

No. 679,517.

Patented July 30, 1901.

S. SEWALL, Dec'd.

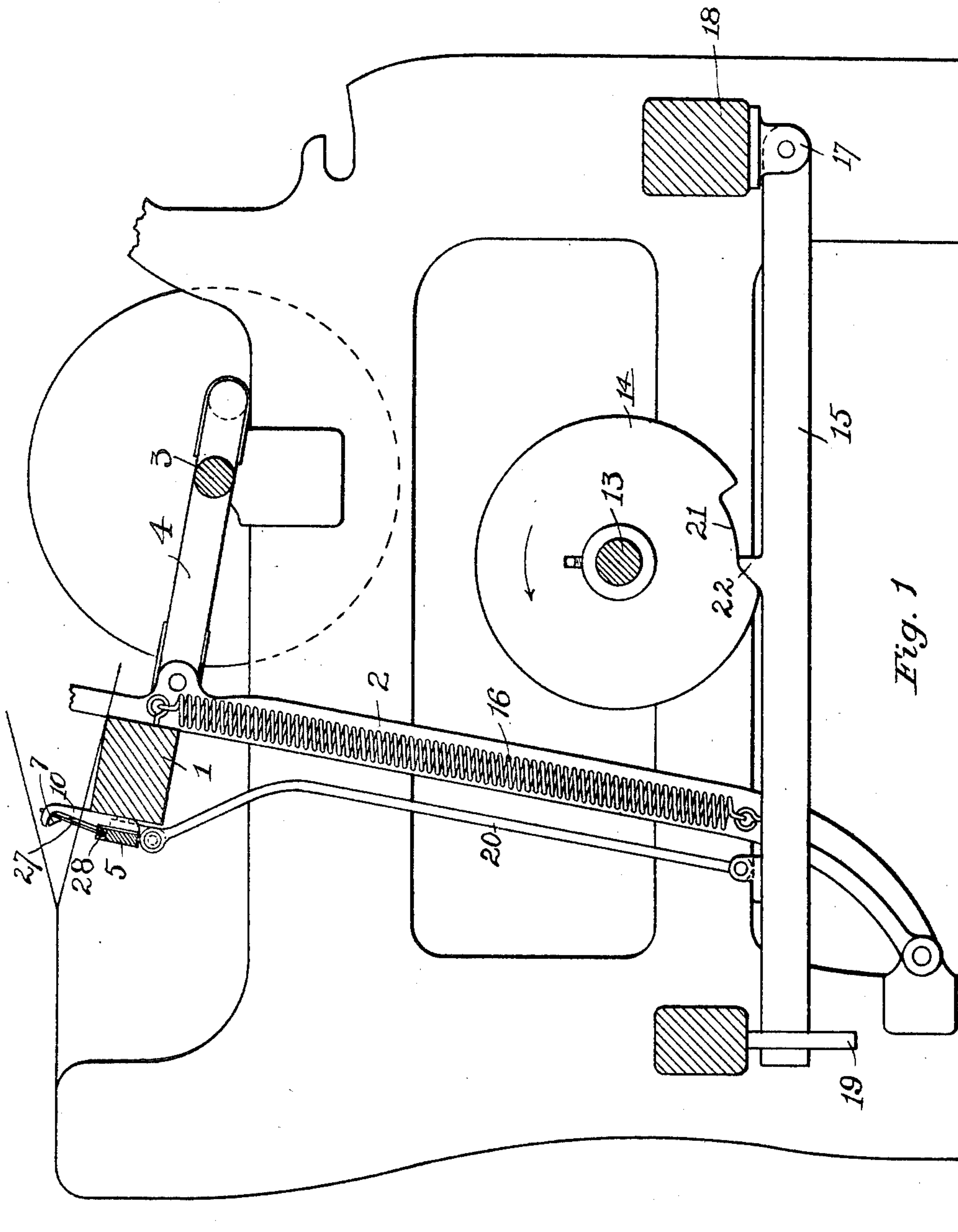
H. B. SEWALL, Administrator.

FILLING REMOVER FOR LOOMS.

(Application filed Sept. 27, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.
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E. Batchelder

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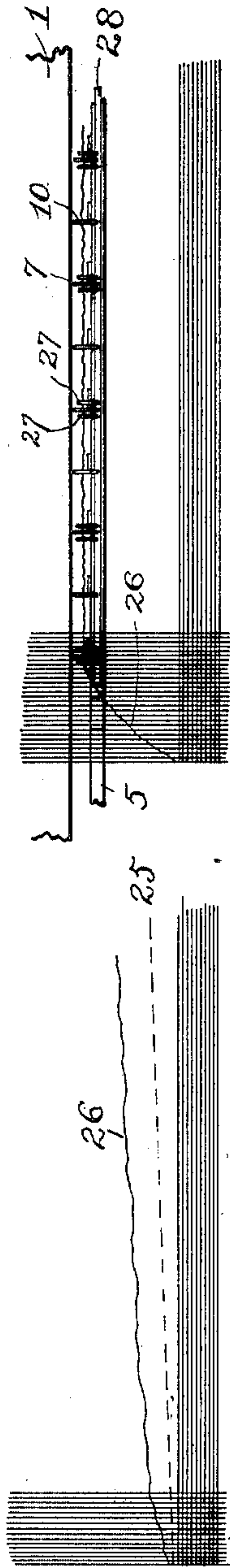


Fig. 4.

Fig. 5.

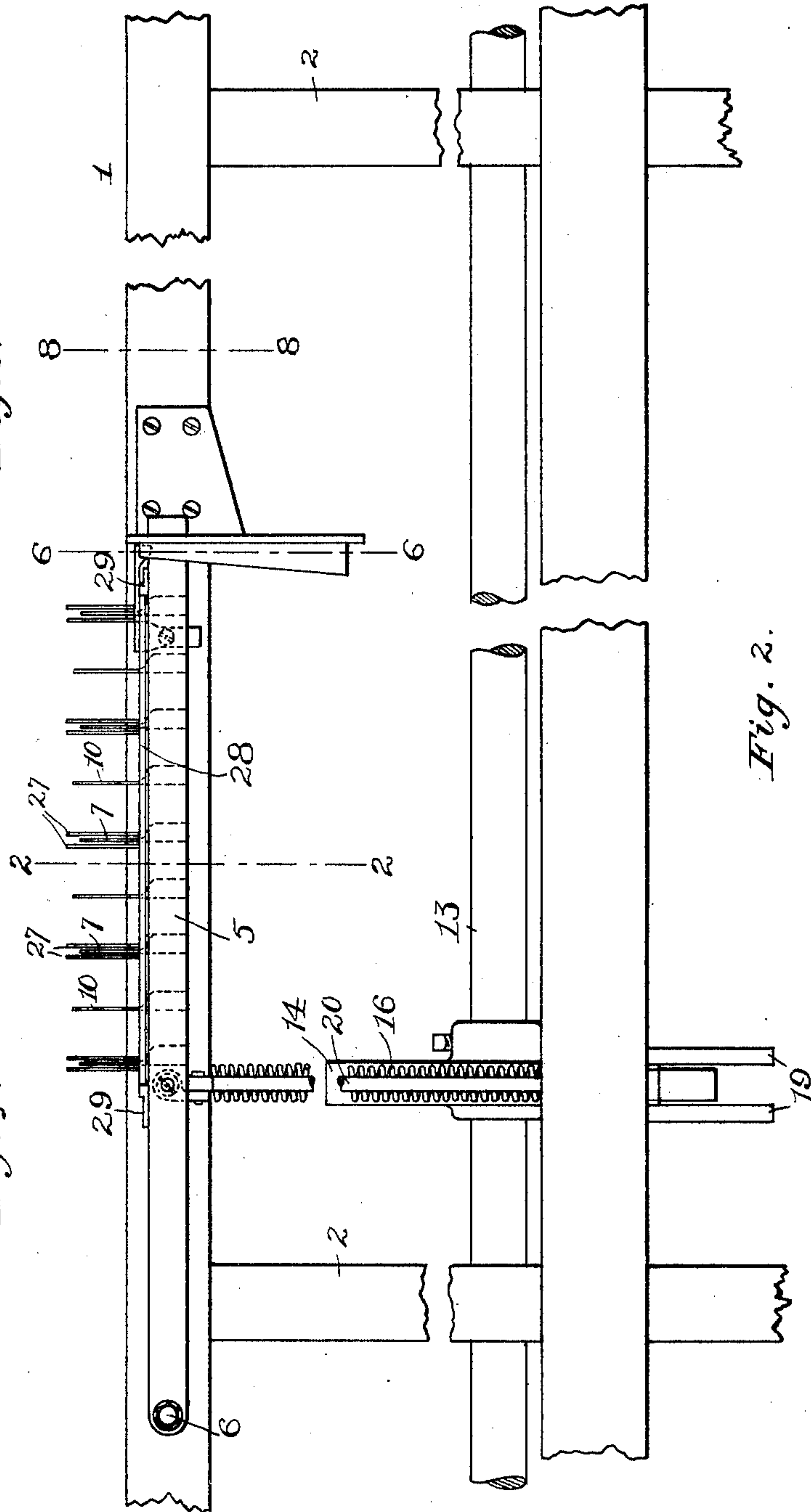


Fig. 2.

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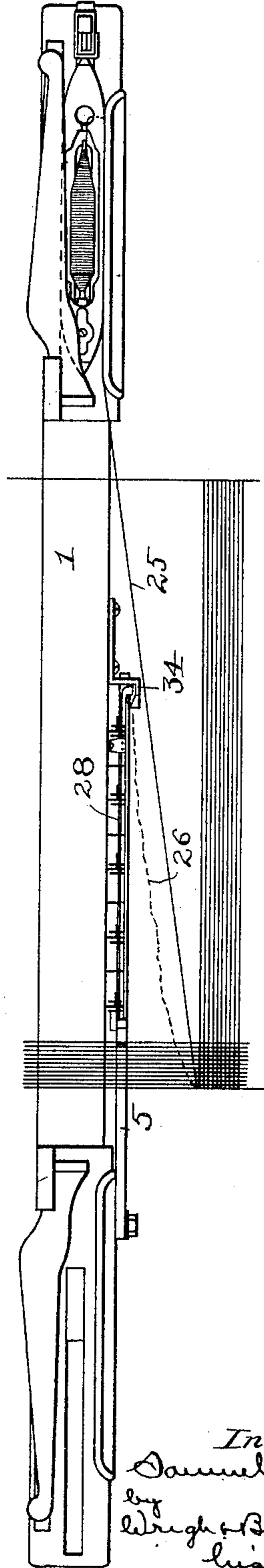
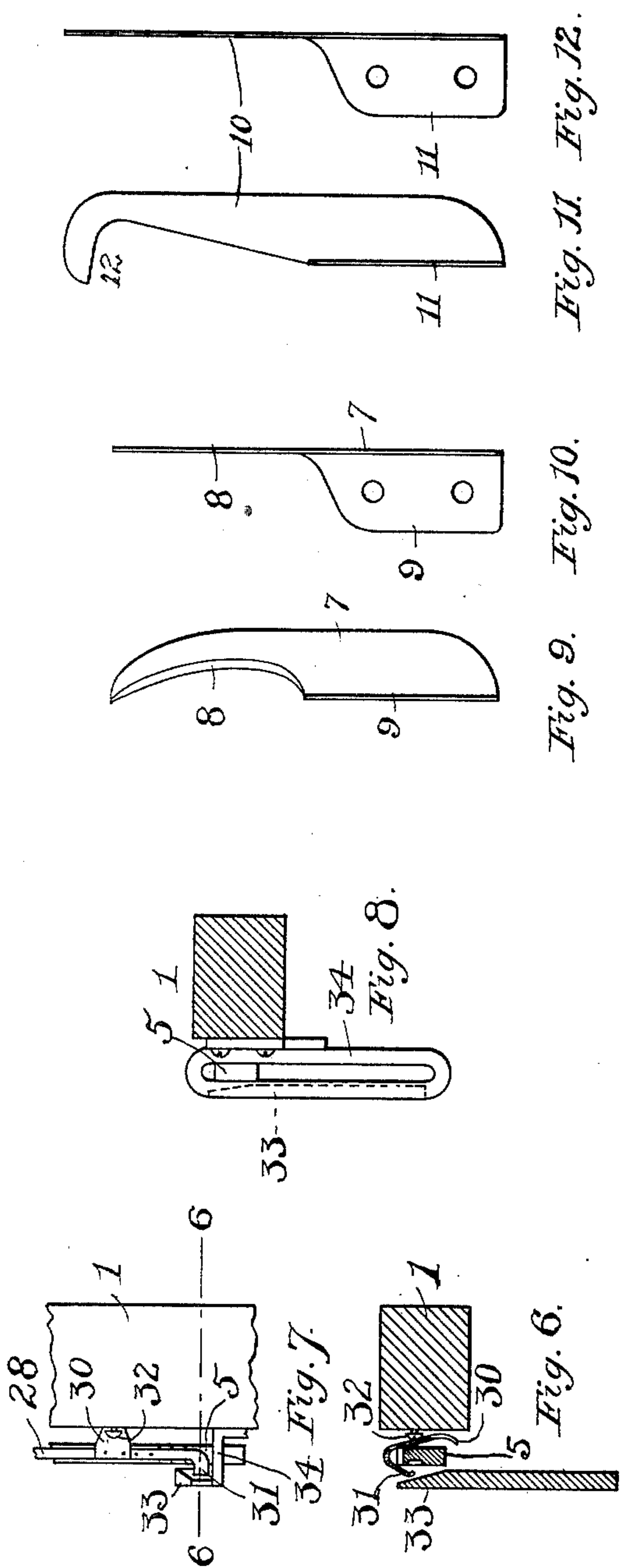
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

SAMUEL SEWALL, OF TEWKSBURY, MASSACHUSETTS; HARRY BUTTRICK
SEWALL ADMINISTRATOR OF SAID SAMUEL SEWALL, DECEASED.

FILLING-REMOVER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 679,517, dated July 30, 1901.

Application filed September 27, 1899. Serial No. 731,819. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL SEWALL, of Tewksbury, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Filling-Removers for Looms, of which the following is a specification.

This invention has relation to looms for weaving cloth, and is more particularly applicable, as will be more readily understood after reading the following specification, to looms having automatic mechanism for putting into operation a fresh bobbin or shuttle upon the breaking of the filling-thread. The provision of such automatic mechanism has greatly increased the production of the loom and has enabled a manufacturer to place as many as sixteen looms under the care of a single weaver. In spite of these great advantages possessed by a loom having such automatic mechanism for supplying a fresh shuttle or bobbin, such looms have not gone so widely into general use as might have been expected, and, indeed, their employment is mainly limited to the making of print-cloth, the defects of which are covered up by the coloring. This is due to the fact that the filling-thread most frequently breaks when the shuttle is passing through the shed, so that the loose end of the filling is beaten into the cloth by the lathe when the new filling-thread is laid in place by the next movement of the shuttle, making what is called a "mis-pick or double thread." Hence as the filling-thread on a bobbin rarely serves for more than a yard of cloth and often breaks before it runs out it is evident that throughout its entire length it is damaged or presents a damaged appearance, so that it must be sold as "seconds" or as a cheap grade of cloth.

The object of my invention is to provide some mechanism for automatically severing the broken filling at a predetermined point or points and removing the loose ends thereof immediately prior to the beating in of the new thread supplied from the magazine, whereby the cloth is left smooth, even, and undamaged.

The mechanism for accomplishing the object of this invention may be varied as circumstances require, for my invention is not

limited to any particular form, since I believe that I am the first to have accomplished the function described and that any mechanism which accomplishes the same function by automatically cutting the thread at a predetermined point or points would come within the spirit and scope of my invention.

On the accompanying drawings, which form a part of this specification and to which reference may be had, I have illustrated one form of the invention in which I employ a plurality of cutters for severing the broken filling-thread and hooks or other devices for removing the severed portions from the shed.

Referring to the said drawings, on which similar reference characters indicate similar parts or features, as the case may be, wherever they occur, Figure 1 is a longitudinal section of a portion of a loom embodying my invention. Fig. 2 represents a front elevation of a portion of a lathe with my invention applied thereto. Fig. 3 represents in plan view the same, except that the shuttle and shuttle-boxes are shown. In this figure the parts are reduced in size. Fig. 4 illustrates the position taken by the broken end of the filling, the normal position of the filling when the thread is unbroken being illustrated by dotted lines. Fig. 5 illustrates the device during the operation of removing the broken end. Fig. 6 represents a section on the line 6 6 of Fig. 2. Fig. 7 represents in plan view the parts shown in Fig. 6. Fig. 8 represents a section on the line 8 8 of Fig. 2. Figs. 9 and 10 illustrate one of the cutters, and Figs. 11 and 12 illustrate one of the hooks.

The invention is applicable to a loom of any kind or type and is adapted to be attached to the lathe.

On the drawings the lathe 1 is mounted upon the swords 2 2 and is operated in the usual way by a crank-shaft 3 and pitman 4. To the front face of the lathe an elongated lever 5 is pivoted by a stud or pin 6 at one end, as shown in Fig. 2. This lever projects for some distance beyond the selvage of the warp, and the pivot is located adjacent to or beyond the mouth of the shuttle-box. At regular intervals this lever is provided with a plurality of cutters 7. These cutters may be of any suitable shape, one of them being

shown in Figs. 9 and 10 as having a cutting edge 8 and a shank 9 apertured to receive screws or rivets, by means of which it is secured to the lever 5. The blade of each cutter is very thin and the upper portion is rounded and is dull, so that it may play between two warp-threads without danger of cutting either of them. Between the blades the lever is provided with a plurality of hooks 10, each one being shaped as shown in Figs. 11 and 12—that is to say, each hook is provided with a shank 11, by means of which it is secured to the lever, and is formed with the hooked or bent end 12. These hooks are likewise very thin, so that they, too, may play between the threads of the warp. The edges of the cutters and the ends of the hooks are projected forward toward the breast-beam, as shown in Fig. 1, and the lever is so actuated that the hooks and the knives are projected up into the shed and then withdrawn for the purpose of cutting the loose filling into sections and withdrawing the sections between the threads of the warp out of the shed. The lever is actuated by the following devices: On the lower or pick shaft 13, which rotates once for each double rotation of the crank-shaft, is a cam 14, against which the lever 15 is held by means of a spring 16, having one end attached to said lever and the other end attached to the lathe-beam. The rear end of the lever is fulcrumed in a lug 17, attached to the cross-bar 18, while the forward end of the lever plays between two pins or guides 19 19, as shown in Figs. 1 and 2. The connecting rod or link 20 connects the forward end of the lever 15 with the lever 5, so that each time the first-mentioned lever is actuated the said lever 5 is operated simultaneously therewith. The cam 14 has a depression 21, while the lever 15 has a projection or cam 22, bearing upon the periphery of the cam 14 and adapted to enter the depression 21 to permit the spring 16 to lift the lever 15, and consequently the lever 5. The depression 21 is relatively short, so that the reciprocation of the lever 5 is very rapid. Normally the cutters and the hooks lie below the plane of the warp and the finished cloth, so as to permit the reeds to beat the filling into place; but just as the lathe is swung forward for this purpose the hooks and cutters are raised into the shed and are immediately depressed. When the filling is unbroken and is laid properly in the shed, it assumes the position shown by the dotted line 25 in Fig. 4; but when the said filling is broken the loose end 26 assumes the position shown in the last-mentioned figure and lies in the rear of the position it would assume with the thread unbroken. I am therefore enabled by this to provide means for forcing the broken thread against the cutters for severing it in sections, whereby it may be drawn from the shed by the hooks with very little difficulty.

The mechanism for throwing the loose or broken end against the cutters consists of a

pair of pins 27 27 for each blade 7, said pins being longer than said blade and being arranged on either side thereof, as shown in Fig. 2. They are mounted in or secured to a rock-shaft 28, journaled into bearings 29 29 on the top of lever 5. Normally the pins occupy a position with their free ends lying inclined slightly from the horizontal; but when said shaft is rocked they are moved to the position shown in Fig. 1, so as to bring the filling against the cutting edges 8 of the cutters or knives. Secured to the rock-shaft are two cams 30 31, by means of which it is actuated. When the lever 5 is raised, the cam 30 strikes against a screw-head or projection 32 on the front face of the lathe-beam, and the pins are rocked upward and rearwardly to force the loose end of the filling against the cutters; but when said lever 5 is depressed the cam 31 engages a cam 33 on a guide 34, secured to the front end of said beam, and the pins are depressed. This guide 34 is provided for the end of the lever 5, as shown in Fig. 8, and holds said lever against movement longitudinally of the warp.

By means of the mechanism which I have just described it will be seen that each alternate time the lathe is reciprocated the lever 5 is actuated, so that in case the filling be broken and a loose end is left in the shed it will be severed and the sections will be removed from the shed by the hooks 10.

The hooks and the knives may be varied in number to suit any particular requirement, and they may extend partially or entirely across the warp.

Having thus explained the nature of my invention and described a way of constructing and using the same, although without having attempted to set forth all of the forms in which it may be made or all the modes of its use, I declare that what I claim is—

1. A loom having automatic mechanism for cutting the loose end of a broken filling-thread at a predetermined point.

2. A loom having automatic mechanism for cutting and removing the loose end of a broken filling-thread at a predetermined point.

3. A loom having automatic mechanism comprising one or more cutters and hooks for severing and removing the loose end of a filling-thread.

4. A loom, having mechanism for automatically removing the loose end of a filling-thread comprising a hook, a knife, and means for moving the hook and knife into and out of the shed, whereby said end is severed while in the shed and is then removed therefrom.

5. A loom having mechanism for automatically removing the loose end of a filling-thread comprising cutting and pulling devices located upon the lathe and movable relatively thereto to engage said end to cause its removal.

6. A loom having mechanism for automatically removing the loose end of a filling-

thread comprising a knife or cutter located to one side of the path of the filling-thread, and means for causing said knife to sever said thread at a predetermined point.

5 7. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife, and a movable support therefor mounted on the lathe, said knife being adapted to sever the thread at a
15 predetermined point.

8. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife and means for moving said end against said knife.

15 9. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife, means for moving said end into engagement with said knife to sever it, and means for removing the severed
20 portion of said end.

10. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a knife, means for moving said end into engagement with said knife to
25 sever it, and a rock shaft or bar for actuating said means.

11. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a movable support, a knife thereon adapted to cut said end, a member 30 to move said end into engagement with said knife, and a rock shaft or bar for said member journaled on said support.

12. A loom having mechanism for automatically removing the loose end of a filling-thread comprising means for cutting said end 35 into a plurality of sections, and means for removing each of said sections.

13. A loom having mechanism for automatically removing the loose end of a filling-thread comprising a support movable on the 40 lathe, one or more knives on said support, one or more members to move said end into engagement with said knife or knives, a rock shaft or bar for said member or members, and 45 cams for rocking said shaft or bar.

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

SAMUEL SEWALL.

Witnesses:

LEWIS E. MACBRAYNE,
S. FOSTER WHIPPLE.