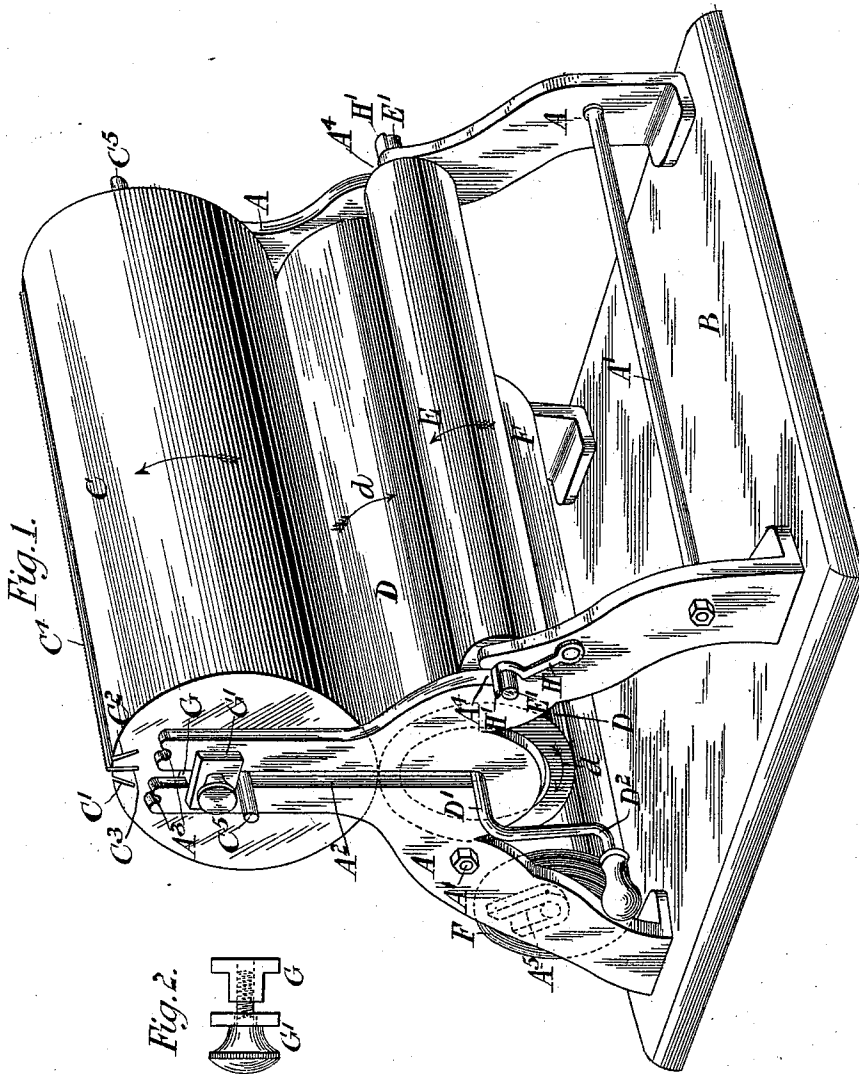


(No Model.)

W. M. WILLIAMS.
MULTIPLE COPYING APPARATUS.

No. 529,824.

Patented Nov. 27, 1894.



Witnesses:

Thomas Durant

Alex Stewart

Inventor:

William M. Williams

My Church & Church

hic Attys

UNITED STATES PATENT OFFICE.

WILLIAM MOSES WILLIAMS, OF KENILWORTH, ENGLAND.

MULTIPLE COPYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 529,824, dated November 27, 1894.

Application filed February 24, 1894. Serial No. 501,401. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MOSES WILLIAMS, a subject of the Queen of England, residing at Kenilworth, England, have invented certain new and useful Improvements in or Relating to Multiple Copying Apparatus, of which the following is a specification.

This invention relates to means for taking copies of written or printed matter or the like, and will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a general perspective view of the apparatus constructed according to this invention, and Fig. 2 a plan of one of the clamps which may be used for holding the top roller in position.

A are two preferably similar end frames of any suitable shape and material conveniently secured upon the base-board or plate B and also connected together by tie rods A'.

C is a roller of wood or other suitable material intended to carry the gelatine or other strip which bears the impression from which the reproductions are to be taken. The roller C is provided preferably with three longitudinal grooves C' C² C³ into the two outer of which—viz., C' C²—the ends of the strip may be inserted for the purpose of fastening it upon the roller, these ends being fixed in the grooves by means of cardboard or equivalent strips or wedges. The middle groove C³ is for receiving the perforator C⁴ which consists of a metal blade having a suitably notched or serrated edge which projects beyond the periphery of the roller C wherein it is secured in any desired manner. The roller C has a spindle C⁵ projecting at each end and passing through the vertical or other slots A² in the standards A so that the roller may rise and fall and be lifted out as required. The depressions A³ in the top of the standards A are for the purpose of holding any of the rollers when out of their position in the machine.

D is a roller having a soft exterior and conveniently made of wood covered with a suitable form of india rubber or gelatine. This roller is also provided with a shaft D' projecting at both ends and carried in the slots A² of the standards A but taking a bearing upon the bottom of those slots. At one end the roller D or shaft D' thereof is provided with a crank handle D³ by means of which

the apparatus is operated. The roller C rests upon the roller D either by its own weight or it may be loaded by springs or other suitable device, or held down by clamps such as hereinafter described.

E is a third roller in frictional contact with C, preferably formed of wood and having a spindle E', projecting at both ends, lying in the slots or open bearings A⁴ in the standards A.

F is the roll of paper which may be carried upon a rod or shaft F' supported by the standards A in two preferably open bearings A⁵ one of which is shown in dotted lines in Fig. 1, the working end or paper of said roll being carried over the roller D between it and the roller C and downward between the rollers D and E.

G G' Figs. 1 and 2 is one of two clamps (hereinbefore referred to) which may be secured, by tightening the screws G' thereof, in any desired position in the slots A² of the two end frames A, each of which latter is provided with a similar clamp. These clamps in practice are adjusted so that they bear upon the two ends of the shaft C⁵ to prevent said shaft and the roller C from rising when perforator C⁴ is perforating the paper or presented toward or in contact with the roller D.

H is one of two similar hooks pivoted to the end frames A and adapted to engage with the ends of the shaft E' for retaining said shaft in the proper working position in the open bearings A⁴ and which to release said shaft may be turned outward conveniently by means of the lugs H'.

The machine is operated in the following manner:—The gelatine or other transfersheet is prepared and provided with the necessary impression usually made in aniline ink in a manner well understood and secured upon the roller C in any convenient manner say by means of the grooves C C² as already explained, the roller C being removed and preferably placed in the depressions A³ for this purpose. Then the paper or other material from the roll F to receive the impressions is carried over the roller D and downward between that and the roller E, and the shaft C⁵ of roller C placed in the slots A² when by turning the handle D³ the roller D is rotated in the direction of the arrows *d* and the rollers

C and E are revolved by their contact with the moving paper and the impressions from the transfer sheet on the roller C come off upon the paper as the latter travels between rollers C and D and this process may be continued until the necessary number of impressions is obtained. At each rotation of the roller C the paper is perforated by perforator C⁴ the flexible surface of roller D for this purpose yielding sufficiently to allow of the paper being pierced or punctured. After being thus perforated the copies may be readily separated. Two or more rollers C may be employed so that one may be prepared while another is being used and the rollers may be of different lengths according to the width of paper to be used. It is desirable to take off an impression or two from the roller C before the proper copying commences. This may be done either upon the paper from the roll F or upon other pieces used for the purpose.

I claim—

In a multiple copying apparatus, the combination with the slotted standards, a driving

roll, provided with a central shaft, projecting at both ends and taking a bearing upon the bottom of the slots, said shaft at one end being bent to form a crank handle, the impression roller above said driving roll provided with a central spindle projecting at each end and passing through the slotted standards, said roll provided with grooves in which are received the ends of the impression strip, the severing knife carried by said roll, the clamps working in the slots of the standards, and capable of being secured in adjusted position, bearing upon the ends of the shaft of the impression roller, and the roller E; substantially as described.

In testimony whereof I have hereto set my hand in the presence of the two subscribing witnesses.

WILLIAM MOSES WILLIAMS.

Witnesses:

F. A. MULLOCH,
Solicitor, Coventry, England.
LINDLEY JOHNSON,
His Clerk.