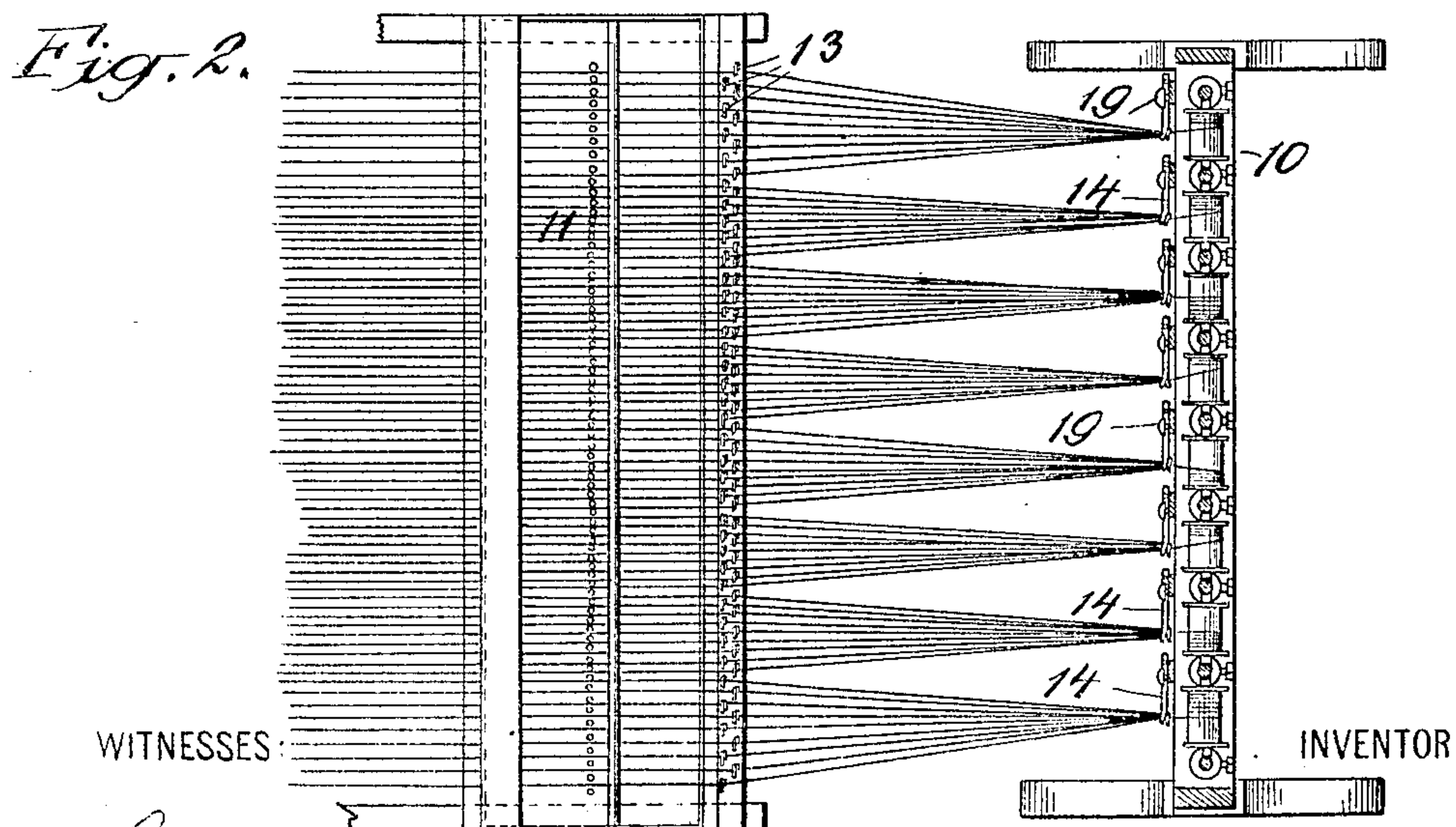
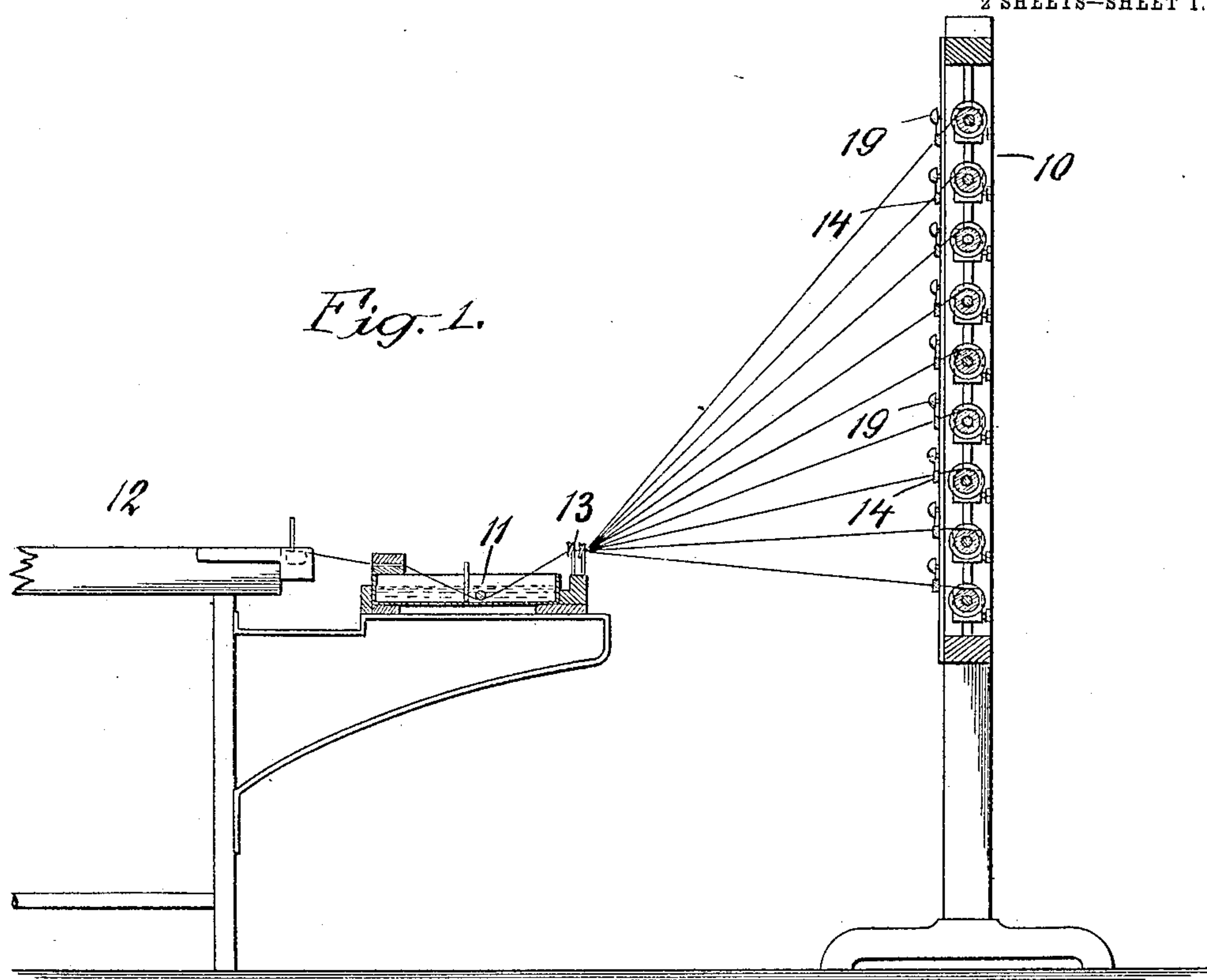


904,893.

E. POHL.
SILK THREAD FINISHING MACHINE.
APPLICATION FILED NOV. 30, 1907.

Patented Nov. 24, 1908.

2 SHEETS—SHEET 1.



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Fig. 3.

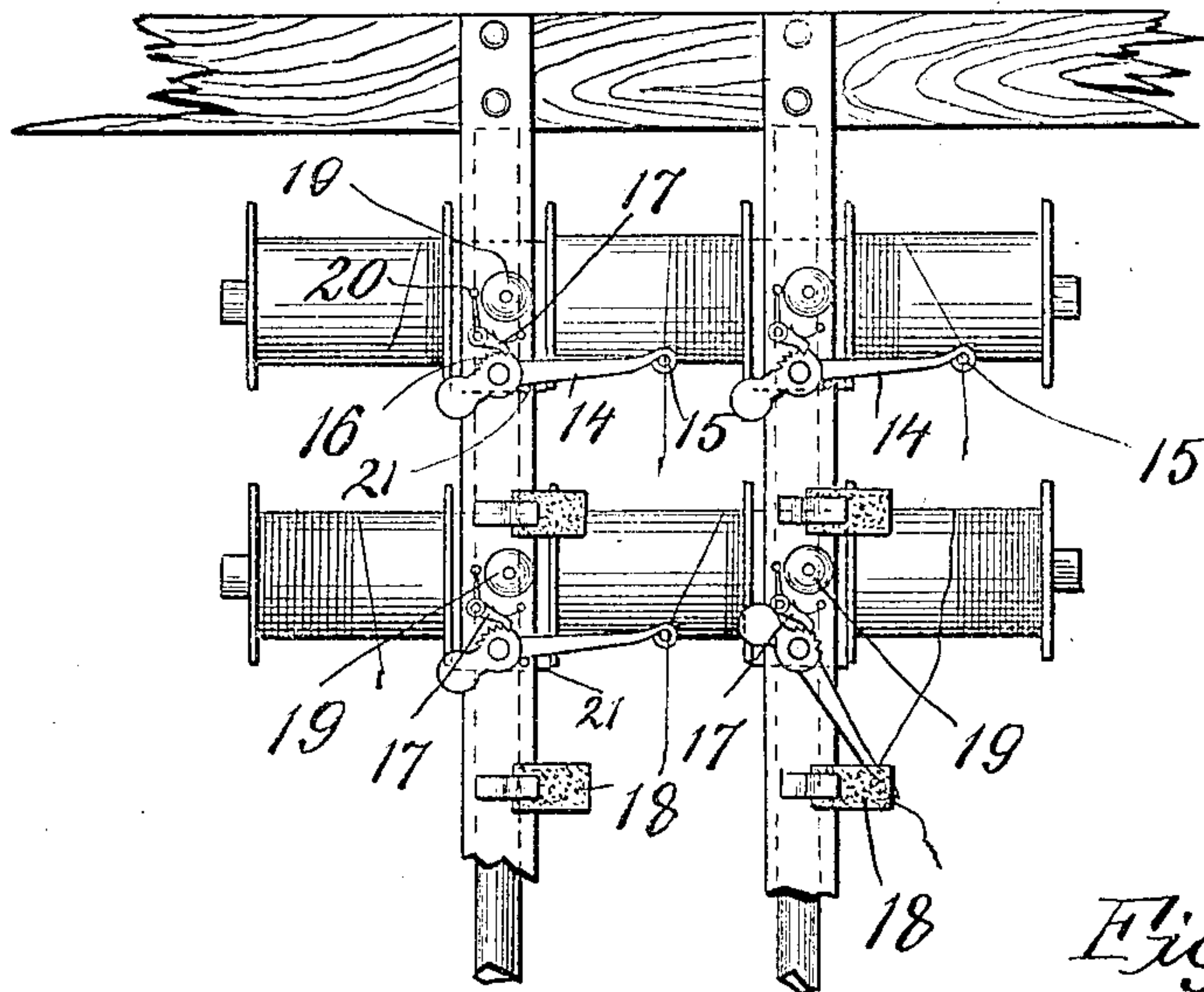


Fig. 5.

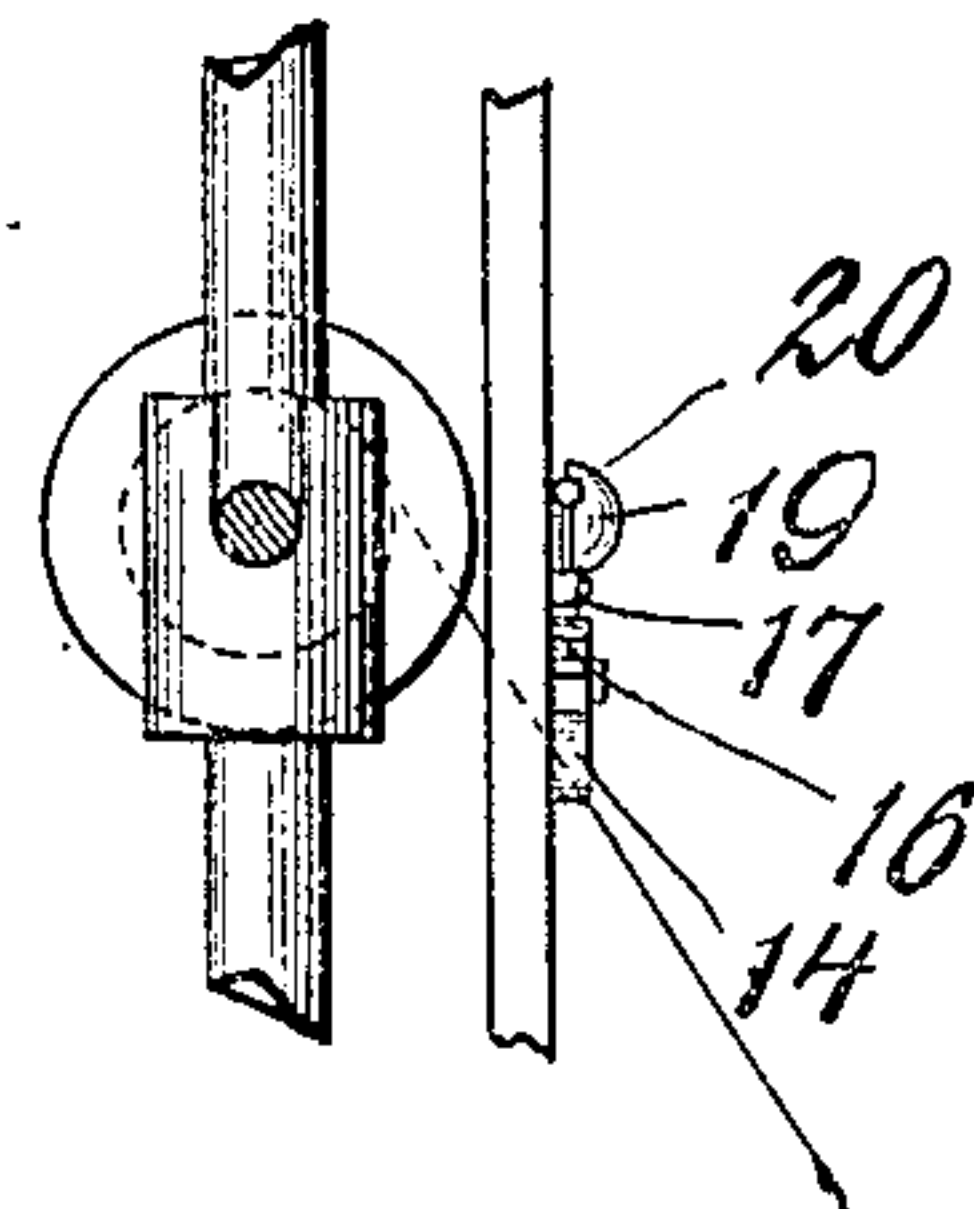


Fig. 4.

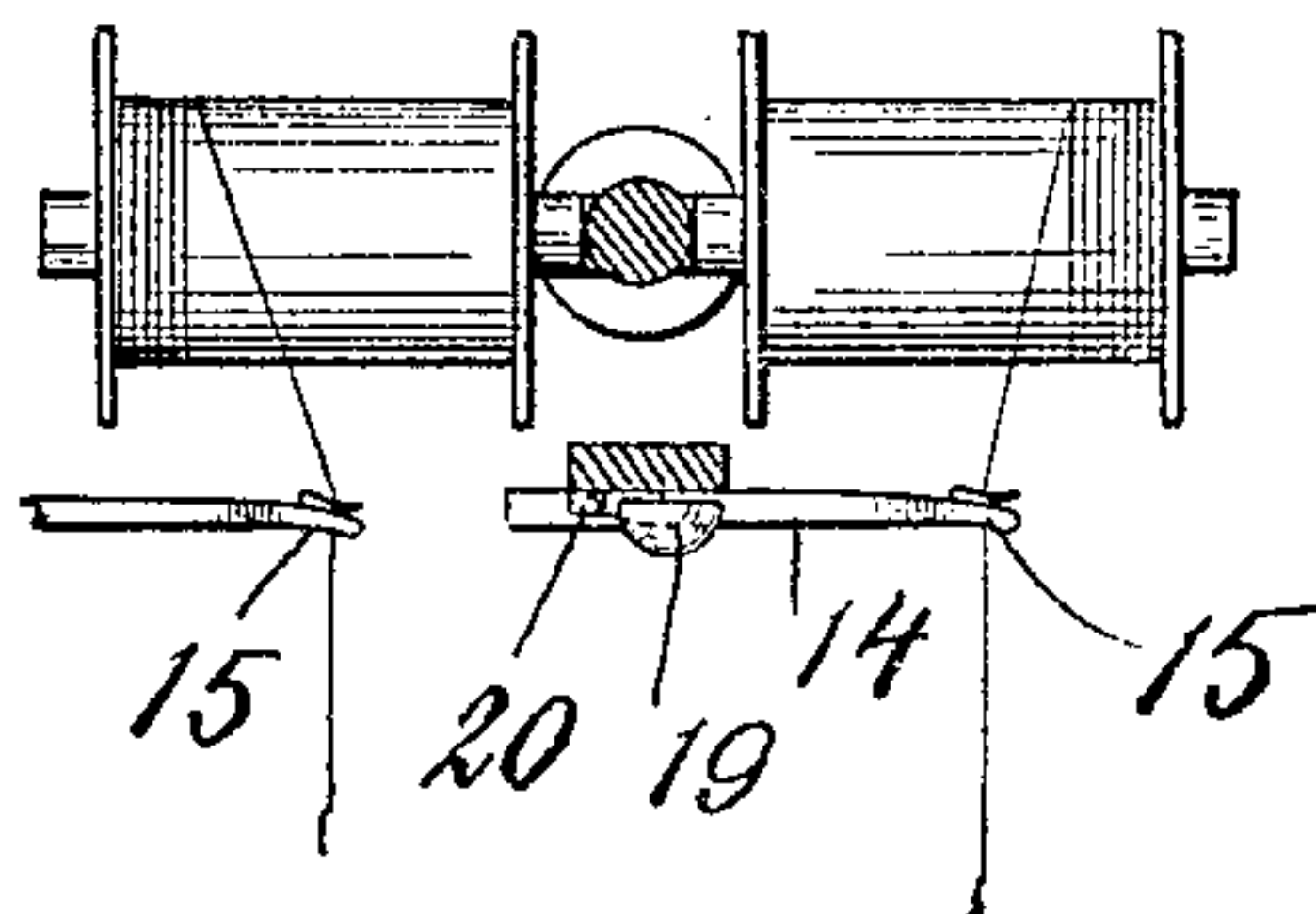
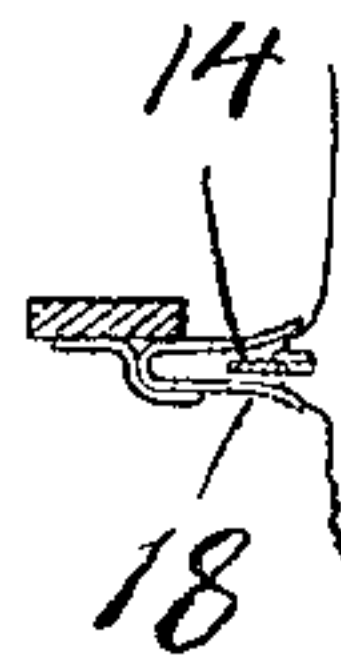


Fig. 6.



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EDWARD POHL, OF PATERSON, NEW JERSEY.

SILK-THREAD-FINISHING MACHINE.

No. 904,893.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed November 30, 1907. Serial No. 404,612.

To all whom it may concern:

Be it known that I, EDWARD POHL, a subject of the Empire of Austria-Hungary, and a resident of Paterson, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Silk-Thread-Finishing Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to silk thread finishing machines, and particularly to means for preventing threads, such as may become broken in the process of treatment, from becoming entangled with other threads such as are contiguous thereto at the time, and to this end my invention consists, first, in a means automatically operated by the breaking of the thread itself for swinging the thread out of the way of other threads; secondly, in means for detaining the broken thread end so that, even though there should be a failure to swing it out of the path of other threads and it should be engaged by another thread, further movement thereof would be prevented, and thirdly, in indicating means automatically operated for advising the attendant of the breaking of a thread.

In the preferred form of my invention I provide a swinging lever for each thread, such lever pivoted at a point to one side of the path of movement of the thread and having a part which normally engages the thread, the said lever being held in a horizontal position by such engagement. Upon the thread breaking the lever will be allowed to drop, and in so dropping will swing the thread clear of such other threads as are moving in paths in close proximity thereto, and particularly in the example of my invention illustrated in the accompanying drawings, of the thread immediately beneath it. I also provide ratchet teeth, and a pawl, whereby the lever will be held down, once it has so dropped, until it is again lifted after manual release of the said pawl. I also provide a roughened surface located in such a position as to readily engage the thread end when swung aside, such roughened surface being conveniently formed by the employment of sand paper, emery cloth, or the like, and I may, if desired, provide a bell which is caused to be struck when the lever falls, so as to indicate the breakage of a thread to the attendant. I conveniently employ a means

for positively holding the levers in their upper position prior to the first starting up of the machine, which means may be retracted when the machine has started and there is sufficient tension upon the threads to hold the levers up without it.

In order that my invention may be fully understood, I will now proceed to describe an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a view partly in side elevation and partly in vertical longitudinal section of such parts of a finishing machine as are necessary to illustrate my invention. Fig. 2 is a top view of the same. Fig. 3 is a face view of a portion of the creel employed, showing in connection therewith means embodying my invention, for engaging and operating upon the threads. Fig. 4 is a detail top view of the same. Fig. 5 is a detail view in partial side elevation and partial vertical section. Fig. 6 is a detail cross-sectional view showing particularly the means for frictionally holding a broken thread end against further movement.

The portion of the finishing machine illustrated herein comprises a creel 10 for holding the bobbins containing the threads to be treated, a bath 11 in which the threads are to be immersed, and a contact table 12 over which the threads are drawn to be heated, ironed and polished. The threads are drawn over the table 12 by take-up mechanism of any suitable character, not shown. In finishing machines of this character the threads invariably break at some point between the creel 10 and the bath 11; after they have been treated in the bath 11 they are considerably stronger than before such treatment, so that the breakage, if any, occurs before they are received in the bath. The creel comprises a large number of bobbins arranged in a frame in vertical and horizontal rows. In machines which I am building at the present time the bobbins are arranged in nine horizontal rows, there being eight bobbins in each such horizontal row; or another way of expressing it would be, that there are eight vertical rows, each vertical row comprising nine bobbins. The seventy-two threads, which leave the creel in a design comprising a rectangular figure, pass to a plurality of guides 13 arranged in

a single line, and thus disposed, the threads are carried through the bath and over the ironing table. When one of the upper threads breaks its tendency is to fall upon the thread immediately beneath it. A very slight engagement of one silk thread with another causes sufficient adherence between them, so that the result of this, in the past, has been that the thread beneath the broken one has picked up the thread above it, when thus broken, and carried it along through the bath and over the table to the take-up mechanism, and the two threads have been taken up together. Such doubling up of the threads is known in the trade as "double ends", and has been a source of serious trouble, inconvenience and expense in connection with machines of this character. In the present machine I have provided each thread with a device comprising a lever 14, pivoted to one side of the path of movement thereof and preferably at a point quite near to the bobbin from which the thread is supplied. The lever is provided with a portion 15 constituting a guide for the thread, the thread being engaged by said guide portion, as is clearly shown in the detail views, Figs. 3, 4 and 5. The lever 14 is arranged to be in a substantially horizontal position when engaged by the thread; in other words, the pivotal support for the lever is arranged horizontally in a line with the path of movement of the thread. The lever 14 may conveniently be counterbalanced to a considerable extent, so that the thread is required to support but very little weight. The thread is arranged, however, to support the lever under normal conditions, the tension of the thread being sufficient to support the slight amount of unbalanced weight. If, however, a thread breaks, the removal of the tension will permit the lever to swing downward and outward, and in so moving the broken end of the thread will be swung by the lever clear of the threads beneath it. It may further be noted at this point that while under ordinary conditions, that is to say, without such a thread guide, the thread in paying off from the bobbins will swing gradually from one side of the bobbin to the other, so that the whole mass of the threads near the creel will be vibrating backwards and forwards.

In the present invention the guides 15 prevent all portions of the threads in front thereof from so swinging backwards and forwards, the only portions so permitted to swing being the short portions between the guides and the bobbins. In practice I preferably place the guides within an inch from the bobbins. The swinging backwards and forwards of the threads has, of course, increased the tendency of a broken thread end to be engaged by other threads, and in thus providing guides, such increased tendency is

entirely overcome. I have provided each lever with ratchet teeth 16, and a pawl 17, for the purpose of holding the lever positively down once it has fallen, whereby, should a broken thread end be picked up by another thread, the tension put upon the broken thread end by the forward movement of the thread to which it has become attached, will not be able to lift the lever and so defeat the object of the invention. When the lever is down in its lower position, the angle at which the thread will be forced to leave the bobbin will be such as to interpose such a strain as would likely cause the thread to be again broken should it by any chance have been picked up by another thread and drawn forward, or the tension might be sufficient to detach the broken thread end from the thread which has so picked it up.

As a further means for preventing the thread end from being picked up, or for preventing it from being carried forward even if it is picked up by another thread, I have provided a roughened surface 18 composed conveniently of sand paper, or the like, which is so located as to be likely to catch a broken thread end. Once a broken thread end is caught by this material it will be held thereby against any tension which could be applied thereto by other threads to disengage it. I have also provided, as an indicating means, a bell 19, and a hammer 20 secured to the pawl 17 by a light flexible stem, whereby when the lever falls the vibration given to the pawl will be imparted to the hammer to cause the bell to be sounded. I may, of course, employ other means for ringing the bell when the lever falls, or otherwise indicate the fact to an attendant, the present means illustrated being but one of many forms which would readily suggest themselves to a skilled mechanic.

In order to support the levers in their upper position when not so supported by the threads,—as before the machine has been started up or at intervals in the running of the machine, I have provided manually operated means comprising pins 21, which may be caused to engage the underside of the lever, as clearly shown in the drawings, whereby to support the said levers mechanically. When the machine is running under normal conditions these pins may be so moved that they will clear the levers or may be removed altogether, if preferred. It will be, of course, understood that means other than the pins may be employed for this purpose, such pins being merely shown as a simple device for accomplishing this purpose.

What I claim is:

1. In a silk thread finishing machine, the combination with means for operating upon a plurality of individual silk filaments, cer-

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tain of which are arranged in one part of the machine to travel one above the other, of means automatically operated by the breaking of a filament for moving the broken end 5 of said filament away from the path of movement of the filament traveling beneath it.

2. In a silk thread finishing machine, the combination with means for operating upon 10 a plurality of individual silk filaments, certain of which are arranged in one part of the machine to travel one above the other of means supported by the filaments and automatically operated by the breaking of a filament, for removing the broken end from the 15 path of movement of the other filaments with which it would otherwise have a tendency to engage, in falling.

3. In a silk thread finishing machine, the 20 combination with means for operating upon a plurality of individual silk filaments, certain of which are arranged in one part of the machine to travel one above the other, of means automatically operated by the breaking of a filament for swinging the broken 25 end aside for the purpose of preventing it engaging a filament beneath it.

4. In a silk thread finishing machine, the 30 combination with means for operating upon a plurality of individual traveling silk filaments, of individual pivoted levers having guiding portions for engaging the filaments, the said levers being pivoted to one side of the path of movement of the filaments, and 35 arranged to swing down freely, transverse with respect to such path of movement, whereby the broken end of a filament may be swung aside, away from the path of movement of a filament beneath it.

40 5. In a silk thread finishing machine, the combination with means for operating upon a plurality of individual silk filaments, of individual levers pivoted to one side of the path of movement of the filaments, and having 45 portions for engaging the said filaments, whereby the said levers will be normally supported by the said threads when under tension, and non-return means for holding a lever down after it has moved downward by 50 reason of the release of tension upon its

thread, and for preventing it from returning to a normal position, should tension on its thread be resumed.

6. In a silk thread finishing machine, the combination with means for operating upon 55 a plurality of individual silk filaments, of individual levers pivoted at points to one side of the path of movement of the threads, and having portions for engaging the threads, said levers having ratchet teeth arranged to move therewith, and pawls for engaging 60 said ratchet teeth, substantially as set forth.

7. In a silk thread finishing machine the combination with means for operating upon 65 a plurality of individual silk filaments certain of which are arranged in one part of the machine to travel one above the other, of means automatically operated by the breaking of a filament for swinging the broken 70 end aside for the purpose of preventing it engaging a filament beneath it, and a roughened surface for engaging the broken end of said filament when so swung aside.

8. In a silk thread finishing machine, the 75 combination with means for operating upon a plurality of individual silk filaments certain of which are arranged in one part of the machine to travel one above the other, of means automatically operated by the breaking 80 of the filament for moving the broken end of the said filament away from the path of movement of the filament traveling beneath it, and a signal device controlled by the breakage of the said thread for indicating 85 to the attendant the fact of said breakage.

9. In a silk thread finishing machine, the combination with means for operating upon a plurality of individual silk filaments, of 90 means automatically operated by the breaking of a filament for swinging the broken end of such filament aside, and means engaging the broken end of the filament to oppose further movement thereof.

EDWARD POHL.

Witnesses:

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ARTHUR WOLF.