

No. 815,850.

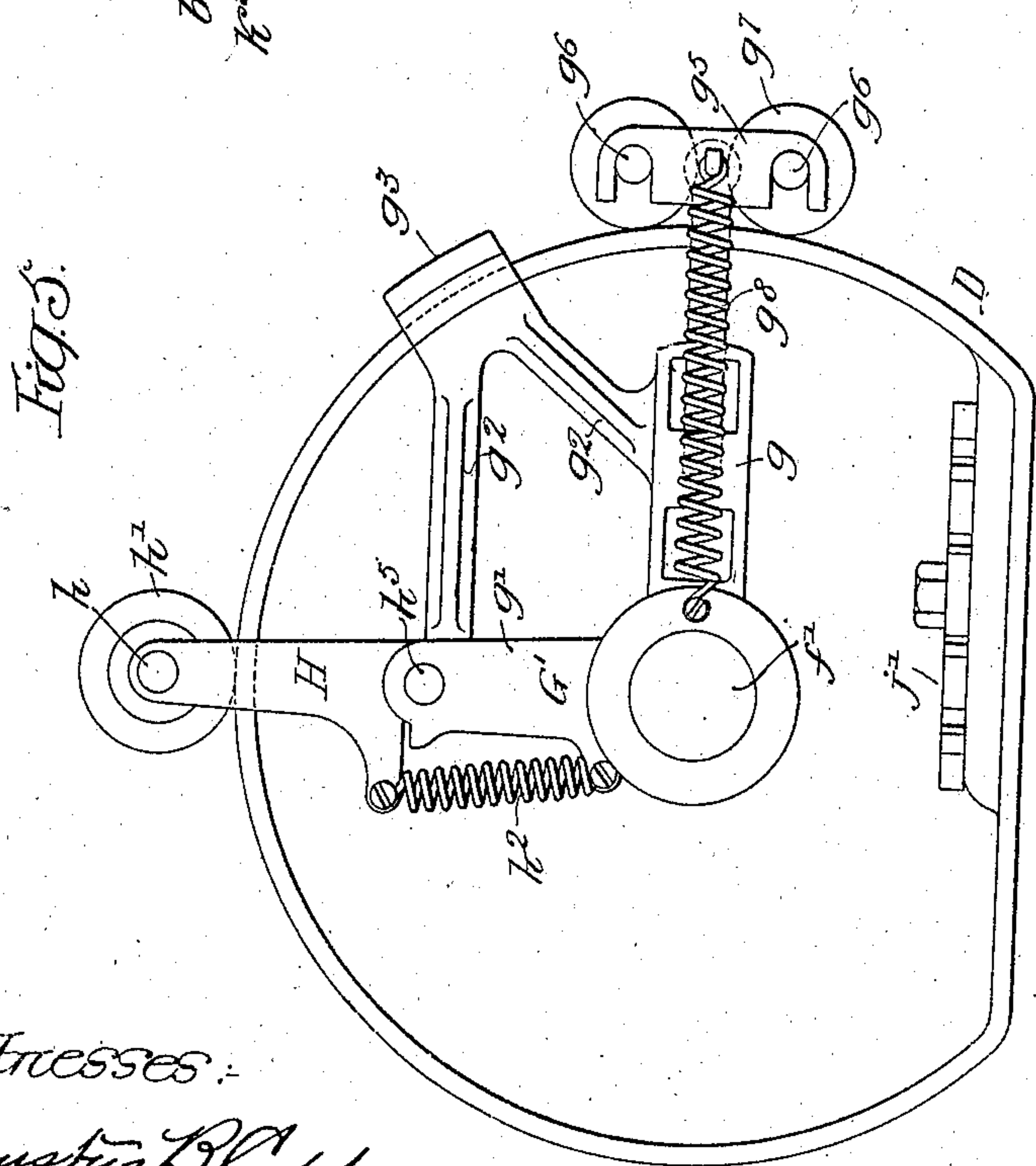
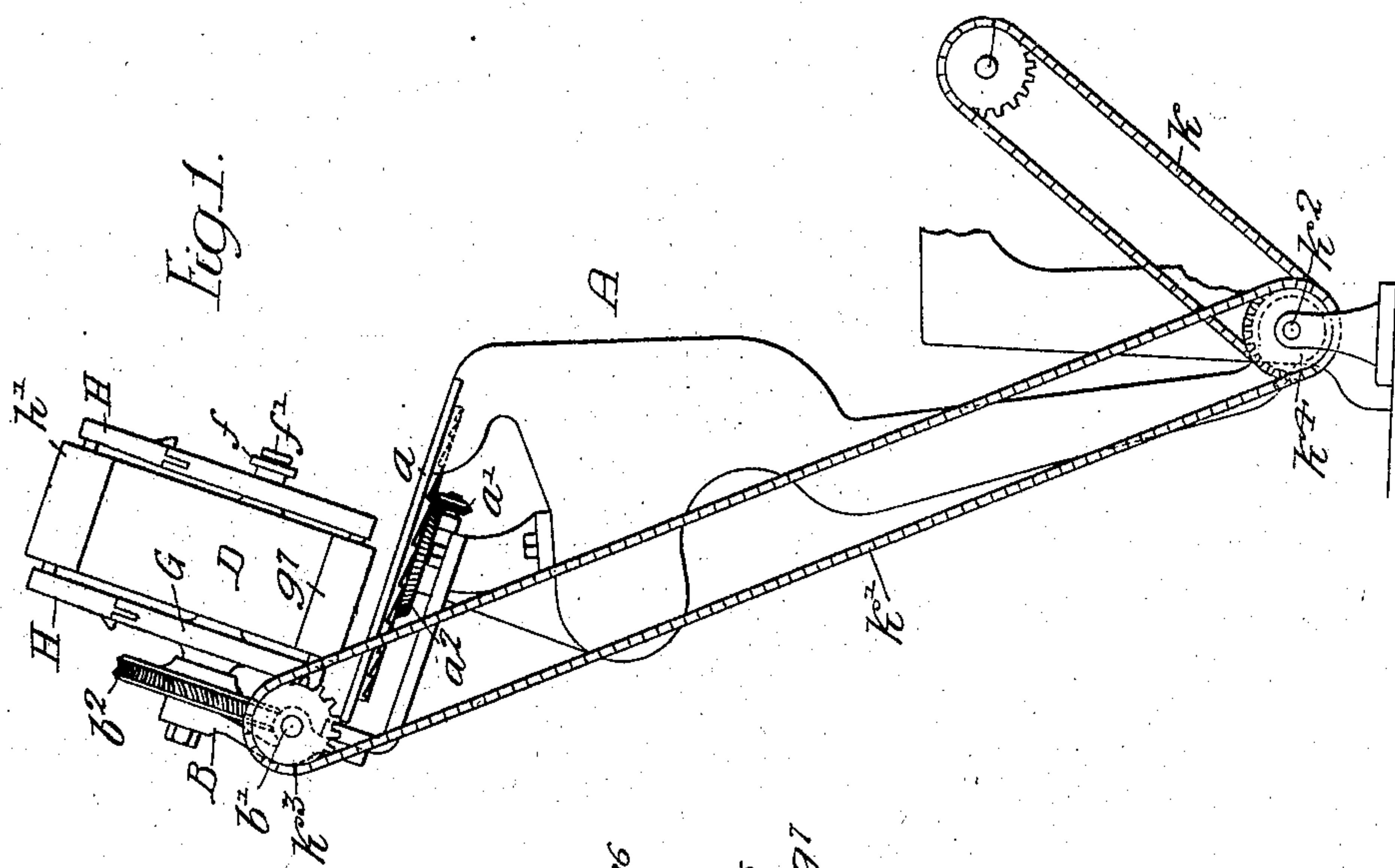
PATENTED MAR. 20, 1906.

R. MARX.

INK DISTRIBUTING DEVICE FOR PRINTING PRESSES.
APPLICATION FILED JUNE 19 1907

APPLICATION FILED JUNE 10, 1905.

3 SHEETS—SHEET 1.



Witnesses:-

Augustus B. Coppes
Hamilton D. Turner

Inventor
Richard Marx.
by his Attorneys.
Hosson & Hosson

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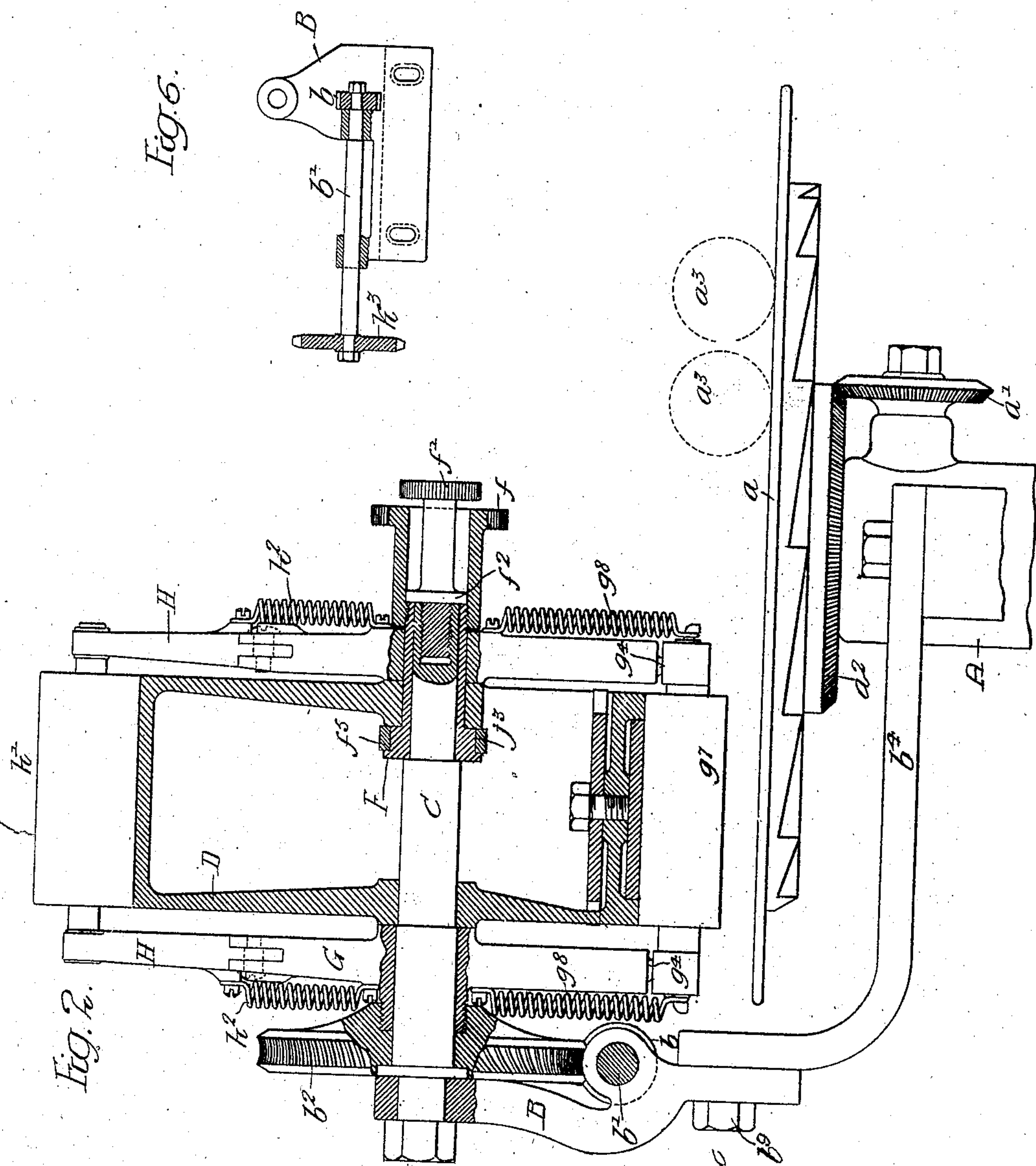
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3 SHEETS—SHEET 2,



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Kowzon & Kowzon

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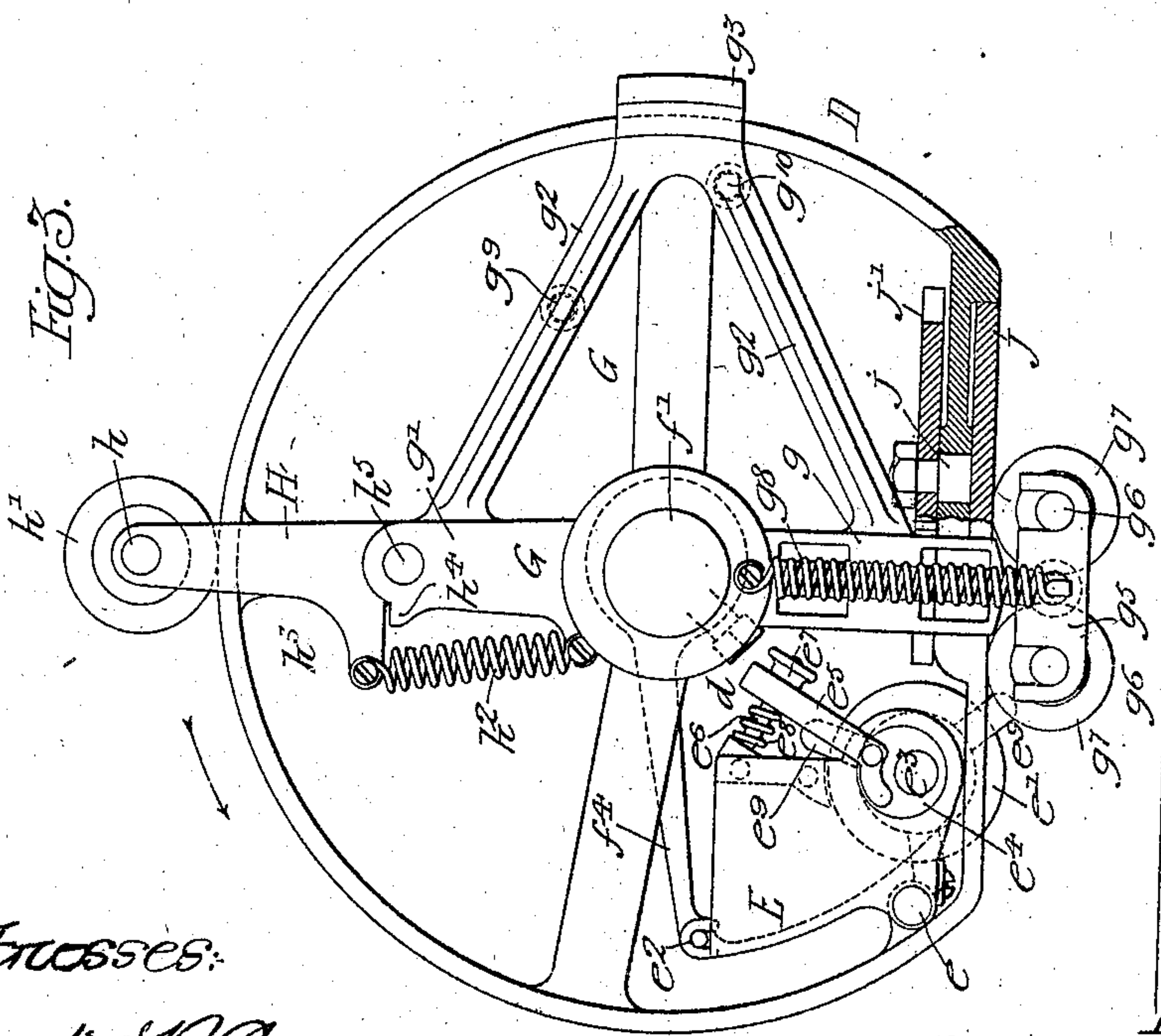
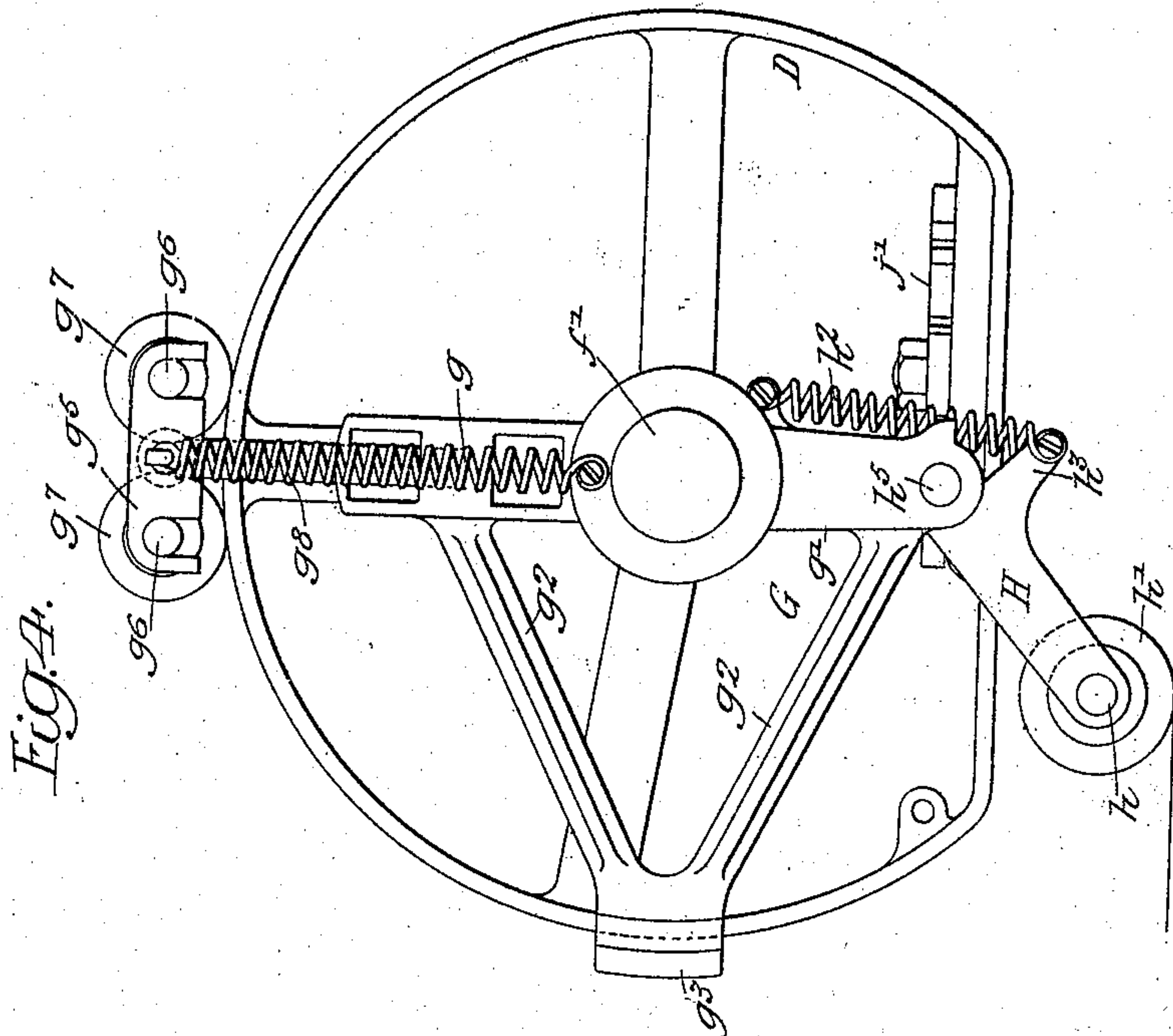
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INK DISTRIBUTING DEVICE FOR PRINTING PRESSES.

APPLICATION FILED JUNE 10, 1905.

3 SHEETS—SHEET 3.



Witnesses:
Augustus Bloppes
Hamilton S. Sumner

Inventor:
Richard Marx
by his Attorneys,
Howson & Howson

UNITED STATES PATENT OFFICE.

RICHARD MARX, OF PHILADELPHIA, PENNSYLVANIA.

INK-DISTRIBUTING DEVICE FOR PRINTING-PRESSES.

No. 815,850.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed June 10, 1905. Serial No. 264,677.

To all whom it may concern:

Be it known that I, RICHARD MARX, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Ink-Distributing Devices for Printing-Presses, of which the following is a specification.

One object of my invention is to provide means applicable to plate printing-presses
10 and designed to provide a uniform supply of ink to the inking-plate of the press, it being further desired that the mechanism shall properly distribute the ink upon said plate.

Another object of the invention is to provide a device for performing the above-noted
15 work which shall not only be of relatively simple and inexpensive construction, but which shall also be of such a nature as to be conveniently applicable to the ordinary
20 forms of printing-presses without requiring their modification or costly alteration. These objects I attain as hereinafter set forth, reference being had to the accompanying drawings, in which—

25 Figure 1 is a side elevation of a portion of a printing-press, showing my invention as applied thereto. Fig. 2 is a vertical section of my improved ink-distributing device, showing certain features of its detail construction. Fig. 3 is an end elevation, partly in
30 section, of the structure shown in Figs. 1 and 2. Fig. 4 is an elevation similar to that of Fig. 3, but illustrating one of the inking-rollers in engagement with the plate of the printing-press. Fig. 5 is a modified form of my
35 inking device; and Fig. 6 is a side elevation, partly in section, of a portion of the supporting structure for my improved inking attachment.

40 In the operation of presses of the Gordon and similar types great difficulty has been experienced in securing a continuous and uniform distribution of ink upon the inking-plate of the press, and in overcoming this
45 trouble I provide a structure preferably carried by the press in such manner as not to interfere with the operation of its inking-rollers, which structure is provided with two rollers, one of which receives ink from a fountain and delivers it to the surface of a drum,
50 while the other roller or set of rollers takes the ink from the drum and delivers it to the plate of the press. Means are also provided, if desired, whereby a uniform delivery of ink
55 is secured from the fountain to the surface of the drum.

In the above drawings, A represents a portion of the frame of a Gordon or similar press having an ink-plate *a*, which is ordinarily revolved by means of a pair of bevel-gears *a'* 60 and *a''*.

As shown in Fig. 2, I provide an L-shaped arm *b*¹, bolted to the main frame of the printing-press and carrying at its outer end a bracket B, (shown in detail in Fig. 6,) which
65 serves as a support for a spindle or shaft C, extending over the plate *a*. Immovably held on this spindle by means of a set-screw *d* is a drum D, the greater portion of whose surface is cylindrical, although that portion 70 adjacent to the plate *a* is plane and substantially parallel with said plate. The drum D is hollow and has within it an ink-fountain E, pivotally carried upon a pin *e* in such manner that it may be moved to cause its roller *e'* to 75 project for a greater or less distance beyond the surface of the plane portion of the drum. The position of this fountain may be regulated by a sleeve F, carried upon the spindle C and provided with a milled end portion *f*, 80 screwed or otherwise fixed to it. This sleeve may be locked in any given position by means of a milled-headed bolt *f'*, which screws into the shaft C and which is provided with a collar *f''*, placed to engage the end of the sleeve 85 F. Said sleeve has an eccentric portion *f'''*, upon which is a strap *f''''*, connected to one end of an eccentric-rod *f'''''*, whose outer end engages a suitable pin *e''* on the fountain. The amount of ink delivered by the fountain 90 is governed by the position of the roller *e'*, which is provided with a spindle *e'''*, eccentrically supported in bearings formed in the ends of the fountain E. One of these eccentric portions *e''''* has connected to it an arm *e'''''*, 95 through which passes a screw *e''''''*, carried by the fountain E and provided with a milled nut *e'''''''*, the arm being continually forced away from the fountain by means of a spring *e''''''''* on the screw. 100

Journalled in the bracket B is a shaft *b'*, having a worm *b''*, which meshes with a worm-wheel *b'''* upon the shaft C. This worm is fixed in any desired manner to a frame G, which consists of a pair of rollers carrying 105 arms *g* and *g'*, rigidly connected by a cross-piece *g''* and two sets of inclined braces *g'''*, the roller-carrying arms being journalled on the sleeve F on opposite sides of the drum D. The pair of arms *g* on opposite sides of the drum 110 are hollow, and each carries a plunger *g''*, which plungers in turn carry at their ends

plates g^5 , provided with bearings for spindles g^6 , on which are rollers g^7 . Springs g^8 extend between suitable pins upon the plates g^5 and screw upon the inner portions of the frames G and G' in such manner as to maintain the rollers g^7 continually in engagement with some portion of the surface of the drum D . The arms g' each has hinged to its outer end an arm H , and the outer ends of these arms are connected by means of a spindle h , on which is a roller h' , maintained in contact with the cylindrical portion of the surface of the drum D by means of springs h^2 , acting upon lugs h^3 , formed as part of or attached to the arms H . I preferably provide a stop h^4 upon either or both of the arms g' , so placed as to engage the lugs h^3 , so as to prevent the springs h^2 from turning the arms H too far upon their pivots h^5 .

Upon the inclined connecting-braces g^2 of the frame G , I place a pin g^9 , designed to co-operate with a star-wheel e^9 on the spindle e^3 of the inking-fountain roller, whereby said spindle will be turned through a fraction of a revolution upon each revolution of said frame.

In order to more perfectly distribute the ink, as hereinafter described, I also provide a revoluble disk J , whose outer surface is flush with the plane surface of the drum D and which has fixed to its spindle j a wheel j' . This latter is designed to be moved through a fraction of a revolution by each revolution of the frame G by means of a pin g^{10} , placed to engage the teeth of said wheel.

As shown in Fig. 1, the shaft b' is in the present instance provided with a sprocket-wheel which is driven from the main shaft K of the printing-press by means of sprocket-chains $k k'$ and a shaft k^2 , having two sprocket-wheels k^3 and k^4 . This latter shaft is in the line of the axis of oscillation of that part of the press-frame A which is designed to be swung backward and forward in the well-known manner to print when the machine is in operation, and as a consequence of such construction said shaft b' always remains at the same distance from the shaft k^2 , thereby making possible the use of the chain-drive shown.

Under operating conditions the spindle b' , which is driven from the main shaft K , as above described, drives the frame G and its rollers g^7 and h' , so that these latter revolve continuously around the drum in the direction of the arrow in Fig. 3. With the fountain E properly supplied with ink it will be seen that on each revolution of the frame G the rollers g^7 will by engaging the inking-fountain roller e' carry ink therefrom to the cylindrical surface of the drum D , this ink being more or less distributed upon said latter rollers by means of the disk J , which is intermittently rotated by the projection g^{10} striking the wheel j' . The roller h' can never engage the plane portion of the drum D , since

the stop h^4 prevents its moving inwardly under the action of the spring h^2 when it is adjacent to this part. It does, however, collect ink from the cylindrical surface of the drum D and deposits this upon the surface of the plate a , it being noted that the arms H turn upon their pivots h^5 against the action of the spring h^2 in order to permit this action, as shown in Fig. 4. The springs g^8 cause the rollers g^7 to always remain in contact with the drum D , thereby preventing them from ever coming in contact with the plate a , so that ink from the fountain is first delivered to the cylindrical surface of the drum by these rollers g^7 and then collected by the roller h' and delivered to the plate a . It will be noted, further, that the bracket b is so placed that the device above described is supported in such manner that the roller h' moves across the plate a in a line at right angles to the line of motion of the main inking-rollers of the printing-press, (indicated at a^3), and as a result the ink is delivered to these main rollers at what is practically a perfectly uniform rate, being evenly distributed upon the plate a , and hence upon said rollers.

As above noted, the supply of ink may be adjusted to the utmost nicety by means of the sleeve F and the nut e^7 . If for any reason it should be found advisable, the roller-supporting frame may be constructed as shown in Fig. 5 at G' , with the arms g and g' ninety degrees apart instead of opposite to one another. In such case the braces g^2 could be modified, as shown, and the connecting member g^3 made to extend across the drum D between the rollers g^7 and h' .

As shown in Figs. 2 and 6, the bracket B is held to the arm b^4 by bolts, of which one is illustrated at b^9 , and said bracket has slotted openings b^8 for the reception of said bolts, whereby it is possible to adjust the distance of the drum and its parts from the plate a .

I claim as my invention—

1. The combination with the inking-plate and main inking-rollers of a printing-press, of an auxiliary roller and mechanism for periodically moving said auxiliary roller into contact with and across the plate in a line transverse to the line of motion of the main rollers, substantially as described.

2. The combination with the inking-plate of a printing-press, of an ink-fountain, a structure having an ink-receiving surface and two rollers, with means for operating one of the rollers to cause it to transfer ink from the fountain to said surface, and means for causing the other roller to transfer ink from the surface to the inking-plate, substantially as described.

3. The combination with the inking-plate of a printing-press, of a drum, an ink-fountain, and two rollers movable upon said drum, with means for operating one roller to cause it to transfer ink from the fountain to

the surface of the drum, and means for operating the second roller to cause it to transfer ink from the drum to the inking-plate without directly receiving ink from the fountain, substantially as described.

4. The combination with the plate and inking-rollers of a printing-press, of a drum supported adjacent to said plate, an ink-fountain, two rollers, means for moving the rollers upon the drum, means for causing one roller to transfer ink from the fountain to the drum, and means for causing the second roller to transfer ink from the drum to the plate, said latter roller being movable upon the plate in a line substantially at right angles to the line of motion of the inking-rollers of the press, substantially as described.

5. The combination with the plate of a printing-press, of a drum supported adjacent thereto and having a portion of its surface plane, a frame having two rollers, means for revolving the frame with the rollers in engagement with the drum, an ink-fountain within the drum, means for maintaining one of the rollers in contact either with the cylindrical or with the plane portion of the drum-surface during the revolution of the frame, and means for preventing the other roller from engaging said plane portion of the drum-surface, substantially as described.

6. An inking attachment for printing-presses consisting of a drum having a portion of its surface plane, two rollers revoluble upon the drum, an inking-fountain within the drum having a feed-roller projecting through the plane portion of the surface thereof, with means for preventing one of the rollers from engaging said roller while leaving it free to engage the cylindrical surface of the drum, and means for causing said second roller to engage the fountain-roller at each revolution, substantially as described.

7. The combination with the inking-plate of a printing-press, of a drum supported above the same, a plane portion adjacent to said plate, an inking-fountain having its feed-roller projecting through said plane surface, and two rollers having means whereby they are revolved in contact with the surface of the drum, with means for causing one of the rollers to engage only the cylindrical surface of the drum and the surface of the plate, and means for causing the second roller to engage the fountain-roller and the cylindrical surface of the drum without engaging the plate, substantially as described.

8. The combination with the plate of a printing-press, of a structure having a curved surface, an inking-fountain, two rollers supported to engage said curved surface, means for causing one of the rollers to receive ink from the fountain and deliver it to the curved inking-surface, and means for moving the other roller so that it engages said curved surface and the inking-plate of the press

without directly receiving ink from the fountain, substantially as described.

9. The combination with the inking-plate of a printing-press, of a segmental drum structure, an inking-fountain within the same having its roller adjacent to the plane surface of said structure, two rollers revoluble about the axis of the structure, means for turning said rollers about the drum, a carriage for one of the rollers having springs whereby said roller is prevented from leaving the surface of the drum, there being supporting means for the second roller whereby it is prevented from engaging the ink-roller of the fountain, substantially as described.

10. An inking attachment for a printing-press including a segmental drum structure, a revolving frame therefor, two rollers carried by said frame, one of said rollers having supporting-arms hinged to the frame and the other having a carriage and springs tending to move said carriage toward the surface of the drum structure, with an ink-fountain within the structure, and a roller therefor placed to be engaged by but one of the frame-carried rollers, substantially as described.

11. An inking attachment for a printing-press including a structure having a surface for the reception of ink, two rollers rotatable about said structure and in engagement with the surface thereof, means for moving said rollers so that they make a complete rotation about the structure, a frame for supporting said rollers, said frame including a hinged arm carrying one roller, a spring tending to turn said arm on its pivot, a stop for the arm, and a fountain for supplying ink to one of the rollers, substantially as described.

12. An inking attachment for a printing-press including a segmental drum structure independent of and detachable from the structure of the press, a roller mounted to engage the surface of said structure, an inking-fountain within the structure having its feed-roller placed to be engaged by said first roller, and means for adjusting the position of said fountain to vary the amount of ink supplied, substantially as described.

13. An inking attachment for a printing-press including a drum structure independent of and detachable from the structure of the press, an ink-fountain within said structure having its feed-roller projecting through the surface of the structure, a roller mounted to engage the surface of the structure for transferring ink from the fountain to said surface, said fountain being pivotally mounted and having means whereby it may be swung on its pivot to vary the amount of projection of its roller, substantially as described.

14. An inking attachment for a printing-press including a drum structure, an ink-fountain within said structure having its roller projecting through the surface of the structure, a roller mounted to engage the sur-

face of the structure for transferring ink from the fountain to said surface, said fountain being pivotally mounted and having an eccentric, a strap for the eccentric connected to said fountain, with means for turning the eccentric to swing the fountain on its pivot and vary the projection of its roller, substantially as described.

15. An inking attachment for a printing-press including a segmental drum structure, an inking-fountain having its roller projecting through the plane surface of said structure, a distributing-disk placed to form a part of the plane surface of the structure, means for turning said disk, and a roller for transferring ink from the fountain to the disk and to the curved surface of the drum structure, substantially as described.

16. An inking attachment for a printing-press including a segmental drum structure, an inking-fountain having its roller projecting through the plane surface of said structure, a distributing-disk placed to form a part of the plane surface of the structure, means for turning said disk, and a roller for transferring ink from the fountain-roller and the disk to the curved surface of the drum structure, and a second roller for transferring ink from said curved surface to the plate of a printing-press, substantially as described.

17. An inking attachment for a printing-press consisting of a supporting structure, a spindle carried thereby, a drum fixed to said spindle, a frame mounted to revolve upon the spindle, means for turning the frame, rollers carried by the frame in engagement with the surface of the drum structure, with an ink-fountain, and means for preventing one of the rollers from directly receiving ink from said fountain, substantially as described.

18. An inking attachment for a printing-press including a supporting structure, a drum carried thereby, a revoluble frame adjacent to the drum structure, rollers carried thereby in engagement with the surface of said drum, said drum having a plane portion provided with a revoluble disk, means whereby said disk is turned by the revoluble frame, an inking-fountain, and two rollers carried by the revoluble frame, one of the same having means whereby as the frame is revolved

it is maintained in engagement with either the plane or the curved portion of the surface of the drum structure, and the other having means whereby it is prevented from engaging said plane surface, substantially as described.

19. The combination with a printing-press having an ink-plate, of a source of ink, a fixed drum constituting an ink-receiving structure, and means for transferring the ink from said source to said drum and then to the plate, with means for adjustably supporting the drum adjacent to said plate, substantially as described.

20. The combination with a printing-press having an ink-plate and a bracket, of a fixed drum, an ink-fountain, and a plurality of rollers for transferring ink from the fountain to the drum and to the plate, all carried by said bracket, with means for adjusting the position of said apparatus upon the bracket to vary its distance above the plate, substantially as described.

21. The combination with a printing-press having an oscillatory member carrying an ink-plate, an ink-receiving structure, an ink-fountain, and rollers constructed to transfer ink from the fountain to said structure and from the structure to the plate all carried by said member, a driven shaft operatively connected to the rollers and having a sprocket-wheel, a driving-shaft supported in the line of the axis of oscillation of said member and also having a sprocket-wheel, with a sprocket-chain connecting said two sprocket-wheels, substantially as described.

22. An inking attachment for a printing-press including a structure detachable from and independent of the press structure, the same having a surface for the reception of ink, means for supplying ink from a source of the same to said surface, and other means capable of making complete rotations about said structure for delivering ink therefrom to the plate of a press, substantially as described.

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

RICHARD MARX.

Witnesses:

WM. E. SHUPE,
JOS. H. KLEIN.