(No Model.)

J. T. MILLER.

LOOSE PULLEY.

No. 333,962. Patented Jan. 5, 1886.

Fig. 1.

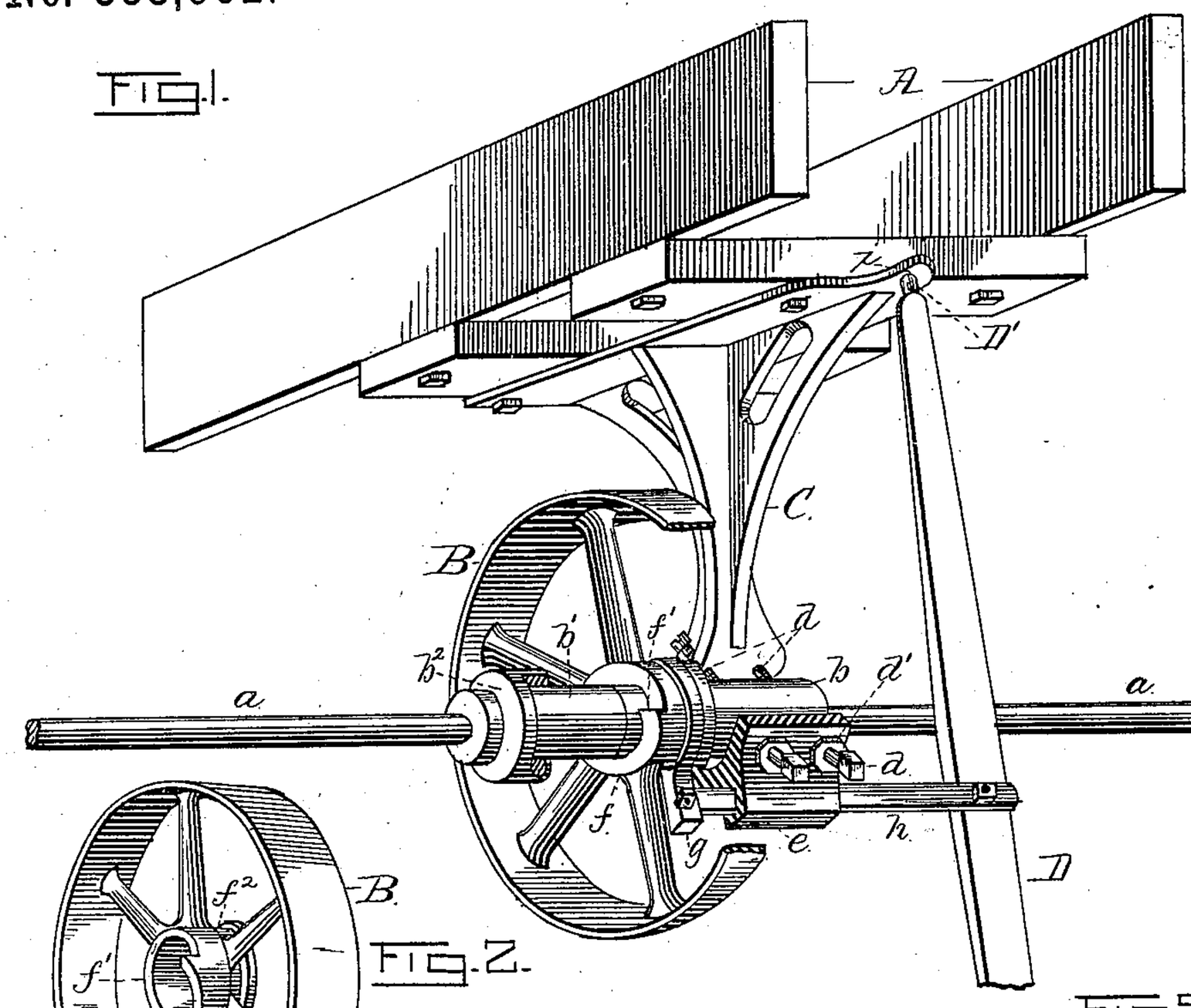


Fig. 2.

Fig. 5.

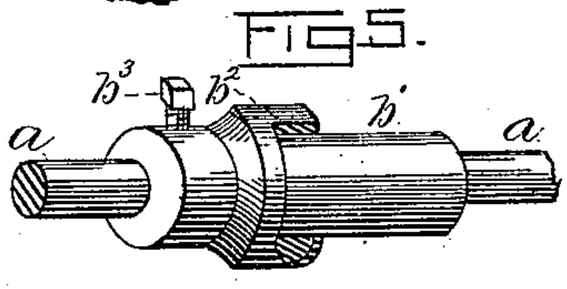


Fig. 4.

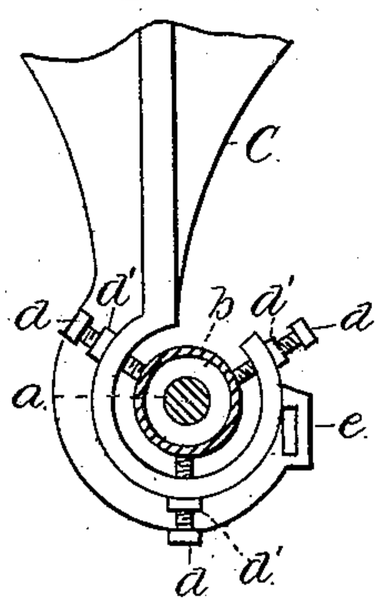


Fig. 3.

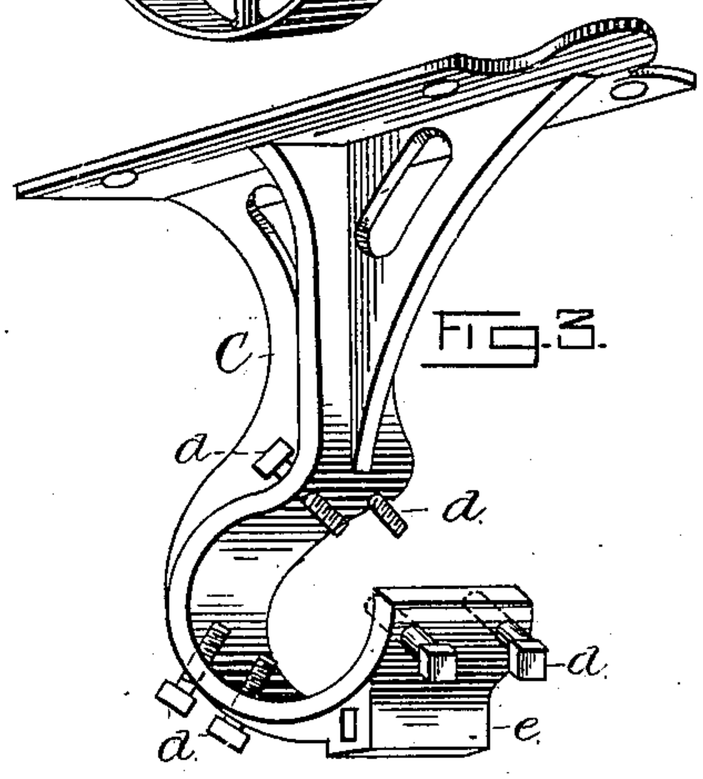


Fig. 8

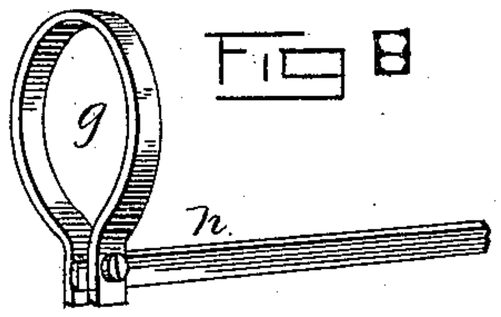
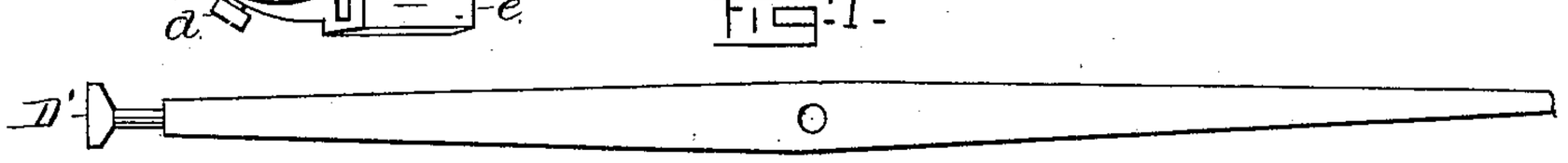


Fig. 7.



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UNITED STATES PATENT OFFICE.

JAMES T. MILLER, OF ATLANTA, GEORGIA.

LOOSE PULLEY.

SPECIFICATION forming part of Letters Patent No. 333,962, dated January 5, 1886.

Application filed November 6, 1885. Serial No. 182,006. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. MILLER, of Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Improvement in Loose Pulleys; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In machine-shops, planing-mills, and other similar places where loose pulleys are used on line and counter shafting to stop the machinery without removing the belts, much annoyance is occasioned by the constant wear and grinding of such pulleys and the running of the belts. To overcome these objections, I have provided a pulley which is adapted to be easily and quickly converted into a fast or loose pulley, and in its loose state be entirely free from the shaft, so that, together with its belt, it will remain idle until again shifted into gear or made fast with the shaft.

The novelty of my invention lies in the particular construction of this pulley, in the means adapting it to be shifted into and out of gear with the shaft, and in various combinations of the essential parts, all as more fully hereinafter described and claimed.

For a better understanding of the details of construction and arrangement and manner of shifting this pulley, attention is invited to the accompanying drawings, in which—

Figure 1 is a perspective view showing my improved pulley as arranged upon a shaft suspended from the ceiling of a machine-shop, together with the means for shifting said pulley into and out of gear with the shaft; Fig. 2, a detail of the pulley; Fig. 3, a detail of the hanger for holding the sleeve which receives the pulley when thrown out of gear; Fig. 4, another detail of the hanger, including said sleeve and the shaft in section; Fig. 5, a detail of the shaft and a clutch secured to the same; Fig. 6, a detail of the yoke and arm forming the connection between the shifting-lever and the hub of the pulley, and Fig. 7 a detail of the shifting-lever.

Like letters denote corresponding parts in the several views.

A represents the ceiling of a machine-shop or other building, and *a* a line or counter shaft arranged below the same and passing through the center of a sleeve, *b*, free from contact with the same. This sleeve is preferably a section of gas-pipe or other tubing, and is rigidly supported in the lower end of a hanger, C, (secured to the ceiling A,) by means of adjustable set-screws *d d*, arranged in pairs inserted through the end of the hanger far enough to press tightly against the outside of the sleeve *b*, and provided each with a nut, *d'*, to lock or secure them in place, as shown in Fig. 4. Adjoining one end of this sleeve *b* is another sleeve, *b'*, of the same diameter, made with a clutch-jaw, b^2, on its outer end, as shown, the whole being keyed to the shaft *a*, or secured so as to turn therewith by means of a set-screw, b^3.

B denotes the pulley, which has play upon these two sleeves *b* and *b'* in a lateral direction parallel with the shaft, and the hub *f* of said pulley should therefore be bored to fit nicely over the sleeves. One end of said hub is made to form a clutch-jaw, *f'*, similar to the one on the sleeve *b'*, so that when the pulley is shifted onto the said sleeve the two jaws will engage and fit perfectly, while the other end of said hub is provided with a groove, f^2, around its circumference, which groove receives a yoke, *g*. Between the two ends of this yoke is bolted one end of an arm, *h*, which passes through a loop, *e*, (cast upon the end of the hanger C,) and is pivoted at its opposite or outer end to the center of a shifting-lever, D. The upper end of this shifting-lever is suspended from the ceiling by means of a lag-screw, D', passed through a hole, *i*, in the forward end of the base of the hanger C or that portion which is fastened to the ceiling. By means of this lever D it will be seen that the pulley B can be easily and quickly shifted upon the sleeve *b'* into gear with the shaft *a*, and likewise out of gear onto the sleeve *b*, where, together with its belt, it remains stationary, while the shaft continues to revolve.

It will be apparent that this pulley overcomes all the defects common to the ordinary loose pulley, as it is subjected to comparatively no wear and requires but little or no oil, and while it may involve a small additional cost over that of the ordinary pulley it in return compensates in the saving of belting.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a shaft, of a pulley adapted to be converted into a fast or loose pulley by shifting longitudinally, substantially as described.

2. The combination, with a shaft, of a loose pulley adapted to remain stationary when shifted out of gear with the shaft, substantially as and for the purposes set forth.

3. The combination of a shaft, two sleeves, and a pulley adapted to be shifted from one sleeve to the other, substantially as described.

4. The combination, with a loose pulley, of a sleeve rigidly mounted in a hanger by means of adjustable set-screws, and a shaft passing through said sleeve free from contact therewith, substantially as described.

5. The combination of a rigidly-mounted sleeve, a shaft passing through said sleeve without contact therewith, a clutch keyed or otherwise secured to said shaft, and a pulley having a clutch and adapted to be shifted into engagement with the clutch on the shaft, substantially as described.

6. The combination of a rigidly-mounted sleeve, a shaft passing through the center of the same, another sleeve, of the same diameter as the former, having a clutch keyed or otherwise secured to said shaft, a pulley with a similar clutch, and means for shifting said pulley from one sleeve to the other in the manner substantially as described.

7. The hangers C, the sleeves *b* and *b'*, shaft *a*, pulley B, shifting-lever D, and intermediate connection between said lever and pulley, all constructed, combined, and arranged substantially as described.

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

JAMES T. MILLER.

Witnesses:

LOUIS GHOLSTEN,

J. L. COX.