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PATENTED NOV. 6, 1906.

C. T. GILMORE.
MANGLE.

APPLICATION FILED AUG. 22, 1904.

4 SHEETS—SHEET 1.

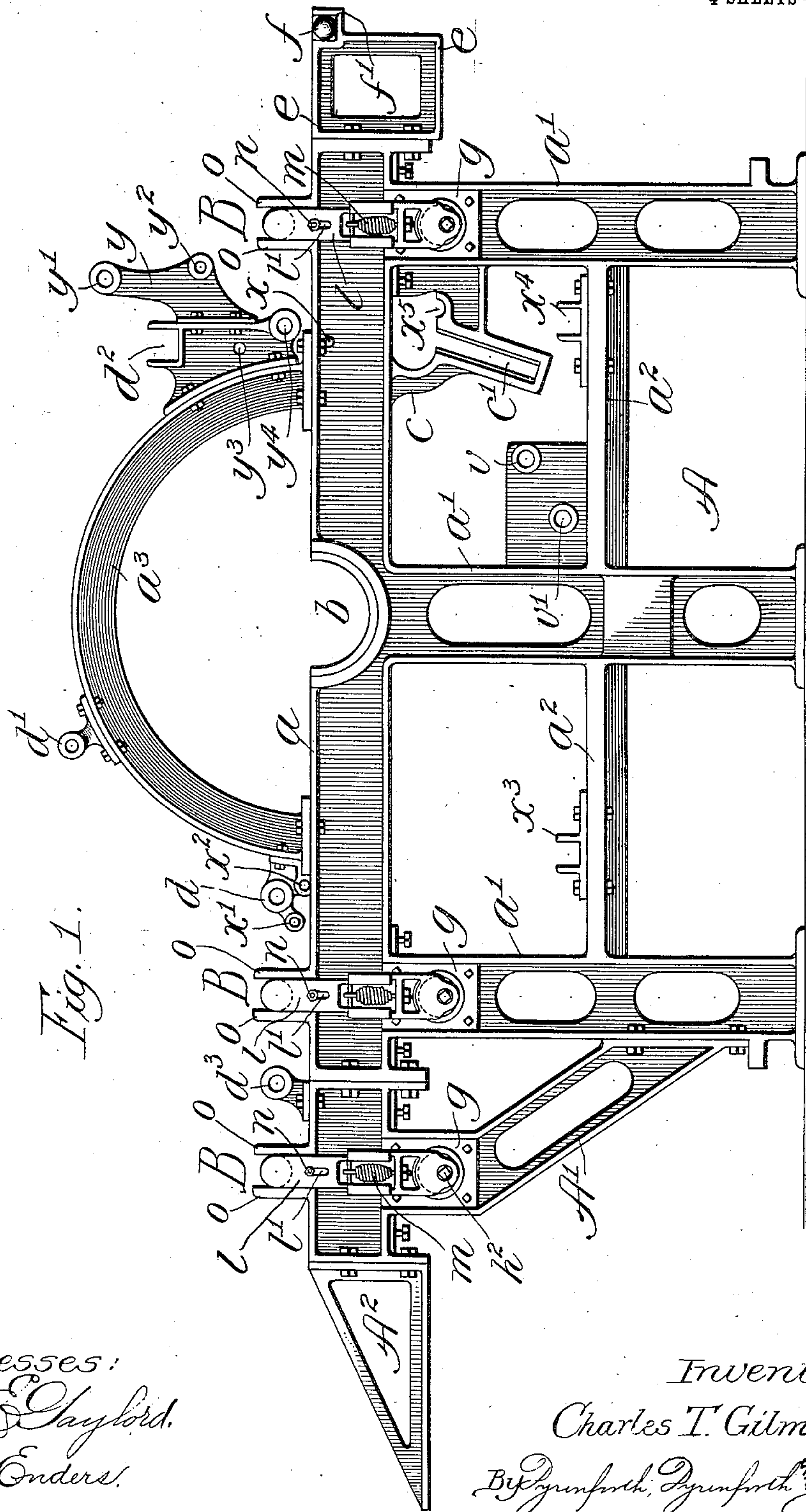


Fig. 1.

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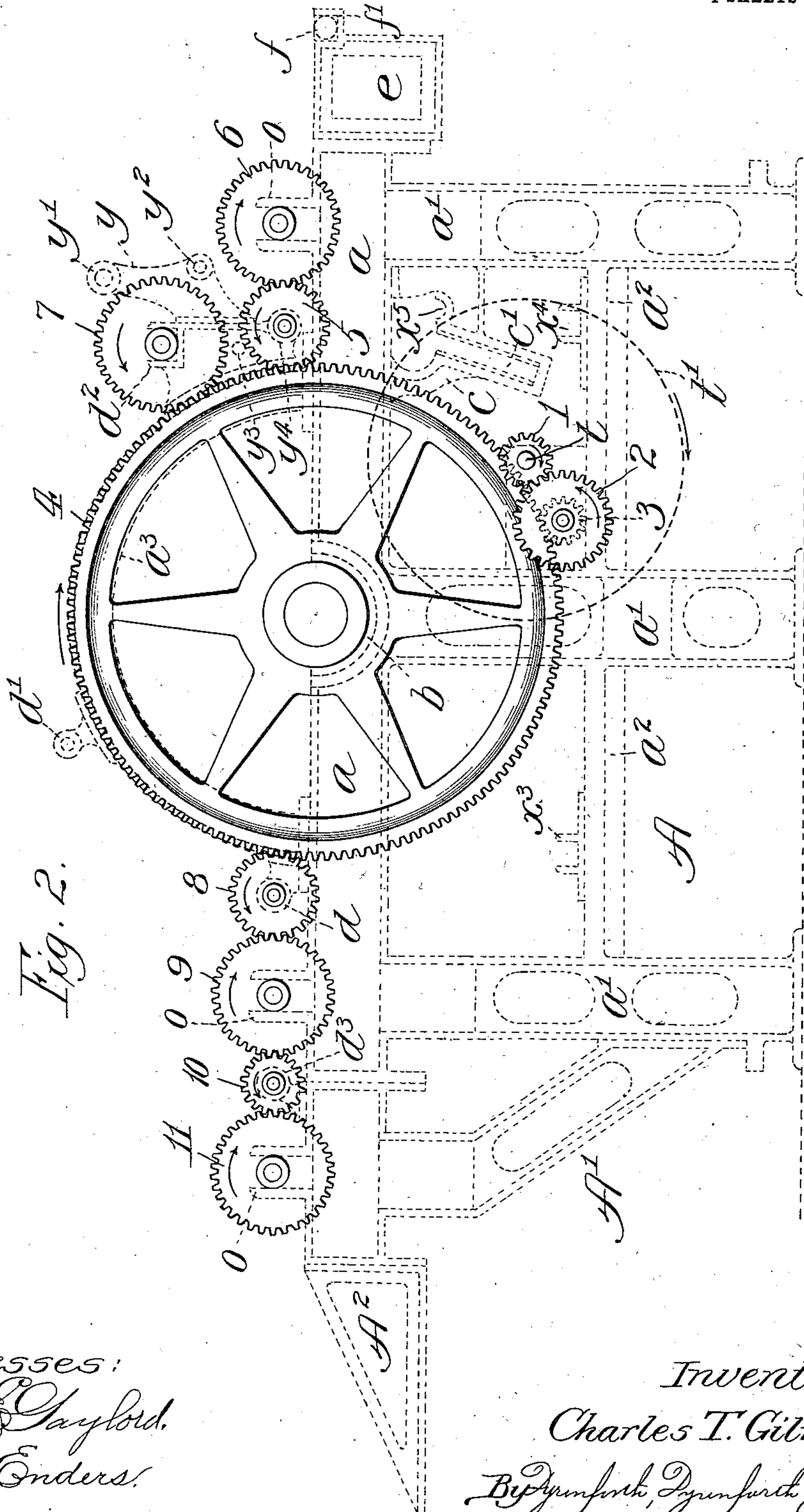
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4 SHEETS—SHEET 2.



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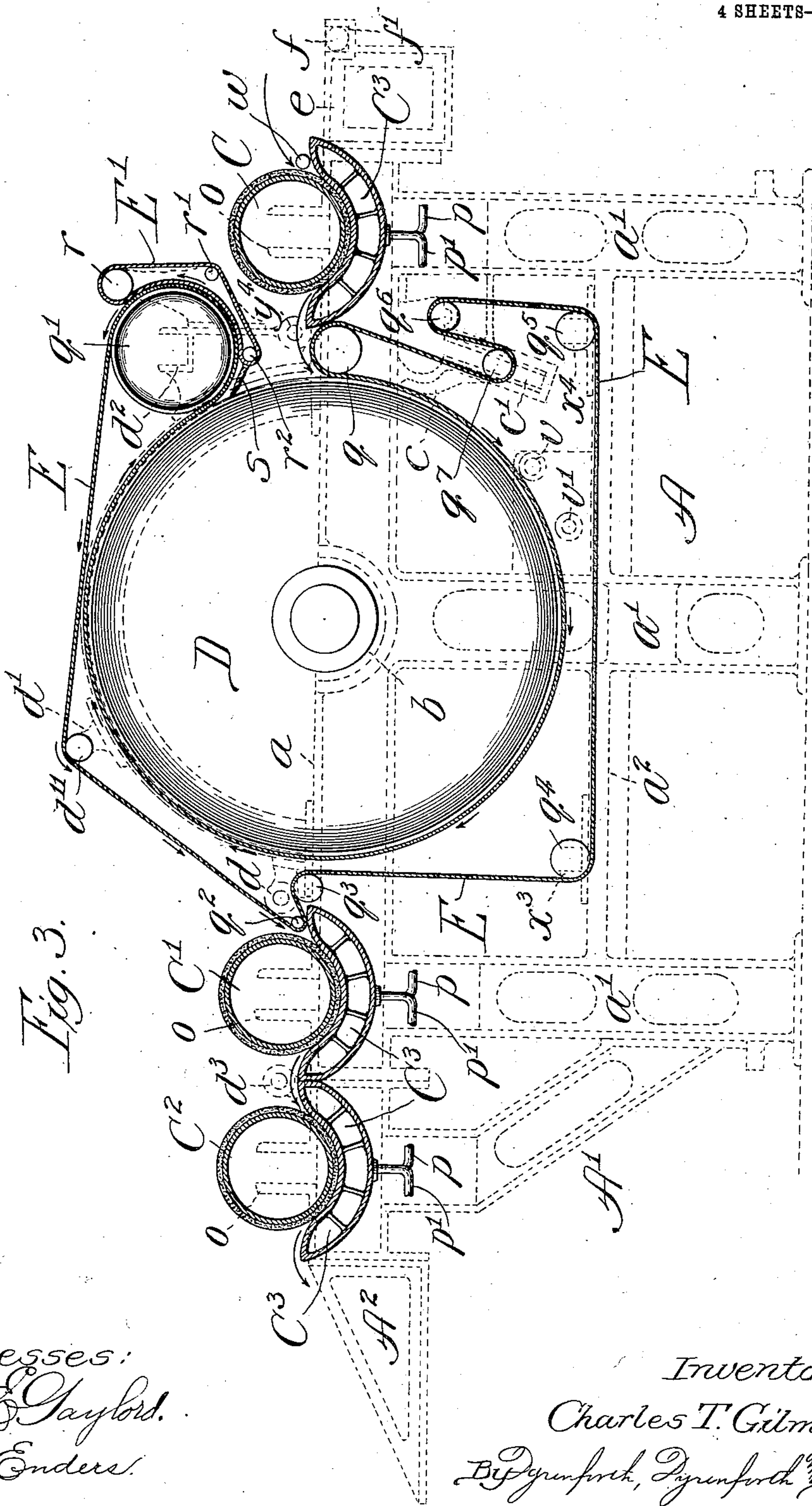
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4 SHEETS—SHEET 3.



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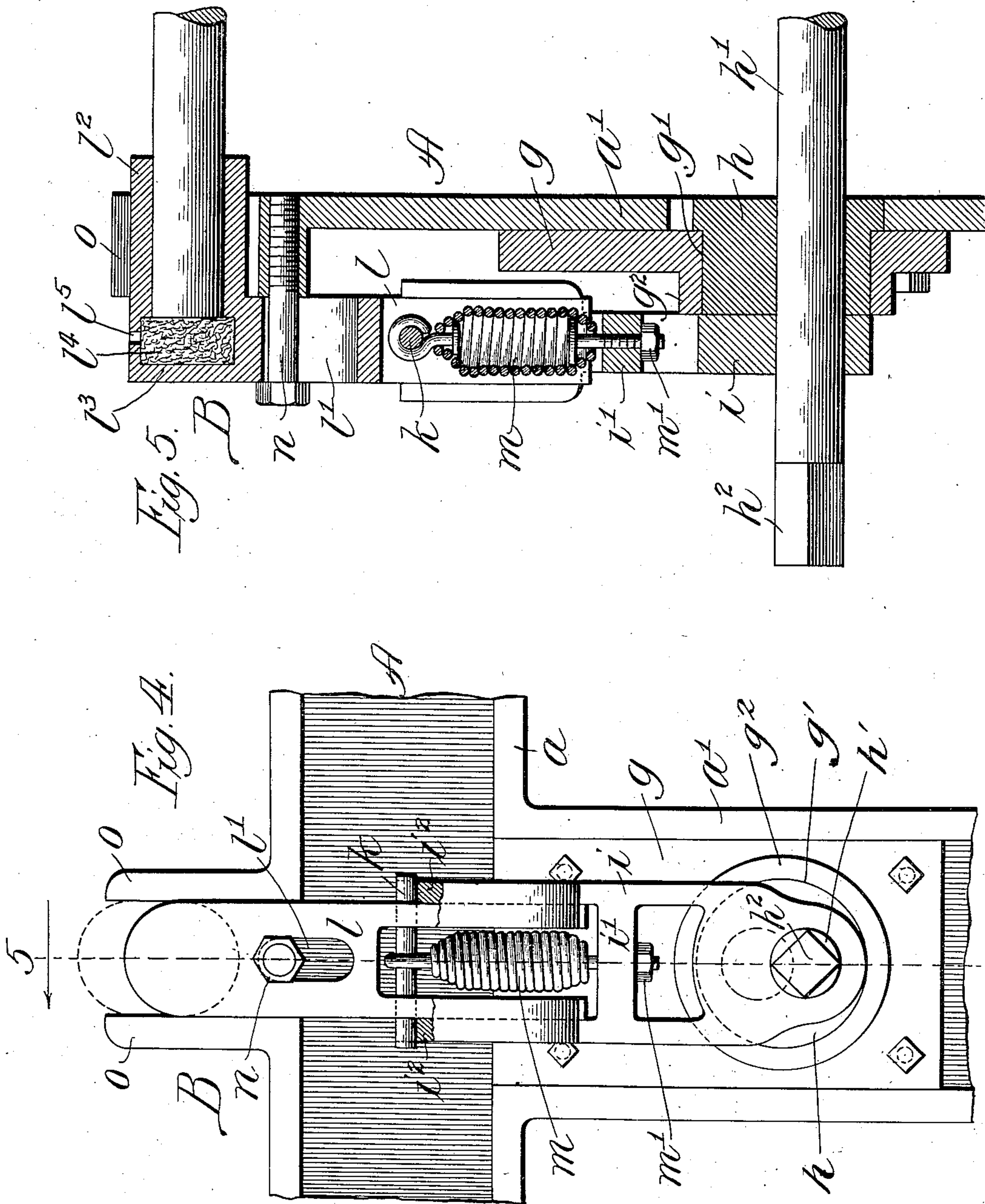
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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MANGLE.

No. 835,187.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed August 22, 1904. Serial No. 221,692.

To all whom it may concern:

Be it known that I, CHARLES T. GILMORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Mangles, of which the following is a specification.

My invention relates to an improvement in the class of steam-heated mangles for laundry-work; and it consists in the general as also in the more specific details of construction and combinations of parts forming the mangle which I have devised for the purposes of generally improving the ironing-work of the machine and adapting the latter to have parts of its ironing equipment transposed from one position to another or added to at will to suit the requirement or desire of the user.

In the accompanying drawings, Figure 1 is a view in side elevation of the frame; Fig. 2, a similar view of the gearing, showing the frame in dotted lines; Fig. 3, a longitudinal vertical section through the ironing mechanism with the frame shown in dotted lines; Fig. 4, an enlarged view in elevation of a broken section of the frame carrying an adjustable detail for yieldingly holding a roll against the steam-chest with which it co-operates, and Fig. 5 a section taken at the line 5 on Fig. 4 and viewed in the direction of the arrow.

Only one side of the frame A is represented in the drawings, because of the nature of the views selected for illustration; but the opposite side is a counterpart of that shown. The frame is composed of bed-rails, like that represented at *a*, with a semicircular concave bearing *b* between its ends, and legs *a'*, of which three are provided for each rail, extending therefrom with brace-ribs *a²* between them. In a corner of the frame, at the feed side of the machine, is shown a bracket *c*, containing an oblique guideway *c'* for a purpose hereinafter explained. Each side of the frame thus described may be cast in one piece. On the top of each rail *a* is bolted, to be concentric with the concave bearing *b* therein, a semicircular flanged rail *a³*, forming a support for bearings *d*, *d'*, and *d²*, fastened thereon for parts hereinafter described. On the delivery end of each side of the frame is removably bolted a bracket extension *A'* thereof, forming a shiftable frame-section carrying a bearing *d³* and having bolted to it, at its forward end, one side *A²* of the folding-table, usually provided on a mangle of the

present class at its delivery side. On the feed end of each rail *a* is bolted a support *e* for the respective end of the usual basket or box for holding the supply of articles to be mangled and which are carried thereto on a pole *f*, upon which the goods are hung, the pole being supported at its opposite ends in seats, like the seat *f'* represented on the upper corner of the basket-support.

At B B are shown similar bearings, which are illustrated in detail in Figs. 4 and 5, and involve each the following-described construction: A rectangular plate *g* is provided near its lower end with a circular opening *g'*, having a flange *g²*, forming a hub and affording a bearing for an eccentric *h* on a shaft *h'*, made angular at one end, as shown at *h²*, to permit the application to it of an operating-handle (not shown) for turning the shaft to rotate the eccentric. The shaft *h'* passes through a yoke *i* near its lower end, having a cross-piece *i'* extending between its arms near their lower ends, the yoke-arms having concave bearings *i²* formed in their upper ends for the ends of a pin *k*, passing transversely through the arms of another upper yoke *l*, inverted relative to the yoke *i* and having its arms confined between those of the lower yoke, which are formed on their inner faces with guides, as shown, to permit the upper yoke to reciprocate vertically under the control of a stiff coiled spring *m*, which is fastened at its opposite ends respectively to the pin *k* and the cross-piece *i'*. The yoke *l* contains an elongated slot *l'* above its arms and has a sleeve *l²* formed to project from the inner side of its upper end to form a roller-bearing containing in its outer end a chamber *l³* for packing *l⁴* to be lubricated through an opening *l⁵*. One of these bearings B is provided on each of the end legs of the frame and on each bracket *A'* by bolting the plate *g* thereto and screwing a headed pin *n* into the frame through the slot *l'* in the upper yoke *l*, which is confined laterally between guides *o*, projecting upward from the top of the frame.

From the foregoing description of the construction of the bearing B it will be understood that it may be bodily raised or lowered on its plate *g* by turning the shaft *h'* to turn the eccentric *h* accordingly and that the yoke *l* may be raised relative to the yoke *i* against the resistance of the spring *m*, which tends to hold it down with the pin *k* against its bearings *i²*. Similar blanketed hollow

rolls C, C', and C² are journaled at their opposite ends in the sleeves *l*² of the respective bearings B, and below each of said rolls is supported to extend parallel therewith across the frame a steam-chest C³, which may be of the usual kind employed in steam-mangles, receiving its supply of heating-steam through one pipe *p* and exhausting through another pipe *p*'. Between the rolls C and C' is journaled in the bearings *b* a steam-heated drying-cylinder D.

As will be understood, the two bearings B for the opposite ends of each ironing-roll employ one shaft *h*', extending across the frame to engage the eccentrics of both bearings.

The gist of the improvement involved in the construction of the bearing B lies in forming it of a lower member, such as the yoke *i*, and an upper member, such as the yoke *l*, seating on the lower member and yieldingly held to its seat by a connecting-spring and providing means for raising and lowering the two members together without thereby varying the tension of the spring, which tension, however, is variable by moving the upper member relative to the lower member, as by the passage under the roll of different thicknesses of material undergoing the mangling operation.

An endless apron E passes about a guide-roller *q*, journaled in bearings at *x*, thence about the cylinder D, from which it passes about a guide-roller *q*', journaled in the bearings *d*², and thence over a guide-roller *d*¹¹, journaled in the bearings *d*', over guide-rollers *q*² and *q*³, journaled, respectively, in bearings at *x*' and *x*², over guide-rollers *q*⁴ and *q*⁵, journaled, respectively, in bearings *x*³ and *x*⁴ on the frame, over a guide-roller *q*⁶, journaled at *x*⁵ in the brackets *c*, and over a roller *q*⁷, having its ends confined in the oblique guideways *c*', whereby its weight is yieldingly carried by the apron E to take up any slack in the latter, and thence to the roller *q*.

A supplemental endless apron E' coöperates with the apron E where the latter passes about the roller *q*', this supplemental apron passing about guide-rollers *r* and *r*', journaled, respectively, in bearings *y*' and *y*² on plates *y*, bolted to the plates provided with the bearings *d*², which last-named plates also have bearings *y*⁴ and also bearings *y*³ for journaling the third roll *r*², about which the supplemental apron E' passes, and between which and the cylinder D a deflecting-guide *s* extends.

A pinion 1 on the drive-shaft *t*, journaled in bearings at *v* and carrying a belt-pulley, (indicated at *t*', Fig. 2,) meshes with a gear-wheel 2, carrying a pinion 3, both journaled in bearings at *v*'. The pinion 3 meshes with a gear 4 adjacent to one end of the cylinder to rotate the latter in the direction of the arrow on Fig. 2. The gear 4 drives the roll C by meshing with an idler 5, journaled in the

bearings *y*⁴ and meshing with a gear 6 on that roll, and it also drives the roller *q*' by meshing with a gear 7 upon it, as also the rolls C' and C² through the medium of the train of gears shown in Fig. 2, of which 8 is an idler journaled in the bearings *d* and meshing with a gear 9 on the roll C', and 10 another idler journaled in the bearings *d*³ to mesh with the gear 9 and with a gear 11 on the roll C².

The operation is as follows: With the machine running according to the directions of parts indicated by arrows an article to be ironed is inserted at its edge, with the right side or face down, between a guard-roller (represented at *w* in Fig. 3) and the roll C, which clamps it against the hot surface of the adjacent steam-chest C³. The rotation of the roll carries the article across and irons it against the surface of the steam-chest, whence it is fed across the roller *q* upon the apron E and between the latter and the cylinder D, which rotates somewhat faster than the apron travels. The article is carried about the cylinder with its wrong or under side in contact therewith, whereby it is smoothed on that side and dried. At the deflector *s* the article is directed at its leading edge between the aprons E and E' about the roller *q*', and the apron E carries it right side down, meantime ventilating it, between the roll C' and the adjacent steam-chest, with its right side against the surface of the latter. The roll C' feeds the article and again irons it on the right side across that steam-chest, whence it is fed between the roll C² and the steam-chest under it and across the latter to the folding-table at A² to give it the finishing polish.

When the rolls C, C', and C² are out of use, they may be raised bodily and supported out of contact with their respective steam-chests by properly turning the shafts *h*' for the purpose, and when the rolls are down in coöperative relation to the steam-chest surfaces the springs *m* hold them yieldingly to permit articles to be ironed of any thickness to be fed across them, the nut *m*' under each cross-piece *i*' serving for regulating the tension of the spring relative to the thinner class of articles to be mangled.

By providing one or more of the ironers, each consisting of a roll coöperating with a steam-chest, on each side of the cylinder D the articles to be mangled may be first thoroughly ironed on the right side, then smoothed on the wrong side, and, after being dried and ventilated, again on the right side to polish and finish them, with the result of turning out perfect work with the machine on all varieties of laundry articles.

The attachment A' may be applied for the user to either end of the machine by merely bolting it in place. Thus if it be desired to have it on the feed end it will be interposed between the basket-supports *e* and the frame

and then the table ends A² will be bolted directly upon the delivery end of the frame. Moreover, the attachable character of the part A' adapts any desired number of ironing-rolls and steam-chests to be added to the machine, so that a user beginning with the mangle in its simplest form—namely, with one of the rolls and its cooperating steam-chest at one or at each side of the cylinder D, may add other rolls and steam-chests at either end or at both ends, as it becomes desirable and his business enables him to do so.

As the improvement herein relates primarily to the provision of an ironing-roll and steam-chest on each side of the cylinder and endless-traveling-apron equipment cooperating with the cylinder and rolls and also in the separately-attachable-section feature of the machine, I do not wish to be understood as intending to limit my invention to the particular details of construction and combinations of parts herein shown and described, since they may be variously modified without departing from the invention. Moreover, the adjustable bearing B may be used to advantage where only one ironing-roll is provided to cooperate with the steam-chest and the cylinder D.

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

1. In a steam-mangle, the combination with a frame, of a drying-cylinder journaled thereon, an ironing-roll and a steam-chest cooperating therewith at each side of said cylinder, endless apron-carrying means for articles to be mangled cooperating with said rolls and cylinder, and frame-sections carrying a supplemental ironing-roll and steam-chest and separably secured on one end of said frame, said rolls, cylinder and carrying means being cooperatively geared together, substantially as described.

2. In a steam-mangle having a drying-cylinder journaled on its frame with an ironing-roll surmounting a steam-chest and an endless apron geared with said cylinder and roll to cooperate therewith, the combination with the frame, of frame-sections separably secured on one end thereof and carrying a steam-chest, a roll-bearing on each said section comprising a lower yoke, an upper yoke vertically movable on said lower yoke, a spring resiliently connecting said yokes together and an operating-shaft carrying a cam engaging said lower yoke, and an ironing-roll journaled on the upper yokes of said bearings to surmount and cooperate with said steam-chest, substantially as described.

3. In a steam-mangle having a frame carrying an ironing-roll surmounting a steam-chest, a bearing on the frame for said roll, comprising a lower member and an upper roll-journaling member separably seating thereon, a spring forming the connecting medium between said members, and means

for bodily raising and lowering both members together, for the purpose set forth.

4. In a steam-mangle having a frame carrying an ironing-roll surmounting a steam-chest, bearings for said roll, each comprising a lower yoke secured to the frame, an upper yoke, on which said roll is journaled, vertically movable on said lower yoke, a spring resiliently connecting said yokes together, and a cam engaging said lower yoke for bodily raising and lowering the bearing and with it the roll to raise and lower it relative to the steam-chest, substantially as described.

5. In a steam-mangle having a frame carrying an ironing-roll surmounting a steam-chest, bearings for said roll, each comprising a plate secured to the frame, a lower yoke supported on said plate, an upper yoke, on which said roll is journaled, vertically movable on said lower yoke, a spring resiliently connecting said yokes together, and an operating-shaft carrying a cam on said plate engaging said lower yoke for bodily raising and lowering the bearing and with it the roll to raise and lower it relative to the steam-chest, substantially as described.

6. In a steam-mangle having a frame carrying an ironing-roll surmounting a steam-chest, bearings for said roll, each comprising a plate secured to the frame, a lower yoke supported on said plate to be vertically movable thereon and having a cross-bar between its arms, a shaft carrying an eccentric working in openings in said plate and yoke, an upper yoke provided with an elongated slot through which to secure it to said frame and carrying at its upper end a roll-journaling sleeve, said upper yoke telescoping at its arms with those of the lower yoke and carrying a pin to seat upon the upper end of the lower yoke, and a spring connecting said yokes together at said pin and cross-bar and provided with a nut for adjusting its tension, substantially as described.

7. In a steam-mangle, the combination with a frame, of a drying-cylinder journaled thereon, steam-chests on opposite sides of said cylinder and an ironing-roll surmounting each steam-chest, bearings for each roll, each comprising a lower yoke secured to the frame, an upper yoke, on which the roll is journaled, vertically movable on said lower yoke, a spring resiliently connecting said yokes together, and a cam engaging said lower yoke with means for turning it to bodily raise and lower the bearing and with it the roll to raise and lower it relative to its steam-chest, an endless apron carrying means for articles to be mangled, cooperating with said rolls and cylinder, said rolls, cylinder and carrying means being cooperatively geared together, substantially as described.

8. In a steam-mangle, the combination with a frame, of a drying-cylinder journaled

thereon, a steam-chest and an ironing-roll surmounting it journaled on the frame at each side of said cylinder at the feed and delivery sides of the machine, an endless apron
5 extending about said cylinder from said feed side, guide-rollers directing said apron from the cylinder above and across it to the ironing roll at the delivery side of the machine, and a supplemental apron coöperating with said

endless apron at the guide-roller which leads to it from said cylinder, said rolls, cylinder and endless apron being coöperatively geared together.

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In presence of—

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