

No. 710,975.

Patented Oct. 14, 1902.

C. W. HOBBS.
EXPANSIBLE BOX FORM.

(Application filed Jan. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.

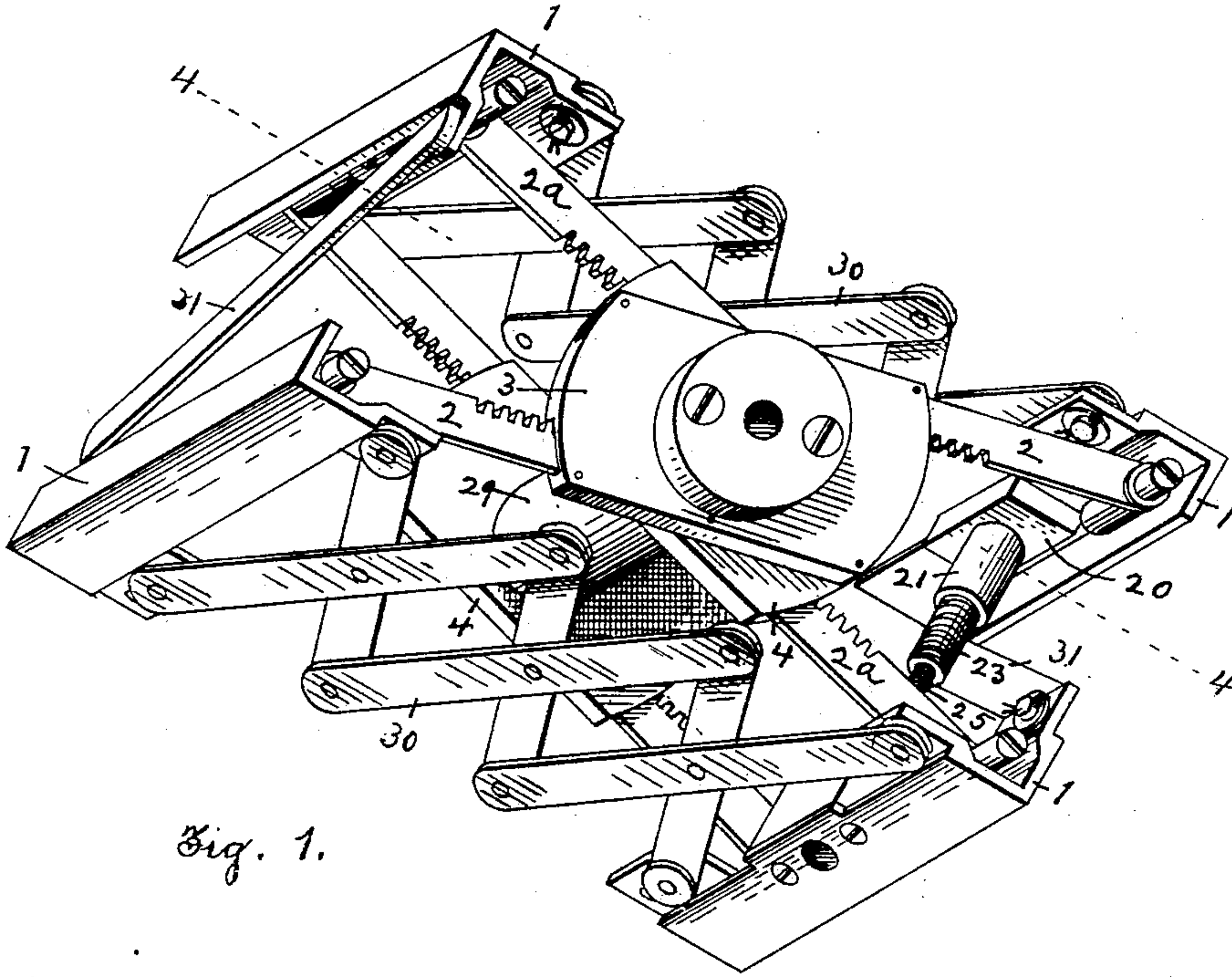


Fig. 1.

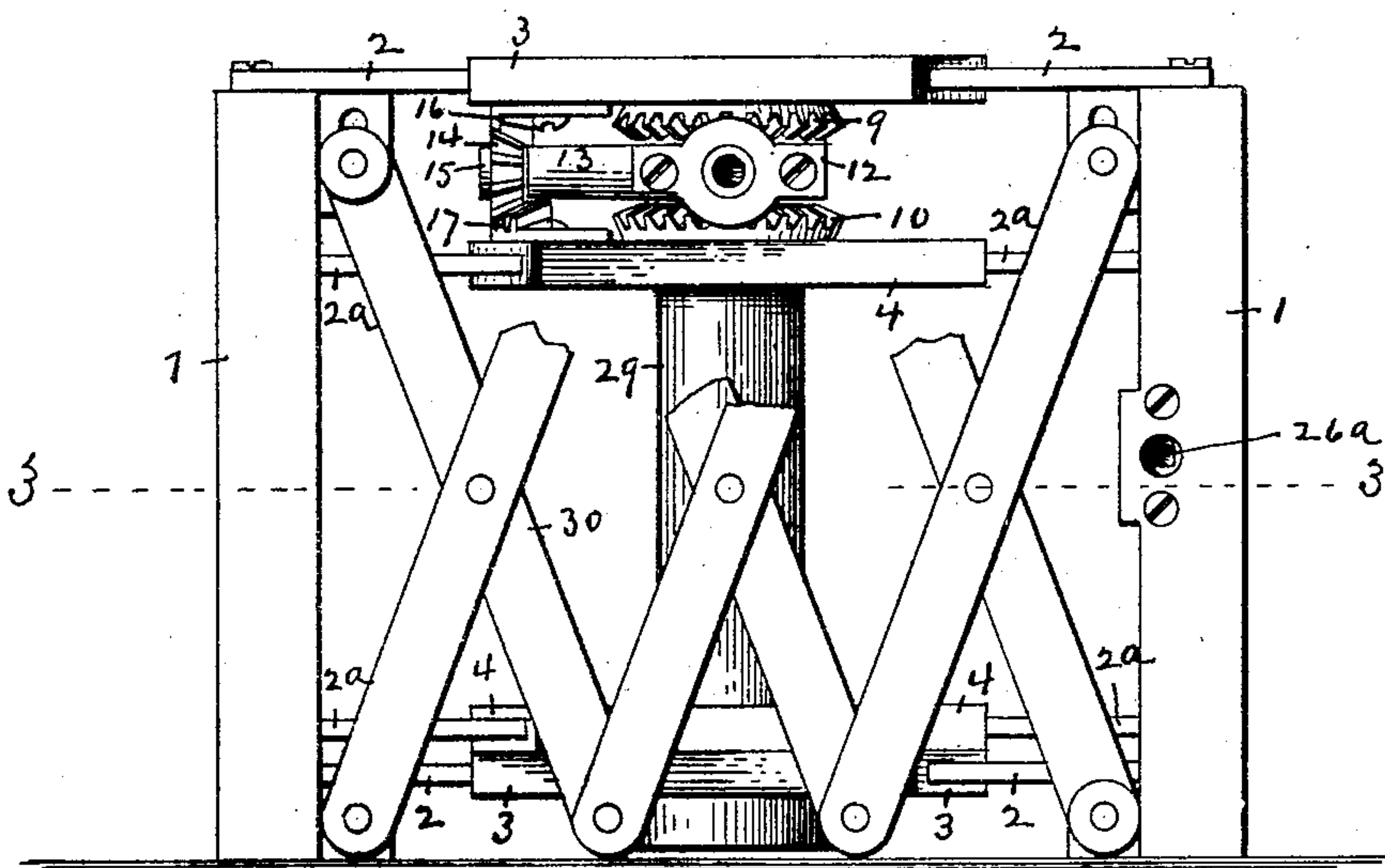


Fig 2

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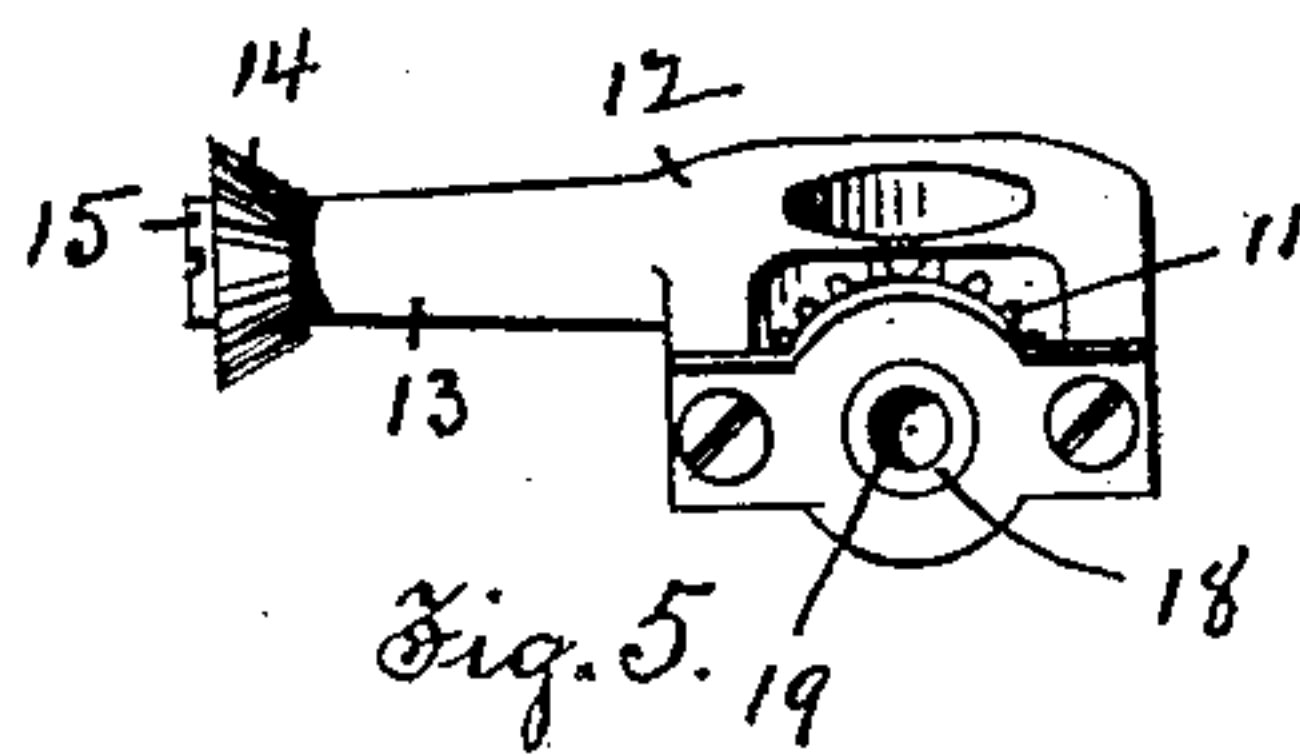
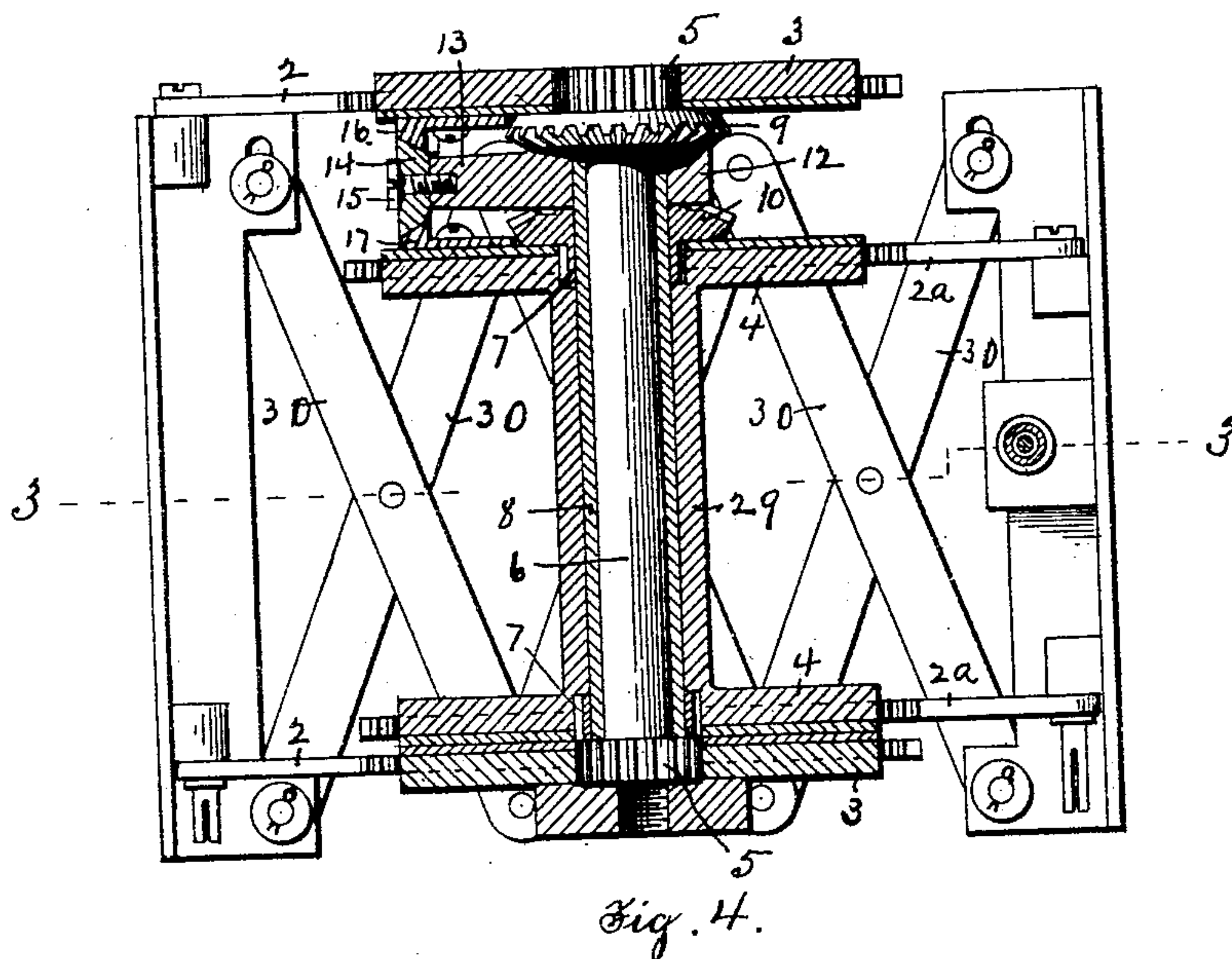
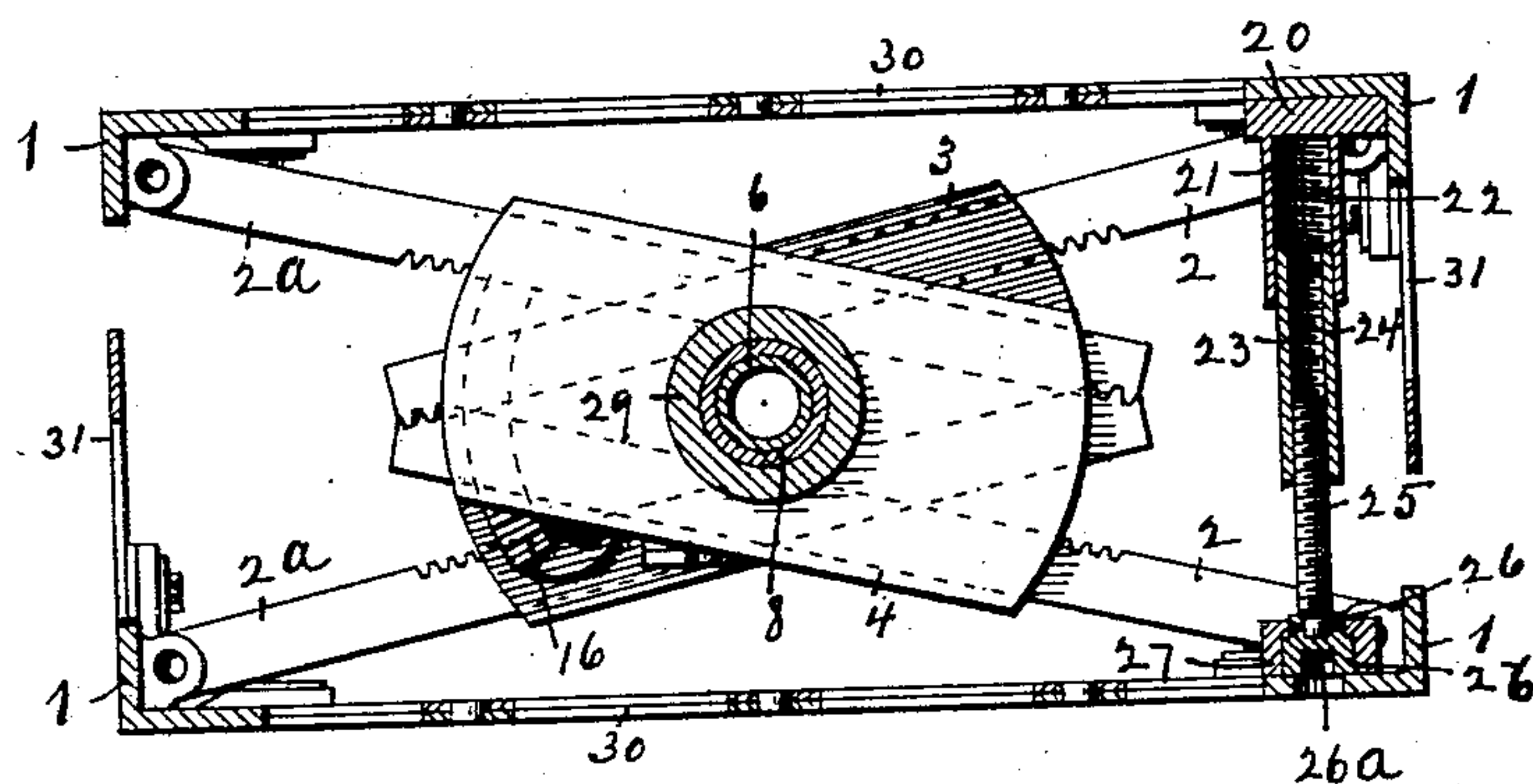
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UNITED STATES PATENT OFFICE.

CLARENCE W. HOBBS, OF WORCESTER, MASSACHUSETTS.

EXPANSIBLE BOX-FORM.

SPECIFICATION forming part of Letters Patent No. 710,975, dated October 14, 1902.

Application filed January 8, 1901. Serial No. 42,464. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE W. HOBBS, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Expansible Box-Forms, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a perspective view of an expansible box-form embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a central sectional view on line 3 3, Figs. 2 and 4. Fig. 4 is a sectional view on line 4 4, Fig. 1. Fig. 5 is a detached perspective view of the block for supporting the actuating beveled pinion by which the length of the box-form is varied.

Similar reference-figures refer to similar parts in the different views.

My present invention relates to an expansible box-form for supporting paper boxes while being covered in a box-covering machine; and it has for its object to render the box-form capable of being varied in size in order to fit different-sized boxes, and my invention consists in the construction and arrangement of parts, as hereinafter described, and set forth in the annexed claims.

Referring to the accompanying drawings, 1 denotes angle-plates forming the corners of the box-form and pivotally connected to rack-bars 2 2^a, which are capable of a longitudinal sliding motion in plates 3 3 4 4. The rack-bars 2 2 are engaged by pinions 5 5, which are attached to a hollow shaft 6, and the rack-bars 2^a are engaged by pinions 7 7, attached to a sleeve 8, capable of turning upon the hollow shaft 6. The hollow shaft 6 carries a beveled gear 9, and the sleeve 8 carries a beveled pinion 11, carried in a block 12, supported upon the sleeve 8 and provided with a projecting arm 13, which supports a beveled pinion 14, which turns freely upon a screw 15, held in the end of the arm 13. The beveled pinion 14 engages upon its diametrically opposite sides the sectors 16 17, the sector 16 being attached to one of the plates 3 and the sector 17 being attached to one of the plates 4. The hub 18 of the beveled pinion 14 is provided with a square socket 19, adapted to

receive a wrench by which the pinion 11 is turned in order to rotate the hollow shaft 6 and its attached pinions 5 5 and the sleeve 8 and its attached pinions 7 7, whereby a longitudinal motion is imparted to the rack-bars 2 and 2^a, causing the distance between the angle-plates 1 at the ends of the box-form to be varied in order to shorten or lengthen the box-form.

At one end of the box-form the angle-plates 1 1 are connected by a telescoping screw, as shown in Fig. 3. To one of the angle-plates is attached a plate 20, having a projecting hub 21, provided with an internal screw-thread 22 to receive a hollow screw 23. The screw 23 is also provided with an internal screw-thread 24, adapted to receive a screw 25, provided with a head 26, journaled in a plate 27, which is attached to an angle-plate 1 at the opposite corner of the box-form. The head 26 is provided with a square socket 26^a, adapted to receive a wrench by which the screws 23 and 25 are turned. When the screw 25 has been screwed into the hollow screw 23, thereby bringing the end of the hollow screw 23 against the head 26, the rotation of the head 26 will then be imparted to the hollow screw 23, causing it to be screwed in the hub 21, and the connected angle-plates 1 1 will therefore be drawn together or separated by the action of the telescoping screws 23 and 25, thereby increasing or decreasing the width of the box-form. As the angle-plates 1 1 are separated by the action of the screws 23 and 25 to increase the width of the box the plates 3 3 and 4 4, in which the rack-bars 2 and 2^a slide, are rocked about a common axis, thereby increasing the angle formed by each pair of rack-bars. The plates 4 4 are united by a sleeve 29, so that the plates 4 4 will rock together as the width of the box-form is increased, while the plates 3 3 have an independent rocking motion about the pinions 5 5. The plates 3 3 and 4 4 are caused to rock uniformly about a common axis by means of the geared sectors 16 and 17, which engage the pinion 14. The angle-plates 1 1 at each side of the box-form are connected together by the pivoted bars 30, which are capable of opening and closing as the angle-plates at the opposite ends of the box-form are separated or brought nearer together, and the angle-plates

1 1 at each end of the box-form are connected by pivoted links 31 31.

The angle-bars 1 1 are separated by rotating the beveled pinion 11 in one direction to longitudinally move the rack-bars in order to increase the length of the box and in the opposite direction to reduce its length, and the width of the box-form is varied by applying a wrench to the rotating head 26 and actuating the telescoping screws 23 and 25.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an expansible box-form for box-covering machines, the combination of plates forming corners of the form, bars pivoted at their ends to the opposite ends of said plates and capable of longitudinally sliding in ways to vary the length of the box-form, plates provided with ways for said sliding bars and capable of rocking about a common axis, means for simultaneously rocking said plates, whereby the angle of said sliding bars is simultaneously changed on opposite sides of the box-form, substantially as described.

2. In an expansible box-form for box-covering machines, the combination of two pairs of rocking plates on opposite sides of the box-form and provided with ways for longitudinally-sliding bars, a pair of sliding bars held in each of said plates, angle-plates carried by the ends of said bars to form the corners of the box-form, means for simultaneously sliding said bars in their ways to vary the length of the box-form and means for simultaneously rocking said plates to change the angle between said angle-bars and vary the width of the box-form, substantially as described.

3. The combination of plates 1, 1, sliding rack-bars 2 and 2^a arranged in pairs and pivoted at their ends to said plates, two pairs of pinions engaging said rack-bars, means for rotating the pinions of each pair simultaneously in opposite directions, plates provided with ways for said rack-bars, and means for rocking said plates concentrically with said pinions, to vary the angle between said pairs of rack-bars, substantially as described.

4. In an expansible box-form, the combination of plates 1, 1, at the corners, means for varying the distance between the plates at

one end of the form, and consisting of the telescoping screws 23 and 25, and a screw-threaded hub 21, sliding bars pivoted to said plates, plates having ways for said bars and capable of rocking about a common axis, substantially as described.

5. The combination of a pair of plates 3, 3, having ways for rack-bars, a pair of plates 4, 4, connected by a sleeve, said plates having ways for rack-bars, means for rocking said pairs of plates simultaneously in opposite directions, rack-bars held in said ways, a hollow shaft concentric with the axes of said plates, pinions carried by said shaft, and engaging the rack-bars held in one pair of said plates, a sleeve turning on said hollow shaft, pinions carried by said sleeve and engaging the other pair of rack-bars, plates pivotally attached to the ends of said rack-bars, means for rotating said pinions and means for rocking the plates 3, 3, and 4, 4, substantially as described.

6. In an expansible box-form, the combination with rocking plates carrying sliding rack-bars, sliding rack-bars held in said plates, segmental racks carried by said plates and a pinion in engagement with said racks, whereby the rocking movement of one of said plates is imparted to the other plate in the opposite direction, in order to vary the angle between said rack-bars, substantially as described.

7. The combination of hollow shaft 6, pinions 5, 5, carried by said shaft, sleeve 8 enclosing said shaft, pinions 7, 7, carried by said sleeve, a beveled gear carried by said hollow shaft, a beveled gear carried by said sleeve, a pinion 11, engaging said beveled gears, whereby said gears are simultaneously rotated, rack-bars engaged by said pinions 5, 5, and 7, 7, angle-plates pivoted to the ends of said rack-bars, plates provided with ways in which said rack-bars are held and means for rocking said plates about a common axis, substantially as described.

Dated this 3d day of January, 1901.

CLARENCE W. HOBBS.

Witnesses:

RUFUS B. FOWLER,
FLORENCE C. COOK.