

No. 700,336.

Patented May 20, 1902.

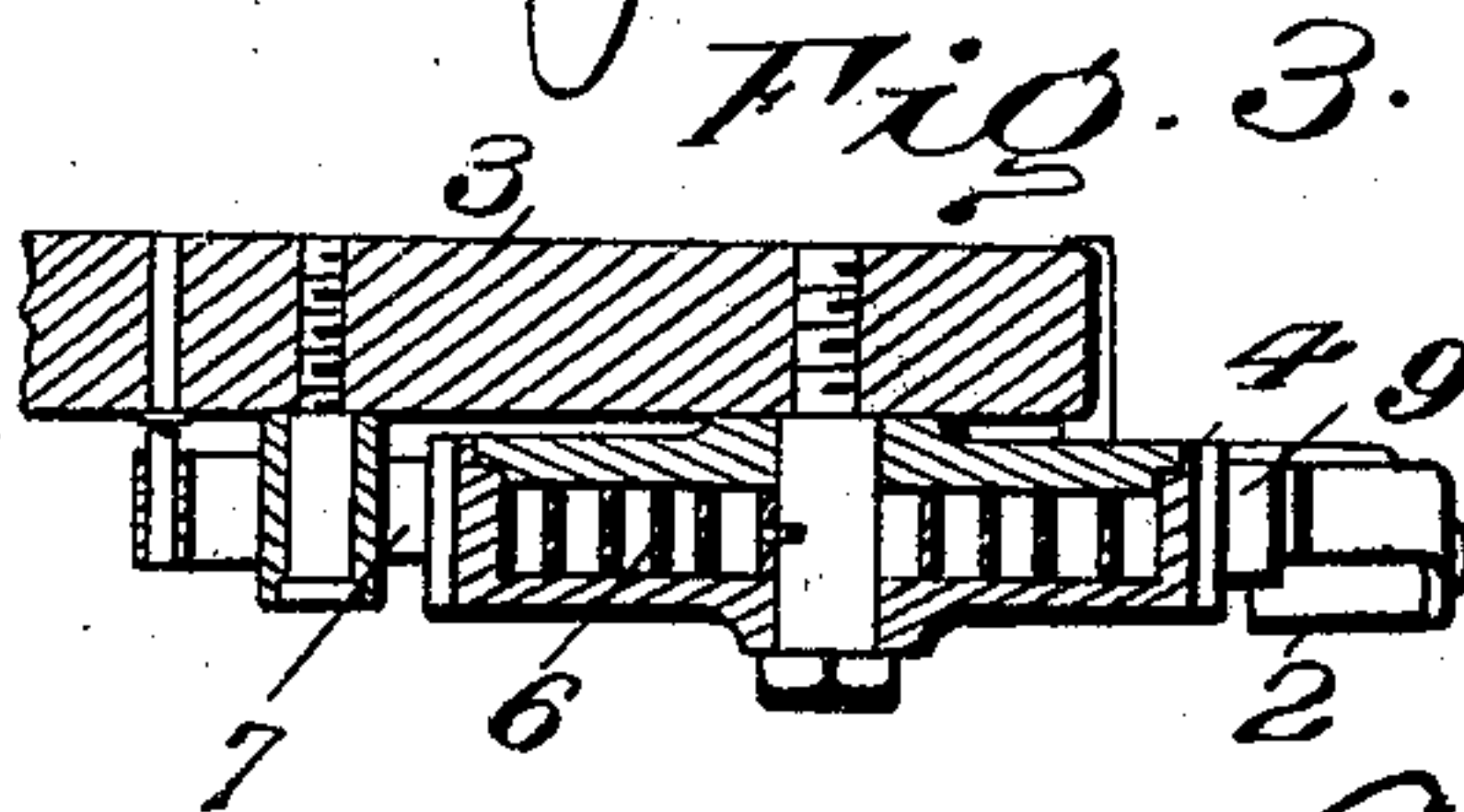
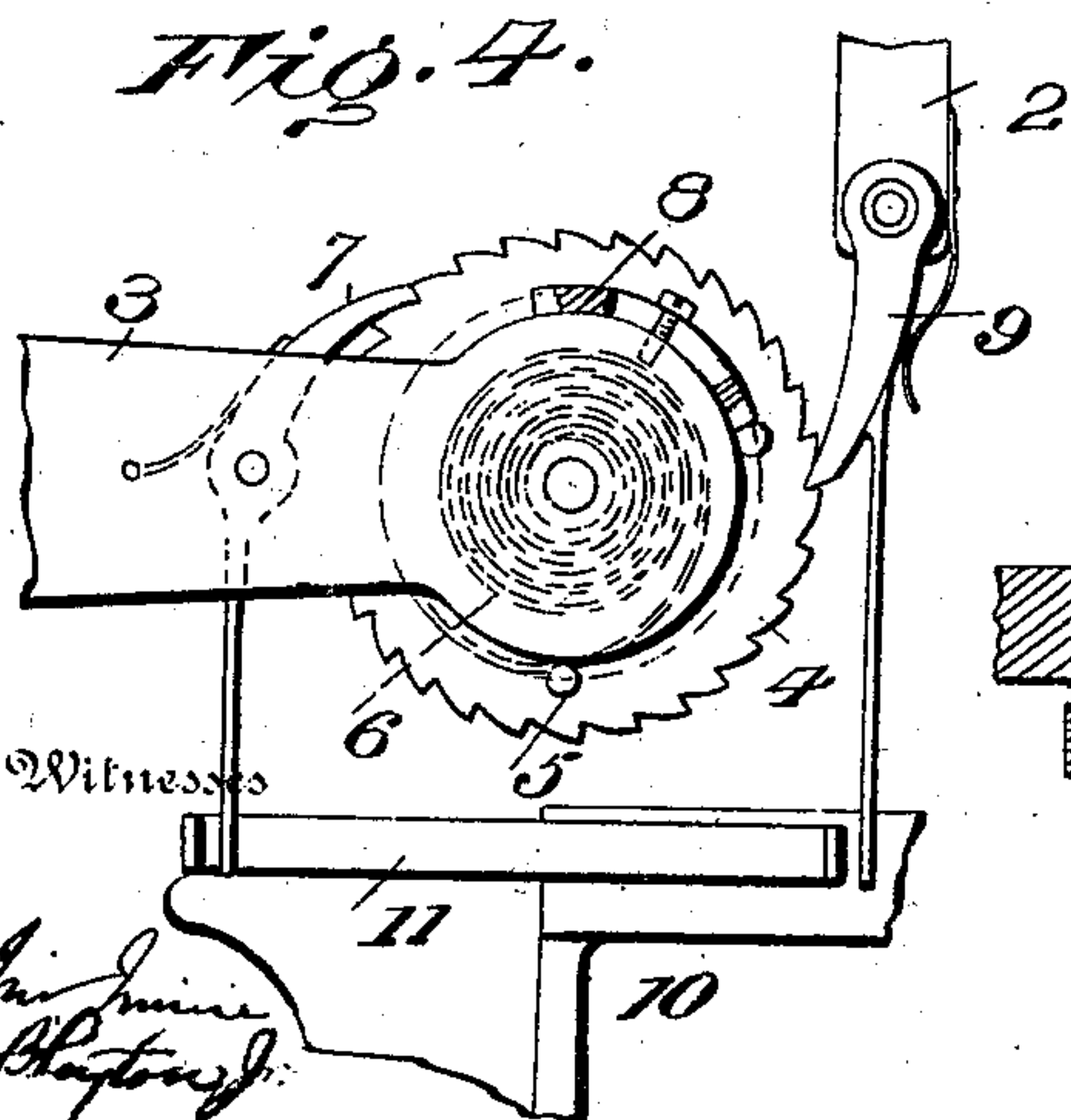
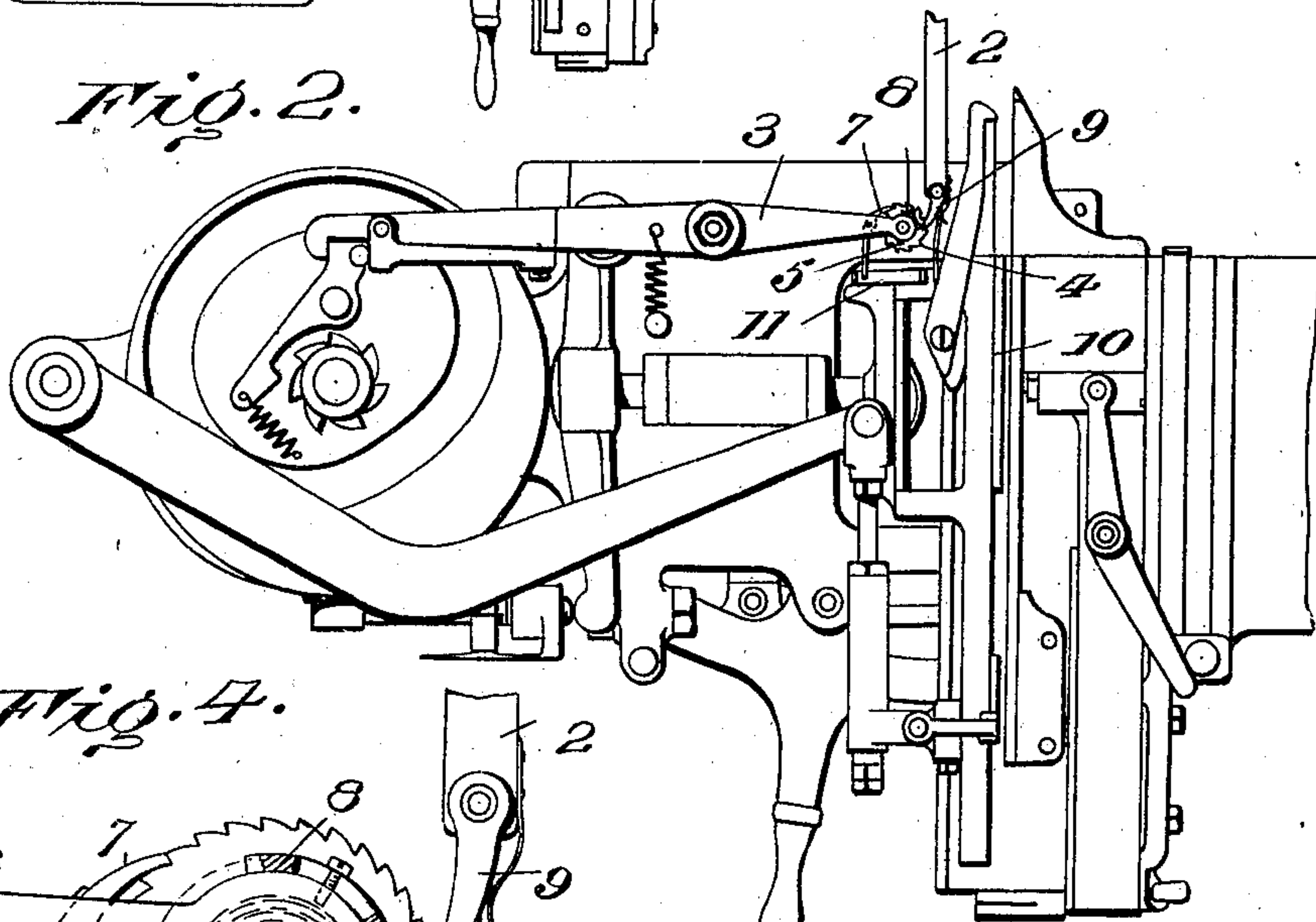
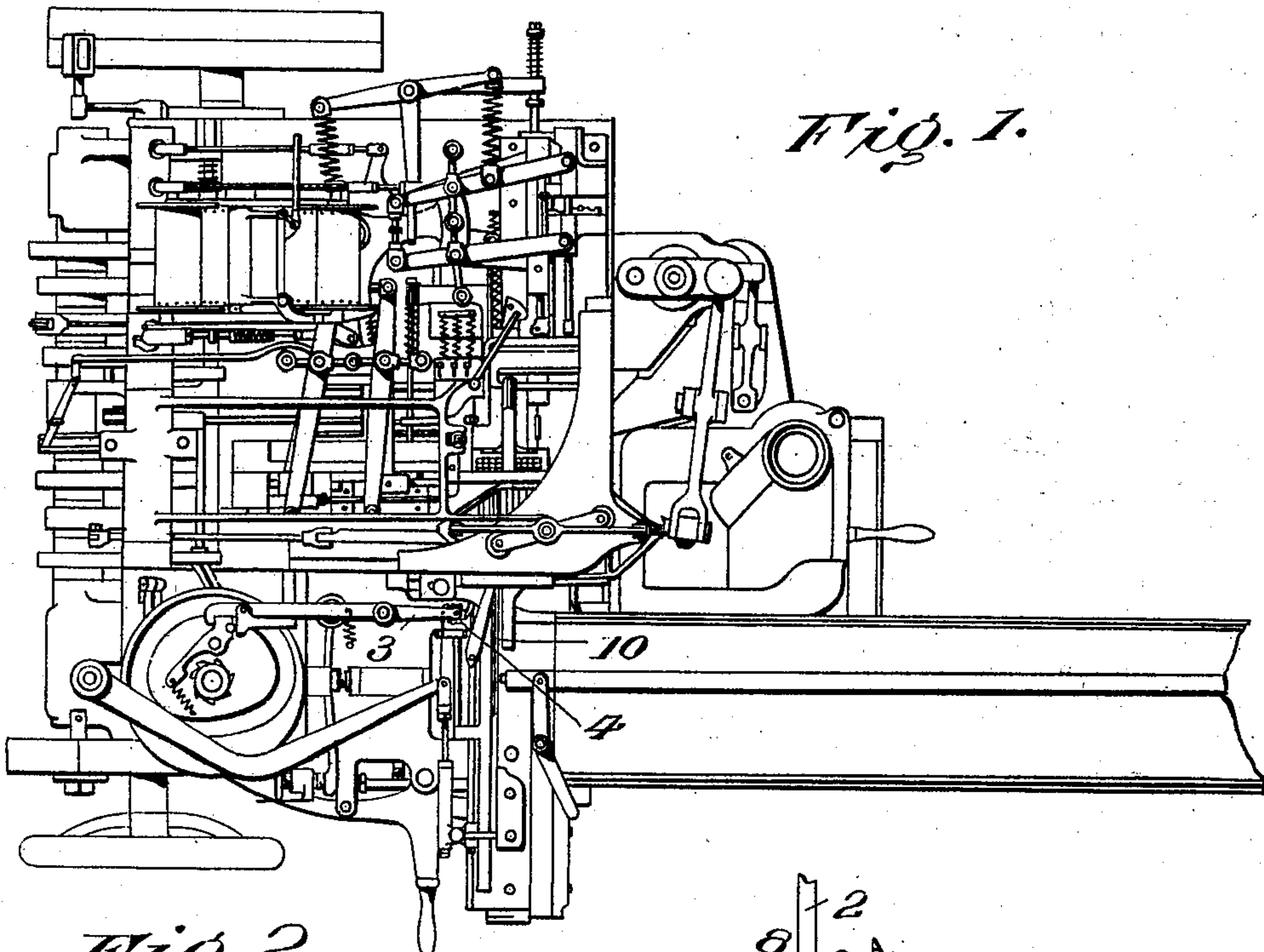
W. KEMP, JR.

TYPE COMPOSING MACHINE FOR TABULAR MATTER.

(Application filed Jan. 23, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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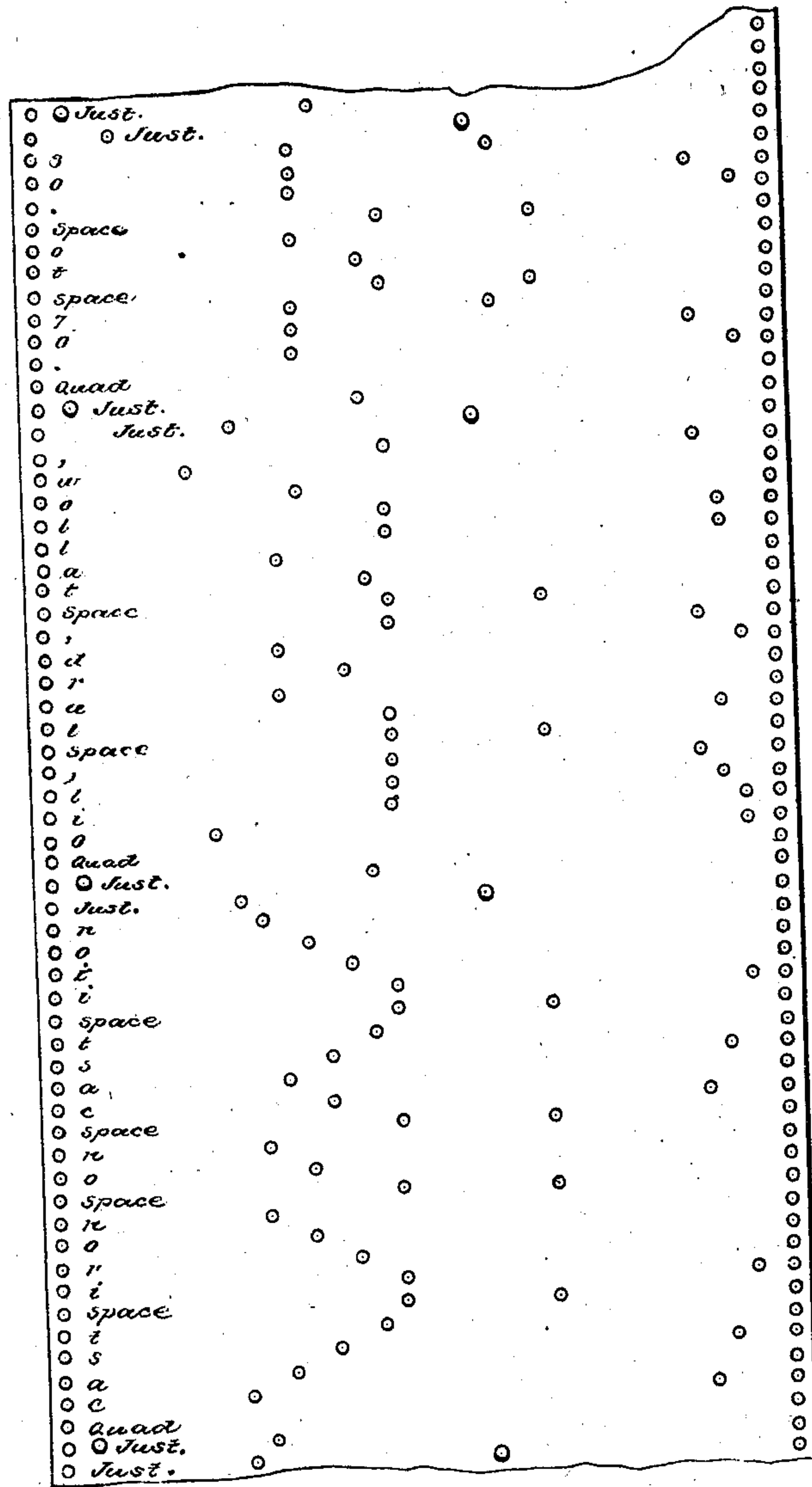
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TYPE COMPOSING MACHINE FOR TABULAR MATTER.

(Application filed Jan. 23, 1902.)

2 Sheets—Sheet 2.

(No Model.)

FIG. 5.



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# UNITED STATES PATENT OFFICE.

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## TYPE-COMPOSING MACHINE FOR TABULAR MATTER.

SPECIFICATION forming part of Letters Patent No. 700,336, dated May 20, 1902.

Application filed January 23, 1902. Serial No. 90,982. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM KEMP, Jr., of New York, in the county of New York, State of New York, have invented certain new and  
5 useful Improvements in Type-Composing Machines for Tabular Matter; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures of reference marked thereon.  
10

Machines for automatically composing and justifying lines of type as heretofore organized do not permit of sectional as distinguished from unitary line justification, such  
15 as is desirable for tabular work, mainly because of the intimate relationship established and existing between justification and line-transfer, whereby the act of setting the justification devices or the forming of the justification-signal operates mediately or immediately to start in action the line-transfer devices, thereby effecting a removal of the previously-justified line. Tabular and like work  
20 requires that the lines should be separated or divided into sections, each of the latter corresponding to its column as to length and justified with reference thereto, the sum of the several justified sections being equal to the  
30 full-line measure; but the galley or line-transfer devices being set to operate in conjunction with each justification-signal it results that if sectional-line justification is attempted each section as composed would be removed from the line-assembling channel upon  
35 the arrival of the justification-signals for the next succeeding section.

The present invention has for its object to enable the sections of a line to be separately  
40 justified and the types comprising the several sections assembled as a complete line before the transfer takes place, so that when set up in galley form corresponding sections of the several lines will fall properly in their respective columns.  
45

To this end the invention consists, broadly, in the employment, in connection with automatic line composing and justifying mechanism and a transfer device or mechanism for  
50 the composed line, of means neutral to inter-

sectional justification to permit the latter to be performed without disturbing the line, but active after the complete line is composed to cause the transfer devices to shift the sectionally-justified line and dispose it in column  
55 form.

A preferred form of embodiment as applied to an existing commercial machine is illustrated in the accompanying drawings, wherein—  
60

Figure 1 is a plan view of the complete machine. Fig. 2 is a top plan view of the galley mechanism on an enlarged scale. Fig. 3 is a top plan view, and Fig. 4 a section, of the trip or timing mechanism for the line-transfer  
65 ferrer. Fig. 5 represents a section of the controller or record-strip containing signals appropriate to a line of composition.

Similar numerals in the several figures indicate the same parts.  
70

The composing and justifying machine selected to illustrate the preferred form of embodiment of the invention is that of Patents Nos. 625,998, 674,374, and 674,375, to which reference may be had for a more full and complete description. It will suffice for present  
75 purposes to direct attention to certain features of construction and operation having immediate connection with the improvement. The action of the machine is automatic, being  
80 governed by a prepared controller in the form of a perforated record-strip, Fig. 5, which latter, acting through the matrix-centering, mold-adjusting, and justification mechanisms determines the character and widths of successive  
85 type and the dimensions of the justifying-type occurring in each line. The justification-signals precede those for the character and space type and operate to establish a uniform rate of increase in the space-type as compared with the normal, said rate of increase  
90 being equal to the space to be filled by justification divided by the total number of justifying-space type occurring in the line or measure. Any length of line within the capacity of the machine can be thus justified,  
95 and but for the fact that each time the justifying devices are set the line-transferring devices are started in operation sectional as well as full-line justification could readily be per-  
100



formed. It happens, therefore, that the machine possesses the inherent capacity for sectional justification of the line, but is rendered incapable of performing that function because of the intimate relation established between justification and line-transfer, whereby the setting of the justification for each measure of type, be it a complete line or only a section thereof, will effect the removal to the galley and the assembly therein in column form of the previously-justified section. Thus whenever the justification-wedge levers are actuated (as they must be at the end of each line or section thereof to effect justification for the next line or section) rod 2 is reciprocated and caused to actuate the trip-lever 3, thereby setting in action the galley mechanism, including the line-transferrer, to remove the previously composed and justified matter, and this action being repeated at each justification period renders sectional justification of unitary lines impossible. To enable sectional justification of the lines of composed matter to be performed, the starting into action of the line-transferrer must be taken from the immediate control of the justifying devices, so that the latter may operate independently, and means must be supplied for setting the line-transferrer into action after but not before all the justified sections have been assembled in line. In other words, means independent of the justifying elements (though not necessarily wholly disconnected therefrom) are supplied for controlling or designating the periods of line-transfer to the end that justification may be performed during the composition of the line.

In the present exemplification the galley trip devices are so changed in construction or arrangement that rod 2 no longer contacts directly with the trip-lever 3, and a timing mechanism or device is supplied to control said trip devices and determine at what stage in the composition of the line the latter shall be removed and assembled in column form. This timing mechanism comprises a driven member, such as ratchet-wheel 4, loosely journaled on trip-lever 3 and provided with a projection or shoulder 5 for engaging said lever, a retracting-spring 6, a holding-pawl 7, and an adjustable stop 8 for regulating the distance to be traversed by shoulder 5 before engaging lever 3. A driving member or pawl 9, to which a reciprocating motion is communicated at the conclusion of each justified section of the line under process of composition, is arranged to engage ratchet-wheel 4, so that at the conclusion of each justified section a partial rotation of the ratchet-wheel will be effected and shoulder 5 thereon caused to approach lever 3. This action is repeated for each section of the line, excepting the last, at which time shoulder 5 will be in contact with lever 3, so that during the reciprocation of pawl 9 occurring at the conclusion of the last section of the line its motion will be communicated to lever 3, thereby releasing the

trip and starting the galley mechanism in action and with it the line-transferrer 10. A trip 11, moving in unison with the line-transferrer and engaging the holding-pawl 7 and driving-pawl 9, operates to temporarily withdraw them from the ratchet-wheel and permit its spring 6 to turn it back against adjustable stop 8 preparatory to the formation of the next justified section. As the periodical advance of the ratchet-wheel corresponds in number with the sectional divisions of the line and as rod 2 is reciprocated preliminary to the setting up of each section, advantage is taken of this fact to mount the driving-pawl 9 on said rod, thus obviating what would otherwise be a necessity, the provision of special devices for giving motion to said pawl at the conclusion of each justified section. The circumstance that in the particular machine selected the rod 2 receives two reciprocating movements during each setting of the justification devices (there being two justification-wedges, each furnished with a lever and both of the latter acting upon rod 2) does not interfere with this use of rod 2, provided due allowance is made for a double action of pawl 9 in effecting each periodical advance of the ratchet-wheel 4 and in adjusting the position of stop 8. Thus if the line is to be divided into four sections allowance will be made for six successive reciprocations of pawl 5 (two for each justification of the second, third, and fourth sections of the line) for effecting the rotation of ratchet-wheel 4 to bring its shoulder 5 into engagement with trip-lever 3 or in such close proximity thereto that during the next two succeeding reciprocations of the actuating-pawl 9, corresponding with the justification for the first section of the next succeeding line, the trip-lever 3 will be moved to start the galley mechanism in action, and thus effect a transfer of the sectionally-justified line. No change is required in the mode or means of preparing the record-strip or controller (see Patents Nos. 628,620 and 654,115) other than the setting of the line-gage to correspond with the lengths of each line-section preliminary to the composing of the latter on the keyboard and the forming of justification-signals appropriate to each section instead of to the line as a whole.

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

1. In an automatic type-composing machine the combination with means for forming a line of type in successive justified sections and a galley in which successive sectionally-justified lines are assembled in column, of means for automatically transferring each complete sectionally-justified line to said galley; substantially as described.

2. In a type-composing machine provided with mechanism for automatically composing and justifying successive sections of type and assembling said sections as a complete line,



and in combination therewith a line-transferrer provided with means for automatically actuating the same upon the completion of each line, whereby successive sectionally-justified lines are assembled in column form, as and for the purpose specified.

3. In a type-forming machine provided with means for automatically forming successive type in the order of composition and assembling them in sectionally-justified lines and in combination therewith a column holder or galley and a line-transferrer provided with means for automatically delaying its action until the plurality of sections composing each line have been separately formed, justified and assembled in line; substantially as described.

4. In a type-composing machine such as described the combination with the type-composing line-section justifying and line-assembling mechanism and a column-forming galley, of a line-transferrer provided with a timing mechanism for defining the periods of line-transfer.

5. The combination with a type-composing machine provided with type-assembling and line-section-justifying means, and a galley mechanism including a line-transferrer and a trip or starting device therefor, of an adjustable or variable automatic timing mechanism for actuating the trip or inaugurating the movements of the starting device; substantially as described.

6. In a type-composing machine such as described, the combination with the justifying devices and the galley-trip controlling the line-transferrer, of an automatic timing mechanism intermediate the justifying devices and the galley-trip for controlling the periods of line-transfer; substantially as described.

7. In a type-composing machine such as described, wherein the line-assembling and sectional-line justification are automatically governed by a controller and in combination therewith, a galley mechanism provided with a line-transferrer, a starting device controlling the action of said line-transferrer and a timing mechanism for said starting device governed by said controller; substantially as described.

8. In a type-composing machine such as described provided with a controller, type-assembling and line-section-justifying mechanisms, a galley mechanism including a line-transferrer and a trip therefor, and in combination therewith an automatic timing mechanism mediate acted upon by the controller to actuate said trip; substantially as described.

9. In a type-composing machine such as described, the combination with a galley trip-lever, of a ratchet-wheel mounted on said lever

and provided with a shoulder for engagement therewith, a retracting-spring and stop for said ratchet-wheel, and a reciprocating pawl engaging said ratchet-wheel; substantially as described.

10. In a type-composing machine such as described provided with a controller, a justifying mechanism and a galley mechanism furnished with a trip-lever and in combination therewith a ratchet-wheel mounted on said trip-lever and provided with a shoulder for engagement therewith, and an actuating-pawl controlling the advance movements of said ratchet-wheel, said pawl reciprocating in unison with a portion of the justifying mechanism to effect an advance of the ratchet-wheel each time the justifying devices are set for a new section; substantially as described.

11. In a type-composing machine such as described, and in combination with the galley trip-lever thereof, a ratchet-wheel carried by said lever and provided with a shoulder for engaging the same, a retracting-spring, back-stop and holding-pawl for said ratchet-wheel, and a reciprocating pawl engaging said ratchet-wheel; substantially as described.

12. In a type-composing machine such as described, and in combination with the trip-lever for setting in action the line-transferrer, a ratchet-wheel mounted on said lever and provided with a shoulder for engaging the same, a retracting-spring back-stop and holding-pawl for said ratchet-wheel, an actuating-pawl and a trip connected to the line-transferrer and engaging the holding-pawl to withdraw the latter; substantially as described.

13. In a type-composing machine such as described and in combination with its justification-wedge-shifting lever and the trip-lever controlling the line-transferrer, of a timing mechanism for said line-transferrer the same including a pawl receiving motion from the justification-wedge lever, a ratchet-wheel mounted on the said trip-lever and adapted to engage the latter and move it after a predetermined number of reciprocations of the pawl have taken place; substantially as described.

14. In a type-composing machine such as described, and in combination with the justifying mechanism and line-transfer trip-lever, a timing mechanism for said line-transferrer, the same comprising an intermittingly-acting driving member deriving motion from the justifying mechanism, and a driven member engaging the trip-lever, to actuate the latter, after a predetermined number of advance movements; substantially as described.

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