

No. 878,131.

PATENTED FEB. 4, 1908.

O. A. FRICK.  
HUB BANDING MACHINE.  
APPLICATION FILED OCT. 8, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

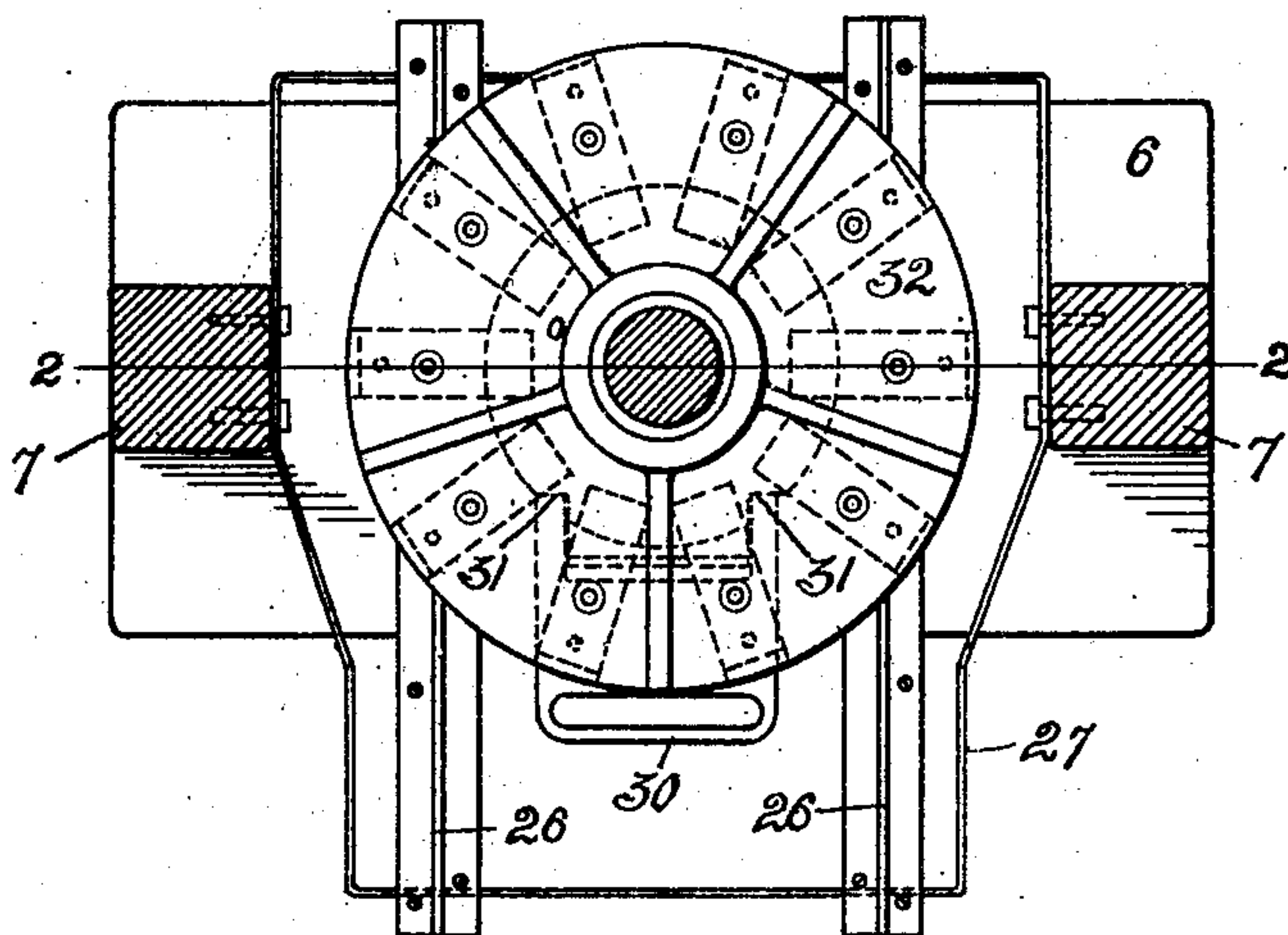
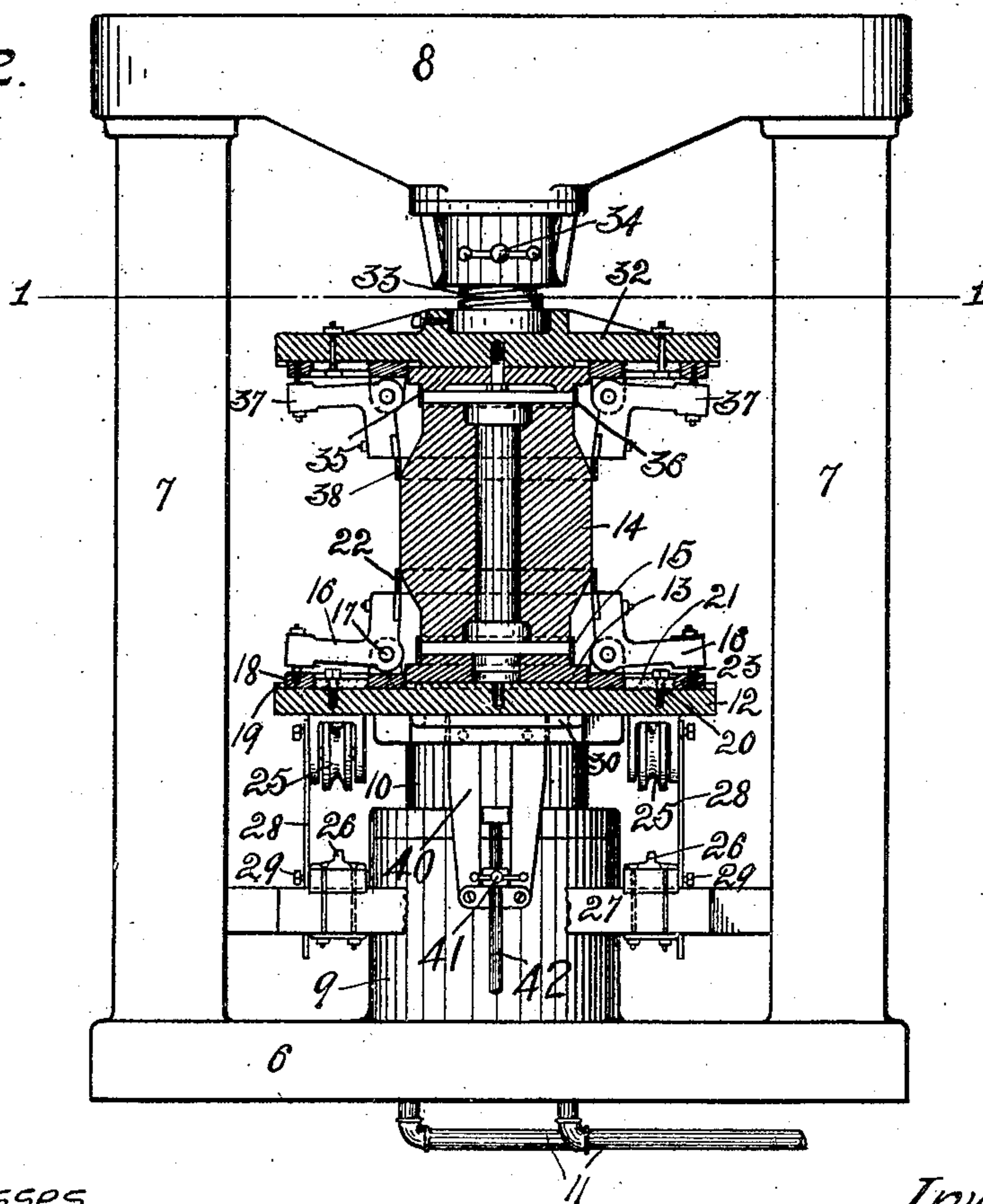


Fig. 2.



Witnesses

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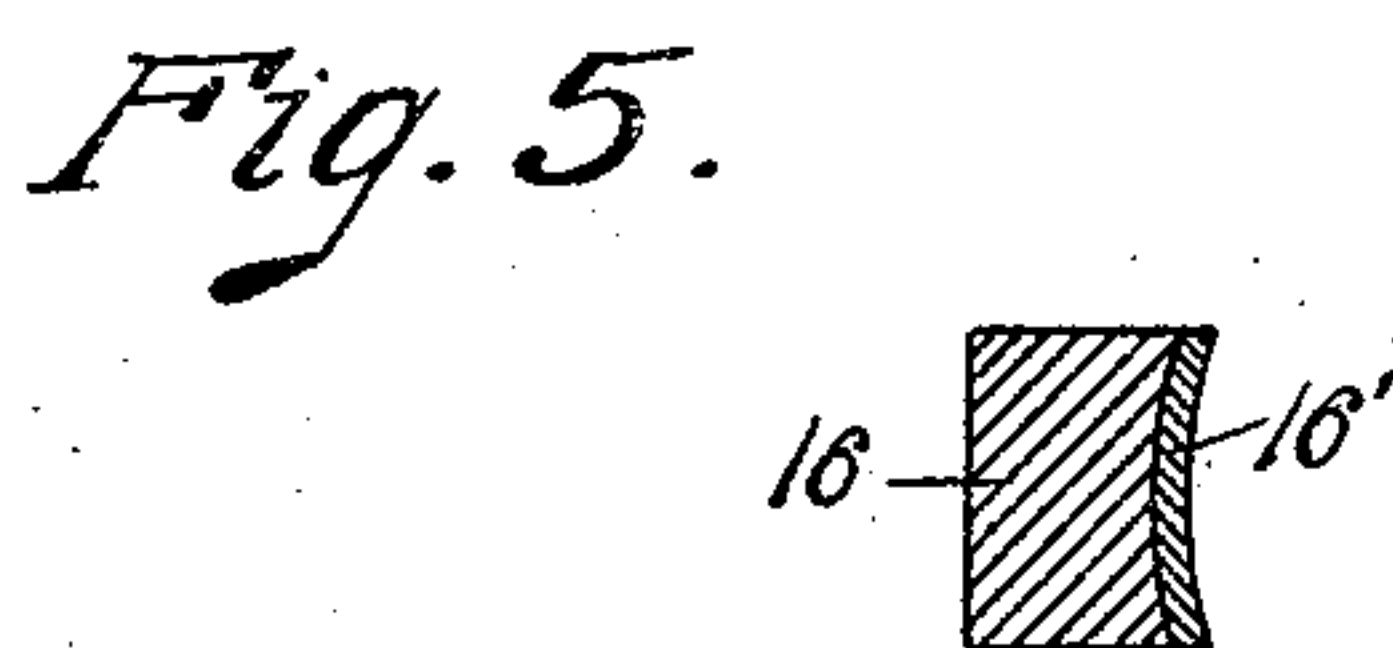
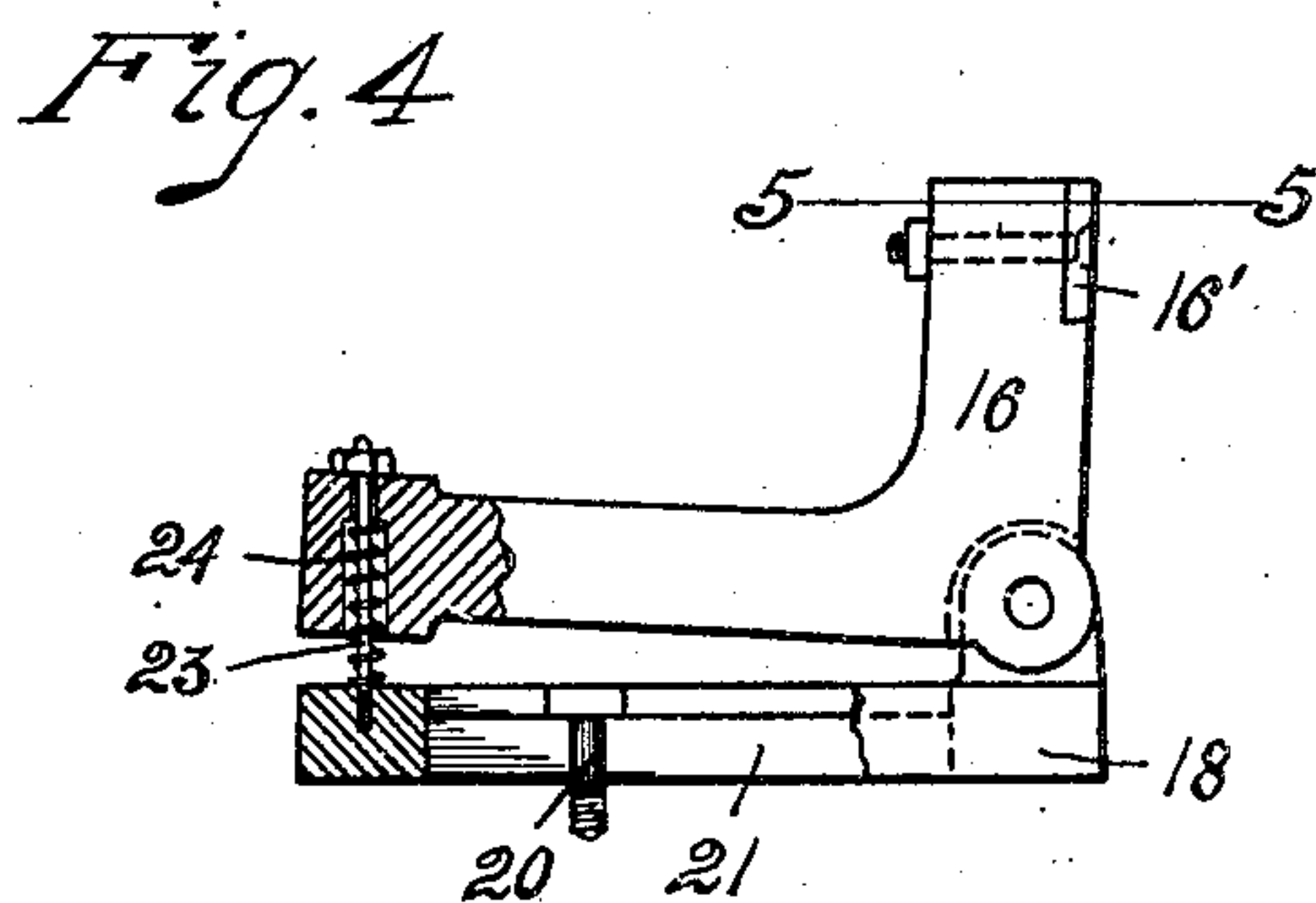
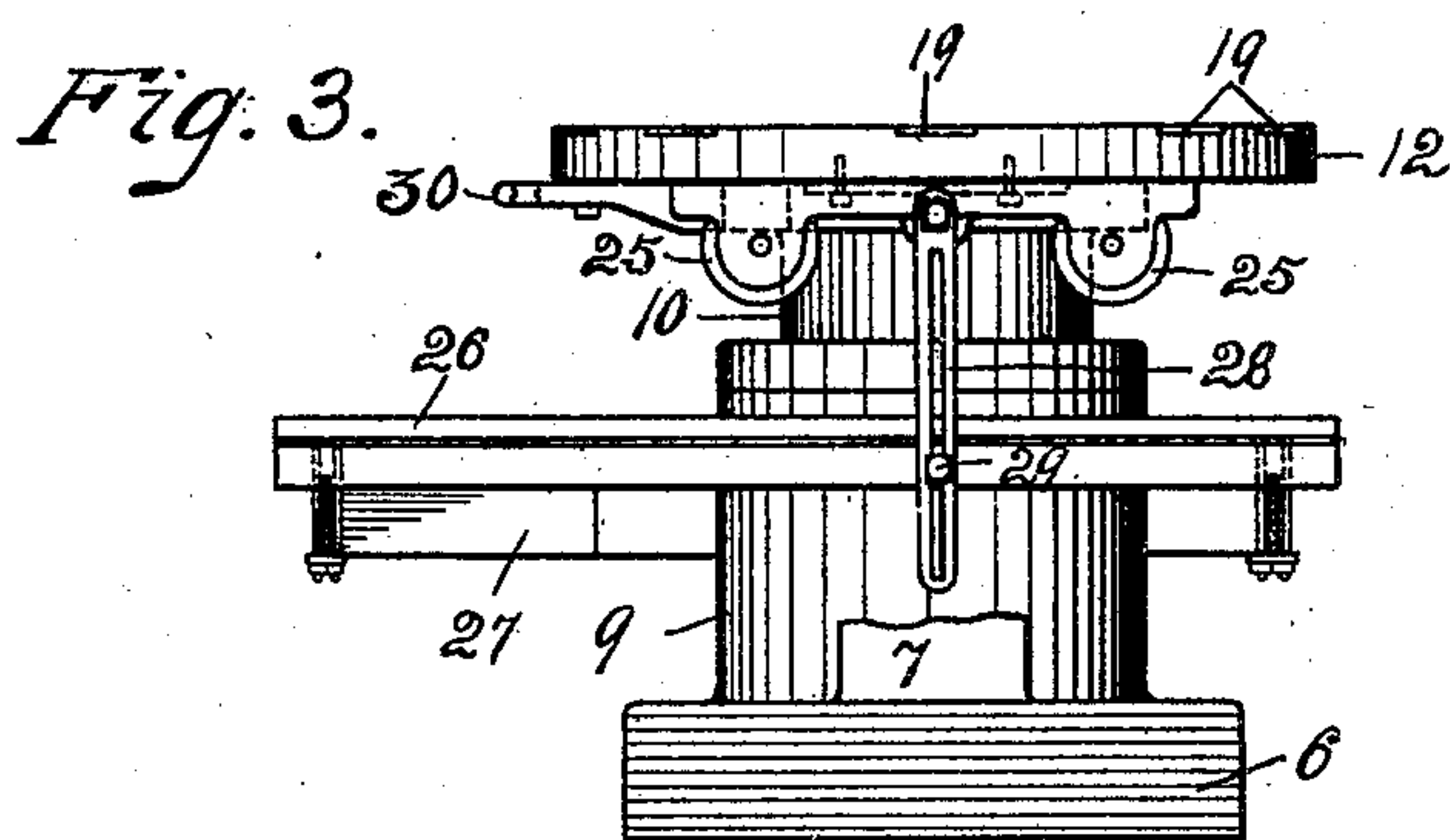
Orelando A. Frick,  
By Owen & Owen  
His attys.

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2 SHEETS—SHEET 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

ORLANDO ALLAN FRICK, OF DEFIANCE, OHIO.

## HUB-BANDING MACHINE.

No. 878,131.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed October 8, 1907. Serial No. 396,501.

*To all whom it may concern:*

Be it known that I, ORLANDO ALLAN FRICK, a citizen of the United States, and a resident of Defiance, in the county of Defiance and State of Ohio, have invented a certain new and useful Hub-Banding Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to wagon-making machinery, and particularly to machines of the class employed for placing bands or flanges on the hubs of wheels or the like.

The object of my invention is the provision of a simple and highly efficient machine of this class, which is operative to secure the two center or spoke bands or flanges and the two end bands to a hub in a single operation, thus materially simplifying the hub-banding process and enhancing the efficiency and commercial value of the machine.

Further objects of my invention will be apparent by reference to the following description.

The operation, construction and arrangement of the parts of the invention are fully described in the following specification, and a preferred embodiment thereof illustrated in the accompanying drawings, in which,—

Figure 1 is a transverse section of the machine embodying my invention taken on the line 1—1 in Fig. 2. Fig. 2 is a front elevation of the same partly in section on the line 2—2 in Fig. 1, showing the parts operating on an interposed hub to band the same. Fig. 3 is a side elevation of the lower portion of the machine with the side standards broken away and the pivoted thrust parts removed. Fig. 4 is a side elevation of one of the pivoted thrust parts and its carrying member with a portion thereof in section, and Fig. 5 is a section on the line 5—5 in Fig. 4.

Referring to the drawings, 6 designates the frame base of the machine from which rise the two standards or frame parts 7, 7 carrying the head-piece 8 at their upper ends.

Rising from the base 6 is a cylinder 9 in which is mounted a vertically movable plunger 10, the movements of which are con-

trolled by any suitable fluid pressure, such as steam, air or hydraulic. The operating fluid is admitted and exhausted from the cylinder through the pipes 11, 11 and controlled in any suitable manner.

Loosely mounted on the upper end of the plunger 10 and intended to be raised thereby is a table 12, which is provided centrally on its upper surface with a thrust-plate 13. This plate is intended to support a hub 14 and to force the lower end ring or band 15 thereon as hereinafter described. Arranged in circular series around the plate 13 are a plurality of angled or L-shaped thrust-fingers 16, each of which is pivoted as at 17 to a boss rising from the inner end of a block 18. The blocks 18 are mounted for radial adjustment in grooves 19 provided radially in the upper surface of the table 12, and are held in adjusted position by stud-bolts 20 passing through slots 21 in the blocks and threading into the table, or may be secured in any other suitable manner. The inner faces of the vertical arms of the thrust-fingers 16 are longitudinally concaved, as shown in Fig. 5, to conform to the curve of the contiguous center band 22 of a hub, and have their upper inner edges preferably faced with a hardened plate 16' for contact with the band, as shown in Fig. 2. Projecting from each block 18 and loosely through an alining opening in the outer end of the horizontal arm of the associated finger 16 is a pin 23, which carries a nut or head on its outer end for limiting the play of the arm thereon and is encircled by a compression-spring 24, which acts to yieldingly retain the outer end of the coacting arm raised with the vertical arm in a contracted state relative to the like arms of the other fingers.

In order to facilitate the placing on and removal of heavy wheels from the table 12 it is provided on its under surface at the sides of the plunger 10 with a set of wheels or rollers 25, which rest on the two tracks 26 when the plunger is in lowered position, thus holding the table free from the top of the plunger and enabling it to be drawn outwardly on the track from over the plunger. The tracks 26 are supported by a frame 27 as shown. The outward movement of the table is limited by links 28, one of which is pivoted to each side thereof and has its lower end longitudinally slotted through which works a stud or bolt 29 projecting from the



contiguous tracks, as shown in Figs. 2 and 3. The table 12 is provided at its front with a handle 30, the rear end of which terminates in stops which engage the notches in the plunger 10, as shown at 31 in Fig. 1, to limit the rearward movement of the table and center it over the plunger.

Mounted above the table 12 is the crown-plate 32, which is suspended for vertical adjustment relative to the table 12 by a screw 33, which is threaded in the head-piece 8 of the frame and locked in adjusted position by a set-screw 34. Secured centrally to the under surface of the crown-piece 32 is a thrust-plate 35, which is intended to engage the top end band 36 of a hub on the table 12 when the latter is raised and press the band in position thereon. Surrounding the plate 35 is a circular series of thrust-fingers 37, which in their operation and construction are like the thrust-fingers 16 of the table 12, except that they are inverted and operate on the top center band 38 to thrust it home on the hub as it is raised. Should it be desired to drive the end bands 15, 36 only partially on the hub ends so as to leave a projecting part, as is usually the case, the thrust-plates 13 and 35 may be provided with annular recesses in which the outer ends of the bands seat, the extent of protrusion of a band after it is driven home being gaged by the depth of its recess, as shown in Fig. 2. The upward movement of the plunger 10 is shown as being limited by a yoke 40, which is suspended from the upper portion of the plunger and is intended to coact at its lower end with a stop 41 which is adjustably carried at the side of the cylinder 9 by a rod 42.

The operation of the machine is as follows: The crown-plate 32 being first properly adjusted relative to the table 12 to suit the length of a hub to be operated on and the thrust-fingers 16 and 37 properly adjusted radially of their respective carrying parts to suit the width of the hub, the table 12 is drawn out on its track to enable a wheel to be readily placed in position thereon with its lower hub end centered on the thrust-plate 13. The table is then moved back into operative position over the plunger 10 and the controlling mechanism (not shown) moved to admit the actuating fluid to the cylinder 9 to cause the plunger and its table to be forcefully raised. As the table ascends the end bands 15, 36 and center bands 22, 38, which were partially placed on the wheel hub prior to its being placed on the table, are pressed into position on the hub by the compressing action of the opposed thrust plates 13 and 35 on the end-bands and the opposed thrust-fingers 16 and 37 on the center-bands, as shown in Fig. 2. This operation being completed the table is lowered by a release of the actuating fluid from beneath the plunger 10 and the table then drawn out-

ward on the track and another wheel substituted for the one just operated on, after which the above operation is repeated.

It is apparent that I have provided a hub-banding machine which is adapted at a single operation to press all four bands of a hub in position thereon, thus saving both time and expense in the banding of hubs and greatly simplifying and expediting the process heretofore employed for such purpose.

I wish it understood that I do not desire to be restricted to the exact details of construction and arrangement of parts shown and described, as obvious modifications will occur to persons skilled in the art.

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

1. In combination in a hub-banding machine, two relatively movable thrust-members, a circular series of blocks mounted on the face of each of such members, said blocks being radially adjustable on the members, an angled thrust-finger pivotally carried by each block and having one portion vertically disposed and the other portion horizontally disposed and standing longitudinally of its block, yielding means associated with the end of said horizontal portion of each thrust-finger and its block to normally retain such parts spaced, and means for imparting relative movements to said members whereby they operate to press the end bands on an interposed hub and the ends of the vertical portions of the thrust-fingers operate to press the center bands.

2. In combination in a hub-banding machine, upper and lower relatively movable compressor members having their inner faces each provided with an annular series of radial grooves, elongated blocks mounted in said grooves for independent radial adjustment relative to said members, bell-crank-shaped fingers pivoted at the angles thereof to the inner end portions of the blocks and having their horizontal arms extending outwardly and disposed in the vertical planes of their blocks, yielding means interposed between the outer end of each arm and its block, and means for imparting relative compressing movements to the thrust-members.

3. In combination in a hub-banding machine, a frame, a crown plate, a screw operating in the frame and carrying said plate for vertical adjustment, end and center-band thrust parts carried by said plate, a subjacent pressure table, an annular series of thrust-fingers pivotally carried by said table, said fingers having vertical center-band coacting portions and horizontally-extending portions, compression-springs interposed between the horizontally-extending portions of the fingers and the table, a plunger carrying the table, and means for moving the plunger to raise the table.



4. In combination in a hub-banding machine, a frame, a crown-plate, a screw working in the frame and carrying said plate for vertical adjustment, end and center-band thrust-parts carried by the plate, a subjacent plunger, horizontal tracks at opposite sides of the plunger, a table having rollers for operating on said tracks whereby the table can be moved over the plunger or laterally thereof, an annular series of thrust-fingers pivotally carried by said table, said fingers having vertically-disposed center-band co-acting portions and horizontally-extending portions, compression members disposed between the horizontally-extending portions of the fingers and the table, and means for operating the plunger to raise the table.

5. In combination in a hub-banding machine, a vertical cylinder, a plunger operating therein, horizontal rails on opposite sides of the plunger below the plane of its top, a truck mounted for horizontal movement on

said rails and movable over said plunger, a thrust plate carried by the truck platform, a circular series of blocks mounted for radial adjustment on the truck platform, angled thrust-fingers pivotally carried by said blocks and having vertically-disposed portions for acting on a center-band and horizontally-disposed portions, yielding means disposed between the horizontal portions of the fingers and the platform, and upper pressure means coöperating with the truck and thrust-fingers when elevated to press the center and end bands of an interposed hub in position, substantially as described.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

ORLANDO ALLAN FRICK.

Witnesses:

GEO. H. ROBERTS,  
ED. S. WEAVER.