C. ANDRADE, Jr.

WINDLASS.

APPLICATION FILED FEB. 21, 1910.

970,597.

Patented Sept. 20, 1910.

3 SHEETS—SHEET 1.

Fig. 1

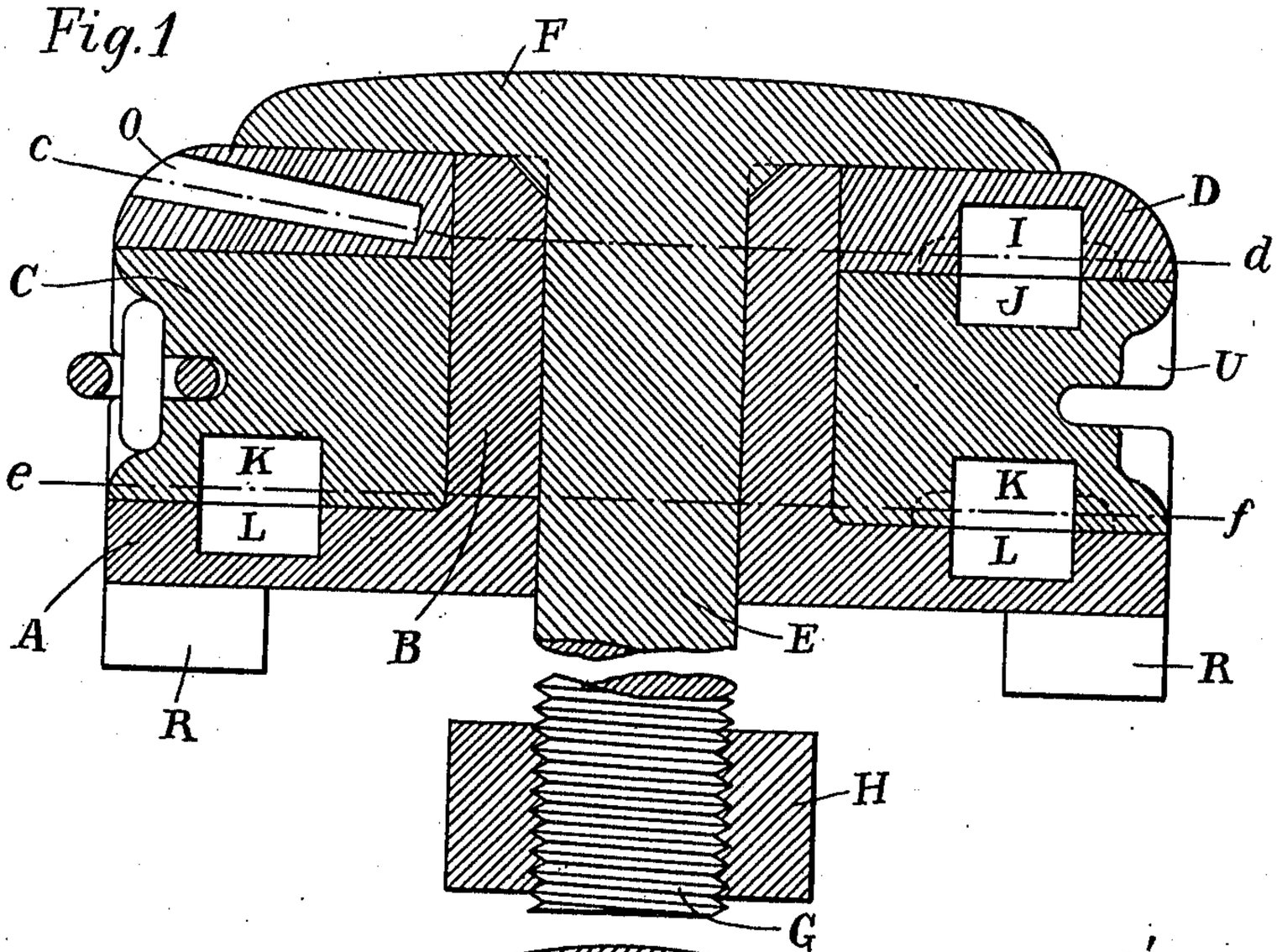
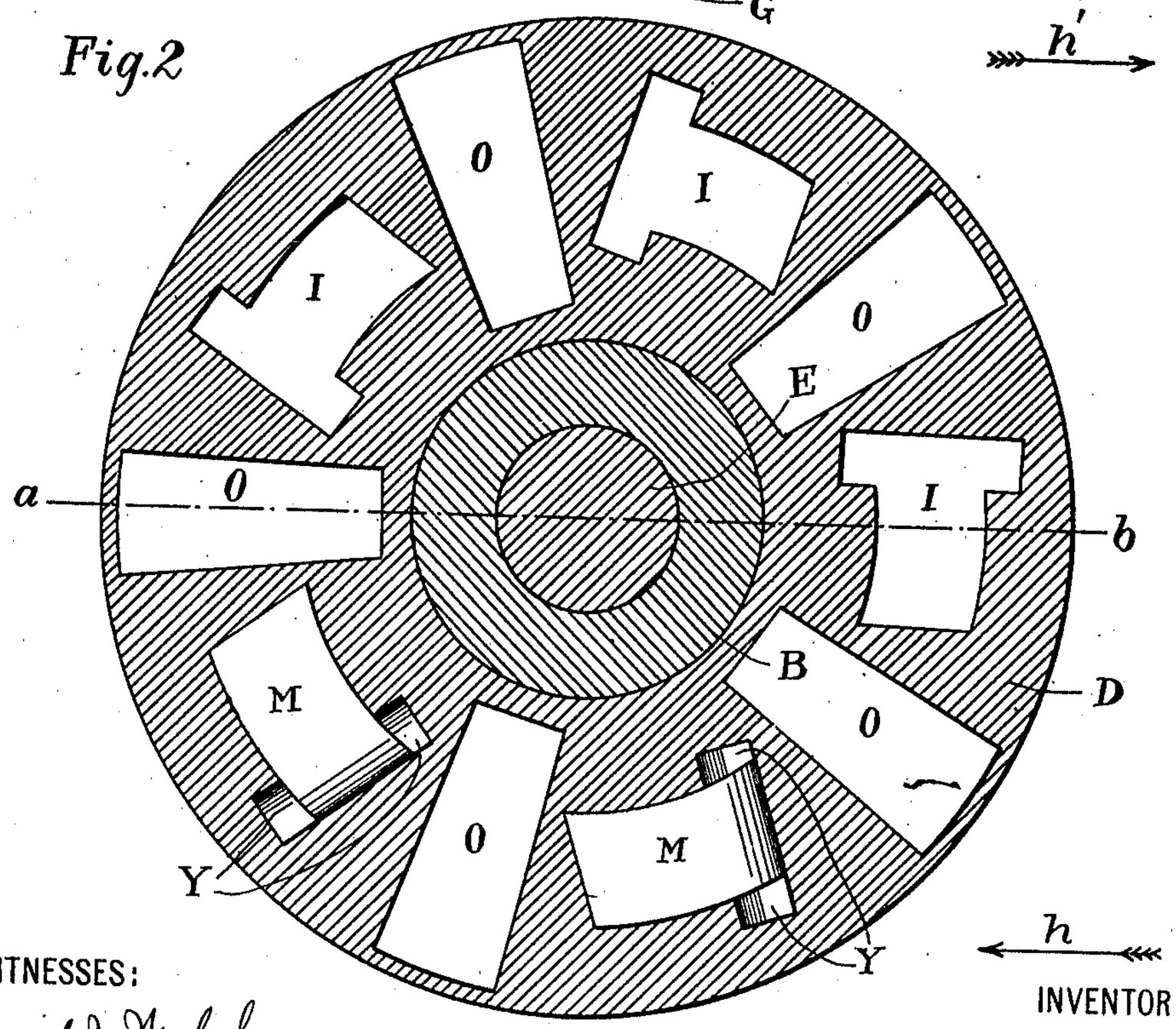


Fig. 2



WITNESSES:

David J. Walsh

Arthur C Johnson

INVENTOR

Cipriano Andrade Jr.

C. ANDRADE, Jr.

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3 SHEETS—SHEET 2.

Fig. 3

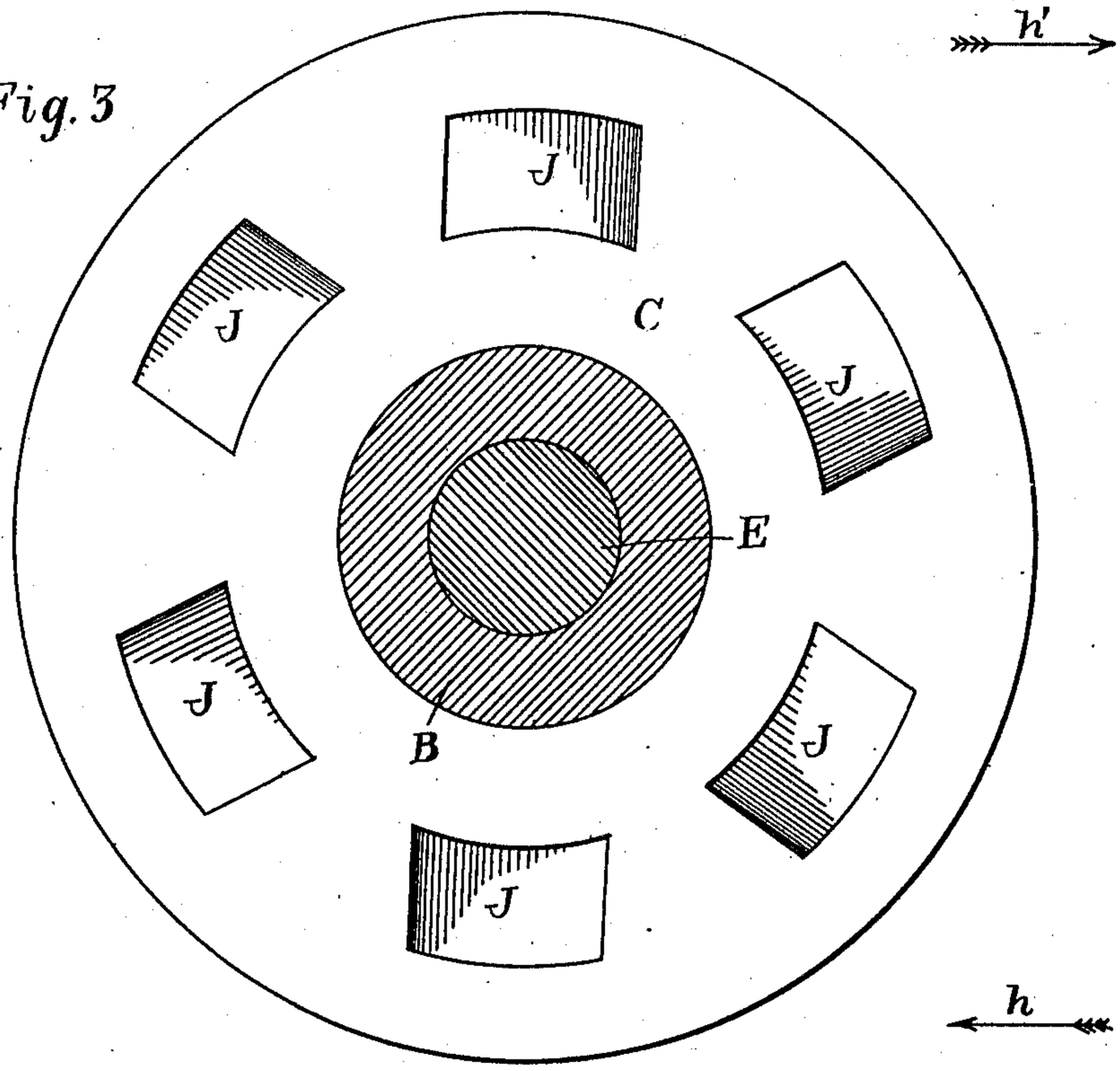
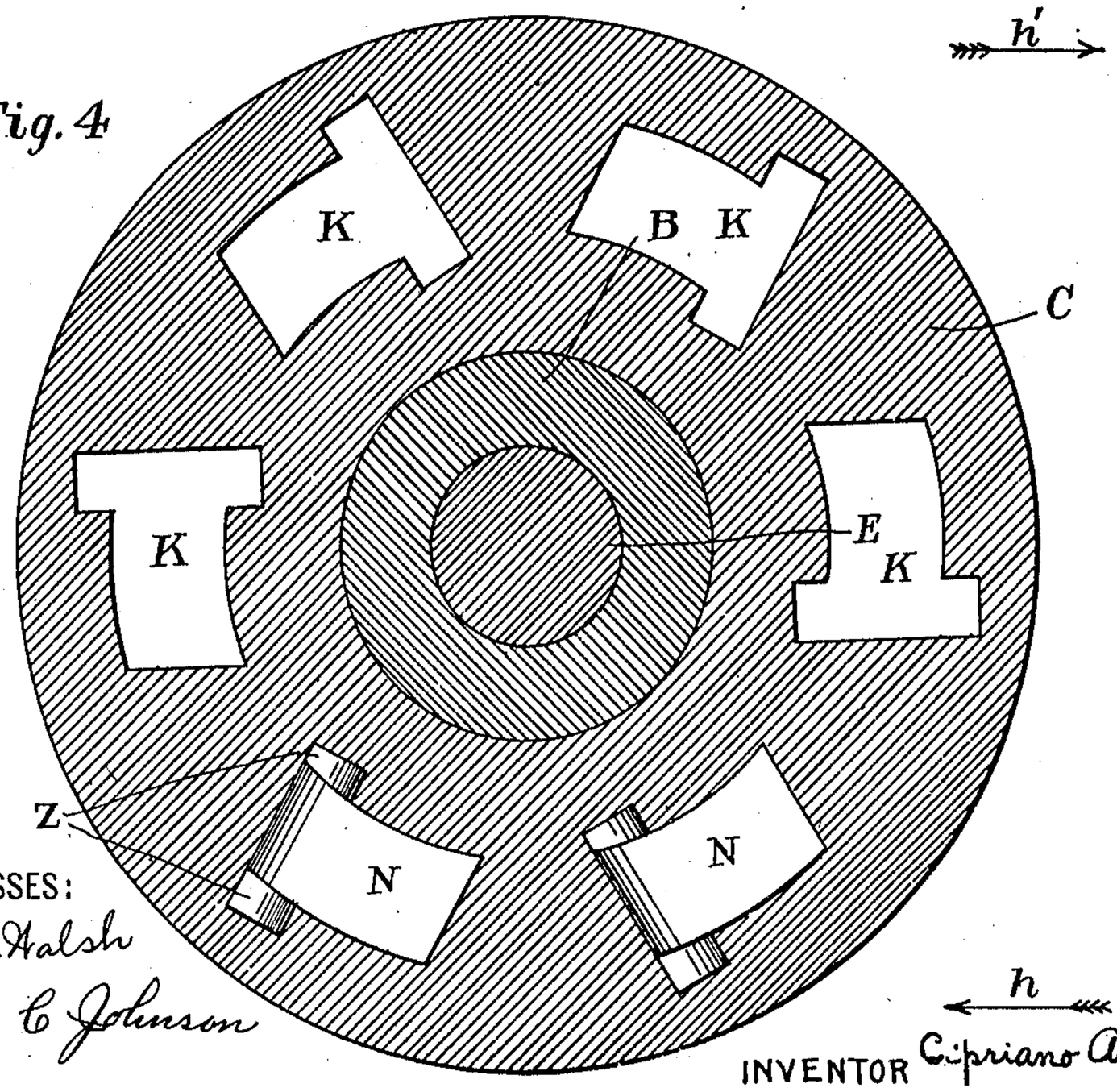


Fig. 4



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3 SHEETS—SHEET 3.

Fig. 5

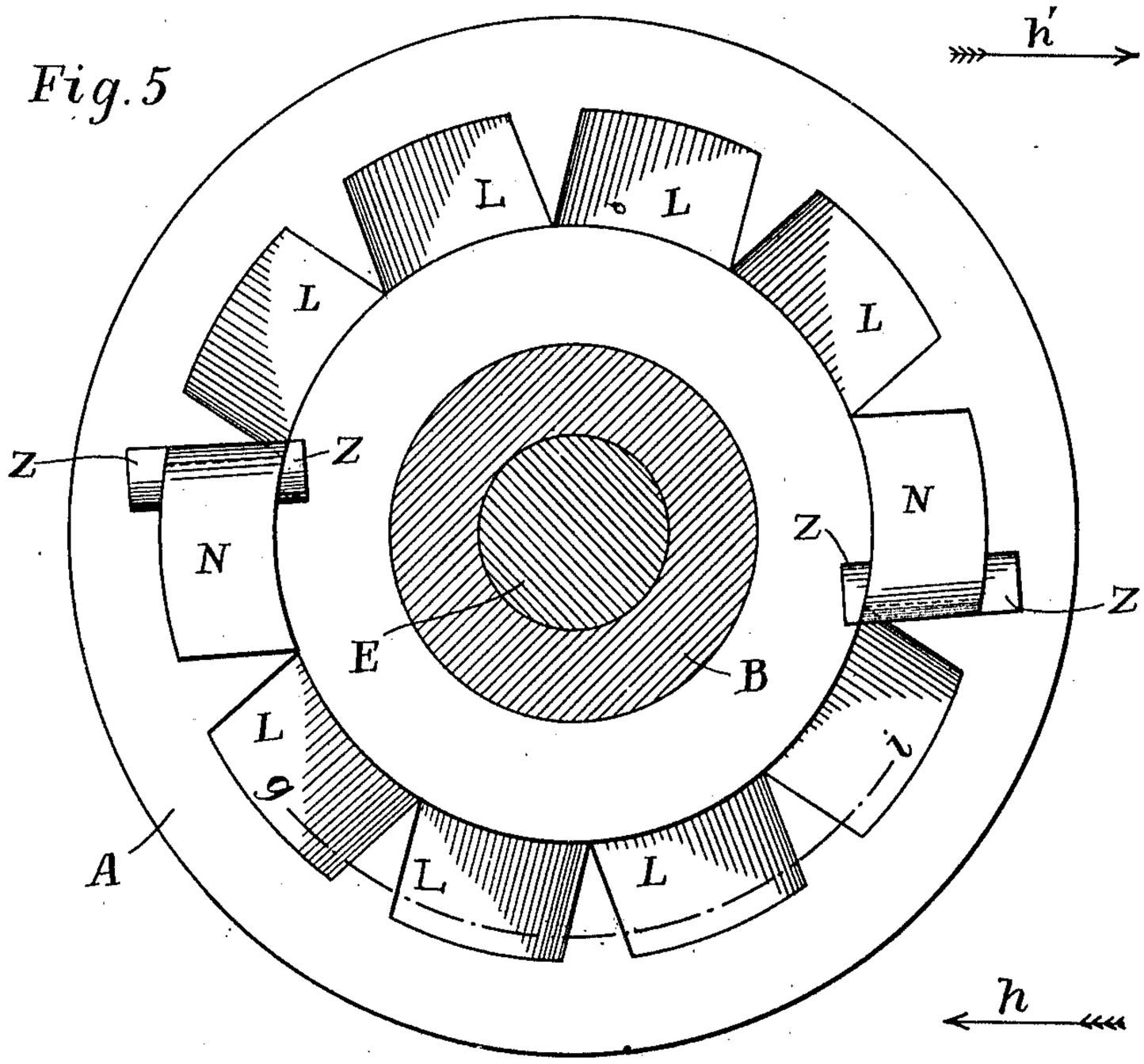


Fig. 6

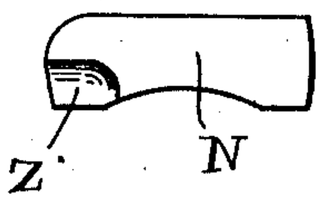


Fig. 8

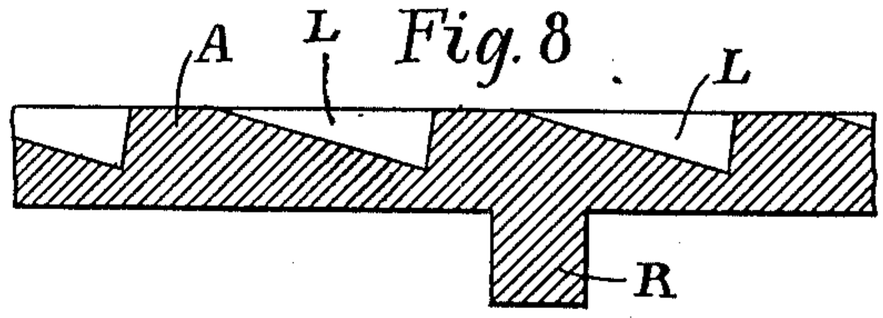


Fig. 7

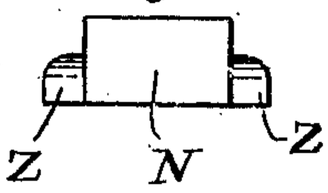
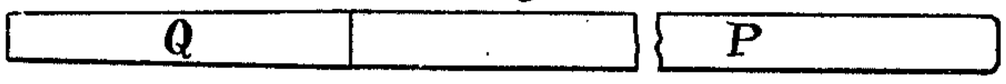


Fig. 9

Fig. 10



WITNESSES:

David J. Walsh

Arthur C Johnson

INVENTOR

Cipriano Andrade Jr.

UNITED STATES PATENT OFFICE.

CIPRIANO ANDRADE, JR., OF NEW YORK, N. Y.

WINDLASS.

970,597. Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed February 21, 1910. Serial No. 545,058.

To all whom it may concern:

Be it known that I, CIPRIANO ANDRADE, Jr., a citizen of the United States, residing at 328 West Eighty-fourth street, in the city of New York, in the county of New York and State of New York, have invented a new and useful Windlass, of which the following is a specification.

My invention relates to improvements in windlasses; and the objects of my invention are; first to provide a form of windlass which shall occupy less space than the devices heretofore used for similar work; second, to provide a form of windlass which shall weigh less than the devices heretofore used for similar work; third, to provide a form of windlass which shall be cheaper and simpler to manufacture than the devices heretofore used for similar work; fourth, to provide a form of windlass which cannot be fouled by ropes or other articles on a vessel's deck or elsewhere. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of my device, taken on the line *a*—*b* (Fig. 2); Fig. 2 is a horizontal section of my device taken in the plane *c d* of Fig. 1; Fig. 3 is a plan view of the top of the sheave; Fig. 4 is a horizontal section of my device taken in the plane *e f* of Fig. 1; Fig. 5 is a plan view of the top of the bed plate of my device; Fig. 6 is a side view of a pawl; Fig. 7 is an end view of a pawl; Fig. 8 is a section in elevation of the bed plate, taken on the line *g i* (Fig. 5); Fig. 9 is a plan view of the taper end of a handle bar; Fig. 10 is an elevation of the taper end of a handle bar.

Similar letters refer to similar parts throughout the several views.

A is a bed plate; B is a hollow pin integral with bed plate A and perpendicular thereto; C is a sheave rotating freely about pin B as an axis; D is a top plate rotating freely about pin B as an axis; E is a central bolt inside of pin B; F is a flat mushroom head at the top of bolt E, and integral therewith; bolt E and head F are fixed with reference to pin B; G is a threaded portion at the bottom of bolt E; H is a nut turning on thread G; I are recesses in top plate D to hold the pawls M, I show five such recesses and pawls, although only one or any other number would suffice to make my device operative; J are recesses in the top of sheave C to take the lower ends of pawls M, I show six such recesses, although only one or any other number would suffice to make my device operative; K are recesses in the bottom of sheave C to hold the pawls N, I show six such recesses and pawls, although only one or any other number would suffice to make my device operative; L are recesses in the top of bed plate A to take the lower ends of pawls N, I show ten such recesses, although only one or any other number would suffice to make my device operative; O are taper sockets let into top plate D to take the end Q of handle bar P, the middle portion of handle bar P has been represented as broken away; Y are trunnions integral with pawl M; Z are trunnions integral with pawl N; pawls M and N are identical in all respects except as to location in the device; U are whelps to hold the links of the chain.

It will be understood that where my device is used for rope, the whelps will be omitted, and the periphery of the sheave C will be finished as a smooth or grooved drum as is the common practice at the present time.

The operation of my device is as follows: A chain is led from the direction *h* (Fig. 2) around the edge of sheave C, and away in the direction *h'*, the links of the chain being placed between whelps U. Insert taper end Q of handle bar P into one of the sockets O. By means of handle bar P, top plate D is made to rotate say about 90 degrees in the direction *h;* during this operation one of the pawls M, engaging in one of the recesses J, carries the sheave C in the same direction as top plate D, and a length of chain is thus drawn in from the direction *h* and discharged in the direction *h'*. A light tension is, of course, to be maintained on the chain when it leaves C in the direction *h'*. This tension may be by hand pull, or by leading the chain down a pipe through the deck of the vessel as is commonly the practice with anchor chains, etc., in which case the weight of the chain going down through the pipe keeps the proper tension on the chain. At the end of the 90 degrees of rotation just mentioned, the handle bar P carrying with it top plate D is rotated backward against the direction *h* say 90 degrees to a point near the original starting point. During the backward motion of top plate D, the sheave C is held motionless by one of the pawls N engaging in one of the re-

cesses L in bed plate A; at the same time the pawls M in top plate D slide back over recesses J in the top of sheave C. Thus by successive reciprocating movements of handle bar P, sheave C is rotated steadily in the direction *h h'*, and any desired length of chain may be drawn in from the direction *h* and discharged in the direction *h'*. And whenever handle bar P is withdrawn from socket O, the sheave C (and with it the chain) is held fast by pawl N engaging in socket L. The pawl has its leading and following faces parallel in plan, in order to avoid the outward thrust component which would ensue under working pressure if said faces were radial in plan.

There are certain improvements in pawl and ratchet mechanisms, shown and described in the specification and the drawings accompanying the same, and originally claimed by me in this application, which I have been required to divide, and I am making a divisional application, Serial Number 568,582 to cover such pawl and ratchet mechanism.

I claim:

1. In windlasses, in combination; a bed plate, said bed plate having a recess in its upper face; a hollow pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave resting on the upper face of said bed plate, said sheave having a recess in its upper face; a top plate rotating freely about said pin as an axis, the lower face of said top plate resting on the upper face of said sheave; a central bolt inside of said hollow pin, said bolt being stationary with reference to said hollow pin; a flat mushroom head at the top of said bolt and integral therewith, the lower face of said mushroom head being over the upper face of said top plate; a pawl let into the lower face of said top plate, said pawl engaging in said recess in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; a pawl let into the lower face of said sheave, said pawl engaging in said recess in the upper face of said bed plate, and coöperating with said pawl in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for securing said device to the deck or floor.

2. In windlasses, in combination; a bed plate, said bed plate having a recess in its upper face; a hollow pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave resting on the upper face of said bed plate, said sheave having recesses in its upper face; a top plate rotating freely about said pin as an axis, the lower face of said top plate resting on the upper face of said sheave; a central bolt inside of said hollow pin, said bolt being stationary with reference to said hollow pin; a flat mushroom head at the top of said bolt and integral therewith, the lower face of said mushroom head being over the upper face of said top plate; pawls let into the lower face of said top plate, said pawls engaging in said recesses in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; pawls let into the lower face of said sheave, said pawls engaging in said recesses in the upper face of said bed plate, and coöperating with said pawls in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for securing said device to the deck or floor.

3. In windlasses, in combination, a bed plate, said bed plate having a recess in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave resting on the upper face of said bed plate, said sheave having a recess in its upper face; a top plate rotating freely about said pin as an axis, the lower face of said top plate resting on the upper face of said sheave; a pawl let into the lower face of said top plate, said pawl engaging in said recess in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; a pawl let into the lower face of said sheave, said pawl engaging in said recess in the upper face of said bed plate, and coöperating with said pawl in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for securing said device to the deck or floor.

4. In windlasses, in combination, a bed plate, said bed plate having recesses in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave resting on the upper face of said bed plate, said sheave having recesses in its upper face; a top plate rotating freely about said pin as an axis, the lower face of said top plate resting on the upper face of said sheave; pawls let into the lower face of said top plate, said pawls engaging in said recesses in the upper face of said sheave, whereby said sheave is free to rotate in one

direction with reference to said top plate but not in the opposite direction; pawls let into the lower face of said sheave, said pawls engaging in said recesses in the upper face of said bed plate, and coöperating with said pawls in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for securing said device to the deck or floor.

5. In windlasses, in combination, a bed plate, said bed plate having a recess in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave resting on the upper face of said bed plate, said sheave having a recess in its upper face; a top plate rotating freely about said pin as an axis, the lower face of said top plate resting on the upper face of said sheave; a pawl let into the lower face of said top plate, said pawl engaging in said recess in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; a pawl let into the lower face of said sheave, said pawl engaging in said recess in the upper face of said bed plate, and coöperating with said pawl in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for preventing said top plate from rising away from said sheave; means for securing said device to the deck or floor.

6. In windlasses, in combination, a bed plate, said bed plate having recesses in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave resting on the upper face of said bed plate, said sheave having recesses in its upper face; a top plate rotating freely about said pin as an axis, the lower face of said top plate resting on the upper face of said sheave; pawls let into the lower face of said top plate, said pawls engaging in said recesses in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; pawls let into the lower face of said sheave, said pawls engaging in said recesses in the upper face of said bed plate, and coöperating with said pawls in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for preventing said top plate from rising away from said sheave; means for securing said device to the deck or floor.

7. In windlasses, in combination, a bed plate, said bed plate having a recess in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave being immediately above the upper face of said bed plate, said sheave having a recess in its upper face; a top plate rotating about said pin as an axis, the lower face of said top plate being immediately above the upper face of said sheave; a pawl let into the lower face of said top plate, said pawl engaging in said recess in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; a pawl let into the lower face of said sheave, said pawl engaging in said recess in the upper face of said bed plate, and coöperating with said pawl in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for securing said device to the deck or floor.

8. In windlasses, in combination, a bed plate, said bed plate having recesses in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave being immediately above the upper face of said bed plate, said sheave having recesses in its upper face; a top plate rotating about said pin as an axis, the lower face of said top plate being immediately above the upper face of said sheave; pawls let into the lower face of said top plate, said pawls engaging in said recesses in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; pawls let into the lower face of said sheave, said pawls engaging in said recesses in the upper face of said bed plate, and coöperating with said pawls in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for securing said device to the deck or floor.

9. In windlasses, in combination, a bed plate, said bed plate having a recess in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave being immediately above the upper face of said bed plate, said sheave having a recess in its upper face; a top plate rotating

about said pin as an axis, the lower face of said top plate being immediately above the upper face of said sheave; a pawl let into the lower face of said top plate, said pawl engaging in said recess in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; a pawl let into the lower face of said sheave, said pawl engaging in said recess in the upper face of said bed plate, and co-operating with said pawl in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for preventing said top plate from rising away from said sheave; means for securing said device to the deck or floor.

10. In windlasses, in combination, a bed plate, said bed plate having recesses in its upper face; a central pin integral with said bed plate; a sheave rotating freely about said pin as an axis, the lower face of said sheave being immediately above the upper face of said bed plate, said sheave having recesses in its upper face; a top plate rotating about said pin as an axis, the lower face of said top plate being immediately above the upper face of said sheave; pawls let into the lower face of said top plate, said pawls engaging in said recesses in the upper face of said sheave, whereby said sheave is free to rotate in one direction with reference to said top plate but not in the opposite direction; pawls let into the lower face of said sheave, said pawls engaging in said recesses in the upper face of said bed plate, and coöperating with said pawls in the bottom of said top plate, whereby said sheave is free to rotate in one direction with reference to said top plate and bed plate, but not in the opposite direction; means for imparting a reciprocating motion of rotation to said top plate; means for preventing said top plate from rising away from said sheave; means for securing said device to the deck or floor.

CIPRIANO ANDRADE, Jr.

Witnesses:
ADOLPH WIDDER,
ARTHUR C. JOHNSON.

Correction in Letters Patent No. 970,597.

It is hereby certified that in Letters Patent No. 970,597, granted September 20, 1910, upon the application of Cipriano Andrade, Jr., of New York, N. Y., for an improvement in "Windlasses," an error appears in the printed specification requiring correction as follows: Page 2, line 60, the article and word "a recess" should read *recesses;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of October, A. D., 1910.

[SEAL.]

E. B. MOORE,

Commissioner of Patents.