

A. G. DAVIS.
TAPING MACHINE.

APPLICATION FILED JAN. 13, 1902.

2 SHEETS—SHEET 1.

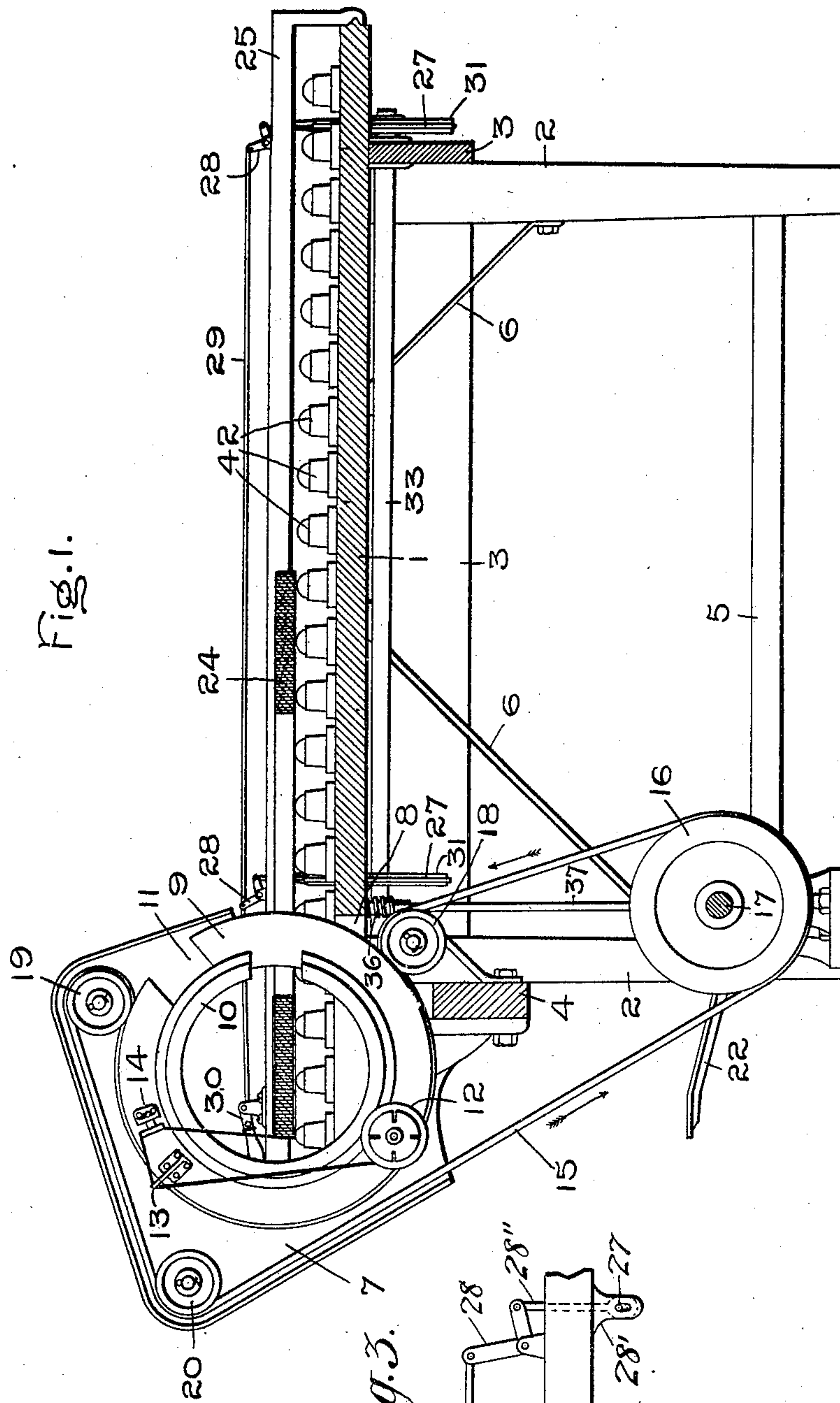


Fig. 1.

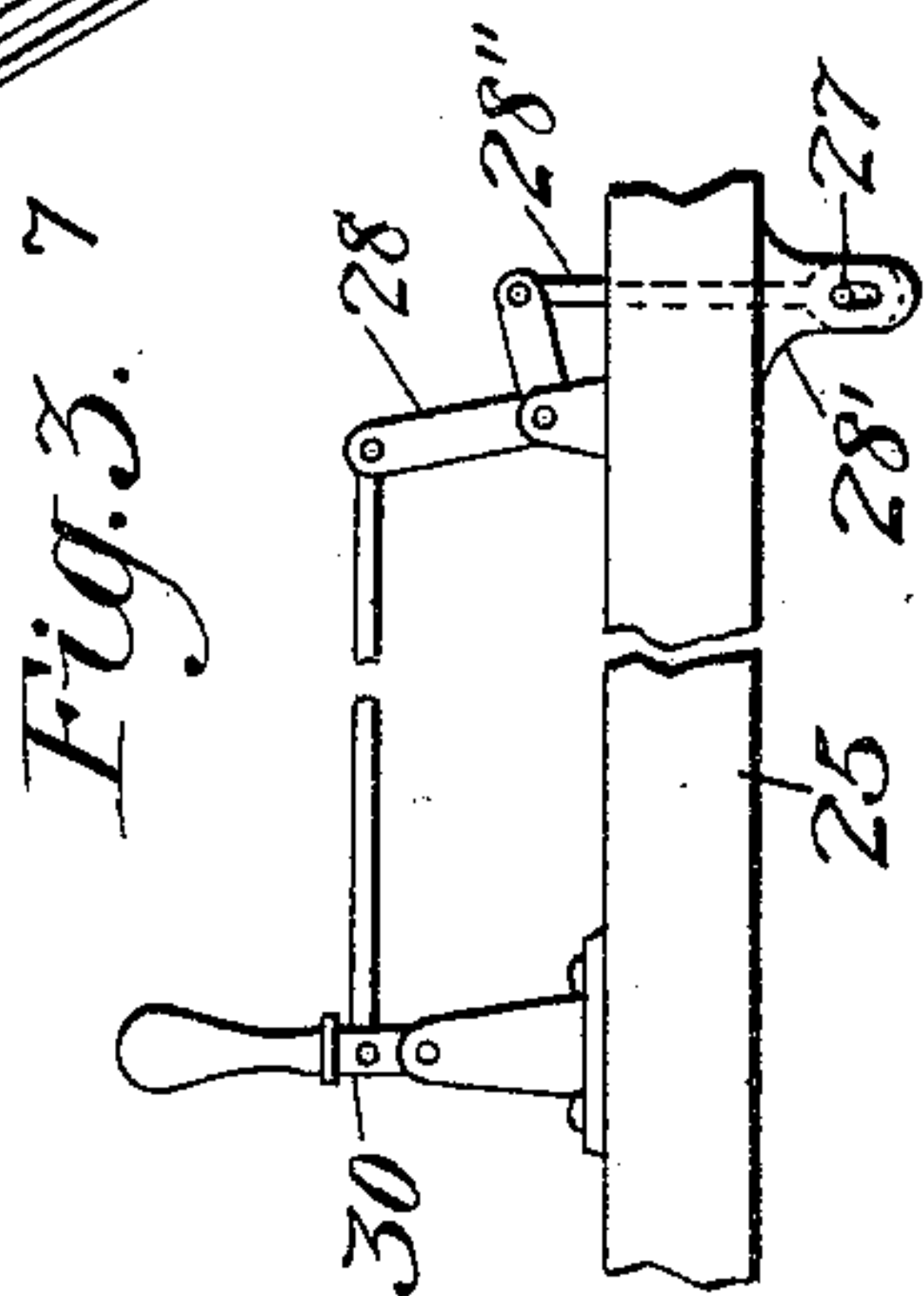


Fig. 3.

Witnesses.
Marcus L. Byng.
Benjamin B. Hall.

Inventor:
Albert H. Davis

No. 791,081.

PATENTED MAY 30, 1905.

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2 SHEETS—SHEET 2.

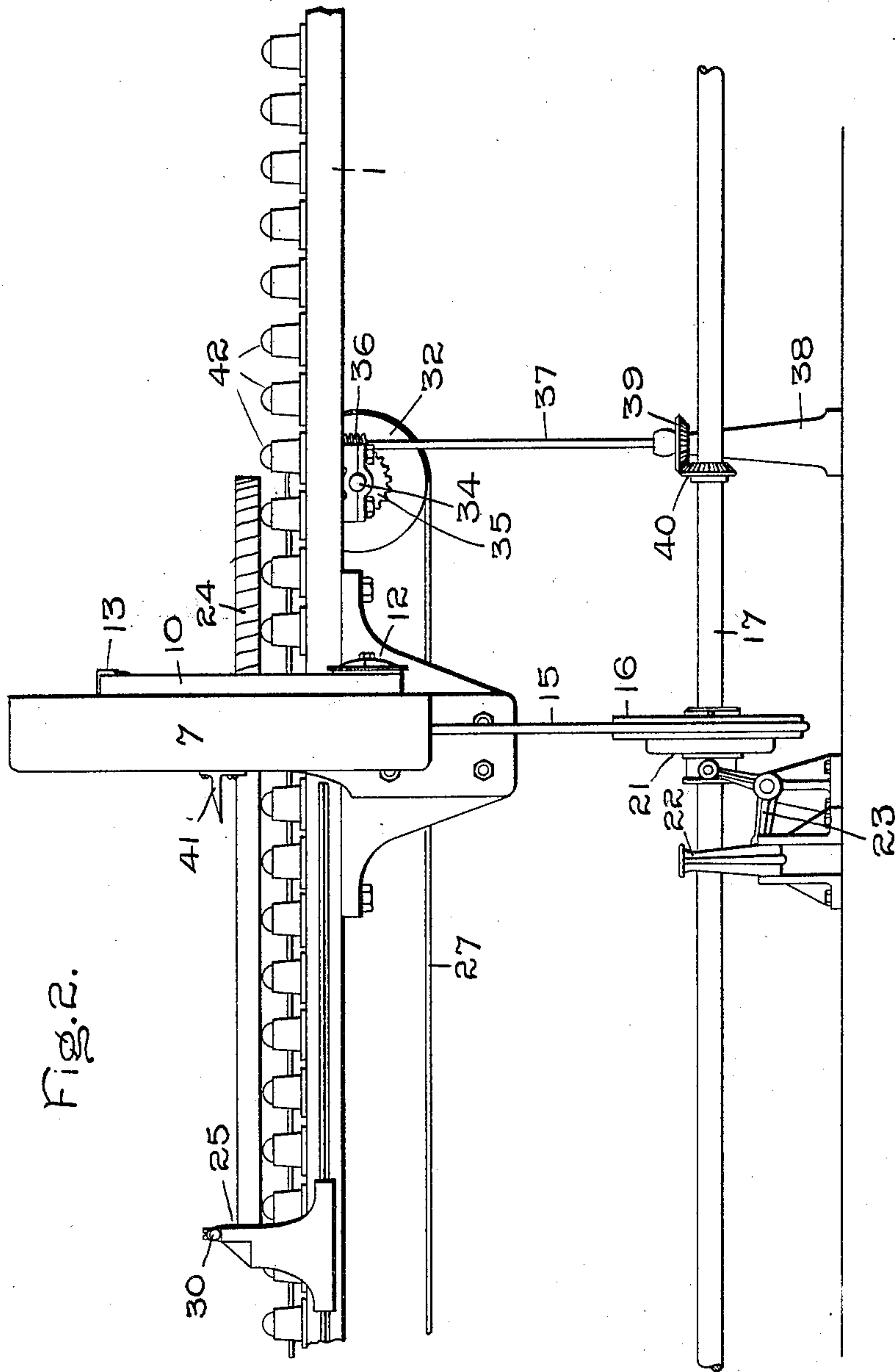
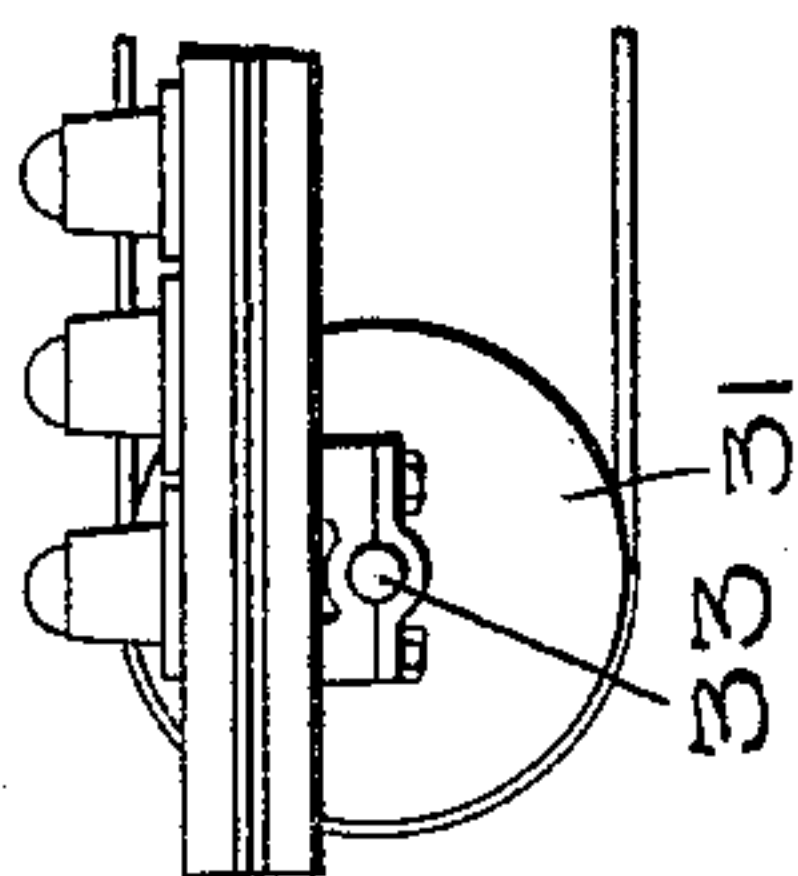


Fig. 2.

Witnesses.
Marcus L. Byng.
Benjamin B. Hall.



Inventor.

Albert H. Davis

UNITED STATES PATENT OFFICE.

ALBERT G. DAVIS, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

TAPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,081, dated May 30, 1905.

Application filed January 13, 1902. Serial No. 89,443.

To all whom it may concern:

Be it known that I, ALBERT G. DAVIS, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Taping-Machines, of which the following is a specification.

My invention relates to taping-machines, and more particularly to machines for taping transformer-coils of the larger sizes. Various devices have heretofore been designed for this purpose; but such machines have been objectionable on account of their complex structure or when the structure has not been so complex on account of the great muscular effort required on the part of the operator to manipulate the coils while being operated upon.

The object of my invention is to provide a taping-machine which shall consist of few parts and which shall require but slight effort on the part of the operator even when taping the largest sizes of coils.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a vertical transverse section of a taping-machine embodying my invention. Fig. 2 is a longitudinal elevation of the same with the legs and sections of the table removed to admit of clearer illustration, and Fig. 3 is an enlarged detail of the means for connecting the follower to the lead-bands.

As shown in the drawings, my invention comprises the table 1, mounted on suitable legs 2, suitably braced and stiffened by frames 3, 4, and 5 and braces 6. To the front side of the table is secured the frame 7 of the winding-head, the table being recessed at 8 to permit said head to lie almost entirely within the outer edge of the table. The winding-ring 9 is carried on a guide-flange 10, secured to frame 7, and is provided with the usual cut-away section 11, the tape-bobbin 12, the tension device 13, and the guide 14. The ring 9 is caused to rotate by means of a driving-band 15, which engages tightly the larger portion of its periphery. The driving-band 15 is driven

by a pulley 16 on power-shaft 17 and passes about guide-roll 18 on frame 7, beneath the winding-ring 9, around the latter to guide-roll 19 at the upper side of ring 9, over and around guide-roll 20, and back to pulley 16. The pulley 16 has a clutch connection 21 with shaft 17, which is controlled by treadle 22 through bell-crank lever 23.

The numeral 24 designates the rectangular coil, which contains several hundred pounds of copper and which requires to be fed accurately and at a uniform rate through the winding-head. When the sides and ends of the coil are being wrapped, the coil is given a uniform rectilinear movement relative to the winding-head by means of the follower 25, extending across the table and supported and guided at the edges thereof. The follower is provided with two clamps or other devices for gripping the lead-bands 27, which are connected, through bell-crank levers 28, to a common actuating-rod 29, extending lengthwise above the follower and connected at the front end to hand-lever 30. The clamps shown in the drawings comprise brackets 28', projecting downwardly from the under side of the follower and provided with guide-eyes for the lead-bands, and reciprocating rods 28'', connected to the bell-cranks 28 and provided at their lower ends with eyes for the passage of the lead-bands, which cooperate with the eyes in the brackets to clamp the rope between them when the rods 28'' are raised. The lead-bands 27 are carried by pairs of grooved pulleys 31 32, mounted on shafts 33 and 34, journaled in bearings beneath the table and of a sufficient size to project at their upper edges above the surface of the table. The shaft 34 has fixed thereon a worm-wheel 35, driven by worm 36 at the upper end of the shaft 37, suitably journaled in bearing 38 and provided at its lower end with a bevel-gear 39, which meshes with a corresponding gear 40 on the drive-shaft 17. Any of the well-known stop devices may be employed to arrest the travel of the follower automatically, that shown in the drawings consisting of a bracket projection 41, secured to the frame 7

of the winding-head and provided with an inclined surface for engagement with hand-lever 30.

The corner-sections of rectangular coils give rise to the greatest difficulties in the use of all of the coil-taping machines at present in use, for it is requisite that the coils be manually guided through the winding-head during the taping of such sections, and as these coils often weigh several hundred pounds great skill has been required on the part of the operator to manipulate them. In my present invention I overcome the friction between coil and table, so that the coil may be moved and adjusted thereon with slight effort on the part of the operator. To this end I provide the upper surface of the machine-table with a large number of ball-rollers 42, any of the well-known ball-rollers now on the market being adapted for use in this connection, the only requisite being that they be so adjusted that the uppermost points of the rollers shall be in a plane.

The operation of the device is as follows:
The winding-ring 9 is rotated to bring cut-away portion 11 into register with the mouth of frame 7. A coil is then placed on the ball-rollers 42 of the table and slid thereon to bring one side of the coil within the winding-head. The follower is moved up into contact with the rear end of the coil, the tape connected, and the winding-ring and follower put into action simultaneously by throwing of clutch 21 and grip-lever 30. When the side of the coil is nearly completed, the grip-lever 30 engages the incline of bracket 41 and disconnects the follower 25 from its lead-bands 27. The operator then seizes the coil and gives it a gradual quarter-turn, while the winding-head continues to revolve and wrap

the corner-section of said coil. When the corner has been completed, the follower is again brought into engagement with the rear side of the coil and again connected to the lead-bands, when the operation above described is repeated.

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

1. In a taping-machine, the combination of a table, a follower movable thereon, an endless lead band or bands, and means for connecting the follower with said band or bands.

2. In a taping-machine, the combination of a table, a follower movable thereover, an endless lead band or bands parallel to said table, means for actuating said band or bands, and means for connecting said follower and band or bands.

3. In a coil-taping machine, the combination of a table, a winding-head, a follower, means for actuating it whereby the straight portion of the coil may be moved relatively to said head, and antifriction means carried by said table to facilitate the turning of said coil whereby the corner portions may be properly moved relatively to said head.

4. The combination of a table, a winding-head, a follower movable over said table, and means for driving said head and follower simultaneously.

5. The combination of a table, a winding-head, a follower, means for driving said head and follower simultaneously, and means for automatically arresting said follower.

In witness whereof I have hereunto set my hand this 11th day of January, 1902.

ALBERT G. DAVIS.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.