

(No Model.)

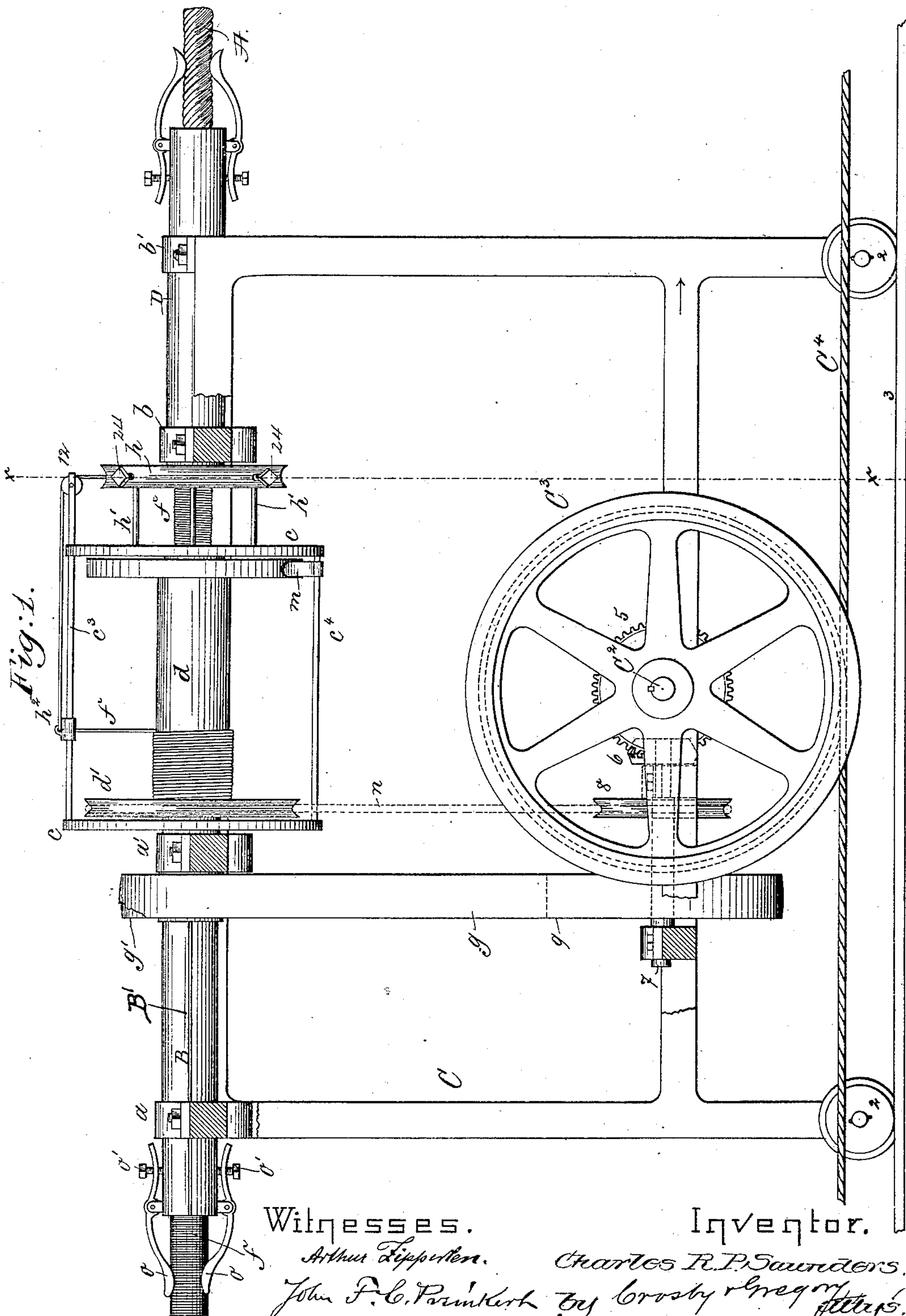
2 Sheets—Sheet 1.

C. R. P. SAUNDERS.

ROPE SERVING MACHINE.

No. 333,677.

Patented Jan. 5, 1886.



Witnesses.

Arthur Lippert.

Charles R. P. Saunders.

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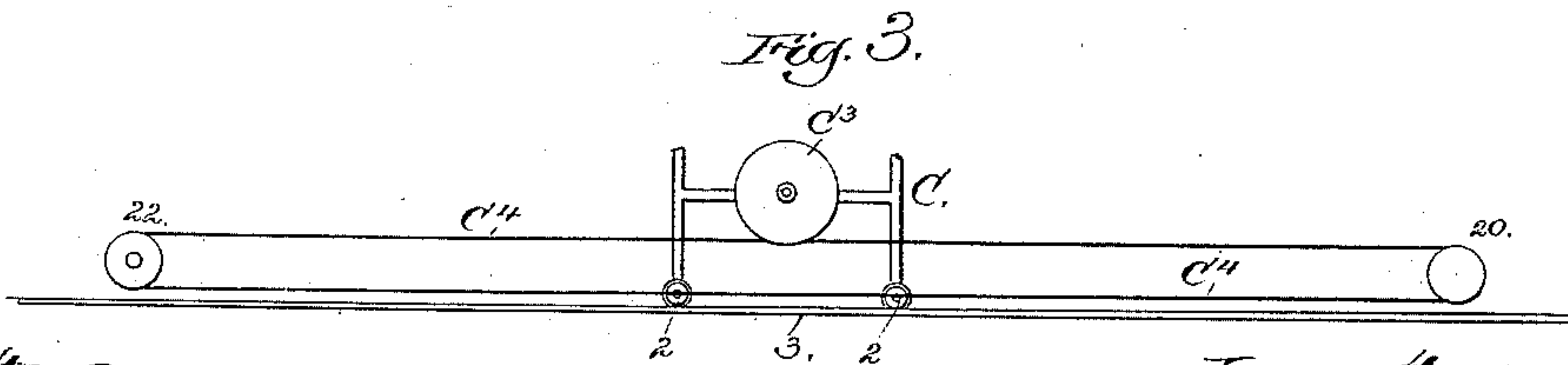
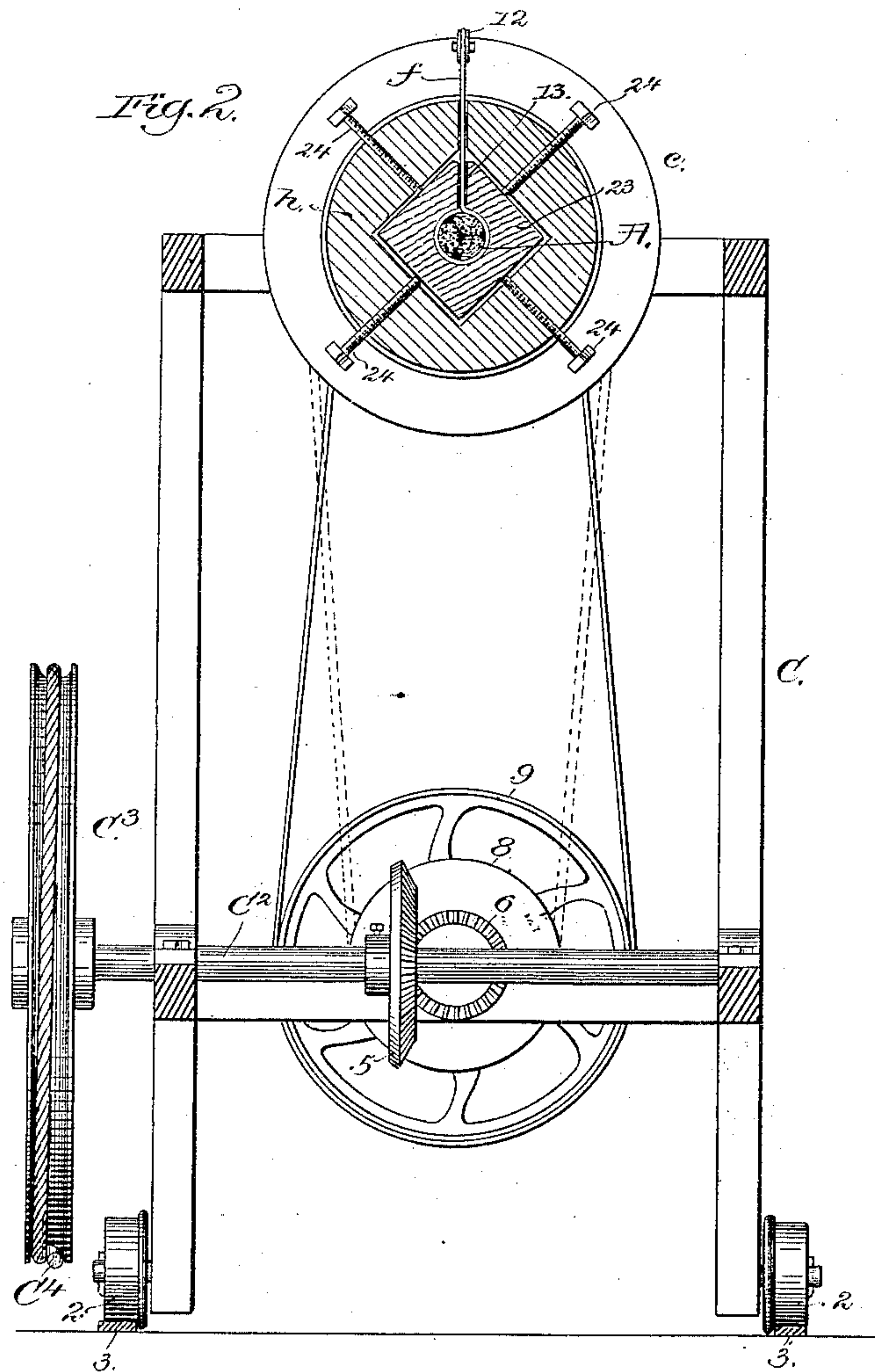
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Inventor,
Charles R. P. Saunders.
by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

CHARLES R. P. SAUNDERS, OF BOSTON, MASS., ASSIGNOR OF ONE-HALF TO
MOSES H. WEBBER AND ALFRED T. SINKER, BOTH OF SAME PLACE.

ROPE-SERVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 333,677, dated January 5, 1886.

Application filed March 3, 1884. Serial No. 122,793. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. P. SAUNDERS, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement
5 in Rope-Serving Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Ropes both of fibrous material and metal
10 used on shipboard and for other purposes are wound closely with spun yarn. This class of rope, known as "served" rope, has generally been produced by hand and slowly; and to do
15 this class of work rapidly and better than by hand I have produced a machine which I shall hereinafter describe, and the particular features in which rest my invention will be pointed out in the claims at the end of this specification.

Figure 1, in side elevation, represents a rope-serving machine embodying my invention.
20 Fig. 2 is a section in the dotted line *xx* of Fig. 1, and Fig. 3 is a diagram to be referred to.

The carriage C, provided with suitable wheels, 2, to run on a track, 3, has a main shaft,
25 C², having an attached wheel, C³, about which is placed at least one turn of an endless belt, C⁴, passed about a sheave, 20, at one end of the rope walk or loft, and about a driven pulley,
30 22, at a distance therefrom, as represented in the diagram, Fig. 3, which shows the said parts and part of the carriage. The shaft C² has a bevel-gear, 5, which engages a bevel-gear, 6, on and rotates a short shaft, 7, having attached to it a flier-driving pulley, 9, and a bobbin-winding pulley, 8, to be described. A belt,
35 *g*, extended over the pulley 9, is also extended about a pulley, *g'*, on a hollow shaft or spindle, B, held in bearings *aa'* of the carriage C, and rotates the said shaft and its attached flier *c*, provided at one end with a serving-block or presser,
40 *h*, attached to the said flier by rods *h'*. The hollow spindle B also receives upon it loosely, but within the flier, the spool *d*, on which is wound the spun yarn *f*, and the said yarn is
45 led from the said spool over a traverse-block, *h*², on a leg, *c*³, of the said flier, thence over a sheave, 12, and thence through a throat, 13, in the serving-block or presser *h*, (see Fig. 2,) the yarn *f* being delivered therefrom directly upon

the rope A. The flier and bobbin have between them a drag or friction device, *m*, here-
50 in shown as a spring attached to the leg *c*⁴ of the flier, and resting upon the flange of the head of the spool *d* with sufficient force to rotate the spool in unison with the hollow shaft
55 and its flier, except as the strain of the spun yarn being wound about the rope A by the flier rotates the bobbin on its own axis, to thus deliver the spun yarn. This drag or friction
60 device *m* may be made to bear against the said spool with more or less force, to thus produce tension sufficient in amount to insure the delivery of the spun yarn upon the rope A with
65 a measured degree of tension, dependent upon whether or not the yarn is to be wound thereon more or less closely—the greater the pressure of the said drag or friction device upon
the head of the spool the closer the winding. One head, *d'*, of the spool is grooved for the
70 reception of belt *n*, driven by pulley 8, the said belt being used, as shown in dotted lines, only when the spool is to be filled with spun yarn, thus obviating the removal of the spool from the flier frame or spindle.

When the parts described are to be operated,
75 the rope A will be led through the hollow guide D and through the hollow spindle B, and the said rope, attached to suitable supports, preferably tackle-blocks, will be stretched
80 taut in the walk or loft. The rope having been stretched, the spun yarn in the throat of the serving-block or presser will be attached to the rope and the machine will be started, the wheel C³ being driven at the proper speed
85 by the belt C⁴.

The serving-block or presser *h* is composed, preferably, of a central piece or block, 23, of hickory wood, (but it may be of other hard wood or metal,) and an outer frame or ring having screws 24, by which to hold the said central portion or block in place. The central
90 portion or block has a central opening of suitable size for the passage through it snugly of the rope to be served.

As the yarn suitably tarred is wound upon
95 the rope, each layer or coil is forced closely against the next preceding coil or layer, and it is the action of the coil of the yarn being laid

against the coil just laid that forces the carriage in the direction of the arrow along over the rope A.

In Fig. 1 all that part of the rope at the left 5 of the serving-block or presser *h* is shown as served. In order that the successive coils of the spun yarn may be forced or compacted together closely, the spindle B at its rear end is provided with a clamp or carriage-retarding 10 device. (Shown as composed of two jaws, *o*, made adjustable by screws *o'*.)

In case of very large rope, the hollow spindle B will be divided longitudinally in two 15 pieces, as indicated by the lines B', Fig. 1, in order that the spindle may be opened, to permit the rope to be laid in the spindle instead of being pushed through from end to end.

I do not broadly claim a hollow spindle, 20 spool, and flier to wind a thread or wire about a traveling core.

My invention is of special service in navy-yards, rope walks, and other places where 25 lengths of rope are to be served, and by an apparatus such as described new or old rope in any desired lengths, short or long, may be served quickly, closely, and economically.

I claim—

1. The carriage C, mounted upon a suitable

way, the hollow spindle B, arranged to rotate 30 in bearings therein, a pulley on said spindle and means to rotate it, the flier *c*, attached to said spindle and containing a spool, and the 35 serving-block *h*, connected with the flier, combined with the clamp or retarding device *o*, substantially as shown and described.

2. The flier *c*, having the leg *c'* and connected 35 serving-block *h*, the spool *d*, and traverse-block *h'*, and sheave 12 on said leg, combined with the carriage C, spindle mounted therein, and 40 means to rotate said spindle, substantially as described.

3. The carriage C, the hollow spindle B, 45 mounted therein, provided with a pulley, *g'*, belt *g*, pulley 9, and means to rotate the latter, combined with a flier on said spindle containing a serving-yarn spool, a friction device or 50 drag, *m*, engaging the said spool, and a serving-block or presser, *h*, driven by said flier, substantially as described.

In testimony whereof I have signed my name 50 to this specification in the presence of two subscribing witnesses.

CHARLES R. P. SAUNDERS.

Witnesses:

G. W. GREGORY,
W. H. SIGSTON.