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PATENTED JULY 24, 1906.

A. M. GRIFFIN.  
TWISTING MECHANISM FOR BALE TIE MACHINES.  
APPLICATION FILED APR. 21, 1905.

Fig. 1.

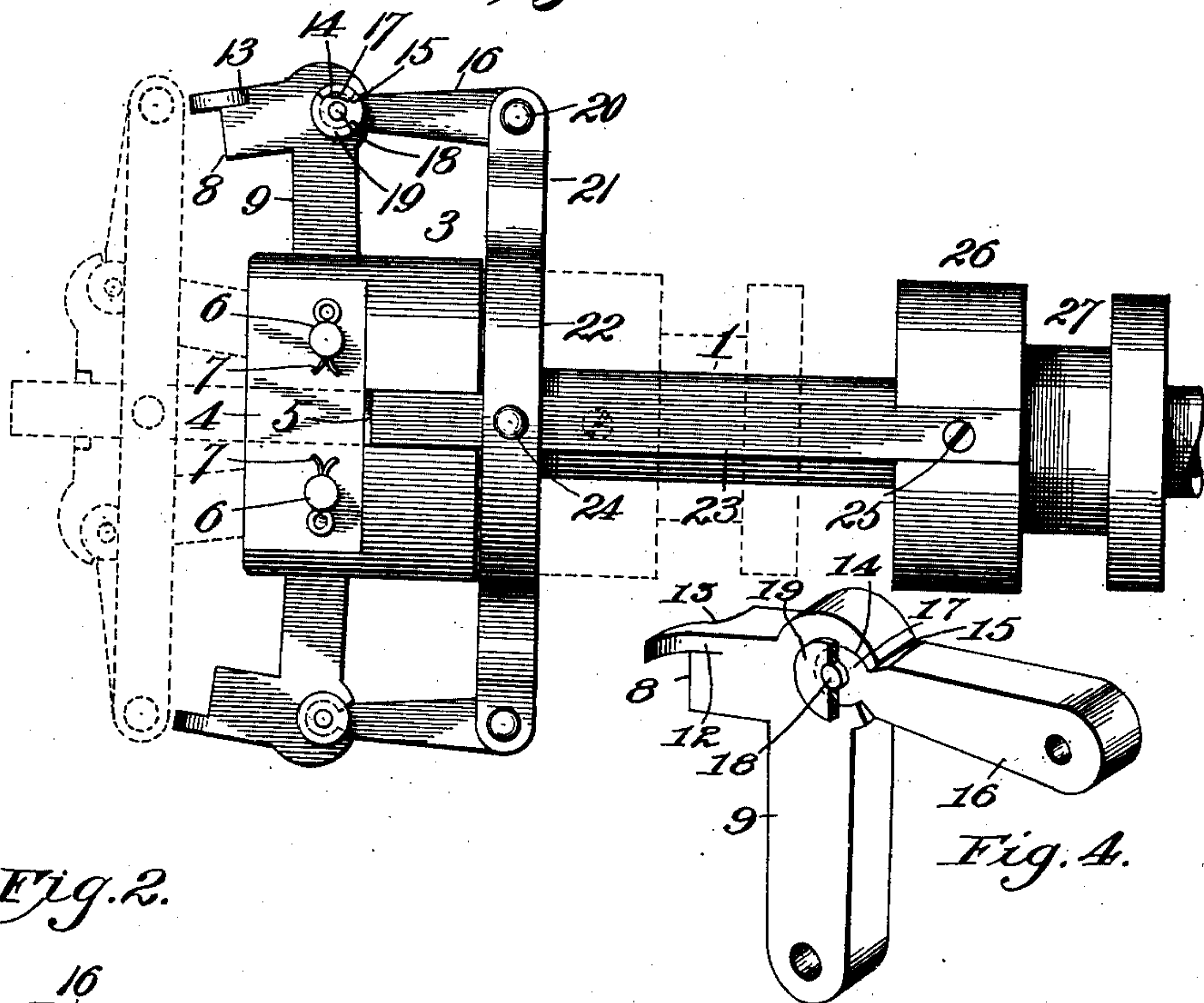


Fig. 2.

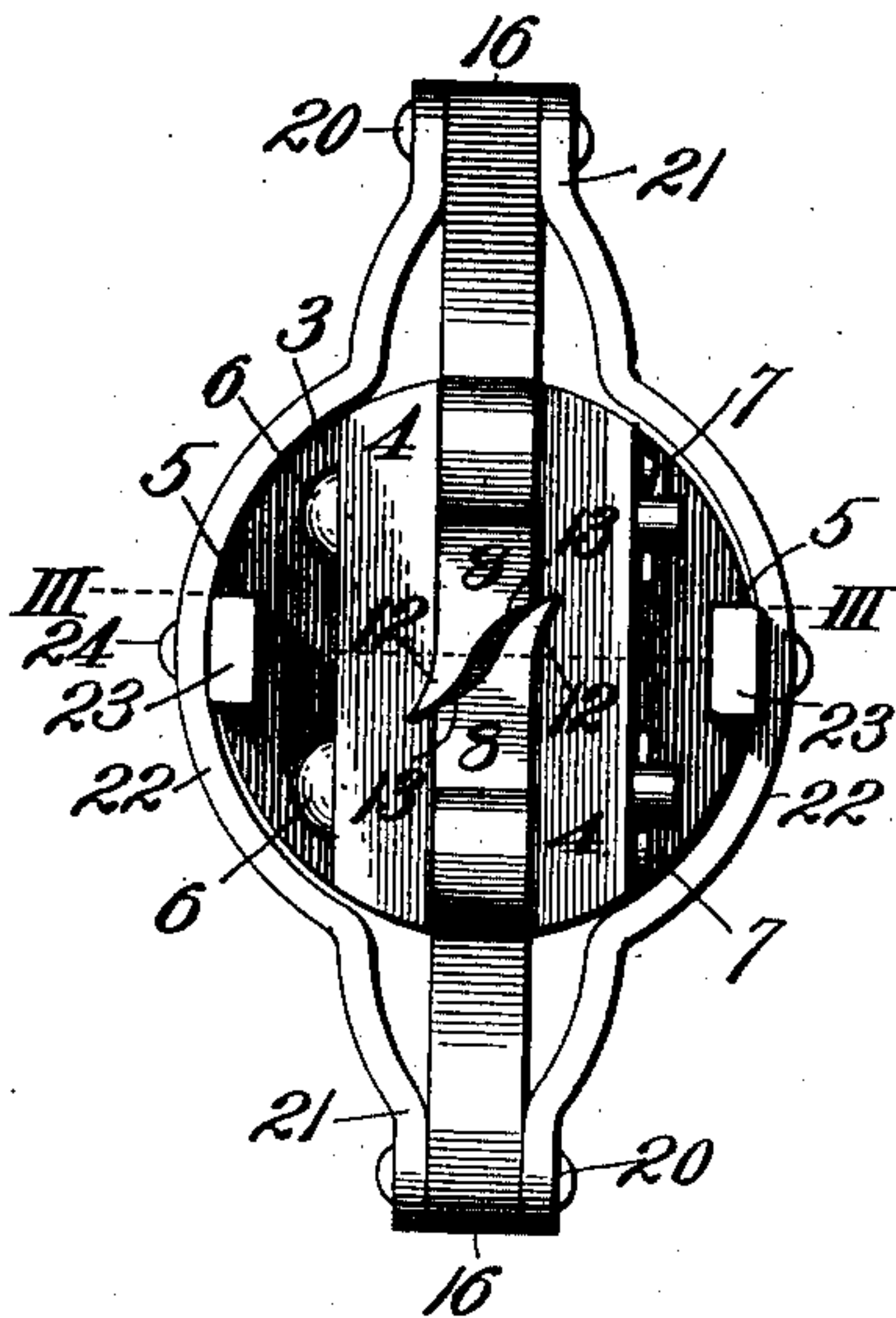
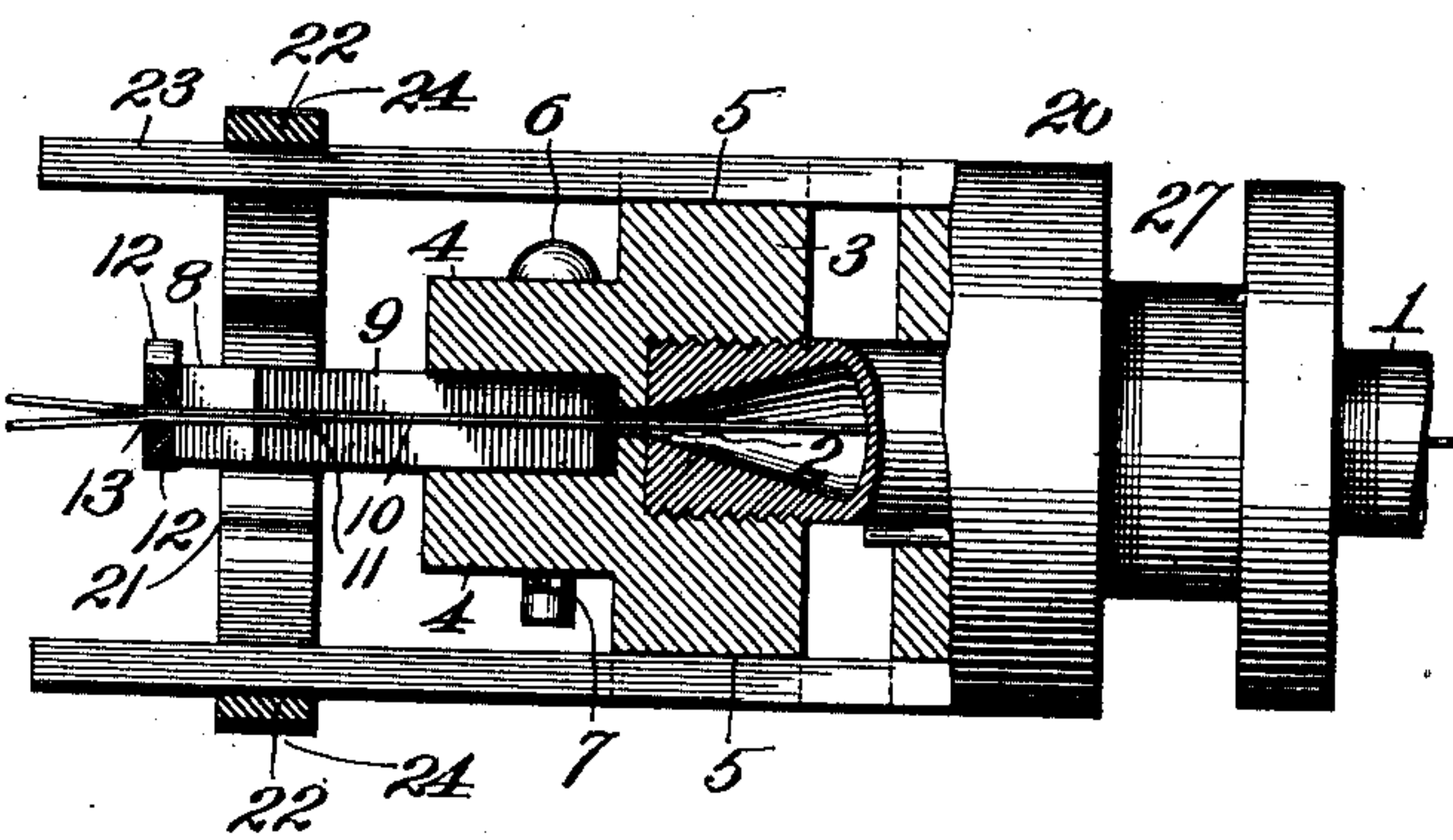


Fig. 3.



Witnesses:

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By George H. Thorpe atty.



# UNITED STATES PATENT OFFICE.

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## TWISTING MECHANISM FOR BALE-TIE MACHINES.

No. 827,064.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed April 21, 1905. Serial No. 256,809.

*To all whom it may concern:*

Be it known that I, ALVAH M. GRIFFIN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Twisting Mechanism for Bale-Tie Machines, of which the following is a specification.

This invention relates to bale-tie machines, and more especially to twisting mechanism of that character embracing jaws mounted pivotally on a head of a tubular shaft and a slidable collar rotatable with and longitudinally adjustable on said shaft and linked to the jaws to open or close the same, my object being to produce a twisting mechanism of the general character outlined which operates efficiently and reliably and is of simple, strong, durable, and compact construction.

To this end the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a top plan view of a twisting mechanism embodying my invention in the position occupied previous to the gripping of the wire and showing in dotted lines its position as the wire is gripped. Fig. 2 is a front view with the wire gripped. Fig. 3 is a horizontal section taken on the dotted line III III of Fig. 2. Fig. 4 is a detail perspective view, enlarged, of one of the jaws and links connected to the same.

In the said drawings, 1 indicates a tubular shaft adapted, through the instrumentality of any suitable mechanism, (not shown,) to be rotated and having its bore tapered to form a small central opening 2 at the front end.

Screwed or otherwise rigidly secured on the front end of the shaft is a large tubular collar 3, formed with a pair of parallel ribs 4 at its front end and with guide-grooves 5 paralleling the shaft.

6 indicates headed cross-pins mounted in the ribs at equal distances from and at opposite sides of the axis of the shaft and retained in position by linchpins or cotters 7.

8 represents angular jaws having their shanks 9 fitting between the ribs and pivoted on the cross-pins. Said jaws are adapted to come squarely against the wire, one jaw first engaging the body 10 of the wire and the

other the bent-back end 11, and in order that said portions of the wire may be brought reliably together, as illustrated in Fig. 2, each jaw is formed with a deflecting-horn 12 and a recess 13, the horns projecting diagonally in opposite directions beyond the sides of the jaws to reliably gather the portions of the wire preliminary to clamping them together, the horn of one jaw being adapted to enter the recess of the other jaw, as shown clearly in Figs. 2 and 3.

14 represents cylindrical sockets having flaring mouths 15 in the outer ends of the jaws, and fitting pivotally in said sockets are the cylindrical heads 17 of links 16, rivets 18 being employed to secure on the ends of heads 17 the washers 19 of size to overlap and bear against opposite sides of the jaws to retain the links in engagement therewith. The opposite ends of the links are pivotally connected, as at 20, to and between the ends of the bars 21, bowed centrally in opposite directions, as at 22, sufficiently to pass the collar 3.

23 represents parallel bars fitting between and secured, as at 24, centrally to the bowed portions 22 of bars 21 and projecting forward beyond the latter and engaging the grooves 5 of collar 3, the rear ends of the bars being secured, as at 25 or otherwise, to the collar 26, keyed to slide upon and rotate with shaft 1, said collar being provided with an annular groove 27 to receive a forked lever, (not shown,) whereby said collar is reciprocated on the shaft to close and open the jaws 8, it being understood that said lever and the means for operating it automatically may be of any suitable or preferred type. After the wire extending through the shaft and tubular collar has been bent back by suitable forming mechanism (not shown, because it bears no dependent relation to the twisting mechanism) the collar 26 is moved to the left, so as to cause the parts to assume the position shown in dotted lines in Fig. 1 and full lines in Figs. 2 and 3, the jaws gripping the wire, as shown and described. Immediately this action occurs the rotating shaft twists the end of the wire and the body portion reliably together, and thus produces a closed loop in the end of the bale-tie. As this rotative action ceases the collar is moved to its original position, so as to swing the jaws to the position shown in full lines, Fig. 1. A suitable device (not shown) then engages the loop and draws the wire through the shaft



the requisite distance, when it is cut by other mechanism, (not shown,) so as to complete the tie. The front end of that portion of the wire extending through the shaft is then bent  
 5 back by the loop-forming mechanism (not shown) to be ready for the next gripping operation. All succeeding operations are repetitions of those described.

It will be apparent that the frame, consisting of bars 21 and 23, secured on a collar 26 and set in the grooves 5 of collar 3, provides a light but exceedingly strong and rigid mechanism for gripping the jaws heavily upon the wire and that the toggle-joint formed by bars  
 15 21 and links 16 gives the machine the advantage of great leverage in forcing the jaws together and in holding them in such position during the twisting operation.

From the above description it will be apparent that I have produced a twisting mechanism for bale-ties which possesses the features of advantage enumerated as desirable and which obviously is susceptible of modification without departing from the principle  
 25 and scope or sacrificing any of its advantages.

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

30 1. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar thereon, jaws pivoted to said collar to swing toward and from each other and provided with substantially cylindrical recesses opening out through  
 35 the outer end of the jaws, links having cylindrical heads pivotally engaging said recesses, and a reciprocatory frame pivoted to the opposite ends of the links.

2. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar thereon, jaws  
 40 pivoted to said collar to swing toward and from each other and provided with substantially cylindrical recesses opening out through the outer end of the jaws, links having cylindrical heads pivotally engaging said recesses,  
 45 washers secured to the opposite ends of said cylindrical heads and of greater diameter than said recesses, and a reciprocatory frame pivoted to the opposite ends of the links.

50 3. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar thereon provided with parallel ribs, cross-pins connecting said ribs, jaws fitting between said ribs

and pivoted on said cross-pins, a reciprocatory frame, and links pivotally connecting  
 55 said frame with said jaws.

4. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar mounted thereon, jaws pivoted to the collar to swing  
 60 toward and from each other and adapted to clamp a bale-wire between them, said jaws being provided with horns which project beyond and laterally of their clamping-faces and with recesses, the horn of each jaw being  
 65 adapted to overlap the other jaw and engage its recess.

5. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar thereon provided with grooves extending parallel with  
 70 said shaft, clamping-jaws pivoted to said collar to swing toward or from each other, a frame to reciprocate longitudinally on the shaft and provided with portions fitting slid-  
 75 ingly in said grooves, and links pivotally connecting said frame with said jaws.

6. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar thereon provided with grooves paralleling said shaft, a reciprocatory collar rotatable with the shaft,  
 80 a frame secured to the last-named collar and fitting slidably in the grooves of the first-named collar, jaws pivoted to the grooved collar to swing toward and from each other,  
 85 and links pivotally connecting said jaws with said frame.

7. A twisting mechanism for bale-ties, comprising a tubular shaft, a collar mounted on  
 90 said shaft to rotate with and slide upon the same, a collar rigid on the shaft and provided with grooves paralleling the latter, a frame comprising parallel bars secured to the recip-  
 95 rocatory collar and slidably engaging the grooves of the other collar, and bars secured to the first-named bars and bowed centrally in opposite directions sufficiently to pass  
 100 over the grooved collar, jaws pivoted to the grooved collar to swing toward and from each other, and links pivotally connecting the ends of said jaws with the bowed portions of said frame.

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

ALVAH M. GRIFFIN.

Witnesses:

H. C. RODGERS,  
 G. Y. THORPE.