

(No Model.)

E. H. COTTRELL.

APPARATUS FOR FEEDING PAPER OR OTHER FABRIC FROM ROLLS.

No. 477,352.

Patented June 21, 1892.

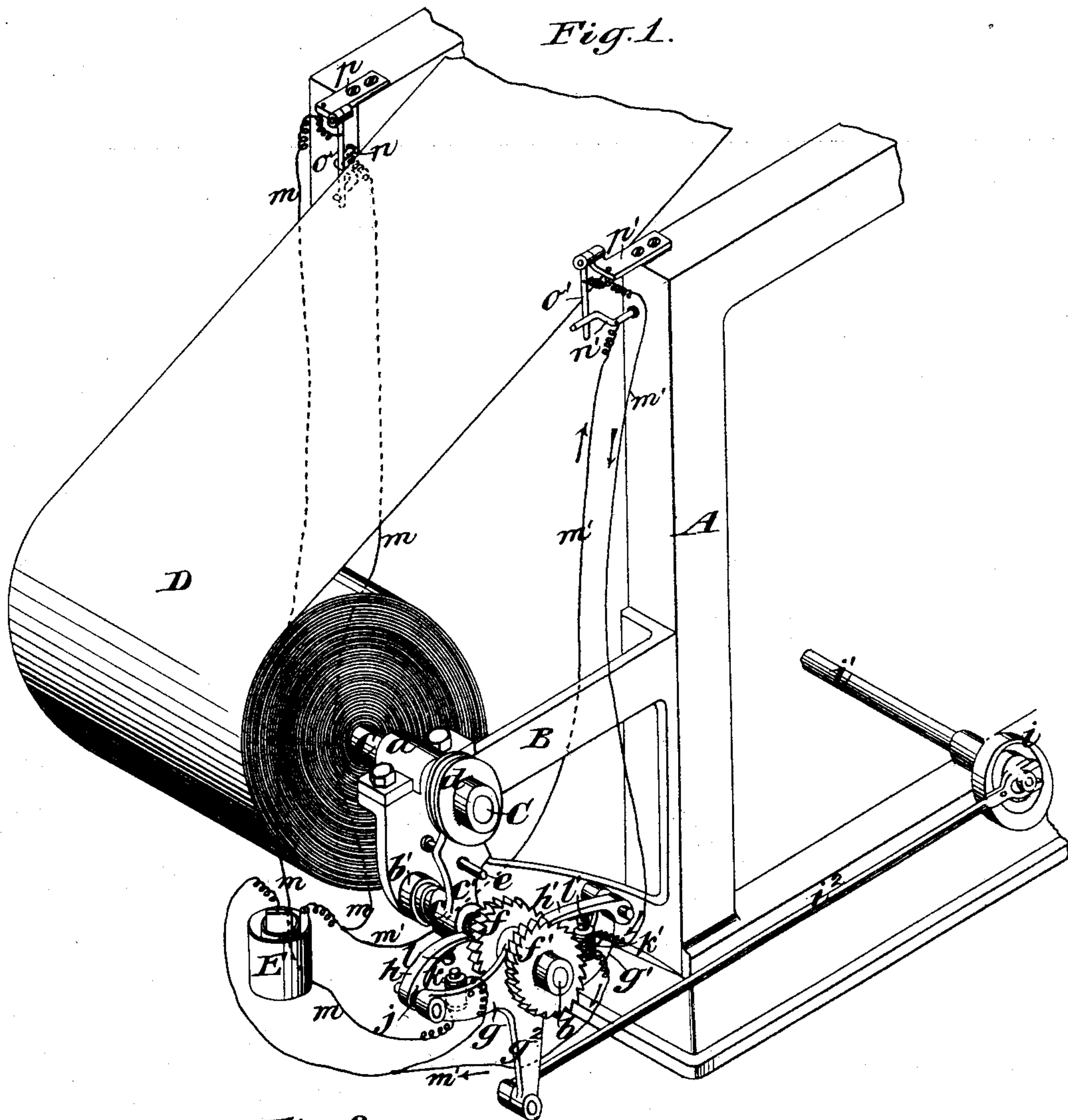


Fig. 2.

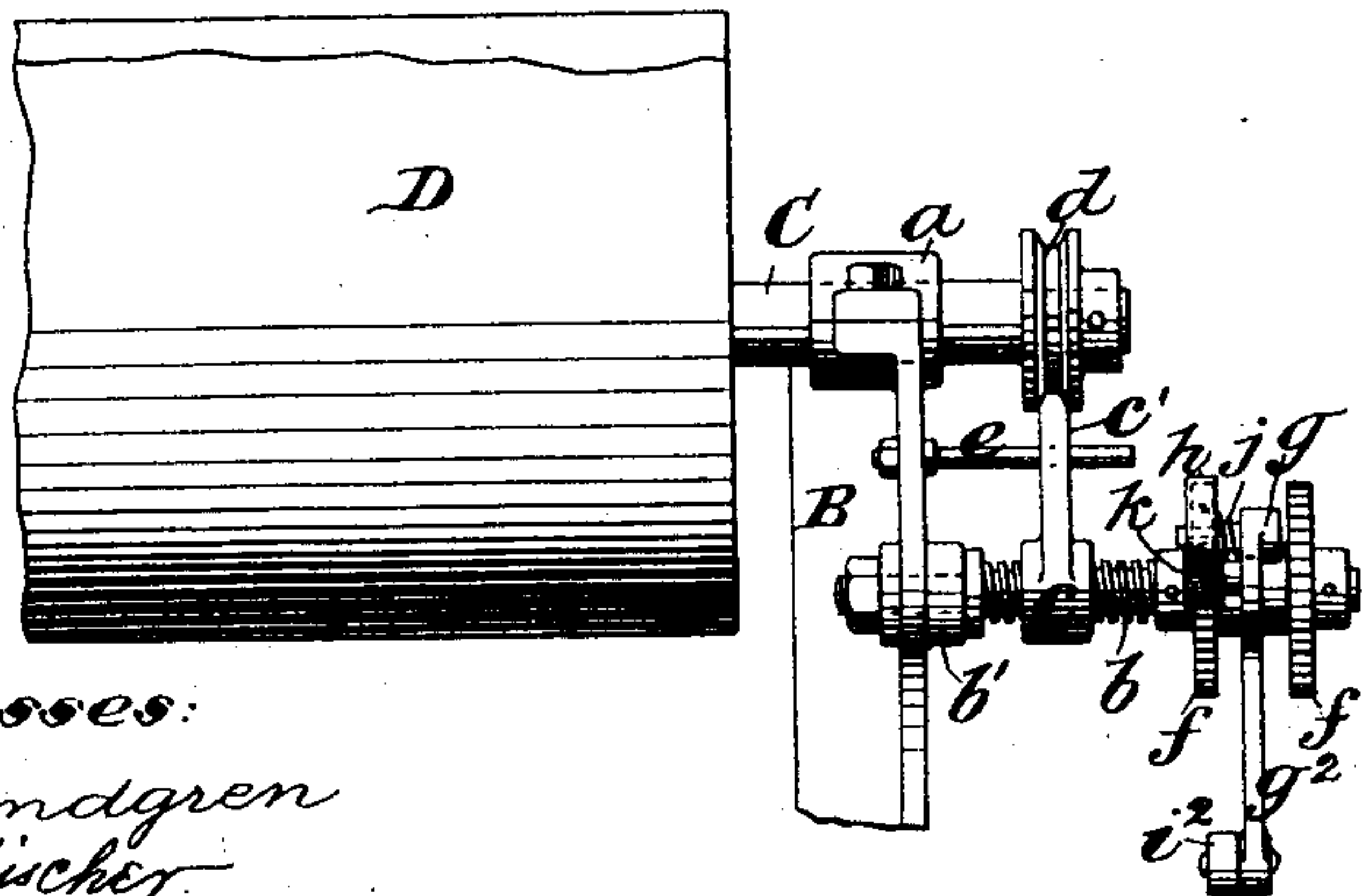
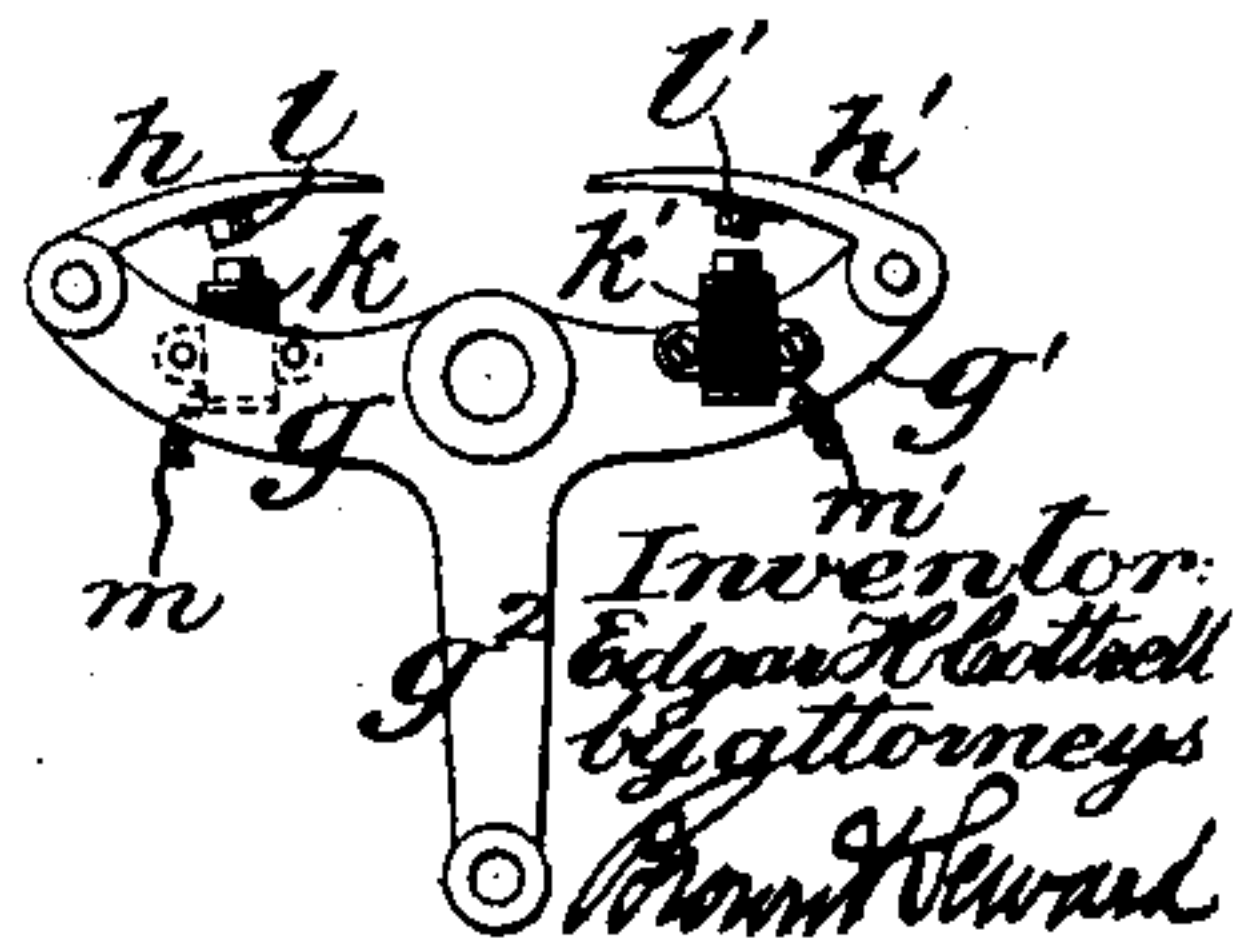


Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR FEEDING PAPER OR OTHER FABRIC FROM ROLLS.

SPECIFICATION forming part of Letters Patent No. 477,352, dated June 21, 1892.

Application filed June 13, 1891. Serial No. 396,093. (No model.)

To all whom it may concern:

Be it known that I, EDGAR H. COTTRELL, of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Apparatus for Feeding Paper or other Fabrics from a Roll, of which the following is a specification, reference being had to the accompanying drawings.

This invention is applicable to or in connection with printing-machines or other machines to which a web of paper or other fabric is to be fed from a roll.

Its object is to insure the running of the web in or between proper lines, notwithstanding any tendency toward lateral diversion from such line or lines resulting from imperfect winding of the roll or other causes.

I will first describe my invention with reference to the drawings, which represent its application to a printing-machine, and afterward point out its novelty in claims.

Figure 1 is a perspective view of one end of the machine. Fig. 2 is a rear view showing part of the width of a roll of paper, one end of the roller from which said roll is to be unwound, one of the bearings for said roller, and the attachment to said roller for shifting it lengthwise, as will be hereinafter described. Fig. 3 is a side view of a portion of the mechanism shown in Figs. 1 and 2.

Similar letters of reference designate corresponding parts in all the figures.

A is the main framing of the machine, to the rear end of which are secured brackets B, only one of which is shown, in which are the journal boxes or bearings *a* for the support of the roller C, upon which is rolled the web D of paper. The said roller C is capable not only of turning but also of moving lengthwise in the said journal-boxes for the purpose of carrying the roll of paper to the right hand or to the left to compensate for any tendency to lateral diversion in the course of the web into the machine. It is in the mechanism for producing this lengthwise movement of the roller and in the device for actuating this mechanism that the present invention consists.

In the example which I have represented

to illustrate my invention the mechanism for producing the longitudinal movement of the said roller consists of a screw *b* and a nut *c*, fitted thereto. The said screw is arranged parallel with the roller and fitted to turn freely, but confined longitudinally, in the bearing *b'* in one of the brackets B, and the said nut has affixed to it a projecting tongue *c'*, the end of which engages in a groove in a collar *d* on the roller C. A guide-pin *e*, arranged parallel with the screw *b* and secured in the bracket B, passes through a hole in the said tongue *c'* and so prevents the said nut from turning, while permitting the movement of the nut lengthwise upon the screw when the screw is turned for the purpose of producing the longitudinal movement of the roll.

The actuating devices for turning the screw *b* in one direction or the other, according to the direction in which it is desired to move the roller C and the roll D upon it, are represented as consisting of two ratchet-wheels *ff'*, having their teeth set in opposite directions, and a three-armed lever *g g' g²*, carrying on its opposite arms *g g'* pawls *h h'* for engaging with the said ratchet-wheels, the said ratchet-wheels being fast on the screw *b* and the said lever, of which Fig. 3 is a side view, working on the head or neck of said screw as its fulcrum. The lever is intended to have a regular oscillating motion upon the screw. This motion may be produced by any suitable means from any part of the printing-machine—as, for instance, from a cam *i* on the shaft *i'*—which may be the shaft provided for operating the lift motion of the impression-cylinder, the said cam operating upon the lever through a rod *i²*, connected with the arm *g²* of the lever. By the oscillation of the lever, if either pawl *h* or *h'* be in engagement with respective ratchet-wheel, the screw will be turned in one direction or the other, according to which pawl it is that is in engagement. The pawls *h h'* are only intended to engage with the ratchet-wheels when in consequence of the diversion of the web it becomes necessary to shift the roller, and at all other times the pawls are both held up out of engagement with the ratchet-wheels by springs *j* coiled around their pivots.

I produce the engagement of the pawls $h h'$ with their respective ratchet-wheels by means of the edges of the web itself whenever its diversion from the true course occurs. The means I have represented for this purpose will now be described. $k k'$ are two electro-magnets attached one to each of the arms $g g'$ of the three-armed lever. The armatures $l l'$ of the said magnets are attached to the pawls. The said magnets are represented as arranged in two branches $m m'$ of the circuit of a battery E, and in one of these circuits is a closing device $n o$ and in the other one a similar closing device $n' o'$. These two circuit-closing devices are both open normally or when the web is running its proper course, but one or other of the said devices is closed by the contact with it of one or other of the edges of the web whenever any diversion of the latter occurs, and then one or other of the magnets g or g' brings its respective pawl h or h' into gear with its respective ratchet-wheel f or f' , and so causes the screw b to be turned in a direction to move the nut c and the roller C in an opposite direction to that of the diversion of the web. For instance, I will suppose that the diversion is to the right of Figs. 1 and 2. The circuit-closer $n' o'$ will be acted upon by the web and the circuit closed through the branch m' and the magnet k' , and the pawl h' will thus be thrown into engagement with the ratchet-wheel f' and the screw will be turned in a direction to move the nut c and the roller C and the web D to the left; or if, on the other hand, the diversion is to the left, the circuit-closer $n o$ will be acted upon and the circuit closed through the branch m and magnet k , causing the pawl h to be brought into engagement with its ratchet-wheel f , and thereby produce the movement of the nut c , the roller C, and web to the right.

The circuit-closers represented are composed of stationary members $n n'$ and movable members $o o'$, the stationary members $n n'$ being secured in the framing A of the machine and the movable members consisting of pendent rods $o o'$, hinged to plates $p p'$, secured to the framing. The pendent rods $o o'$ in their normal condition hang just clear of the stationary members $n n'$ in such positions that the sheet running its proper course will pass between them without or scarcely touching them. The diversion of the web to either side will bring the edge of the web against the pendent piece o or o' on that side and bring the latter into contact with its corre-

sponding stationary member n or n' and close whichever branch of the circuit may be necessary to bring the proper pawl into engagement with its ratchet-wheel to turn the screw in the proper direction to shift the roller C in the proper direction to compensate for or correct the diversion.

What I claim as my invention is—

1. The combination, with a roller for carrying or supplying a web of paper or other fabric and bearings for said roller, of actuating mechanism for moving the said roller longitudinally in its bearings, an electric circuit, including an electro-magnet for setting in motion said actuating mechanism and a circuit-closing device adapted to be actuated by the lateral movement of the web, substantially as set forth.

2. The combination, with a roller for carrying or supplying a web of paper or other fabric and bearings for said roller, of actuating mechanism, substantially as herein described, for moving the said roller longitudinally in its bearings, reversing devices, substantially as herein described, for moving said actuating mechanism in one direction or the other, two electric circuits, each including an electro-magnet for throwing one or the other of said reversing devices into engagement, and circuit-closers, one for each of said circuits, arranged one near one edge and the other near the other edge of the web to be operated by the lateral diversion of the web for producing the movement of the roller in the opposite direction to said diversion, substantially as herein set forth.

3. The combination, with the longitudinally-movable roller C, the screw b , and the nut c on said screw engaging with said roller, of the two ratchet-wheels $f f'$ on said screw, having their teeth set in opposite directions, the lever $g g' g^2$, fulcrumed on said screw and furnished with pawls $h h'$ to engage with said ratchet-wheels, the electro-magnets $k l k' l'$ between said lever and pawls, the two electric circuits $m m'$, and the circuit-closers $n o n' o'$, one for each circuit, the web from the roller C being arranged to pass between the movable members of the circuit-closers, whereby the lateral diversion of the web serves to close one or the other circuit, all substantially as and for the purpose herein set forth.

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Witnesses:

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