

No. 10,823.

The image contains two technical drawings of a mechanical device, labeled Fig. 1 and Fig. 2.

Fig. 1 is a side view of the device. It features a long horizontal shaft with several gears and pulleys. A large wheel is mounted on the left end, and a smaller wheel is on the right. The shaft is supported by a frame. Various components are labeled with letters: *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i*, *j*, *k*, *l*, *m*, *n*, *o*, *p*, *q*, *r*, *s*, *t*, *u*, *v*, *w*, *x*, *y*, *z*, *aa*, *bb*, *cc*, *dd*, *ee*, *ff*, *gg*, *hh*, *ii*, *jj*, *kk*, *ll*, *mm*, *nn*, *oo*, *pp*, *qq*, *rr*, *ss*, *tt*, *uu*, *vv*, *ww*, *xx*, *yy*, *zz*.

Fig. 2 is a top-down view of a circular component. It shows a central hub with a gear-like structure. The outer rim has a series of teeth or segments. Various components are labeled with letters: *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i*, *j*, *k*, *l*, *m*, *n*, *o*, *p*, *q*, *r*, *s*, *t*, *u*, *v*, *w*, *x*, *y*, *z*, *aa*, *bb*, *cc*, *dd*, *ee*, *ff*, *gg*, *hh*, *ii*, *jj*, *kk*, *ll*, *mm*, *nn*, *oo*, *pp*, *qq*, *rr*, *ss*, *tt*, *uu*, *vv*, *ww*, *xx*, *yy*, *zz*.

Fig. 2.

UNITED STATES PATENT OFFICE.

STEPHEN BAZIN AND JAMES A. BAZIN, OF CANTON, MASSACHUSETTS.

MACHINERY FOR LAYING ROPE.

Specification of Letters Patent No. 10,823, dated April 25, 1854.

To all whom it may concern:

Be it known that we, STEPHEN BAZIN and JAMES A. BAZIN, of Canton, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Laying and Twisting Rope, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to forms a full and exact specification of the same, wherein we have set forth the nature and principles of our said improvements by which our invention may be distinguished from others of a similar class, together with such parts as we claim and desire to have secured to use by Letters Patent.

The figures of the accompanying plate of drawings represent our improvements. Figure 1 is a plan or top view of the machinery. Fig. 2 is a transverse vertical section of the same taken in the plane of the line A B, Fig. 1.

Our improvements are made upon the machinery for which Letters Patent of the United States were granted to us bearing date the 28th day of February 1844 and fully described in the schedule annexed to the same,—and consist first, in an arrangement of mechanical devices by which an extra twist can be given to the strands when desirable, so that the machine can be readily adapted for forming either “soft” or “hard” cordage as it is termed. We have also made an essential improvement in the movable crane for forming the rope into coils, as the end of the straight crane over which the cord passes, as described in the schedule above referred to, describes the arc of a circle, which we have found in practice prevents the coil from being perfectly formed. In lieu of a straight crane we use a bent crane with a hinged bar which moves parallel with the axis of the reel shaft, by which arrangement a perfect coil is insured.

We have further made an improvement by which the rope is stretched after it is formed and before it is wound into a coil.

a a a in Fig. 1 represents the bobbins upon which the strands are wound, hung in the swinging frames *b, b, b*, which have their journals in the plates *c c—d d* and are revolved by the shaft *e e*. The short cranks *f, f, f* which are attached to the ends of the journals of the swinging frames, have their journals in a plate or ring *g g*, which fits over and revolves upon the rollers *h, h*,

which have their bearings in a circular plate *i* (attached to the pulley *k*) the hollow shaft of which fits over an extension of the shaft *e e*. Motion is communicated to the shaft *e e* by a band on the pulley *m*, and when but one twist is to be given to the strands, the plate *i* with its rollers is prevented from revolving, in any proper manner, so that the ring *g g* will turn in one fixed circle of revolution, around the rollers *h h h* (held in one fixed position) and keep the bobbins *a, a, a* in a vertical position as they revolve around the shaft *e e*, in a similar manner as in the machine first patented by us.

When an additional twist is to be given to the rope or “hard cordage” to be formed, the swinging frames instead of keeping the bobbins in a vertical position as they revolve around the shaft *e e*, are made to turn upon their axes while revolving around the said shaft, so as to give an extra twist to the strands, by causing the ring *g g* to revolve eccentrically around the shaft *e e*. This is effected by means of the circular plate *i* to which the rollers *h, h*, are attached, to which motion is communicated by means of a band *n n* extending around its pulley *k*, the pulley *o* fixed to the shaft *e e*, and the grooved pulleys *p, p*, as shown in the drawings. The pulleys *p p* revolve loosely upon upright shafts *q q*, so that by simply lifting one of these pulleys from its shaft, the band *n n* will be loosened and no motion will be communicated to the plate *i*. Thus it will be seen that by the revolution of the roller plate *i*, the bobbin frames *b, b* are made to revolve upon their axes, through the revolution of the ring *g g* around the shaft *e e*, the said ring being connected to the journals of the bobbin frames by the short cranks *f, f, f*.

The rope after being laid is drawn along by a system of gearing substantially similar to that described in the schedule before mentioned, and passes first around the pulleys *r* and *s* and thence around a pulley *t* forming a part of the first pulley *r*. The pulley *t* is of larger diameter than the pulley *s*, which arrangement will strain or give a stretch to the rope. After the rope is thus stretched, it passes around the pulleys *u, u'*, and the pulleys *v, v, v, v* of the movable crane *w, w'* which I shall now proceed to describe. This crane consists of a straight bar *w*, hinged to a standard *y* and attached to a curved or bent arm *w'*. To this arm *w'* is attached an arm *x* turning on a pivot at *y'*.

The arm z extends over the winding reel z parallel with the axis of the same, so that as the reel revolves the rope will be drawn over the pulleys of the crane and fed along, 5 as the helical curves of the coil are formed, in a line parallel with the axis of the winding reel, which thus forms a regular and perfect coil. In the use of a straight crane the end over which the rope is fed to the 10 reel describes the arc of a circle, so that the rope will be carried farther from the coil when at the center of the same than when at either end, which prevents it from being regularly wound.

15 Having thus described our improvements we shall state our claims as follows:

What we claim as our invention and desire to have secured to us by Letters Patent, is,

20 1. Adapting the machinery for forming both "hard" and "soft" cordage by means of the ring g so actuated by the circular plate i and its rollers, made to revolve or held sta-

tionary as above set forth, as to form an extra twist in the rope when desirable, by 25 giving an additional revolution to the bobbin frames as above described.

2. We also claim our improvement in the movable crane, the same consisting in forming it of a bent shape with the right angular 30 hinged arm operating as above described, so as to feed the rope in a direction parallel with the axis of the winding reel.

3. We also claim stretching the rope after it is laid by means of the double pulley r, t 35 with grooves of different diameter as above set forth.

STEPHEN BAZIN.

JAMES A. BAZIN.

Witnesses to signature of Stephen Bazin:

EZRA LINCOLN,

JOSEPH GAVETT.

Witnesses to signature of James A. Bazin:

THOMAS FRENCH, Jr.,

JOHN P. ARMSTED.