

No. 804,388.

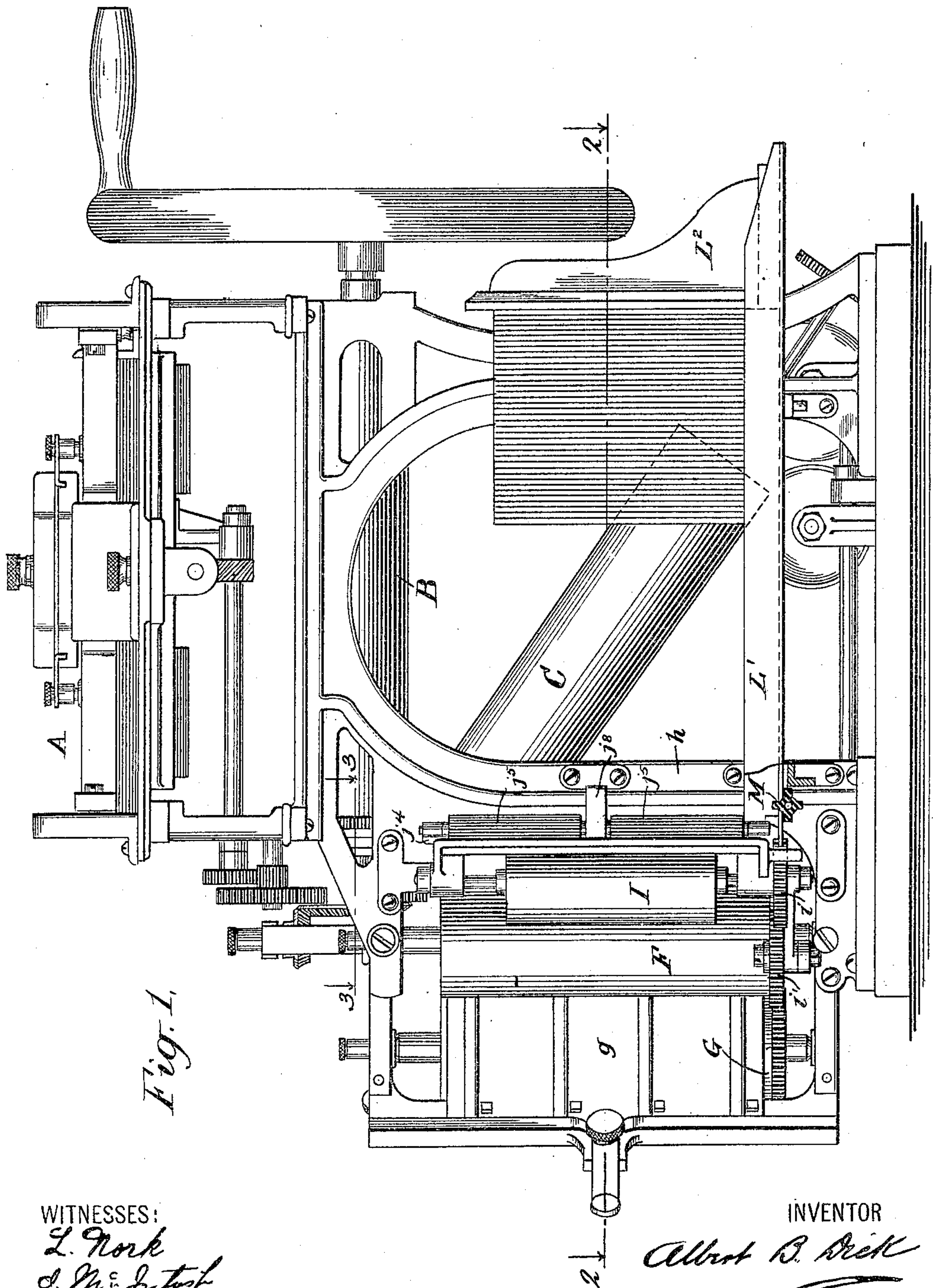
PATENTED NOV. 14, 1905.

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DELIVERY APPARATUS FOR FOLDING MACHINES AND THE LIKE.

APPLICATION FILED APR. 5, 1905.

3 SHEETS—SHEET 1.



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Fig. 3.

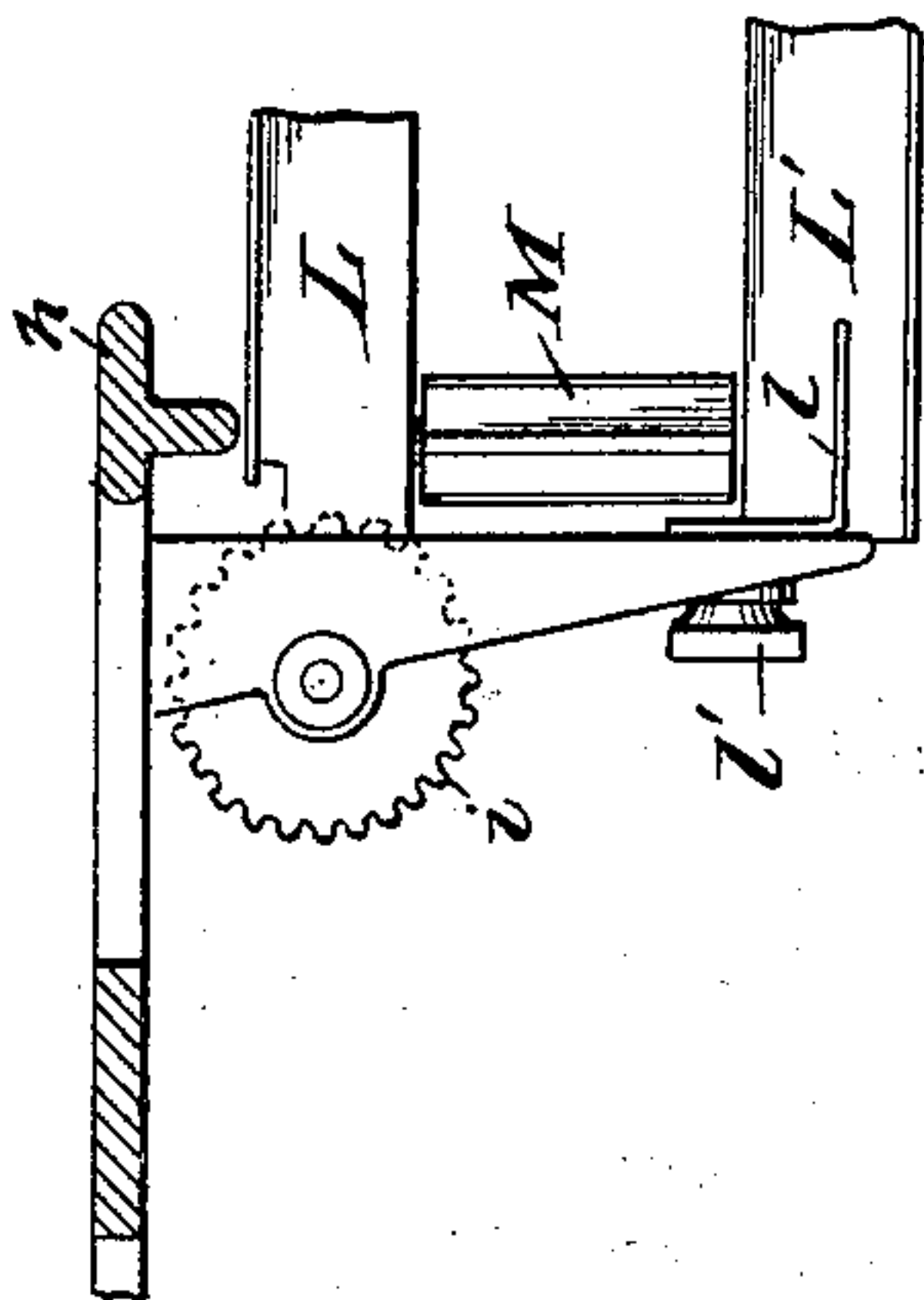
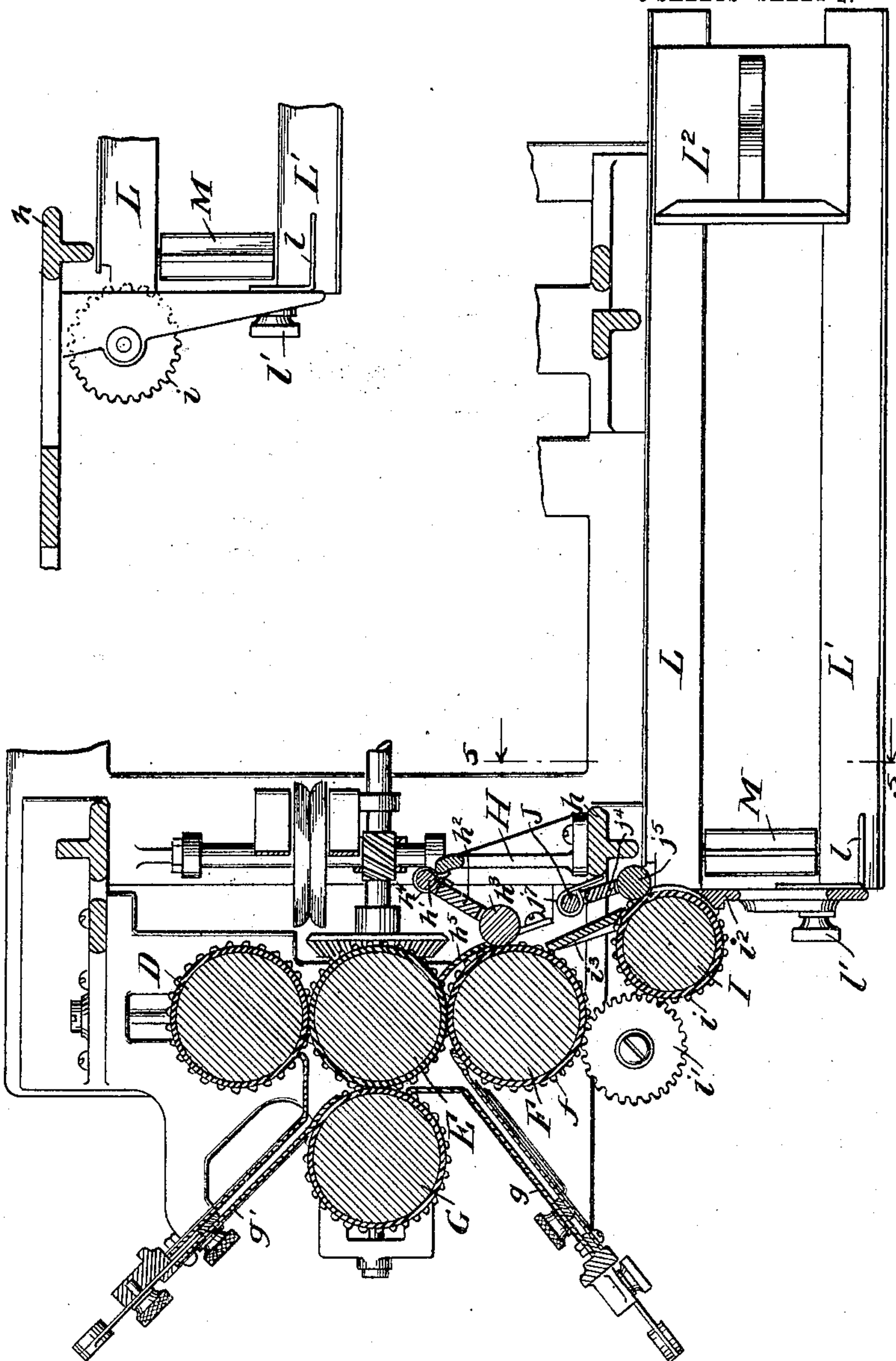


Fig. 2.



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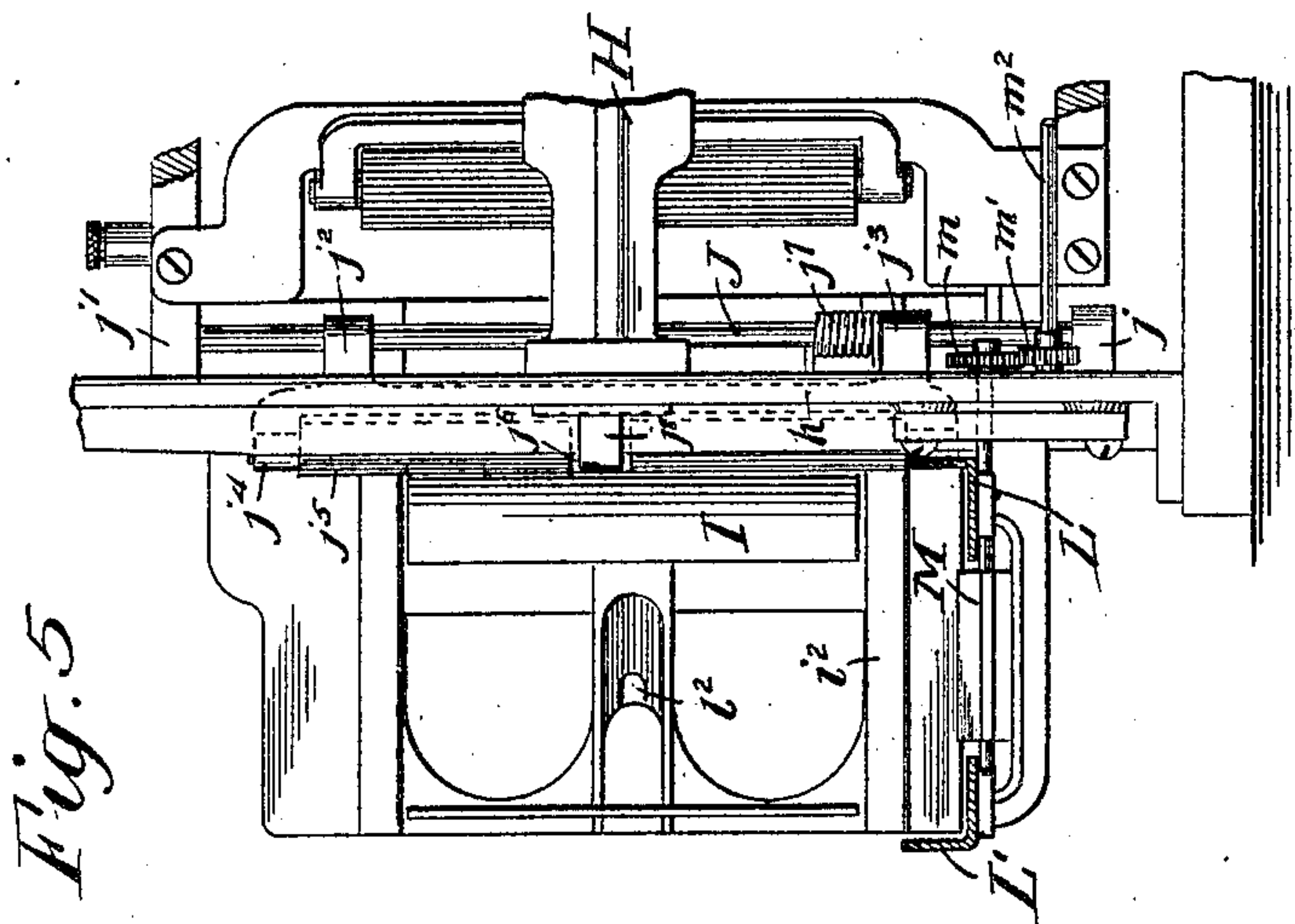


Fig. 5

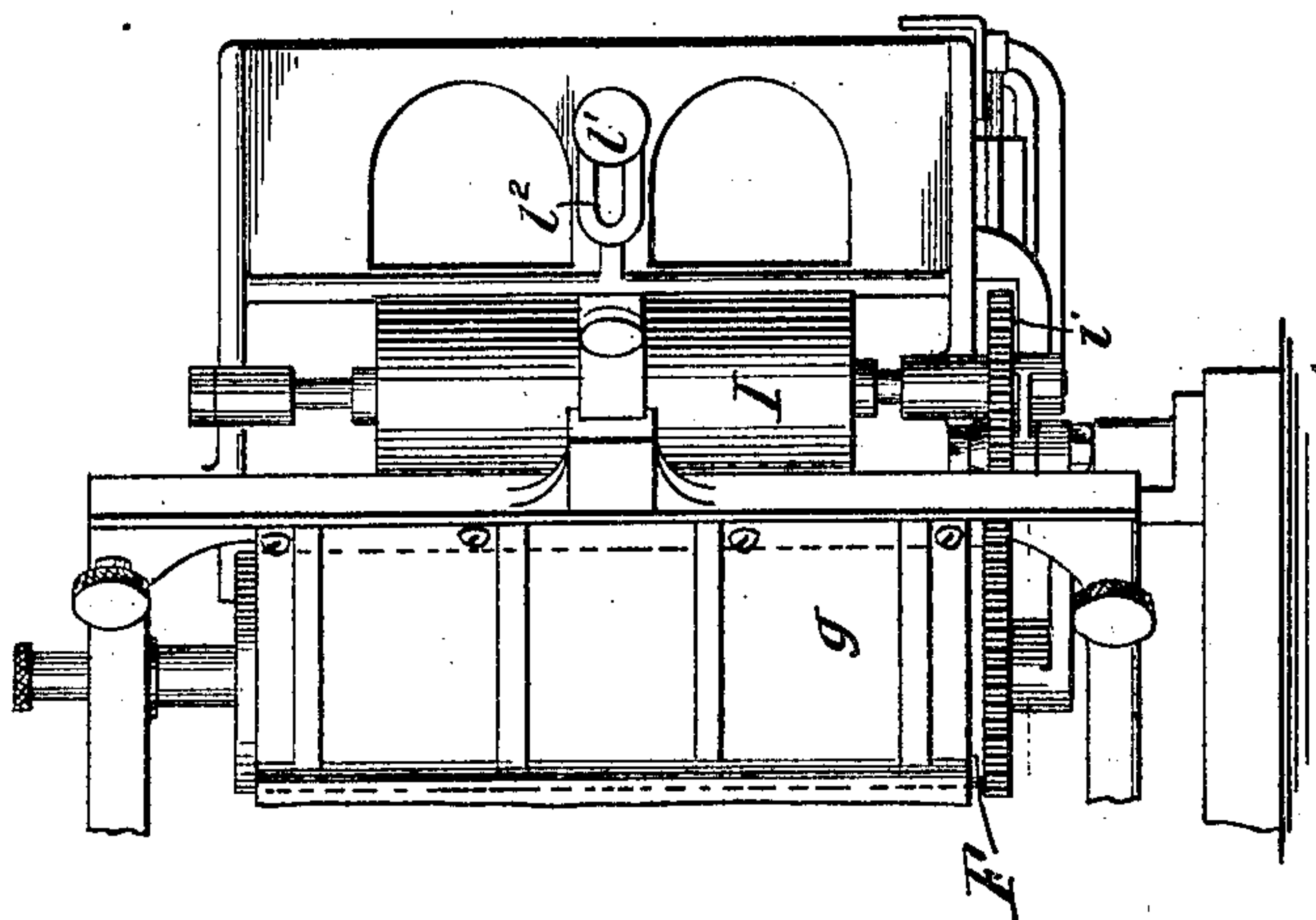


Fig. 4

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UNITED STATES PATENT OFFICE.

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DELIVERY APPARATUS FOR FOLDING-MACHINES AND THE LIKE.

No. 804,388.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed April 5, 1905. Serial No. 253,989.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented a certain new and useful Improvement in Delivery Apparatus for Folding-Machines and the Like, of which the following is a specification.

The object of the present invention is to provide delivery apparatus which may be used in conjunction with any one of a variety of types of machines—such as folding-machines, binding or addressing machines, printing-presses, &c.—and which shall be simple and durable in construction and efficient in operation, means being provided, among other things, for the orderly receipt and collection of sheets, pamphlets, or other articles and the support thereof in increasing quantity in such manner as to preclude interference with the sheets or pamphlets being fed to the apparatus by those already collected therein.

One of the uses to which the invention may advantageously be put is to receive sheets from the folding-rolls of a folding-machine, and for the purpose of making the description of the invention clear I have illustrated in the drawings and will describe herein such an application.

In said drawings, Figure 1 is a side elevation of a folding-machine, showing the attachment thereto of the delivery apparatus of this invention. Fig. 2 is a horizontal section on the line 2 2, Fig. 1, and looking in the direction of the arrows adjacent to such line, certain immaterial parts of the folding mechanism being omitted. Fig. 3 is a sectional detail based generally upon the line 3 3, Fig. 1, and looking in the direction of the arrows adjacent to such line, but omitting certain connected parts. Fig. 4 is an end elevation looking from the left, Fig. 1; and Fig. 5 is a section on the line 5 5, Fig. 2, omitting the folding-rolls and adjacent mechanism shown in the last-named figure.

Referring to the drawings, in which similar letters denote corresponding parts, the machine which I have selected to aid in the description of the invention comprises, generally speaking, sheet-separating apparatus A, horizontal pressing and passing rolls B, oblique forwarding-rolls C, and a series of three folding-rolls D, E, and F, arranged in aline-

ment, another folding-roll G being arranged at an angle to such alinement or opposite the folding-roll E. With these vertical folding-rolls coact sheet-guides $g g'$. All these moving parts, as well as others to be presently referred to, are driven, preferably, from a single source of power, as indicated in Fig. 1. The sheets laid upon the bed of the separator A are fed successively from the under side of the pile between the rolls B and C and thence between the folding-rolls D and E. The forward edge of the sheet after passing through the rolls last named enters the guide g' , is buckled therein and then fed between the rolls E G into the guide g and after being buckled in said last-named guide is fed between the roll E and F in finally folded condition, being thence delivered to the apparatus which is the subject-matter of this application. The mechanism, as thus far described, is not claimed herein as part of the present invention, the same having been disclosed and claimed in an application, Serial No. 181,897, filed November 20, 1903, to which reference may be had for more detailed description of the several parts referred to.

H designates an arm extending inward from one of the standards h of the machine and having a bifurcated inner end, in which is mounted a shaft h' , carrying the swinging bracket h^2 , in the free end of which is pivotally supported a milled roll h^3 , normally operating either against or in proximity to the periphery of the folding-roll F. A spring h^4 tends to maintain this coaction between said milled roll h^3 and said folding-roll F.

h^5 designates a guard supported in the framework of the machine adjacent to the folding-roll F, so that when a folded sheet is passed between said roll F and the adjacent roll E said sheet will be directed by said guard to the point of coaction between said folding-roll F and said milled roll h^3 in its movement toward the delivery apparatus.

I designates a delivery-roll, here shown as mounted upon a vertical shaft journaled at either end in the framework of the machine and receiving movement by means of pinion i from idler-pinion i' , which in turn meshes with a pinion f , which drives the roll F. Said delivery-roll I, like the folding-rolls, is preferably provided with an exterior of rubber or other suitable material. The frame of the

machine includes the vertical member i^2 , through a recess in which the periphery of the delivery-roll I operates. Said vertical member i^2 also includes the guard member i^3 ,
 5 lying between said delivery-roll and the folding-roll F, to determine the path of travel of a sheet fed from said last-named roll. J designates a vertical rod mounted at its lower end in the ear j and at its upper end in the
 10 shelf-plate j' . This rod by means of arms j^2 j^3 carries a bracket j^4 , in which is mounted a milled or knurled roll j^5 , recessed at j^6 and yieldingly pressed into contact with the periphery of the delivery-roll I by spring j^7 or
 15 other suitable means. Into the recess j^6 extends the end of an arm j^8 , secured to the frame, as best shown in Figs. 1 and 5, the function whereof is to prevent the sheets from being passed entirely around the roll j^5
 20 as they are fed between such roll and the delivery-roll I.

The vertical member i^2 of the frame forms one end of a delivery-tray, which comprises the ways L L', preferably angular in cross-
 25 section, as shown in Fig. 5, and upon which operates the sliding block L².

l designates a lateral guide for the folded sheets fed to said tray, and this guide is positioned by means of set-screw l' , operating
 30 in a slot l^2 in the vertical member i^2 of the frame.

M designates a forwarding-roll mounted upon a shaft carried by the frame of the machine below the delivery-tray, said roll operating between the ways L L' and its periphery
 35 extending slightly above the horizontal surface of said ways. Said roll may be driven in any suitable manner—as, for instance, the manner illustrated in Fig. 5, in which are
 40 shown a pinion m upon the shaft of said roll and to which movement is communicated by pinion m' on shaft m^2 . The latter may be driven by any moving part of the folding mechanism, if desired—as, for instance, the
 45 means whereby sheets are fed from the oblique rolls C to the vertical rolls D E.

As the folded sheets are fed between the vertical folding-rolls E F they are guided by the guard h^5 between the folding-roll F and
 50 the milled roll h^3 . After passing the point of coaction of these rolls they are guided by the guard i^3 to the point of coaction between the delivery-roll I and the milled or knurled roll j^5 , by means whereof they are passed into the
 55 delivery-tray against the lateral guide l . After each folded sheet has been delivered upon the ways L L' the roll j^5 continues to coact with the inner vertical edge of such sheet, (after the latter has moved out of contact with
 60 the roll I,) passing the same forward, and thereby maintaining an open space for the receipt of the next succeeding folded sheets. As the sheets are so delivered upon the ways L L' they are acted upon by the forwarding-
 65 roll M and passed along such ways against

the pressure of the sliding block L². When a sufficient quantity of folded sheets has been fed upon such ways, they may readily be lifted out and the block L² pressed back to its original position, whereupon the operation of delivering folded sheets to the tray may proceed as before.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. In delivery apparatus, the combination with ways and means for passing sheets or other articles thereto, of a roll supported below said ways, its periphery extending above the surface of said ways and coacting with
 80 the sheets or articles thereon to move the same upon said ways, substantially as set forth.

2. In delivery apparatus, the combination with ways and means for passing sheets or other articles thereto, of a roll of substantially uniform diameter throughout mounted adjacent to and transversely of said ways and coacting with the under edges of the sheets or
 85 articles thereon to move the same upon said ways, substantially as set forth.

3. In delivery apparatus, the combination with ways and means for passing sheets or other articles thereto, of mechanism for maintaining an open space for the receipt of succeeding sheets or articles, said mechanism including a roll coacting with the edges of such
 90 sheets or articles, substantially as set forth.

4. In delivery apparatus, the combination with ways and means for passing sheets or other articles thereto, of mechanism for moving said sheets or articles upon said ways and maintaining an open space for the receipt of succeeding sheets or articles, said mechanism including a roll coacting with the edges of
 100 such sheets or articles, substantially as set forth.

5. In delivery apparatus, the combination with ways, of a delivery-roll adjacent to one end thereof, and a roll mounted contiguous to said delivery-roll and spring-pressed into engagement therewith, said roll coacting with
 110 a sheet or other article fed to such ways after the same has passed out of coaction with said delivery-roll, substantially as set forth.

6. In delivery apparatus, the combination with ways and an adjustable guide, of a delivery-roll adjacent to one end of said ways, and an underlying forwarding-roll, substantially as set forth.

7. In delivery apparatus, the combination with ways and a guide and sliding member coacting therewith, of a delivery-roll, means for guiding thereto articles to be delivered, and mechanism including a roll coacting with
 125 the edges of such articles for maintaining an open space in said ways for the receipt of successive articles, substantially as set forth.

8. In delivery apparatus, the combination with a roll, a guide-roll coacting therewith, a
 130

delivery-roll and a roll coacting therewith, of ways adapted to receive articles successively from said delivery-roll and its coacting roll, said ways having combined therewith means 5 for forwarding such articles therein, substantially as set forth.

9. In delivery apparatus, the combination with ways and a sliding member thereon actuated by articles delivered to said ways, of 10 an adjustable lateral guide for said articles, and means adjacent to said ways for moving one edge of an article therein in advance of its opposite edge, substantially as set forth.

10. In delivery apparatus, the combina-

tion with ways and a sliding member thereon 15 actuated by articles delivered to said ways, of an adjustable lateral guide for said articles, mechanism for moving articles in said ways as the same are fed thereto, and means 20 adjacent to one of said ways for moving one edge of each of said articles in advance of the other edge thereof, substantially as set forth.

This specification signed and witnessed this 31st day of March, 1905.

ALBERT B. DICK.

Witnesses:

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L. NORK.