(No Model.)

E. S. PHILLIPS & S. A. KEALY.

BOLTING REEL.

No. 274,655. Patented Mar. 27, 1883.

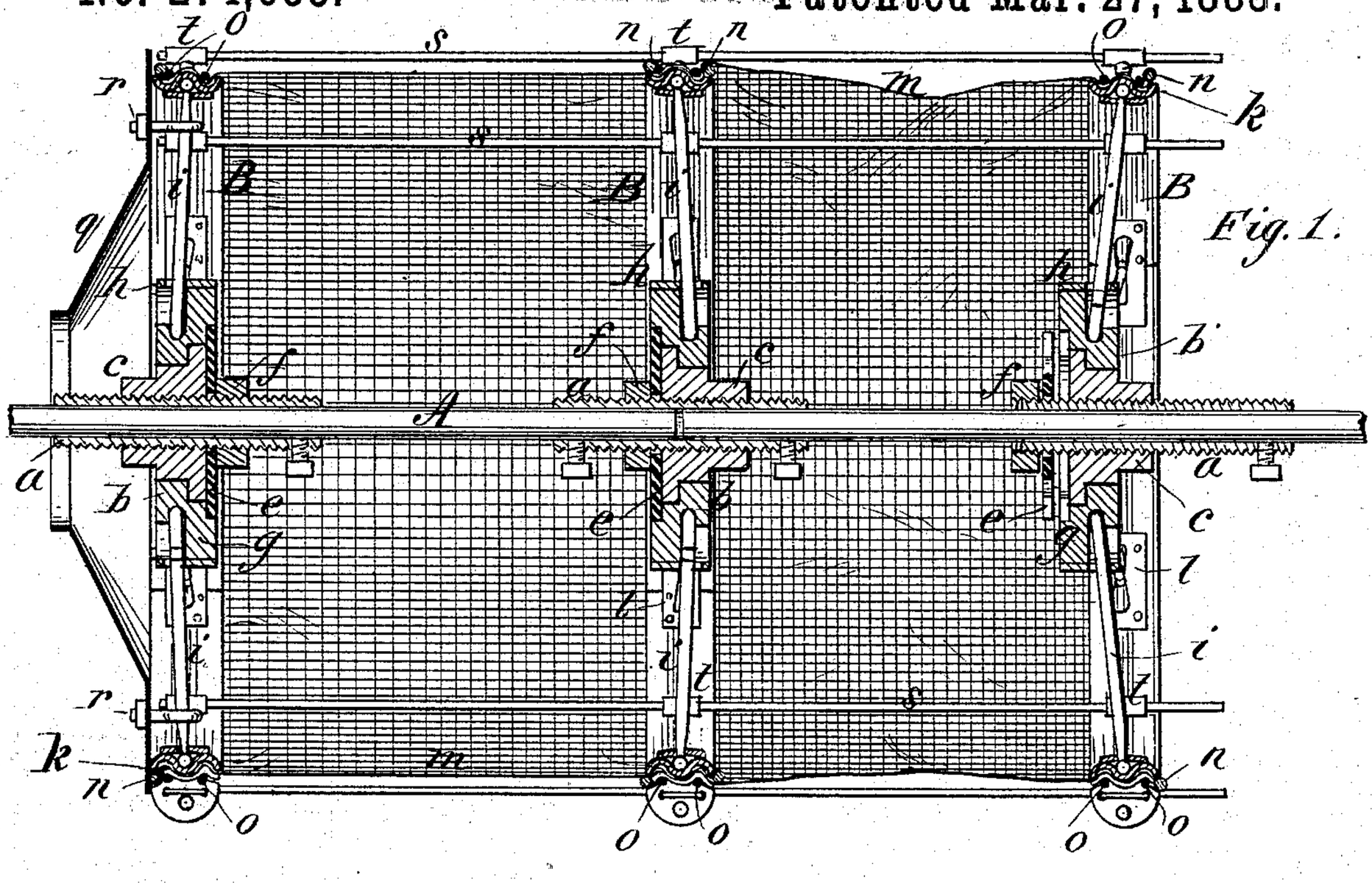


Fig. 1.

Fig. 3.

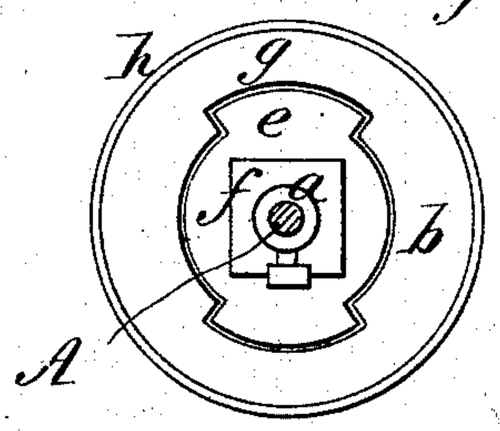


Fig. 2.

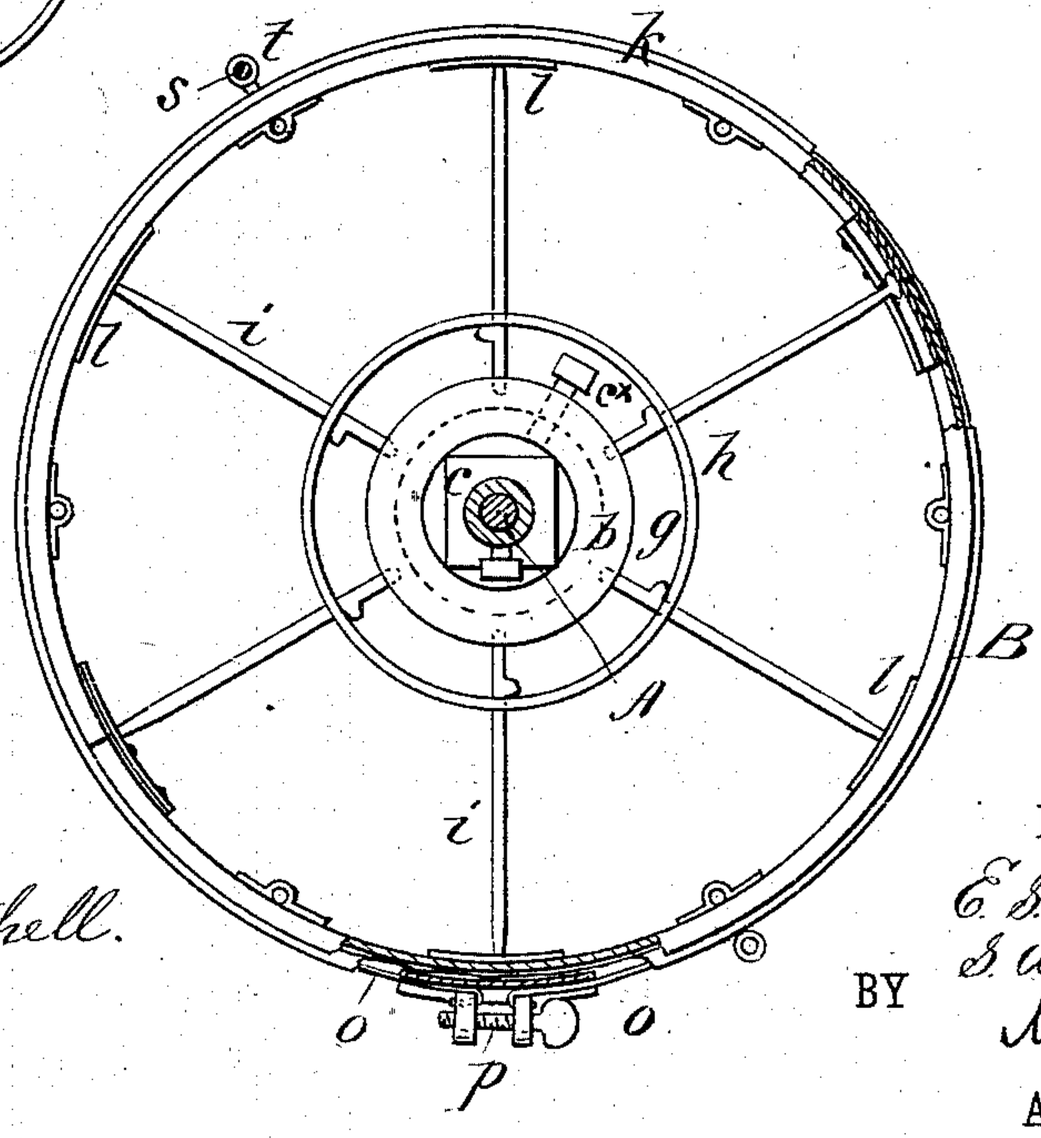
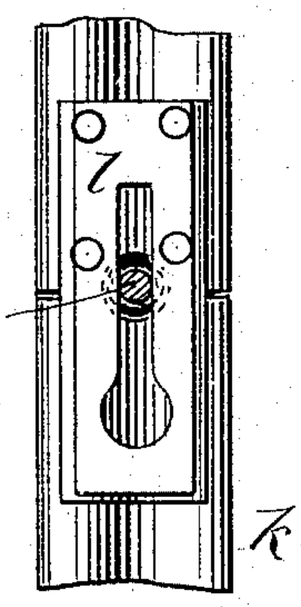


Fig. 4.



WITNESSES:

Donn Turtchell.

C. Bedgwick

INVENTOR:

E. S. Phillips

S. A. Kealy

BY Munn & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWIN S. PHILLIPS AND STEPHEN A. KEALY, OF LEWISVILLE, TEXAS.

BOLTING-REEL.

SPECIFICATION forming part of Letters Patent No. 274,655, dated March 27, 1883.

Application filed August 4, 1882. (No model.)

To all whom it may concern:

Be it known that we, EDWIN S. PHILLIPS and STEPHEN A. KEALY, both of Lewisville, in the county of Denton and State of Texas, have invented a new and Improved Bolting-Reel, of which the following is a full, clear, and exact description.

Our improvements relate to bolting-reels for flour-mills; and the invention consists in certain novel features of construction, having for their object to obtain lightness, strength, compactness, and cheapness of manufacture, as more particularly set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section of a reel of our improved construction. Fig. 2 is an end view of the same, partially in section. Fig. 3 is an end view of one of the hubs, and Fig. 4 is a detail view.

A is the shaft of the reel. B B B are wheels carrying the cloth. The shaft A, which may be solid or hollow, is made in two sections united by a sleeve, *a*, which is clamped to the shaft by set-screws, so that they may be moved to bring their inner ends more or less near together in stretching the cloth. The sleeve *a* is screw-threaded externally, and the shaft is fitted at each end with a similar sleeve, *a*, and these sleeves carry the hubs of the several wheels, B. The several wheels and their hubs are similar in construction, which is as follows: Each hub consists of a circular disk, *b*, centrally apertured, and of a central portion, *c*, formed as a nut, taking the sleeve *a*, the disk *b* and portion *c* being connected by a set-screw, $c^{\times}$, so as to retain them firmly together, or a washer, as shown at *e*, may be used, the washer being formed with lugs or projections, as shown in Fig. 3, which take into recesses of the rings *b*. The washer is clamped to the hub by a nut, *f*, upon the sleeve *a*. The hub is formed with a flanged rim, *g*, to which is attached a band, *h*, of metal. *i* are the spokes, the inner ends of which are inserted in the hubs, and pass through slots formed in the band *h*, their outer ends being connected to the metal rims *k* of the wheels, as hereinafter described. The rim *k* is formed of two semicircular bands of metal, the ends being connected by an offset formed on one end of each section, and extending upon the inside of the other half-section, so that the ends of the half-sections abut to form a continuous ring, and the offset serves to stiffen the joints. This construction is shown in Fig. 4. The rim *k* is grooved, there being two external grooves and one internal groove at the mid-width of the rim. At the inside, and covering the internal groove, plates *l* are attached, and these plates are slotted to receive the ends of the spokes *i*. The ends of the spokes are made of rounded form, or ball-shaped, to fit in the socket formed by the plate *l*, this construction making a universal joint for the ends of the spokes.

The wire or bolting-cloth (shown at *m*) is cut in lengths to extend from one wheel, B to the next. The ends of the cloth that lap upon the rims of the wheels are doubled and strengthened by sewing. A cord, as shown at *n*, is fitted at the ends of each section. The cloth is clamped to the wheels by wires *o o*, which are placed around the rims *k* in the external grooves thereof, and these wires are tightened by means of screws *p*, which pass through lugs attached upon the ends of the wire. These wires serve to retain the cloth in the groove of the wheel, and to prevent it from slipping when put under tension.

q is the head of the reel, made in convex form, (concave internally,) and attached to the wheel by means of screw-bolts *r*, having loops at their inner ends taking around the spokes *i*, and nuts upon their outer ends, outside of the head. In order to strengthen the reel and prevent any sagging of the cloth between the wheels B, the wire braces or rods *s* are applied inside and outside of the reel. The ends of these braces pass through eyes *t*, attached to the rims *k*. These braces or ribs *s* are intended for cases where longer spans of cloth than usual are required, and where fewer wheels for stretching are used, whereby the distance from wheel to wheel is likely to be too great for the cloth to sustain the weight of the chop without undue sagging.

In putting the reel together the hubs are placed so that the spokes are held more or less dished. The cloth is then applied and clamped by the wires. The nuts *c* of the hub are then turned upon the sleeve to straighten the spokes, thereby stretching the cloth longitudinally

and transversely or diametrically. By this construction there is a large gain in the extent of bolting-surface in a reel of given size, for the reason that, the ring having no ribs no ticking is required in making up the cloth, and the whole circumference is utilized. There is a further advantage in this, from the fact that the chop is constantly in contact with the cloth, instead of being lifted up by the ribs, as is the case with the ordinary reel. This allows a coarser cloth to be used to obtain the same results without any liability of specking the flour. Another advantage is in the ease and rapidity of adjusting the cloth on the reel. No sewing or tacking to the reel-frame is necessary, but the cloth is held firmly by means of the wire shown, or by metal bands, which may be used in place of the wires, so that the cloth can be taken off and put on in a few moments. Furthermore, there are no places in which bugs may secrete themselves and injure the cloth.

In putting the reel together the two separate expansions necessary for stretching the cloth are given at once by turning the nuts of the hubs, and any required tension can be given transversely or longitudinally.

The reel can be applied to any ordinary bolting-chest, and can be put in place or removed without disturbing the spouts or the ends of the chest. The head of the reel is so constructed that whatever enters must pass through the cloth or out at the lower end, and what are commonly known as "speck-boards" in bolting-chests are not required.

The reel-frame is constructed entirely of metal. It is very light, strong, and durable, besides being inexpensive to manufacture. It may also be packed in a small space for transportation.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a bolting-reel, the combination of the two-part shaft, the connecting-sleeve and set-screws, the heads or ends B, and the bolting-cloth, substantially as shown and described.

2. The combination, with the two-part shaft A, of the end and middle sleeves, *a a a*, externally threaded, the nuts *f*, the set-screws, and the internally-threaded wheel-hubs, whereby the tension of the cloth longitudinally and diametrically may be obtained by turning the nuts of the hubs, as described.

3. The bolt-wheel B, consisting of a centrally-apertured circular disk, *b*, central nut, *c*, connected rigidly thereto, the flanged rim *g*, the slotted band *h*, the spokes *i*, and the rims *k*, as shown and described.

4. The rim *k* of a bolt-reel wheel, formed of two semicircular bands, each of which has at one end an offset adapted to extend upon the inside of the other section, as shown and described.

5. The rim *k*, having two external grooves and one internal groove, in combination with the slotted plates *l* and spokes *i*, having ball-shaped ends, as shown and described.

EDWIN SAMUEL PHILLIPS.
STEPHEN ALEXANDER KEALY.

Witnesses:
J. C. BRANNON,
J. W. KENNEDY.