

No. 667,474.

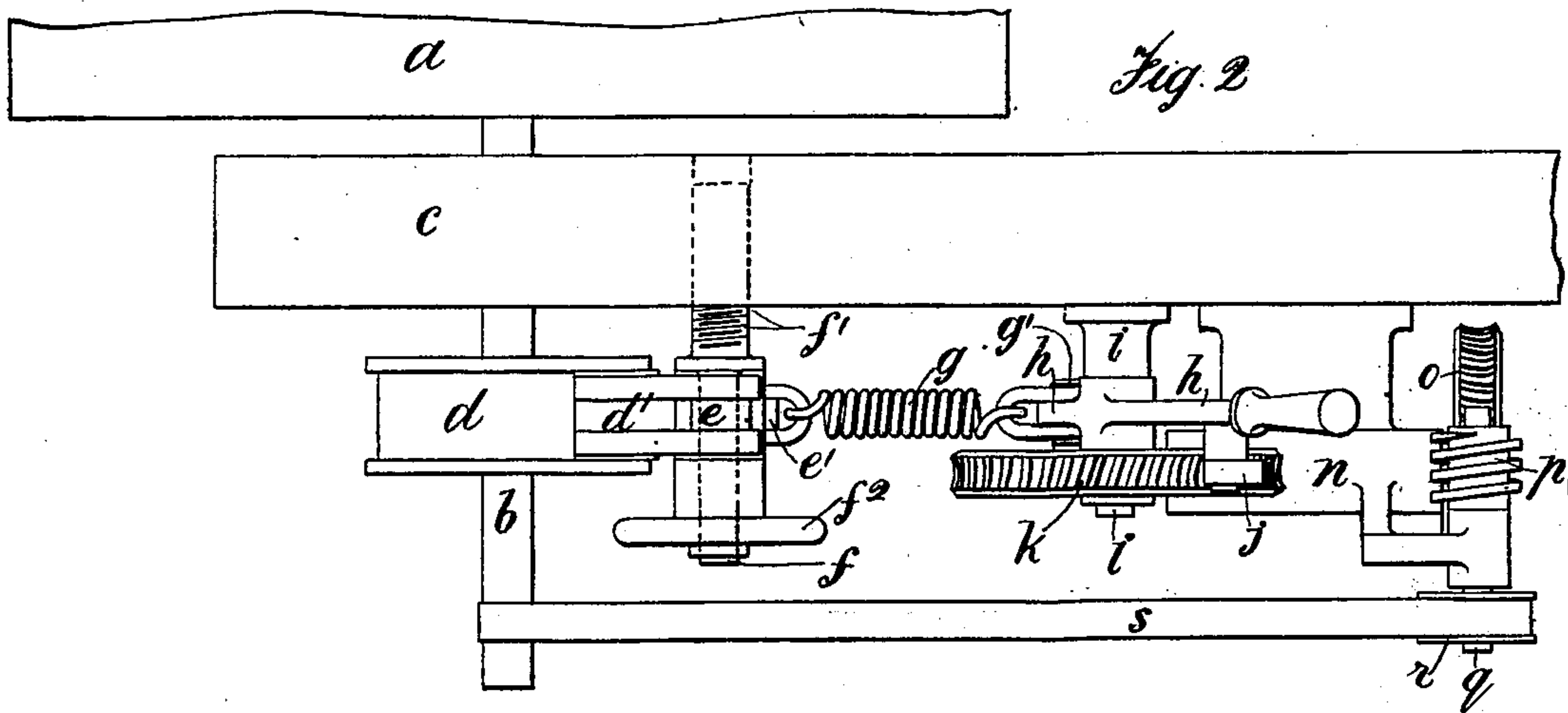
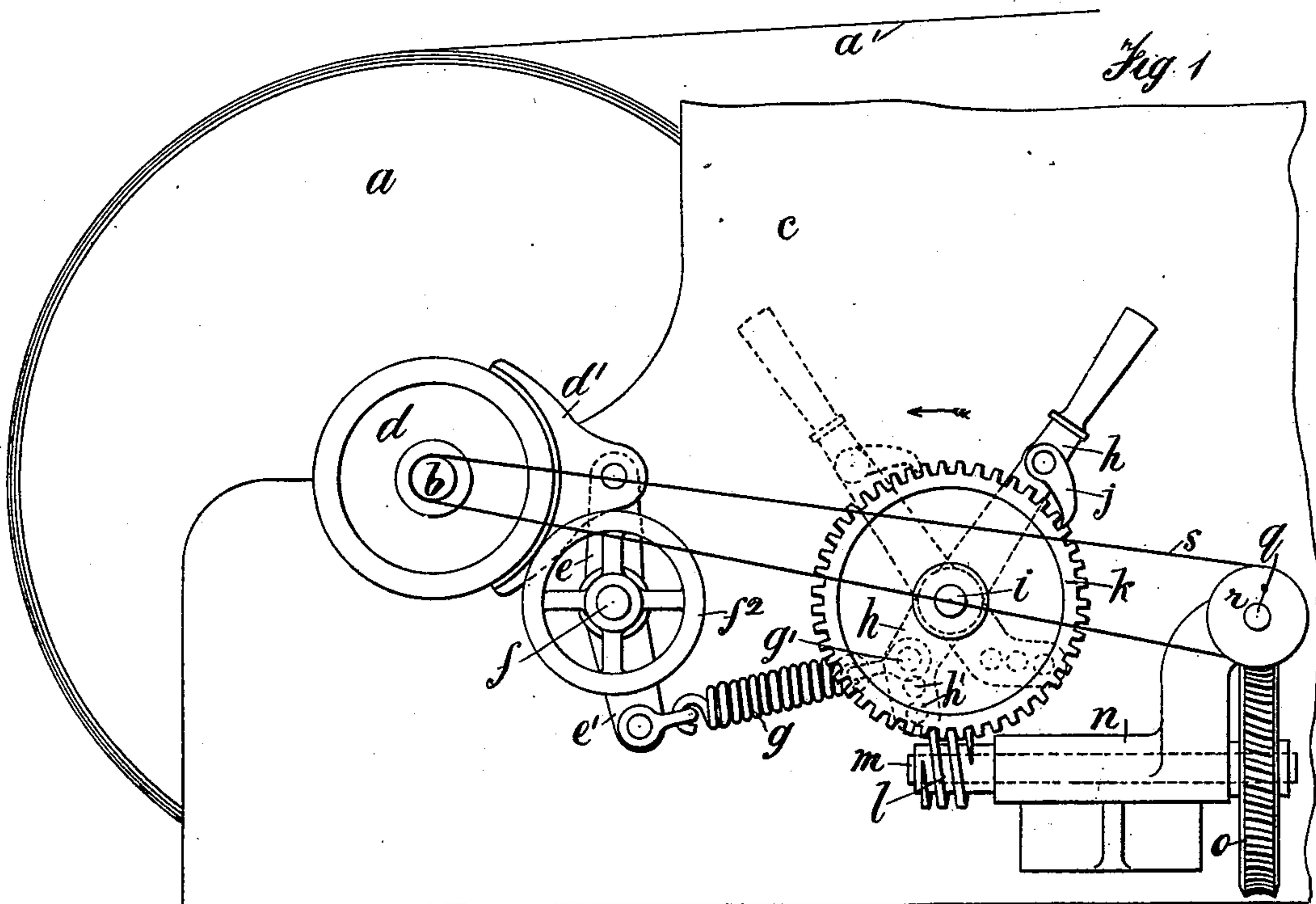
Patented Feb. 5, 1901.

G. A. WILSON.
BRAKE FOR PAPER REELS.

(Application filed Mar. 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

W. B. Johnson
H. Duggan.

Inventor

George Ashley Wilson

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2 Sheets—Sheet 2.

Fig. 3

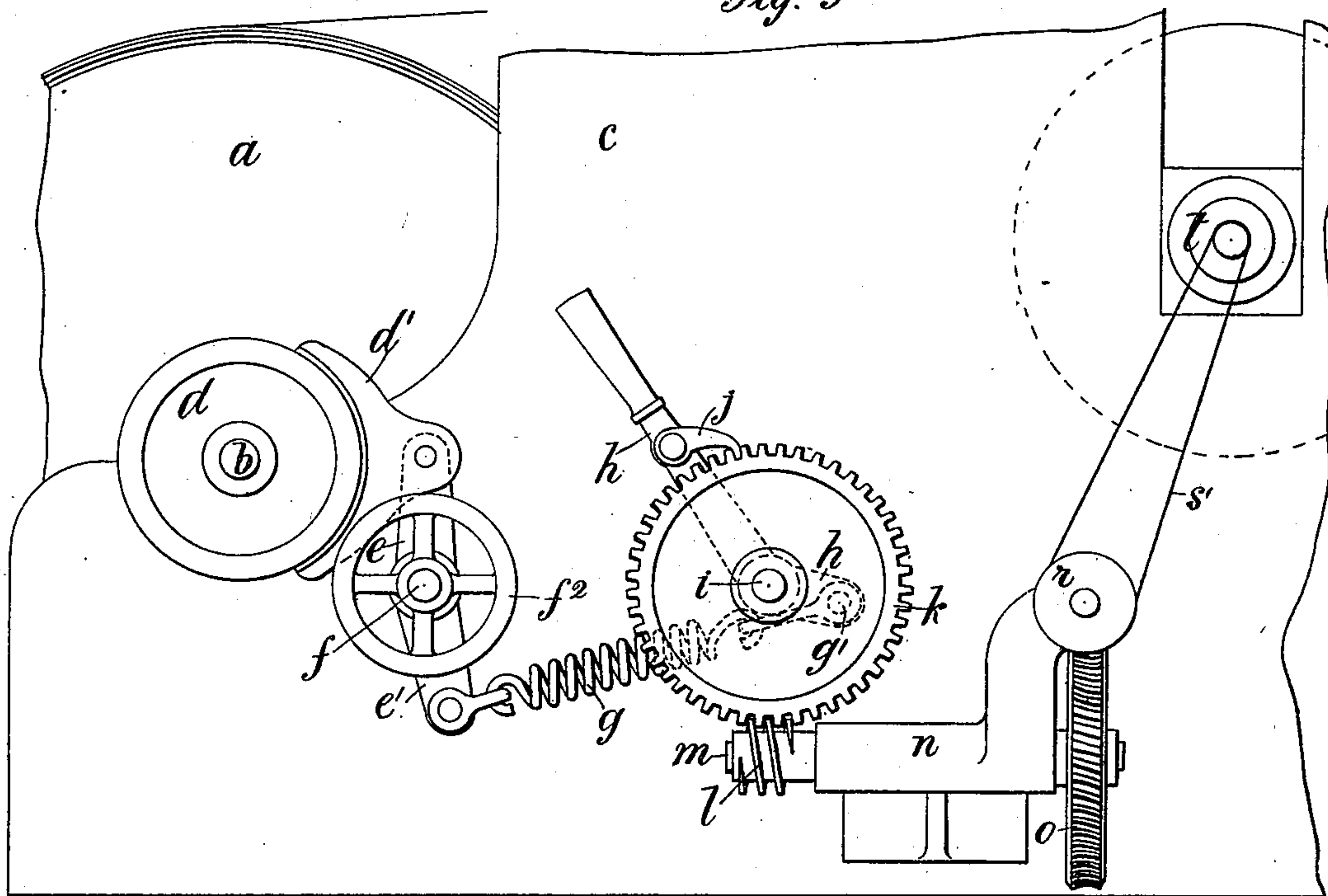
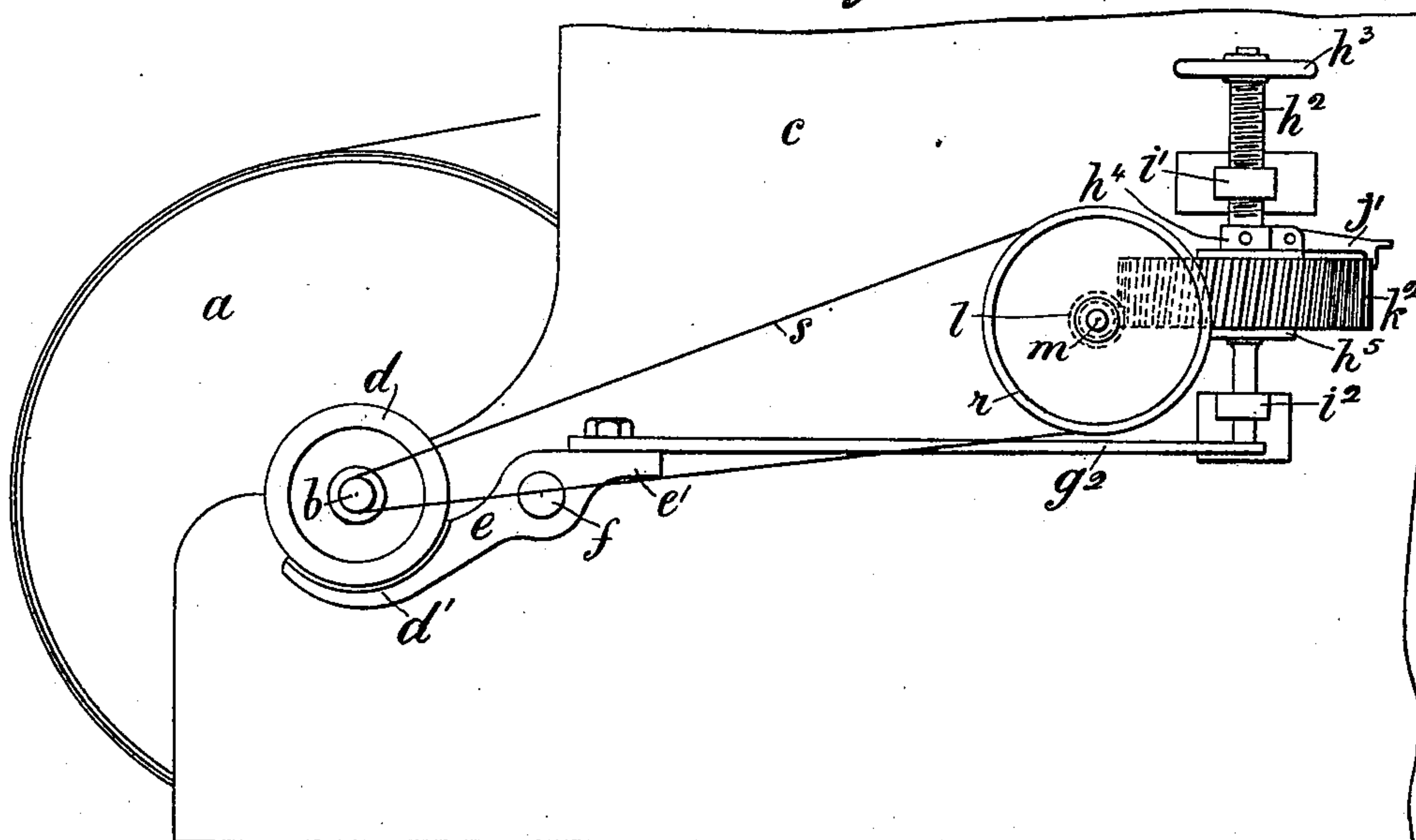


Fig. 4



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UNITED STATES PATENT OFFICE.

GEORGE ASHLEY WILSON, OF EGREMONT, ENGLAND.

BRAKE FOR PAPER-REELS.

SPECIFICATION forming part of Letters Patent No. 667,474, dated February 5, 1901.

Application filed March 8, 1900. Serial No. 7,864. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ASHLEY WILSON, a subject of the Queen of Great Britain, residing at Egremont, in the county of Chester, England, have invented new and useful Improvements in or Connected with Brakes for the Paper-Reels of Web-Printing Machines, of which the following is a specification.

10 In web-printing machines it is desirable that the tension on the web of paper being drawn off the roll or reel to be printed upon should be maintained uniform. This is, however, difficult owing to the diameter of the
15 reel of paper varying as the paper is unwound, and in operating it is necessary to regulate frequently by hand the pressure of the brake which is commonly used to press against a brake-drum on the axle of the reel of paper.
20 This regulating needs constant and skilful attention on the part of the operator, and if it is neglected, which is often the case, the result is irregularity in feeding the web and in folding and great liability to tearing of the
25 web owing to the tension becoming greater as the reel becomes smaller.

The object of my invention is to provide means whereby the pressure on the brake may be gradually and automatically released
30 by the action of the machine, and thus the continual attention of a skilled operator be dispensed with. I attain this object by mechanism such as is illustrated in the accompanying drawings, in which—

35 Figure 1 is a side elevation of the mechanism as applied to a web-printing machine. Fig. 2 is a plan of the same. Fig. 3 is a side elevation of a modification with the releasing-gear operated from a different part of the
40 machine. Fig. 4 is a side elevation of another modification of releasing-gear.

Referring to Figs. 1 and 2, *a* is a reel or roll of paper, with its axle *b* carried in bearings in the frame *c* of a printing-machine in the usual way. *d* is the usual brake-wheel
45 secured on the axle *b*. *d'* is the brake carried on a lever *e*, pivoted on a shaft *f*, screwed at *f'* into the frame *c* and provided with a hand-wheel *f²*, by turning which the shaft *f*
50 can be screwed more or less into the frame *c*, and thereby the reel of paper can be adjusted laterally, as desired. I operate the brake *d'*

preferably through the medium of a spring *g*, connected to one end *e'* of the lever *e*. The other end of the spring is connected to a regulating device, such as a lever *h*, pivoted on a stud *i*, projecting from the frame *c*. The lever *h* is provided with a pawl *j*, taking into the teeth of a worm-wheel *k*, free to rotate on the stud *i*. The wheel *k* is operated by a
60 worm *l*, secured on a shaft *m*, which is carried in a bracket *n* and is provided with a worm-wheel *o*, operated by a worm *p*, secured on a shaft *q*, also carried in bearings on the bracket *n*. The shaft *q* is provided with a
65 pulley *r*, which is driven by a belt *s* from the axle *b*. By moving the lever *h* in the direction of the arrow the desired pressure may be put on the brake-wheel by hand, and as the paper is unwound from the reel *a*, thereby
70 reducing the diameter and requiring a less pressure of the brake, the wheel *k* is by the worm-gear and belt above described caused to rotate in the reverse direction to the arrow, thus gradually releasing the pressure on
75 the brake-wheel and keeping the tension on the web *a'* uniform. It will be observed that owing to the rate of rotation of the axle *b* increasing the rate of release of the brake as compared with the travel of the web *a'* in-
80 creases as the diameter of the reel *a* becomes smaller, until when nearly all the paper is unwound the pressure on the brake-wheel is *nil* or nearly so. By taking off the belt *s* the brake may be used as an ordinary hand-brake
85 by manipulating the lever *h* and pawl *j* by hand. The above-described releasing-gear may be used for two or more reels by the lever *e* being connected through suitable equalizing-levers to the brakes on the several brake-
90 wheels. In order to vary the extreme tension of the spring *g*, and therefore the initial pressure of the brake, without varying the angle of movement of the lever *h* and still to reduce the brake-pressure to *nil* when the
95 reel is unwound, such spring may be connected to the lever *h* at various points by fitting the connecting-pin *g'* into any of the holes *h'*, or the pin *g'* may be connected to a sliding block or other equivalent device in the
100 lever *h*.

Referring to Fig. 3, the arrangement of parts in this modification is the same as in Figs. 1 and 2, except that the pulley *r* is in-

tended to be driven by a belt s' from a moving part of the machine, which has a uniform rotative movement, such as the axle t of one of the printing-cylinders, and to insure that
 5 the rate of release of the brake shall increase as the diameter of the reel a decreases or as the paper is unwound the lever h is so arranged that the connecting-pin g' of the spring g is nearly at a dead-point when such
 10 spring is fully extended, as shown. Like letters indicate similar parts as in Figs. 1 and 2.

Referring to Fig. 4, in this modification the brake d' is formed as part of the lever e , pivoted on the shaft f , and the spring connection
 15 is a flat spring g^2 , forming also an extension of one arm e' of the lever e . h^2 is a screwed shaft working through a nut i' , carried on an arm projecting from the frame c and bearing on the spring g^2 . h^3 is a hand-wheel for operating the screw h^2 to put pressure on the
 20 spring g^2 and brake. i^2 is a guide for the end of the shaft h^2 . k^2 is a broad flat-faced worm-wheel loose on the shaft h^2 , but capable of being locked thereto by a detent j' , pivoted
 25 to a collar h^4 , secured to the shaft and taking into the teeth in the wheel k^2 , so that the wheel and shaft can be turned together. The wheel k^2 is also caused by the collars h^4 h^5 to move up and down with the shaft h^2 . l is a
 30 worm for operating the wheel k^2 . The worm l is secured on a shaft m , carried in bearings in the frame c . To the shaft m is also secured the pulley r , driven by a belt s from the axle b , so that as the reel a is unwound
 35 the wheel k^2 screws back the shaft h^2 and gradually reduces the pressure on the brake-wheel d .

I do not confine myself to releasing the brake at an increasing rate, as if found more
 40 convenient it may by suitably arranging the parts be released at a uniform rate, or nearly so, nor do I confine myself to the particular arrangements of mechanism shown, as it will

be obvious that many modifications of devices may be made without departing from
 45 the scope of my invention to effect the same purpose; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a reel of paper of
 50 brake mechanism, devices for applying the brake, and automatically-operated devices connected to a positively-moving part of the machine for gradually releasing the brake substantially as described.

2. The combination with a reel of paper of
 55 brake mechanism, devices for applying the brake, spring connections between the brake and the devices for applying the brake, and automatically-operated devices connected to
 60 a positively-driven part of the machine for gradually releasing the brake substantially as described.

3. The combination with a reel of paper of
 65 brake mechanism, devices for applying the brake, and automatically-operated devices connected to a positively-driven part of the machine for gradually and continuously releasing the brake substantially as described.

4. The combination with a reel of paper of
 70 brake mechanism, devices for applying the brake, spring connections between the brake and the devices for applying the brake, devices for varying the initial pressure of the brake and automatically-operated devices
 75 connected to a positively-driven part of the machine for gradually releasing the brake substantially as described.

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

GEORGE ASHLEY WILSON.

Witnesses:

W. B. JOHNSON,
 H. DUGGAN.