

D. THIBEAULT.  
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 APPLICATION FILED DEC. 7, 1909.

976,009.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 1.

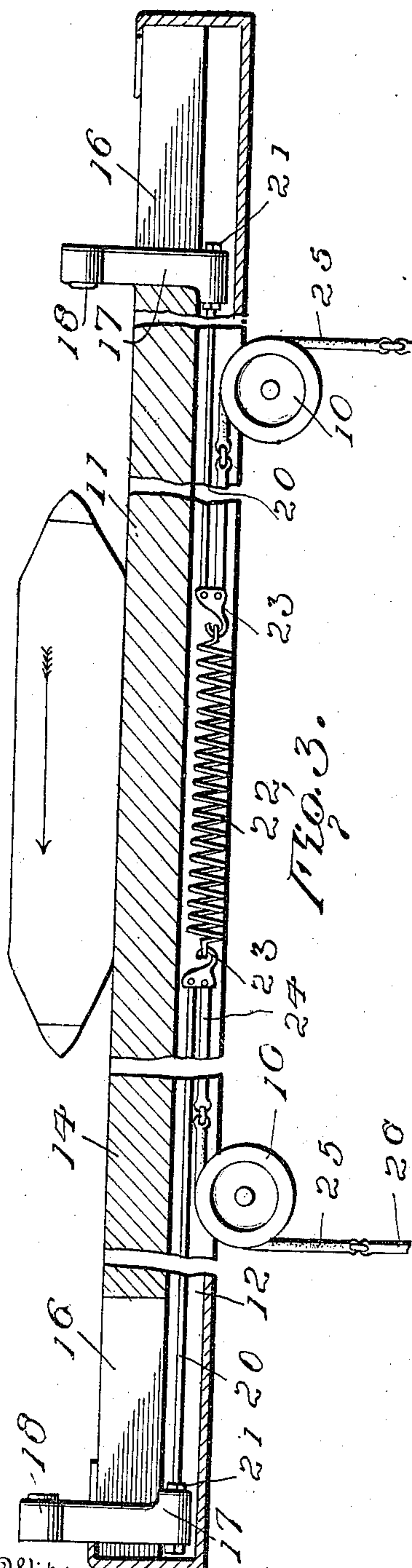


Fig. 3.

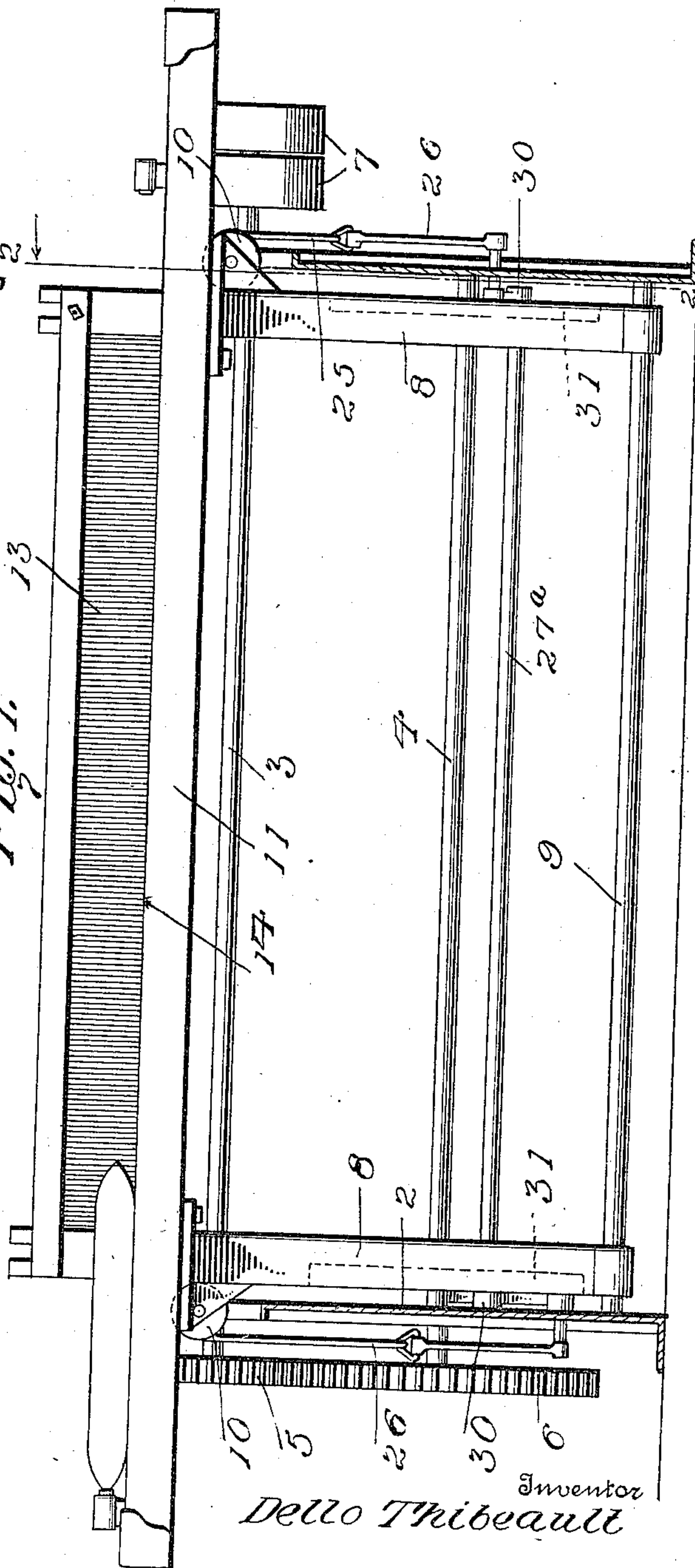


Fig. 1.

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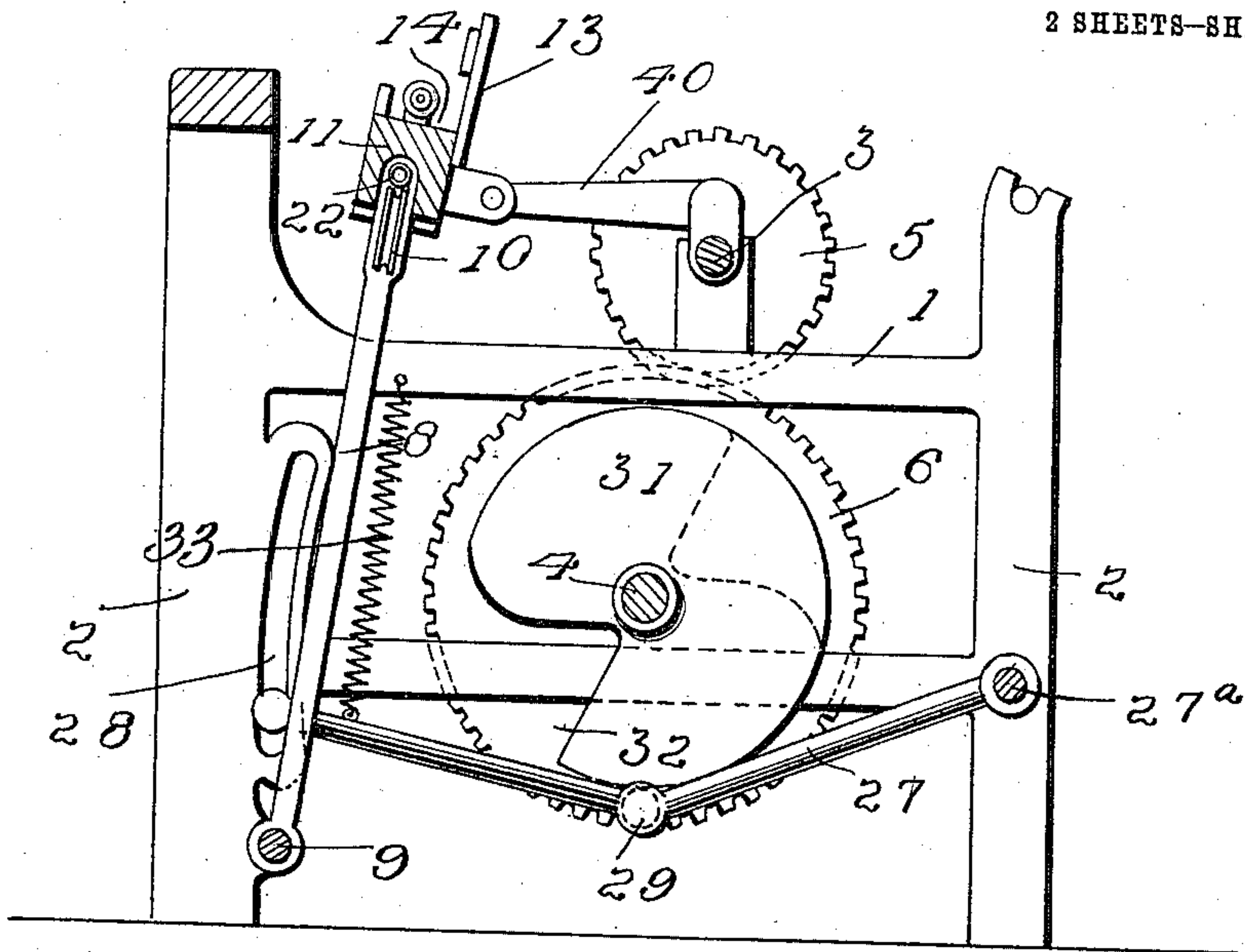


Fig. 2.

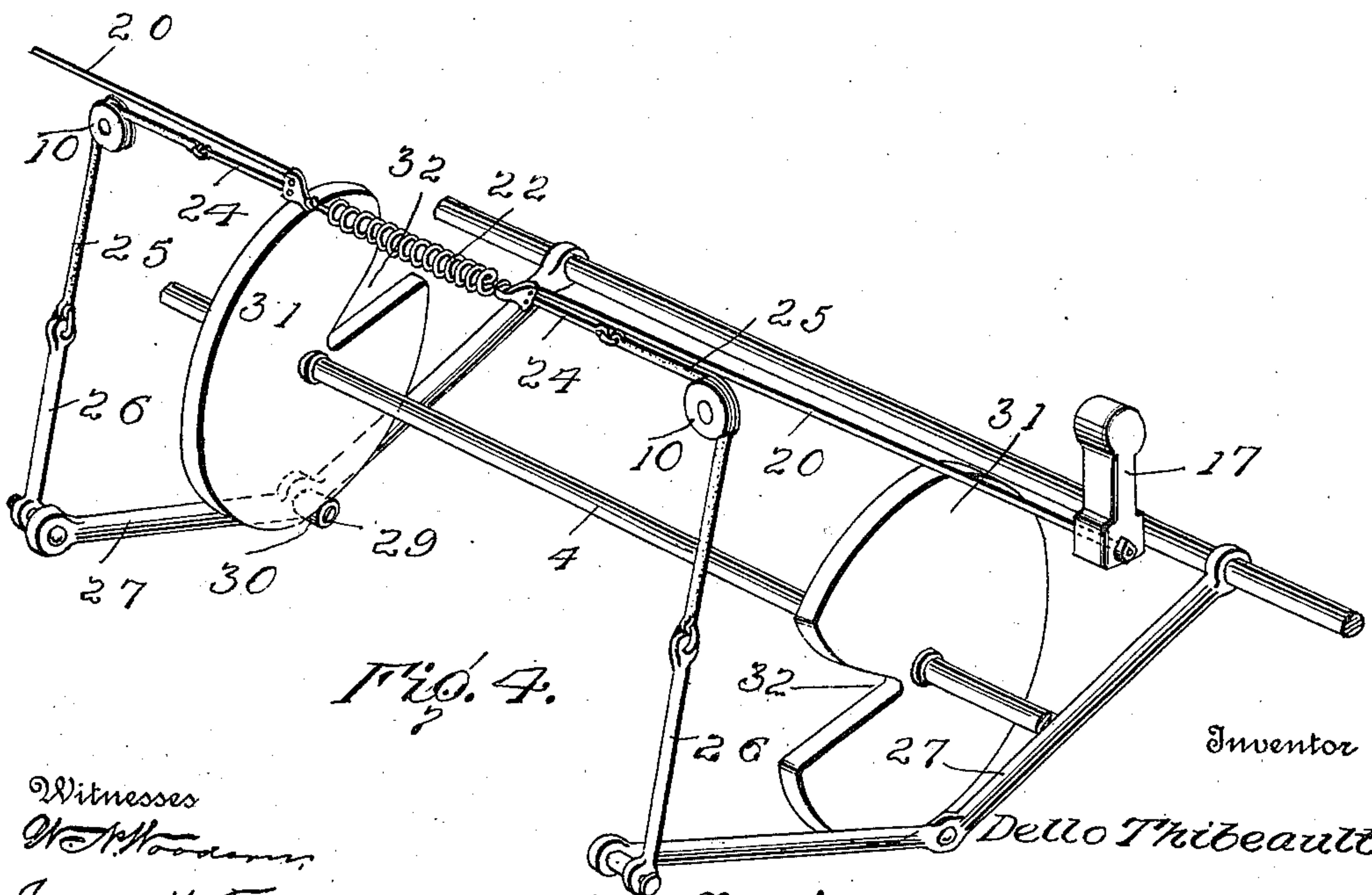


Fig. 4.

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# UNITED STATES PATENT OFFICE

DELLO THIBEAULT, OF CAMPELLO, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO  
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## PICKER MECHANISM FOR LOOMS.

976,009.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed December 7, 1909. Serial No. 531,833.

*To all whom it may concern:*

Be it known that I, DELLO THIBEAULT, citizen of the United States, residing at Campello, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Picker Mechanism for Looms, of which the following is a specification.

My invention relates to loom mechanism, and particularly to the mechanism by which the shuttle is thrown.

The object of the invention is to improve the picker mechanism, very much simplify the same, do away with the ordinary picker sticks, and to provide a very simple construction whereby the shuttle may be thrown along the lay-beam.

A further object of the invention is to provide picker mechanism which will impart a straight throw or impulse to the shuttle, and so construct the mechanism that the shuttle is received by a spring cushion at the end of its movement.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a front elevation of the loom; Fig. 2 is a transverse section thereof; Fig. 3 is a longitudinal section through the lay beam; Fig. 4 is a perspective view of the picker-actuating mechanism detached from the frame and the other parts of the mechanism.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these drawings, 1 designates the frame of the loom, which may be of any suitable and usual construction, preferably consisting of the side standards 2, connected to each other in any suitable manner. Mounted in the standards is the main driving shaft 3, and located below the main driving shaft is the countershaft 4, said countershaft carrying the actuating cams to be later described. The shaft 3 carries at its extremity the toothed gear wheel 5 which engages with the gear wheel 6 on the extremity of the cam shaft 4, so that the cam shaft is rotated by means of the driving shaft 3 which in turn is rotated in any suitable manner, as by the driving pulleys 7. The lay swords 8 are pivotally supported on

each side of the machine inward of the standards 2. Any suitable means may be provided for pivotally supporting the lay swords 8, but as shown, they are carried on the transverse shaft 9 which passes through the lower ends of the lay swords, which are permitted to turn thereon.

Each of the lay-swords is provided with a pulley 10 located in a recess just below the lay-beam 11, this pulley projecting out somewhat beyond the edge of the adjacent standard 2. The lay-beam is formed with a passage 12 through it and through which passes the picker rod and the picker strap, as will be later described. The lay-beam is of any desired or usual construction and is provided with the reed 13 and the race 14 for the shuttle 15. The under side of the lay-beam is grooved or channeled along its entire length with the exception of the extremities, which are covered. The lay-beam at its ends is formed with the upwardly extending grooves 16 in which the picker slides move; there are two of these picker slides 17 located at opposite ends of the lay-beam, as is usual in loom constructions, and the slides may be constructed in any suitable manner, although preferably they are made of steel, and have an upwardly projecting portion carrying each a bunter or buffer 18 adapted to resiliently receive the impact of the shuttle. Extending longitudinally through the interior of the lay-beam are the opposed picker rods 20. The ends of these rods pass through the base of the picker slides and lock nuts 21 and hold each picker slide in its adjusted position. The inner ends of the rods are both connected to the spiral contractile spring 22, the opposite end of the spring being formed with eyes 23 with which the rods 20 engage. Also connected to the eyes 23 and extending outwardly therefrom in opposite directions are the rods 24 which are connected to straps 25 which pass over the pulleys 10, the extremities of the straps being each connected to a short rod 26 which is attached at its ends to the extremity of the actuating lever 27 whereby the pickers are operated.

The actuating levers 27 are pivoted on the inside of the standard 2 in the rear of said standard and extend forward in a slight curve and then are bent at right angles and have an outwardly projecting stud which passes through an arcuate slot 28 in the side of the



standard, and is then attached in any suitable manner to the rod 26. Each of the actuating levers is provided with an inwardly projecting stud or bearing 29 upon which is mounted the roller 30, this roller being adapted to contact with the faces of the cams on the cam-shaft 4.

The cams on the cam-shaft 4 are oppositely set with relation to each other. These 10 cams 31 have the peculiar form shown in Fig. 4 and are in other words formed with a larger portion of their cam surface concentric with the shaft 4, but are cut away radially as at 32 nearly to the center of the 15 cam. Thus it will be seen that the cam has a long period of dwell, during which period each actuating lever 27 will be held down in its lowest position, but that when the cam has so turned that the roller 30 on the actuating lever passes over the edge of the cut-away portion 32 the roller will immediately 20 shift to the center of the cam. As above remarked the cams are set oppositely to each other so that when one of the levers 27 is in its lowest position the other of the levers will suddenly shift to its highest position. When 25 both of the levers are held downward, as during that period of the revolution of the shaft 4 when the rollers 30 are engaged with the concentric face on both of the cams, then 30 the spring 22 will be considerably expanded; and it will be observed that when one of the rollers 30 reaches the cut-away portion 32, the spiral spring 22 will be immediately released at one end, and that in contracting 35 it will exert a sudden impulse upon the rod 20 and cause the picker slide to be thrown toward the middle of the lay beam, thus throwing the shuttle across the lay beam to 40 the opposite picker. It will also be seen that by reason of the cams being set opposite to each other, the spring 22 will be alternately expanded and released from opposite ends, and that the shuttle will be consequently 45 thrown from one side to the other.

In order to assist in counterbalancing the weight of the levers 27 I provide springs 33 which are attached at one end to the frame of the machine and at their other ends are 50 connected to the respective actuating levers.

While I may use any desired means for rocking the swords 8, I have shown the usual method for actuating the swords, namely, crank arms on the shaft 3 connected 55 by the links 40 to the swords.

It is to be understood that I have not attempted to show all of the mechanism of the loom, for the reason that a large portion of it would have no bearing upon my invention, and I have only illustrated those parts 60 which directly co-act with the picker mechanism described. I do not wish to be limited to the precise construction of these parts, to the type of the machine in which 65 the pickers are operated, or to any of the de-

tails, inasmuch as they may be modified in many ways without departing from the spirit of the invention.

The advantage of my improved picker mechanism is that it does away with the 70 picker shaft, the belt guard and the necessity of strapping the picker shaft to the picker stick. In fact my invention simplifies very greatly the whole construction of the picker mechanism and does away with 75 a large amount of cumbersome attachments.

I have found in practice that my device does not readily break or get out of repair; that it may be easily applied to any loom at present in use; and that it is entirely effective 80 in practice.

Having thus described the invention, what I claim is:—

1. In a loom, opposed standards, a main shaft, a countershaft, gearing between the 85 main shaft and the countershaft, opposed lay swords pivotally mounted on the standards, a lay beam supported on the upper ends of the swords, a connection between said lay beam and a driving shaft, whereby 90 the former may be reciprocated by the latter, a spring mounted in said lay beam, opposed picker slides carried in said lay beam, adapted to slide in ways on opposite ends thereof, rods connecting said spring and the 95 slides, pulleys mounted in the upper ends of the lay swords and extending out over the sides of the swords, flexible connections from the ends of the spring, passing over said pulleys, actuating levers pivotally supported 100 on the inner faces of the standards, said levers extending at right angles to the lay, the ends of said levers being formed with studs projecting out through arcuate slots in the standards and being connected to said 105 flexible connections, rollers projecting from said levers, and opposed cams mounted on the countershaft in planes parallel to said levers and engaging with said rollers at all times, each of said cams having an approxi- 110 mately concentric face and a cut-away portion forming an interruption in said face, extending sharply inward toward the center of the cam.

2. In a loom, opposed lay swords, a lay 115 beam mounted on the swords, said beam being longitudinally channeled on its under face, two picker slides adapted to slide in longitudinal ways on opposite ends of the lay beam, a spring supported in said chan- 120 nel at the middle of the lay beam, rods connecting the opposite ends of said spring with said slides, a pulley in each of the lay swords, rods extending from opposite ends of the said spring, flexible connections at- 125 tached to the rods and passing over said pulleys, actuating levers pivoted at one end, said levers being disposed at right angles to the lay, rods connected to the free ends of the actuating levers and to said flexible 130



connections, inwardly projecting studs, one on each actuating lever, opposed cams disposed in parallel relation to the levers and engaging the said studs, said cams being 5 oppositely set with relation to each other and each of said cams having an approximately concentric face, and a cut-away portion, one face of the cam bounding the cut-away portion being perpendicular to the 10 concentric face of the cam and extending radially inward, the other face of the cam bounding said cut-away portion being convexly curved, the end of the cut-away portion forming a stop limiting the inward 15 movement of the stud.

3. In a loom, a supporting frame having standards, oppositely disposed lay swords mounted on the frame, a transversely extending lay beam mounted on the swords 20 and having a longitudinal channel on its under side, two picker slides sliding in ways formed on opposite ends of the lay beam, said slides projecting into the said channel, a spring located in the channel and housed 25 thereby and disposed intermediate the slides, connecting rods between the ends of said spring and said slides, pulleys mounted in the upper ends of the lay swords and projecting outward beyond the faces of said 30 swords, a connection attached to each end of the spring and passing over said pulleys,

actuating levers pivoted at their rear ends to said standards, the forward ends of the actuating levers being supported in vertical guides on the standards, said forward ends 35 of the levers being attached to said last named connections, springs attached at one end to the standards and acting to counterbalance the weight of the actuating levers, an inwardly projecting stud on each actuating 40 lever, a transverse shaft, oppositely disposed cams mounted on said shaft, one for each of said levers, each of said cams having an approximately concentric face and a cut-away portion extending sharply inward toward the 45 center of the cam, one margin of the cut-away portion being perpendicular to the concentric face, the other margin being convexly curved, the junction of the curved and perpendicular face being rounded and 50 of a width sufficient to receive the stud on the actuating lever and afford a stop for the same, said cams being so set that the cut-away portions thereof extend relatively in opposite directions. 55

In testimony whereof I affix my signature in presence of two witnesses.

DELLO THIBEAULT. [L. s.]

Witnesses:

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