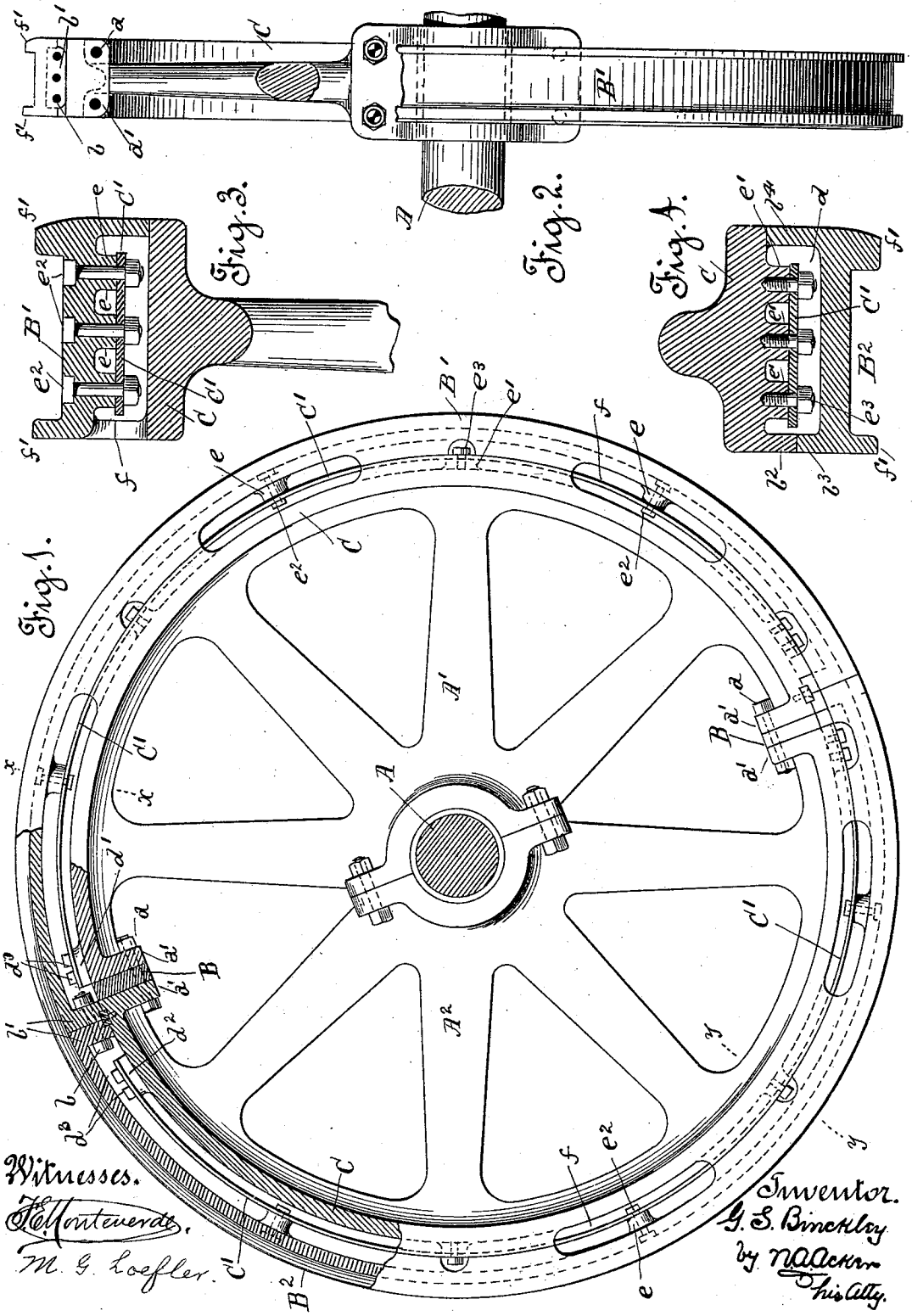
(No Model.)

G. S. BINCKLEY.

BRAKE WHEEL FOR HOISTING ENGINES.

No. 588,261. Patented Aug. 17, 1897.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE S. BINCKLEY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE UNION IRON WORKS, OF SAME PLACE.

BRAKE-WHEEL FOR HOISTING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 588,261, dated August 17, 1897.

Application filed January 2, 1897. Serial No. 617,834. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. BINCKLEY, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Brake-Wheels for Hoisting-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to a certain new and useful expansible rim attachment for the winding-drum or brake-wheel of hoisting-engines; and it consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings and described and pointed out in the specification.

In the lowering of buckets or cages down into the shafts of mines it is necessary that the brake mechanism be applied to the rim of the brake-wheel or winding-drum of the hoisting-engines, so as to prevent the bucket or cage from descending at too great a speed. Inasmuch, however, as the bucket or cage is lowered at the rate of about forty (40) feet per second with the brake mechanism applied, it is evident that the friction of the brake-wheel or winding-drum caused by the brake-shoes bearing against the periphery thereof, generated by the velocity with which the brake-wheel or winding-drum is rotated, causes the said brake-wheel or drum to become heated to such an extent as to cause the expansion of the metal rim of the said brake-wheel or drum. The expansion not being uniform throughout the wheel, but only upon the rim thereof, it is obvious that as the said rim expands the diameter thereof in increased and the strain thereof upon the spokes or arms of the wheel tends to crack or break the same. The object of my invention is to obviate this tendency of the brake-wheel or winding-drum to break or crack by undue or unequal expansion of the wheel-rim, and this I accomplish by providing what may be termed a "supplemental" or "removable" rim for the drum or brake-wheel and interposing between the said rim and the rim proper of the drum or brake-wheel an inner elastic metallic band which will compensate for the expansion of the brake-wheel or winding-drum.

In order to fully understand the invention, reference must be had to the accompanying sheet of drawings, forming a part of this application, wherein—

Figure 1 is a side view in elevation, partly broken away, showing the winding-drum or brake-wheel, the removable rim, the elastic band, and the manner of connecting the parts. Fig. 2 is a front view in elevation. Fig. 3 is a broken cross-sectional view in elevation, taken on line $x\,x$, Fig. 1, showing the manner of securing the elastic metallic band to the under face of the removable rim of the wheel or drum; and Fig. 4 is a similar view, taken on line $y\,y$, Fig. 1, showing the manner of uniting the elastic metallic band to the rim proper of the drum or brake-wheel.

The letter A is used to indicate a suitable drive-shaft of the ordinary hoisting-engine, upon which is mounted the winding-drum or brake-wheel, said drum or wheel being composed of sections $A'\ A^2$, united by bolts a, which extend through the ears a', projecting from each section of the wheel or drum. Between the ends of each section $A'\ A^2$ are located or interposed the filling-blocks B, which blocks are held in place by means of the bolts a. This brake-wheel is surrounded by the removable braking-rim, which rim is composed of the sections $B'\ B^2$, united and held together by means of the bolts b, passing through the ears b', depending from each end of the sections. The rim C proper of the brake-wheel or drum is provided with a projecting flange b^2, upon which rests the depending side flange b^3 of the removable brake-rim, the opposite depending side flange b^4 of said rim bearing upon the rim proper of the brake-wheel or drum, Fig. 4. When the removable rim has been united around the brake-wheel, an annular passage-way d will be left between the under face of the removable brake-rim and the face of the rim of the brake-wheel proper. Within this annular passage-way is placed what I term an "elastic metallic band" C'. This band is composed of metal and surrounds the rim of the brake-wheel or drum proper, being connected at each end thereof to the lugs $d'\ d^2$, upwardly projecting from the face of the brake-wheel, by means of bolts d^3.

The removable rim is cast on its under face at given intervals with a series of depending lugs *e* and the rim of the brake-wheel or drum with a series of projecting lugs or bosses *e'*. To these lugs or bosses the elastic metallic band is secured, the band being fastened to the lugs or bosses *e* of the removable rim by bolts e^2 and then to the projecting bosses or lugs *e'* of the brake-wheel rim by bolts e^3, and so on, being fastened alternately to the removable rim and the rim of the brake-wheel until the free end is secured to the projecting lugs d^2.

In order to gain access to the securing-bolts of the expansible rim C', the side flange of the removable rim and of the brake-wheel or drum is cut away at given intervals, so as to provide pockets or side openings *f* sufficient to permit of a hand-tool being inserted to manipulate the fastening-bolts.

By securing the elastic band alternately to the removable rim and the rim of the brake-wheel or drum the strain due to expansion is removed from the arms or spokes of the said brake-wheel or drum. Consequently whatever heat is generated by the friction on the removable rim does not affect the brake-wheel, but is compensated for by the elastic metallic band interposed between the said removable rim and the brake-wheel proper.

The removable brake-rim is cast with the upwardly-projecting side flanges *f'*, which serve as guides, between which the brake blocks or shoes (not shown) work when braking against the surface of the brake-wheel or drum. Consequently as the same becomes worn by frictional wear the same may be removed and a new rim be inserted in lieu thereof. In this manner the life or durability of the brake-wheel or drum is preserved, for at no time do the brake shoes or blocks bear or brake thereon.

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

1. The combination with a brake-wheel or winding-drum, of a braking-rim removably secured around the wheel or drum, and of an elastic metallic band interposed between the braking-rim and the rim of the brake-wheel or drum.

2. The combination with a brake-wheel or winding-drum, of a braking-rim removably secured around the said wheel or drum, and of an elastic metallic band interposed between the removable rim and the brake-wheel or drum, said elastic band being secured alternately to the rim of the brake-wheel or drum and to the removable braking-rim.

3. The combination with a brake-wheel or winding-drum, of a braking-rim removably secured around the said wheel or drum, an annular passage-way formed between the inner face of the removable rim and the face of the brake-wheel or drum, an elastic metallic band located within said annular passage-way and secured alternately to the brake-wheel or drum and the removable rim, and of a series of side pockets intercepting the annular passage-way at points of union of the elastic band to the brake-wheel and the removable rim.

4. The combination with a brake-wheel or drum provided with a series of projecting lugs or bosses, of a removable braking-rim secured around the brake-wheel or drum, a series of lugs or bosses depending from said rim, and of an elastic metallic band interposed between the removable rim and the brake-wheel, said elastic band being connected to the projecting and depending studs or lugs.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of December, 1896.

GEORGE S. BINCKLEY.

Witnesses:
N. A. ACKER,
LEE D. CRAIG.