

(No Model.)

3 Sheets—Sheet 1.

G. F. HUTCHINS.
SHEDDING MECHANISM FOR LOOMS.

No. 582,924.

Patented May 18, 1897.

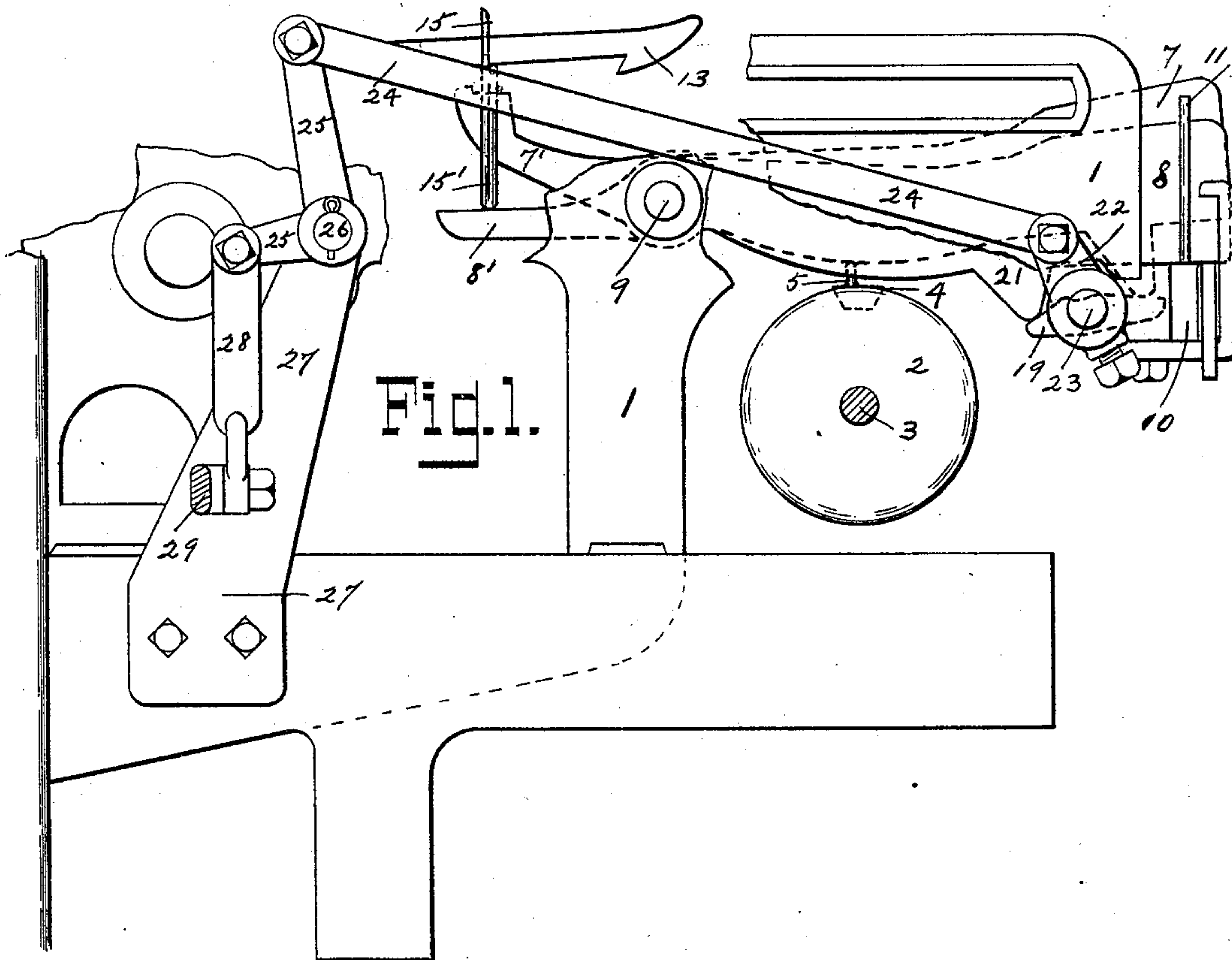
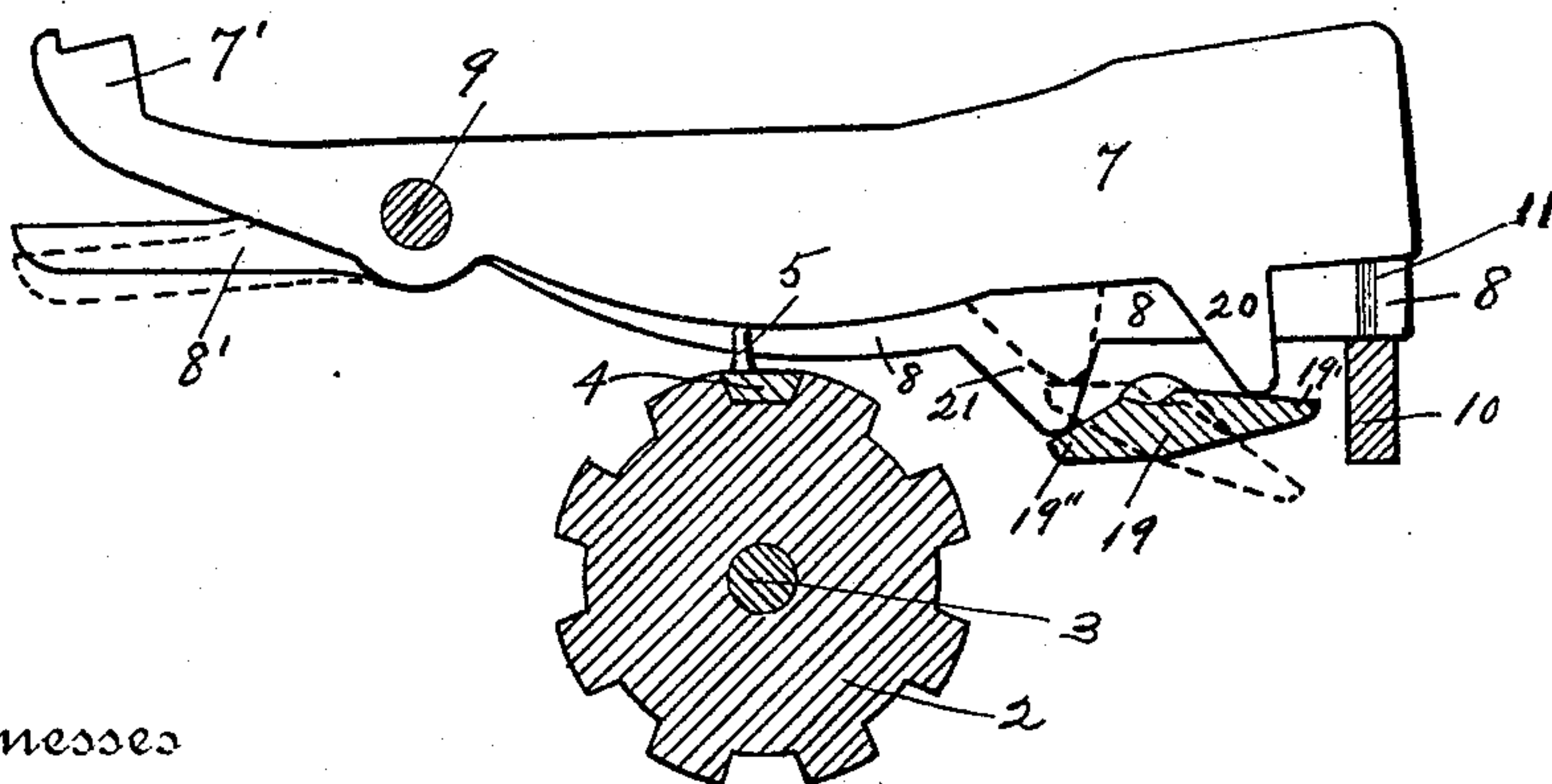


Fig. 2.



Witnesses

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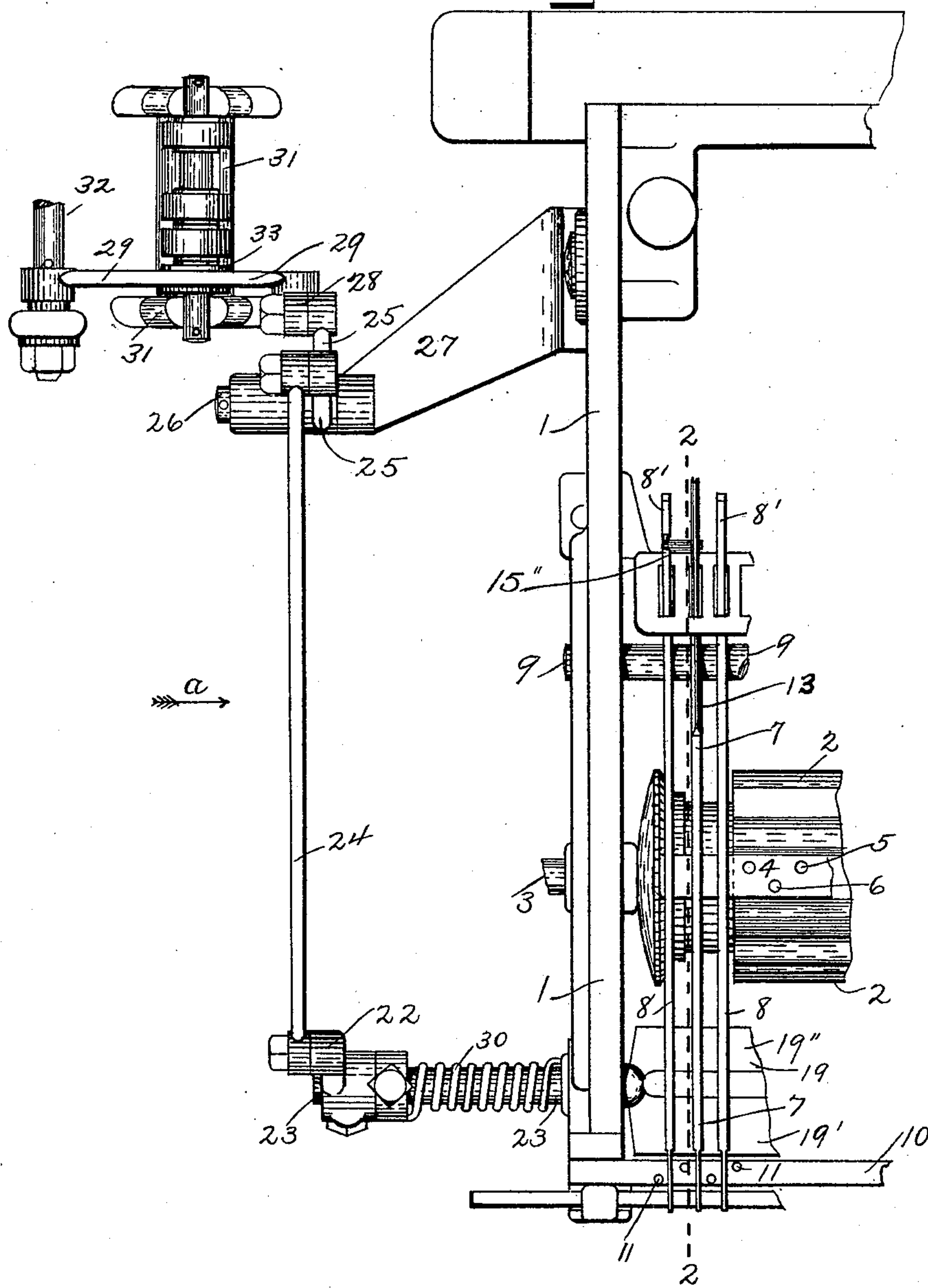
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Fig. 3.



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3 Sheets—Sheet 3.

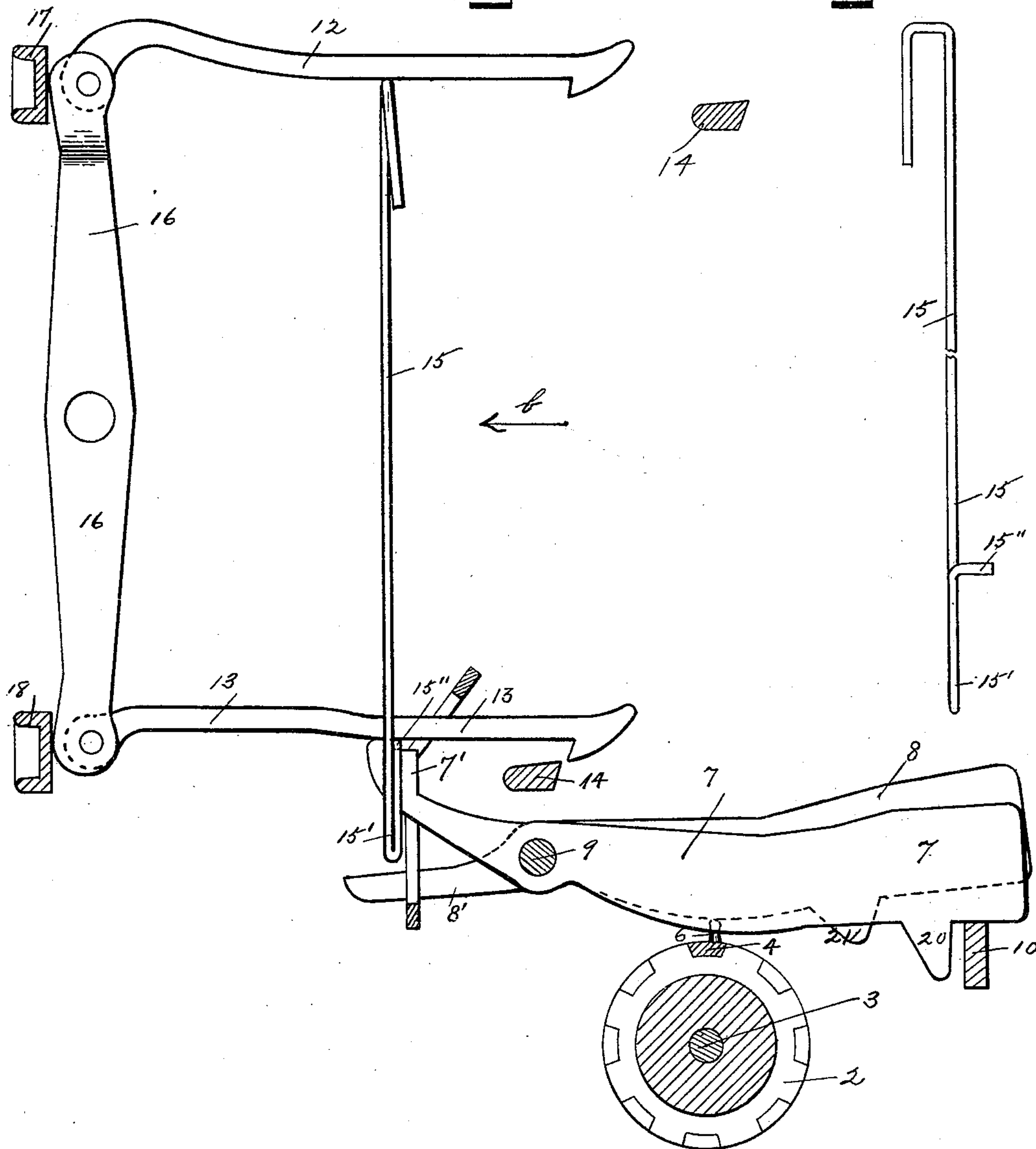
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Fig. 4.

Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE CROMPTON & KNOWLES LOOM-WORKS,
OF SAME PLACE.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 582,924, dated May 18, 1897.

Application filed November 13, 1896. Serial No. 611,934. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shedding Mechanism for Looms, of which the following is a specification.

My invention relates to shedding mechanism for looms, and more particularly to a two-weave attachment adapted to be combined with mechanism called a "dobby," used for operating the heddle frames or harnesses in a loom in the ordinary and well-known way.

The object of my invention is to provide an automatic two-weave attachment of simple construction and operation and which is adapted to be combined with the indicator-levers of a dobbie mechanism to automatically move one-half of said levers out of engagement with their pattern-surfaces, so that they will become inoperative, and at the same time allow the other indicator-levers to engage their pattern-surfaces and become operative.

In connection with my two-weave attachment I use two sets of indicator-levers, and each indicator-lever is connected by a lifting-wire with an upper and lower hook-latch, and a single lifting-wire serves for two levers, so that if a lever of one set is inoperative to act on the hook-latches the lever of the other set is operative. I also use double-index pattern-bars, or bars with two sets of pins or pattern-surfaces thereon, one set for one set of indicator-levers and the other set for the other set of indicator-levers.

My invention consists in certain novel features of construction of my two-weave attachment and the manner of combining the same with a dobbie mechanism, as will be herein-after fully described.

My improvements are intended to be used on looms for weaving any class of goods requiring two weaves, as dress-goods, blankets, &c., in which there are two different weaves.

I have shown in the drawings sufficient portions of a well-known dobbie mechanism, which is fully shown and described in United States Letters Patent No. 388,318, of August 21, 1888, with my two-weave attachment ap-

plied thereto as will enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings, Figure 1 is a side elevation of a portion of the dobbie-frame of the description illustrated in said Patent No. 388,318, looking in the direction of arrow *a*, Fig. 3, showing two indicator-levers, a lower hook-latch, the lower end of the lifting-wire, the end of a pattern-cylinder, a two-index pattern-bar, and my double-weave attachment combined therewith. Fig. 2 is a section taken at a point indicated by line 2 2, Fig. 3, looking in the direction of arrow *a*, same figure. The lifting-wire and hook-latch shown in Figs. 1 and 3 are not shown in this figure. Fig. 3 is a plan view of the parts shown in Fig. 1 and also shows the pattern-surface which operates the indicator-lever 29. Fig. 4 shows a section of the pattern-cylinder, two indicator-levers, a jack-lever, an upper and lower hook-latch, and a lifting-wire, and in section the upper and lower sliding lifting-bar and the stop-bars of the description illustrated in said patent; and Fig. 5 is a side view of the lifting-wire, looking in the direction of arrow *b*, Fig. 4.

In the accompanying drawings, 1 is a portion of one of the two upright frames, upon which are supported the several parts of the dobbie mechanism in the ordinary way and as fully shown and described in said Patent No. 388,318, to which reference is made for fuller illustration and description.

The pattern-cylinder 2 is fast on a shaft 3, having bearings in the frames, and is of usual construction and operation. In the longitudinal grooves or recesses therein extend the pattern-chain bars, only one of which, 4, is shown in the drawings.

On the pattern-bar 4 are two sets of pins 5 and 6, arranged in two alternate rows. (See Fig. 3.) Extending over the pattern-cylinder 2 are two sets of indicator-levers 7 and 8. One set, 7, is acted on by the pins 5 and the other set, 8, by the pins 6 in the pattern-chain bars 4. The indicator-levers are loosely mounted on a shaft 9, secured in the frames, and at their outer ends, when in lowered position, rest on the bar 10, which has pins 11, extending up

therefrom between the levers 7 and 8, to guide and hold them in position.

Each one of the set of levers 7 is adapted to be engaged and raised by its set of pins 5, in case said levers are in their lowered position, while each one of the set of levers 8 is adapted to be engaged and raised by its set of pins 6, in case said levers are in their lower position, at each partial revolution or movement of the pattern-chain in the ordinary way.

The inner ends 8' of the indicator-lever 8 extend beyond their supporting-shaft 9 and in a substantially horizontal plane, while the inner end 7' of the levers 7 extend upwardly above the ends 8' of the levers 8, as shown in the drawings. The inner ends of said levers 7 and 8 extend through slots in the grate 9'.

Arranged over the two sets of levers 7 and 8 in the usual way, as shown in the patent referred to, are an upper and lower set of hook-latches 12 and 13, which hook over and are operated by the upper and lower slide-bars 14 in the usual way. (See Fig. 4.) There is an upper latch 12 and a lower latch 13 for each pair of levers 7 and 8, and each one of the pair of levers is connected with the upper latch 12 and lower latch 13 by a lifting-wire 15, which is made of the shape shown in Figs. 4 and 5. The lower double end 15' rests on the top of the inner end of the lever 8, while the side projecting end 15'' rests on the top of the inner end of the lever 7. (See Fig. 4.) The side projecting end 15'' also extends under and is adapted to lift the lower latch 13. The upper end of the lifting-wire 15 extends under and engages the upper latch 12 to lift the same when desired. It will thus be seen that either lever 7 and 8 of the two sets of levers, when it is engaged by its pattern-pins, will lower both the upper latch 12 and lower latch 13 simultaneously.

The latches 12 and 13 are pivoted at their inner ends on the connector 16, centrally pivoted on the harness-lever, (not shown,) connected with the harness-frame, and adapted to engage at its upper end the stop-bar 17 and at its lower end the stop-bar 18, as set out in the patent above referred to.

I will now describe my two-weave attachment, adapted to be combined with the parts of the dobby mechanism above described. Extending under the outer ends of the two sets of levers 7 and 8, outside of the pattern-cylinder 2, and having projecting ends or journals supported in bearings in the side frames, is a rocking plate 19, the outer edge 19' of which is adapted to engage downward projections 20 on the lower edge and near the outer end of the levers 7, so that when the plate 19 is rocked in one direction to raise the outer edge 19' thereof all the levers 7 will be raised at their outer ends and held up, as shown in Fig. 2, so that the pins 5 on the pattern-bars 4 can pass under the levers 7 without moving said levers. When the plate 19 is rocked in the opposite direction to raise the inner edge 19'', said edge will engage

downward projections 21 on the levers 8 and raise said levers (see dotted lines, Fig. 2) and hold them out of engagement with the pins 6 on the pattern-bar 4, as above described in connection with the levers 7. At the same time the set of levers 7 are allowed to drop down onto the pins 5 on the pattern-bar 4 as the pattern-cylinder 2 revolves. It will thus be seen that as the plate 19 is rocked in one direction one set of indicator-levers, as 7, is raised and becomes inoperative and the other set, as 8, is lowered and becomes operative. As the two patterns to be woven are on the same bar and there are two indicator-levers for each upper and lower hook-latch, either indicator-lever may be made to govern the operation of the hook-latches through the lifting-wire 15, as desired, by rocking the plate 9 in one direction or the other, and in this way I change from one weave to the other.

The lifting-wires 15 are made in such a manner that the dropping of the inner ends of either set of levers by the raising of the outer ends by the plate 19 does not effect the engagement of said lifting-wires 15 with the other set of levers or their operation by said levers.

To communicate a rocking motion to the plate 19 at the desired time to change the weave, I in this instance connect a crank-arm 22, fast on the end of the end or journal 23 on one end of the plate 19, through a connector-rod 24 with an angle-lever 25, pivoted on a stud 26 at the upper end of the bracket or arm 27. The other arm of said angle-lever 25 is connected through link 28 with the inner end of an indicator-lever 29, which is rigidly attached at its inner end to the link 28 to cause the angle-lever 25 to have a rocking motion and through connector 24 communicate a rocking motion to the plate 19.

The indicator-lever 29 extends over a pattern-surface on the pattern-cylinder 31 of ordinary construction and operation and is pivotally supported at its outer end on the rod 32. As the pattern-cylinder 31 revolves and a roll 33 thereon comes under the lever 29 said lever is raised, and through intermediate connections the plate 19 is operated.

A coiled spring 30, around the journal 23 of the plate 19, (see Fig. 3,) is preferably employed to move the angle-lever 25 over to the left, as shown in Fig. 1, when a tube comes under the indicator-lever 29.

The operation of my two-weave attachment from the above description, in connection with the drawings, will be readily understood by those skilled in the art.

The pattern-surface, which controls the movement of the indicator-lever 29, is so built that at the proper time, when it is desired to change the weave, the lever 29 will be raised by a roll 33 coming under it. The plate 19 will then, through intermediate connections, be automatically rocked and raised at its inner edge to raise one set of levers, as 8, at

their outer ends (see dotted lines, Fig. 2) and hold them out of engagement with the pins on the pattern-bars. At the same time the other set of levers, as 7, will be dropped at their outer ends onto the pins on the pattern-bars, and through said levers and connections to the harnesses the desired shed will be made.

When a tube comes under the lever 29, the spring 30 will move the angle-lever 25 and lower the lever 29, and a reverse motion will be communicated to the plate 19 to raise the outer edge thereof and raise the outer ends of the other set of levers, as 7, and at the same time lower the outer ends of the levers 8 to change the weave and allow the levers 8 to operate to make the required shed for the other weave, and this operation is repeated as desired.

It will be understood that the details of construction of my two-weave attachment and the manner of combining the same with the dobby or other shedding mechanism may be varied, if desired.

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

1. In a dobby mechanism for looms, the combination with the pattern-cylinder, and pattern-surface or pins, two sets of indicator-levers extending over said pattern-surface, and the upper set and lower set of hook-latches, the connector on which the hook-

latches are pivoted and a lifting-wire connecting each one of a pair of indicator-levers with the hook-latches, of means for automatically moving one set of indicator-levers out of engagement with their pattern-surfaces, and the other set into engagement, substantially as set forth.

2. In a dobby mechanism for looms, the combination with the pattern-cylinder, and pattern-surface or pins, two sets of indicator-levers extending over said pattern-surface, and the upper set and lower set of hook-latches, the connector on which the hook-latches are pivoted and a lifting-wire connecting each one of a pair of indicator-levers with the hook-latches, of means for automatically moving one set of indicator-levers out of engagement with their pattern-surfaces, said means consisting of a rocking plate extending below the outer ends of the indicator-levers, and adapted to render one set of indicator-levers inoperative, when moved in one direction, and the other set of indicator-levers inoperative, when moved in the opposite direction, and intermediate connections from said plate to an indicator-lever, acted on by a pattern-surface, and said indicator-lever and pattern-surface, substantially as set forth.

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Witnesses:

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