

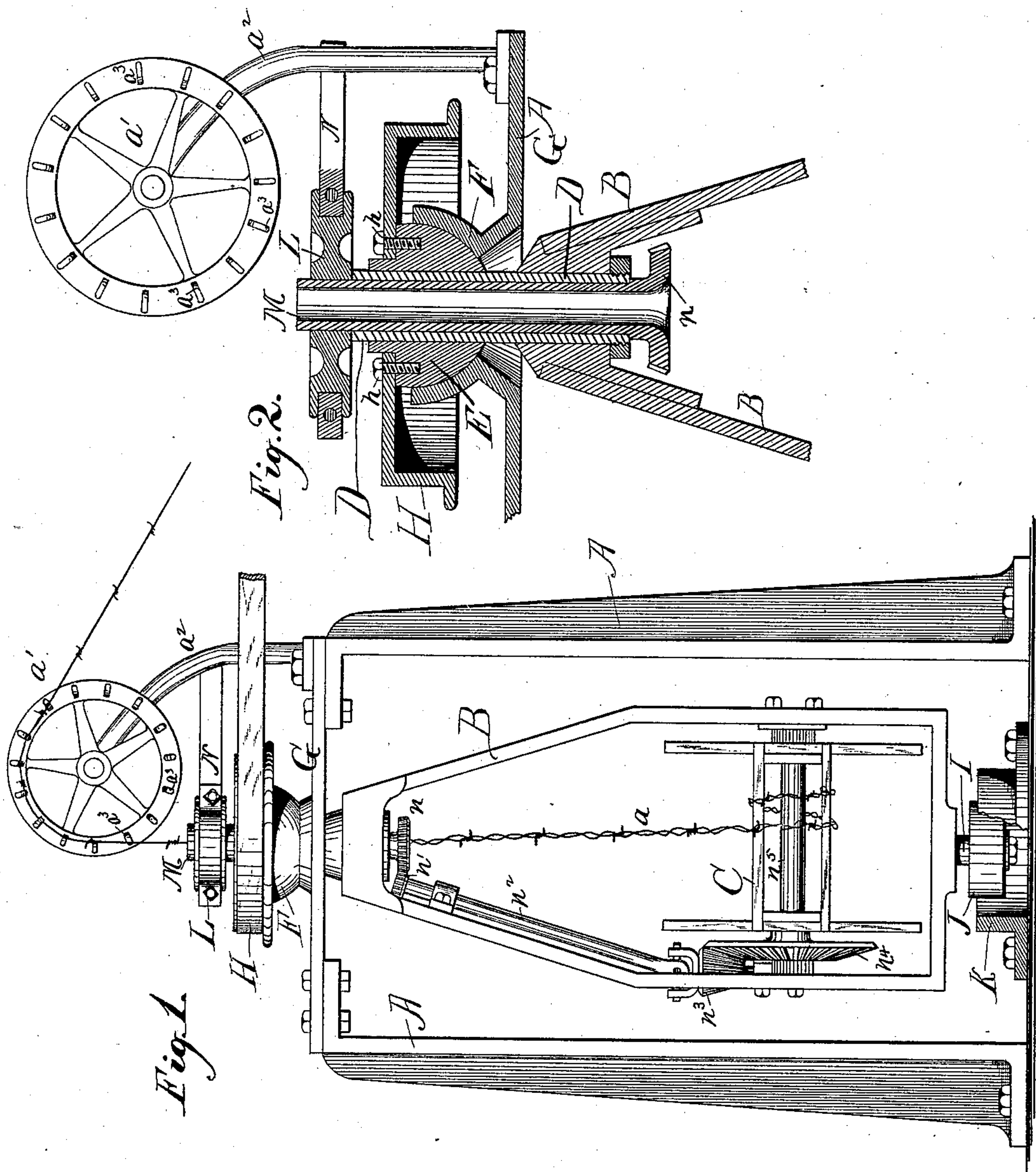
(No Model.)

C. C. HILL.

BARBED WIRE TWISTING AND SPOOLING MACHINE.

No. 299,542.

Patented June 3, 1884.



Witnesses:
J. Everett Brown
A. M. Munday.

Inventor:
Christian C. Hill
per Monday, Everts & Adcock
his Attorneys:

UNITED STATES PATENT OFFICE.

CHRISTIAN C. HILL, OF CHICAGO, ASSIGNOR TO GEORGE MONROE FISH, OF
OAK PARK, ILLINOIS.

BARBED WIRE TWISTING AND SPOOLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 299,542, dated June 3, 1884.

Application filed June 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN C. HILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Barbed-Wire Twisting and Spooling Machines, of which the following is a specification.

In barb-wire twisting and spooling machines heretofore in use great difficulty has been experienced in revolving them at a desirable speed, owing to the fact that the revolving spool-frame is constantly getting out of balance or changing its center of gravity as the spool of wire increases in size.

The object of the present invention is to overcome this difficulty, and to provide a twisting and spooling machine that will constantly preserve its balance however the size and shape of the spool of wire thereon may change, so that the machine may run at any desired speed and twist and spool the wire with great rapidity. This result I accomplish by suspending the revolving spool-frame from a ball-and-socket bearing or joint at the top end of the frame, the lower end of the frame having no bearing, but being loose and unconfined, so that the center of rotation may instantly change and adjust itself to the center of gravity as the latter varies, owing to the different shape and increased size of the spool as the wire is wound thereon. If the frame is revolved by a pulley and belt, a horizontal plane passing through the middle or the center of the pulley, should pass through the center of the ball-and-socket bearing, so that the tension of the belt will have no tendency to incline the suspended frame from the true vertical position. Any ordinary gearing or mechanism may be used for revolving the spool on its own axis for the purpose of winding up the wire.

While my invention is specially adapted for twisting and spooling such heavy and uneven strands as barbed wire, it of course may be used for twisting any other strands or filaments.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of a device embodying my invention, and Fig. 2 is a central vertical section.

In the drawings, A represents the frame of the machine, B the revolving frame in which

the spool C is journaled. The revolving frame B is secured rigidly to a sleeve, D, which in turn is fixed to the ball E, so as to cause the frame to revolve with the ball. The ball rests and is supported in the ball-socket F. The ball-socket F may preferably be cast in one piece with the cross-bar G of the frame. The band wheel or pulley H, by which the spool-frame is driven, is secured by screws h or otherwise to the ball E. The lower end of the revolving frame B has no fixed bearing, but is provided with a stud or short shaft, I, having a friction-pulley, J, on its end, which pulley fits in a large cup or shell, K, to prevent the lower end of the frame from being swung or oscillated too much out of position. The cup or shell K is secured to the bottom or base of the machine, and is enough larger than the friction-pulley J to always permit the frame B to swing or oscillate sufficiently to bring the center of gravity of the spool and frame directly under the center of the ball-and-socket bearing, so that the center of rotation may always coincide with the center of gravity.

The mechanism for revolving the spool upon its axis to wind the twisted wire thereon, consists, as I have shown in the drawings, of a friction-pulley, L, secured to the hollow shaft M, the friction-clamp N, secured to the frame of the machine and surrounding said friction-pulley, and the beveled gears n n' , jointed shaft n^2 , and beveled gears n^3 n^4 , by which motion is communicated to the spool-shaft n^5 from the hollow shaft M as the spool-frame D revolves. The twisted barbed wire is represented by a , and a' is the barb-wire pulley journaled on an arm, a^2 , secured to the frame of the machine. This wire pulley a' is provided with a number of curved arms or lips, a^3 , at intervals on one side of its periphery, to support and carry the barb-strand without injuring or disarranging the barbs.

In place of the ball-and-socket joint or bearing, it will of course be understood that any other or equivalent form of joint or bearing may be used which will allow the suspended revolving frame to adjust its changing center of gravity to its center of rotation.

I am aware that heretofore in sugar and salt centrifugal machines—for example, as in that shown in the Patent to Hepworth, No. 82,314,

dated September 22, 1868—revolving frames have been suspended vertically, so that their lower ends are free to vibrate within certain limits, and I therefor make no claim to the same, broadly; but I do claim to be the first to practically apply this principal to the twisting and spooling of wire, and the first to combine such a vertically-suspended frame with a wire-spooling reel, and with mechanism for revolving said reel, and thus to produce a wire twisting and spooling machine of more than double the capacity of such machines heretofore in use.

I claim—

15 1. The combination of the revolving vertically-suspended frame with a universal joint or bearing from which said frame is suspended, means for supporting said joint or bearing, and a spool mounted on said frame, so that the center of gravity and rotation may always coincide, substantially as specified.

20 2. The combination of the spool with a vertically-suspended revolving frame, a ball-and-socket joint or bearing from which said frame is suspended, means for supporting said joint or bearing, and mechanism for revolving the spool to wind the twisted strands thereon, substantially as specified.

3. The combination, with the spool, of the vertically-suspended revolving frame, a universal joint or bearing from which said frame is suspended, means for supporting said joint or bearing, a cup or shell loosely confining the lower end of said frame so that the same may adjust its center of gravity to its center of rotation, and mechanism for revolving the spool to wind the twisted strand thereon, substantially as specified.

4. The combination, with spool C, of revolving suspended frame B, sleeve D, ball E, socket F, means for supporting said socket, pulley H, and mechanism for revolving the spool to wind the twisted strands thereon, substantially as specified.

5. The combination, with spool C, of revolving frame B, sleeve D, ball E, socket F, pulley H, stud I, friction-pulley J, cup K, and mechanism for revolving the spool to wind the twisted strands thereon, substantially as specified.

CHRISTIAN C. HILL.

Witnesses:

EDMUND ADCOCK,

T. EVERETT BROWN.