

No. 887,763.

PATENTED MAY 19, 1908.

S. BROWN.
PRINTING MACHINE.
APPLICATION FILED OCT. 21, 1907.

3 SHEETS—SHEET 1.

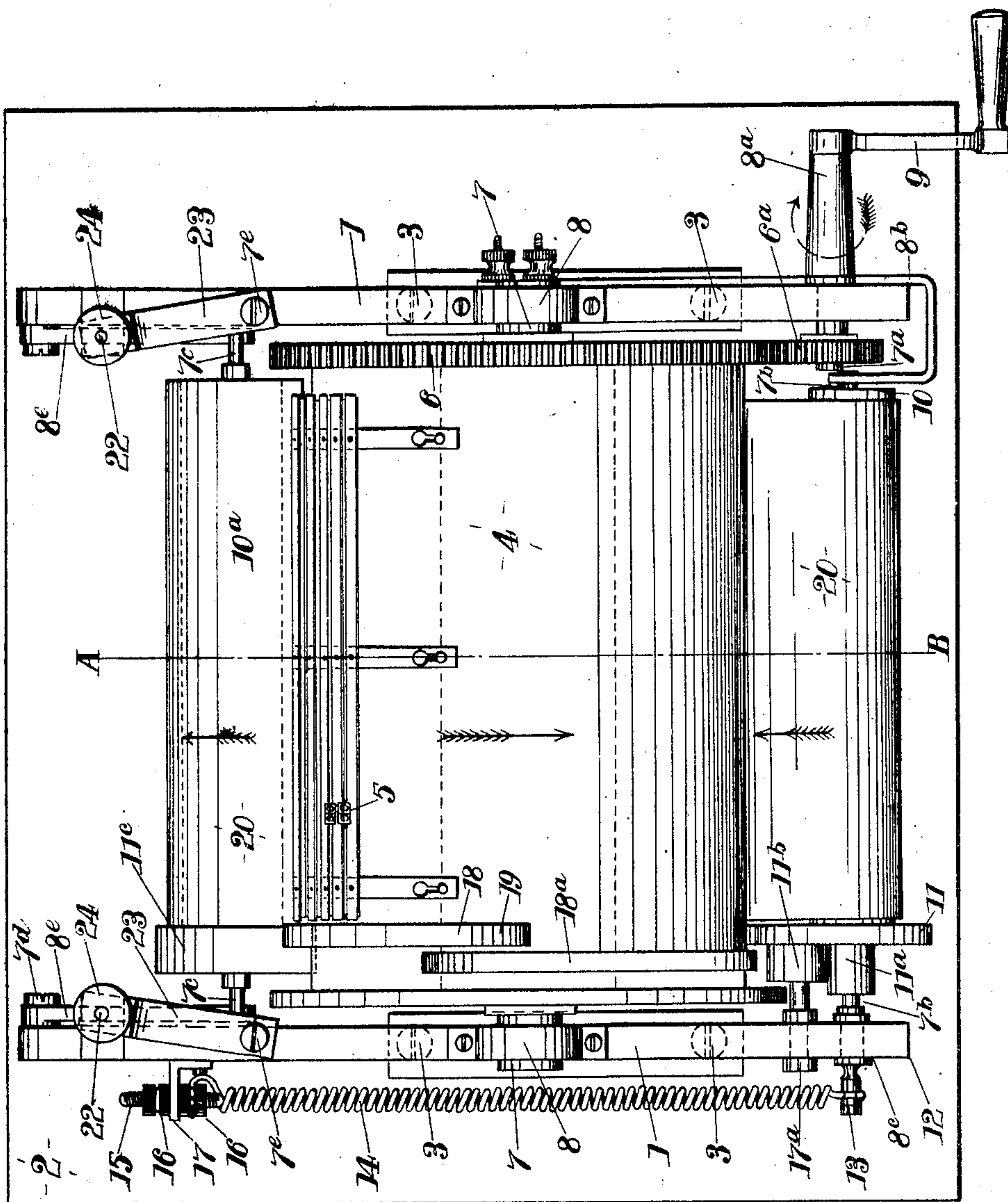


Fig. 1.

Witnesses.
Richard E. Babcock
J. M. Copenhafer.

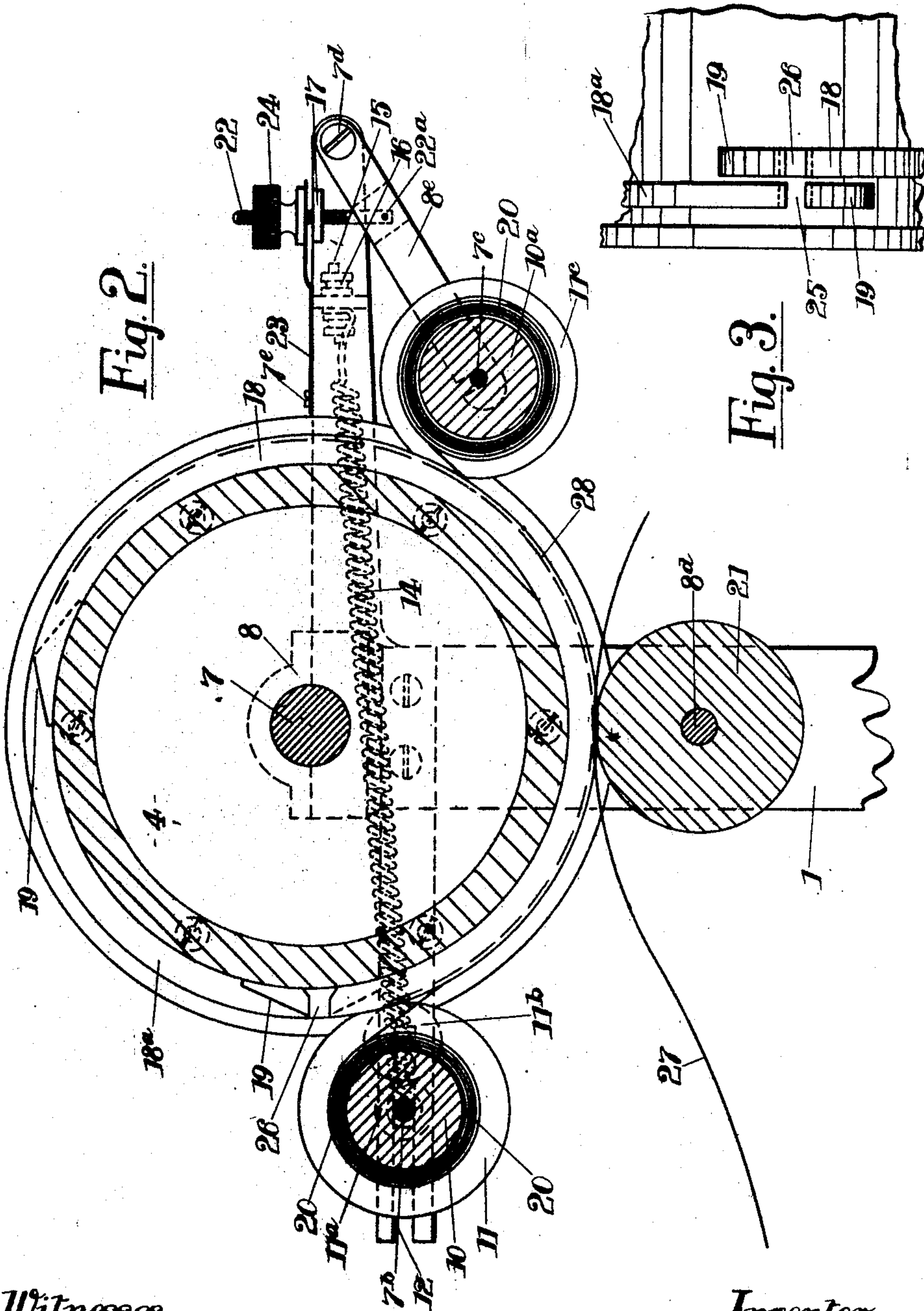
Inventor.
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per W. H. Babcock
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

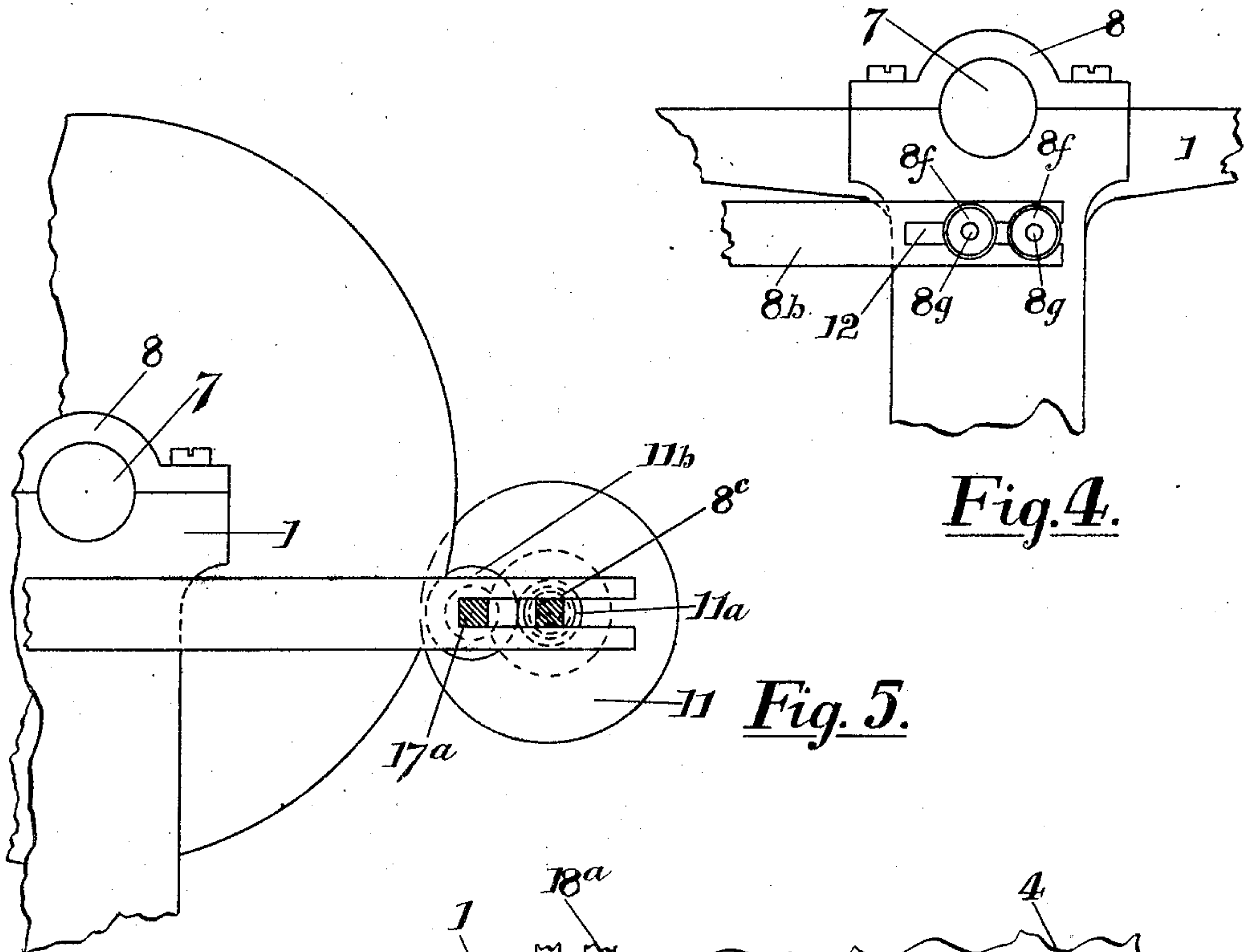


Fig. 4.

Fig. 5.

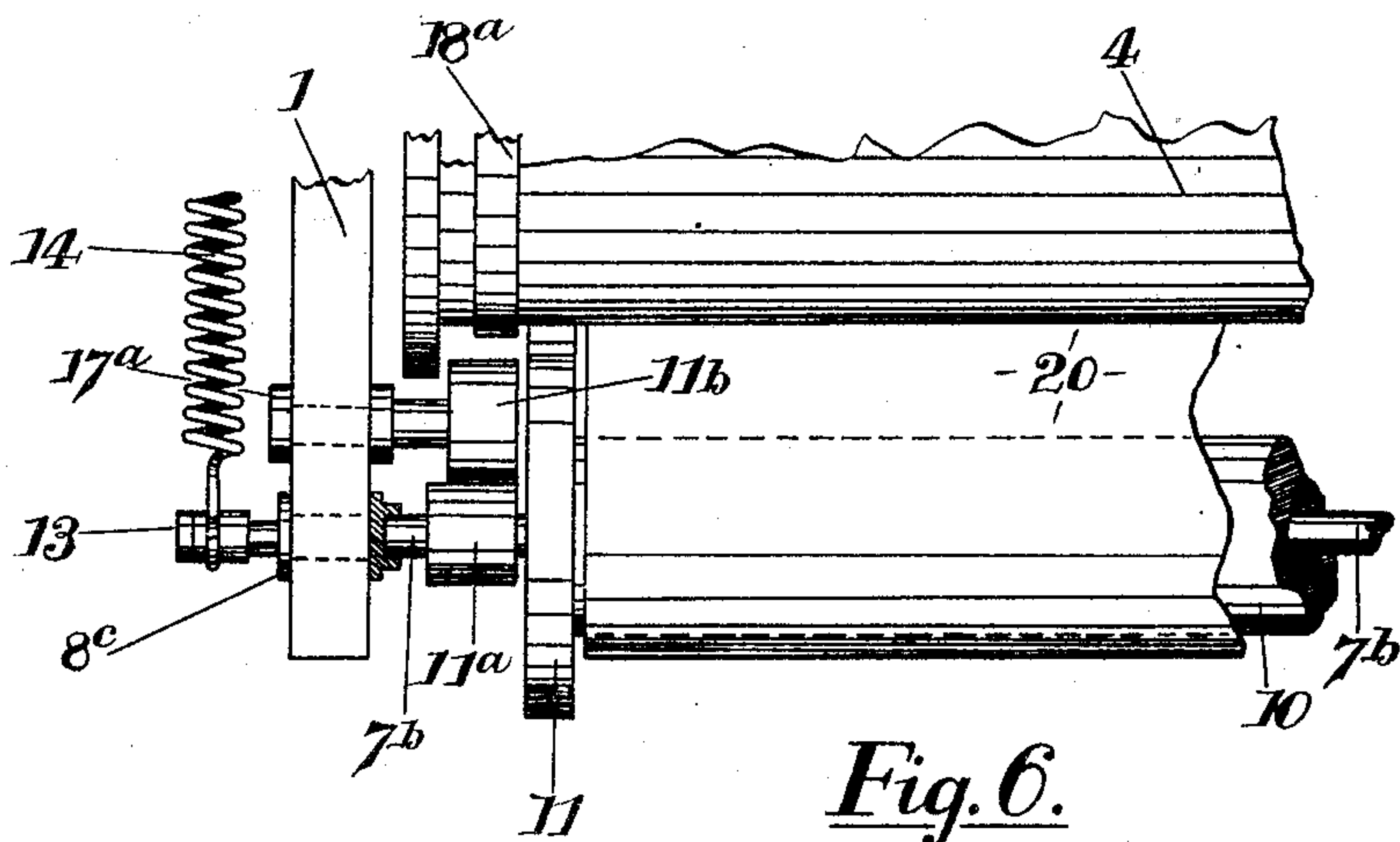


Fig. 6.

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UNITED STATES PATENT OFFICE.

SUMMERS BROWN, OF LONDON, ENGLAND.

PRINTING-MACHINE.

No. 887,763.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed October 21, 1907. Serial No. 398,396.

To all whom it may concern:

Be it known that I, SUMMERS BROWN, residing at 40 Whitecross street, London, England, have invented a certain new and useful Improvement in Printing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improved ribbon feeding devices for use with type partly surrounding the cylinder, drum or equivalent of a rotary printing machine.

To enable my invention to be better understood, I will now proceed to describe the same more particularly by means of the accompanying drawings in which:—

Figure 1 is a plan. Fig. 2 is a part section on line A. B. Fig. 1. Fig. 3 is a plan of part of the drum showing the wedge and method of insertion in cams. Fig. 4 shows in side elevation means for regulating the position of adjustable support carrying one end of the spindle supporting spool. Fig. 5 shows, in side elevation the friction pulley 11 and proximate parts, the studs 8^c and 17^a being cross-sectioned. Fig. 6 is a plan showing part of ribbon roller and the spindle carrying the same stepped into stud adapted to slide in slot in frame.

In the drawings —1— are the side frames which may however vary somewhat in shape depending upon the particular type of printing machine to which my improvements are applied. These frames may be secured to a board —2— or any other suitable base, as by screws —3— shown in dotted lines, or in any like convenient manner.

—4— is a cylinder or drum formed of wood, metal or any other material, part of the cylindrical surface being adapted to receive type characters —5—. A spur wheel —6— is preferably formed in one with, or fitted to one end of the cylinder, which is mounted on a spindle —7— journaled in bearings —8— formed in or secured to the side frames. A suitably proportioned pinion —6^a— engages with said wheel, and is mounted upon a spindle —7^a— which passes through a cap, boss or equivalent form of bearing —8^a— and is fitted with a crank handle —9—. Pivoted in an adjustable and separate support —8^b— is a spool —10— formed of wood or the like,

one end of which may be fashioned into a frictional pulley —11— and by the side of this pulley, or formed in one with it is a smaller pulley —11^a— the spindle —7^b— being driven or forced through a central hole bored in the spool, and both pulleys, and mounted in a bearing —8^c— adapted to slide in a slot —12— formed in the side of the frame: the extreme end of this bearing being so shaped as at —13— as to permit of the attachment of a spiral spring —14— the other end of which is fitted with an adjusting screw —15— and nuts —16— mounted in a lug or bracket —17— attached to the frame. A small friction pulley —11^b— revolves upon a stud —17^a— which is mounted in slot —12— and has slight freedom of movement longitudinally. Formed in one piece with or attached to the periphery of the drum are two mutilated cams —18—, —18^a— which occupy a relatively definite position to each other, their ends being tapered off as at —19—.

The inner cam —18— engages by friction at a suitable stage in the rotation of the cylinder with the larger friction pulley —11— and causes it to unwind the printing ribbon —20— sufficiently for taking the impression of the type on paper —27—; the outer cam —18^a— engages with the idler friction pulley —11^b— mounted upon stud —17^a— and drives the pulley —11^a— operating spool —10— in the reverse direction, thus winding back the ribbon. The effect of this is that the friction pulley —11^c— on spool —10^a— works against the action of both cams, being permitted to skid by the adjustment of the tension springs —23—. An ink ribbon —20— of suitable length is wound upon the spool —10— and after passing over platen roller —21— mounted on spindle —8^d— is then wound in the direction shown upon the second spool —10^a— which is mounted upon a spindle —7^c— supported by brackets —8^e— pivoted by screws —7^d— or the like to the frame, the brackets being adjusted and supported elastically by rods —22— pivoted to the brackets as at —22^a— and passing through leaf springs —23— fastened to the frame by screws —7^e— or the like and fitted with nuts having milled heads —24—. In order that the same surface of the ribbon should not be presented to the face of the type continuously a slot —25— see also Fig.

3. is formed transversely through both the cams —18—, —18^a—, and a wedge —26— adapted to slide or be transferred from one to the other, the effect of the wedge being to lengthen the operative surface of contact of the particular cam in which it is inserted. If for instance the wedge is inserted in cam —18— which drives the friction pulley —11— the effect of such insertion will be that a fresh portion of the ribbon will be advanced a certain predetermined distance each revolution, but if the wedge be withdrawn from this cam, and inserted in cam —18^a— the ribbon will be returned a certain predetermined distance each revolution.

The support —8^b— is adjustably mounted by operating the milled headed nuts —8^c— see Fig. 4. which engage with screwed pins —8^e— passing through a slot —12— in the bent metallic strip forming this support and into the frame —1—, the spindle —7^b— passing through spool —10— is pivoted in support —8^b— and also in the sliding bearing —8^c— see Fig. 5, operated by springs —14—. The spindle —7^b— also carries the pulley —11^a— which is forced into contact with the idler pulley —11^b— by spring —14—. The adjustable support operated as described is necessary to preserve the true alinement of the spool —10— carrying ribbon —20—. It is necessary that the idler pulley —11^b— should be adjustably mounted on the stud —17^a— having slight longitudinal movement so that it may in response to the action of spring —14— effect the required frictional driving contact with cam —18^a— and pulley —11^a—.

The operation of my invention is as follows:— Upon rotating the crank handle —9— in the direction of the arrow the ribbon —20— is unwound sufficiently to permit an impression to be taken upon the paper —27— fed over the platen roller —21— which is forced thereby upon the ribbon overlaying the type —5— set up or mounted upon the drum —4— in any suitable manner. The friction set up between the cam —18— and pulley —11^a— sufficing to rotate the spool and wind up the ribbon thereon. This continues until the cam —18— disengages itself from pulley —11— by means of the tapering ends and the gap between the same, when the cam —18^a— engages the idler pulley —11^b— on stud —17^a— which drives the pulley —11^a— attached to the spool —10— in the reverse direction, thus winding up the ribbon. The wedge —26— is shown inserted in the slot —25— thus lengthening the operative contact surface of cam —18— and thereby causing the ribbon to advance by a definite amount depending upon its width. As the operation of printing continues the length of the ribbon on spool —10^a— gradually in-

creases over that upon spool —10— until such time as the operator may determine to return it to spool —10—. He then shifts the wedge —26— to slot —25— when the reverse action takes place and the ribbon accumulates upon spool —10—.

It will be understood that the necessary friction to cause the pulleys —11—, —11^a—, and —11^b— to engage with the cams —18—, —18^a— and effect their rotation is effected by the spiral spring —14— the tension of which is governed by the nuts —16— the pulley —11^a— on spool —10^a— being kept in elastic contact with the cams by means of the swinging bracket —8^e— and adjusting nuts —24— threaded upon the hinged pin —22— which passes through the leaf spring —23— mounted upon frame —1—. The rotary printing machine shown in the drawings is diagrammatically representative of its class, but in the case of rotary printing machines having a different construction of frame or detail, the spiral spring, leaf spring, slots and other cooperating parts shown will be subject to variation to meet each particular case.

The type, which in the drawing Fig. 1. is shown mounted in a flexible form may be set up in any other convenient manner the dotted type face line —28— shown in Fig. 2 being merely intended as a guide for the purpose of description.

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

1. A rotary printing drum carrying type, in combination with a ribbon traveling in contact therewith and frictionally operated means for causing the travel of said ribbon forward and backward alternately for the purpose set forth.

2. A rotary printing drum and its ribbon, in combination with spools on which the latter winds at its ends, mutilated cams, means for turning said cams, and parts turning with said spools and held in yielding contact with said cams, in order that the latter may cause the said ribbon to travel forward and backward substantially as set forth.

3. A rotary printing drum and its traveling ribbon, in combination with a mutilated cam for causing a reversed motion of said ribbon, an idler pulley in contact with said cam, a slotted part in which said idler pulley is mounted, means for turning said cam and a pulley carried by one of the spools and in engagement with said idler pulley substantially as set forth.

4. A rotary printing drum and two extensible slotted cams carried thereby, in combination with a wedge adapted to be inserted in the slot of either cam for extending its contact surface, a ribbon in contact with said

drum and means for causing said ribbon to travel forward and backward, such means being actuated by said cams, and such adjustability of the cam surfaces permitting a
5 fresh part of the ribbon to be presented for use at each forward movement of said ribbon substantially as set forth.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

SUMMERS BROWN.

Witnesses:

H. D. JAMESON;

A. NUTTING.