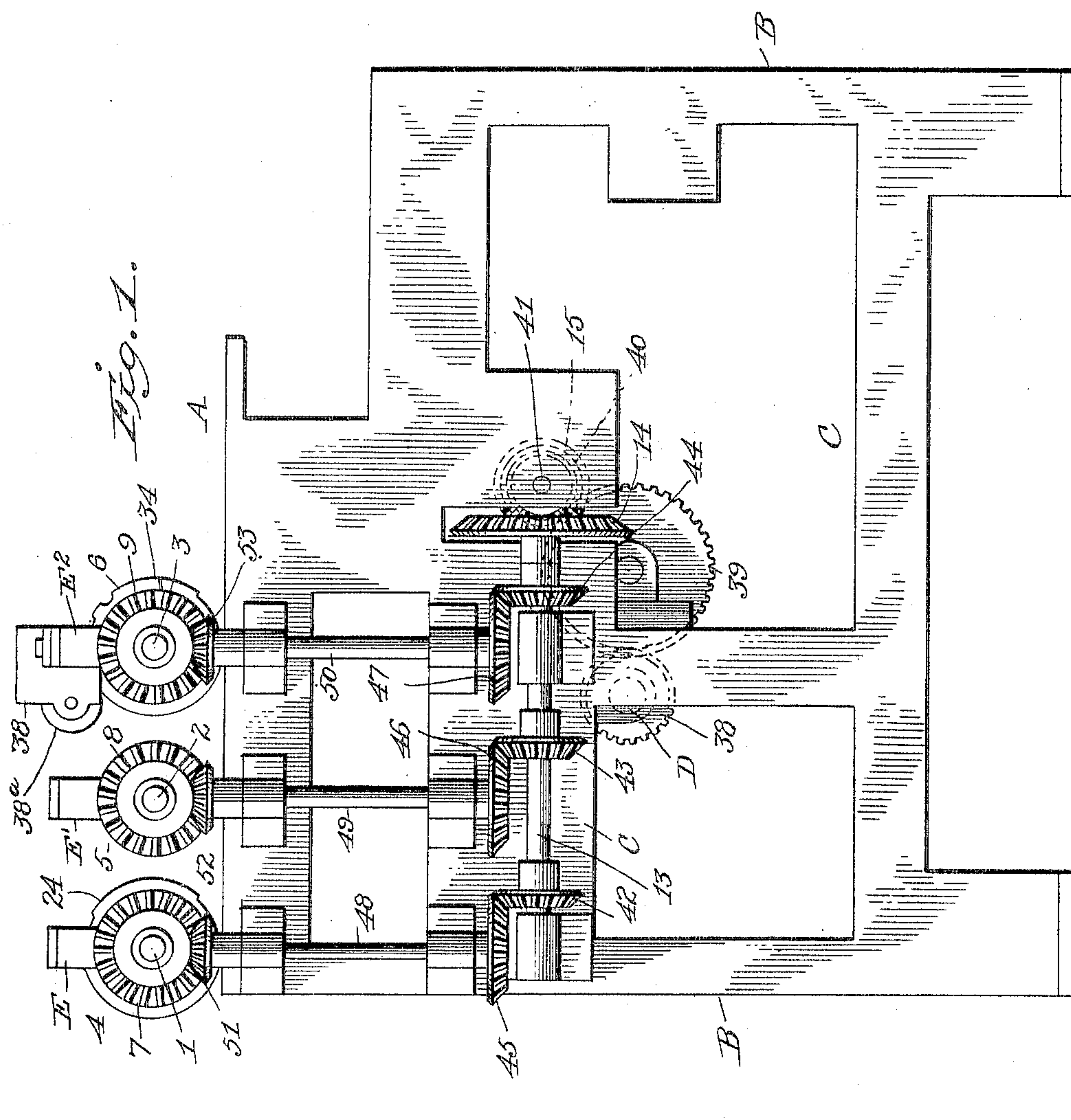


No. 797,801.

PATENTED AUG. 22, 1905.

A. FORBES.
WRAPPING MACHINE.
APPLICATION FILED APR. 6, 1905.

4 SHEETS—SHEET 1.



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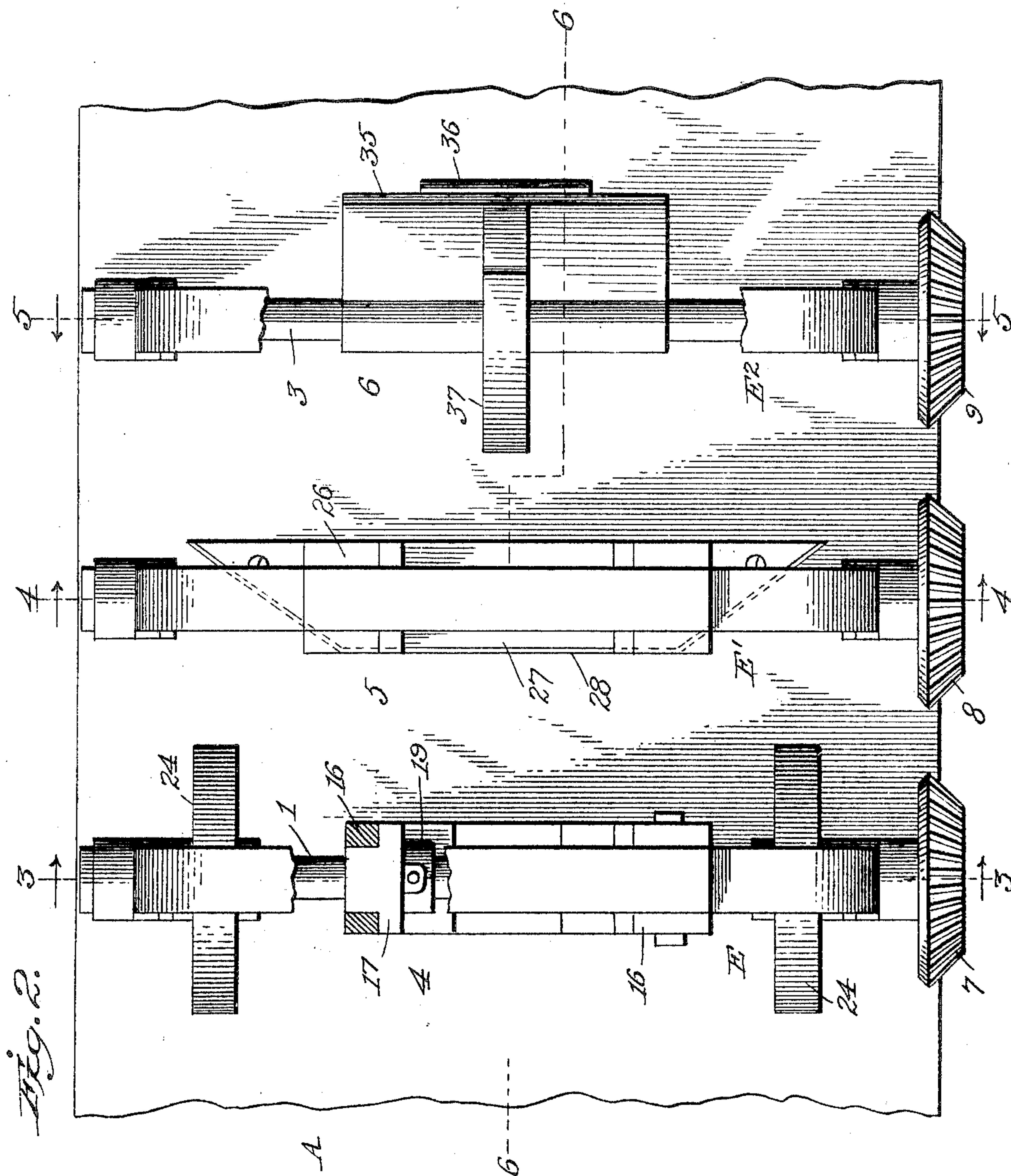
His Attorney

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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

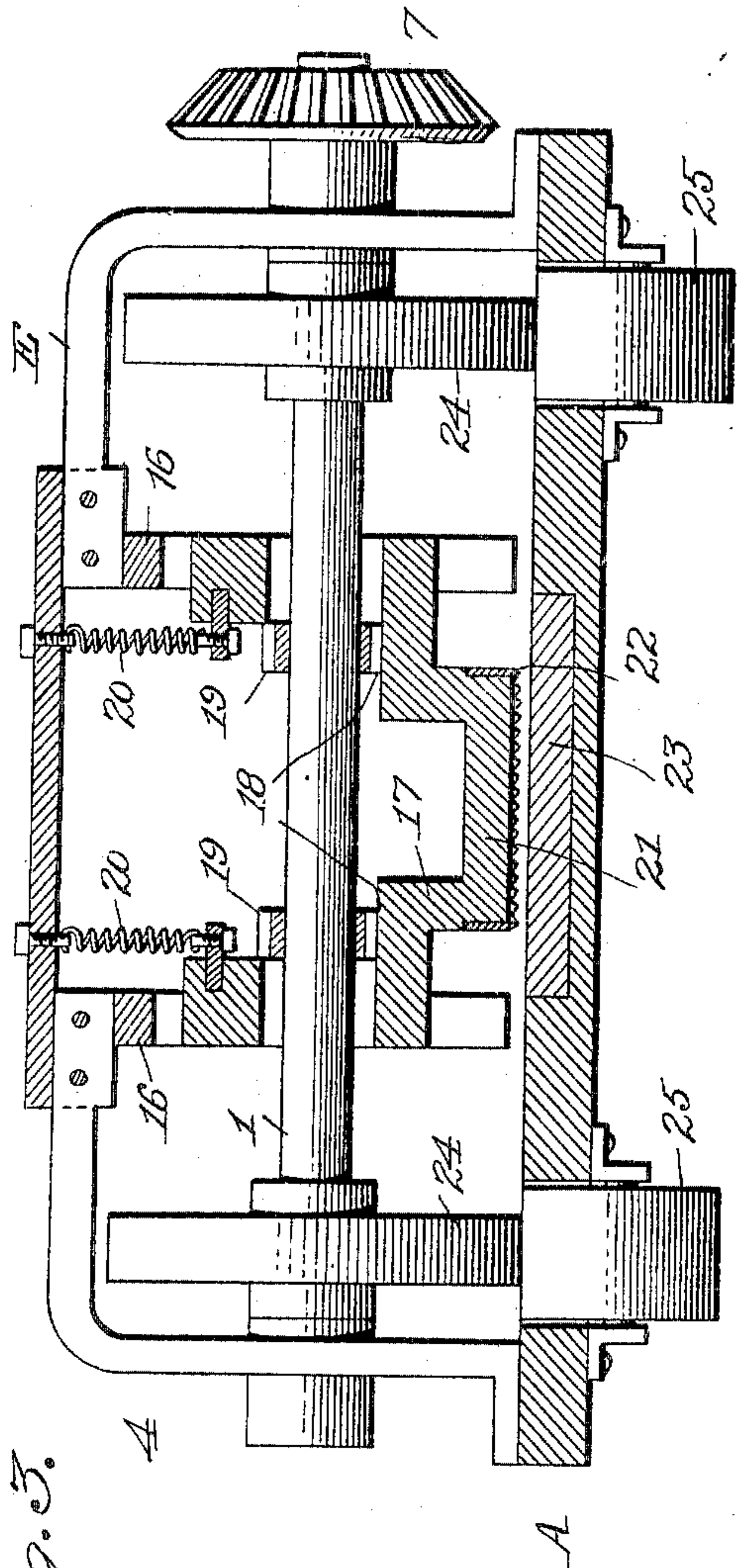


Fig. 3.

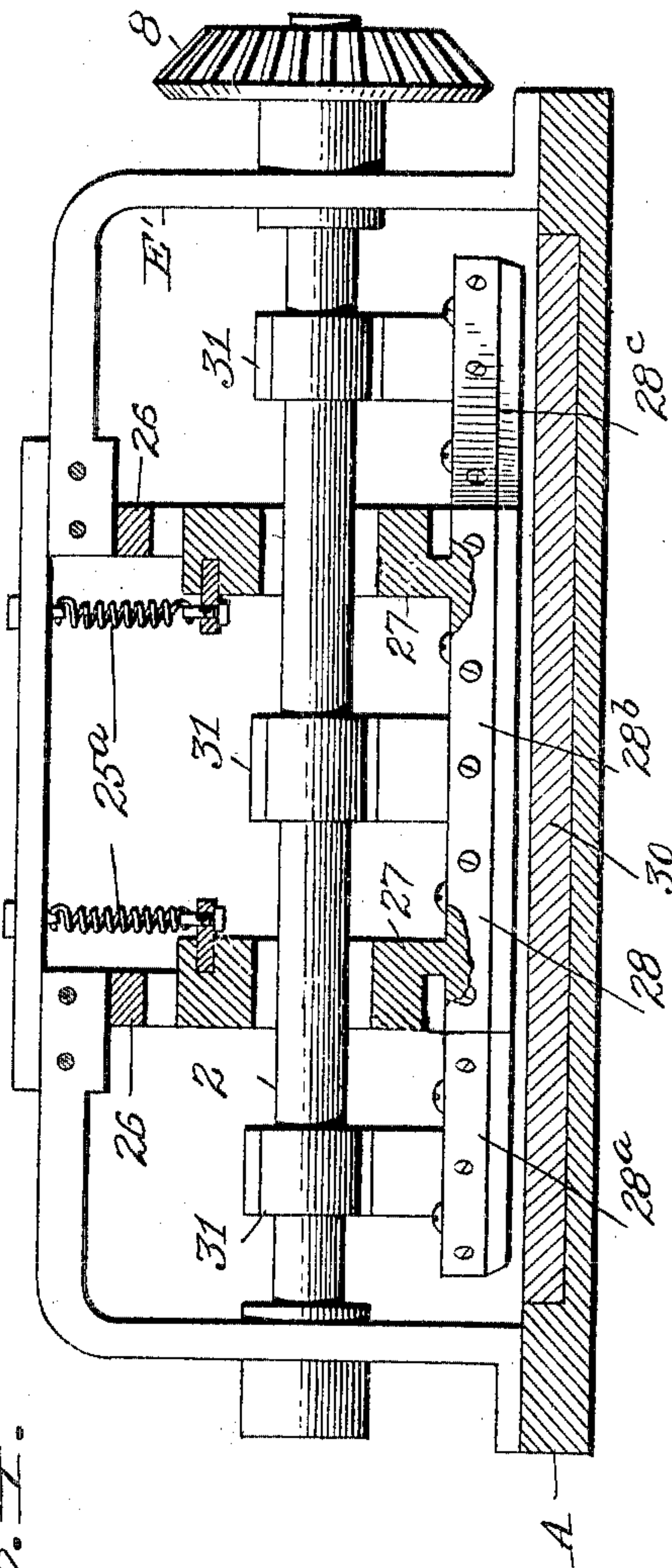


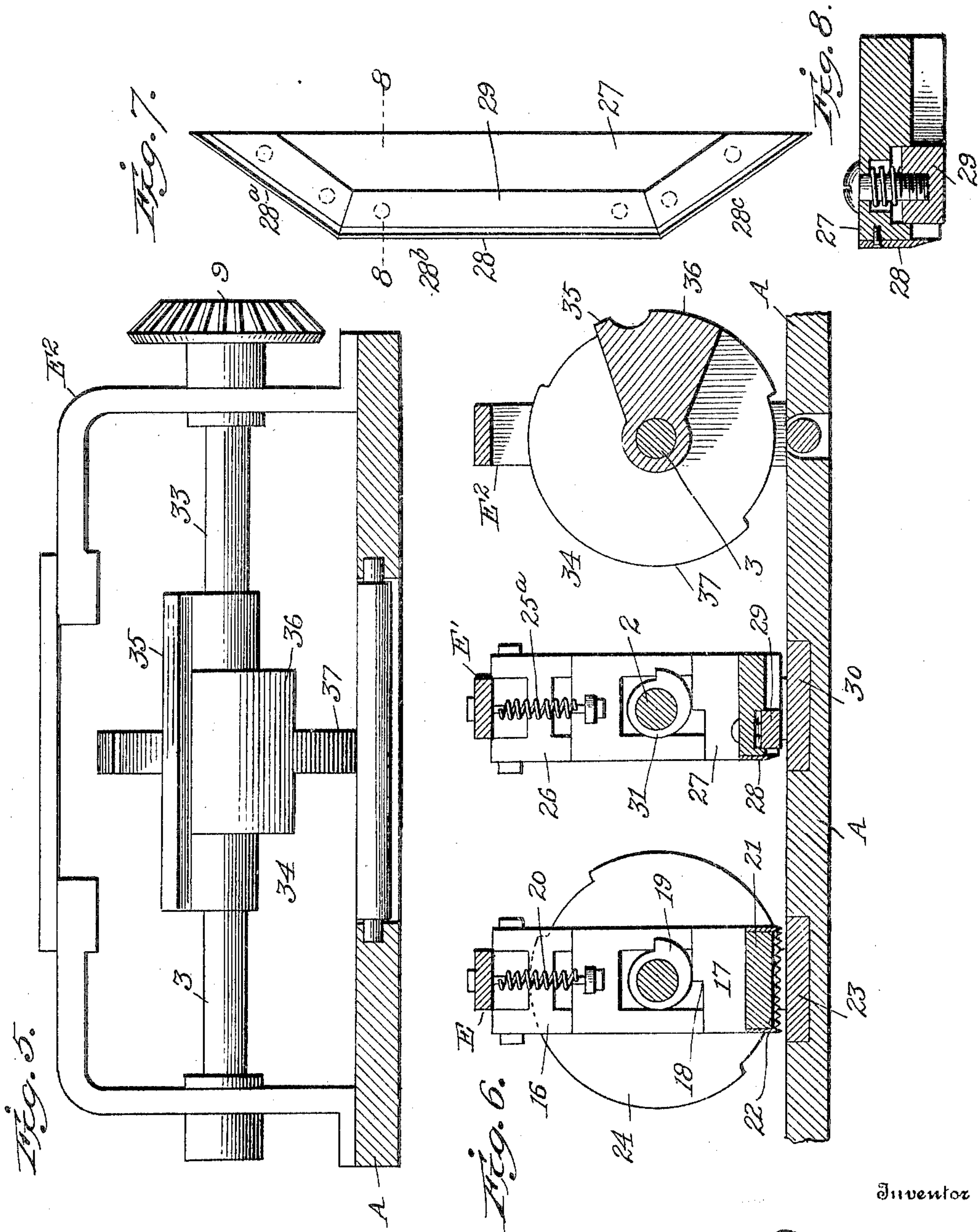
Fig. 4.

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UNITED STATES PATENT OFFICE.

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WRAPPING-MACHINE.

No. 797,801.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed April 6, 1905. Serial No. 254,167.

To all whom it may concern:

Be it known that I, ANDREW FORBES, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wrapping-Machines, of which the following is a full, clear, and exact specification.

This invention relates to web cutting, perforating, and gumming mechanism for package-wrapping machines, and is designed particularly as an improvement on such mechanism shown and described in my pending application for United States patent, filed August 1, 1904, Serial No. 219,054.

My said pending application here referred to involves the feeding of a web or roll of paper to printing devices, thence to a drier to dry the ink quickly, anticipatory to the next immediate operations of severing the web into blanks or wrappers, and finally gumming the severed and perforated wrappers for future manipulations of the package-wrapping machine. Such wrappers are described in detail in my United States Patent No. 759,602, of May 10, 1904.

In the machine described in my said pending application the web of paper was first cut into blanks or wrappers, then a portion of each wrapper was perforated on defined lines and the wrapper passed on to mechanism which pasted the space within the perforations of the wrapper and its end margin, so that the portion of the wrapper within the perforations by subsequent steps through the machine would adhere to a package deposited on the wrapper and the pasted end margin of the wrapper would seal the package, all as set forth in detail in said pending application. While the mechanism described in said application is mechanically operative for all purposes intended, experiment has developed improvements in the cutting of the web into wrappers, the perforating of the web, and the pasting of the wrappers.

The object of my present invention is mechanism to first perforate the web, then sever it into wrappers and paste the wrappers for the future manipulations of the machine as a whole.

To this end my invention consists in the novel features and combinations to be hereinafter described in detail and set forth in the claims at the close of this specification.

In the accompanying drawings, wherein similar letters and figures of reference are used

to denote corresponding parts in the several views, Figure 1 is a side elevation of so much of a wrapping-machine as constitutes the perforating, severing, and pasting devices embodying my present improvements. Fig. 2 is a plan view thereof. Fig. 3 is a vertical longitudinal section taken on line 3 3 of Fig. 2. Fig. 4 is a vertical longitudinal section taken on line 4 4 of Fig. 2. Fig. 5 is a vertical longitudinal section on the line 5 5 of Fig. 2. Fig. 6 is a cross-sectional view taken on line 6 6 of Fig. 2. Fig. 7 is a plan view of the web-severing mechanism detached from its support, and Fig. 8 is a section taken on line 8 8 of Fig. 7.

The perforating, severing, and pasting mechanism forming the subject of this application is carried by any suitable platform or table A, having stout supporting-legs B and braces C, this table being in my application referred to interposed between the web printing and drying mechanism and the wrapping mechanism and receiving power for its moving parts from the power-shaft of the machine as a whole to a counter-shaft D, mounted transversely of the machine beneath the table A in any suitable bearings secured to the frame of said table.

Suitably secured to the longitudinal margins of the table A are three pairs of standards E, E', and E'', provided with bearings for the shafts 1, 2, and 3 of the perforating, severing, and pasting devices 4, 5, and 6, said shafts being provided with miter-gears 7, 8, and 9, driven by suitable connections, later to be described, from similar gears 42, 43, and 44, keyed to a shaft 13, mounted in bearings parallel with the edge or margin of the table A and provided at one end with a miter-gear 14, which meshes with a similar gear 15, forming one of a train, later described, from the shaft D, which, as before stated, is driven by the power operating the mechanism as a whole.

Interposed between the standards E are vertical guides or ways 16, traversed by a carrier-frame or plunger 17, said frame having shoulders 18 opposed to cams 19 on the shaft 1, said frames being normally held in their uppermost position by stout springs 20.

The lower end of the carrier-frame 17 is provided with a block 21, to which is secured a serrator or implement 22 to perforate the blank or web of paper as it comes from the printing and drying devices, the table A being fitted at a point directly beneath said ser-

rator with a suitable pad 23 to receive the thrust of the serrator and prevent dulling its cutting or perforating edges.

Mounted on the shaft 1, between the standards E and guides 16, are rolls 24 to feed the paper-web forward, counter-rolls 25 being journaled in the table opposite these feed-rolls, as shown in Fig. 3.

As so far described it will be understood that the blank or web of paper as it passes from the printing and drying apparatus will pass beneath the perforating device, which will perforate an outline or establish a weakened break-line within the margins of the finished wrapper.

Interposed between the standards E' are similar guides 26 for the cutter-frame 27, this being also normally held free from the table A by stout springs 25^a.

The cutting-knife 28 is appropriately secured to the lower end of the cutter-frame 27, and in the instance shown, owing to the shape of the wrapper to be produced, is made in three sections 28^a, 28^b, 28^c for purposes of sharpening, adjustment, &c. Adjacent to the blank-severing knife 28 and carried by the cutter-frame 27 is a spring-pressed stop or holder 29, the function of which is to hold the web of paper firmly to the table A during the operation of the cutter. It is obvious that as the cutter or knife descends the holder 29 will first clamp the web of paper between itself and table A or preferably a suitable cutting-pad 30, and being controlled by its springs 29^a will hold the paper until the web of paper has been cut or severed and the knife moved upward, the rising of the cutting-frame of course giving ultimate release to the paper for further advance through the machine.

The cutting-frame 27 and its adjuncts are actuated in the downward or cutting and holding movements by cams 31, keyed to the shaft 2, journaled in bearings in standards E', the upward movement of the parts, as in the case of the perforating device, being caused by the springs 25^a.

Journaled in the standards E² is a shaft 33, to which is secured the pasting device, consisting of a roll 34, the surface of which is cut away to leave segmental pasting-faces 35, 36, and 37, which travel in the rotation of the shaft in contact with the distributing-roll 38^a of a paste-box 38, suitably supported, said pasting-faces in turn traveling in contact with the severed blanks or wrappers passing through the machine. The pasting-faces 35 and 36 are, as in my pending application, shaped, respectively, to deposit paste on the rear margin of the wrappers and within the area defined by the perforator 22; but the feed-rolls of said former application are omitted in this instance, the web of paper being fed forward by the narrow pasting segment or face 37, this arrangement having the advantage of simplicity in construction and of

depositing at the center of the wrapper proper a film of paste, which secures to the wrapper proper the "cushion-wrapper" of my said pending application.

The perforating, severing, and pasting devices are, as before stated, driven from the main shaft of my package-wrapping machine, which is suitably connected up to the main shaft D of the mechanism of my present invention. From this shaft D motion is transmitted by a train of gearing 38 39 40 to a shaft 41, carrying a bevel-gear 15, which meshes with a larger bevel-gear 14, carried at one end of the shaft 13, supported in bearings parallel to the side of the table A. Upon this shaft 13 are keyed three bevel-gears 42 43 44, meshing with similar gears 45 46 47, respectively, on the lower ends of vertical spindles 48 49 50, the upper ends of which are provided with bevel-gears 51, 52, and 53, meshing with bevel-gears 7, 8, and 9, secured, respectively, to the perforating, cutting, and gumming mechanism, to which motion is thus imparted from the main shaft of the machine.

The advance of the paper is not continuous, the feeding devices—namely, feed-rolls 24 of shaft 1 and the segment or feeding-face 37 of shaft 3—having depressions or blanks at suitable points, so that at the moments of the operation of the perforator and knife the paper will be at rest.

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

1. In a machine of the character described, the combination with the support carrying a main shaft and means driven from said main shaft to produce a weakened break-line within the margins of a web of material, means for severing the web into wrapper lengths, and means for pasting the rear margin of the wrappers and the area within said weakened break-line.

2. In a machine of the character described, the combination with the support carrying a main shaft and means driven from said main shaft to produce a weakened break-line within the margins of a web of material, means for severing the web into wrapper lengths, means for pasting the rear margin of the wrappers and the area within said weakened break-line, and means for feeding the web and the severed wrappers with intervals of rest.

3. In a machine of the character described, the combination with the supporting-frame and its main shaft, perforator, cutter and paster shafts adapted to be continuously driven therefrom, spring-supported perforator and cutter carriers, pasting mechanism on said paster-shaft and means for actuating said perforator and cutter carriers.

4. In a machine of the character described, the combination with the supporting-frame and its main shaft, perforator, cutter and paster shafts provided respectively with per-

forating, cutting and pasting mechanism and adapted to be continuously driven from the main shaft, and means carried by the perforator and paster shafts for feeding the web and wrappers with intervals of rest.

5. In a machine of the character described, the combination with the supporting-frame and its main shaft, perforator, cutter and paster shafts adapted to be continuously driven therefrom, pasting mechanism on said paster-shaft, means carried by the perforator and paster shafts for feeding the web and wrapper with intervals of rest, spring-supported perforator and cutter carriers, and means for actuating said perforator and cutter carriers.

6. In a machine of the character described, the combination with the supporting-frame and its main shaft, the perforator, cutter and paster shafts adapted to be continuously driven therefrom, pasting mechanism on said paster-shaft, spring-supported perforator and cutter carriers, and cams for moving the perforator and cutter carriers in one direction.

7. In a machine of the character described, the combination of the shafts adapted to be continuously driven having perforator, cutter and pasting devices, means connected with the perforator and paster shafts for feeding respectively the web and wrappers, and a spring-pressed stop or holder carried by the cutting device.

8. In a machine of the character described, the combination with the frame, of cutter and paster shafts journaled in standards on the frame, guides or ways secured to said frame,

a spring-supported cutter-carrier adapted to reciprocate vertically in said ways, means carried by the cutter-shaft to depress said carrier and feeding devices and pasting mechanism carried by the paster-shaft.

9. In a machine of the character described, the combination with the frame, of perforator, cutter and paster shafts journaled in standards on the frame, guides or ways secured to said frame, spring-supported perforator and cutter carriers adapted to reciprocate vertically in said ways, pasting mechanism on said paster-shaft, means carried by the perforator and cutter shafts to depress said carriers and feeding devices carried by the perforator and paster shafts.

10. In a machine of the character described, the combination with the frame, of perforator, cutter and paster shafts journaled in standards on the frame, guides or ways secured to said frame, pasting mechanism on said paster-shaft, spring-supported perforator and cutter carriers adapted to reciprocate vertically in said ways, means carried by the perforator and cutter shafts to depress said carriers, feeding devices carried by the perforator and paster shafts, and a spring-pressed stop or holder carried by the cutting device.

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

ANDREW FORBES.

Witnesses:

CHAS. E. RIORDON,
H. N. WESSEL.