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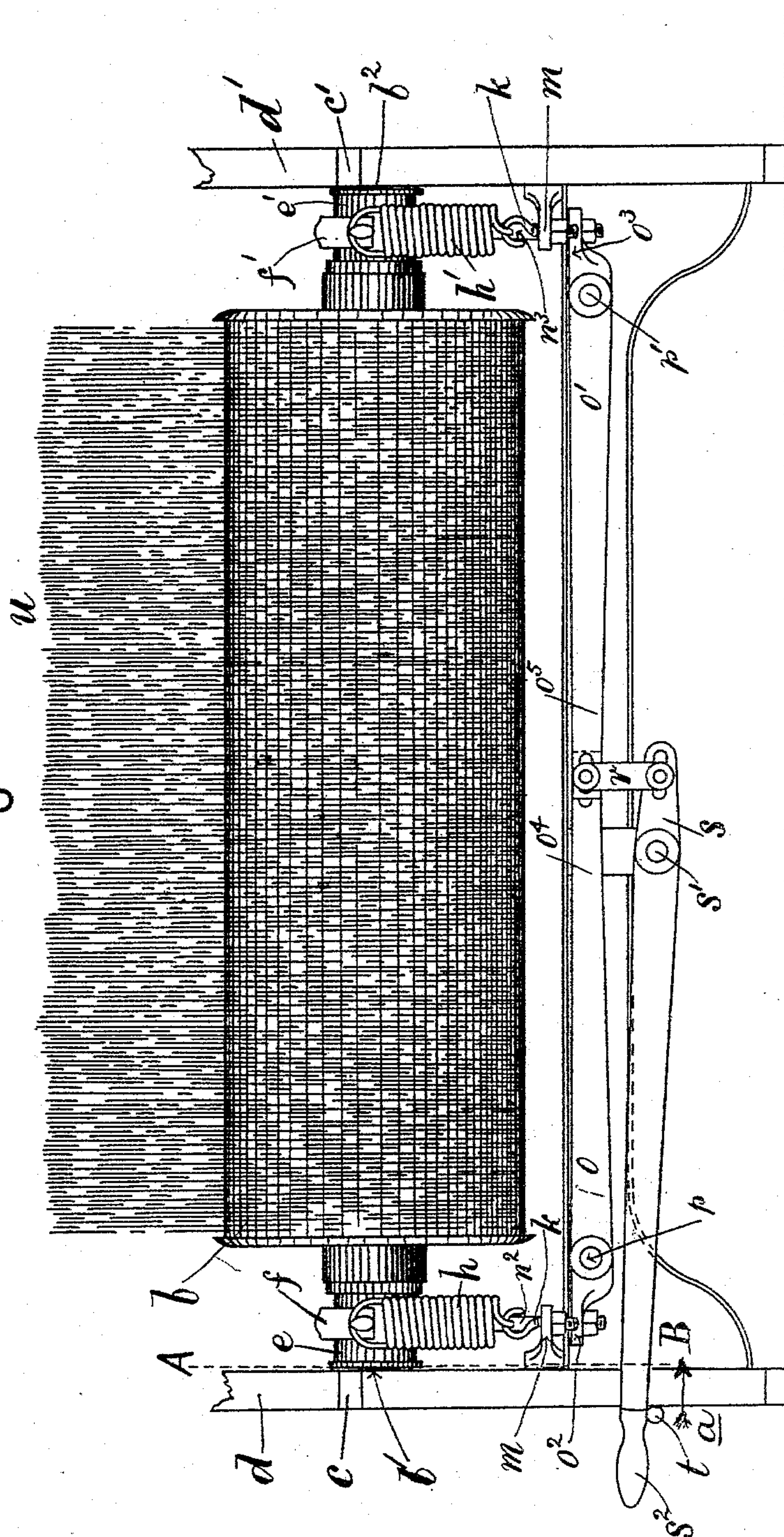
4 Sheets—Sheet 1.

H. WRIGHT.
LOOM LET-OFF MECHANISM.

No. 515,639.

Patented Feb. 27, 1894.

Fig. 1



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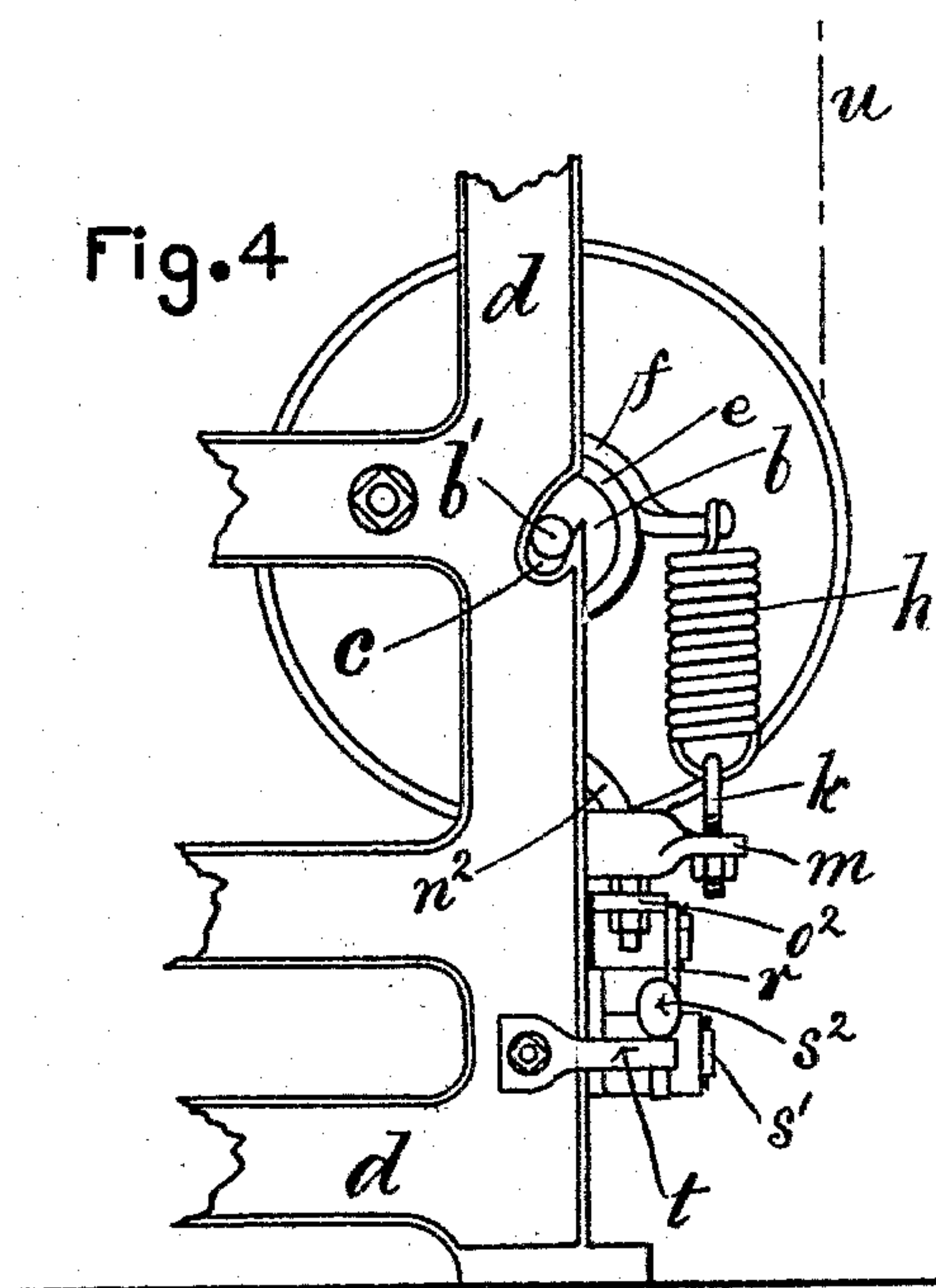
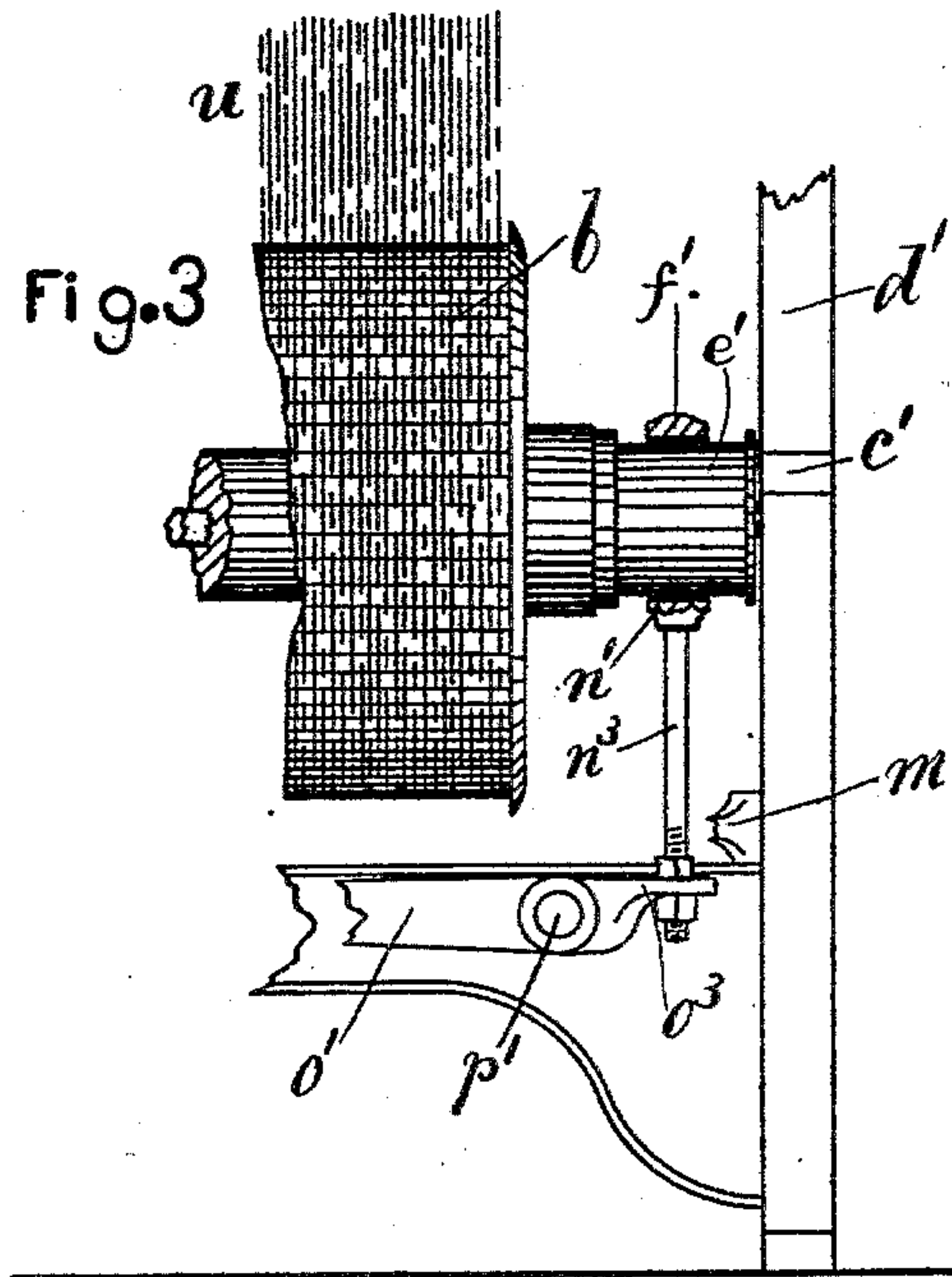
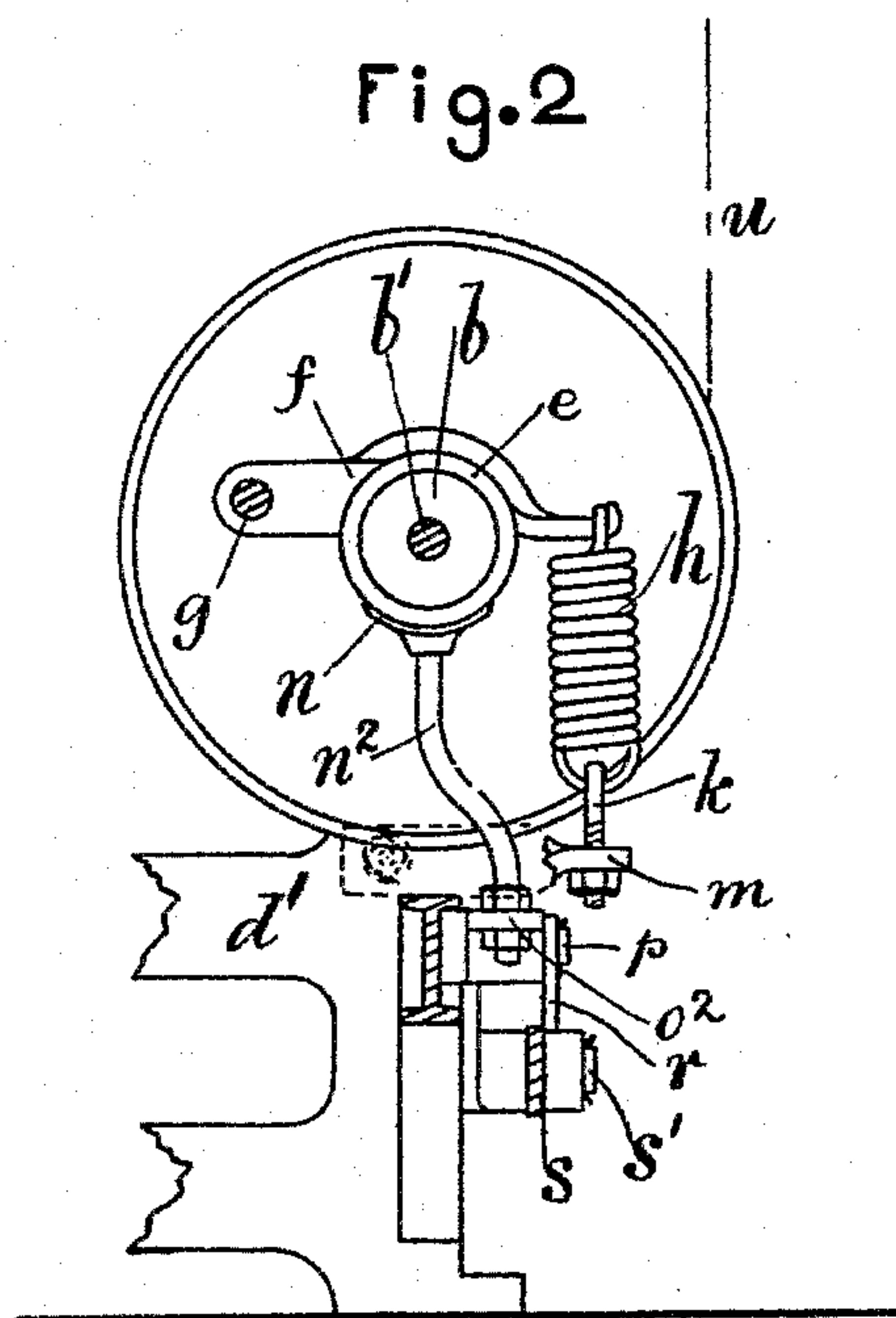
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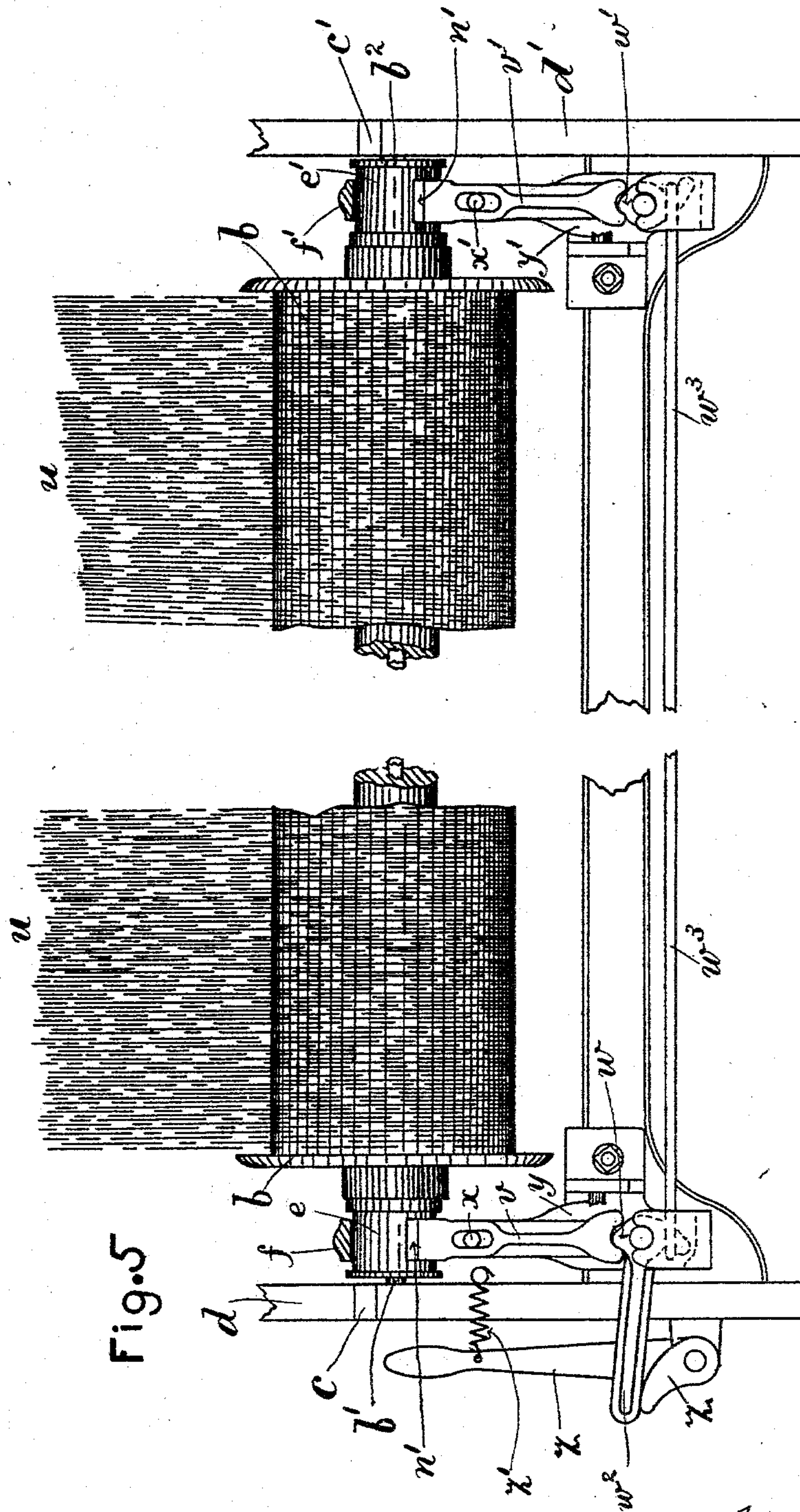
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4 Sheets—Sheet 4.

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Fig. 6

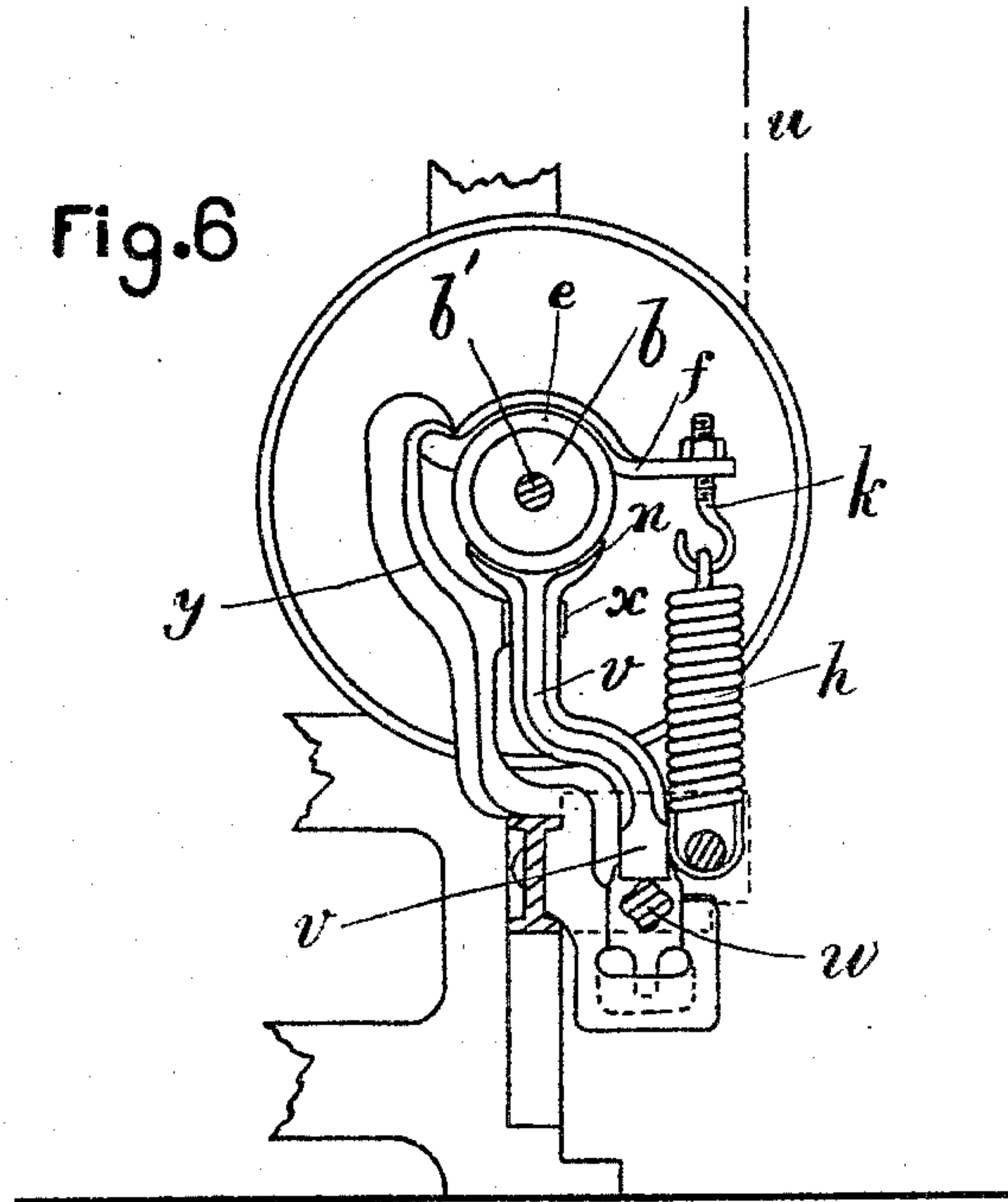
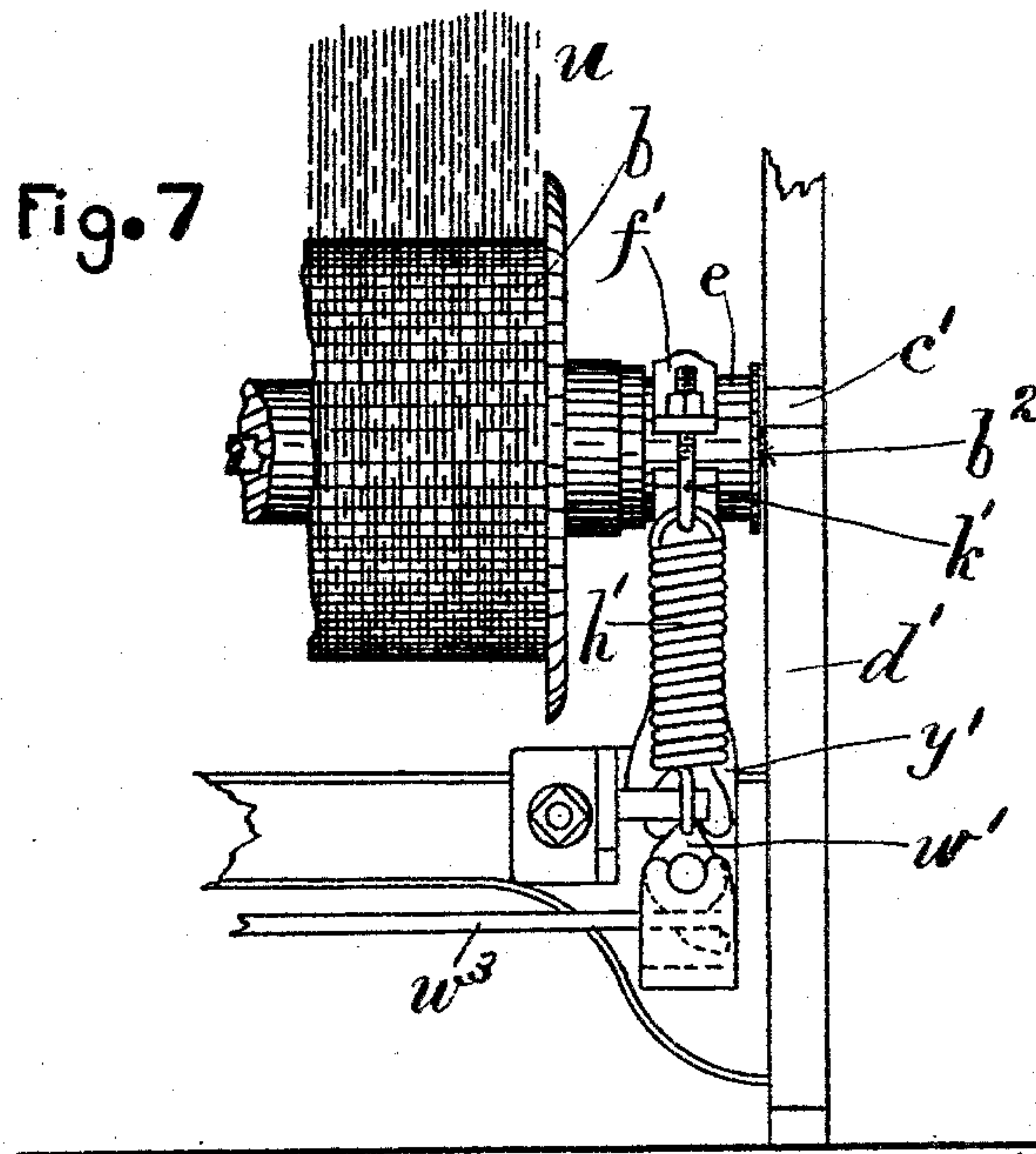


Fig. 7



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UNITED STATES PATENT OFFICE.

HEBDEN WRIGHT, OF INGROW, NEAR KEIGHLEY, ENGLAND.

LOOM LET-OFF MECHANISM.

SPECIFICATION forming part of Letters Patent No. 515,639, dated February 27, 1894.

Application filed April 21, 1893. Serial No. 471,283. (No model.)

To all whom it may concern:

Be it known that I, HEBDEN WRIGHT, a subject of the Queen of Great Britain, residing at Ingrow, near Keighley, in the county of York, England, have invented a new and useful Improvement in Loom Let-Off Mechanism, of which the following is a specification.

My invention relates to improvements in that class of mechanism used in connection with looms, which is known as "friction let-off mechanism," and consists in so constructing and arranging the parts forming said mechanism that certain advantages incident to the use of the old and common rope and lever devices are secured with the additional advantages accruing through my said improved means enabling the weaver or operative to disengage or to engage the warp beam as is from time to time found necessary for purposes well understood by those skilled in the art.

In the accompanying sheets of drawings which are illustrative of my invention,—Figure 1 is a back elevation of a portion of the framework of a loom in which is mounted a warp beam to which my improved mechanism is shown as applied. Fig. 2 is a sectional end elevation on line A B of parts shown by Fig. 1 and as seen in the direction of the arrow *a*. Fig. 3 is a similar view to Fig. 1 but shows certain parts omitted and others in section so that parts hid in Fig. 1 are now illustrated. Fig. 4 is an end elevation of parts shown in Fig. 1 and as seen on the outside of the loom's end frame. Fig. 5 is a view similar to Fig. 1, but shows the arrangement of the parts forming my improved mechanism as when used in connection with a broad loom. Fig. 6 is a similar view to Fig. 2 but is illustrative of parts shown by Fig. 5. Fig. 7 is a back elevation of one end of the warp beam and other parts applied thereto in their complete form, certain of such parts being omitted in Fig. 5.

Similar letters of reference indicate similar parts throughout the several views.

In carrying out my said invention I mount the warp beam *b* in its usual supports as in the notches or bearing spaces *c c'* of the end frames *d d'* and over the trunnions *e e'* which

are attached to or fixed on each of the extremities of the beam *b* I make to fit the friction-clamps *f f'* the same being pivoted or hinged at their respective ends *g* to the end frames *d d'* while at the other ends the pressure springs *h h'* are applied. The tension on these pressure springs *h h'* is increased or diminished by the tightening or loosening of the nuts on their respective screwed hooks *k k'* which pass loosely through fixed bearings *m m'* as shown.

Beneath the trunnions *e e'* on the beam *b* are other friction clamps *n n'* (these clamps *n n'* as well as the others *f f'* have their inner surfaces covered with roller-cloth, leather or other suitable frictioning material for purposes well known) that are carried by their shanks *n² n³* being secured upon the arms *o² o³* of the levers *o o'* respectively, both of the other arms *o⁴ o⁵* of these levers *o o'*, which are pivoted at *p p'*, being coupled by the link *r* to the lever *s* pivoted at *s'*, a handle being formed on the outer end *s²* of this lever *s*, so that by the weaver or operative manually lifting this handle *s²* to place it over its retaining piece *t*, its jointings or elasticity allowing it sufficient lateral motion so to do, while the gain in leverage reduces the power necessary to effect such a movement to such an extent that it may easily be accomplished even against the pressure of the springs *h h'*. The clamps *n n'* are pressed against the trunnions *e e'* with sufficient force to raise the axial pins *b¹ b²* of the beam *b* clear of the supports or bottom of the notches *c c'*, in this manner constituting said clamps *n n'* the sole support for said beam *b* the rotary motion of which they retard. By the beam *b* being thus entirely within the grip of its upper and lower clamps *f f'* and *n n'* respectively, the yielding of the springs *h h'* which press the upper clamps into contact with it allowing its slight vertical movement caused by the pulling of the warp *u* on the beat-up of each shot of weft, while the natural elasticity and resilience of the levers *o, o'* and *s*, even when made in cast iron, cause the clamps *n n'* to follow said beam in its said upward movements so as to at all times secure this grip, the advantages desired are attained.

When the weaver or operative desires to

manually rotate the beam 1 as occasionally necessary, by moving the lever 2 from its holder 3 and allowing it to descend, the beam 1 is allowed to descend until its axial pins 4 arrive at the bottom of the notches 5 in which position they are arrested while the clamps 6 may continue to descend, thus allowing the beam 1 to be freely rotated about its axial pins 4. The replacing of the lever 2 upon the part 3 adjusting both the warp beam 1 and its frictioning devices in proper operating condition.

In carrying out the application of my invention to broad looms, instead of forming levers to reach a central part, by which arrangement one hand lever may operate them both as is hereinbefore described, I form the lower clamps 6 upon the upper ends of the arms 7 which operate in connection with the cam levers 8, the guides of the former being the pins 9 carried by fixed bearings 10, the upper ends of these being bent to form the fulcrums for the upper clamps 11, each pair of these arms and cam-levers forming a kind of toggle joint, and on the lever 8 I fix the operating arm 12 which is moved in a vertical direction by the handle and cam lever 13, this lever 13 being held in its elevated position by the yielding spring 14 so that by the cam levers being coupled together with the rod 15 the necessary resilience of the levers and parts supporting the beam 1 is secured.

Each being the nature and object of my invention, what I claim is—

In a loom let-off mechanism, the combination with a warp-beam, of a superposed friction clamp, a spring arranged to force said clamp in contact with a trunnion of the warp-beam, a clamp adapted to support said warp-beam, levers connected with said clamp and arranged to raise the same, whereby raising the warp-beam, and means for supporting

said levers when moved, substantially as described.

In a loom let-off mechanism, a warp-beam, a frame having openings therein to receive the axial pins of the warp-beam, in combination with resilient and supporting clamps arranged to support the warp-beam when it is raised, and a lever, having a connection with one of said clamps, and arranged when operated to raise said clamps and warp-beam and create friction between the clamps and the pin or trunnion of said beam, substantially as described.

In a loom let-off mechanism, a warp-beam, a frame having openings therein to receive the axial pins of said warp-beam, in combination with resilient and supporting clamps arranged above and below trunnions on said warp-beam, levers connected with said supporting clamps, a pivoted hand-lever connected with said levers and arranged, when operated, to move said levers, thereby raising the warp-beam so that it is supported by the clamps and friction created thereon, substantially as described.

In a loom let-off mechanism, the combination with a warp-beam, of a friction clamp bearing on the trunnion of the same, a spring acting on said clamp, a clamp under said friction clamp with the trunnion of the warp-beam interposed between said clamps, a pivoted lever connected with the under clamp, a pivoted hand-lever, a link between said levers, and a stop to hold said hand-lever when raised, whereby the raising of said lever raises the under clamp and causes said clamp to support the warp-beam, substantially as described.

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