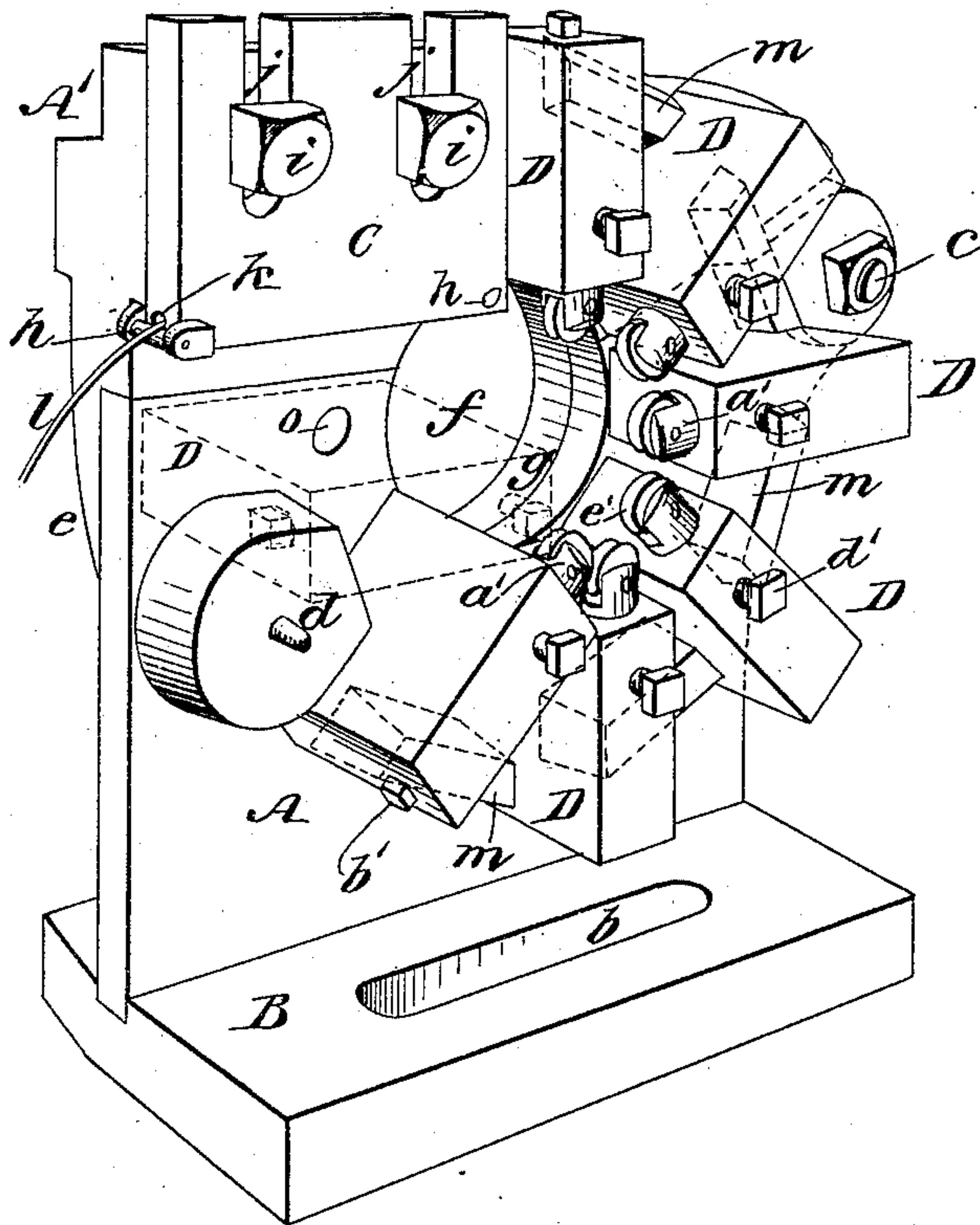


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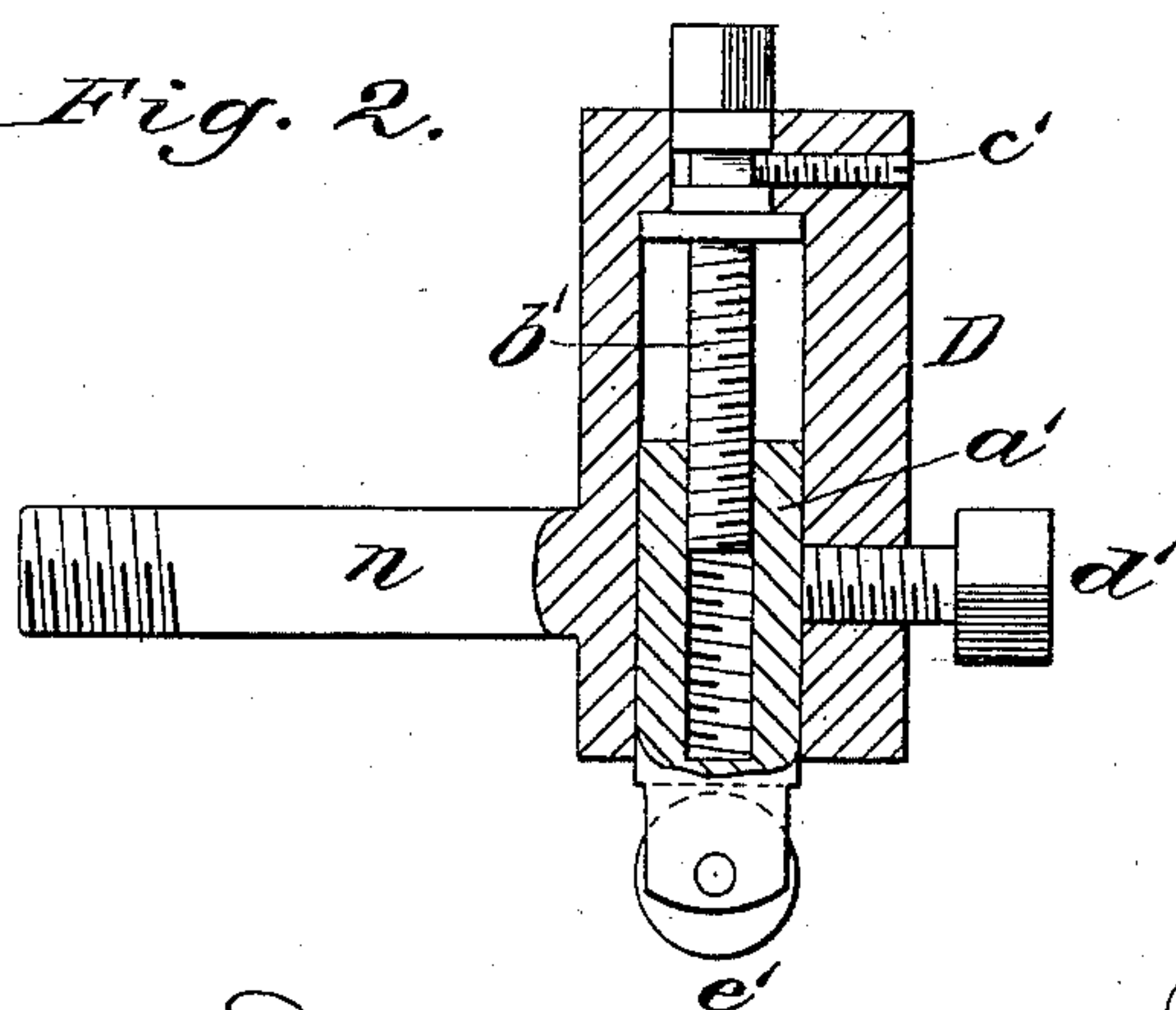
MACHINE FOR WINDING WIRE UPON HOSE.

Patented Mar. 23, 1886.

*Fig. 1.*



*Fig. 2.*



**WITNESSES:**

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(No Model.)

2 Sheets—Sheet 2.

J. A. COULTAUS.

MACHINE FOR WINDING WIRE UPON HOSE.

No. 338,489.

Patented Mar. 23, 1886.

Fig. 4.

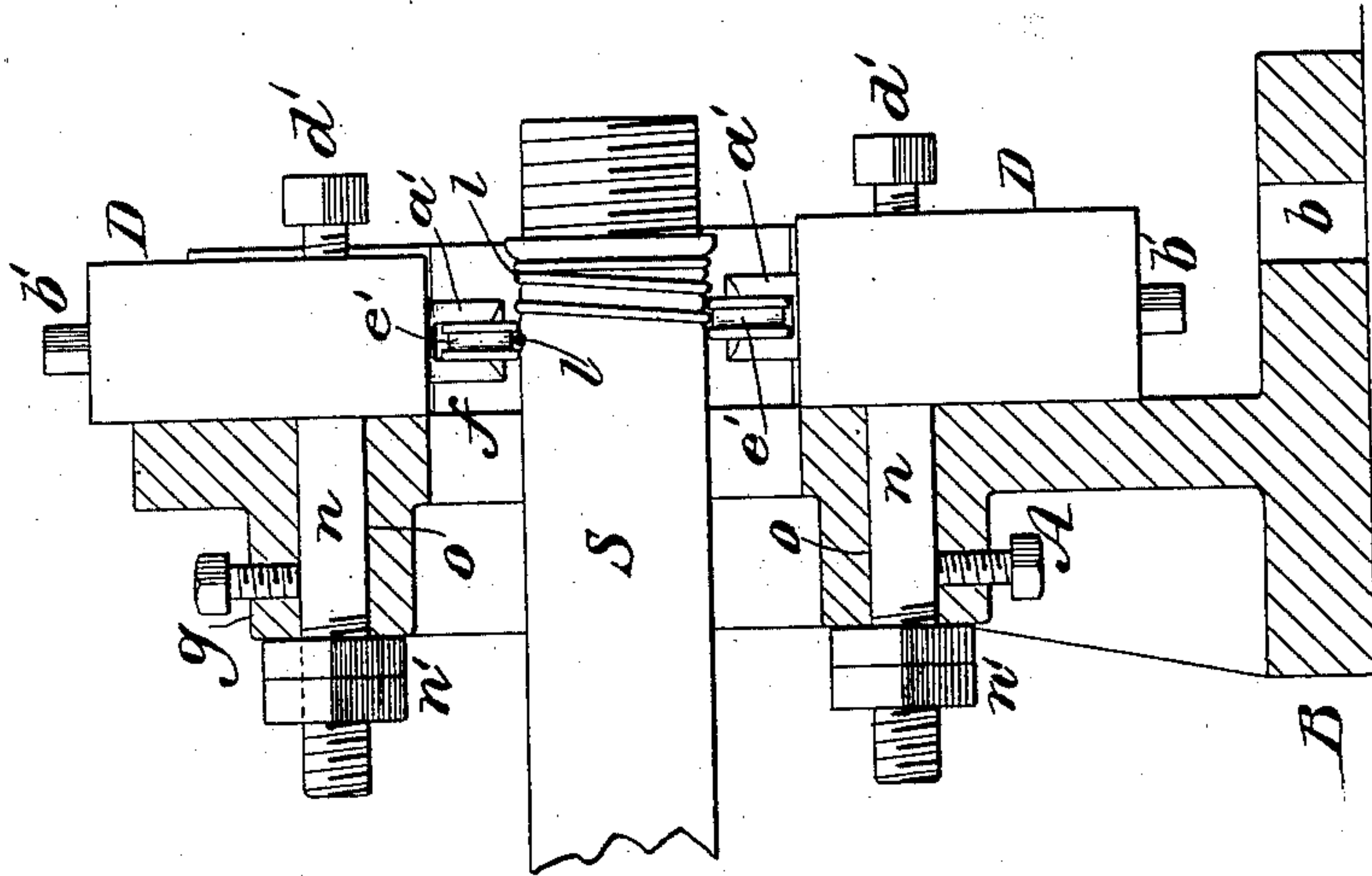
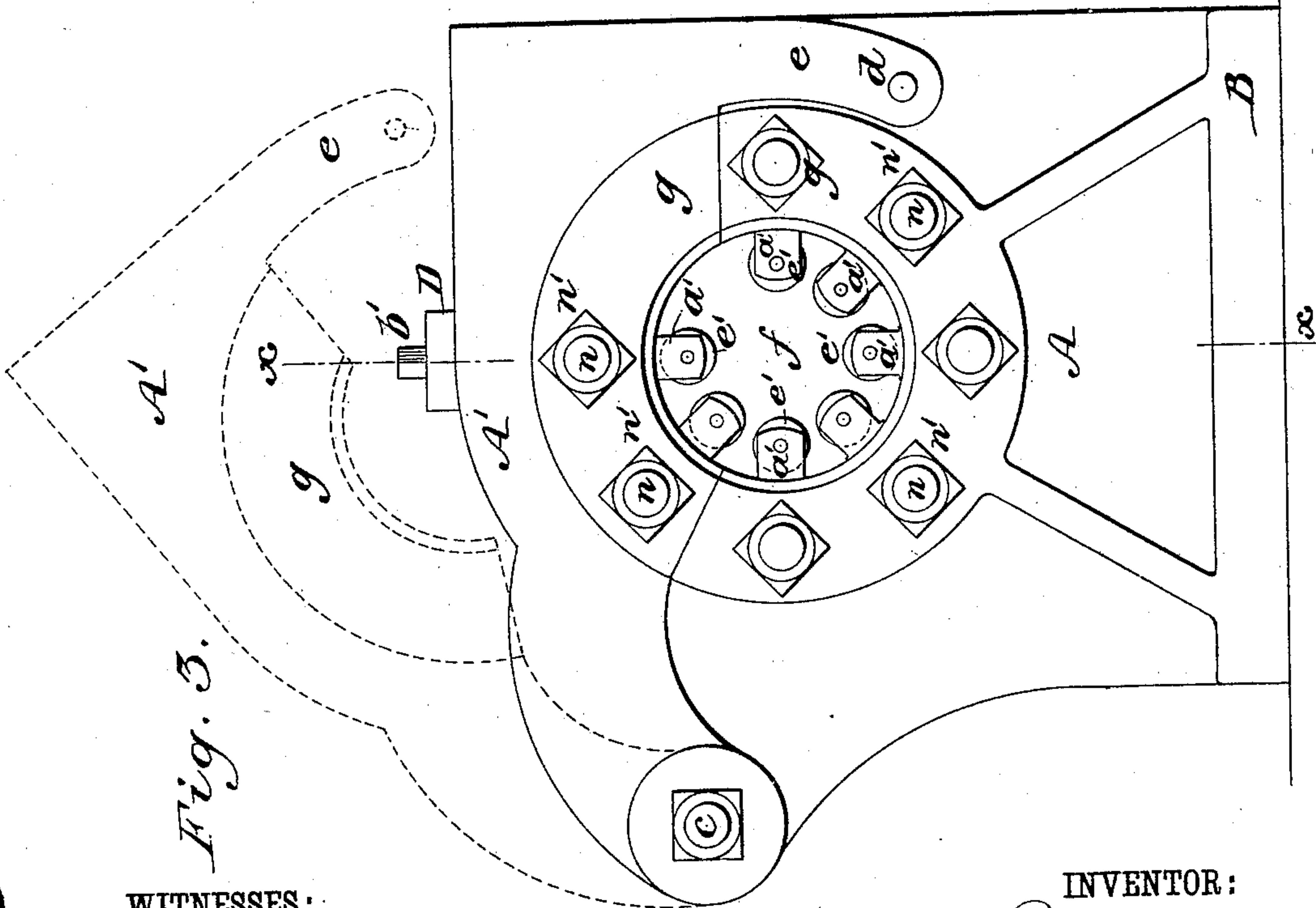


Fig. 3.



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# UNITED STATES PATENT OFFICE.

JOSEPH A. COULTAUS, OF BROOKLYN, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF, DANIEL M. ROLLINS, AND ALICE W. ROLLINS, ALL OF SAME PLACE.

## MACHINE FOR WINDING WIRE UPON HOSE.

SPECIFICATION forming part of Letters Patent No. 338,489, dated March 23, 1886.

Application filed April 29, 1885. Serial No. 163,866. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH A. COULTAUS, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in the Manufacture of Armored Pipes and other Articles, of which the following is a full, clear, and exact description.

This invention relates to the protecting or covering of fire-engine and other hose, pipes, or cylindrical articles with an armor of wire coiled around the same.

The invention consists of an apparatus of novel construction for the purpose, and of certain details thereof and combinations of parts, substantially as hereinafter described, and pointed out in the claims, and whereby the desired result is very perfectly secured.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a view in perspective of an apparatus or machine embodying my invention; Fig. 2, a longitudinal sectional view, upon a larger scale, of one of a series of adjustable roller-guides forming part of the apparatus and serving to direct and bend the wire as required. Fig. 3 is a rear elevation of the apparatus, and Fig. 4 a vertical section thereof on the line *xx* in Fig. 3.

A A' indicate an upright frame or standard mounted on a bed-piece, B, which is slotted, as at *b*, to provide for adjusting and securing the apparatus on and along a bench or other suitable support. This frame or standard A A' is of sectional construction, being composed of a lower part, A, which is fixed, and an upper opening and closing part or cap-piece, A', pivoted at its one end to the lower part, A, as at *c*, and locking or uniting therewith, when closed, by a tapering pin or wedge, *d*, arranged to pass through a tongue, *e*, at the other end of the cap-piece at the back of the part A, and through said part A and a boss or projection on the face thereof. The two parts A and A' are recessed or cut away on their opening and closing surfaces, so that when the cap-piece A' is closed they will form or leave a circular opening, *f*, for the passage of the hose or cy-

lindrical body it is designed to apply the wire armor to. The metal of the standard or frame about or inclosing the opening *f* may be thickened, as at *g*, to make the eye or hole *f* of increased length without adding materially to the weight of the standard. The cap-piece A' serves, when opened, to facilitate the insertion and removal of the hose, pipe, or other cylindrical article under operation.

On the upper part of what I term the "face" side of the standard or front part, A', thereof, to one side of and immediately above the aperture *f*, is a guide-block, C, for the wire, said block being perforated, as at *k*, in tangential arrangement, or thereabout, to the aperture *f*, for the passage of the wire *l*, through it onto or about the hose or pipe. A roller, *h*, is arranged on the entry end of the guide-hole *k*, to facilitate the feed and run of the wire, and the guide-block C is made adjustable up and down, as by bolts *i* and slots *j*, to vary the altitude of the fed wire to suit different-sized hose or pipe. Arranged also on the face side of the standard A A' in radial relation, or thereabout, around the aperture *f* or greater part thereof, beyond or outside of the guide-block C, are a series of roller-guides, D, which combined virtually form a single spirally-grooved guide. These roller-guides are composed in part of blocks, which may be arranged to fit within projections or guides *m* on the face of the standard A A', and are carried by screw-shanks *n* on the backs of the blocks, fitting through holes *o* in the standard. These holes are at an equal distance apart, or thereabout, in a circle or partial circle outside of or around the aperture *f*. Each of said roller-guide blocks is fitted with a sliding roller-carrier, *a'*, arranged to move in and out relatively to the aperture *f* by means of a screw, *b'*, restrained from longitudinal movement by a stop pin or screw, *c'*, fitting an annular groove in the screw *b'*. The longitudinally-sliding roller-carrier *a'* is of circular construction, so as to admit of its being turned about the axial center of the screw *b'* when a set-screw, *d'*, is released for the purpose, and each of said carriers is fitted on its exposed end with a grooved wire-guiding roller *e'*. Furthermore, the roller-guides D



are adjustable by their screw-shanks *n* on slackening nuts *n'* in or out from the face of the standard *A A'* between the guides or blocks *m* thereon. By this latter adjustment provision is made for a helical adjustment of the roller-guides in succession relatively to the face of the standard, as shown in Figs. 1 and 4, and by suitably turning the roller-carriers *a* the grooved rollers *e'* are made to conform to such spiral adjustment of the roller-guides, for the purpose of properly directing the wire around the hose, pipe, or other article to be covered, while by adjusting the rollers in or out relatively to the aperture *f* or axial line of the work the wire is pressed down or close onto the hose or pipe.

The several specified adjustments, too, of the roller-guides *D* provide for adapting the apparatus to different-sized hose, pipe, &c.

The hose, pipe, or article to be covered with the wire armor is fed from the rear of the standard *A A'* through the aperture *f*, and slightly turned at starting till a coil or twist of the wire *l*, as it issues from the guide-block *C*, is made on the hose or pipe *S*, after which the latter is or may be automatically turned and have its rate of feed automatically regulated by the mere feed of the wire onto and spirally around it, as described.

The spiral guide may either be an interrupted one, and so form a series of guides, as in the case of the wire-grooved roller-guides shown in the accompanying drawings, and, if desired, stationary grooved blocks or projections may take the place of the rollers, or it may be an unbroken and continuous grooved spiral guide with or without rollers. The rollers, however, reduce friction on or of the wire as it advances between them as a guide or guides, and by which it is spirally bent.

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

1. In apparatus for applying wire armor to hose-pipes and other cylindrical articles, the combination, with a suitable standard within which the hose is supported, of a series of spirally-arranged roller-guides, substantially as described, for directing and bending the wire onto the article to be covered, essentially as described.

2. The combination, with a standard having

an aperture, *f*, through it, of the wire-feeding block *C* and the series of spirally-arranged roller-guides *D*, substantially as specified.

3. In apparatus for applying wire armor upon hose, the adjustable perforated wire-feeding block *C*, provided with a free roller, *h*, at the entry end of the passage through it, essentially as described.

4. In apparatus for applying wire armor to hose-pipe and other cylindrical articles, the standard *A A'*, having an aperture, *f*, through it, and having its upper section or cap-piece, *A'*, hinged or pivoted, as described, and constructed with a tongue, *e*, arranged in relation to the standard and so as to admit of being secured in position by a wedge-pin, *d*, substantially as specified.

5. In combination with the apertured standard of the apparatus, the roller-guides *D*, made adjustable to occupy successively-increasing distances from the face of the standard, essentially as and for the purpose herein set forth.

6. The roller-guides *D*, provided with adjustable screw-threaded shanks *n*, in combination with the guides or guiding-blocks *m* on the face of the standard carrying the roller-guides, substantially as specified.

7. In apparatus for applying wire armor to hose, pipes, and other cylindrical articles, the roller-guides *D*, fitted with longitudinally-adjustable roller-carriers having grooved wire guiding and bending rollers *e'* on their exposed ends, essentially as described.

8. The roller-carriers *a'*, provided with grooved rollers *e'* on their exposed ends, and made capable of axial adjustment, as described, to vary the angular position of the rollers, in combination with the longitudinally-adjusting screw *b'*, substantially as and for the purposes specified.

9. The roller-guides *D*, composed of blocks having adjustable shanks *n* on their backs, longitudinally-sliding and circularly-adjustable roller-carriers *a'*, having grooved rollers *e'* on their exposed ends, and the screws *b'*, for longitudinally adjusting said carriers, essentially as shown and described.

JOSEPH A. COULTAUS.

Witnesses:

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EDWARD M. CLARK.