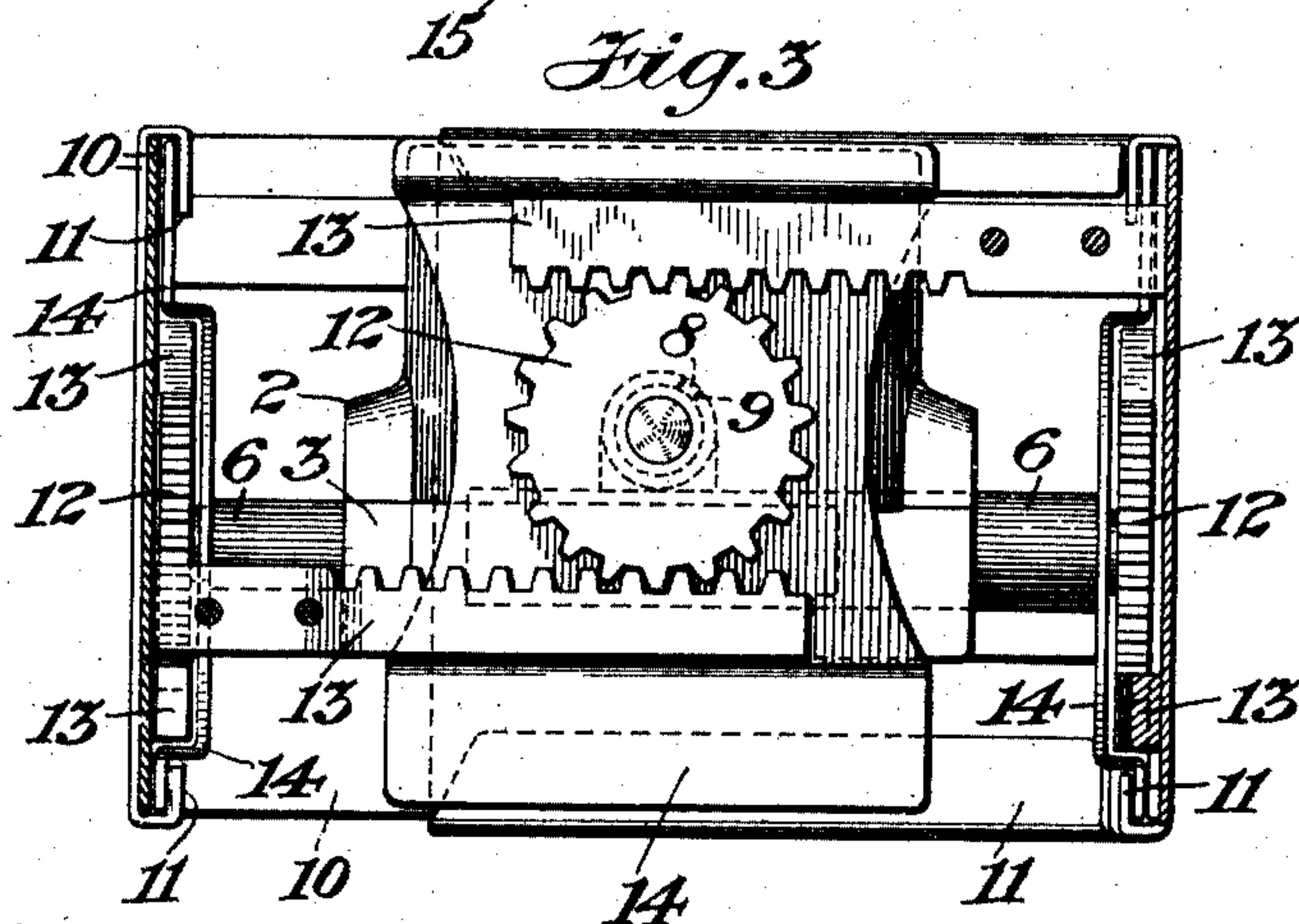
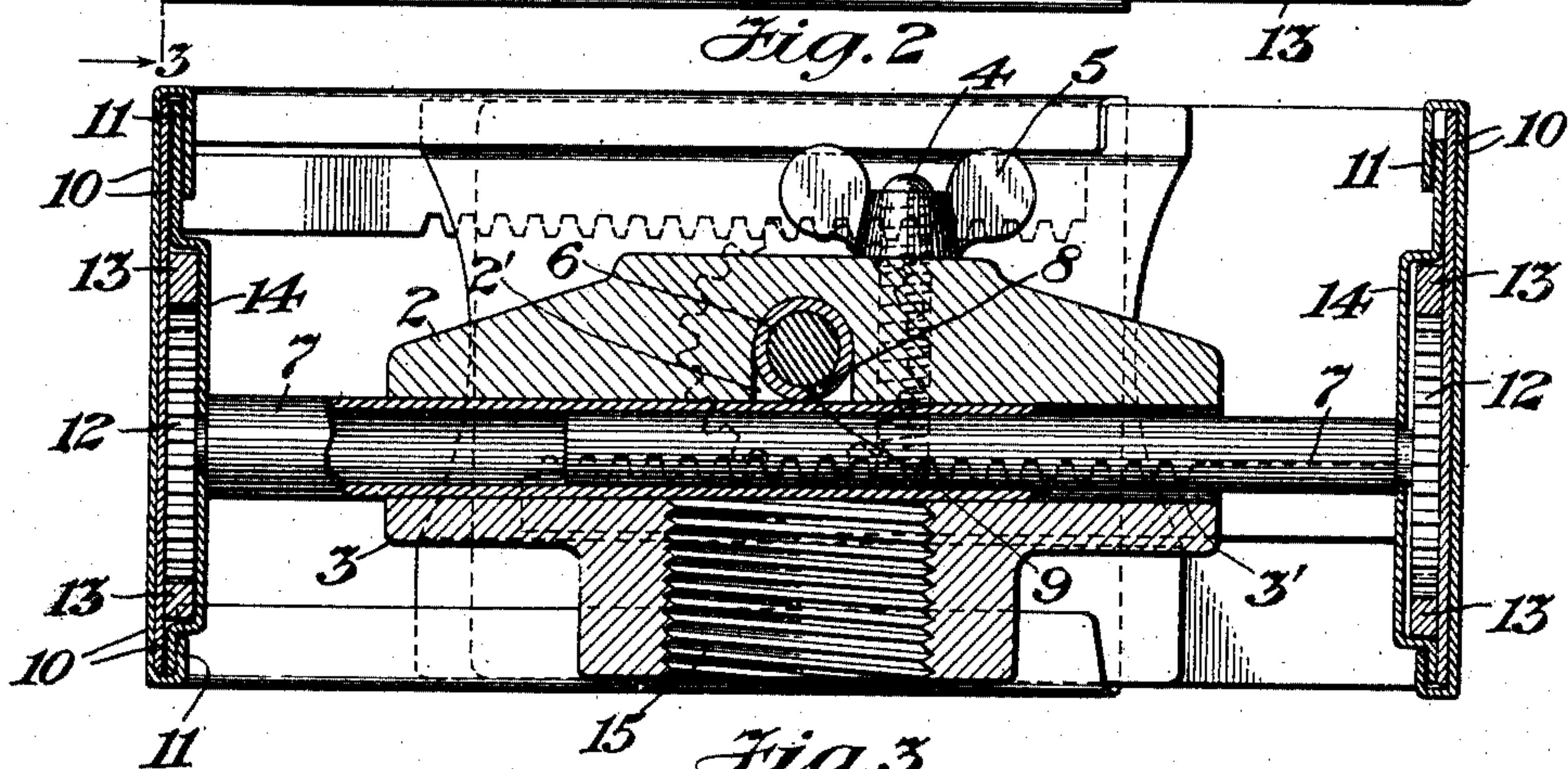
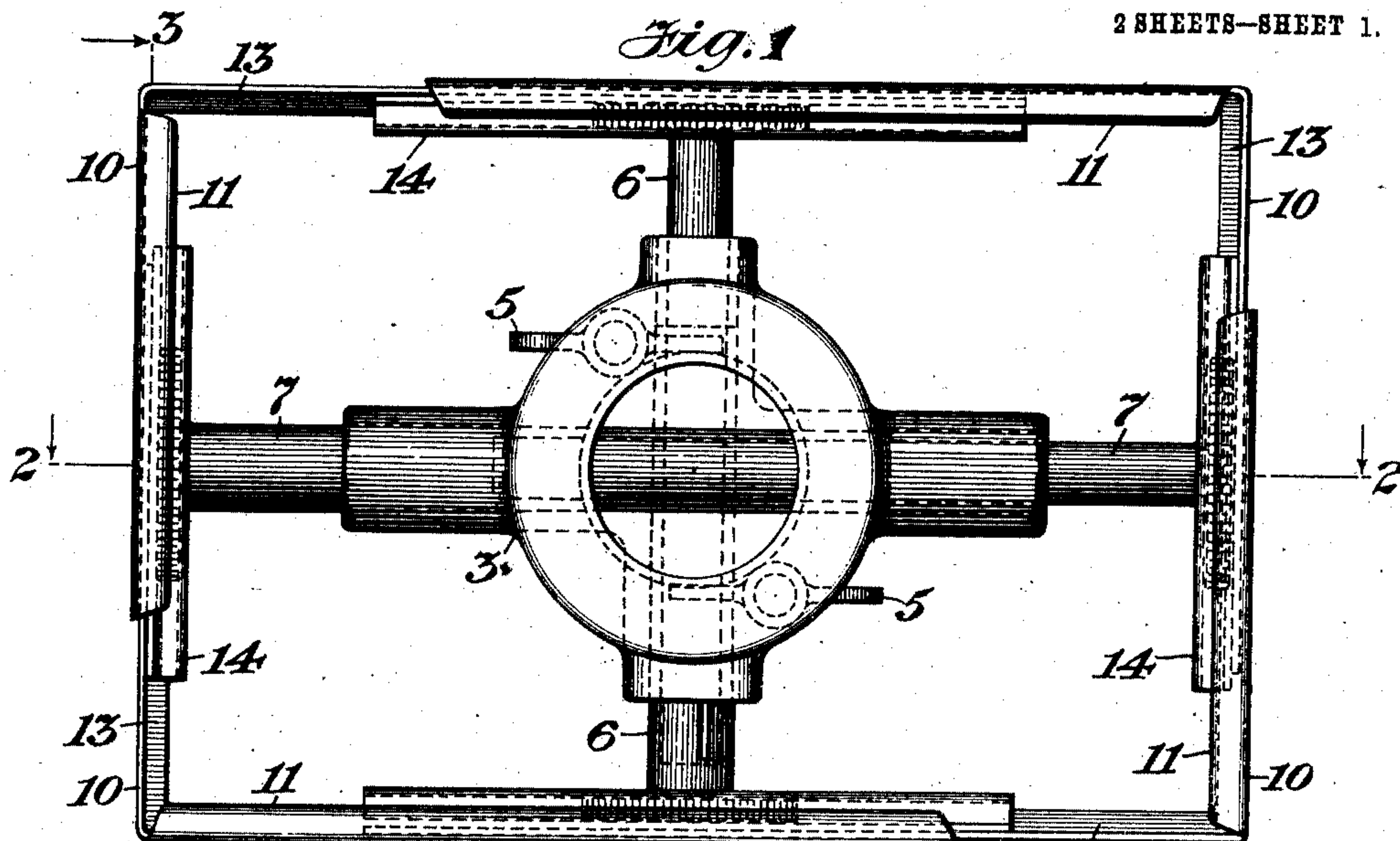


H. DE SMITH.
ADJUSTABLE BOX FORM.
APPLICATION FILED OCT. 1, 1908.

927,503.

Patented July 13, 1909.

2 SHEETS—SHEET 1.



Witnesses:
Chas. Clagett
J. B. L. Blanc.

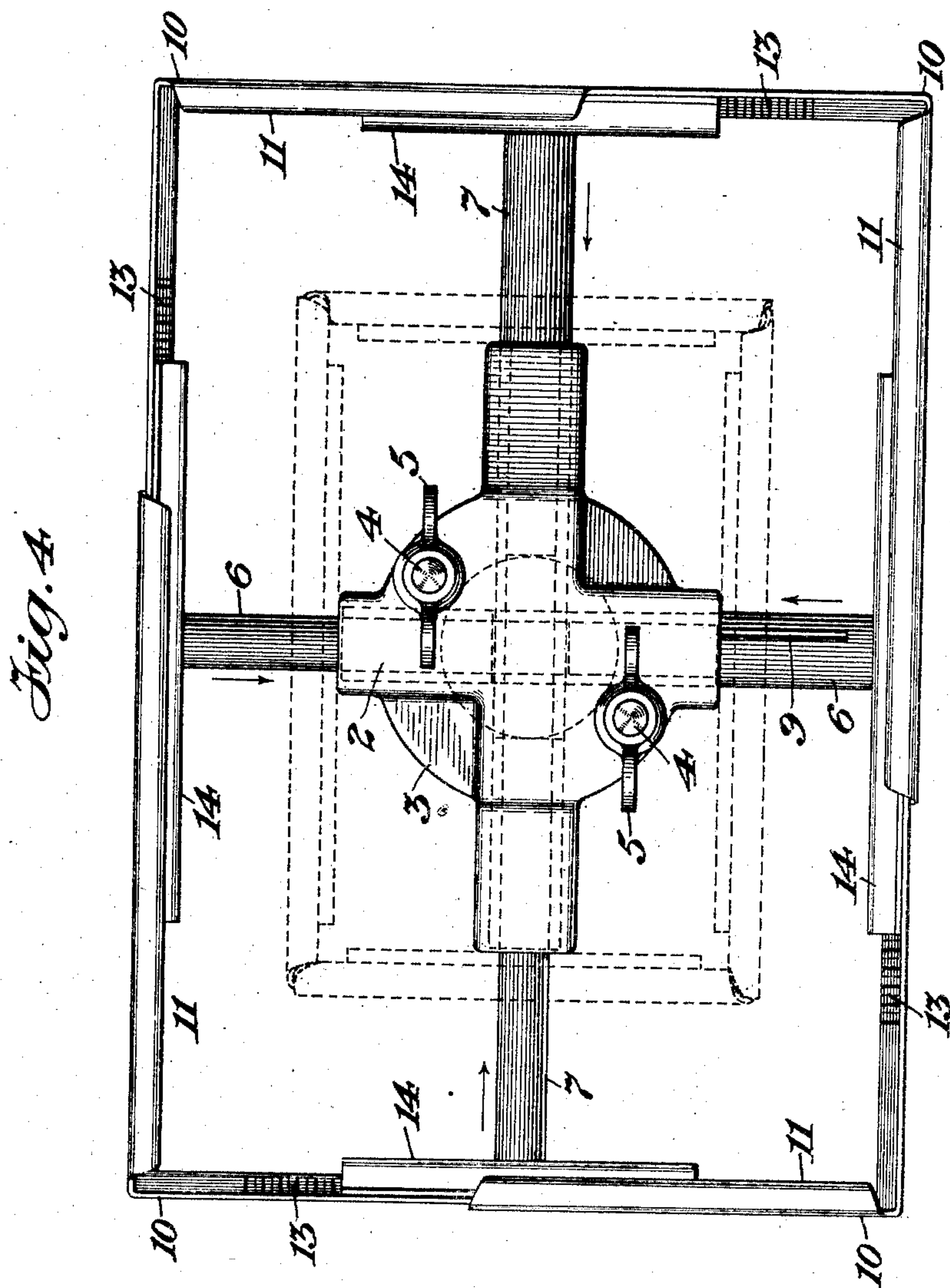
Inventor
Henry De Smith
By his Attorney
Chas. H. Dams.

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UNITED STATES PATENT OFFICE.

HENRY DE SMITH, OF ROCHESTER, NEW YORK, ASSIGNOR TO M. D. KNOWLTON COMPANY,
OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

ADJUSTABLE BOX-FORM.

No. 927,503.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed October 1, 1908. Serial No. 455,726.

To all whom it may concern:

Be it known that I, HENRY DE SMITH, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Adjustable Box-Forms, of which the following is a specification.

In the manufacture of paper boxes, the boxes in some instances are covered with a strip of paper or other covering material, and as a means for quickly and conveniently performing such covering operation, machines are provided which embody a rotary "box-form" adapted to support the box to be covered and revolve the same to permit of the adhesively-coated covering strip being applied to the several sides of the box successively by the operator pressing the same thereon; the said box-form being adapted to closely fit the interior of the box in order to firmly support the same while the covering strip is being pressed thereon. As the boxes used in general trade vary considerably in size, it is desirable that the box-forms should be adjustable to conform to such variation in size, and it is further desirable that the box-form should provide a firm and rigid support to the box thereon at whatever size to which it might be adjusted.

With the object of providing a box-form embodying such desirable requisites in an improved form, my invention consists in the novel features of construction and combinations of parts hereinafter set forth in detail and pointed out in the appended claims.

Referring now to the accompanying drawings forming part of this specification,—Figure 1 is an end view of a box-form embodying my invention. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a section taken on line 3—3 of Fig. 1. Fig. 4 is an end view taken from the side opposite that shown in Fig. 1 showing the form in a more extended adjustment.

Similar reference characters designate like parts in the several figures of the drawings.

A box-form embodying my invention will preferably comprise a central supporting head having means for detachable connection to the rotary carrier-spindle of a box-covering machine, a plurality of rotatable arms connected with and radially adjustable relative to said head, a plurality of slidably-con-

nected overlapping wall sections presenting a continuous box-supporting surface, and a rack-and-pinion connection between the ends of said arms and the adjacent wall sections for assuring a uniformity of adjustment of said wall sections.

The central supporting head comprises two plates, 2 and 3, detachably connected together by means of threaded pins 4, 4, fixedly attached to one of the plates and extending through openings in the other plate for engagement at their outer ends by clamping nuts 5, 5.

The plates 2 and 3 are provided at their inner or adjacent faces with grooves 2' and 3' respectively, which are arranged at right angles to each other and adapted to receive and slidably support two pairs of rods 6, 6, and 7, 7, the outer projecting ends of which constitute arms for connection with the box-supporting wall sections. Each of the said pairs of rods 6, 6, and 7, 7, are telescopically connected for longitudinal adjustment by means of one entering a bore of the other, and each of said pairs of rods are also connected for rotary movement in unison by means of a pin 8 on one entering a groove or slot 9 in the other; the said longitudinal and rotary movements of these pairs of rods being adapted for their adjustable support of the wall sections, in a manner to be presently described.

The box-supporting wall sections, as shown in the present case, comprise four right-angled corner plates 10, arranged with their adjacent ends overlapping each other and being slidably connected together by means of inwardly-turned flanges 11, 11, at the upper and lower edges of one plate embracing the unflanged edge of the overlapping adjacent plate, in manner as clearly shown in the drawings.

The several wall-sections, connected together in the manner described and presenting a continuous or unbroken box-supporting surface that is adjustable to boxes of different shapes and sizes, are connected with and supported by the said radially adjustable arms 6, 6, and 7, 7, projecting from the central supporting head. The radial adjustment of these said arms permit of the adjustment of the connected wall sections toward and from the central supporting head and a consequent adjustment in the shape and size of the box-supporting surface

formed by the wall-sections. Such adjustment obviously necessitates a relative movement between the wall sections and their supporting arms, and to effect a connection between the said parts providing for such relative movement, I have provided a rack-and-pinion connection between the same in a manner as follows: Each arm or rod is provided at its outer end with a rigidly attached pinion 12 engaging two racks 13, 13, secured respectively to the two adjacent wall plates, in manner as clearly shown in the drawings and particularly in Figs. 2 and 3 thereof. This connection between each of the arms and the two adjacent wall plates permits of a sliding adjustment of said plates relative to each other and to the arms, and also operates to assure such adjustment of the plates of each pair being simultaneous and uniform.

In order to retain the described connection between the arms and the wall plates or sections and prevent endwise withdrawal of the pinions from mesh with the racks during adjustment of the form, plates 14 are provided which overlie the inner or rear side of the pinions with two of their opposite edges extending behind the inwardly turned flanges 11, 11, of the adjacent wall plate as shown; this arrangement and combination of parts serving to maintain the arms and their pinions in operative connection with the wall plates and their racks.

The position of the plates 14 overlying the pinions is permitted in the present case by providing the said plates with openings through which the pinion-carrying arms extend, as most clearly shown in Figs. 2 and 3.

To adjust the box-form for boxes of different sizes, the operator will preferably grasp either the end wall sections or the side wall sections, or both the end and side wall sections successively, and move them toward or from each other until the form has been caused to assume the required shape and size, in manner as indicated in the drawing; such adjustment being permitted by the sliding connection of the several wall sections with each other and by the rack-and-pinion connection of said wall sections in pairs to the radially adjustable arms by which they are supported. After the form has been adjusted to assume the required shape and size, it may be secured in adjusted position by clamping the arms between the two plates of the supporting head.

The box-form as described may be detachably connected by any suitable means to the rotary carrier-spindle of a box-covering machine, the same in the present case being provided with a screw-threaded attaching hub 15 formed on one of the plates 2 of the central supporting head.

What I claim is:

1. An adjustable box-form, comprising a

central supporting head, a plurality of arms connected with and radially adjustable relative to said head, a plurality of slidably connected wall sections, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

2. An adjustable box-form, comprising a central supporting head, a plurality of arms slidably connected with and radially adjustable relative to said head, a plurality of slidably connected wall sections, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

3. An adjustable box-form, comprising a central supporting head, a plurality of arms connected with and radially adjustable relative to said head, a plurality of wall sections movable relative to each other and presenting a continuous box supporting surface, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

4. An adjustable box-form, comprising a central supporting head, a plurality of arms connected with and radially adjustable relative to said head, a plurality of slidably connected wall sections presenting a continuous box supporting surface, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

5. An adjustable box-form, comprising a central supporting head, a plurality of arms connected with and radially adjustable relative to said head, a plurality of slidably connected overlapping wall sections presenting a continuous box supporting surface, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

6. An adjustable box-form, comprising a central supporting head, a plurality of arms connected with and radially adjustable relative to said head, a plurality of angular wall sections movable relatively to each other and presenting a continuous box supporting surface, said wall sections being angular in the direction of their length, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

7. An adjustable box-form, comprising a central supporting head, four arms projecting from said head at four opposite sides thereof and being radially adjustable relative thereto, four right-angled wall sections arranged with their ends slidably connected together and presenting a continuous rectangular box-supporting surface, said wall sections being right-angled in the direction of their length, and a rack and pinion connection between each of the said arms and the adjacent ends of two of the wall sections.

8. An adjustable box-form, comprising a central supporting head, a plurality of arms connected with and radially adjustable rela-

tive to said head, a plurality of slidably connected wall sections, a rack and pinion connection between each of the arms and two of the adjacent wall sections, and means re-
5 movably connecting the arms and wall sections for maintaining operative connection of the racks and pinions.

9. An adjustable box-form, comprising a central supporting head, a plurality of arms
10 connected with and radially adjustable relative to said head, a plurality of slidably connected wall sections, a rack and pinion connection between each of the arms and two of the adjacent wall sections, and plates re-
15 movably connecting the arms and wall sections for maintaining operative connection of the racks and pinions.

10. An adjustable box-form, comprising a central supporting head, a plurality of ro-
20 tatable arms connected with and radially adjustable relative to said head, a plurality of slidably connected wall sections, and a rack and pinion connection between each of the arms and two of the adjacent wall
25 sections.

11. An adjustable box-form, comprising a central supporting head, two pairs of rota-

table arms arranged at right angles to each other and being connected with and radially adjustable relative to said head, the arms of
30 each pair being connected together for rotary adjustment in unison, a plurality of slidably-connected wall sections, and a rack and pinion connection between each of the arms and two of the adjacent wall sections. 35

12. An adjustable box-form, comprising a central supporting head, two pairs of rota-
table arms arranged at right angles to each other and being connected with and radially
40 adjustable relative to said head, the arms of each pair being telescopically connected for longitudinal adjustment and also being connected for rotary adjustment in unison, a
45 plurality of slidably-connected wall sections, and a rack and pinion connection between each of the arms and two of the adjacent wall sections.

Signed at Rochester, in the county of Monroe and State of New York, this 17th day of September, A. D. 1908.

HENRY DE SMITH.

Witnesses:

JAMES W. ALLIS,
THOS. D. PATTON.