

No. 840,440.

PATENTED JAN. 1, 1907.

C. B. CUTLER.
MACHINE FOR CLEANING PRINTERS' ROLLERS.

APPLICATION FILED NOV. 6, 1905.

6 SHEETS—SHEET 1.

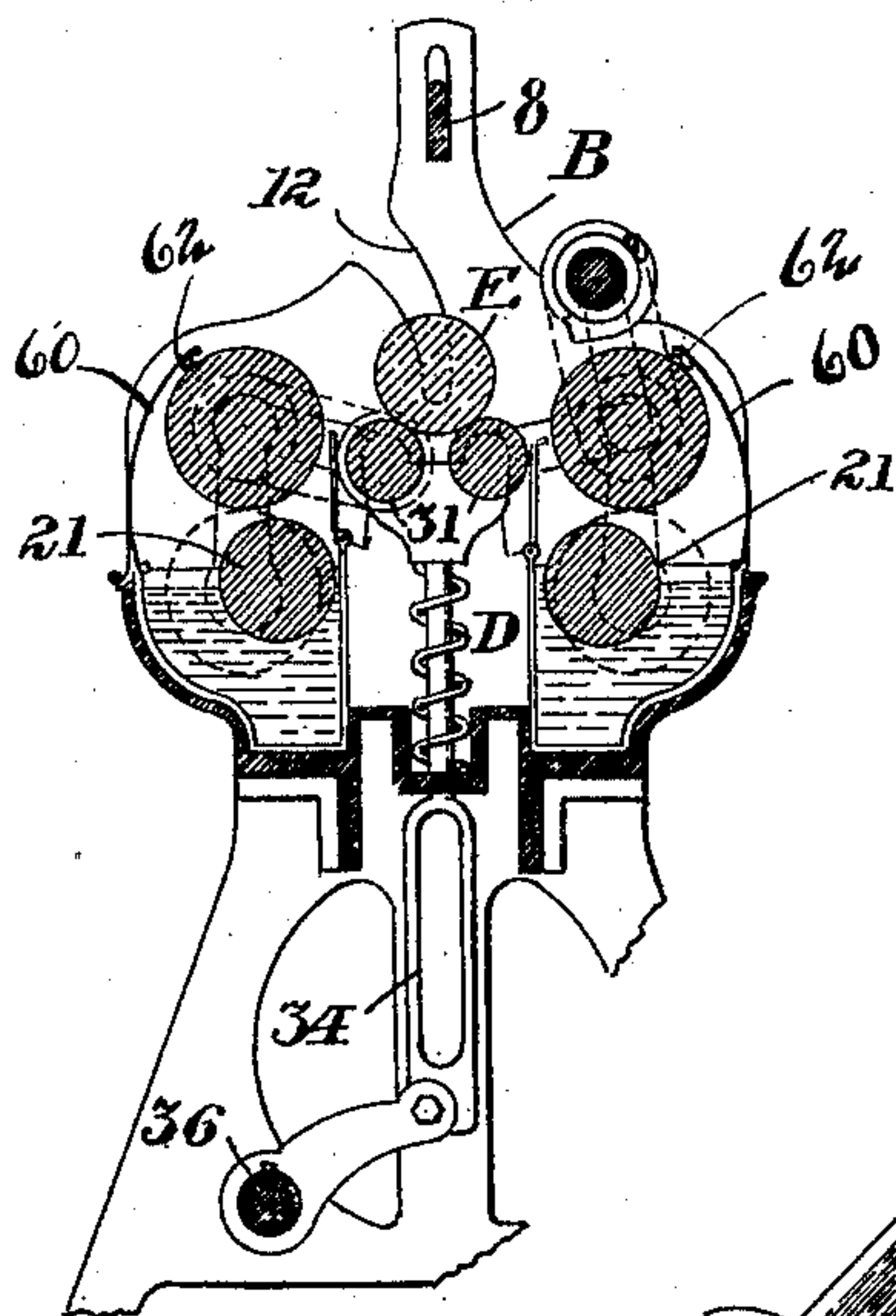


Fig. 2

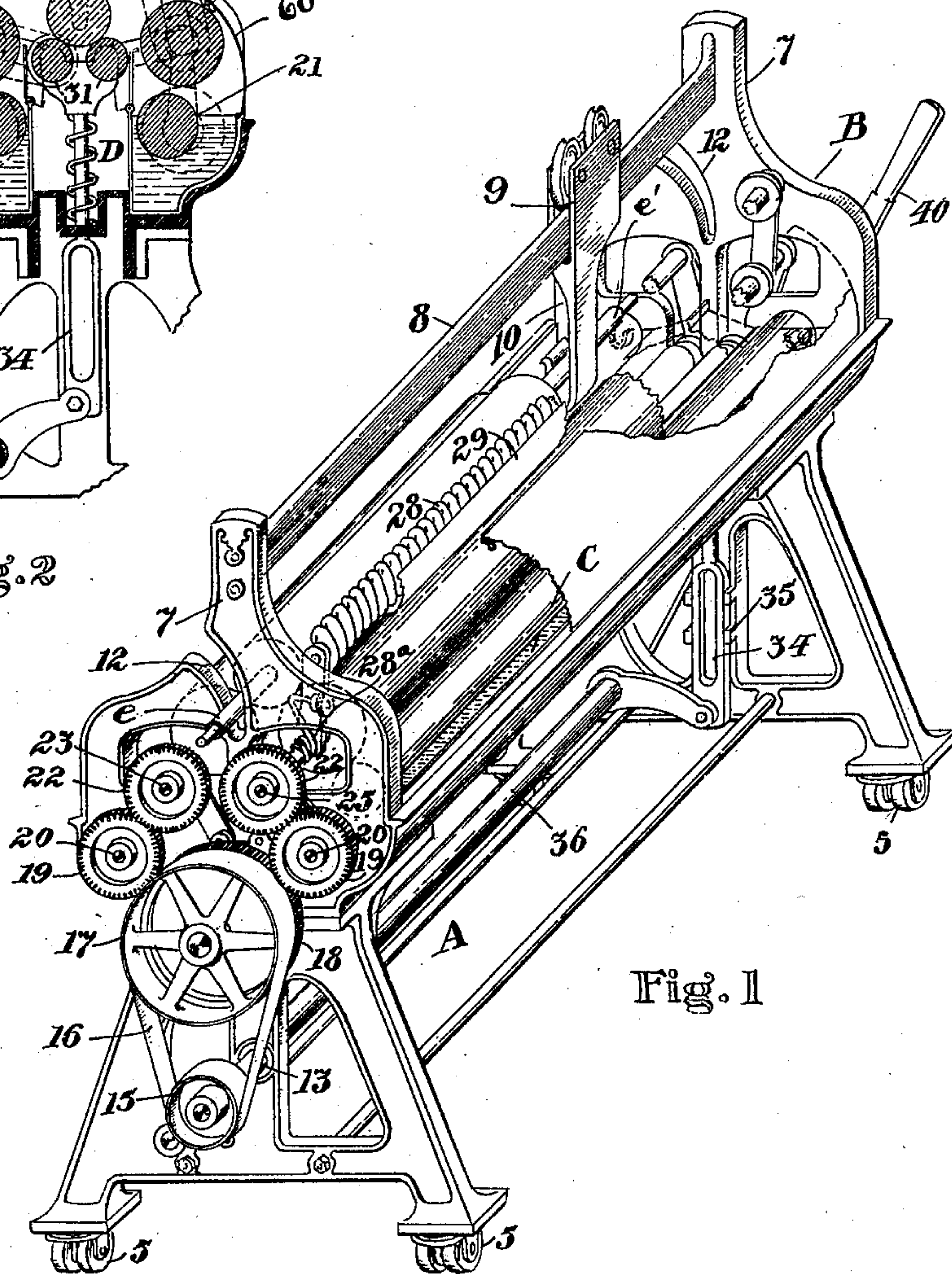


Fig. 1

WITNESSES

R. B. Gavanagh.
W. A. Pauling

Charles B. Cutler
INVENTOR
BY

Edmund K. Beece
ATTORNEYS

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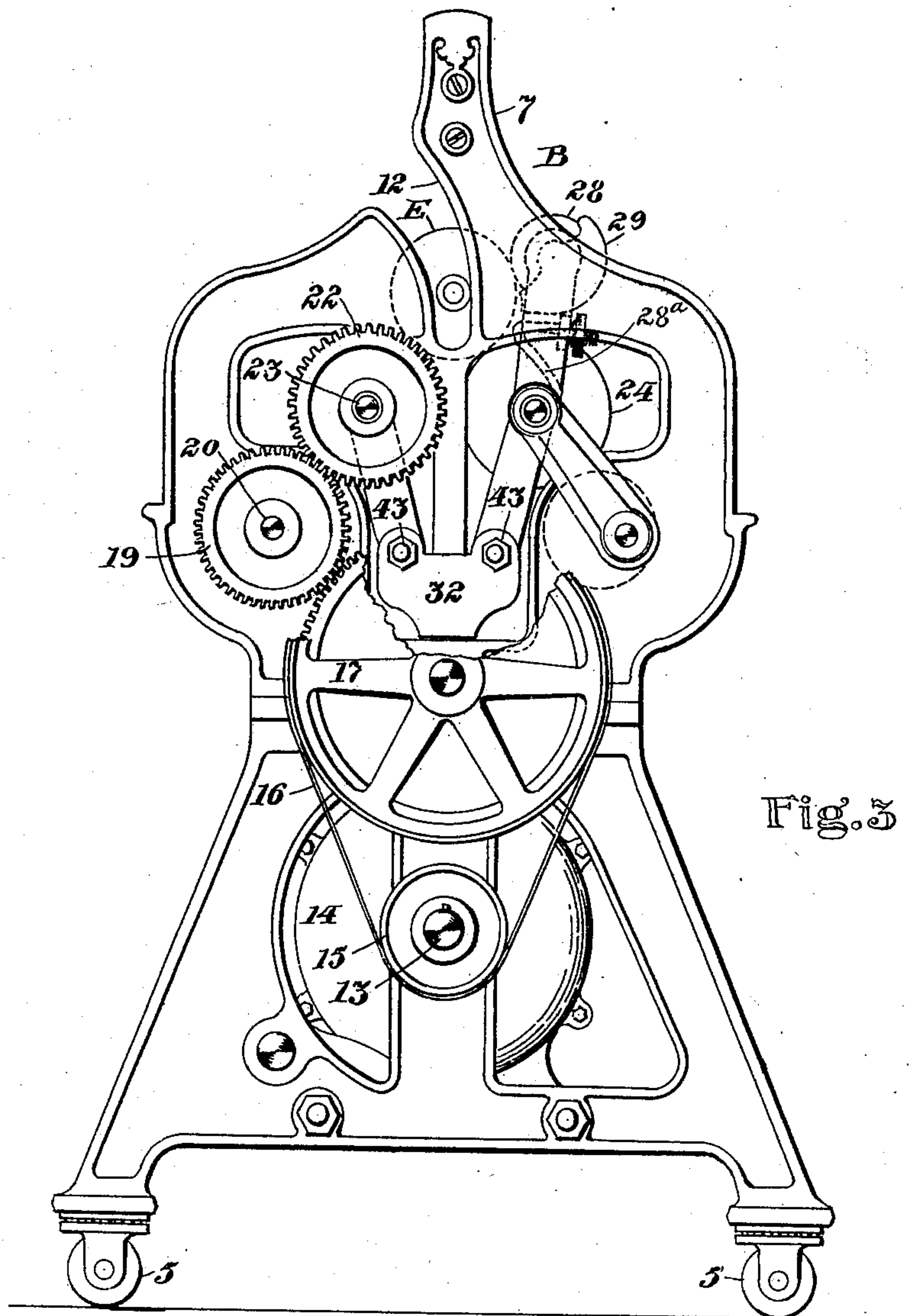


Fig. 3

WITNESSES

J. B. Cavanagh
W. A. Pauling

Clarence B. Cutler
INVENTOR.
BY

Lyford & Pease
ATTORNEYS

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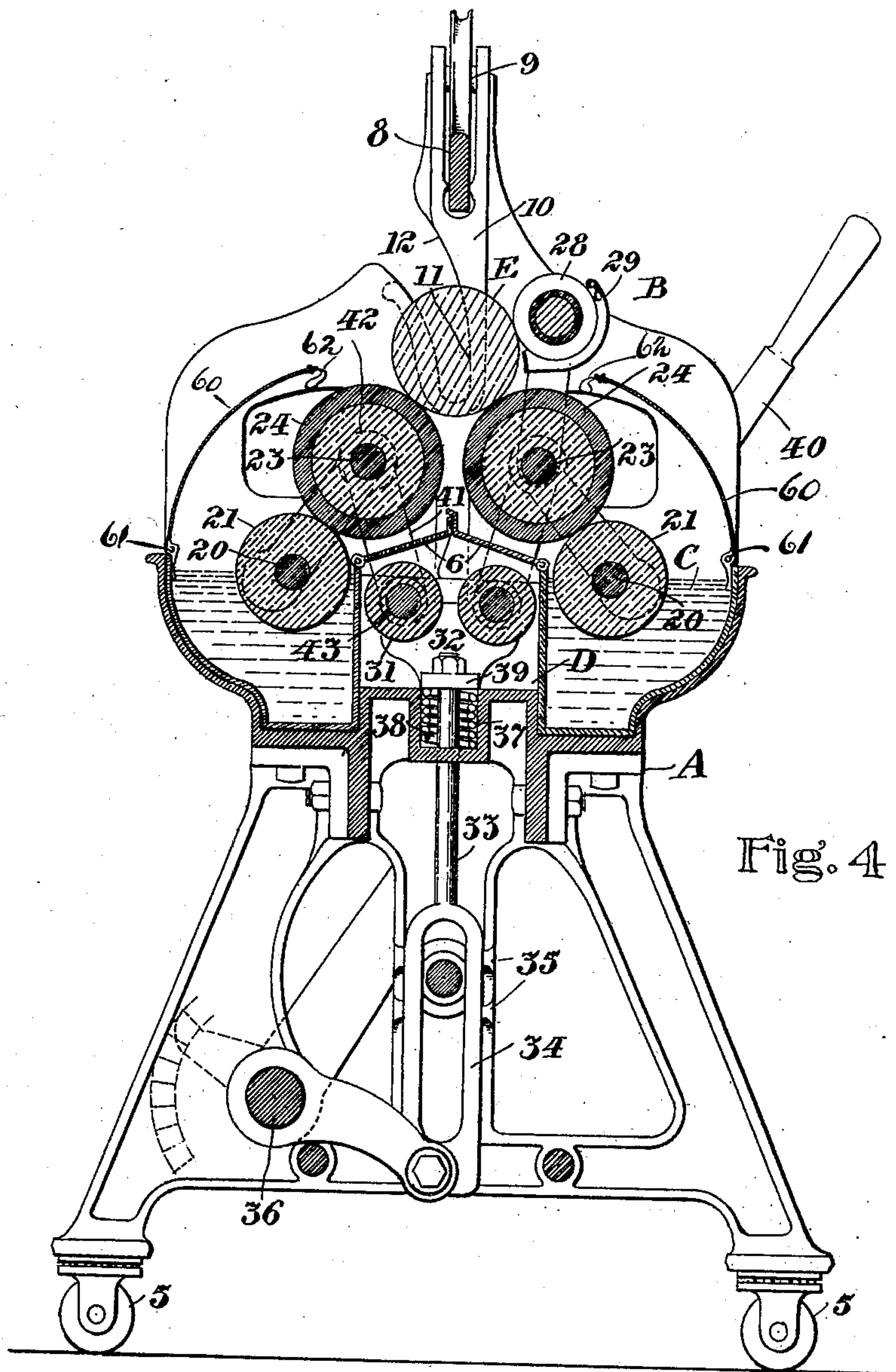


Fig. 4

WITNESSES

R. B. Gormanagh
W. A. Pauling

Charence B. Cutler
INVENTOR
BY

Coffin & Bue
ATTORNEYS

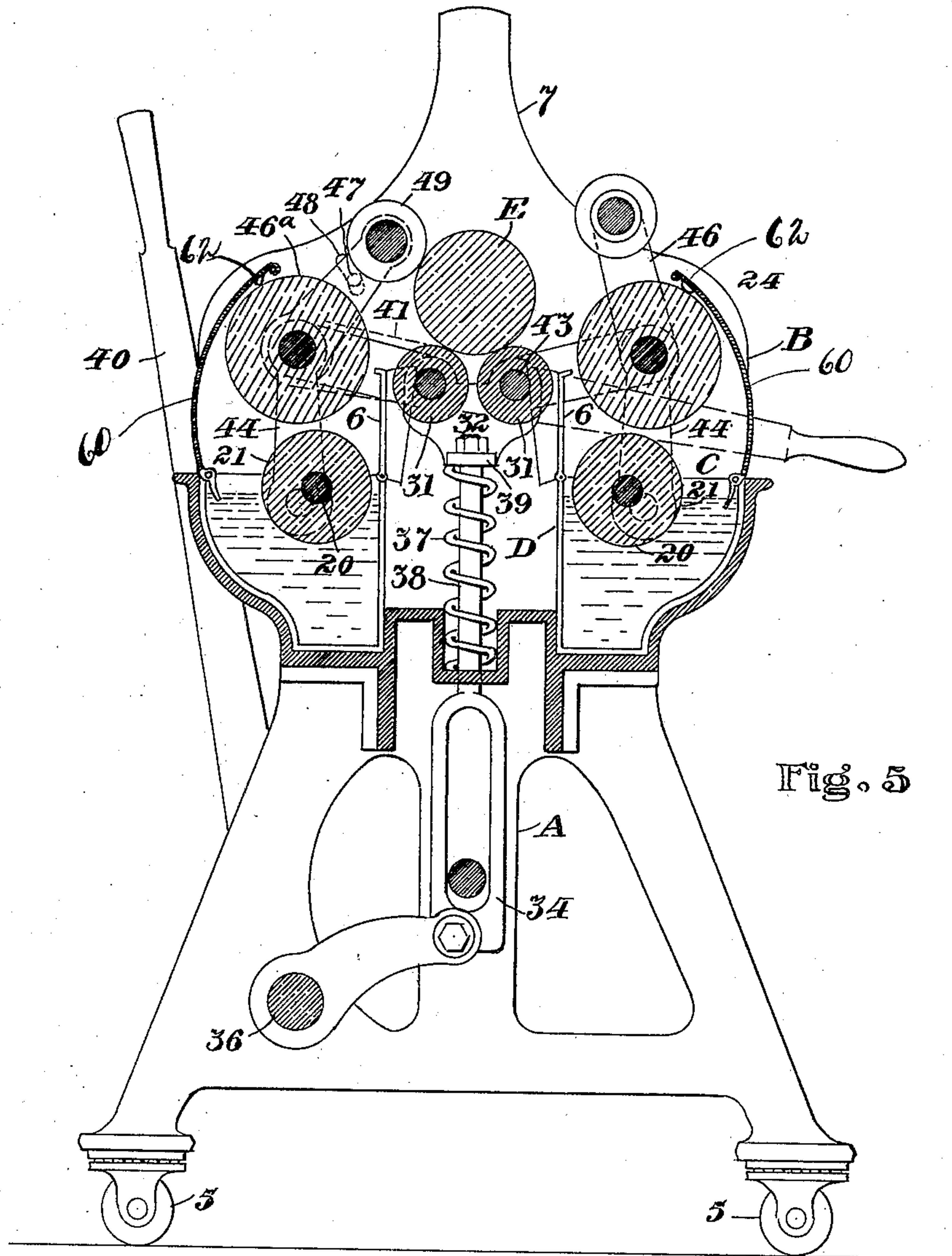
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5 SHEETS—SHEET 4.



WITNESSES

R. B. Gormanagh.
W. A. Pauling.

Clarence B. Cutler
INVENTOR
BY

Lyman & Brown
ATTORNEYS

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5 SHEETS—SHEET 5.

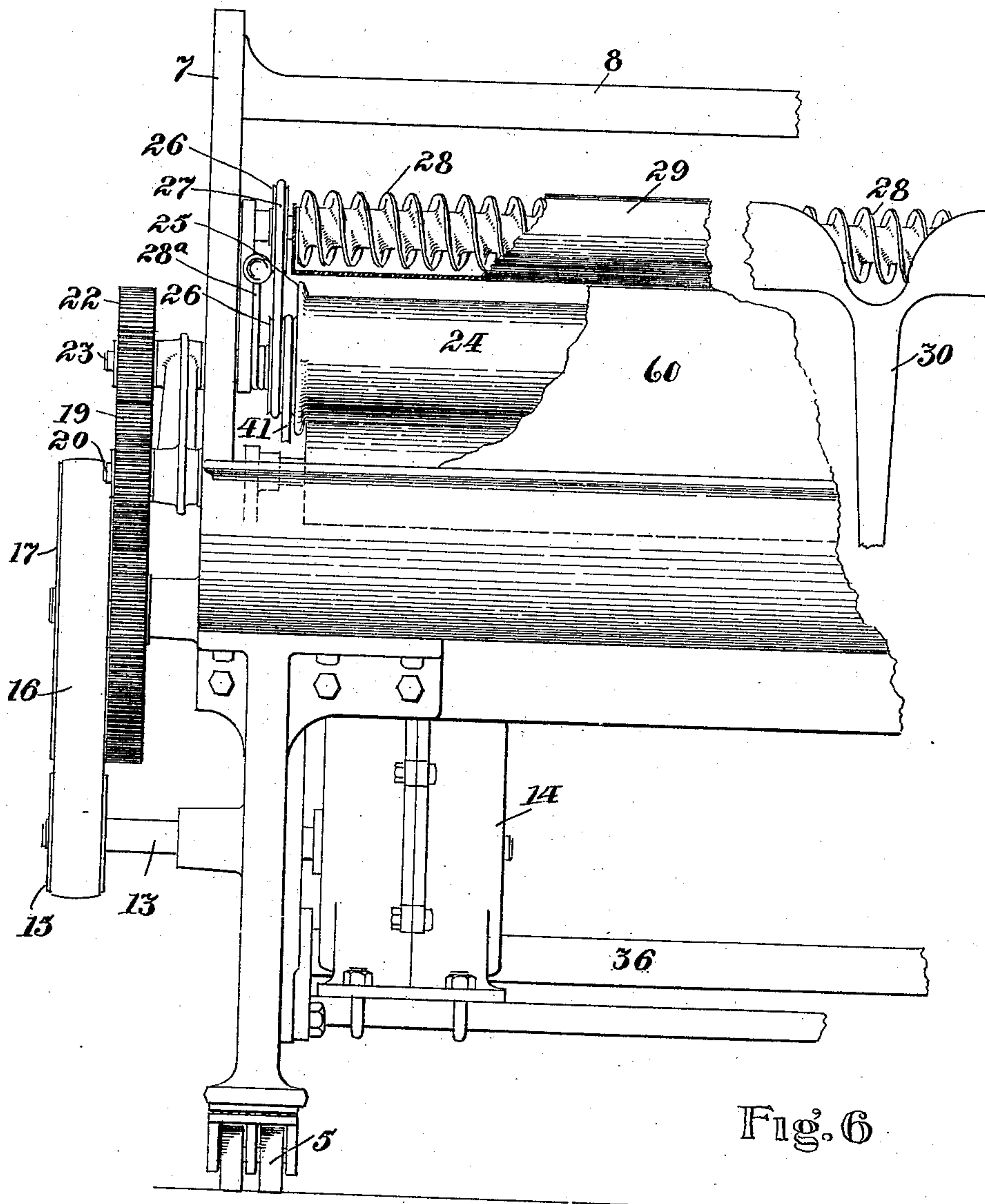


Fig. 6

WITNESSES

R. B. Ganagh

W. A. Pauling

Clarence B. Cutler

INVENTOR
BY

Lyford K. Bruce

ATTORNEY

UNITED STATES PATENT OFFICE.

CLARENCE B. CUTLER, OF STANHOPE, NEW JERSEY, ASSIGNOR TO HENRY H. RICHARDSON, OF BROOKLYN, NEW YORK.

MACHINE FOR CLEANING PRINTERS' ROLLERS.

No. 840,440.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed November 6, 1905. Serial No. 285,973.

To all whom it may concern.

Be it known that I, CLARENCE B. CUTLER, a citizen of the United States, and a resident of Stanhope, in the county of Sussex and State of New Jersey, have invented certain new and useful Improvements in Machines for Cleaning Printers' Rollers, of which the following is a description.

The present invention relates to certain novel and useful improvements in a machine for cleaning printers' rollers.

The invention consists in the construction, combination, and arrangement of parts set forth in and falling within the scope of the appended claims, and while I have herein shown and described one particular embodiment of my invention I wish it to be understood that I do not confine myself to all the precise details of construction and arrangement set forth, as there may be modification and variation in certain respects without departing from the spirit of the invention or exceeding the scope of the claims.

In the accompanying drawings, wherein an embodiment of my invention is delineated, like characters of reference indicate like parts in all the views.

Figure 1 is a perspective view of a machine embracing my invention, certain parts thereof being broken away to more clearly disclose the mechanism. Fig. 2 is a vertical sectional view taken through the machine, showing the washer-rollers and the scraping-blade out of contact with the roll being acted upon. Fig. 3 is a view in end elevation of the machine, certain portions being broken away, such view intending to show the driving connections and roll-operating means. Fig. 4 is a vertical sectional view taken through the machine, showing the scraping-blade and washing-rolls operating upon the article to be cleaned. Fig. 5 is a vertical sectional view taken through a slightly-modified form of machine, such modification consisting in providing an additional roller adapted particularly for use in connection with machines for cleaning lithographic rollers. Fig. 6 is a view, partly in elevation and partly in section, of the machine, certain parts being removed and broken away to show the arrangement of mechanism.

In providing the present machine I have especially in view overcoming certain difficulties which have heretofore been encoun-

tered in cleaning rollers used in connection with printing-presses. As is well known, after a comparatively short period of use it is often necessary to remove these rollers and clean from the same the ink and other adhering matter. The machine I have devised is particularly adapted for this purpose and embraces the essential and desired features of compactness, simplicity, durability, and economy of installation.

Referring now to the accompanying drawings in detail, A indicates the supporting-frame of the machine, which may be of any desired and suitable character and has its leg portions preferably provided with casters, so that the machine may be moved from place to place. The superstructure of the machine, which is indicated as a whole by B, includes a longitudinally-disposed reservoir C, adapted to contain the cleansing fluid to be applied to the rollers. Extending longitudinally through this reservoir is a casing D, which forms a partition practically dividing the reservoir into two longitudinally-disposed sections, said central or partition casing being provided with coverings 6 to prevent the entrance of fluid thereto. Arranged longitudinally of the machine and finding bearings at the top of the sides 7 of the superstructure B is a track 8, upon which travels the trolley 9, carrying the depending guiding-hook 10, designed to guide and restrain one end of the roller to be cleaned, said hook narrowing toward the bend thereof, as at 11, to enable the journals of rollers of various size to be accommodated. The aforesaid sides of the frame are grooved, as at 12 12, to guide the roller being acted upon, said grooves 12 being inclined or diminished from the mouth toward the terminations thereof. In order to clean the roller, I employ certain elements provided with connecting and operating means, which elements may be enumerated as follows: applying-rolls for taking the cleansing fluid from the reservoir, washing-rolls in contact with such applying-rolls and in turn at certain times bearing against and supporting the printing-roll while applying the cleansing fluid thereto, a scraper mechanism comprising a screw member extending longitudinally of the machine and adapted to be thrown into contact with the surface of the printing-roller to remove the coating of ink and like accumulations therefrom, a device including

drying or wiping rolls adapted to be moved into contact with the printing-roller for wiping and drying the same after the scraping operation has been completed, the supporting or wash rolls and the scraper being shifted out of engagement with the roll being cleaned when the drying-rolls are moved in contact.

The construction of my machine in detail, as illustrated in the drawings, is substantially as follows:

13 is a power-shaft journaled in the frame of the machine and driven from any suitable source of power, such as the motor 14. Upon one end of the shaft 13 is a pulley 15, connected by the driving-belt 16 with the large pulley 17, a gear-wheel 18 being mounted upon the same shaft as the pulley 17 and designed to turn therewith. This gear-wheel 18 meshes with two smaller gears 19 19, loose on the ends of the shafts or journals 20 of the applying-rolls 21 21, said rolls extending longitudinally through the machine, one in each reservoir and adapted to be partially submerged in the cleansing fluid. The gears 20 in turn mesh with similar gear-wheels 22 22, fast on the ends of the journals 23 of the washer or supporting rolls 24. The ends of the roll 24 are slightly flanged, as at 25, for the purpose of limiting any tendency of the roll being cleaned to have an endwise movement imparted thereto during the rotation of the same. Arranged above the washing-rolls and in driving engagement therewith through the medium of the belt 27, passing over the pulleys 26 26, is the scraper of the machine, (shown at 28,) such scraper in the present instance being in the form of a screw and preferably extending the length of the machine. A trough or gutter 29 is hung beneath the scraper and is provided with a gutter-spout 30, by which the products removed from the printing-roll by the knife may be conveyed to a suitable point of discharge. From the description thus far it will be noted that the washing-rolls and the scraper are connected in driving engagement and have a rotary movement imparted thereto from the power-shaft 13. The scraper is normally thrust forward into position to contact with a printing-roll by means of the tension-spring 28^a.

Within the longitudinal casing dividing the reservoir I arrange a device carrying a plurality of rollers 31, which for the sake of convenience may be termed the "drying-rolls," these being mounted upon heads 32, connected to the slotted posts or rods 33, which project through the bottom of the casing, one near each end thereof. The slotted portions 34 of said rods move in the guideways 35, formed at the ends of the machine, said slotted rods being connected by the rock-shaft 36, which also extends longitudinally under the bed of the machine. At the bottom of the chamber, within the reservoir, is formed a depression 37, seating

the springs 38, one spring being coiled about the upper end of each rod 33 and has its upper end bearing against a nut 39, threaded on the upper end of each rod 33 within the chamber.

40 is a lever connected to the rock-shaft 36 and adapted to rock the latter to elevate or depress the sliding rods 33, and thereby elevate or depress the drying-rolls.

By reference to the drawings it will be noted that the casing forming the longitudinal chamber within the reservoir does not extend quite the entire distance of the latter, so that the ends of the drying-rolls project beyond the ends of the chamber, and such drying-rolls are actuated by the belting from the pulley on the shaft of the washer-rolls. (Shown in Fig. 1 at 41.) Since the bearings of the drier and ordinary rolls are connected together, as hereinafter described, their relation is constant, no matter what position they occupy relative to the frame of the machine.

In its normal working position the roller to be cleaned, which in the present instance is designated as E, is placed in the machine in the manner shown in Fig. 4—that is to say, assuming the parts to occupy the relative positions shown in said figure the roller E rests in contact with and is supported by the washing-rolls 24 24—said roll being guided by the journal *e* thereof, fitting in one of the slots 12, while the opposite journal *e'* of the roller rests in the hook portion of the trolley 9. If power be now imparted to the main drive-shaft 13, the rolls through the gearing and belting heretofore described will have rotary motion imparted thereto, and the supply-rolls are actuated by the revolution of the washing-rolls. Such supply-rolls, taking up the cleaning fluid from the reservoir, will apply the same to the wash or supporting rolls, which in turn will thoroughly cover the surface of the roller being operated upon with such fluid. The scraper, which is preferably in the form of an Archimedean screw, being revolved by its power-transmission connections, also acts upon the surface of the roller E and scrapes or removes therefrom the ink and other accumulations, such removal being rendered comparatively easy by the application of the cleansing fluid, which may be kerosene or other suitable material. The material scraped from the roll by the action of the screw is deposited in the trough 29 and is carried toward and into the spout 30, by which it is conveyed to any suitable point of discharge.

After the roller has been subjected to the washing and scraping action it is desirable to dry the same before it is removed from the machine, and this is accomplished by throwing the washing-rolls and the scraper out of contact with the printing-roller and subjecting the latter to the action of the drying-

rolls, which when not in use occupy a position within the casing D. To throw the scraper and the washing or supporting rolls out of action and bring the drying-rolls into operation, I have constructed and correlated the parts as follows: Pivotaly secured to each of the heads 32 is a pair of links 43, also connected to the adjacent journals of the washing-rollers 24. Links 44 also connect both ends of the washing-rolls with the supply-rolls, so that a toggle-joint is formed between the drying-rolls and the supply-rolls at the ends of such rolls. Links 46 connect the ends of the scraper to the ends of one of the wash-rolls 24, so that said scraper may be thrown out of engagement at the desired time. To bring the drying-rolls into play and throw the washing-rolls and scraper out of action, it is only necessary to actuate the rock-shaft 36 to throw the rods 33 upward, which upward movement is assisted by the action of the springs 38. The upward movement of the heads and their connected drying-rolls throws the covers of the chamber or casing D open and at the same time the link connections act to thrust the scraper and the wash-rolls outward away from the center of the machine and from contact with the printing-roller E, said roller then resting upon and being supported by the drying-rolls, as is shown in Fig. 5. The drying-rolls are rotated by the connections heretofore described, and the printing-roller E is speedily wiped and dried and may then be removed from the machine.

In Fig. 5 I have shown a slightly-modified form of machine adapted especially for use in connection with the cleaning of lithographic printing-rollers. In this instance I provide additional links, such as are shown at 46^a, which are pivoted to the journals of one of the wash-rolls, the movement of said links being limited by pins 47, moving in the slot 48 in the frame of the machine. This roll, which is shown at 49, is provided with a suitable napping-surface adapted to grain or nap the roller E in a desired manner, and such roll 49 is adapted to be brought into use simultaneously with the wiping of the roll by the drying-rolls 31.

It will be noted that I have provided an exceedingly simple compact machine possessing great advantages. The machines for this purpose heretofore employed have possessed certain disadvantages, inasmuch as it was necessary to feed or move the roll being cleaned longitudinally through the same, thus requiring the machine to be approximately at least twice the length of the printer's roll. In the present case it will be noticed that the scraping device and the rolls are so arranged that the printing-roller may be supported and held against endwise movement while being operated upon. It will further be seen that by use of the toggle-and-

link connections controlled and operated from the rock-shaft that as soon as the roller is placed in position in the machine the supply-rolls, the washers, and the scraper may be immediately brought into operation by throwing the rock-shaft in one direction, while as soon as they have performed their functions they may be moved into an inactive position, and the drying-rolls are elevated to support and wipe the printing-roll.

By referring to Fig. 4 it will be seen that I have provided a reservoir with the side covers 60, hinged to the sides of the reservoir at 61. When the washing-rolls are thrown back out of engagement with the supply-rolls and with the roller being cleaned, such washer-rolls will strike against the hinged covers and throw the same outward, as is shown in Figs. 2 and 5. Each of the hinged covers has upon its interior face a strip of soft material—such as leather, fabric, or the like—(shown at 62,) against which the washer-roll will strike, and such rolls will be wiped dry by this strip.

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

1. The combination with means for supporting a roller to be cleaned and permitting the rotation of the same, of a screw member adapted to impinge upon and clean and convey material from the surface of the roller.

2. The combination with means for rotatably supporting a roller to be cleaned, of means extending substantially the length of the roller adapted to impinge upon the latter to clean and convey material therefrom in a direction longitudinally of the roller.

3. The combination with means for supporting a roller to be cleaned, of a screw arranged longitudinally of said roller and adapted to impinge upon and clean the surface of the roller.

4. The combination with means for holding a roller against endwise movement while permitting such roller to rotate, and rotating means impinging upon the surface of the rotating roller for removing material from the roller in a direction longitudinally thereof.

5. The combination with means for holding a roller against endwise movement while permitting such roller to rotate, a rotating means also held against endwise movement for impinging upon the surface of the rotating roller to clean and convey material therefrom in a direction substantially longitudinally of the axis thereof.

6. The combination with means for supporting a roller against endwise movement while permitting such roller to rotate, of a rotating worm or screw also held against endwise movement and extending substantially the length of said rotating roller to clean and convey material from the surface of the roller in a direction substantially longitudinally thereof.

7. The combination with means for supporting the roller to be cleaned, of means for applying a cleansing fluid to said roller, and a rotating element extending lengthwise of the roller substantially the length thereof and held against endwise movement adapted to remove material from the surface of the roller in a direction longitudinally of the axis thereof.

8. In a machine of the class described the combination with a frame thereof, the supply-rolls, the washing-rolls and the drying-rolls, of a scraping device incapable of endwise movement and adapted to impinge upon the roller to be cleaned, and means for throwing the wash-rolls and the scraping device into and out of engagement with the roller being cleaned.

9. In a machine of the class described the combination with the frame thereof, of washing members adapted to support the roller to be cleaned, a rotating screw member for scraping said roller, and means for throwing said screw member and the supporting wash-rolls into and out of engagement with the roller being cleaned.

10. The combination with the frame thereof, of a reservoir for containing a cleansing material, means projecting into said reservoir for taking the material therefrom, wash-rollers for receiving the material from the first-mentioned means and applying the same to the roller to be cleaned, and means adapted to contact with the roller to be cleaned substantially its entire length for scraping the material therefrom and conveying the same in a direction longitudinally of the axis of said roller being cleaned.

11. In a machine of the class described the combination of the supply-rolls, the washing-rolls, the drying-rolls, and a screw device for scraping the roller to be cleaned.

12. In a machine of the class described the combination with the frame thereof, means for applying cleansing material to the roller to be cleaned, a screw member extending lengthwise of the roller for scraping said roller, and a member for napping the surface of the roll.

13. The combination of means for supporting a roller to be cleaned and restraining the roller against endwise movement, a rotatable element extending longitudinally of said roller and incapable of endwise movement and adapted to scrape and convey material from the roller in a longitudinal direction, and means for moving said rotatable element into and out of engagement with the surface of the roller.

14. In a machine of the class described the combination with the frame thereof, a reservoir on said frame, supply-rolls within the reservoir, washing-rolls arranged to contact with the supply-rolls and to support the roller to be cleaned, and a rotary scraping

device adapted to impinge upon and scrape the roller supported by the washing-rolls.

15. In a machine of the class described the combination with the frame thereof, of a reservoir supported by said frame, supply-rolls extending through the reservoir, washing-rolls adapted to contact with and be wet by the supply-rolls, such washing-rolls being designed to support the roller to be cleaned, a rotary scraper designed to impinge upon the roller and scrape the same, drying-rolls, and means for actuating the supply-rolls, the washing-rolls, the scraper and the drying-rolls.

16. In a machine of the class described the combination with the frame thereof, a plurality of rolls for supporting the roller to be cleaned, means for supplying cleansing material to the supporting-rolls, a rotary scraper, and means for throwing the supporting-rolls into and out of supporting position relative to the roller being cleaned and for causing the scraper to impinge upon said roller.

17. In a machine of the class described the combination with the frame thereof, a reservoir containing a cleansing material, washer-rolls for supporting the roller to be cleaned, means for supplying cleansing material from the reservoir to the washer-rolls, and means for guiding the roller to be cleaned, and means comprising a rotary element incapable of endwise movement adapted to impinge upon and scrape the surface of the roller.

18. In a machine of the class described the combination with the frame thereof, of a reservoir mounted thereon, means for supporting a roller above the reservoir, means for supplying a cleansing material from the reservoir to the roller-supporting means, means for throwing said roller-supporting means out of engagement with the roller, and drying means designed to be moved into position to dry and support the roller.

19. In a machine of the class described the combination with the frame thereof, of rolls adapted to support and apply a cleansing material to the roller to be cleaned, a rotary scraper impinging upon and scraping the surface of said roller, drying-rolls normally out of engagement with the roller being cleaned when the first-mentioned supporting-rolls and the scraper are in contact therewith, and means for simultaneously moving the scraper and the first-mentioned supporting-rolls out of engagement with the roller being cleaned, and for moving the drying-rolls into supporting and wiping engagement with the roller being cleaned.

20. In a machine of the class described the combination with the frame thereof, a plurality of washing-rolls adapted to support the roller to be cleaned, means for applying a cleansing fluid to the washing-roll from whence it is applied to the roller, a scraping device adapted to impinge upon and scrape

the roller, drying-rolls, means for shifting the washing-rolls and the scraper out of contact with the roller being cleaned and for shifting the drying-rolls into contact with the roller to wipe and support the same, a reservoir for containing a cleansing fluid, covers for said reservoir, and means carried by said cover for wiping the washer-rolls when such washer-rolls are thrown out of contact with the roll being cleaned.

21. In a machine of the class described the combination with the frame thereof, a reservoir mounted on said frame, rolls adapted to receive a cleansing material from the reservoir to apply the same to a roller to be cleaned, means for moving said rolls, a hinged cover for the reservoir, and means on said hinged cover for wiping and drying the rolls.

22. In a machine of the class described the combination with the frame thereof, of washing-rolls for supporting them and applying a cleansing material to the roller to be cleaned, a rotary screw for scraping the roller, drying-rolls, and means for moving said drying-rolls into engagement with the roller being cleaned.

23. In a machine of the class described the combination with the frame thereof, a plurality of supporting-rolls adapted to support the roller to be cleaned, means for applying a cleansing fluid to the supporting-rolls from whence it is applied to the roller, a scraping device incapable of endwise movement adapted to impinge upon and scrape the roller, drying-rolls for wiping the roller and a napping-roll for napping the roller.

24. In a machine of the class described the combination with the frame thereof, of a reservoir carried thereby, a plurality of supporting-rolls for supporting the roller to be cleaned at desired times, means for applying cleaning material from the reservoir to the supporting-rolls to be applied by the latter to the roller, a scraper for scraping the roller, a casing formed within the reservoir, drying-rolls normally lying within said casing when not in use, and means for shifting the first-mentioned supporting-rolls and the scraper out of contact with the roller being cleaned, and for shifting the drying-rollers within the casing into contact with said roller to wipe and support the same.

25. In a machine of the class described the combination with the frame thereof, of a superstructure embodying a reservoir, supporting-rolls for supporting the roller to be cleaned, means for applying a cleansing material from the reservoir to the supporting-rolls, a rotary scraper for scraping the roller to be cleaned, drying devices, and means for moving said drying devices into contact with the roller being cleaned, and simultaneously moving the first-mentioned supporting-rolls and the scraper out of contact with the roller, said means including mechanism for shifting the drying-rolls into contact with the

surface of the roller being cleaned, and connections between the drying-rolls, the supporting-rolls, the means for applying the cleansing fluid to the supporting-rolls, and the scraper.

26. In a machine of the class described the combination with the frame thereof, of a reservoir containing a cleansing fluid, a plurality of supporting and washing rolls for supporting the roller to be cleaned, rolls adapted to contact with and supply material from the reservoir to the supporting and washing rolls, a rotary scraper for scraping the roller, means for guiding the roller, drying-rolls for wiping said roller, and means for imparting vertical movement to the drying-rolls to move the same into contact with the roller and simultaneously move the first-mentioned supporting-rolls and the scraper out of contact with the surface of the roller being cleaned.

27. A machine of the class described comprising a plurality of supporting-rollers for supporting the roller to be cleaned, said rollers having flanges thereon to prevent the endwise movement of the roller, means for applying a cleansing material to the supporting-rolls, and a screw for scraping said roller, such screw being incapable of endwise movement.

28. A machine of the class described comprising a plurality of rollers for supporting and applying a cleansing fluid to the roller to be cleaned, a scraper in the form of a screw adapted to impinge upon and scrape the surface of the roller, drying-rolls, link connections between the drying-rolls, the supporting-rolls and the scraper, and means including a rock-shaft and an operating device for the latter for throwing the drying-rolls into contact with the roller, and the scraper and the first-mentioned supporting-rolls out of contact with the roller.

29. A machine of the class described comprising supporting-rolls for supporting and applying a cleansing fluid to the roller to be cleaned, a rotary scraper, drying-rolls, a power-shaft, driving connections between the power-shaft, the supporting-rolls, the drying-rolls and the scraper for imparting a rotary movement to said parts, and mechanism for throwing the drying-rolls into contact with the roller being cleaned, and for moving the first-mentioned supporting-rolls and the scraper out of contact with such roller.

30. In a machine of the class described comprising a frame, a reservoir supported thereon, a casing extending through said reservoir, covers for said casing, a plurality of supporting-rolls for supporting the roller to be cleaned, rolls for applying a cleansing fluid from the reservoir to the supporting-rolls, a rotary scraper of screw form, incapable of endwise movement, a trough arranged beneath said scraper, drying-rolls normally lying within the casing in the reservoir,

means for moving said drying-rolls into contact with the roller, and connections between the drying-rolls, the supporting-rolls, the scraper, and means for applying the fluid to
5 the supporting-rolls whereby when the drying-rolls are moved into contact with the roller the other device will be moved out of contact therewith.

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

CLARENCE B. CUTLER.

Witnesses:

RICHARD B. CAVANAGH,
W. A. PAULING.