

No. 610,784.

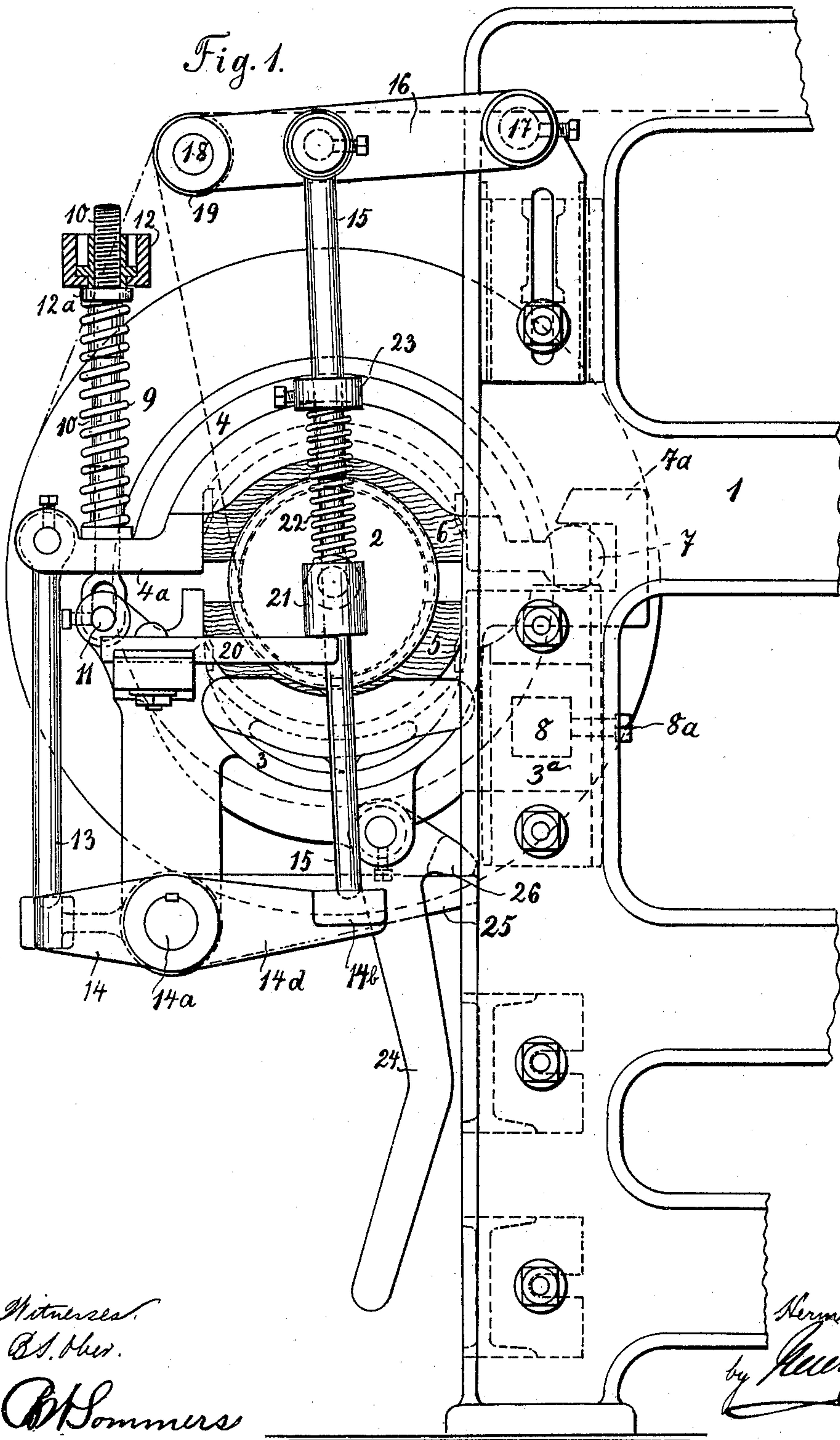
Patented Sept. 13, 1898.

H. WOLF.
WARP BEAM BRAKE.

(Application filed Dec. 24, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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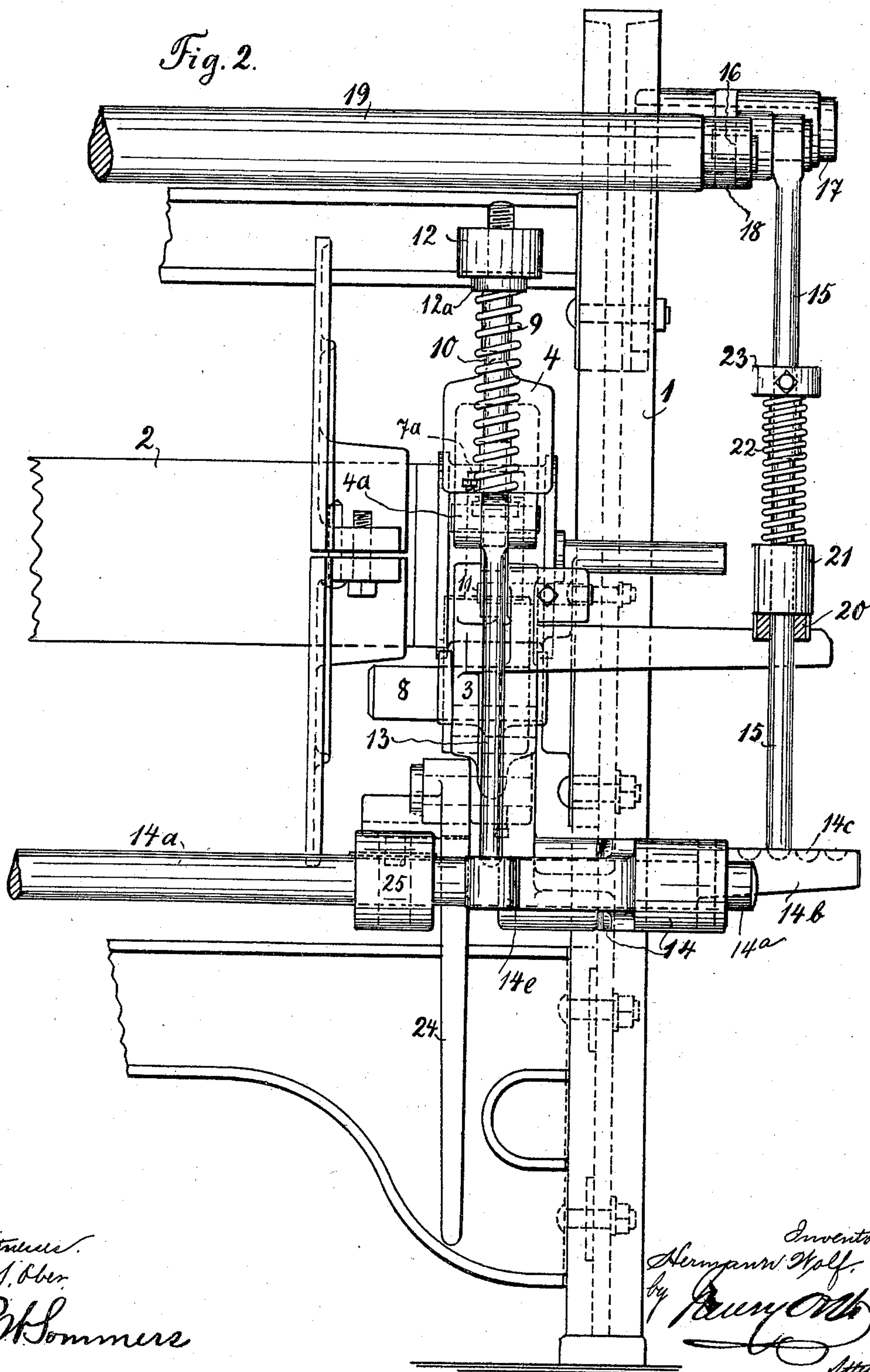
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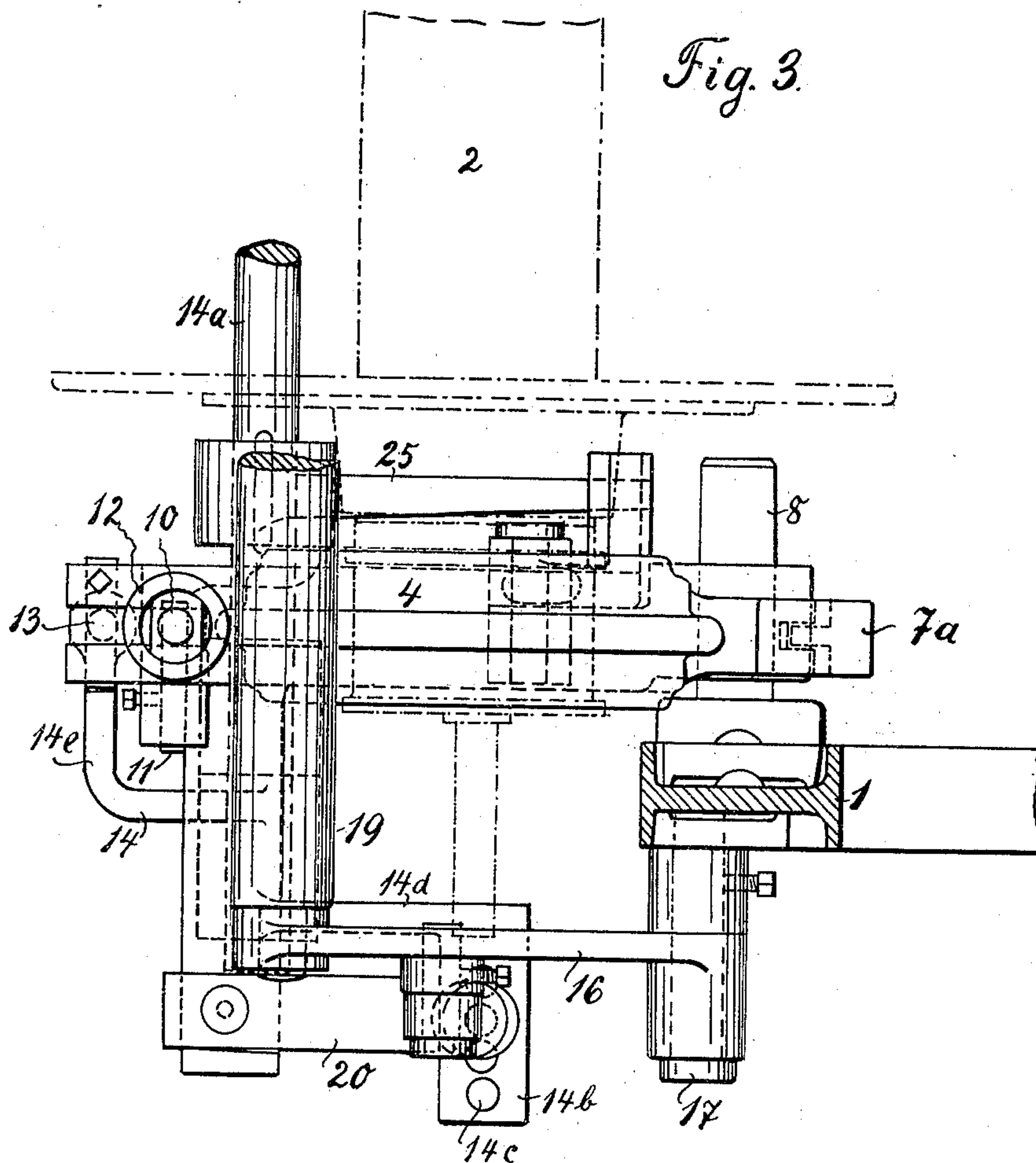
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

HERMANN WOLF, OF LODZ, RUSSIA.

WARP-BEAM BRAKE.

SPECIFICATION forming part of Letters Patent No. 610,784, dated September 13, 1898.

Application filed December 24, 1897. Serial No. 663,372. (No model.) Patented in France February 20, 1897, No. 264,278.

To all whom it may concern:

Be it known that I, HERMANN WOLF, engineer, a citizen of the Republic of Switzerland, residing at 17 Karlstrasse, Lodz, in the Empire of Russia, have invented certain new and useful Improvements in Warp-Beam Brakes, (for which Letters Patent have been obtained in France, No. 264,278, dated February 20, 1897;) 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention has for its object improvements in let-off motions for looms, wherein a brake clog or shoe operated by the tension of the warp on the whip-roll is caused to cooperate with a stationary clog or shoe to regulate the speed of rotation of the warp-beam relatively to that of the cloth-beam or relatively to the speed of the loom.

In the accompanying drawings, Figure 1 is a fragmentary side elevation, Fig. 2 a like front elevation, and Fig. 3 a fragmentary plan, of so much of a loom as will be necessary to illustrate my invention.

The let-off motion comprises a movable brake clog or shoe 6, controlled by variations in the tension of the warp yarns or threads on the whip-roll 19, said shoe 6 cooperating with another shoe 5, that has a fixed relation relatively to the said shoe 6.

The warp-beam is journaled, as usual, in the loom-framing 1. The fixed shoe 5, which serves as a bearing for the warp-beam, is seated on or secured to a holder or saddle 3, that is or may be adjustably secured to the loom-framing 1. The movable brake-shoe 6, which in the let-off motion illustrated in the drawings is arranged above the warp-beam 2, is secured to a holder 4, that has pivotal connection at 7 with and in the channel of a rail 7^a and is held down on the warp-beam by a spring 9. The spring 9 is mounted on a rod 10 and has bearing at one end against a loose collar 12^a, held in position by a composite nut 12, screwed to the upper end of said rod,

and at the other end said spring has bearing on an arm 4^a of the holder or brake-beam 4, to which the shoe 6 is secured in any desired manner. The rod 10 passes loosely through an opening or slot in the arm 4^a of the brake-beam 4 and has its lower end slotted for the passage of a pin 11 on a projection from the saddle 3 for the fixed brake-shoe 5.

The whip-roll 19 is journaled in the outer ends of levers 16, pivoted at 17 to the loom-frame 1. To one of said levers is pivoted a push-rod 15, that carries a loose sleeve and a fast collar 21 and 23, respectively, between which is mounted a spring 22. The loose sleeve 21 has bearing on a fixed arm or projection 20 on the loom-frame, while the rod 15 is stepped in one of the arms 14^d of a two-armed rock-lever 14, in the other arm, 14^e, of which is stepped a rod 13, pivoted to the arm 4^a, projecting from the brake-beam 4 for the brake-shoe 6.

It is obvious that whenever the tension of the warp from the warp-beam increases beyond a normal tension—that is to say, whenever the tension of the warp exceeds the tension of spring 22 on rod 15—the whip-roll 19 will be drawn downward, thereby depressing the rod 15 against the stress of its spring 22, in consequence of which the lever 14 will be rocked, thereby lifting the rod 13 and there-through the brake-beam 4 against the stress of its spring 9, thus relieving the warp-beam 2 of more or less of the brake action of brake 6. As soon as the whip-roll is relieved from abnormal stress thereon of the warp the parts return to their normal position, as will be readily understood. The spring 22 on push-rod 15 acts as a support and counterbalance for the whip-roll and its levers 16. By means of the nut 12 on rod 10 the action of the brake-shoe 6 upon the warp-beam can be regulated with great nicety, and by means of the collar 23, adjustable on rod 15 by means of a set-screw, the tension of the spring 22 on said rod can likewise be adjusted.

In practice the described let-off motion will be applied to both ends of the warp-beam 2, though this is not absolutely necessary.

Inasmuch as a sudden variation of the tension of the warp-threads does not ordinarily

take place, such variations on the contrary taking place gradually and in accordance with the gradually-diminishing diameter of the warp-beam, it is obvious that the self-acting
 5 let-off mechanism will likewise act gradually upon the warp-beam. It will also be seen that in the arrangement of the let-off mechanism as described the warp-beam can readily be removed by lifting off the brake-beam
 10 4. To this end the nut 12 is unscrewed from rod 10 and the spring 9 removed from said rod, the collar 12^a, against which the upper end of said spring abuts, being loose on said rod, as above stated. This done, the lifter-
 15 rod 13 can readily be lifted off the arm of lever 14, when the brake-beam 4 can be turned up or lifted off the warp-beam.

The described let-off mechanism can be used with warp-beams of different lengths in that
 20 it is adjustable laterally or in the axial plane of the warp-beam. The saddle 3 for the lower or fixed brake-shoe 5 is to this end adjustably secured to a cross-beam 8 by means of a set-screw 8^a, said cross-beam being polygonal in
 25 section and said saddle having a projection or arm 3^a, provided with an opening to fit the cross-beam, as shown in dotted lines in Fig. 1. The pivot 7 of the brake-beam 4 is likewise displaceable, together with the channel-
 30 rail 7^a, and so is the rock-lever 14 on its rock-shaft 14^a. The arm 14^d of said lever 14, in which the push-rod 15 is stepped, has a lateral projection 14^b, wherein a number of recesses or seats 14^c are formed for the end of said
 35 push-rod 15, as shown in full and dotted lines in Fig. 2, both lever-arms 14^d and 14^c being angle-arms bent in opposite directions.

In order that the operation of the loom may be reversed should this become necessary from
 40 any cause, I provide an angular hand-lever 24, pivoted to the saddle 3 for the lower brake-shoe 5, the short arm 26 of which lever is adapted to act upon an arm 25 on the rock-shaft 14^a of lever 14 in such manner that when
 45 said shaft is turned into the proper direction by the action of said hand-lever upon arm 25 said shaft will rock the lever 14 so that its arm 14^c will lift the rod 13 and there-through the brake-beam 4 and brake-shoe 6,
 50 so that the warp-beam can be revolved backward by hand.

The brake-shoes 5 and 6 can be made of wood or of any other suitable or composite material.

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

1. A let-off mechanism for looms comprising a stationary and a movable brake-shoe
 60 adapted to act jointly upon a warp-beam, said movable shoe held to the beam under a yielding pressure, a whip-roll revoluble in swinging bearings, a resilient support for said roll and bearings, mechanism controlled by the
 65 whip-roll and controlling the movable brake-

shoe, and means for adjusting the let-off mechanism transversely of the loom-frame, for the purpose set forth.

2. The combination with a warp-beam, a stationary brake-shoe, and a movable brake-
 70 shoe acting jointly on said beam, and a spring exerting its power on said movable shoe to press the same against the warp-beam; of a whip-roll, swinging bearings therefor, a resilient support for said roll, a push-rod piv-
 75 otally connected to one of said bearings, a two-armed rock-lever one of whose arms is engaged by said push-rod, an actuating-rod adapted to be moved by the other arm of said
 80 rock-lever, said actuating-rod connected with and adapted to move the movable brake-shoe against the stress of its spring, for the purpose set forth.

3. The combination with a warp-beam, a stationary brake-shoe, and a movable brake-
 85 shoe acting jointly on said beam, a spring exerting its power on the movable shoe to press the same against the warp-beam, and a regulating device for regulating the tension of
 90 said spring; of a whip-roll, swinging bearings therefor, a spring-support for said roll and bearings, a regulating device for regulating the stress of said supporting-spring, a push-
 95 rod pivotally connected to one of said bearings, a two-armed rock-lever one of whose arms is engaged by said push-rod, an actuating-rod adapted to be moved by the other arm of said rock-lever, said actuating-rod connect-
 100 ed with and adapted to move the movable brake-shoe against the stress of its spring, for the purpose set forth.

4. The combination with a warp-beam, a stationary and a movable brake-shoe acting
 105 jointly on said beam, the fixed rod 10 extending through an arm of the movable brake-shoe and carrying the spring 9 and nut 12 thereon, said spring having bearing on the aforesaid arm, and a lifter-rod pivotally connected thereto; of a whip-roll, swinging bear-
 110 ings therefor, a push-rod 15 pivotally connected with one of said bearings, a spring and fixed abutments therefor, and a two-armed rock-lever adapted to be rocked by the push-rod and to act upon the aforesaid lifter-rod,
 115 substantially as and for the purpose set forth.

5. The combination with the brake adjustable transversely of the loom-frame, the push-
 120 rod 15 and lifter-rod 13; of the rock-lever 14 likewise adjustable transversely of the loom on its shaft 14^a, said lever having arms bent in opposite directions, one of said arms provided with a seat for the aforesaid lifter-rod and the other with a plurality of seats for the aforesaid push-rod, substantially as and for
 125 the purpose set forth.

6. The combination with the brake-shoe 6, the whip-roll-supporting arms 16, the actuat-
 130 ing-rods 13 and 15 respectively connected with said brake-shoe and whip-roll-supporting arms; of the rock-lever 14 in arms of

which said rods are stepped, the shaft 14^a to
which said rock-lever is secured, the radial
arm 25 on said shaft and the angle-lever 24
whose short arm has bearing on said radial
5 arm, substantially as and for the purpose set
forth.

In testimony that I claim the foregoing as

my invention I have signed my name in pres-
ence of two subscribing witnesses.

HERMANN WOLF. [L. S.]

Witnesses:

HEINR. LSÿ,
R. FUNCK.