S. E. INGALLS.

TWINE TENSION DEVICE.

APPLICATION FILED JULY 15, 1909.

953,270.

Patented Mar. 29, 1910.

Fig. 3.

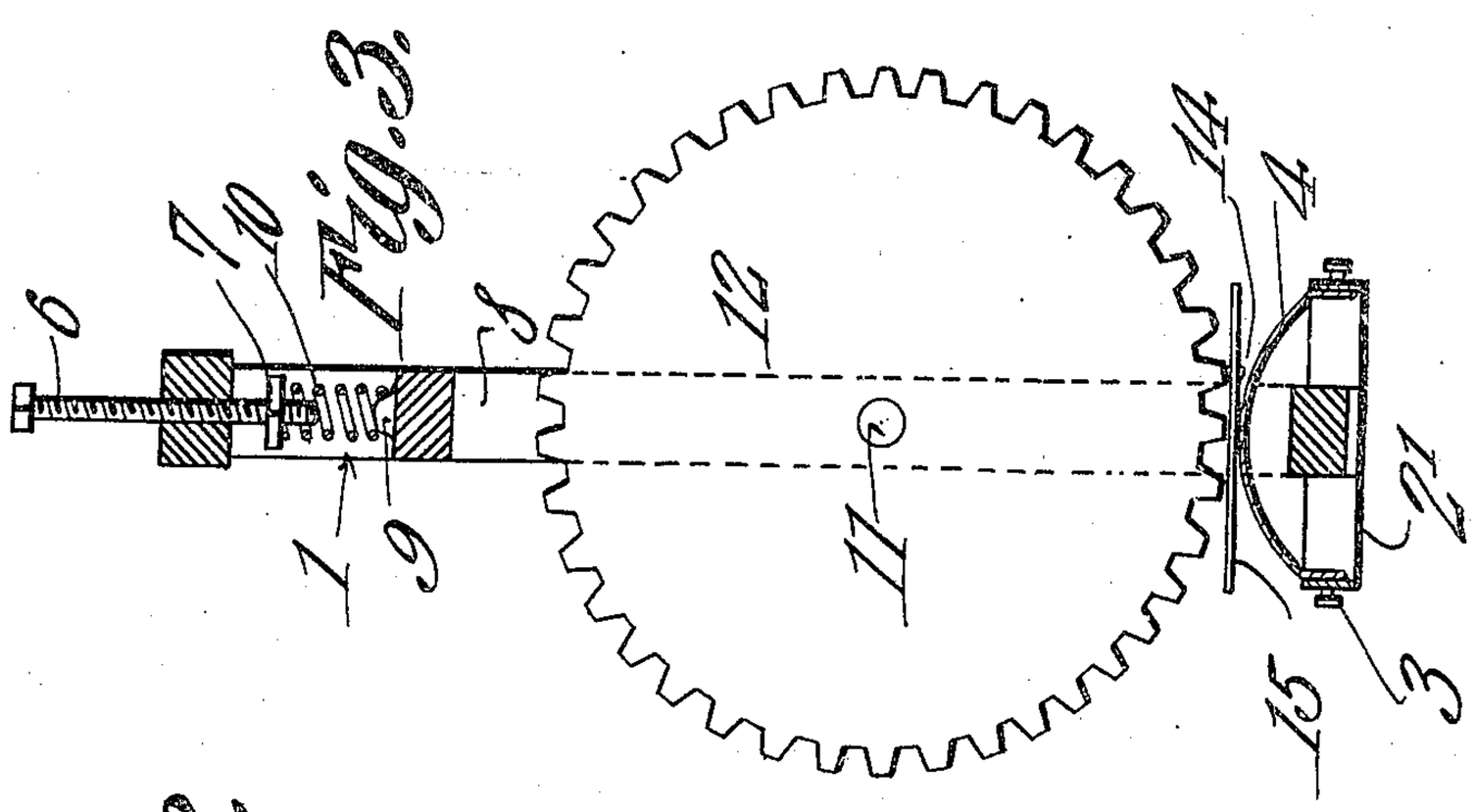

Fig. 2.

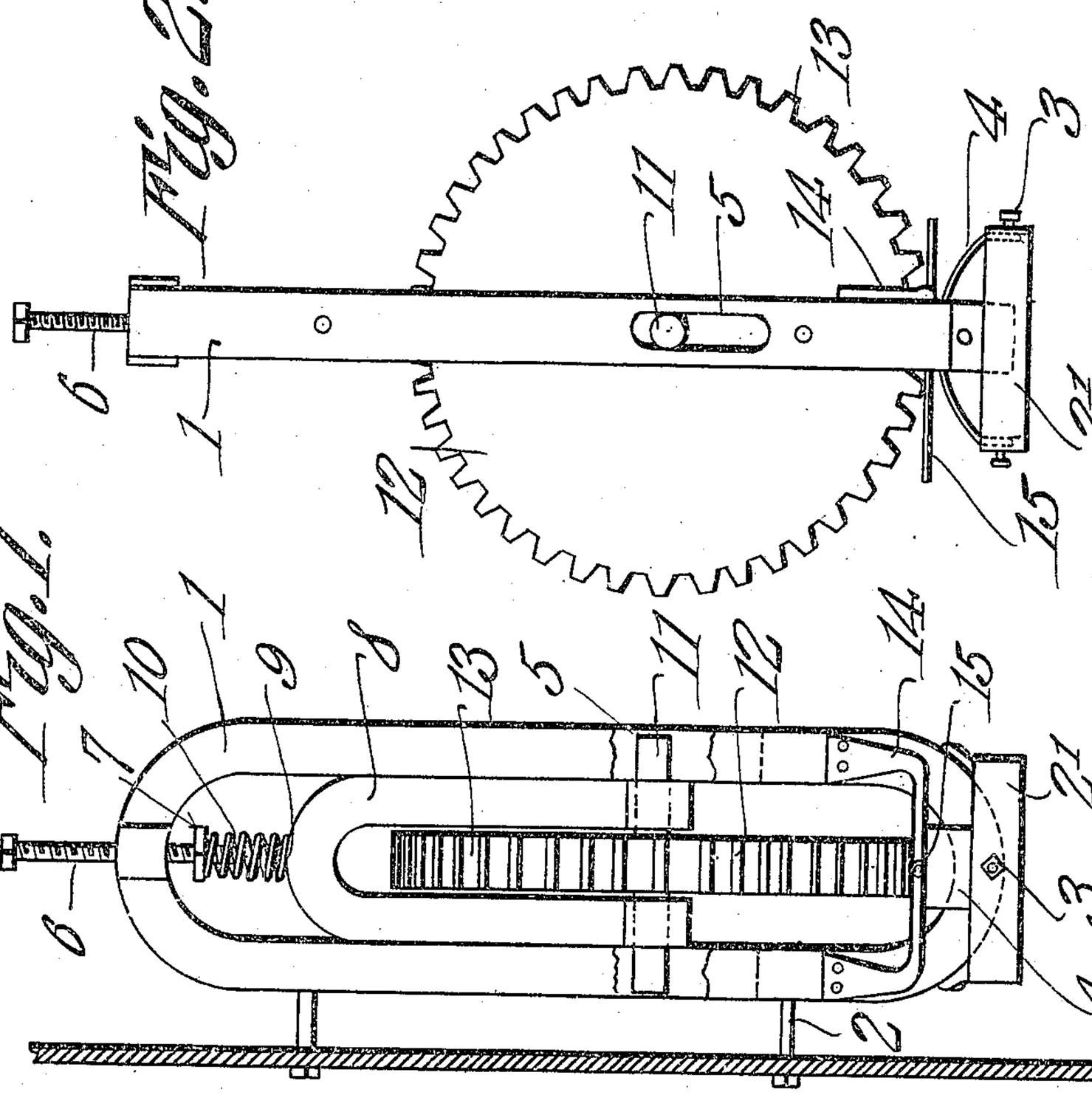

Fig. 1.

Witnesses

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TWINE-TENSION DEVICE.

953,270. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed July 15, 1909. Serial No. 507,803.

To all whom it may concern:

Be it known that I, SCOTT E. INGALLS, a citizen of the United States, residing at Rupert, in the county of Lincoln and State of Idaho, have invented a new and useful Twine-Tension Device, of which the following is a specification.

This invention has relation to twine tension devices and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a device of the character indicated which is especially adapted to be used upon binding machines for the purpose of maintaining the binding twine at proper tension. The twine used on machines of this character is more or less irregular or loose in its assemblage of fiber, and frequently the twine contains noils or knots in the fiber, which renders it extremely difficult to provide a tension device for holding the twine in a taut condition and at the same time to permit the passage of such enlargements caused by the said noils or knots in the fiber.

The object of the present invention is to provide a device which is especially adapted to maintain twine of the character indicated in a proper taut condition as it is fed to the knotting and tying mechanism of the binder, and, with this object in view, the device consists of a frame upon which is adjustably supported a resilient plate. A secondary frame is slidably mounted in the first frame and is subjected to spring tension, the spring of which is interposed between the two frames, and means is provided for adjusting the tension of the said spring. A wheel having a tooth periphery is journaled in the secondary frame and is adapted to coöperate with the said resilient plate for holding the twine at proper tension as the same is fed through the device to the knotting and binding mechanism.

In the accompanying drawings:—Figure 1 is a side elevation of the tension device. Fig. 2 is an edge elevation, or an elevation taken at right angles to that illustrated in Fig. 1. Fig. 3 is a vertical sectional view of the elevation as illustrated in Fig. 2.

The tension device comprises an approximately elliptical frame 1, adapted to be secured to the frame of a harvester by means of securing bolts 2. A ring 2′ is attached to the lower portion of the frame 1 and is provided at opposite sides with set screws 3. A spring plate 4 is interposed between the set screws 3 and the inner ends of the said set screws bear against the ends of the said plate.

The set screws 3 are adjusted so as to hold the plate 4 in curved configuration with its bowed intermediate portion upwardly disposed over the lower end of the frame 1. The frame 1 is provided in its opposite sides with vertically disposed slots 5. A screw-bolt 6 is threaded in the upper portion of the frame 1, and upon the lower portion of the said bolt is screwed a nut 7. A secondary frame 8 is slidably mounted within the frame 1 and is provided at its upper end with a knob 9. A coil spring 10 at its lower end surrounds the knob 9 and bears against the upper end of the secondary frame 8. The upper end of the said spring 10 bears against the lower face of the nut 7. An axle 11 is carried at the lower end of the frame 8 and the ends of the said axle are located in the vertically disposed slots 5 in the frame 1. A wheel 12, having upon its periphery a series of teeth 13 is journaled upon the shaft 11 as an axis, and the lower portion of the said wheel 12 is disposed above the intermediate portion of the curved plate 4. Twine guides 14 are attached to the lower portions of the frame 1 and have extremities disposed toward the vertical plane passing through the plane of the plate 4 and wheel 12 intermediate of their side edges.

From the above description it is obvious that as the binder twine 15 is passed between the lower portion of the wheel 12 and the upper surface of the curved plate 4, the teeth 13 of the said wheel will engage the fiber of the twine, and, as the twine is drawn to the tying mechanism of the harvester it is subjected to the weight of the wheel 12 and its attachments in addition to the tension of the spring 10. The tension of the said spring 10 may be regulated by adjusting the bolt 6 longitudinally within the frame 1, and also by adjusting the nut 7 upon the said bolt. To accomplish major adjustment of the tension of the spring 10, the bolt 6 is adjusted, and, to accomplish minor adjustment of the said spring, the nut 7 is adjusted upon the bolt. During the passage of the twine 15 between the wheel 12 and the plate 4 it is guided in a proper direction by the inturned ends of the twine guides 14.

By turning the screws 3 the curvature of the plate 4 may be increased or diminished

to bear against the twine at variable pressures to assist to regulate the tension.

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

1. A tension device comprising a frame, a curved plate attached to the frame, means for increasing or decreasing the curvature of the plate, a secondary frame located in the first said frame, tension means interposed between the two frames, and a wheel journaled upon the secondary frame and adapted to coöperate with the said plate to engage the twine to be maintained at tension.

2. A tension device comprising a frame, a ring attached to the frame, set screws passing through the ring, a curved plate disposed between the set screws, a secondary frame slidably mounted in the first said frame, a tension means interposed between the two frames, and a wheel journaled upon the secondary frame and adapted to coöperate with said plate.

3. A tension device comprising a frame having vertically disposed slots in its opposite sides, a curved plate supported at the lower end of the frame, a secondary frame mounted within the first said frame, a tension means interposed between the said frames, a shaft carried by the secondary frame and having its ends located in the slots of the first said frame, and a wheel journaled upon the said shaft and adapted to coöperate with said plate.

4. A tension device comprising a frame having vertically disposed slots in its opposite sides, a curved plate mounted at the lower end of the frame, a secondary frame slidably mounted in the first said frame, a screw-bolt threaded in the first said frame, a nut screwed upon said bolt, a spring interposed between said nut and the secondary frame, an axle-shaft carried by the secondary frame and having its ends located in the slots of the first said frame, and a wheel mounted upon the axle shaft and adapted to coöperate with said plate.

5. A tension device comprising a frame having vertically disposed slots in its opposite sides, a curved plate carried by the frame, means for increasing or decreasing the curvature of said plate, a secondary frame slidably mounted in the first said frame, a screw-bolt threaded in the first said frame, an adjusting nut screwed upon said bolt, a tension spring interposed between said nut and the secondary frame, an axle shaft carried by the secondary frame and having its ends located in the slots of the first said frame, and a wheel mounted upon said axle-shaft and adapted to coöperate with said plate.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

SCOTT E. INGALLS.

Witnesses:
HENRY GADDIS,
LUTHER C. BOPST.