

(No Model.)

P. SMITH, JR. & S. AMBLER.

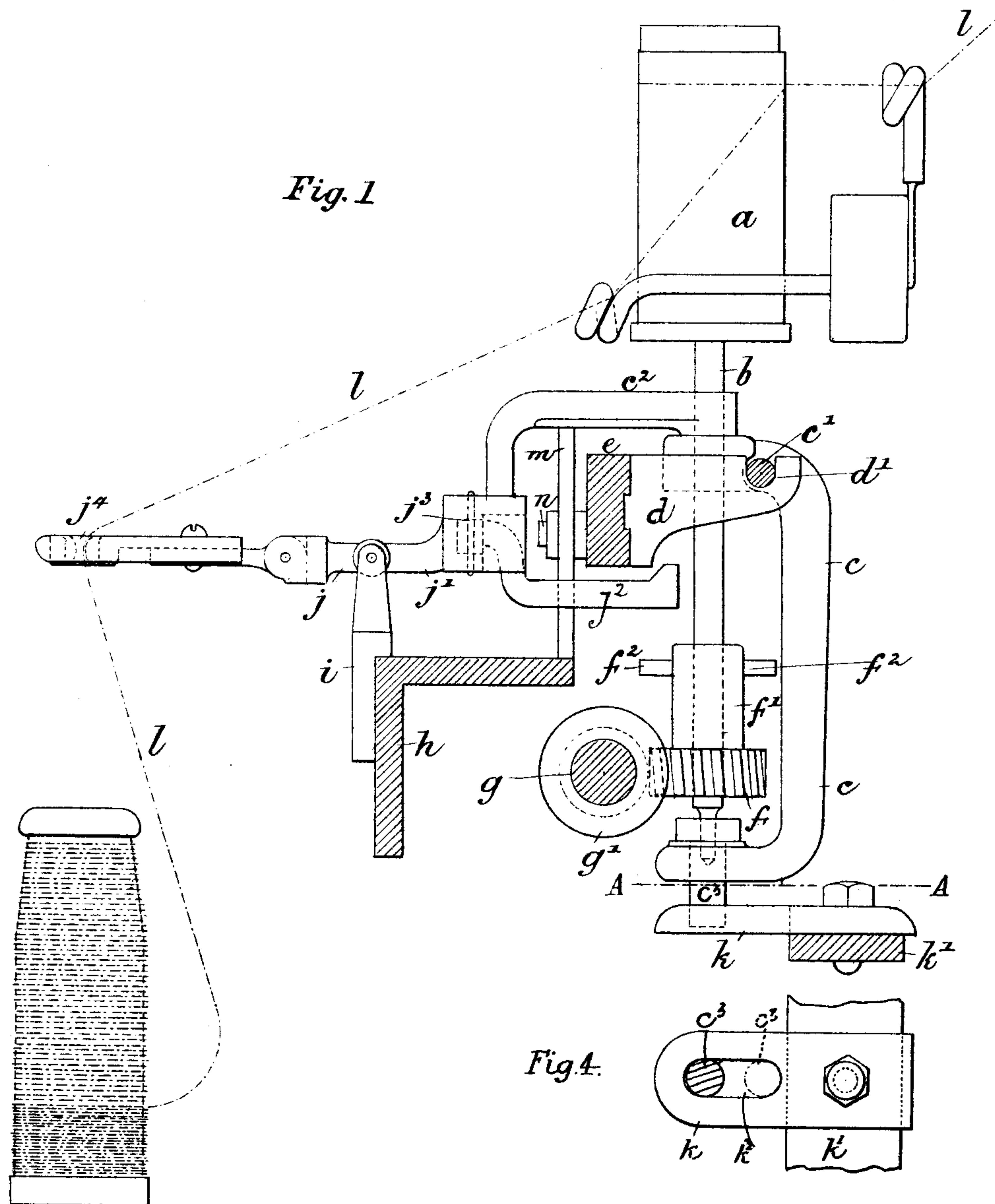
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STOP MOTION FOR TWISTING FRAMES, &c.

No. 388,509.

Patented Aug. 28, 1888.



Witnesses.
Will T. Horton.
A. B. Rawlings.

Inventors.
Prince Smith & the Younger
and Smith & Ambler
by their Attorneys,
John J. Walsted & Co.

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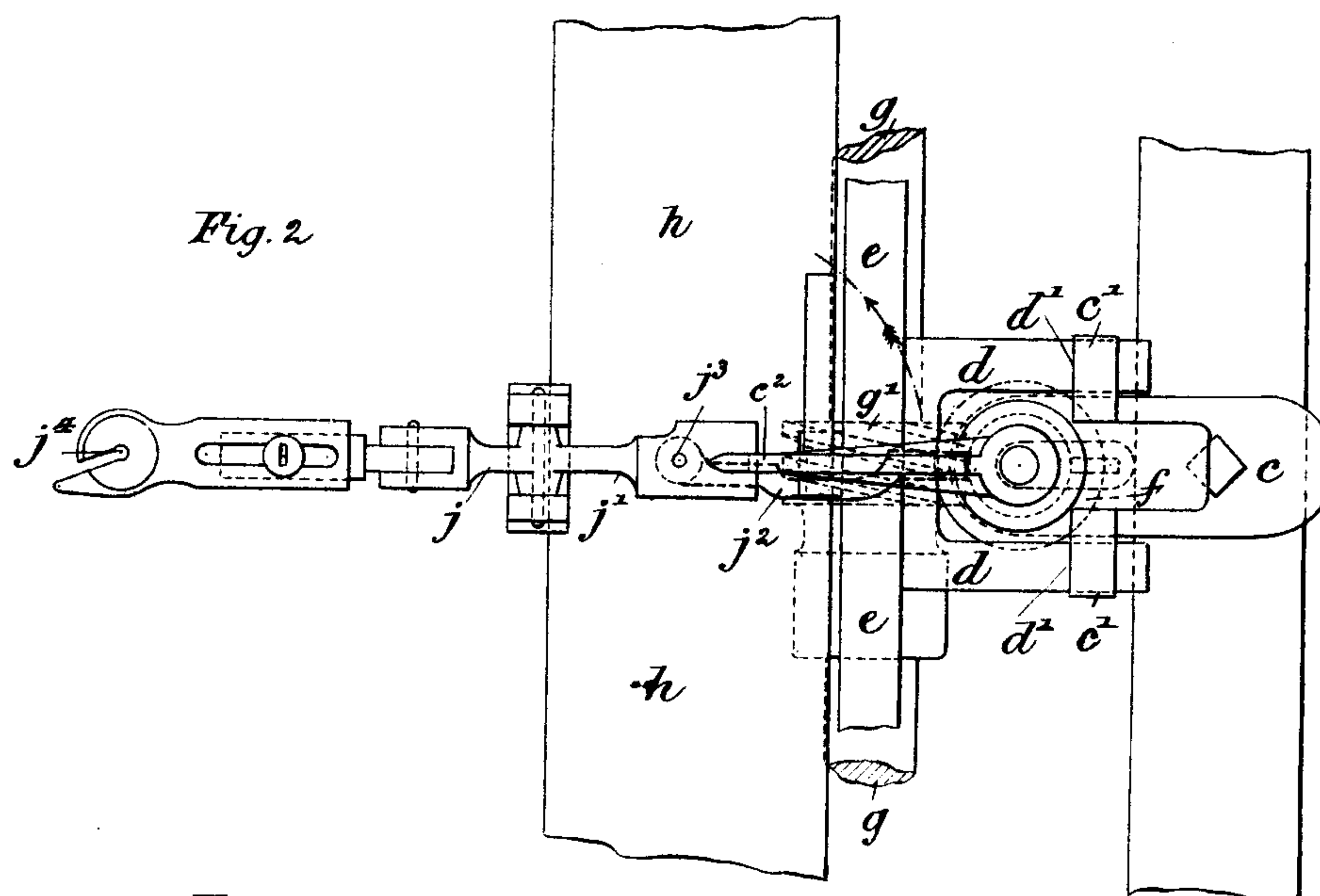
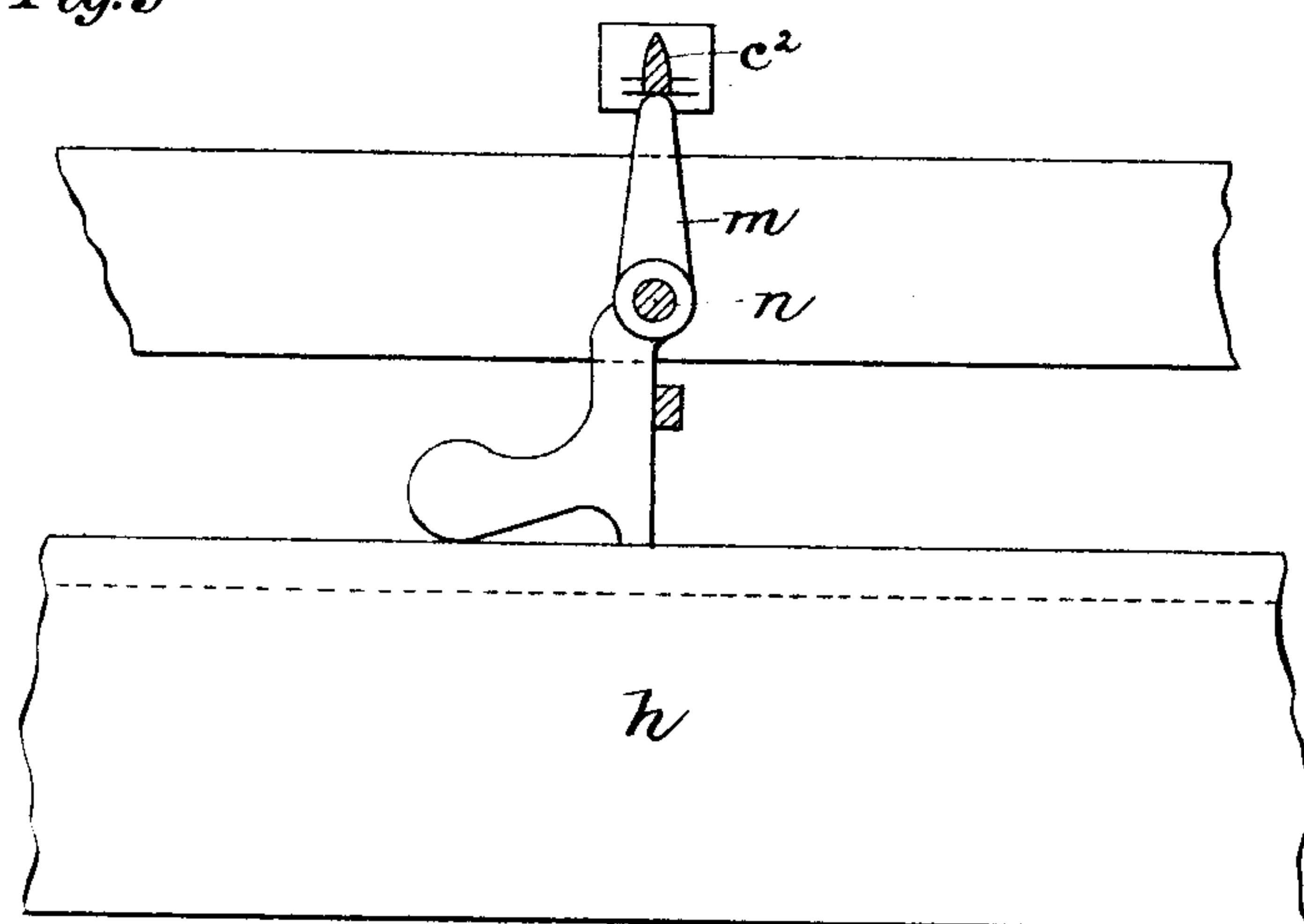


Fig. 3



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UNITED STATES PATENT OFFICE.

PRINCE SMITH, JR., AND SMITH AMBLER, OF KEIGHLEY, COUNTY OF YORK,
ENGLAND.

STOP-MOTION FOR TWISTING-FRAMES, &c.

SPECIFICATION forming part of Letters Patent No. 388,509, dated August 28, 1888.

Application filed November 2, 1887. Serial No. 254,075. (No model.) Patented in England May 19, 1887, No. 7,299.

To all whom it may concern:

Be it known that we, PRINCE SMITH, the younger, of Keighley, in the county of York, England, and SMITH AMBLER, of the same place, both subjects of the Queen of Great Britain, have invented certain new and useful Improvements in Stop-Motions for Twisting-Frames or like Apparatus, (for which we have obtained a patent in Great Britain, No. 7,299, dated May 19, 1887,) of which the following is a specification.

Our invention relates to improvements in stop-motion apparatus for trapping broken or other loose ends in twisting or such like frames as soon as an end breaks, and so preventing waste.

In the drawings, Figure 1 shows a section of so much of a twisting-frame as will enable the application of our invention to existing machinery to be carried into effect. Fig. 2 is a plan view of the same; and Fig. 3 is a sectional plan showing separately the swing-weighted trigger-lever *m* and arm *n* and their position relatively to the parts *h* and *c*². Fig. 4 is a sectional plan view taken on the line A A, Fig. 1, of the lower bar, *k*¹, showing the form of the slot *k*² in the part *k* or guideway, the full lines *c*³ showing the position of the stud or projecting end of the part *c* when the thread is intact, and the dotted lines the position it assumes when breakage in supply happens.

The delivery-roller *a*, by which the end *l* is delivered from the bobbin on the creel, (not shown,) according to the present invention, is mounted on an upright spindle, *b*, much as usual; but the spindle *b* itself we mount in a swing-frame, *c*, which swing-frame *c* swings on centers or trunnions *c*¹, carried in recesses *d*¹ in a bracket or sustaining part, *d*, bolted or secured onto a horizontal bar, *e*, of the frame. On the spindle *b* of the delivery-roller *a* is a worm-wheel, *f*, the teeth of which gear with a worm, *g*¹, on a horizontal shaft, *g*, and therefrom receive rotatory motion when the twisting is progressing correctly; but when the thread *l* breaks or fails these parts are disengaged, as will be herein more fully explained. The lower end, *c*³, of the swing-lever *c*, supporting the spindle *b* and delivery-roller *a*, can traverse front to rear in the guideway *k*³,

formed in the part *k*, bolted to the horizontal support *k*¹, when its retaining parts are released.

On the boss *f*¹ of the wheel *f* on the delivery-roller spindle *b* are pegs or projections *f*² *f*³, projecting in opposite directions, preferably two in number, although this number may be varied.

On the beam *h*, running across the frame, is applied a bracket, *i*, which supports a balance-lever, *j*, the rearwardly-projecting part, *j*¹, of which lever has a further rearwardly-extending part, *j*², hinged at *j*³ to the said rear end, *j*¹, so as to be capable of swinging laterally in the direction of the arrow, Fig. 2, or of being thrust sidewise.

On the horizontal bar *e*, carrying the swing-frame bracket *d*, is secured an arm or center of motion, *n*, for a sneek-lever or swing-weighted trigger-lever, *m*, which is arranged so that it can be so adjusted vertically as to normally support the swing-frame *c* by the part *c*², keeping it in its working position; but when the trap-lever *j*, through the eye *j*⁴ of which passes the thread or end to be twisted, rises, owing to the breakage or failure of the end, then this hinged end *j*² drops, comes in the path of the rotating pins or projections *f*² of the boss *f*¹ of the wheel *f* on the end of the axis *b* of the delivery-roller *a*, and this swinging end *j*² is struck on one side thereby, and in its course, being so struck, it strikes against the trigger or sneek *m*, and, upsetting it on its fixed center *n*, it knocks the support from under the trunk-arm *c*², which had rested on the arm *j*¹, and thereby supported the swing-frame *c* upright, and, the swing-frame *c* falling forward above its hanging center, its lower portion swings rearward, disengaging the gear-wheel *f* from the driving-wheel *g*¹ and throwing the apparatus out of operation.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. The combination, in a stop-motion for preventing waste in twisting and other frames, of a swing-frame, *c*, the delivery-roller *a* and its spindle *b*, carried by such frame, pins *f*², gear-pinion *f*, driving-wheel *g*¹, supports *d*, and

guide k for the swing-frame c , trigger-lever m , and trap-lever j , having an eye, j^1 , extension j^2 , and hinge j^3 , all substantially as set forth.

2. The combination, in a stop-motion for waste-prevention in twisting-frames and like apparatus, of a swing-frame, c , the delivery-roller, spindle b , gear g' , driving-gear f and its pins or projections f^2 , capable of being engaged with or disengaged from said gear g' , a trigger-lever, m , the placing and displacing of which engages and disengages the gears f and g' , and a trap-lever, j , having an extension, j^2 , hinge j^3 , and eye j^1 , substantially as shown, for the purpose set forth.

3. In a stop-motion for twisting-frames and

like apparatus, the combination, with a balanced trap-lever, j , having a hinged end, j^2 , of a swing-frame, c , having an arm, c^2 , a trigger for supporting said arm, spindle b , gear f , pins f^2 , and delivery-roll a , substantially as shown and described.

In testimony whereof we, the said PRINCE SMITH, the younger, and SMITH AMBLER, have hereunto set our hands this 17th day of October, 1887.

PRINCE SMITH, JR.
SMITH AMBLER.

Witnesses:

WILLIAM THORNTON,
JAMES BAIER.