

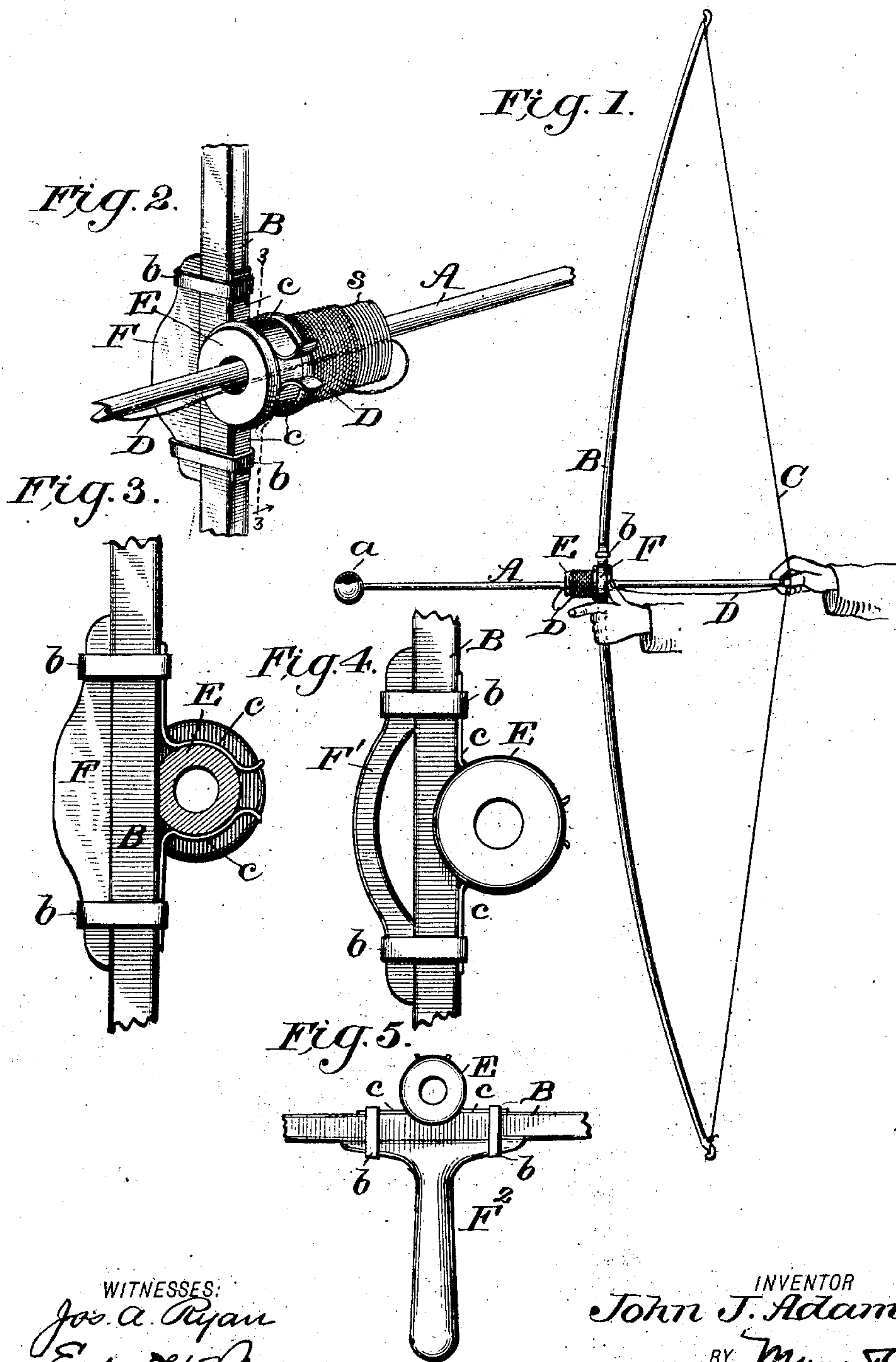
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J. J. ADAMS.
BOW.

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NO MODEL.



WITNESSES:

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JOHN J. ADAMS, OF CHARLOTTE, NORTH CAROLINA.

BOW.

SPECIFICATION forming part of Letters Patent No. 736,051, dated August 11, 1903.

Application filed October 25, 1902. Serial No. 128,765. (No model.)

To all whom it may concern:

Be it known that I, JOHN JAMES ADAMS, of Charlotte, in the county of Mecklenburg and State of North Carolina, have invented a new and useful Improvement in Bows, of which the following is a specification.

My invention is in the nature of an improvement in bows, and it relates to that form of bow in which the arrow is a captive arrow—that is to say, the arrow is connected to a cord wound upon a spool or reel, by which the flight of the arrow is restrained or controlled and the arrow drawn back by means of the cord or the arrow and cord utilized for subsequently carrying a heavier line or rope to or across an elevated or inaccessible point. It is designed to be used for purposes of sport or for carrying a line to the elevated portions of a burning building or for carrying a line across a stream or ravine in bridge-building or for taking a life-line to a disabled vessel or other analogous purpose; and it consists in the novel construction and arrangement of parts whereby the direction of the arrow is more certainly controlled and the device rendered more simple, convenient, and effective for the various purposes named, as will be hereinafter more fully described with reference to the drawings, in which—

Figure 1 is a side view of the bow and arrow, showing the manner of using the same. Fig. 2 is an enlarged detail in perspective of the middle part of the bow. Fig. 3 is a section on line 3 3 of Fig. 2, and Figs. 4 and 5 are details of modifications.

In the drawings, A represents the arrow; B, the bow; C, the bow-string; D, the cord which is attached to and restrains the arrow's flight, and E the spool upon which the cord is wound.

The arrow may either be pointed or provided with a cushion-ball *a* on its end, by which it is rendered harmless for purposes of sport in the street or within a building, the said cushion-ball being a hollow rubber ball.

The notched or finger end of the arrow is permanently connected to the cord D, and this cord is wound upon a spool E, which is rigidly but detachably fixed to the middle of the bow. This spool is made hollow or with a central bore, through which the notched end of the arrow is inserted, and which bore of the spool forms a guide for the arrow that

is within the coils of the cord on the spool and concentric thereto. This spool thus serves the double purpose of a guide-eye for the arrow and a carrier for the cord and has an important function, as will be hereinafter described. The spool has no flange on its outer end, and its body portion is approximately the surface of a cylinder, which is slightly scored with small circular grooves arranged side by side, as shown at *s*, which serve to prevent the cord-coils from slipping off in a bunch and becoming entangled with each other in paying off.

The captive arrow is inserted through the front end of the spool and is extended back through its bore, and its notched end is brought against the string C. The notched end of the arrow, to which the string is secured, is then grasped between the thumb and fingers of one hand and drawn back, while the other hand holds the bow, as seen in Fig. 1. The arrow is then discharged by a release of the thumb and fingers in the usual way. As the arrow proceeds on its flight the cord pays off concentrically, one convolution at a time, with practically no frictional retardation; but, what is most important, the cord as it pays off assumes in the air the form of a spiral which is concentric with the arrow, and as the pull of the cord on the captive arrow constantly changes around the axis of the spool this pull involves no deflection of the arrow whatever either to one side or the other, but rather tends to give to the arrow a true alinement in flight by setting up in the arrow a slight rotary motion about its own axis, which, even if the arrow be slightly bent, will cause it to go true to its mark.

I am aware of the fact that a captive arrow has been connected by its cord to a revolving reel, which when the arrow was shot from the bow compelled the reel to rotate in unwinding the cord. There are, however, many serious objections to this arrangement. In the first place the pull on the arrow being eccentric and always on one side the arrow is constantly deflected from its course. In the second place the power required to rotate the reel is so serious a retardation to the flight of a light arrow that the latter could attain no considerable flight, and in the third place the sudden jerk on the

reel when the arrow first starts on its flight causes the reel to have such an excessive initial velocity as to unwind too fast at the initial part of its movement and involves a tangle in the convolution of the cord. I am also aware that in line-throwing guns a conical reel has been located with its axis parallel with and to one side of the gun-barrel; but this involved the same objection of a lateral pull on the arrow always on one side, which prevented it from going true, and, besides, the reel did not subserve the purpose of a concentric guide for the arrow.

In attaching my spool to the bow the latter is not cut transversely or impaired in any way as to its strength and resilience; but the spool is detachably applied as follows: Along one edge of the bow at its middle a handle or thumb-piece *F* is applied by bands or clips *b b*, which embrace the bow and the handle-piece and also inclose on the opposite edge of the bow two clasp-springs *cc*, between which the spool is thrust and by which the spool is detachably held, the spool being grooved or flanged transversely at the point where it is grasped by the said springs. To detach the spool, it is only necessary to thrust it laterally from between the springs, and then the bow and arrow may be used as any ordinary bow and arrow.

In carrying out my invention I may modify the form of handle *F* in various ways. As shown in Figs. 2 and 3, it is simply a wide short bar laid parallel to the bow and which is to be grasped in the left hand, which also incloses the bow, as shown in Fig. 1; but this handle may be made in the form of a loop, as seen at *F'* in Fig. 4, or it may be made to extend at right angles to the bow, as seen at *F''* in Fig. 5, in which case the bow is held horizontally when used.

Another advantage of the concentric spool and arrow-guide is that in shooting the forefinger of the left hand is brought immediately adjacent to the spool and in convenient position to be instantly applied to the cord on the spool as a brake to arrest the flight of the arrow at any point. This is a very useful feature, as a boy in sport may stop his arrow if he finds it going against a window or toward one of his fellows or if in throwing a line over a burning building the Bowman finds his arrow going into the fire or if he wants to drop the arrow at any particular point short of its normal flight.

I do not claim, broadly, an arrow-guide for a bow, as I am aware that an eye has been applied to the bow to form an arrow-guide; but I do not know that an arrow-guide has ever been formed as a spool to receive the convolutions of cord from a captive arrow, which secures the important advantages hereinbefore described.

In connecting the inner end of the cord which secures the arrow I prefer to attach it not to the spool direct, but to the bow, so that the jerk of the cord when fully paid out

will not dislodge the spool from its spring-clasps.

In manipulating the bow where occasion or use requires greater strength than could be exerted by a man's arm such other force as might be necessary could be used.

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

1. An attachment for a bow consisting of an arrow-guide made in a separate piece from the bow and having a central hole and an exterior spool-surface adapted to receive convolutions of cord, and to be applied to one side of the bow, and means for attaching the combined arrow-guide and spool to the side of the bow, said means consisting of clamp-springs embracing the spool, substantially as shown and described.

2. The combination with a bow, of a combined guide and spool made in a separate piece from the bow and detachably fixed to the bow in middle position at one side of the bow to receive the cord from a captive arrow, clamp-springs embracing the spool, and bands securing the springs to the bow, substantially as shown and described.

3. The combination with a bow, of an arrow-guide formed in the shape of a spool fixed to the bow in middle position and at one side of the bow, a clamp for holding the spool to the bow, a handle applied to the bow on the opposite side from said spool, and means for securing the spool-clamp and handle to the bow, substantially as shown and described.

4. The combination with a bow; of an arrow-guide formed in the shape of a spool fixed to the bow in middle position at right angles to the bow, and clasp-springs attached to the bow and adapted to detachably receive and hold the spool substantially as described.

5. The combination with a bow; of an arrow-guide formed in the shape of a spool fixed to the bow in middle position at right angles to the bow, a handle applied to one side of the bow, clasp-springs applied to the other side of the bow to receive and hold the spool, and retaining bands or clips encompassing within their embrace, the bow, the handle, and the clasp-springs substantially as described.

6. The combination of a bow, an arrow, an arrow-guide fixed to the middle of the bow and made in the form of a spool, and a cord attached at one end to the arrow and at the other end wrapped around the spool substantially as and for the purpose described.

7. The combination with a bow, of a coil-holder for the cord of a captive arrow, said coil-holder being fixed to the bow so as to inclose the axial line of the arrow within the coils of the cord substantially as described.

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Witnesses:

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