lugs, &c., may be otherwise fastened; but preferably they are cast, thereby making a very cheap and simple device.

I do not wish to be understood as limiting myself to the precise construction hereinabove described, as several mechanical equivalents will readily suggest themselves; neither do I wish to be limited to the exact location of the tension device, as there are several places on a self-binding harvesting-machine where it can be located so that the twine shall pass through it before passing through the eye at the point of the needle.



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

1. In a tension device, the combination, with  
5 a supporting-bracket, of a swinging take-up  
lever, tension plates or jaws thereon, one of  
which is pivoted, springs for controlling said  
take-up lever and the pivoted tension plate  
or jaw, and a stop arranged to operate said  
10 pivoted plate in the movement of the take-up  
lever to relax the tension on the cord, substan-  
tially as described.

2. The arm or lever C, carrying the tension  
plate or jaw H and a lug or arm N, in combi-  
15 nation with the lever E, pivoted thereto and  
carrying the tension plate or jaw I and trip-  
ping-pin O, springs F and P, and arm or stop  
D, all substantially as described.

3. The combination, in a take-up and ten-

sion device for self-binding harvesters, of ten- 20  
sion plates or jaws, one of which is movable  
relative to the other, a movable carrying-  
arm or support therefor, a spring operating  
said arm to take up the cord, and a stop op- 25  
erating on said movable jaw to relax the ten-  
sion on the cord, all substantially as described.

4. The combination of the lever C, provided  
with the tension-plate H and arm or lug N,  
the lever E, provided with the tension-plate  
I and tripping-pin O and pivoted to the lever 30  
C, the springs F and P, the arm or stop D, and  
the eyebolt and nut for adjusting the tension  
of the spring F, all substantially as described.

ALBERT TSCHOP.

Witnesses:

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