O. C. EGERTON.

MACHINE FOR PRINTING CYLINDRIC SURFACES.

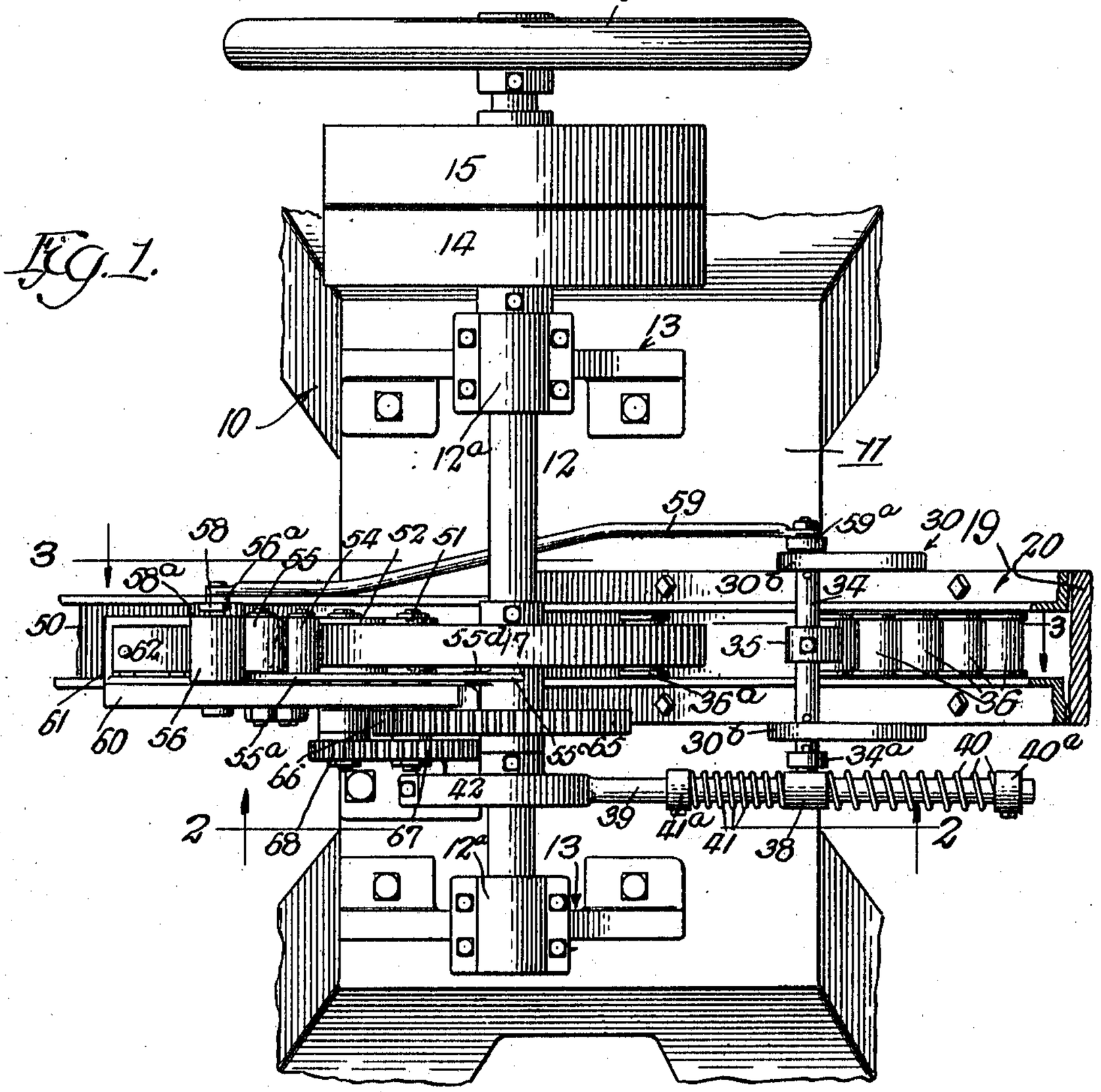
APPLICATION FILED NOV. 26, 1909.

988,556. **Patented Apr. 4, 1911.**

3 SHEETS—SHEET 1.

16

FIG. 1.



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3 SHEETS—SHEET 2.

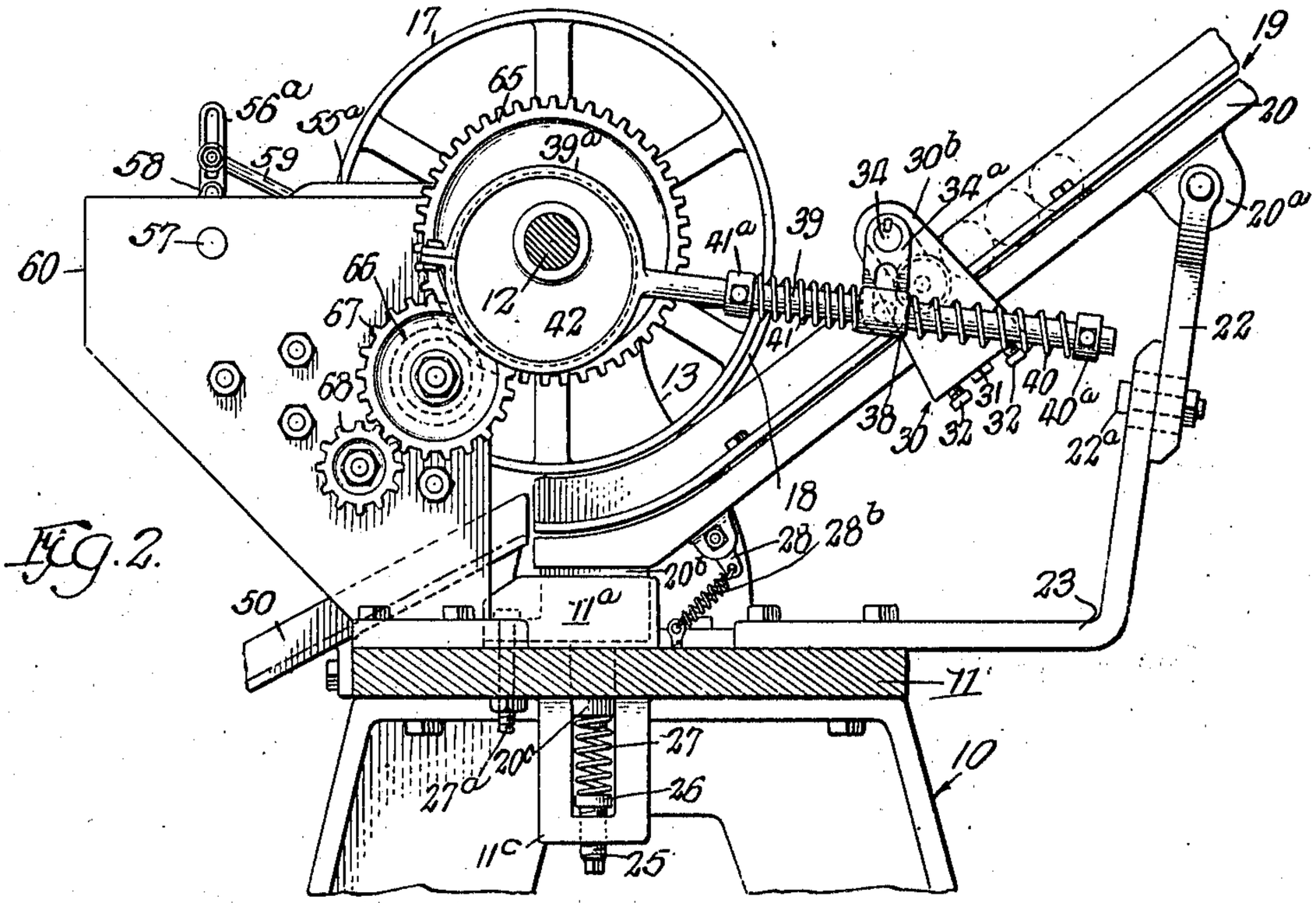

Fig. 2.

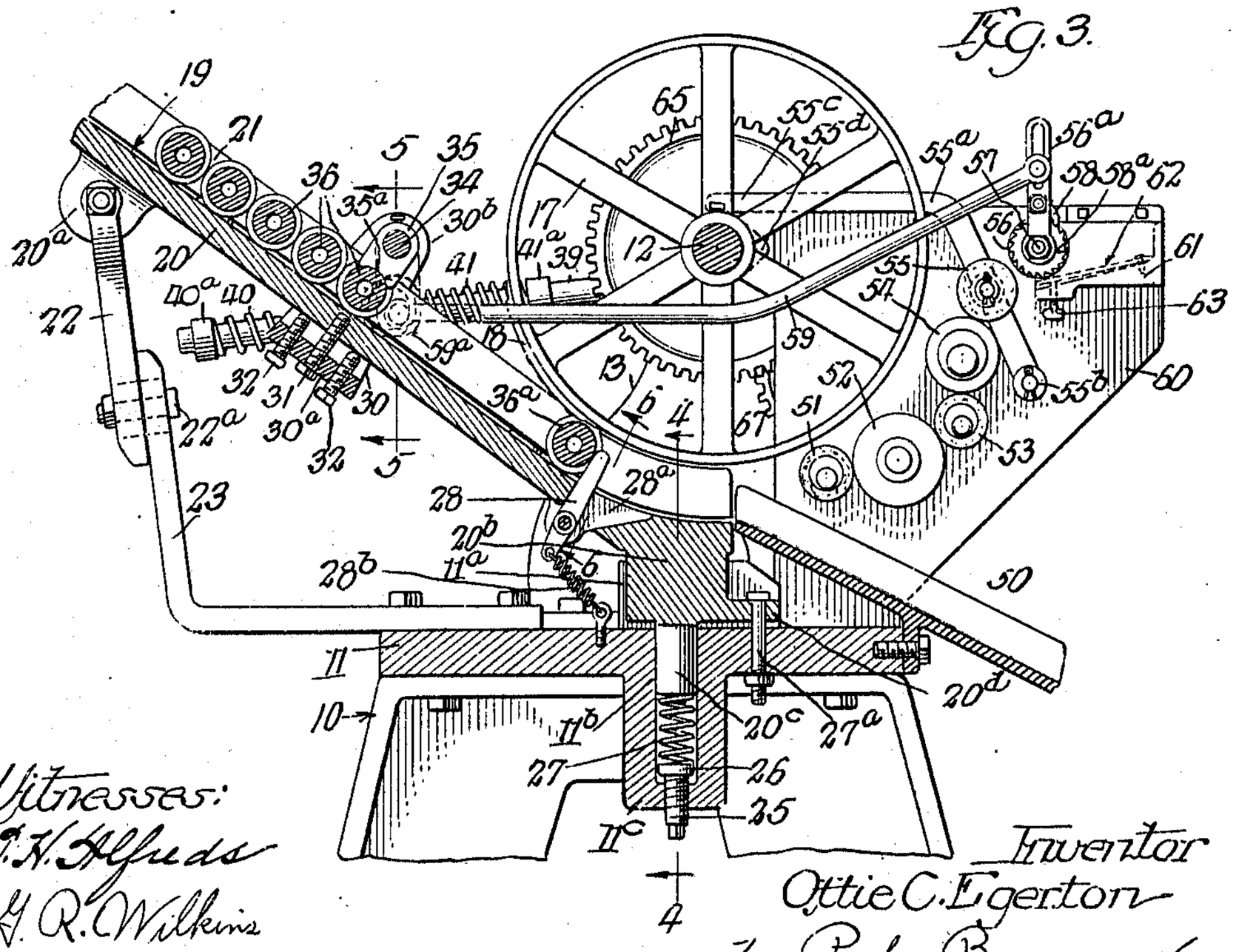

Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

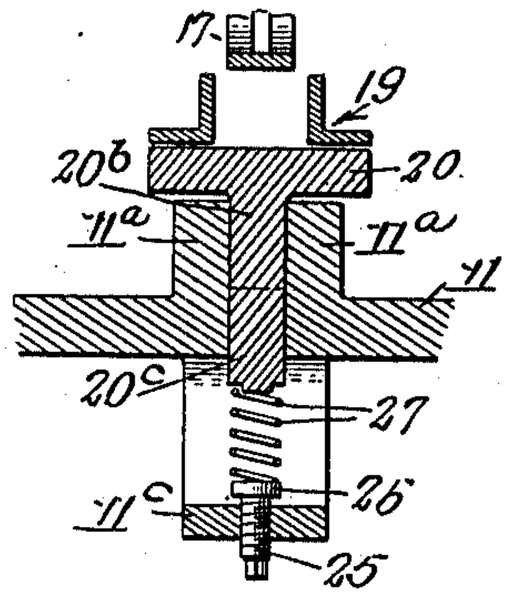


Fig. 5.

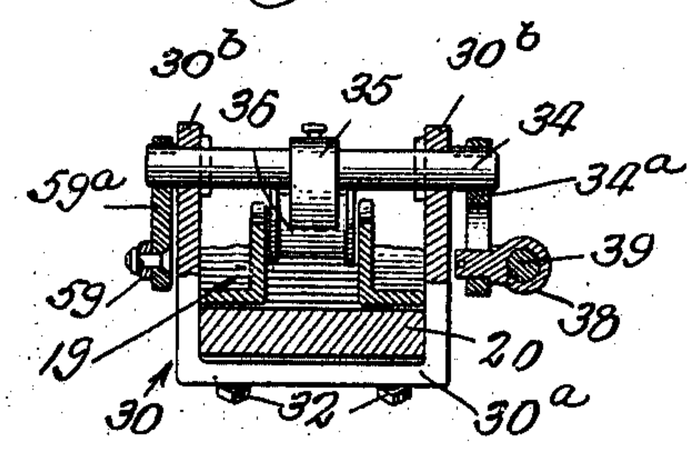


Fig. 6.

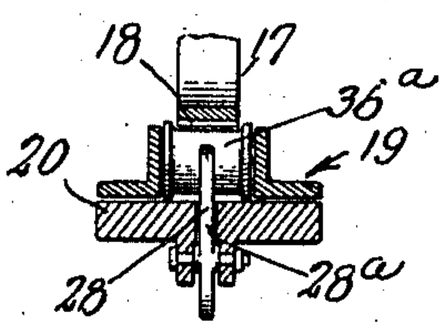


Fig. 7.

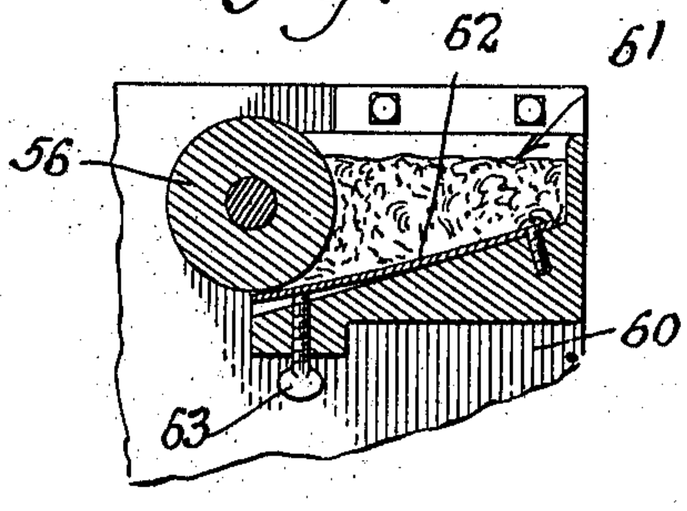
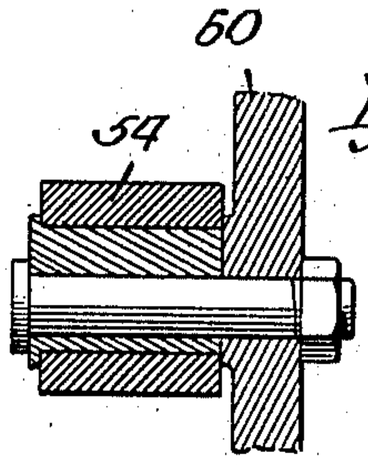


Fig. 8.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR PRINTING CYLINDRIC SURFACES.

988,556. Specification of Letters Patent. **Patented Apr. 4, 1911.**

Application filed November 26, 1909. Serial No. 529,882.

To all whom it may concern:

Be it known that I, OTTIE C. EGERTON, a citizen of the United States, and a resident of Belding, in the county of Ionia and State of Michigan, have invented certain new and useful Improvements in Machines for Printing Cylindric Surfaces; and I, OTTIE C. EGERTON, do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a machine for printing on cylindrical surfaces and particularly for printing upon the barrels of spools.

The invention consists of the combination of parts hereinafter described and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a top plan view of the machine. Fig. 2 is a vertical section through Fig. 1 on the line 2—2 thereof. Fig. 3 is a similar section through Fig. 1 on the line 3—3 thereof. Fig. 4 is a partial vertical section through Fig. 3 on the line 4—4 thereof. Fig. 5 is a vertical section through the feed trough on the line 5—5 of Fig. 3. Fig. 6 is a transverse section through the feed trough near the lower end thereof on the line 6—6 of Fig. 3. Fig. 7 is a vertical section through the ink well. Fig. 8 is a detail view on an enlarged scale showing the manner of mounting the inking rolls.

The working parts of the machine are supported on a table 10 to the top of which is secured a bed plate 11.

12 indicates the operating shaft which is arranged horizontally above the bed plate and is supported in suitable bearings 12^a, 12^a formed in brackets 13, 13 which are bolted to the bed plate 11. Mounted on the operating shaft at one end are fixed and loose pulleys 14, 15 and a hand wheel 16.

17 indicates a rotary impression member which is in the form of a drum and is keyed to the operating shaft 12. To the outer surface of said rotary impression member is secured a type member 18 containing the type or other printing matter from which the imprint or impression is to be made.

The spools are fed to the printing member, one by one, by means of the following mechanism: 19 indicates an inclined trough comprising a bottom plate 20 and angle bars 21, 21 which are secured to the bottom plate in any suitable manner to form the sides of the trough. The bottom plate 20 is provided at its upper end with a lug 20^a by means of which it is pivotally secured to a forked arm 22, which is connected by a bolt 22^a to an angular bracket arm 23 supported from the bed plate 11. The bolt 22^a engages in a slot formed in the arm 22 so that said arm may be adjusted up and down to raise and lower the upper end of the trough. The lower end of the trough 18 projects under the rotary impression member 17 and is curved in the arc of a circle whose center coincides with the axis of the said impression member. At the lower end of the bottom plate 20 is formed a plunger 20^b which is flat at the top, where it slides between vertical flanges 11^a, 11^a formed integrally with the bed plate 11 (see Fig. 4) and which has its lower end rounded as indicated at 20^c, to fit within a socket 11^b formed in the bed plate 11. The said socket is prolonged below the bed plate and its bottom 11^c is screw-threaded to receive a screw 25 provided at its upper end with a cap 26, between which and the bottom of the plunger 20^c engages a coil spring 27. The plunger 20^b is provided with a projecting lug 20^d which is adapted to engage the head of a bolt 27^a, which passes loosely through it and is screw-threaded into the bed plate. Said lug and bolt determine the uppermost position of the lower end of the trough and this position may be adjusted up or down by means of the bolt 27^a. 28 indicates a spring-controlled pivoted finger which is arranged in a slot 28^a formed in the bottom of the plate 20 near the lower end thereof in position to engage and hold a spool in position in readiness for the action thereupon of the printing member. The lower end of said finger is connected by means of a spring 28^b to the bed plate, while its upper end normally engages against the end of the slot 28^a. The tension of this spring causes the finger to retain and support the spool, while at the same time it will permit the spool to be rolled downward under the action of the impression member, said spool finally passing said finger and, after its release from contact with the printing member, rolling into an inclined delivery chute

50, which is supported on the bed in position to receive the spools as they are discharged from the trough.

The spools are fed into the trough in numbers and are retained above the finger 28, as indicated clearly in Fig. 3, and thence fed one by one to the finger, by the following mechanism: 30 indicates a U-shaped frame having a bottom plate 30[a] and upwardly projecting bracket arms 30[b], 30[b] which extend above the trough 19, as clearly indicated in Fig. 5. This frame is secured to the bottom plate 20 by means of bolts 31 and may be adjusted up or down by means of said bolts 31 and bolts 32 which engage the bottom of said plate. 34 indicates a rock shaft which is journaled in the bracket arms 30[b], 30[b], and which is adapted to be rocked by a rock arm 34[a] secured to one end thereof. The lowermost of the spools 36 is engaged by a downwardly projecting dog 35 having a lower concave end 35[a] which is adapted to engage the barrel of the spool. The arm 34[a] is pivotally connected by means of pin-and-slot connection to a sleeve 38 which is slidably mounted on a rod 39 and yieldingly retained in position thereon by means of coil springs 40, 41 which engage between the ends of said sleeve and fixed sleeves 40[a], 41[a] located on said rod. At the end of the rod 39 is formed a strap 39[a] which embraces an eccentric 42 mounted on the operating shaft 12. It is apparent that for each revolution of the operating shaft 12, the rock shaft 34 will be rocked so as to rotate the dog 35 toward the impression member, as indicated in dotted lines in Fig. 3. This movement will release the spool at the bottom of the stack and permit it to roll down to the position indicated at 36[a] in Fig. 3, where it will be arrested by the pivotal finger 28. The next spool above the one just released will strike against the upper corner of the dog 35 and will thus be arrested until said dog rotates back to its normal position and engages its barrel as in the case of the other spool. By adjusting the brackets 30 up or down, the dog 35 may be located so as to engage spools of various diameters, this being permitted by the slotted connection of the rock arm 34[a] with the rod 39. The springs 40, 41 permit a slight yielding of the connection in the direction of the length of the rod 39 which prevents any possibility of the parts becoming broken.

51, 52, 53, 54, 55 represent a train of inking rolls, the bottom one of which, 51, is arranged in position to contact with the printing member as it is rotated past it. The rolls 51, 53, 55 are preferably made of rubber, while the rolls 52 and 54 are made of steel. Said rolls are journaled on a vertical plate 60 which is secured in an upright position to the bed plate. The rolls 51, 53 and 54 are journaled in bushings which are eccentrically mounted on studs as clearly indicated in Fig. 8. By this arrangement said rollers may be adjusted with reference to each other to produce the desired contact between them. The stud of the roll 52 is provided with a spur gear 68, which is driven from the operating shaft through a train of gears 67, 66, 65, the latter keyed to said operating shaft, as clearly illustrated in Figs. 1 and 2. 56 indicates a steel roll which is journaled on a stud 57 secured to the plate 60. Said roll is provided with a ratchet wheel 58[a] which is intermittently operated by a gravity pawl 58 carried by a rock arm 56[a] pivotally mounted on said stud 57. The upper end of the rock arm is slotted and is pivotally connected to a link 59 which has its opposite end pivotally connected to a rock arm 59[a] secured to the rock shaft 34. It is apparent that as the link 59 is reciprocated by the action of the rock arm 59[a] it will cause the roll 56 to be shifted on its axis through an angle for each rotation of the impression member. The upper roll 55 is journaled on an arm 55[a] which has an end 55[c] adapted to be struck by a lug 55[d] formed on the hub of the impression member 17. This construction causes the roller 55 to contact with the roll 56 and then to return to its contact with the roll 54, once for each revolution of the impression member. The roll 56 is located at the open end of an ink well 61 (see Fig. 7) in the form of an open trough, and having a bottom plate 62 which may be adjusted toward or from the surface of the roll 56 by a set-screw 63 to determine the thickness of the ink gathered by said roll.

The operation of the machine is apparent from the above description. A number of spools are fed into the trough 19 and roll down the same, the lower one being caught under the dog 34 which retains the stack in position. The machine is then started. The lowest spool is released and drops or rolls through the trough until it is caught by the finger 28, as indicated at 36[a], in which position it is retained until, by the rotation of the impression member, the printing member 18 is brought into engagement with the spool barrel. The continued rotation of the impression member rolls the spool with the printing member in close contact with the barrel, and thus makes a printing impression thereon. After the printing member has passed the barrel of the spool, the spool is released and rolls on down through the discharge chute 50 to a suitable receptacle not shown in the drawings. In the meantime, for each revolution of the impression member, the roller 55 is caused to contact with the roll 56 to get a fresh supply of ink which it transmits to the roll 51 through the intermediate rolls 54, 53, 52. The printing member is inked as it rotates

in contact with the roll 51. When it is desired to print spools having barrels of larger diameter, the bolt 22[a] is loosened and the arm 22 lowered and at the same time the bolt 27[a] adjusted to lower the top of the lug 20[d] and remove the bottom of the trough 19 the required distance from the impression member. By the construction and arrangement of the lower end of the trough with the plunger 20[c] in engagement with the coil spring 27, a yielding support for the trough is provided to permit the trough to give slightly under the action of the impression member against the barrel of the spool, in case the spool barrels are not of uniform diameter.

It is apparent that the mechanical details of construction shown and described herein may be modified in various ways without departing from the spirit of my invention, and I do not desire to be limited by said details except as pointed out in the accompanying claims.

I claim as my invention:—

1. A machine for printing cylindric surfaces comprising a rotary impression-member, a printing member carried thereby, a delivery member having side and bottom walls, said bottom wall being curved at one end about the impression-member in the arc of a circle concentric with the axis of said impression member and being adapted to support the cylindric surface during the action of the impression-member thereon, a spring controlled finger located in said delivery member adapted to catch and retain a cylindric surface until engaged by said printing member, and automatic means located above said finger adapted to retain a stack of cylindric surfaces and to release them one by one, said delivery member and said automatic means being adjustable with reference to each other and said delivery member being adjustable with reference to said printing member to accommodate cylindric surfaces of different diameters.

2. A machine for printing cylindric surfaces comprising a rotary impression-member, a printing member carried thereby, a delivery member having side and bottom walls, said bottom wall being curved at one end about the impression-member in the arc of a circle concentric with the axis of said impression-member and being adapted to support the cylindric surface during the action of the impression-member thereon, a spring controlled finger located in said delivery member adapted to catch and retain a cylindric surface until engaged by said printing member, and an intermittently actuated dog located above said finger adapted to retain a stack of cylindric surfaces and to release them one by one, said delivery member and said dog being adjustable with reference to each other and said delivery member being adjustable with reference to said printing member to accommodate cylindric surfaces of different diameters.

In testimony, that I, OTTIE C. EGERTON, claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 29 day of October A. D. 1909.

OTTIE C. EGERTON.

Witnesses:
EMBREE B. LAPHAM,
FREDERICK W. HOWARD.