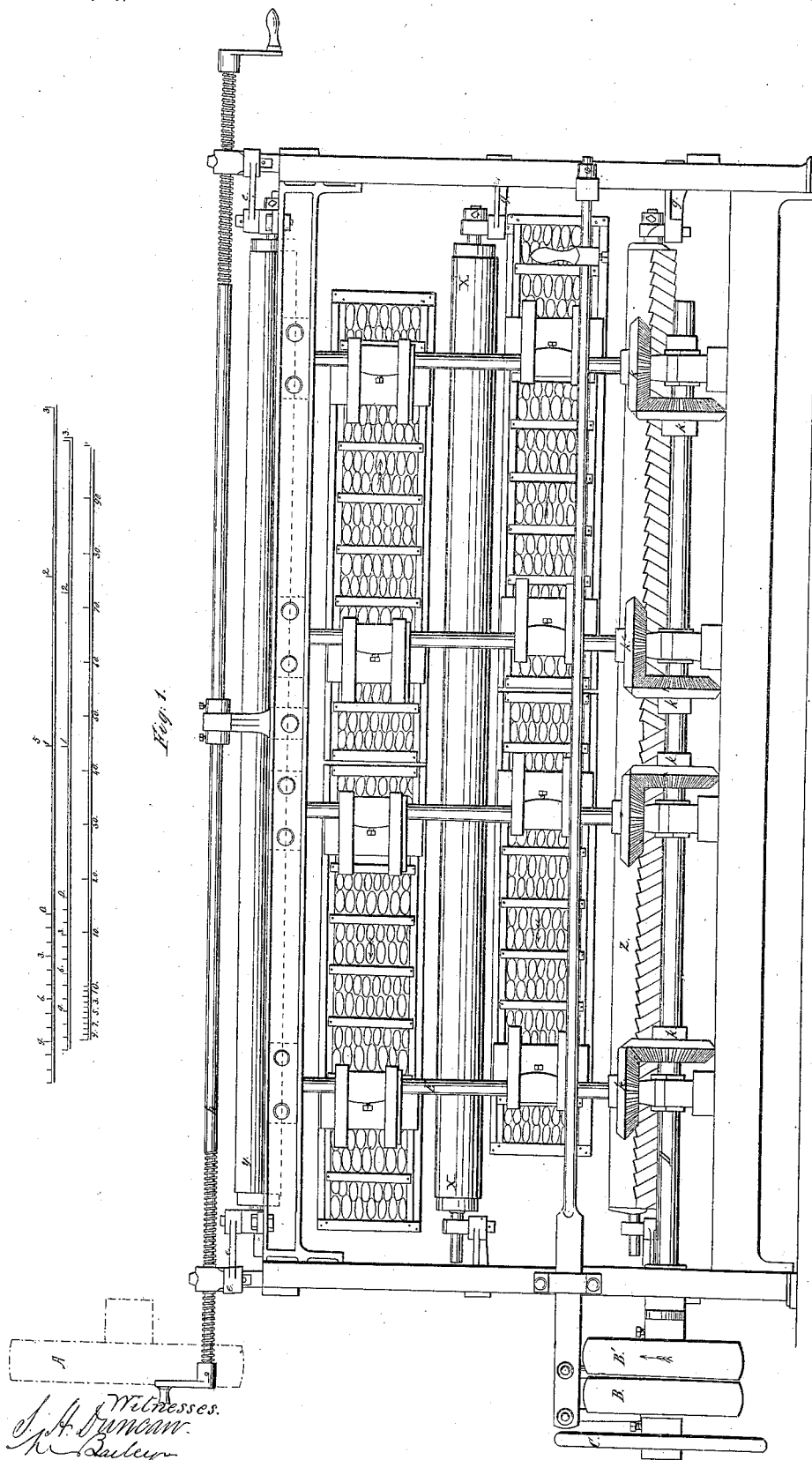


# A. Zschille. Cloth Wringing Mach.

Sheet 1. 4 Sheets.

N<sup>o</sup> 61,370.

Patented Jan. 22, 1867.



# A. Zschille. Cloth Napping Mach.

N<sup>o</sup> 61,376.

Patented Jan. 22, 1867.

Fig. 16



Fig. 13

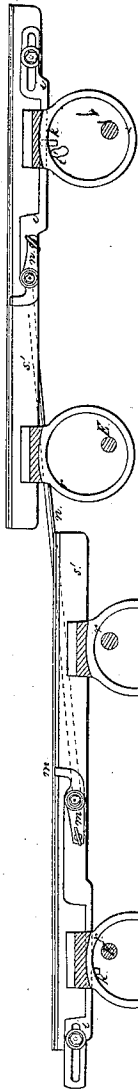


Fig. 16

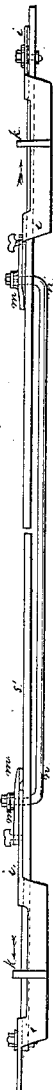


Fig. 2. b

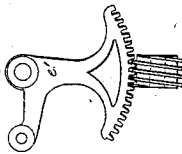


Fig. 14

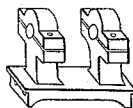
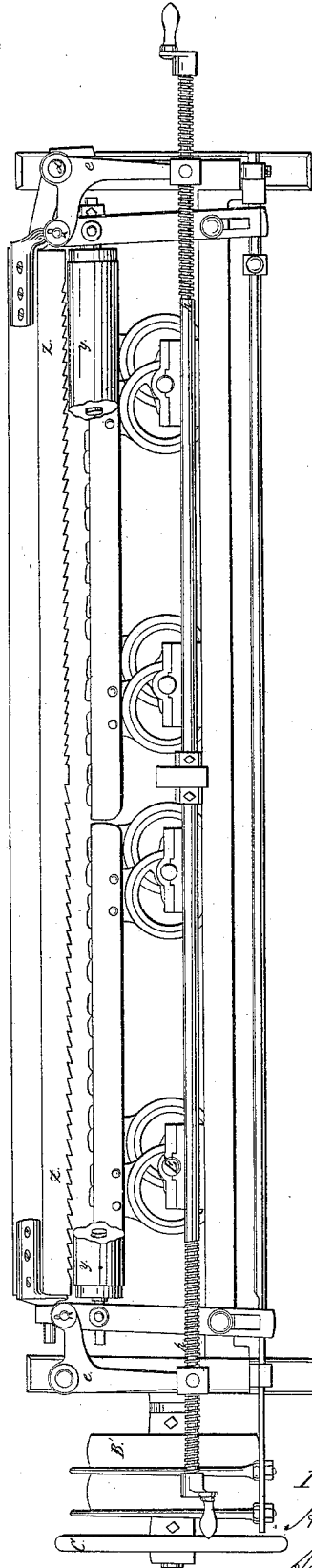


Fig. 2.



Witnesses.

J. A. Duncan.

M. Bailey.

Inventor.

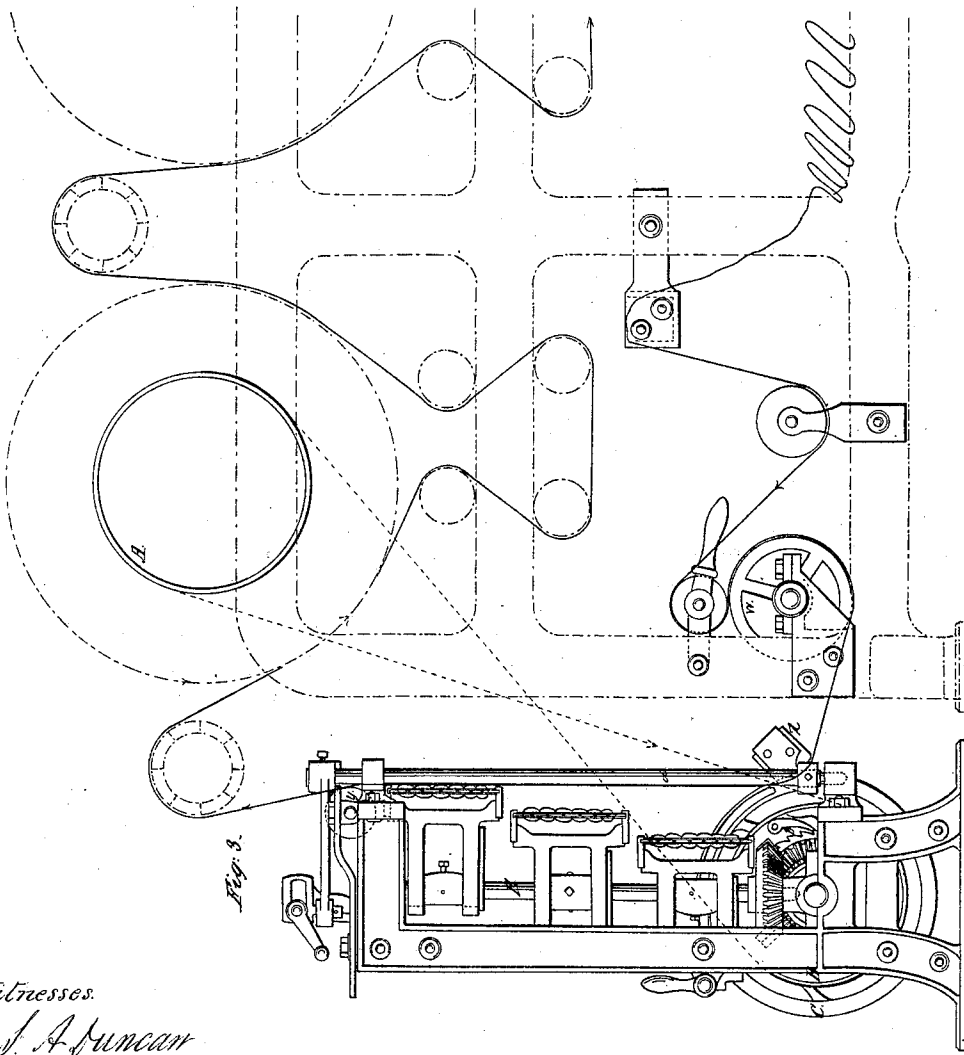
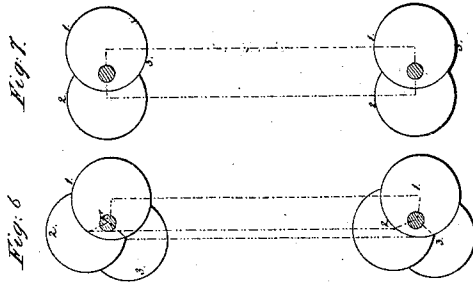
A. Zschille

by A. Pollok.

A. Zschille.  
Cloth Napping Mach.

N<sup>o</sup> 61,376.

Patented Jan. 22, 1867.



Witnesses.

J. A. Duncan  
W. Bailey

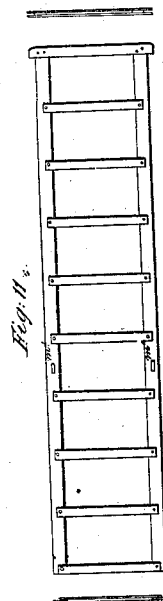
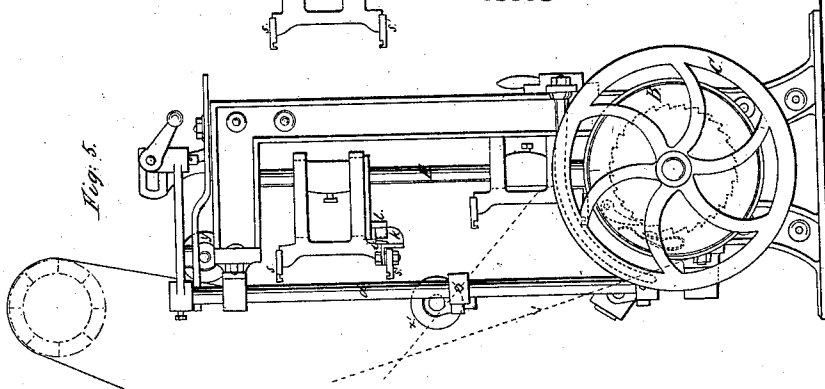
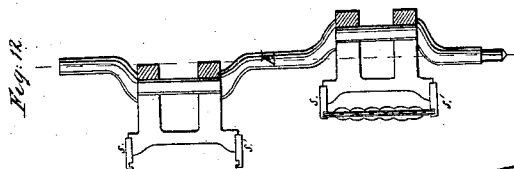
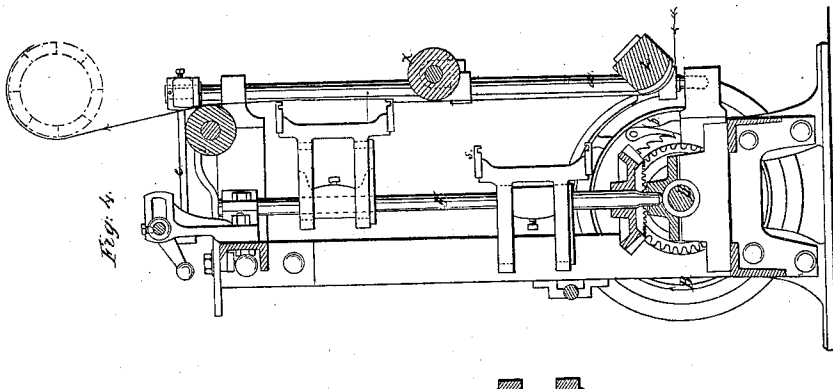
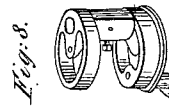
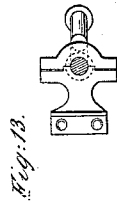
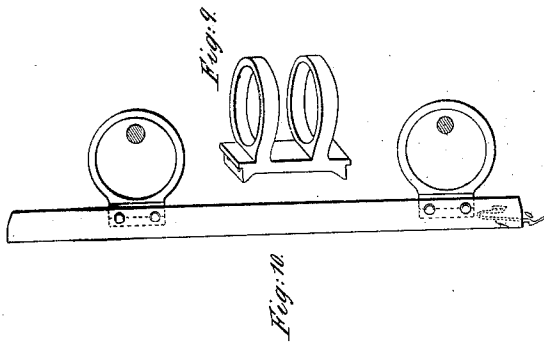
Inventor

A. Zschille  
by A. P. Allen

# A. Zschille. Cloth Napping Mach.

N<sup>o</sup> 61,376.

Patented Jan. 22, 1867.



Witnesses.

S. A. Duncan  
W. Bailey

Inventor.

A. Zschille  
by  
A. W. W.

# United States Patent Office.

ANTON ZSCHILLE, OF GROSSENHAIN, SAXONY, ASSIGNOR TO L. T. DOWNES.

Letters Patent No. 61,376, dated January 22, 1867.

## IMPROVEMENT IN MACHINES FOR RAISING THE NAP UPON CLOTH.

The Schedule referred to in these Letters Patent and making part of the same.

### TO WHOM IT MAY CONCERN:

Be it known that I, ANTON ZSCHILLE, of Grossenhain, in the kingdom of Saxony, have invented certain new and useful improvements in Machines for Raising the Nap upon Cloth, technically termed Gigs; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein I have represented the machine at one-fifth of its full size, the letters of references, as well as the coloring, corresponding for like parts.

In Figure 3 I have shown my improved cross-gig applied for operation in connection with an ordinary or suitable finishing gig. In this instance the outlines of a double cylinder gig are shown in dotted lines, and for convenience sake the draught roller *w* is located in the lower part of the frame, *i. e.*, as near as practicable to the stretcher beam *z*. The red line represents the cloth. The cross-gig may be used independently of or in connection with a single or double cylinder gig, in which both the cloth and the teazles move continuously in the direction of the final nap.

The object of this invention is to more effectually and evenly raise the nap on the surface of the cloth by the combined longitudinal or transversal teazling. In ordinary gigs the nap is formed by the continuous action of the teazles in but one direction; and the nap thus raised is irregular, according to the unevenness in the cloth and the teazle surface. This is more apparent when, from some cause or other, folds or creases occur in the cloth, the effect of which is that while in some places the cloth is teazled through so as to impair its quality, in other parts the cloth remains entirely unacted upon. But the great advantage attending the use of my improved cross-gig is that the work of teazling is effected in one-third of the time usually employed, and that the teazling across the path of the cloth more thoroughly raises the nap.

The cross-gig is established in an upright frame in suitable brackets, in which are mounted two vertical rock-shafts, *d*, one on each side of the machine. To these rock-shafts, and by means of cranks, are attached the two rollers *x* and *y*, and the stretcher beam *z*, which hold the cloth in its proper relation and tension against the teazle-plates. The rock-shafts are provided at their upper ends with bell-cranks, *e*, which are coupled by means of a right and left-hand screw *h*, working in corresponding nuts on the longer arms of the bell-cranks, so that by turning the handle of the said right and left-hand screw, the rollers and beam, *x y* and *z*, are moved either to or from the plane of teazling. This arrangement is shown more particularly in the plan view, Figure 2. For the nicer adjustment of the cloth, the bell-cranks, instead of terminating in a nut, may be formed at their ends into a toothed segment, which engages in the thread of the screw, as shown at fig. 2, *bis.* The teazling mechanism or surface is composed of detached, independently moving, flat and cellular plates, in which the teazles are inserted; and it has this peculiar mechanical disposition, that each plate, while constantly parallel to the surface of the cloth, moves in an arc of a circle, or, according to an ellipse, by means of an arrangement of cranks, eccentrics, or other equivalent means. In preference, four or six teazle-plates are used, in which the teazles are inserted, with their points turned towards the side of the machine nearest them, in order that the cloth, as it travels by the teazles, may be alternately teazled from its middle towards its sides. Thus the four teazle-plates will alternately and in opposite directions advance, traverse the surface of the cloth from the middle toward the sides, and then recede therefrom. This movement is effected by means of double eccentrics mounted on vertical shafts, which are moved by suitable gear mechanism from a shaft, *D*.

In Figure 11 I have shown one of the skeleton teazle-plates. It is carried by means of two eccentrics, shown in Figure 8, or by means of a crank-shaft, as shown in Figures 12 and 13. In the former case a yoke or hoop (Figure 9) is used to embrace the eccentric; in the latter boxes are used, as shown in perspective in Figure 14. In both cases, however, the plate is let in and secured to the slide *s s'*, which is attached to the yoke, as seen in Figures 10 and 12. By this means the teazle-plate may be conveniently inserted from the side, and held in place by a spring latch, *f*. The eccentrics or cranks are so mounted or arranged on the vertical shafts *e*, that the action of the teazle-plates shall be the same in each pair, and so that the vertical series of plates, on each side of the middle of the cloth, shall successively, and not simultaneously, come in contact with the cloth, thus allowing each plate to have full sweep over the surface upon which it is required to act.

In Figure 3 three pairs of plates are shown, and the position of the vertical series of plates is clearly seen,

the top plate being in contact with the cloth, the middle plate being still some distance therefrom, while the third or bottom plate is at its "aphelion," so to speak, or at the furthest point it can be from the cloth.

In Figure 4, where only two pairs of plates are shown, I prefer to use a roller, *x*, intermediate between the two pairs, which serves to hold the cloth in proper position. The relative position to each other of the eccentrics of the three pairs of plates, fig. 3, is shown in Figure 6, and the position of the two pairs in fig. 4 relatively to each other, is seen in Figure 7. There may be attached to both the right and left teasing plates slides, *i i*, with projecting jaws, *k*, Figures 15 and 16, (see also Figure 5,) which, by means of the nose, *l*, and the two plates constituting the pair being united by the connecting-rods *n*, impart to the eccentrics an increased sliding motion, which will result in an elliptical motion.

This machine is driven from a prime mover by a band passing, as shown in figs. 1 and 3, from a main pulley or driver over the pulleys B and B'—the former being loose and the latter fast. These pulleys are mounted on the main driving-shaft D, upon which are mounted bevelled gear-wheels which mesh with corresponding bevelled gear on the upright shafts E which carry the eccentrics. I prefer to run the gig at a speed giving from 120 to 150 revolutions per minute. In order to prevent the tease-plates from moving inversely, I use a ratchet-wheel and pawl, C, which will ride over the teeth of the wheel as long as the main shaft of the machine revolves in the proper direction, but will stop the motion, if it be attempted to move it in the opposite direction. In conclusion, I would observe that it is preferable not to use the machine either at the commencement or finishing of the teasing operation.

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

1. I claim a gig or machine for raising the nap on cloth, composed of the following elements: first, a mechanism for moving the cloth through the machine so as to present plane surfaces to the action of the teazles; second, one, two, or more pairs of plane-surfaced, independent tease-plates, with mechanism for moving the same while maintaining their parallelism with the cloth, in arcs of a circle or otherwise, so that each plate shall continuously move toward the cloth, sweep transversely and in contact with the cloth from the centre toward the sides thereof, then recede and return towards the centre.

2. I also claim the means herein described for engaging or disengaging the cloth with or from the tease-plates, and regulating their pressure of contact, substantially as shown and set forth.

3. I also claim the method of teasing cloth by machinery, substantially as herein shown and described; that is to say, by imparting to the teasing surfaces the following motions, viz, to and from the cloth, and also at right angles to the run thereof, so that the nap shall be raised crosswise from the centre, or thereabouts, to the sides as described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

DRESDEN, this 13th day of December, 1865.

ANTON ZSCHILLE.

Witnesses:

JOSHUA SANDS,

WM. CAMPBELL, *United States Consul.*