J. W. MILNE.

POWER WINDING MACHINE.

APPLICATION FILED JULY 28, 1910.

988,585.

Patented Apr. 4, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

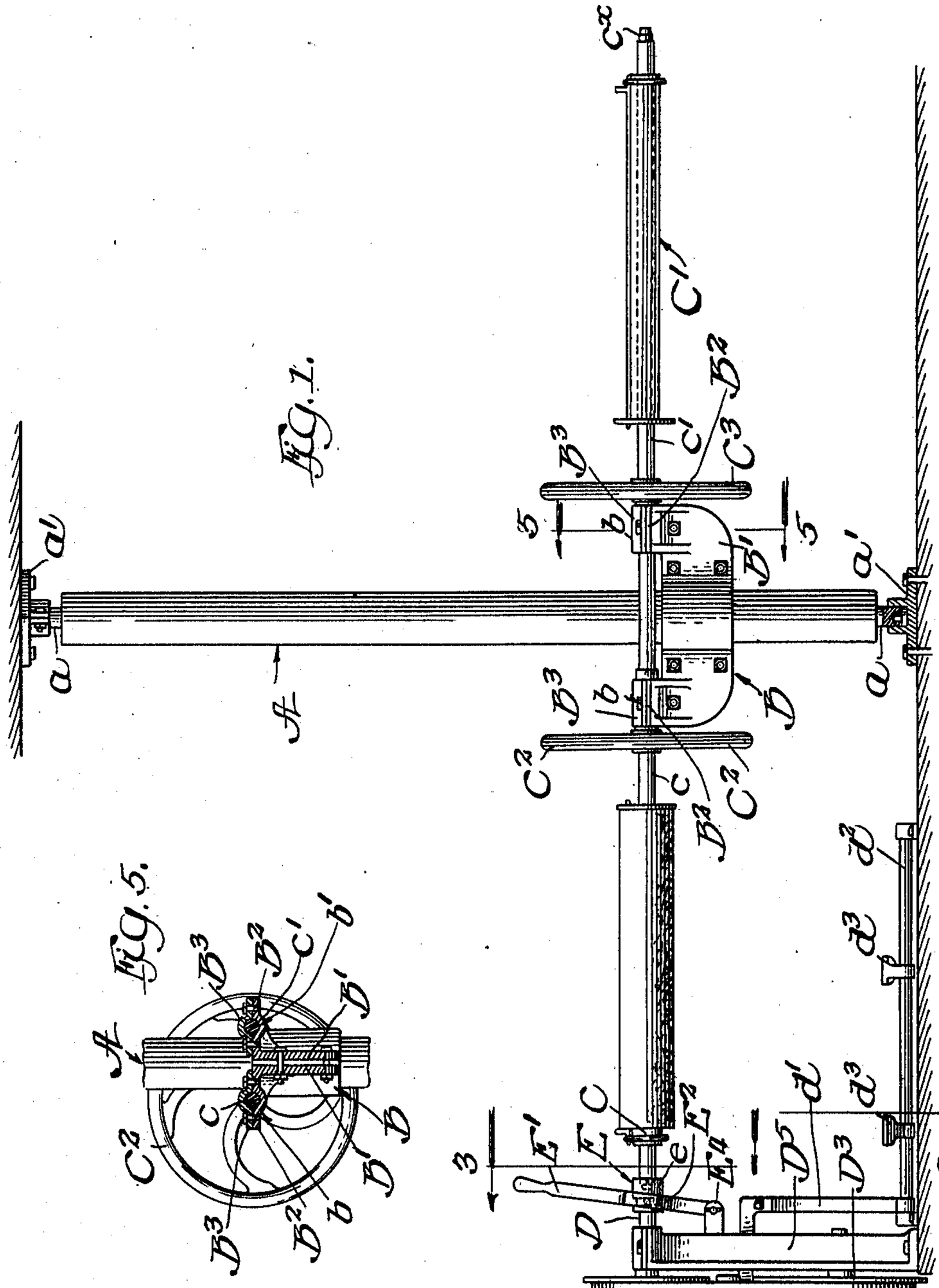

Fig. 5.

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3 SHEETS—SHEET 2.

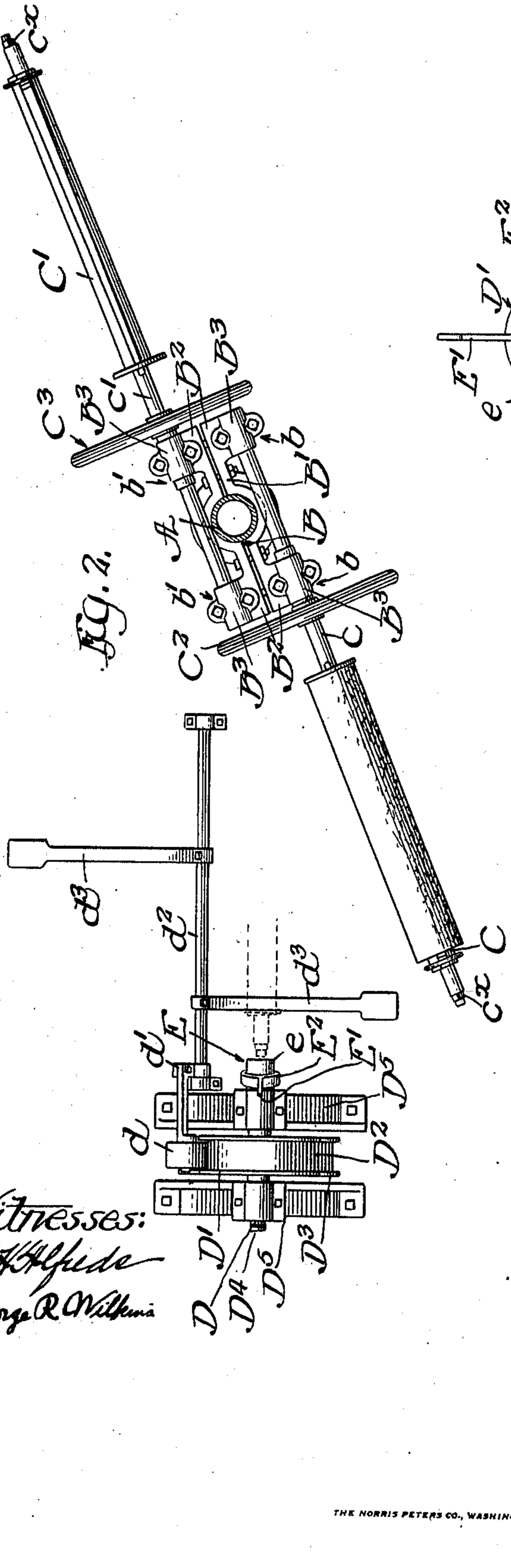

Fig. 2.

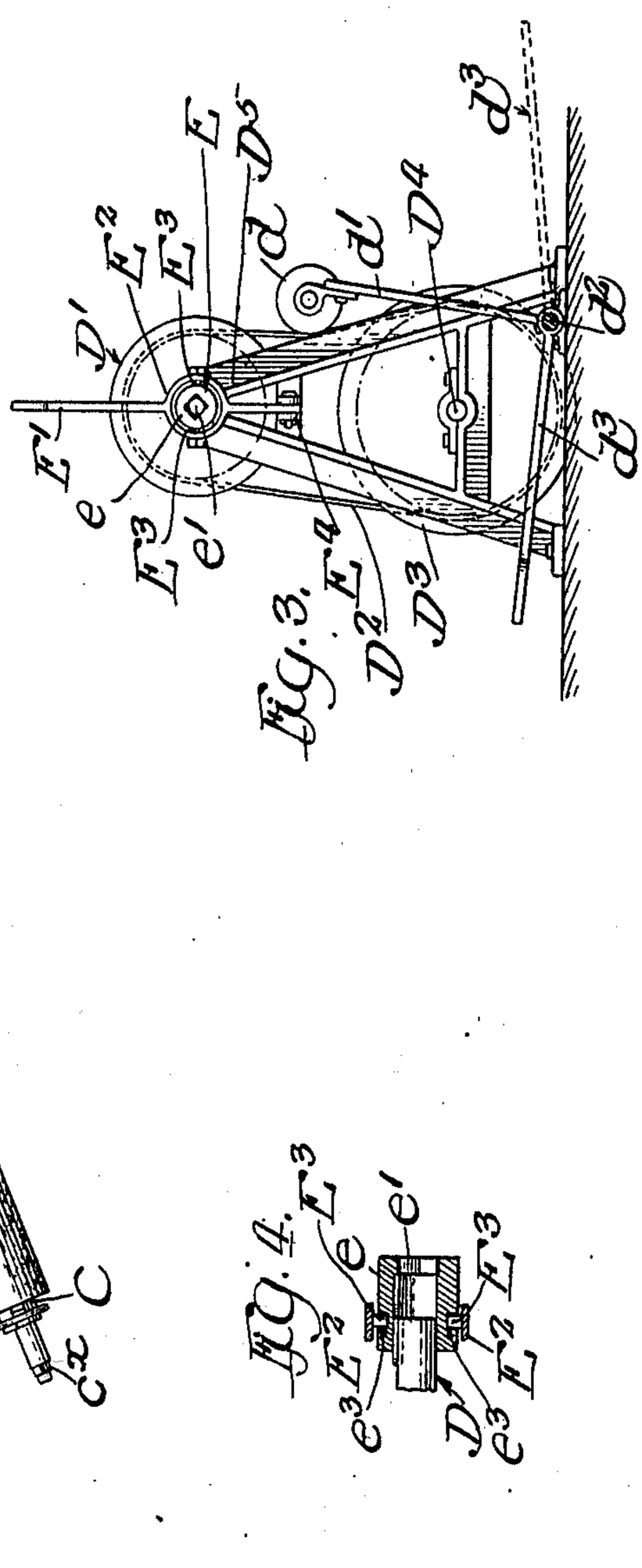

Fig. 3.

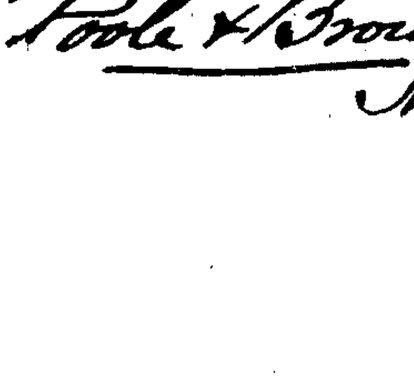

Fig. 4.

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3 SHEETS—SHEET 3.

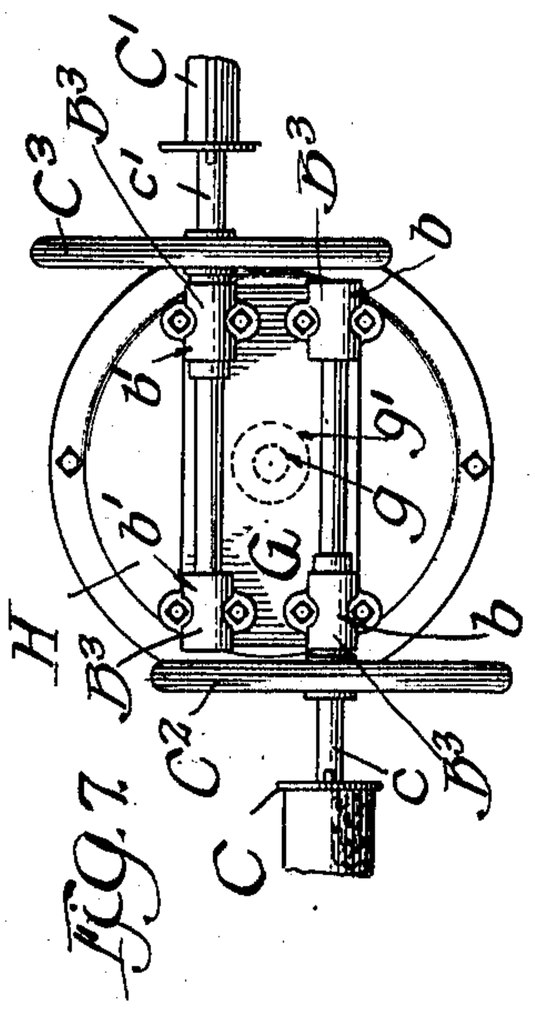

Fig. 7.

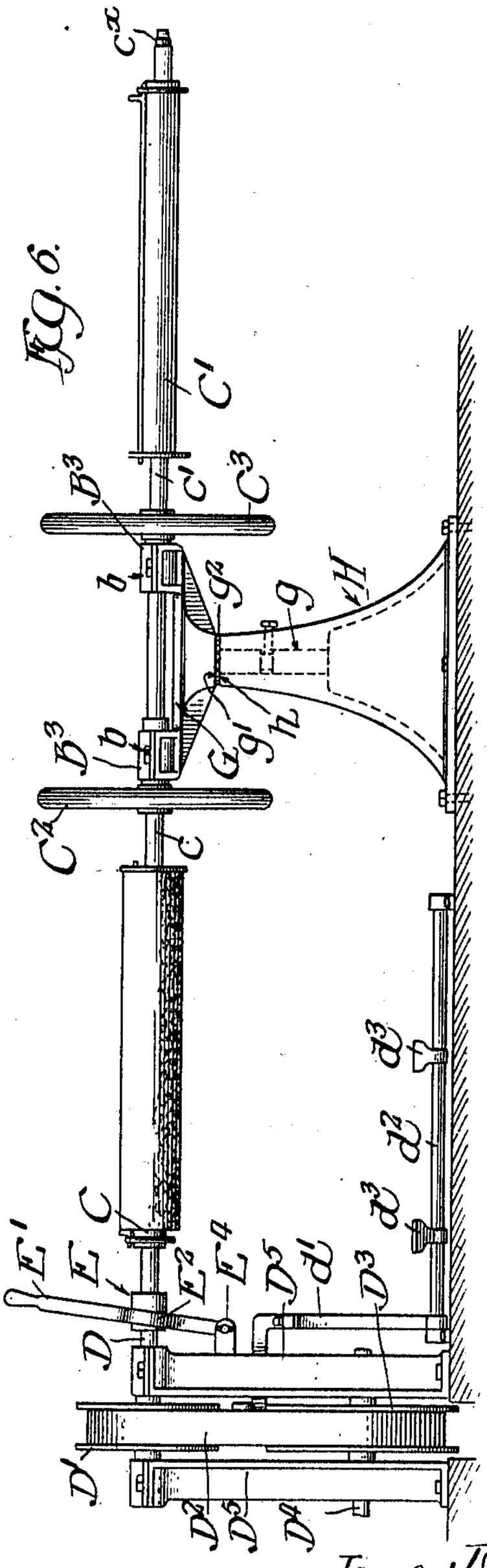

Fig. 6.

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UNITED STATES PATENT OFFICE.

JAMES WOOD MILNE, OF BRANTFORD, ONTARIO, CANADA, ASSIGNOR OF ONE-THIRD TO DANIEL McHENRY AND ONE-THIRD TO CHARLES L. MILLHOUSE, OF SOUTH BEND, INDIANA.

POWER WINDING-MACHINE.

988,585. Specification of Letters Patent. **Patented Apr. 4, 1911.**

Application filed July 28, 1910. Serial No. 574,418.

To all whom it may concern:

Be it known that I, JAMES W. MILNE, a subject of the King of Great Britain, and a resident of Brantford, Province of Ontario, Canada, have invented certain new and useful Improvements in Power Winding-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in power winding machines and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a front elevation of my improved power winding machine showing one of the mandrels operatively connected to the driving shaft. Fig. 2 is a top plan view of the same showing the mandrels in position just as one which has been filled is being rotated away from its operative relation with the driving shaft, and the other being rotated toward said driving shaft. Fig. 3 is a vertical section through Fig. 1 on the line 3—3 thereof. Fig. 4 is a detail sectional view of the clutch mechanism by means of which the power shaft is connected to the mandrel. Fig. 5 is a vertical section through Fig. 1 on the line 5—5 thereof. Fig. 6 is a front elevation of a modified form of my invention showing the parts located as in Fig. 1. Fig. 7 is a partial top plan view of the device as illustrated in Fig. 6.

Referring now to that embodiment of my invention illustrated in Figs. 1 to 5, inclusive, the machine embraces an upright revoluble column A; a horizontal bracket B rigidly secured to said column; a plurality of horizontal mandrels, in this case two, C, C^1, mounted on shafts c, c^1 which project beyond said bracket and are rotatably mounted in suitable bearings thereon; and a power driven shaft D provided with clutch mechanism E adapted to operatively connect said shaft to one or the other of said mandrel shafts when rotated into line therewith.

The column A is provided at its upper and lower ends with studs a, a which have bearing engagement with socketed brackets a^1, a^1 one of which is bolted to the floor and the other to the ceiling of the room occupied by the winding machine.

The bracket B comprises deep vertical plates B^1, B^1 clamped together against the column A and provided on their upper edges with parallel, laterally separated sets of bearings b, b, b^1, b^1 for the mandrel shafts, respectively, c, c^1. Each of said bearings consists of a half-round recess formed in a horizontal flange B^2 of the plate B^1, and of a cap B^3 removably secured to said horizontal flange. C^2, C^3 are hand wheels secured respectively to the shafts c, c^1.

The driving shaft D is driven in any convenient manner from a suitable power shaft which is preferably provided with means to control its speed and to start or stop it. In the example illustrated said driving shaft is provided with a pulley D^1 which is connected by a belt D^2 to a pulley D^3 on a power shaft D^4 located below the driving shaft. d is an idle pulley adapted to engage the belt D^2 to tighten it. Said pulley is journaled at the upper end of a rock arm d^1 rigidly connected to a rock shaft d^2 which is rotatably secured to the floor. Treadles d^3 are rigidly connected to said rock shaft for operating said idle pulley. This construction furnishes a simple device for starting and stopping the driving shaft and for varying its speed of rotation.

The clutch mechanism E consists of a sleeve e (see Figs. 1 and 4) feathered to the end of the driving shaft D, and provided at its outer end with a squared opening e^1 to receive the squared end c^x of the mandrel shaft. Said sleeve is operated by a lever E^1 provided with a loop E^2 surrounding the sleeve e and having lugs E^3 which engage within an annular groove e^3 formed in the outer surface of said sleeve. The lever E^1 is hinged to a bracket E^4 projecting from

one of the vertical standards D^5 which supports the driving shaft.

In the use of the improved winding machine one mandrel is swung into line with the driving shaft and the clutch E shifted to lock the mandrel shaft to the driving shaft. It is then started, the speed being varied, as desired, by the manipulation of the idle pulley *d*, and the operation continued until a full roll is wound upon said mandrel. Its rotation is then stopped, the clutch released by shifting the clutch lever, and the column A rotated on its axis to bring the filled mandrel into position where the roll may be removed, and to bring the empty mandrel into operative relation with the driving shaft, in order to wind another roll. The operation is then continued as before.

In Figs. 6 and 7 I have shown an embodiment of my invention in which the vertical supporting column is omitted. In these figures the mandrel shafts are supported on their revoluble brackets G in suitable bearings as before. The bracket in this case is mounted on an upright standard H which is bolted to the floor. The bracket G is provided with a depending stem *g* which engages within a socket formed in the upper end of the standard H and the adjacent spaces *g*, *h* of the bracket and standard are preferably provided with runways in which are located balls g^1 to form an antifriction bearing between the bracket and the standard.

The other parts of the mechanism are as described in the previous figures and are lettered with like letters of reference.

I claim as my invention:—

1. A power winding machine embracing an upright rotatable column, a bracket secured to said column, a plurality of mandrel shafts with their axes located in the same horizontal plane, said mandrel shafts projecting from said bracket and being rotatably mounted thereon, a driving shaft located in the horizontal plane of said mandrel shafts, and a clutch for operatively connecting one of the mandrel shafts to said driving shaft when said mandrel shaft is brought into line with the driving shaft.

2. A power winding machine embracing a horizontal bracket and means for rotatably mounting the same, a plurality of mandrel shafts projecting from said bracket and rotatably mounted thereon, said mandrel shafts being located in the same horizontal plane, a driving shaft located in the horizontal plane of said mandrel shafts, and a clutch for operatively connecting one of the mandrel shafts to said driving shaft when said mandrel shaft is brought into line with the driving shaft.

3. A power winding machine embracing an upright rotatable column, a horizontal bracket secured to said column, a pair of horizontal mandrel shafts projecting in opposite directions from said bracket and rotatably mounted thereon, said mandrel shafts being located in the same horizontal plane, a driving shaft located in the horizontal plane of said mandrel shafts, and a clutch for operatively connecting one of the mandrel shafts to said driving shaft when said mandrel shaft is brought into line with the driving shaft.

4. A power winding machine embracing an upright rotatable column, a bracket secured to said column, a pair of parallel, laterally separated mandrel shafts projecting in opposite directions from said bracket, said mandrel shafts being located in the same horizontal plane and being rotatively mounted on said bracket, a driving shaft located in the horizontal plane of said mandrel shafts, a clutch device on said driving shaft adapted to be engaged with one of said mandrel shafts when the same is brought into line with said driving shaft, a power shaft, and means intermediate said power shaft and said driving shaft adapted to start or stop said driving shaft and to vary its speed.

5. A power winding machine embracing a horizontal driving shaft, an upright, rotatable column spaced from the end of said driving shaft, a bracket secured to said column, a pair of parallel, laterally separated, mandrel shafts rotatably mounted on said bracket and projecting in opposite directions therefrom, said mandrel shafts being located in the horizontal plane of said driving shaft and each being adapted to be swung into line with said driving shaft, and a clutch mechanism located on said driving shaft adapted to connect the same with either of said mandrel shafts when said mandrel shaft is swung into line with said driving shaft.

6. A power winding machine embracing a horizontal driving shaft, a horizontal rotatable bracket spaced from the end of said driving shaft, means for rotatably supporting said bracket, a pair of parallel, laterally separated mandrel shafts rotatably mounted on said bracket and projecting in opposite directions therefrom, said mandrel shafts being located in the horizontal plane of said driving shaft and each being adapted to be swung into line with said driving shaft, and a clutch mechanism located on said driving shaft adapted to connect the same with either of said mandrel shafts when said mandrel shaft is swung into line with said driving shaft.

7. A power winding machine embracing a horizontal driving shaft, a horizontal, rotatable bracket spaced from the end of said

driving shaft, means for rotatably supporting said bracket, a mandrel shaft rotatably mounted on said bracket, said mandrel shaft being located in the horizontal plane of said driving shaft, and being adapted to be swung into operative relation therewith, and a clutch mechanism adapted to connect said driving shaft with said mandrel shaft.

In testimony, that I, claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 14th day of June A. D. 1910.

JAMES WOOD MILNE.

Witnesses:
GEORGE D. HEYD,
A. MALONEY.