

No. 681,905.

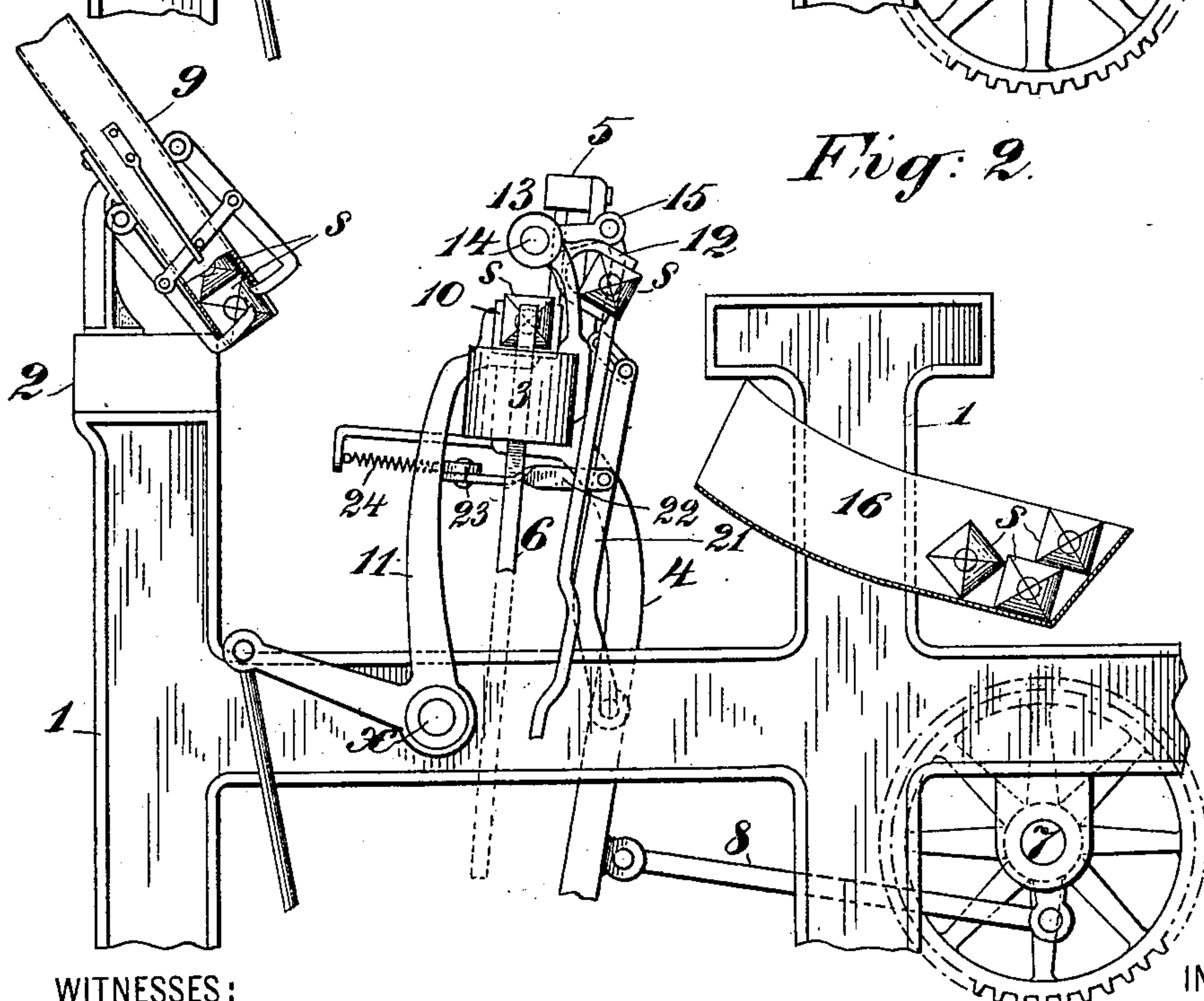
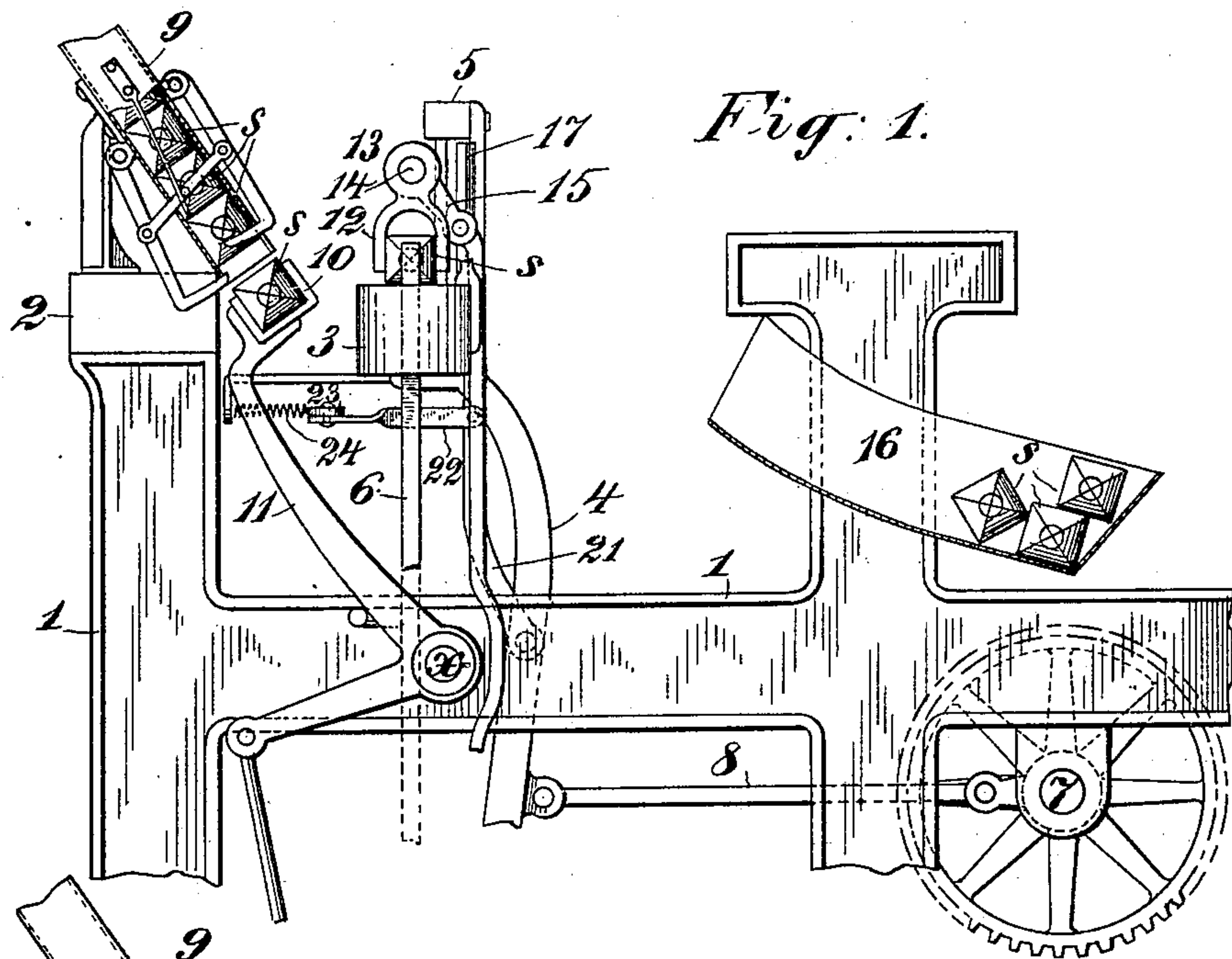
Patented Sept. 3, 1901.

W. H. BAKER & F. E. KIP.
WEFT REPLENISHING MECHANISM FOR LOOMS.

(Application filed Jan. 30, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

J. H. Kriman
Peter B. Ross

INVENTORS

BY: William H. Baker
Frederic E. Kip

BY

Dr. *Henry Canine*
ATTORNEY

No. 681,905.

Patented Sept. 3, 1901.

W. H. BAKER & F. E. KIP.
WEFT REPLENISHING MECHANISM FOR LOOMS.

(Application filed Jan. 30, 1901.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 3.

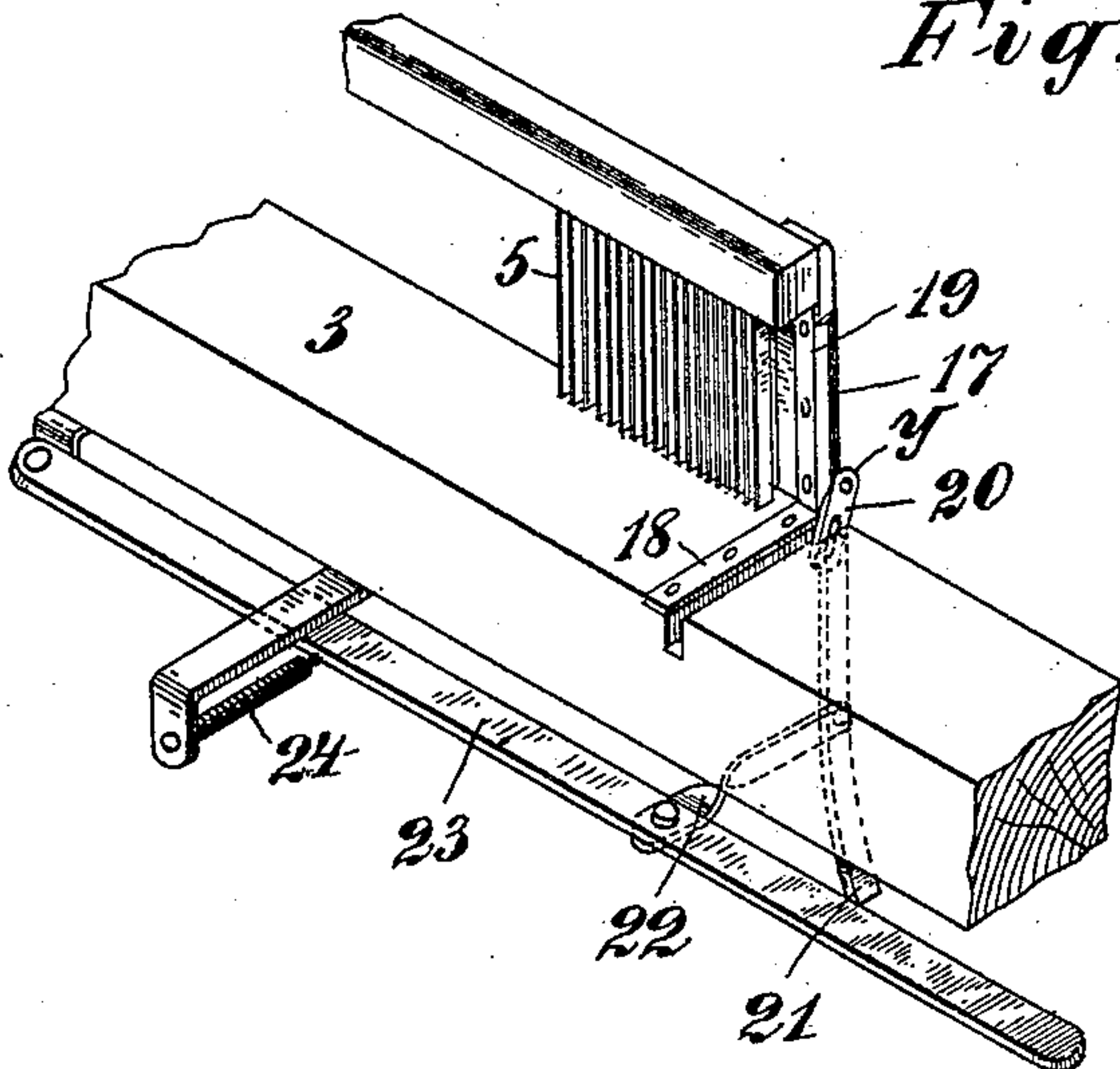


Fig. 6.

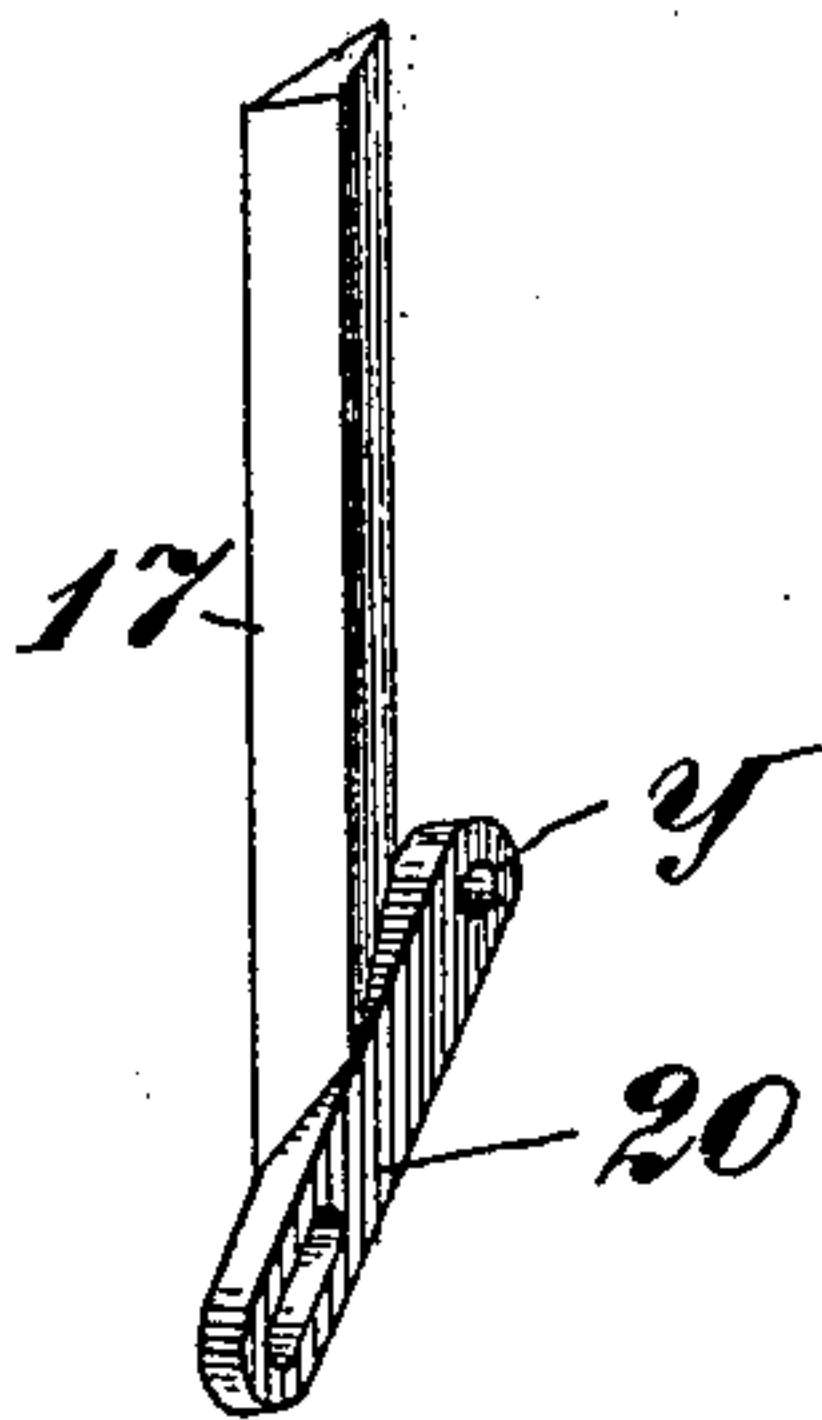


Fig. 4.

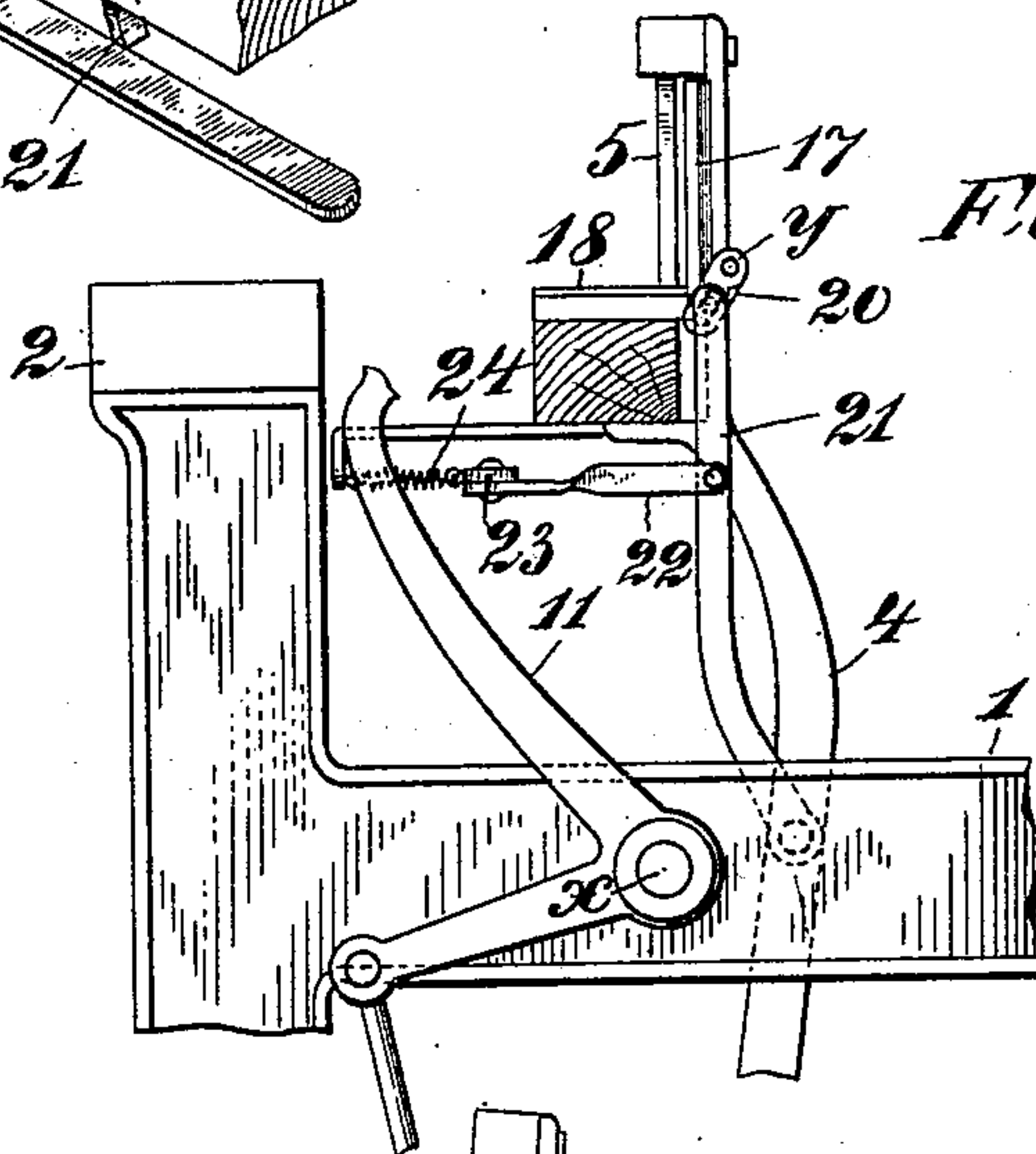
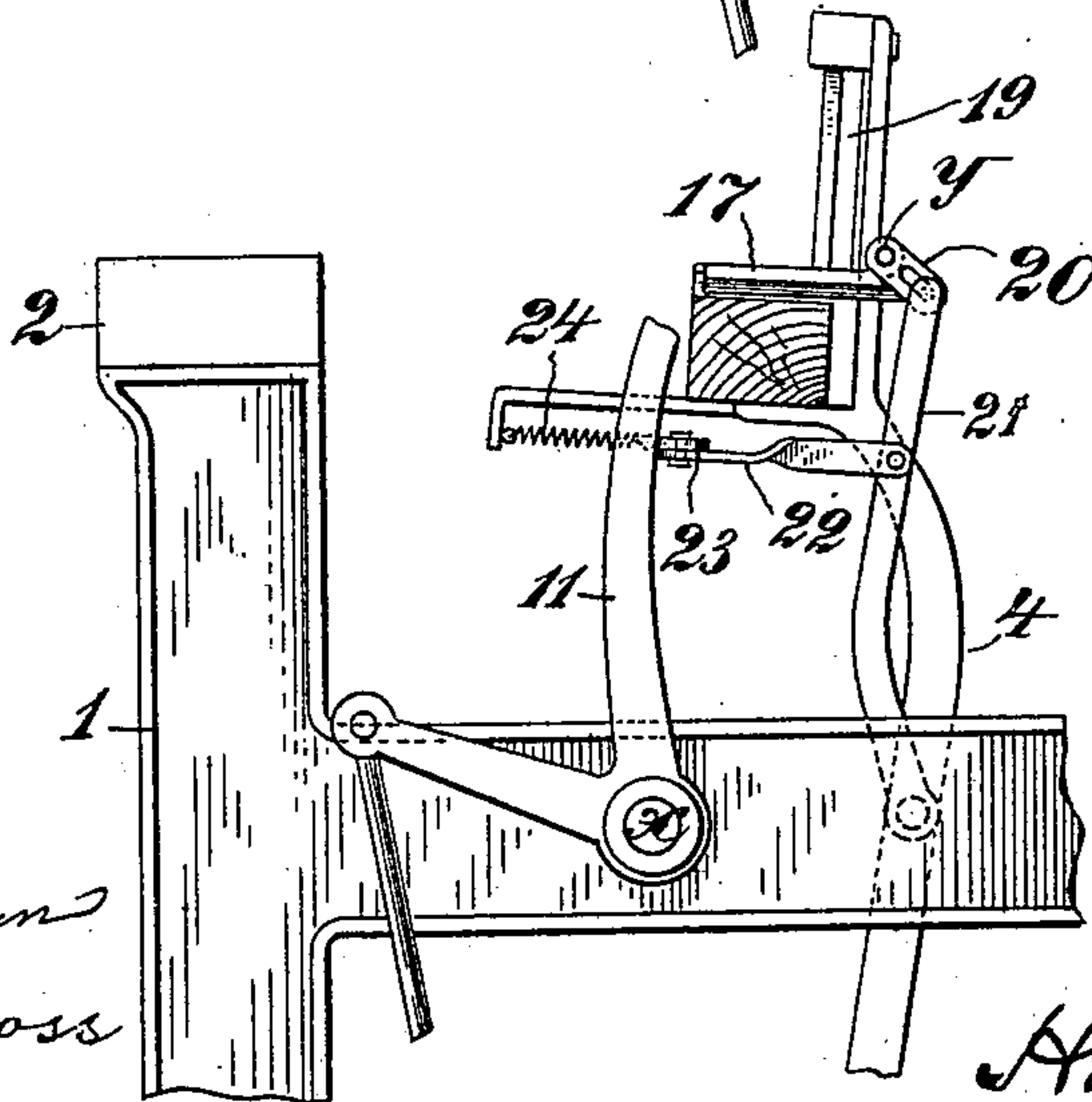


Fig. 5.



WITNESSES:

J. W. Aliman
Peter D. Ross

INVENTORS

William H. Baker
Frederic E. Kip
BY
Harry Conner
ATTORNEY

No. 681,905.

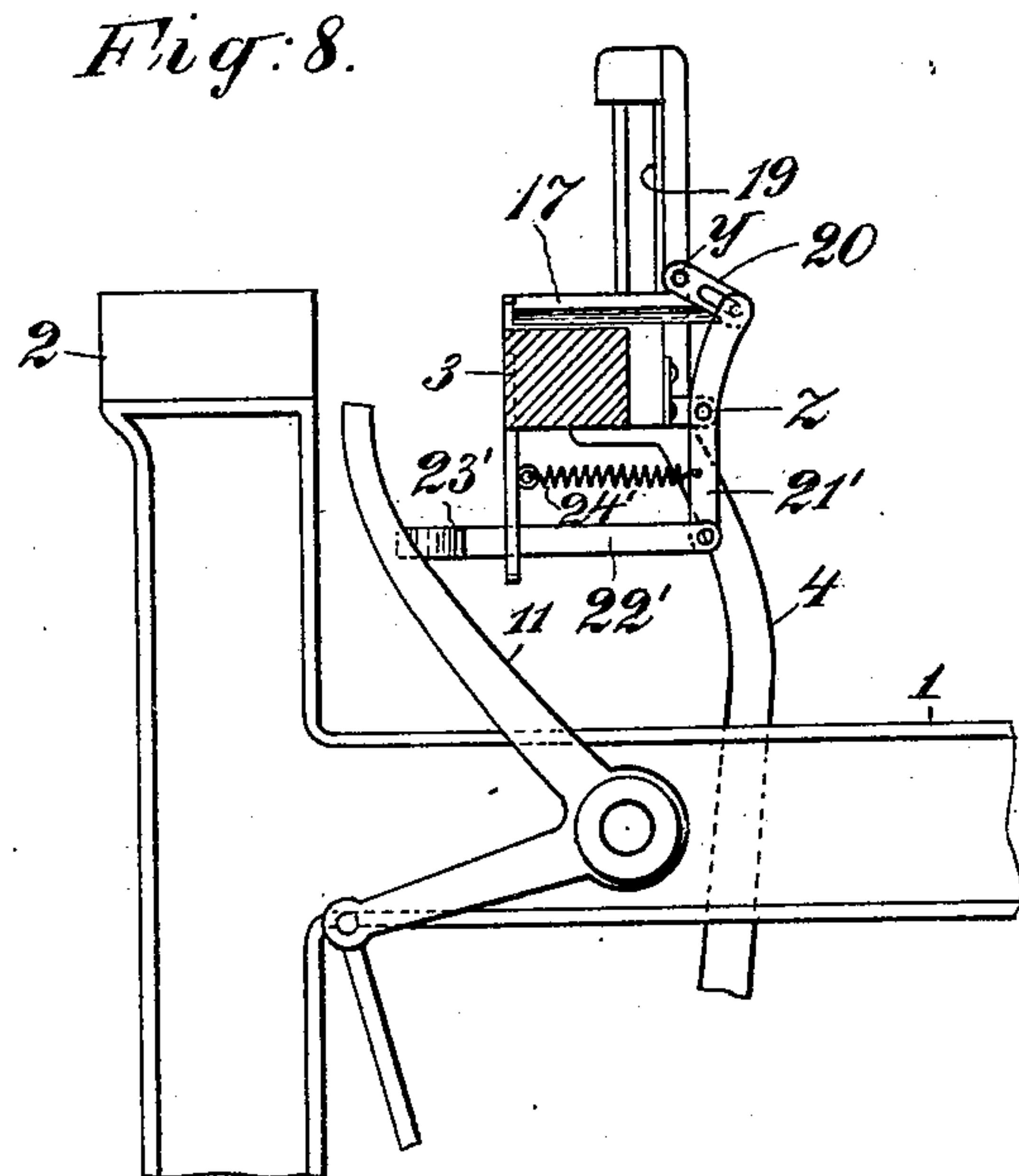
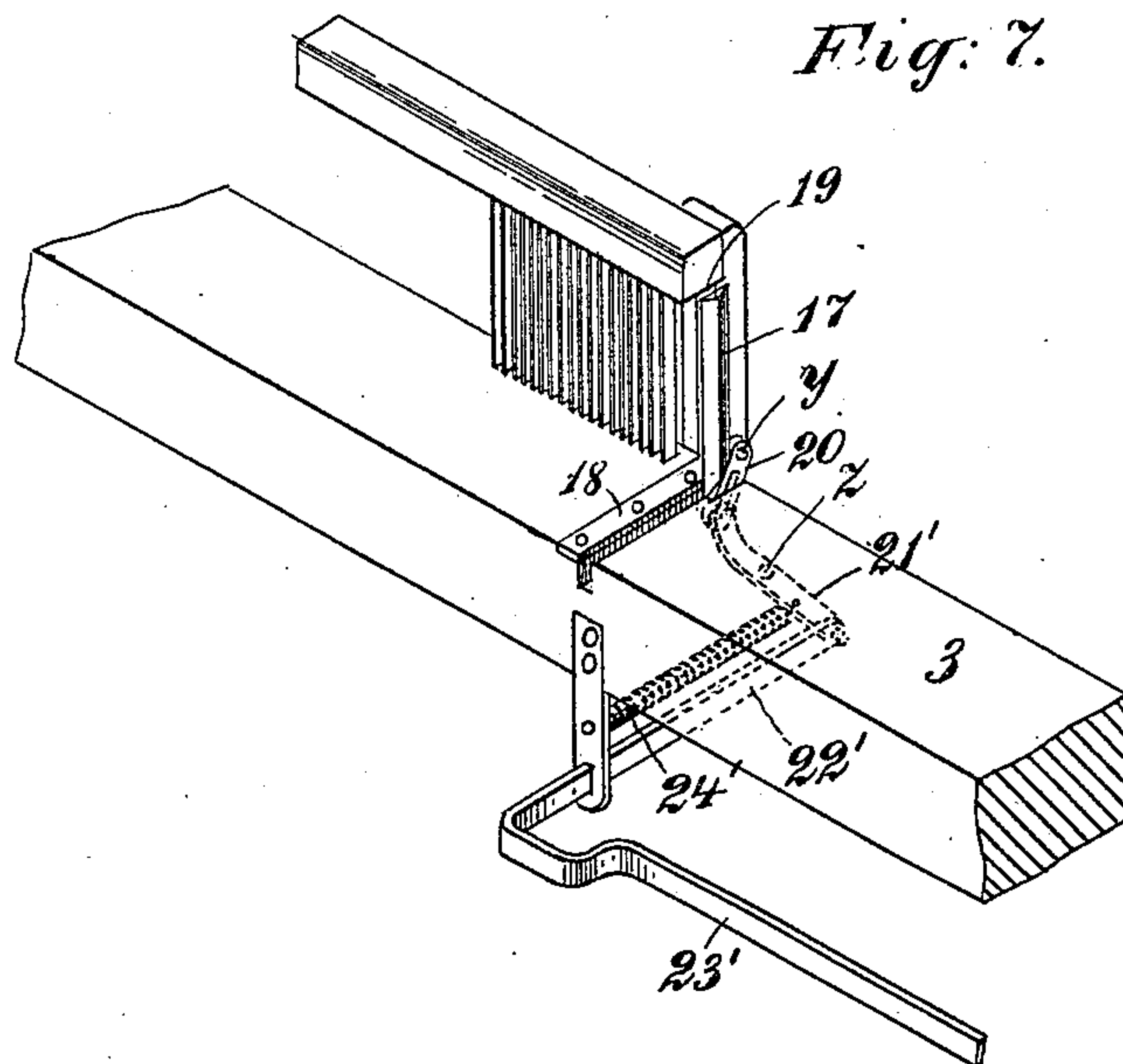
Patented Sept. 3, 1901.

W. H. BAKER & F. E. KIP.
WEFT REPLENISHING MECHANISM FOR LOOMS.

(Application filed Jan. 30, 1901.)

3 Sheets—Sheet 3.

(No Model.)



WITNESSES:

F. H. Wiman

Peter B. Ross.

INVENTORS

William H. Baker

Frederic E. Kip

BY

Harry Conner
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM H. BAKER, OF CENTRAL FALLS, RHODE ISLAND, AND FREDERIC
E. KIP, OF MONTCLAIR, NEW JERSEY.

WEFT-REPLENISHING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 681,905, dated September 3, 1901.

Application filed January 30, 1901. Serial No. 45,285. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. BAKER, residing at Central Falls, Providence county, Rhode Island, and FREDERIC E. KIP, residing at Montclair, Essex county, New Jersey, citizens of the United States, have invented certain new and useful Improvements in Weft-Replenishing Mechanism for Looms, of which the following is a specification.

10 This invention relates to the class of looms having electrically or mechanically controlled means for automatically changing or supplying weft or filling while the loom is in operation. These devices belong to two classes, 15 one known as "shuttle-changers" and the other as "bobbin-changers."

The object of the present invention is to provide a loom having these features with a weft-thread cutter adapted to operate automatically at the time of supplying or changing the weft or filling and adapted to cut the thread of the exhausted and discharged weft-carrier, as well as to cut the weft end of the fresh weft-carrier supplied to the loom. We 25 have herein shown our cutting device for the weft-thread adapted and supplied to a loom substantially the same as that illustrated in our United States Patent No. 637,695, dated November 21, 1899, which is a shuttle-changer, 30 the operation of supplying or changing the weft or filling being controlled electrically; but we do not limit ourselves to the use of this particular form of weft-supplying mechanism in connection with our cutter.

35 In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a side elevation of a part of the loom provided with our improvements and showing the positions of the parts under normal conditions, and Fig. 2 is a similar view showing the positions of the parts when the shuttles are being changed. Fig. 3 is a perspective view of a part of the lay with the shuttle-box omitted to illustrate the construction and 45 operation of the cutter. Fig. 4 is a cross-section of the lay just in front of the shuttle-box, showing the cutter-blade in its normal position; and Fig. 5 is a view showing the position of said blade immediately after the displacement of the exhausted weft-carrier. 50 Fig. 6 is a view of the cutter detached and in

perspective. Figs. 7 and 8 are views similar, respectively, to Figs. 3 and 4, showing a construction where the operations of the cutting or parting blade are reversed. 55

In Figs. 1 and 2 we have only shown the upper part of the loom, as this shuttle-changing mechanism is fully illustrated in our before-mentioned Patent No. 637,695, and reference may be had thereto for a full understanding 60 of said mechanism. In regard to this feature a brief description will suffice.

1 is the loom-frame, and 2 the breast-beam thereof. 3 is the lay, and 4 is one of the lay-swords. The lay-sword in the construction 65 shown extends up and supports the reed 5. 6 is one of the picker-sticks. 7 is the crank-shaft from which the lay is vibrated, and 8 is one of the connecting-rods between said crank and the lay. All of these parts are 70 common in looms.

The shuttle-magazine 9 is mounted on the breast-beam or on some other fixed part and has a delivery to a placer or shuttle-transfer 10 when the latter is at rest under the magazine. The placer or transfer 10, which is carried by a vibratable supporting-arm 11, transfers the shuttle *s* from the magazine to the lay, taking the place of the shuttle-box 12. The arm 11 is pivotally mounted at *x* on the 80 loom-frame and is operated from mechanism below (not shown) at the proper time, as fully illustrated and described in our said Letters Patent. The same mechanism that actuates the placer also actuates or swings aside the 85 shuttle-box, which is suspended at 13, through the medium of a rod 14 and a crank-arm 15. The shuttle-box has no bottom, and when it is swung aside the exhausted shuttle is thrown out and into a suitable receptacle 16. The 90 placer 10 holds its position at the raceway until the fresh shuttle is picked from it, when it returns to its position under the magazine 9, and the shuttle-box then resumes its normal position to receive the shuttle picked 95 back from the opposite side of the loom. All of these features are the same as those shown in our said Patent No. 637,695.

It is important that the weft-thread which connects the exhausted shuttle with the web 100 shall be cut or parted when said shuttle is expelled, and it is also important that the

"weft end," so-called, from the fresh shuttle shall be cut or parted as soon as this shuttle shall have been picked from the placer. The simple mechanism we have devised for effecting this object will now be described with especial reference to Figs. 3, 4, and 5.

On the lay is mounted a vibrating knife or shear blade 17, pivotally attached at y , so that it may occupy an erect position, as seen in Figs. 3 and 4, or a horizontal position, as seen in Fig. 5. On the lay is mounted a horizontal fixed shear-blade 18 to act in conjunction with the movable blade 17 when the latter descends, and on the lay-sword at the end of the reed is mounted an upright fixed shear-blade 19 to act in conjunction with the blade 17 when the latter makes its upward stroke. The movable blade 17 has a short arm 20, to which it is connected by a slot-and-pin coupling with the upper end of a lever 21, pivotally mounted on the lay-sword at its lower end. Slight lateral vibration of the lever 21 operates the blade 17. This lever 21 is coupled by a link 22 to a horizontal operating-lever 23, mounted on the front of the lay. This lever 23, together with the lever 21, is drawn forward normally by a spring 24, which serves to hold the blade 17 erect. The lever 23 is in the path of the supporting-arm 11, which carries the placer, so that when the latter moves to the lay for supplying a fresh shuttle and the shuttle-box swings back for discharging the substantially exhausted shuttle the arm 11 will impinge sharply on the lever 23 and drive it back toward the lay. This motion of the lever 23 acts through the link 22 and lever 21 to bring the blade 17 sharply down across the thread connecting the exhausted shuttle with the web and shear off said thread. The blade 17 remains down in the recess in the lay until the fresh shuttle is picked from the placer and the latter withdraws, when the spring 24 instantly returns the blade to its upright position. In its return movement it severs the weft end left by the fresh shuttle just picked. It will be noted that the device acts in the manner of two pairs of shears having but one movable blade with its two sides operating as cutting edges. In the construction described it is the arm 11 of the weft-supplying mechanism which actuates the cutter to cut the thread from the expelled weft-carrier or shuttle; but obviously any moving part of the supplying mechanism may as well be employed for this purpose.

It is not important that the mechanism between the blade 17 and part of the weft-supplying mechanism which operates it should be constructed as herein shown. Obviously there are many ways of imparting movement to the pivotally-mounted blade other than that shown. It is only essential that the blade shall be caused to cut in one direction, when the fresh weft-carrier replaces the exhausted one and cut in the opposite direc-

tion when the fresh weft-carrier shall have been installed and picked, so as to sever or part the weft end. We have found it most convenient to use the downcut for severing the thread from the exhausted weft-carrier; but the invention is not limited in this respect. In Figs. 7 and 8 the operating mechanism is so arranged and constructed that the vibrating cutting or parting blade 17 is normally horizontal and the first cut is by an upward movement. In these figures the lever 21' is fulcrumed at z , and the link 22' is coupled to the said lever below this fulcrum. This link is bent to form an arm 23' parallel with the lay, upon which impinges the arm 11 or other vibrating part of the weft-supplying mechanism. The spring 24' returns the blade 17 to its horizontal position as soon as the pressure on the arm 23' is relieved.

Obviously the means for parting the weft end and weft-thread may be of any construction so long as it operates in both directions; but a cutting edge is convenient for the purpose. Obviously, also, it is not material whether the means controlling the operation of the weft-supplying mechanism be electrical or mechanical, as both of these means are well-known in the art. We have not deemed it necessary to show herein any means for this purpose.

In our United States Patents No. 637,753, dated November 21, 1899, and No. 655,642, dated August 7, 1900, are illustrated vibrating shuttle-placers adapted for use in connection with the weft-thread cutter or parter of this case, and in our United States Patent No. 674,154, dated May 14, 1901, we show such a placer controlled by a mechanical feeler and without the aid of electricity.

We are the first, so far as we are aware, to employ in a loom a weft-supplying mechanism having a vibrating shuttle-feeder controlling and actuating a weft-thread cutter or parter, and the first also to employ a double-edged cutter or parter adapted to cut in both of its movements of vibration. We therefore claim these features broadly and do not limit ourselves to specific means or mechanisms which may be employed to accomplish the results.

Having thus described our invention, we claim—

1. In a loom, the combination with a weft or filling changing or supplying mechanism having a vibrating part which operates in supplying fresh weft or filling, of a vibrating cutter or parter for the weft-thread, intermediate mechanism whereby said vibrating part of the supplying mechanism actuates the cutter to part the weft-thread, and a spring which actuates the cutter to part the weft end from the fresh weft-carrier, substantially as set forth.

2. In a loom, the combination with a weft or filling changing or supplying mechanism, a vibratable blade with two cutting edges,

adapted to cut at each movement to and fro, said blade being carried by the lay and in position to cut, at both movements, a thread carried by the shuttle, and means, controlled by the said supplying mechanism for actuating said cutting or parting blade, substantially as set forth.

3. In a loom, the combination with a double-edged weft cutting or parting blade carried by the lay and adapted to vibrate between an upright and horizontal position, of a spring which returns said blade to and holds it in one position, a weft or filling supplying mechanism having a vibrating part, and means between said blade and said vibrating part whereby the latter actuates the blade in a direction antagonistic to said spring, substantially as set forth.

4. In a loom, the combination with the lay, of an upright shear-blade and a horizontal shear-blade carried by the lay, a vibratable double-edged blade carried by the lay and adapted to cooperate with said shear-blades for severing the weft-threads, means for operating said blade when fresh weft or filling is supplied to the loom, and means for operating said blade immediately after the freshly-supplied weft-carrier has been picked, substantially as set forth.

5. In a loom, the combination with the vibratable, double-edged cutter-blade carried by the lay, of the magazine, the vibratable placer, its supporting-arm, and the mechanism between said arm and said blade whereby the former actuates the latter, substantially as set forth.

6. In a loom, the combination with a weft or filling changing or supplying mechanism, of a double-edged, vibratable blade or weft-parter, and means for operating said blade or parter to sever the weft-thread of the substantially exhausted outgoing shuttle and to sever the weft end of the incoming shuttle directly after the first pick of the latter.

7. In a loom, the combination of the following instrumentalities: a double-edged weft cutter or parter, a weft-supplying mechanism, a vibratable shuttle-feeder, and means between said feeder and parter for operating

said weft-parter at the time of operation of the shuttle-feeding mechanism.

8. In a loom, the combination with the lay, a vibratable weft cutter or parter mounted thereon, a shuttle-feeder mounted on an upright vibratable arm which vibrates in supplying fresh weft or filling to the loom, the said arm, and mechanism between said arm and cutter impinged upon by said arm for operating said cutter to sever the weft-thread when the loom is supplied with fresh weft or filling, substantially as set forth.

9. In a loom, the combination with the magazine, the lay, the shuttle-feeder, the vibrating, upright arm, carrying said feeder, a vibrating cutter or parter for the weft-thread mounted on the lay, a spring adapted to hold the cutter in one of its positions, and mechanism in the path of the vibrating arm and connected with the cutter for operating the same, whereby the impingement of said arm on said mechanism actuates the cutter, substantially as set forth.

10. In a loom, the combination with a weft or filling changing or replenishing mechanism, of a weft cutter or parter consisting of a double-edged cutting or parting blade, and means intermediate said weft-parter and replenishing mechanism for operating said weft-parter to cut or part the weft-thread as required.

11. In a loom, the combination with a weft or filling changing or replenishing mechanism, of a weft cutter or parter consisting of a double-edged cutting or parting blade, and means intermediate said weft-parter and replenishing mechanism for operating said weft-parter to sever the weft-thread of the outgoing exhausted supply and to sever the weft end of the incoming fresh supply.

In witness whereof we have hereunto signed our names, this 28th day of January, 1901, in the presence of two subscribing witnesses.

WILLIAM H. BAKER.
FREDERIC E. KIP.

Witnesses:

PETER A. ROSS,
HENRY CONNETT.