

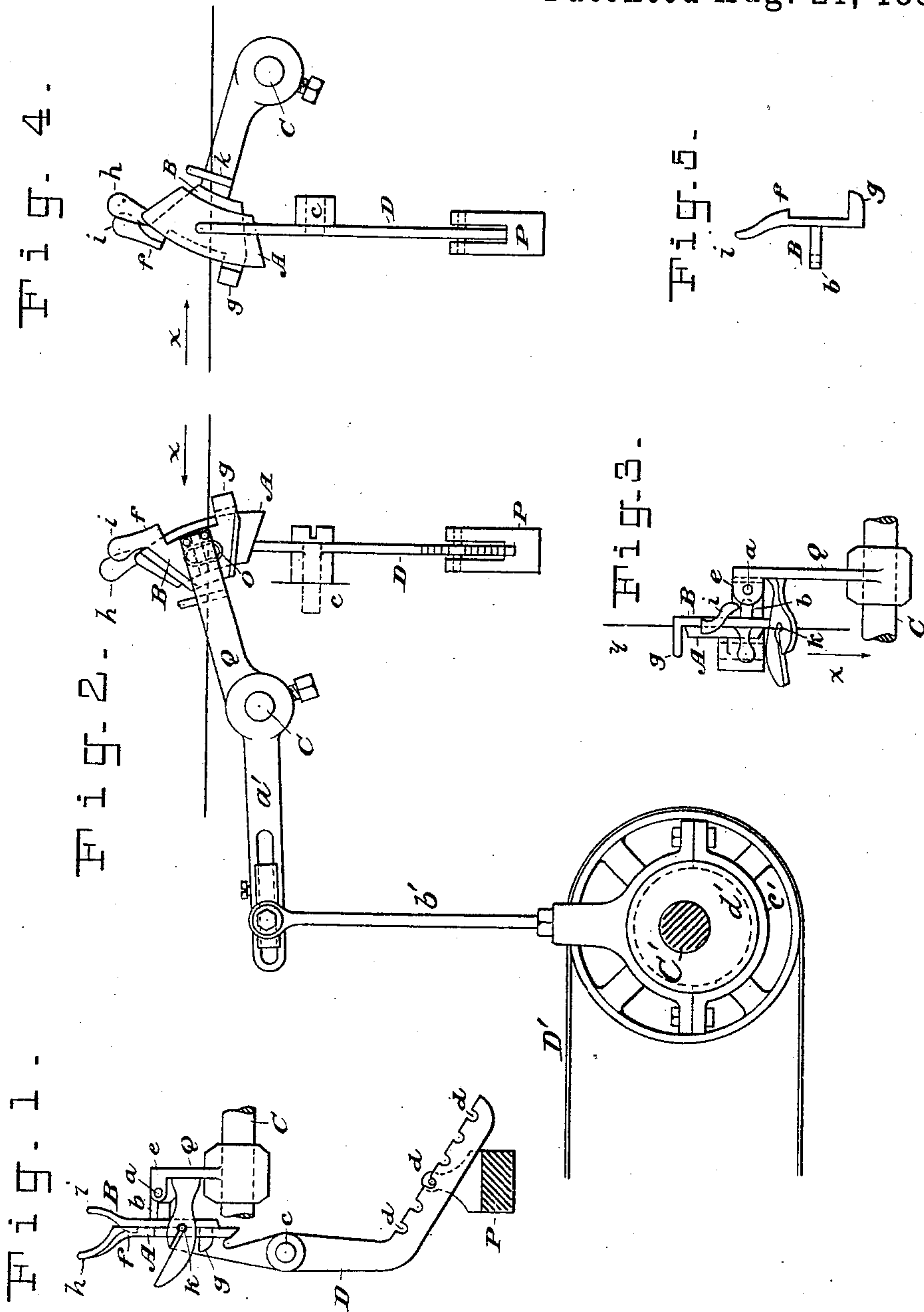
(No Model.)

H. OFFRAY & C. PFEIFFER.

DEVICE FOR CLEANING AND COMPACTING YARN AND FOR TESTING
THE STRENGTH OF THE SAME.

No. 388,298.

Patented Aug. 21, 1888.



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UNITED STATES PATENT OFFICE.

HENRI OFFROY AND CHARLES PFEIFFER, OF MALAUNAY, FRANCE.

DEVICE FOR CLEANING AND COMPACTING YARN AND FOR TESTING THE STRENGTH OF THE SAME.

SPECIFICATION forming part of Letters Patent No. 388,298, dated August 21, 1888.

Application filed March 30, 1888. Serial No. 269,035. (No model.) Patented in France September 21, 1887, No. 185,988; in England September 29, 1887, No. 13,220, and in Belgium February 29, 1888, No. 80,820.

To all whom it may concern:

Be it known that we, HENRI OFFROY and CHARLES PFEIFFER, both citizens of the French Republic, and residents of Malaunay, (Seine-Inférieure,) France, have jointly invented certain new and useful Improvements in Devices for Cleaning and Compacting Yarn and for Testing the Strength of the Same, (for which invention patents have been granted in France, No. 185,988, dated September 21, 1887; in Belgium, No. 80,820, dated February 29, 1888, and in England, No. 13,220, dated September 29, 1887,) of which the following is a specification.

Our invention, as the title indicates, relates to a device for verifying and testing thread or yarn as it comes from the spinning machine, in order to discover faults therein before it goes to the loom, and for rubbing or rolling and smoothing the yarn, compacting it, and freeing it from lumps.

Yarn for weaving as it comes from the spindle often has defects that render it weak in certain places. These usually arise from insufficient twisting in spinning. The result is that the defective yarn breaks in the loom under the tension to which it is subjected, and much time is lost in stopping the loom to reunite it. The yarn will also have little lumps or knots attached to it, and these produce, of course, blemishes in the woven fabric.

The object of our invention is to provide a device which will accomplish three results, namely: It tests the strength of the yarn between the spindle and the reel or bobbin-winder, and if the yarn has a weak spot it will break before it reaches the reel or bobbin, and may then be tied. It also rolls and compacts the yarn somewhat, thus rendering it even and stronger. It also removes the lumps or projections from the thread, and thus renders it smooth.

In the drawings, which serve to illustrate our invention, Figure 1 is a front view of the device, which for convenience we will call a "yarn-guide." This view shows the side which faces the bobbin or reel upon which the yarn is to be wound. Fig. 2 is a side elevation of the yarn-guide as seen from the right in Fig. 1. Fig. 3 is a plan of the guide. Fig. 4 is an elevation showing the side of the

guide opposite to that seen in Fig. 2. Fig. 5 shows one of the jaws of the guide detached.

The yarn-guide is placed between the spindle and the reel or bobbin upon which the yarn is to be wound for use in weaving. The guide is composed of two jaws, A and B, the former being pressed up against the latter by a weight or spring capable of adjustment to put the proper tension on the passing yarn, and the latter being carried by a vibrating arm, whereby a slight up-and-down rubbing motion is imparted to the jaw.

In the construction shown in the drawings the jaw A is fixed to the upper end of an elbow-lever, D, which is fulcrumed at *c* and provided with a weight, P, hung on the lower arm of the lever. This arm may have notches *d* at regular distances apart to receive the hook or pin on the weight. The jaw B is loosely coupled to the end of an arm, Q, on a shaft, C, which will have imparted to it a slight rocking motion about its axis by any suitable mechanism.

In Fig. 2 we have shown as a rocking mechanism an arm, *a'*, projecting from the boss of arm Q, a rod, *b'*, coupled to said arm *a'* at one end and to the yoke *c'* of an eccentric, *d'*, at the other end. This eccentric is secured on a rotating shaft, C', and said shaft is driven by a belt, D', on a pulley on the shaft. This device forms an efficient vibrator for arm Q and jaw B; but any other known device may be employed as well. The jaw is coupled to the arm Q by a pivot-pin, *a*, which passes through two lugs, *e*, on the arm and loosely through a lug, *b*, on the jaw. This construction allows a little play to the jaw B and permits it to apply itself properly to the jaw A and keep the two jaws face to face. One of the jaws (B, as shown) has an aperture, O, in it, the margins of which form shoulders or scraping-edges that detach from the yarn any lumps or attached particles that may be adhering to it as it comes from the spindle. This is effected by the lumps expanding into the aperture O as the thread or yarn is drawn across it, and then coming in contact with the scraping-edge of said aperture, which scrapes or shears them off.

The jaw B has on its face presented to the reel or bobbin-winder two projecting lugs or

teeth, *f* and *g*, (see Fig. 5,) which serve to limit the vertical play of the passing yarn *y*, and to prevent it from working out from between the jaws. On the arm *Q* is an open
5 guide-eye, *k*, through which the yarn also passes.

The jaws *A* *B* are provided, respectively, with ears *h* and *i*, which facilitate the insertion of the yarn between the jaws, the ear *h*
10 serving also as a convenient thumb-piece, whereby the jaw *A* may be pushed back to separate the jaws. When the weight *P* has been properly adjusted, the yarn is entered or placed between the jaws, and in winding on
15 the cop, bobbin, spool, or reel, as the case may be, the yarn *y* moves in the direction indicated by arrow *x*. The vibration of the arm *B*, produced by the rock-shaft *C*, rolls and compacts the yarn, and the edges or margins of the ap-
20 erture *O* remove the lumps or excrescences. The tension put on the yarn tests its strength, and if there should be a defect or weak spot the yarn will break and must be again united by tying. The filaments or bits and lumps
25 detached from the yarn by the scraper—that is, the margins of aperture *O*—will work out from the yarn-guide through said aperture. The yarn which has passed through the guide will thus be smoothed, compacted, and tested
30 as to its resistance to tension in the loom.

Having thus described our invention, we claim—

1. In a device for cleaning and compacting yarn and for testing the strength of same, the
35 combination, with a jaw, as *B*, and means for vibrating said jaw, of a jaw, as *A*, arranged face to face with jaw *B* and held up to the

same by a yielding pressure, and means for holding said jaw up to jaw *B*, substantially
40 as and for the purposes set forth.

2. In a device for cleaning and compacting yarn and for testing the strength of same, the combination with a jaw, as *B*, and means for
45 vibrating said jaw, of a jaw, as *A*, arranged face to face with jaw *B* and held up to same by a yielding pressure, and means for holding said jaw up to jaw *B*, one of said jaws being furnished with a scraper, substantially as de-
scribed, for removing lumps from the yarn.

3. The combination, with the vibrating jaw
50 *B*, provided with an aperture, *O*, and shoulders or lugs *f* *g*, to prevent the escape of the yarn, and means for vibrating said jaw, of the jaw *A*, mounted on the lever *D*, the said lever, and the weight *P*, whereby said jaw *A* is
55 held up to jaw *B* with a yielding pressure, substantially as set forth.

4. The combination, with the rock-shaft *C* and its arm *Q*, as described, of the jaw *B*, coupled to said arm, said jaw being provided
60 with yarn-retaining lugs *f* and *g*, the jaw *A*, arranged face to face with said jaw *B*, and means, substantially as described, for holding the jaw *A* up to jaw *B* with a yielding pressure, substantially as set forth.
65

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

H. OFFROY.

CHAS. PFEIFFER.

Witnesses:

JULES DUVAL,

EMILE FERRARE.