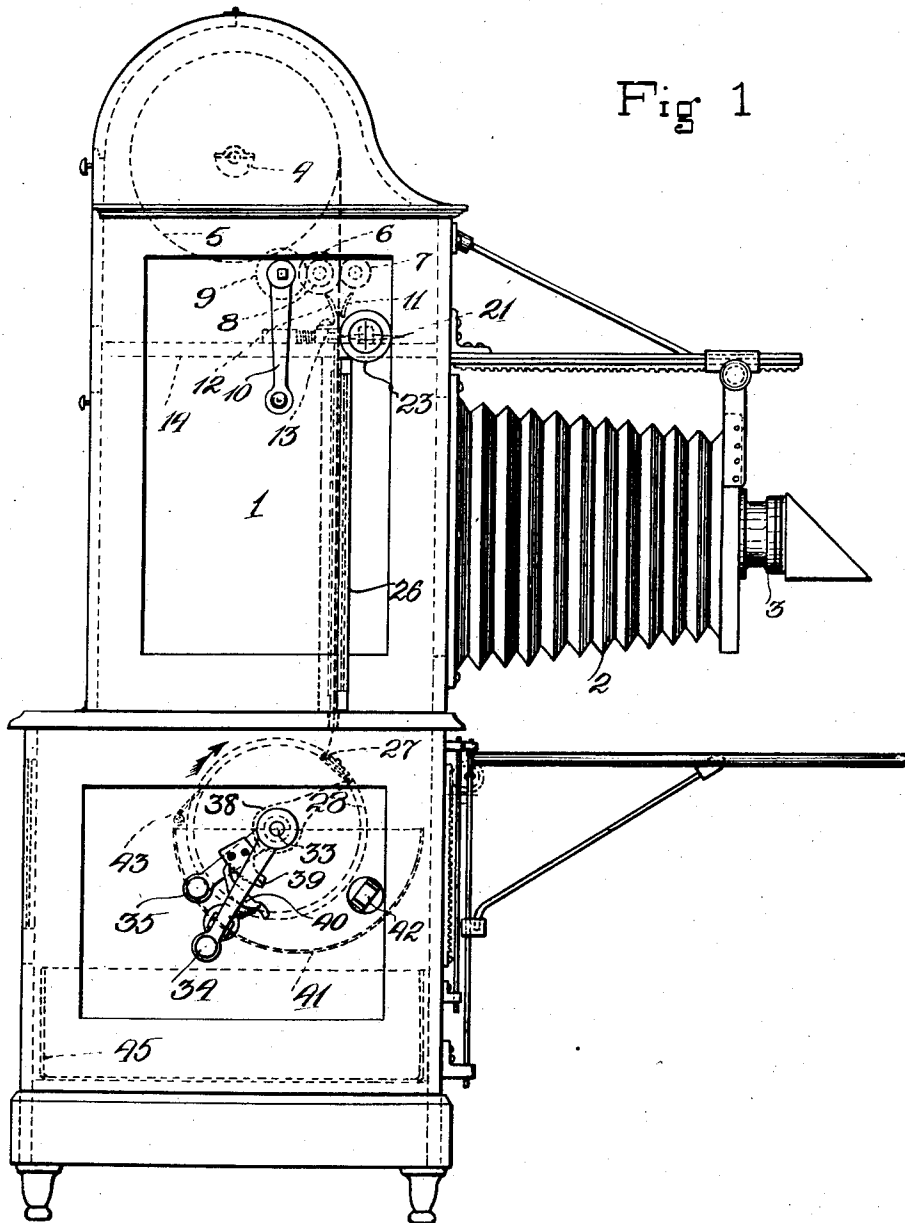


W. D. BRESEE.
COPYING APPARATUS.
APPLICATION FILED FEB. 17, 1911.

1,019,297.

Patented Mar. 5, 1912.
3 SHEETS—SHEET 1.

Fig 1



Witnesses
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Inventor
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by *W. D. Bresee*
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3 SHEETS—SHEET 2.

Fig. 4.

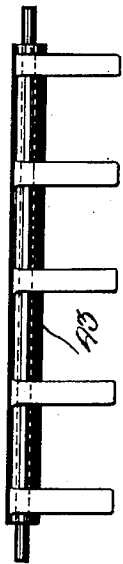


Fig. 2.

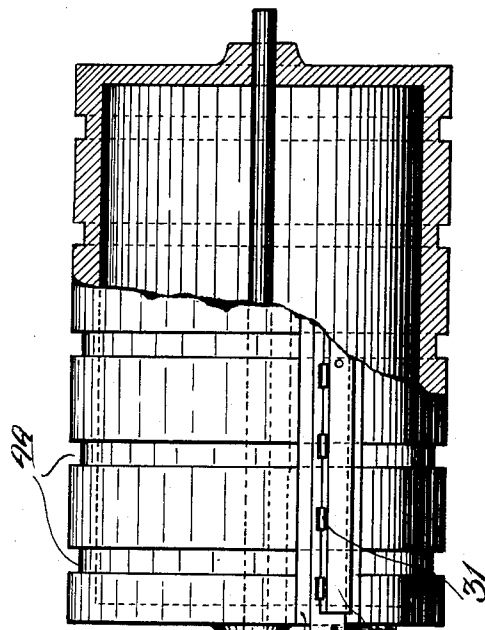
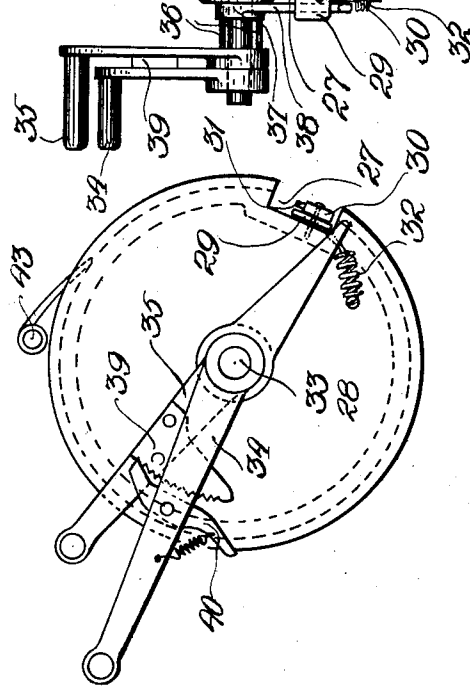


Fig. 3.



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3 SHEETS—SHEET 3.

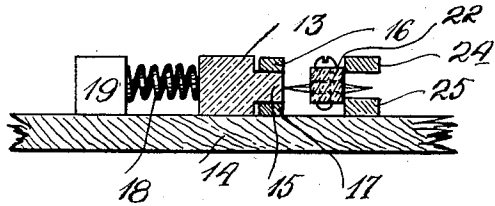


Fig. 5

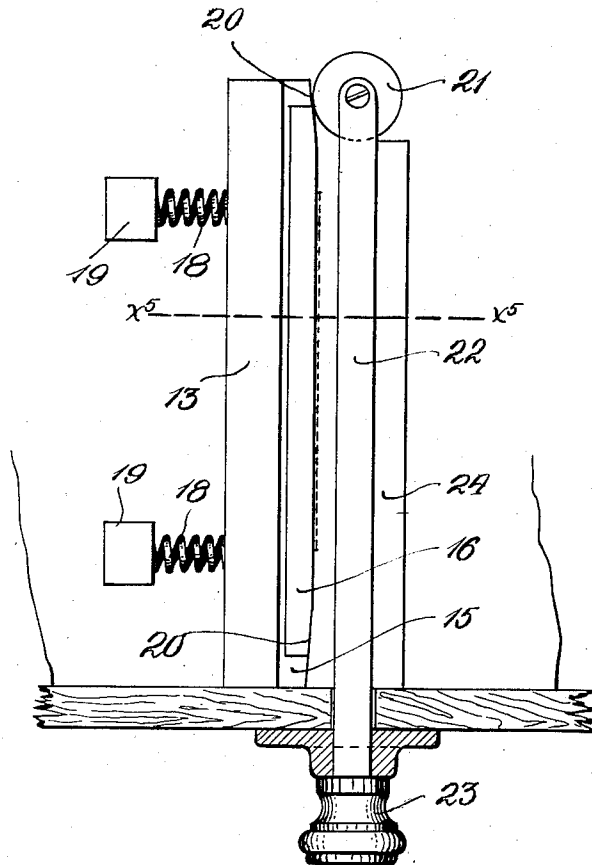


Fig. 6

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BY *Anton Gloaguen, Jr.*
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UNITED STATES PATENT OFFICE.

WRIGHT D. BRESEE, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-FOURTH TO EDGAR HARVEY SARGENT AND ONE-FOURTH TO CORAL HARRISON SLOAN, BOTH OF LOS ANGELES, CALIFORNIA, AND ONE-HALF TO MARTIN L. RICE, OF SAN FRANCISCO, CALIFORNIA.

COPYING APPARATUS.

1,019,297.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed February 17, 1911. Serial No. 609,224.

To all whom it may concern:

Be it known that I, WRIGHT D. BRESEE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a certain new and useful Copying Apparatus, of which the following is a specification.

My invention relates to a duplicating apparatus and particularly to a photographic copying machine.

An object of this invention is to provide a device by means of which absolutely accurate reproductions of any record may be made, and developed in the same machine without the necessity of manually transferring the exposed sensitized sheet from one bath to another.

Another object of this invention is to provide in combination with a device of this type a mechanism for securing the paper during the development thereof and for releasing the paper after development to cause it to fall in the proper fixing bath.

Finally a further object of this invention is to provide a proper and effectual cutting means for the paper after it has been unrolled the desired distance from the reel.

These and other objects are accomplished by the apparatus shown in the accompanying drawing, in which—

Figure 1 is a side elevation showing the photographic bellows carrying the lens; the roll of sensitized paper is shown in dotted lines, as is also the developing reel and the clamp for the end of the paper; Fig. 2 is a plan view partly in section showing the developing reel, the clamping arrangement for the end of the paper, and the mechanism for actuating the clamping arrangement; Fig. 3 is a side elevation of said developing reel; Fig. 4 is a plan detail, showing the finger bar release for the paper after completion of development; Fig. 5 is a vertical section on lines X-X; Fig. 6, showing the cutter and the tension means for maintaining contact of the knife with the cutting table, and Fig. 6 is a plan view showing the cutter and the

tension means, also the handle for operating the cutter.

The apparatus consists of the photographic casing 1, fitted with bellows 2 and a lens 3. A reel 4 is journaled in said casing and carries a roll 5 of sensitized paper, the end of which is arranged to be caught between two rollers 6 and 7. The roller 6 is provided with a pinion 8, shown in dotted lines with which a pinion 9, connected with a crank 10, meshes. By turning the crank 10 the paper, which has been previously inserted between the rollers 6 and 7, is unwound from the reel 4. The paper is guided in its descent by two plates 11 and 12, the plate 11 being secured in the casing, while the plate 12 is mounted upon a metallic member 13, seen more clearly in Fig. 5. This member 13 rests on a shelf 14, in the casing and is provided with a tongue 15, which extends between two guide strips 16 and 17. The said tongue 15 of said metallic member 13 is held normally in position between said guide strips 16 and 17 by helical springs 18 the ends of which are secured to the rear of said metallic member, and to stationary blocks 19 respectively, secured upon the shelf 14. The ends of the tongue 15 of said metallic strip 13 are inclined as seen at 20, for the purpose of relieving the pressure of the tongue 15 against a rotary cutter 21 and to prevent dulling the edge. This rotary cutter 21 is journaled in the end of a shank 22 which is provided on the outside of the casing 1, with a handle 23 by means of which it may be withdrawn and in so withdrawing cut off the paper between it and the tongue 15. The shank 22 bears against two rigid strips 24 and 25. Thus when the cutter 21 is withdrawn, it rides over the inclines 20 and tends to press away the tongue 15 of the metallic strip; in this manner a constant tension is maintained and the cutting of the paper is quick and clean.

When the crank 10 is turned the paper travels downwardly behind the slide 26, and

emerges at the bottom, settling eventually in the recess 27 of a developing drum 28 which is journaled in the bottom of the casing. At that time the drum is in the position substantially as shown in dotted lines, Fig. 1, and the paper having entered the recess 27 is clamped by the mechanism presently to be described. In the recess 27 of the drum is pivoted a lever 29 on which is pivotally fastened and approximately centrally of the recess a clamp bar 30 provided with a plurality of yielding lugs 31 which are arranged to bear against one wall of the recess when the bar is moved thereagainst. The lever 29 is held in normal position by a spring 32 fastened to the drum. Keyed on the axle 33 of the drum is a crank 34. On said axle is also loosely mounted a crank 35 connected by pins 36 with the hub 37 of a finger 38 that extends normally behind said lever 29. A ratchet 39 is fixed on said crank 35, while on the crank 34 is pivoted a spring actuated pawl 40 normally engaging the ratchet 39. Thus when the loose crank 35 is moved about its axis the finger 38 moves the lever 29 which in turn moves the clamp bar 30 and clamps the end of the paper. After the exposure has been made the knife is withdrawn and the paper sheared off. Thereupon the drum is revolved by the crank 34, winding the paper around the same and in the developing solution in the tray 41. The pawl 40 is then disengaged from the ratchet 39, whereby the lever 29, returning under the tension of the spring 32 to normal position, withdraws the clamp bar 30 and releases the end of the paper. Such release occurs when the crank 34 has been revolved to the lock 42. When the paper has been left in the developer sufficiently long the drum is revolved in the opposite direction, causing the finger bar 43, the fingers of which normally lie in the grooves 44 provided in the drum, to slip under the edge of the paper and disengage it from the drum. The paper thereupon drops into the tank 45 containing the fixing solution and is then removed therefrom for mounting.

What I claim is—

1. The combination with a photographic casing having a developing tank, of a roll of sensitized paper journaled in the upper part of said casing, means to operate said roll to unwind the paper therefrom and cause the same to travel to said developing tank, said casing being provided with a yielding cutting surface, a rotary cutter arranged to operate against said surface to shear off said paper, a drum in said developing tank, means on said drum to clamp the end of said paper, a crank to control said clamping means, a crank to revolve said drum, and means to lock said clamp controlling crank on said revolving crank.
2. The combination with a photographic

casing having a developing tank, and a fixing tank, of a roll of sensitized paper journaled in the upper part of said casing, means to unwind the paper from said roll to cause it to travel to the bottom of said casing, said casing being provided with a yielding cutting surface, a cutter arranged to operate against said cutting surface to shear off the paper, a drum in said developing tank provided with grooves, means on said drum to clamp the end of said paper, a plurality of cranks to control said clamping means, one of said cranks also serving to revolve said drum, and a means engaging the grooves in said drum to remove the paper therefrom and cause it to fall into said fixing tank.

3. The combination with a photographic casing having in the bottom thereof a developing tank, and a fixing tank, of a roll of sensitized paper journaled in the upper part of said casing, means to unwind said paper from said roll to cause the same to travel to the bottom of said casing, a rotary knife to shear off said paper, a drum in said developing tank, means on said drum to clamp the end of said paper, a crank to control said clamping means, a crank to revolve said drum to develop the paper thereon, means to lock said clamp controlling crank on said revolving crank to hold said paper clamped during development, and means engaging the end of said paper to lift it away from the said drum and cause it to fall into the said fixing tank.

4. The combination with a photographic casing having in the bottom thereof a developing tank, and a fixing tank, of a roll of sensitized paper journaled in the upper part of said casing, means to unwind the paper from said roll to cause the same to travel to the bottom of said casing, a rotary cutter to shear off said paper, a drum in said developing tank, means to clamp the end of said paper into said drum, a crank to operate said clamping means, a crank to revolve said drum, said clamp-operating crank being movable with respect to said drum-revolving crank to cause the paper to be alternately gripped and released, and means to remove the developed paper from said drum and cause it to fall into said fixing tank.

5. The combination with a photographic casing having in the bottom thereof a developing tank and a fixing tank, of a roll of sensitized paper journaled in the upper part of said casing, means to unwind the paper from said roll and cause it to travel to the bottom of said casing, a rotary cutter to shear off said paper, a drum in said developing tank, means to clamp the end of said paper into said drum, a crank to operate said clamping means, a crank to revolve said drum, said clamp-operating crank be-

ing movable with respect to said drum-re-
volving crank to cause the paper to be al-
ternately gripped and released, means to
lock said clamp-operating crank on said re-
volving crank, and a plurality of fingers in
said casing to remove the developed paper
from said drum and cause it to fall into the
said fixing tank.

In testimony whereof I affix my signature
in the presence of two witnesses.

WRIGHT D. BRESEE.

Witnesses:

ANTON GLOETZNER, Jr.,
F. J. McCLARY.
