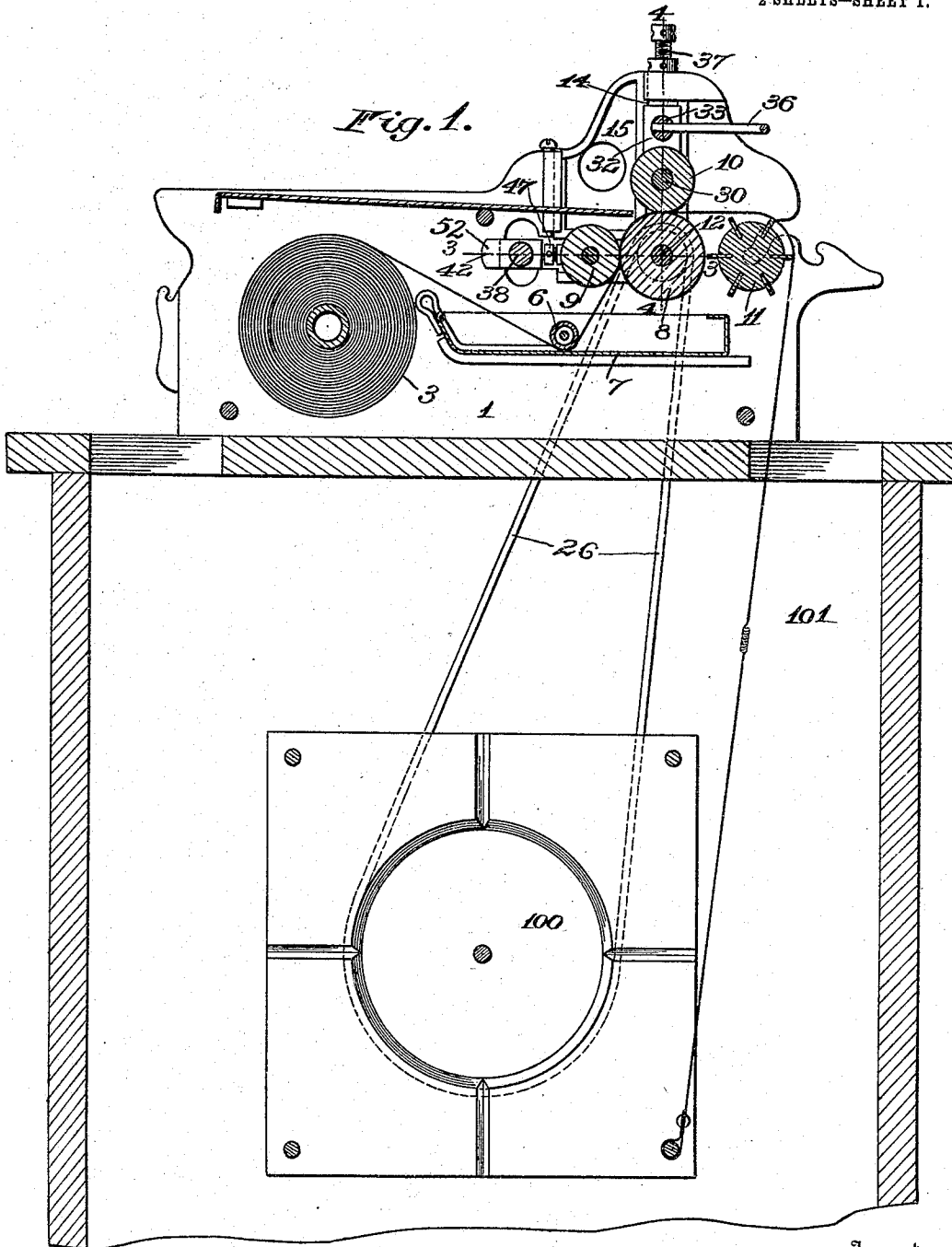


P. H. YAWMAN.
 ROLLER COPYING PRESS.
 APPLICATION FILED DEC. 8, 1906.

932,665.

Patented Aug. 31, 1909.
 2 SHEETS—SHEET 1.



Inventor

Philip H. Yawman

Witnesses

Walter B. Payne.

By

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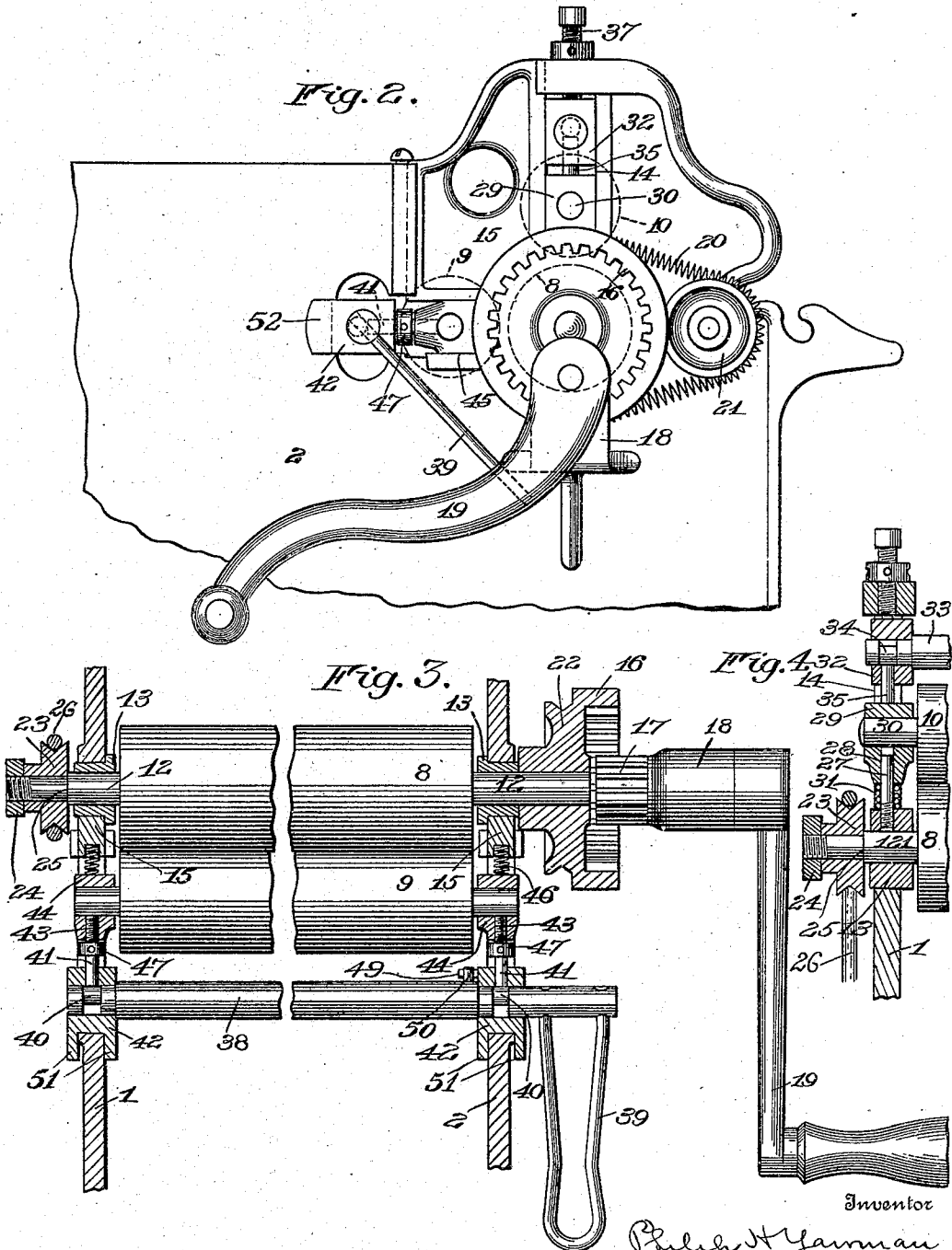
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UNITED STATES PATENT OFFICE.

PHILIP H. YAWMAN, OF ROCHESTER, NEW YORK, ASSIGNOR TO YAWMAN & ERBE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

ROLLER COPYING-PRESS.

932,665.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed December 8, 1906. Serial No. 346,984.

To all whom it may concern:

Be it known that I, PHILIP H. YAWMAN, of Rochester, in the county of Monroe and State of New York, have invented certain
5 new and useful Improvements in Roller Copying-Presses; 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
10 part of the specification, and to the reference-numerals marked thereon.

My present invention relates to improvements in roller copiers for producing press copies of letters, bills and other documents
15 on a web or strip which has been suitably moistened, and the object of the invention is to provide an improved mounting for the wringer roller which serves to express the excess moisture from the web preparatory
20 to the copying operation, whereby the relation of these parts may be readily and conveniently adjusted when the copier is not in use so as to avoid the sticking of the moistened web or paper upon any of these
25 rollers, as well as to prevent flattening of the rollers by reason of the prolonged pressure between them, and it is especially useful when these rollers are made of rubber or similar composition.

30 To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the
35 specification.

In the drawings: Figure 1 is a sectional view of a roller copier constructed in accordance with my invention. Fig. 2 is a view of a portion of the side frame, the
40 copying and wringing rollers being moved out of coöperative engagement, as is the case when the copier is not being used. Fig. 3 represents a horizontal section taken centrally of the wringer roller and its coöperating roller, and showing the devices for operating the wringer roller, and the clutch for
45 connecting and disconnecting the copier and its take-up reel, and Fig. 4 represents a central vertical section of the bearings and adjusting devices for the copying or pressing rollers.

Similar reference numerals in the several figures indicate similar parts.

55 The copier shown in the present instance is of the same general type as that shown in

my prior patent No. 701,447, granted June 3, 1902, embodying generally a pair of suitably spaced side frames 1 and 2 by means of which the various parts of the copier are supported. As usual in devices of this description, the paper or web upon which the copies are to be made, or recorded, is supplied from a roll 3 mounted on a shaft having its ends resting in brackets between the side plates, the paper or web extending
65 thence beneath an immersing roller 6, arranged in a water pan 7 suitably fitted between the side frames so that as the strip passes this roller, it will be thoroughly moistened, and from this pan it passes between the lower or relatively fixed press or copying roller 8 and the wringing roller 9, which the strip leaves with just the proper degree of moisture, and passes with the letter or other document to be copied, between
70 the lower copying roller 8 and the upper copying roller 10, and from the copying rollers the web is guided by the ribbed roller 11 to the usual reel or take-up reel or device 100 arranged in the supporting stand or casing 101 beneath the copier. The lower copying roller is mounted on a shaft 12 journaled at its ends in bearing blocks 13 which are fitted in vertical guide ways 14 formed between the body portion of the side frame
85 and the removable section or filler-piece 15, one end of the said shaft being provided with an internal gear wheel 16 arranged to coöperate with the pinion 17 which is supported by a bearing bracket 18, a crank 19 being provided by means of which the rollers may be operated, and the ribbed guide roller 11 is driven by means of a belt 20, passing over a pulley 21 on the said roller and over a pulley 22 arranged to turn with
90 the gear 16.

The opposite end of the shaft 12 has a pulley 23 mounted thereon and provided with a clutch device by means of which it may be connected and disconnected from the shaft, this result being accomplished in the present instance by mounting the pulley loosely on the shaft and providing a nut or screw 24 coöperating with suitable threads on the shaft for clamping the said pulley against a
105 shoulder 25 on the shaft. This clutch device enables the take-up reel 100 containing the printed web to be disconnected from the copier in order that the web may be unwound therefrom and properly filed away
110

without the necessity of removing the belt 26 which connects the copier with the take-up reel.

Each bearing block 13 is provided with a guiding pin 27 adapted to cooperate with a guiding aperture 28 in the bearing or journal blocks 29 for the upper or adjustable copying roller 10, the latter being mounted on a shaft 30 journaled in these blocks, and surrounding each guiding pin 27 is a helical compression spring 31 which normally operates to separate the copying rollers. Above the bearing blocks 29 are the journals 32 in which the ends of the cam shaft 33 for adjusting the copying rollers are journaled, the said cam shaft having a cam 34 formed at each end and adapted to cooperate with an operating pin 35 passing through an aperture in the block 32 and engaging the bearing block 29 for the adjustable copying roller, and this cam shaft is provided with a bail or other suitable handle 36 by means of which it may be operated, rotation of the cam shaft in one direction serving to operate the plungers 35 to press the copying rollers into cooperative engagement with the requisite pressure on the copying strip or web to effect the copying, a movement in the reverse direction serving to release the pressure so that the springs 31 may operate to separate the rollers and thereby disengage them from the web. Set screws 37 are preferably provided in the side frames for adjusting the bearings for the cam shaft so that when the latter is operated, the desired pressure between the copying rollers will be secured.

A construction similar to that briefly described above provides a convenient means for separating the copying rollers when the copier is not in use, as shown by the aforesaid patent, and the object of the present invention is to provide means convenient and readily accessible for operation, whereby the wringer roller may also be separated from its cooperating roller or surface, so that when the copier is not in use all of the rollers of the copier will be separated from each other, and from the moistened web. In the present instance this is accomplished by providing a cam shaft 38 which extends transversely between the side plates, and has a suitable handle 39 provided thereon and preferably arranged at the outer side of one of the side frames so that it may be conveniently accessible. This cam shaft is provided at each end with a cam 40 which in the present instance is eccentric in form, and is arranged to cooperate with a plunger 41 resting in a guiding aperture in the bearing block 42 for the cam shaft, and having a threaded adjusting portion 43 fitted into the bearing block 44 in which the end of the wringer roller is journaled. This bearing block for the wringer roller is mounted in

guide ways 45 formed between the body portion of the side frame and the removable section 15, and between this bearing block 44 and the relatively fixed portion of the side frame is interposed a compression spring 46 which normally operates to separate the wringer roller from the lower copying roller. The journal blocks 42 are provided with lugs 51 projecting therefrom in the direction in which the guideways extend to engage opposite sides of the side frames 2 and center the said blocks in alinement with the cooperating members on the ways. The adjusting device arranged between the bearing for the cam shaft and that for the wringer roller is provided with a capstan head or nut 47 by means of which it may be adjusted so that the requisite pressure may be obtained between these rollers whenever the cam shaft is operated by the handle 39, the cooperating projections 49 and 50 serving as stops for limiting the movement of the cam shaft in either direction.

Under ordinary circumstances, the cam shaft 39 for the wringer roller, as well as the cam shaft 33 for the pressure rollers, will be in such a position that the wringer and copying rollers will be separated so that no pressure is exerted thereon that will tend to flatten their surfaces and thus impair their efficiency, and at the same time the moistened web will not be pressed against the wringer roller, or either of the copying rollers with sufficient pressure to cause it to adhere by reason of the size of the paper strip, or the nature of the composition of the rollers, but when it is desired to operate the copier, it is merely necessary to operate both cam shafts to bring their respective rollers into cooperative position.

I claim as my invention:

1. In a press copier, the combination with suitable copying devices, of a wringer roller arranged to operate on the copying material for expressing the excess moisture therefrom previous to the copying operation, bearings arranged on the ends of said roller, a cam shaft extending parallel with the latter and adjustable devices operated by said shaft at both ends thereof and cooperating directly with said bearings for moving said roller into cooperative relation with the copying material.

2. In a press copier, the combination with suitable copying devices, of a wringer roller arranged to operate on the copying material for expressing the excess moisture therefrom previous to the copying operation, bearings arranged on the ends of said roller, a cam shaft extending parallel with the latter and plungers cooperating directly with the cams on said shaft at both ends thereof and having adjusting portions threaded into the respective bearings of said roller.

3. In a press copier, the combination with

side frames having guide ways formed therein, and suitable copying rollers, of a wringer roller having journal bearings resting in said ways, said roller being arranged
5 to cooperate with the copying material previous to the copying operation, a shaft extending parallel with the copying roller having cams thereon at both ends and a handle for operating them, removable journal
10 bearings for said shaft having centering lugs projecting therefrom in the direction of

the ways to engage opposite sides of the side frame, and plungers cooperating directly with the cams on said shaft and threaded in the bearings of said roller for
15 moving the latter into and out of cooperative relation with the copying material.

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