T. R. BROOKS.

ORE CONCENTRATING BELT.

APPLICATION FILED JUNE 30, 1909.

994,439. Patented June 6, 1911.

Fig 1

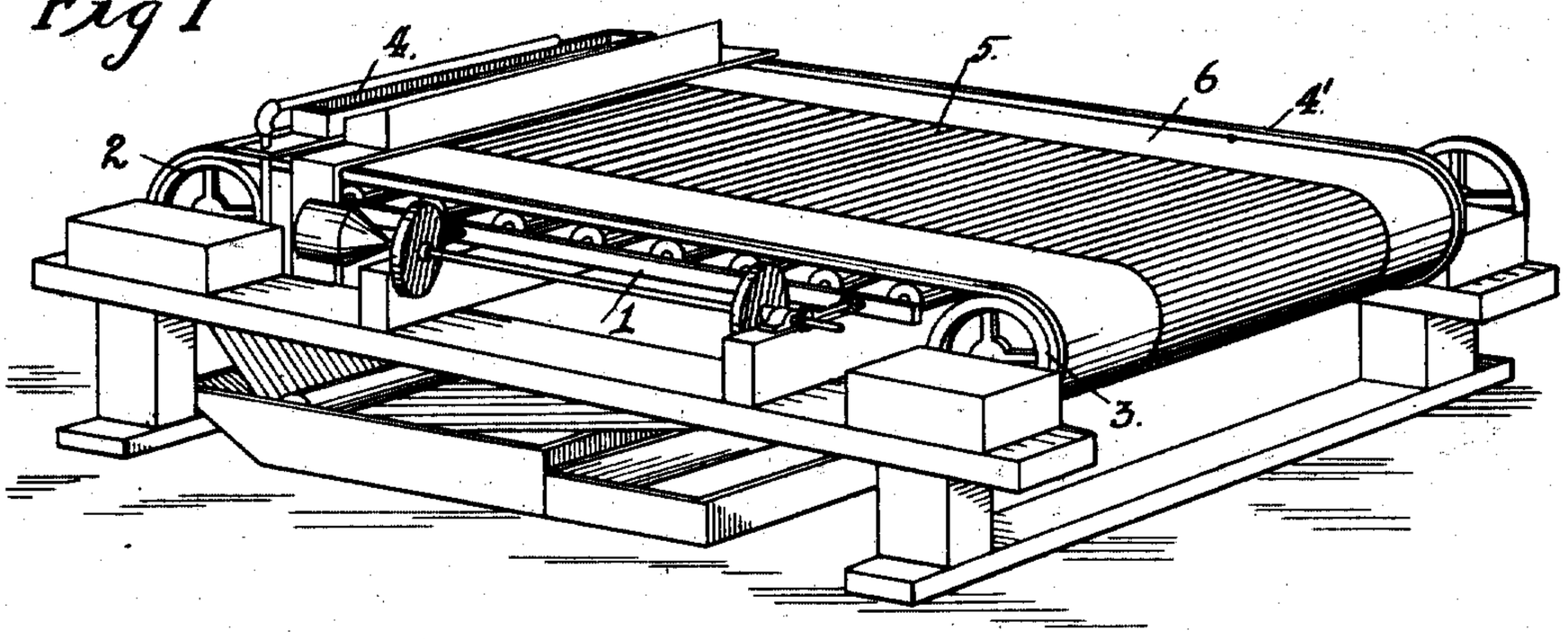
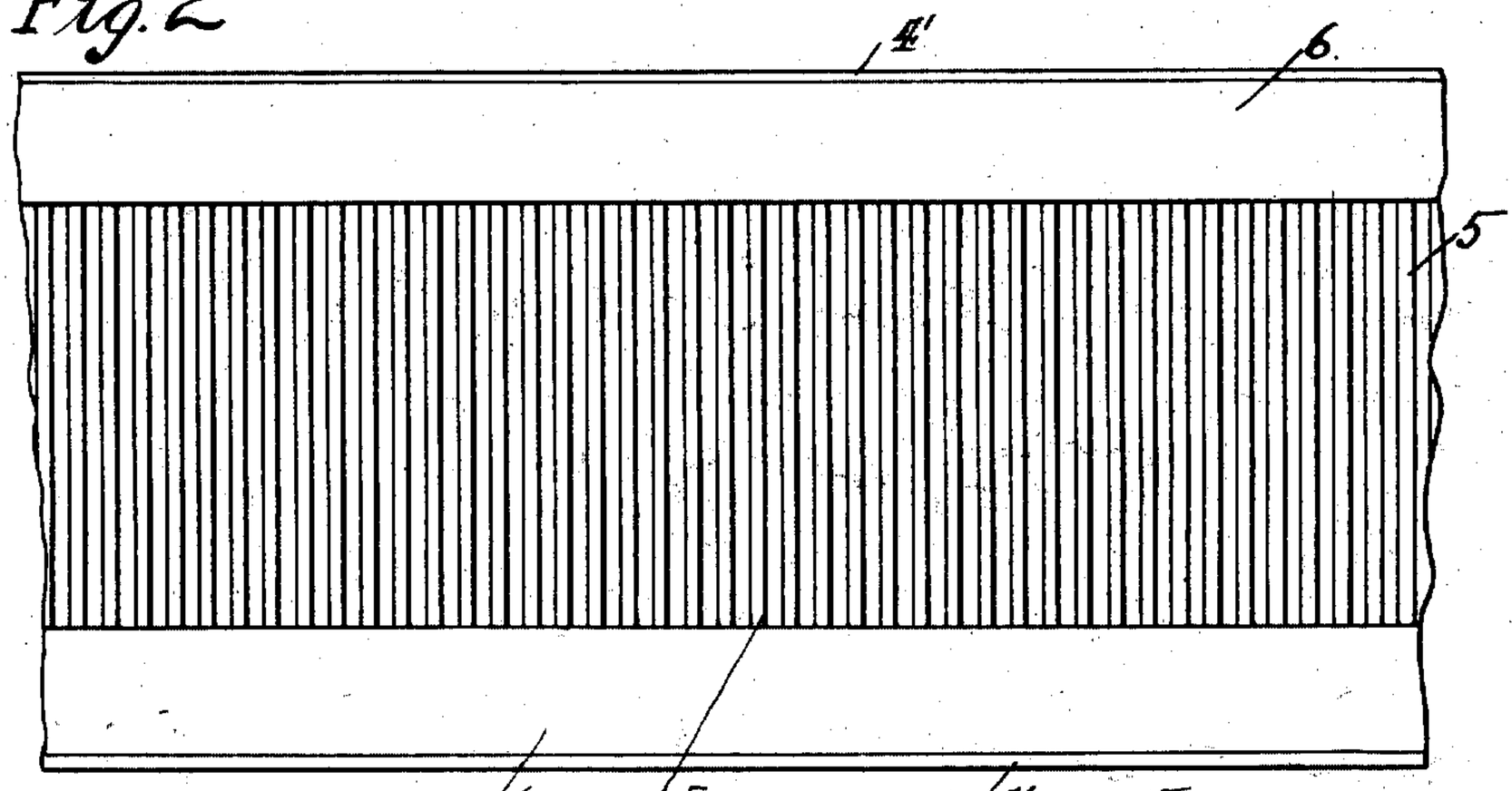


Fig. 2



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UNITED STATES PATENT OFFICE.

THADDEUS R. BROOKS, OF OAKLAND, CALIFORNIA.

ORE-CONCENTRATING BELT.

994,439. Specification of Letters Patent. **Patented June 6, 1911.**

Application filed June 30, 1909. Serial No. 505,188.

To all whom it may concern:

Be it known that I, THADDEUS R. BROOKS, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Ore-Concentrating Belts, of which the following is a specification.

The invention relates to concentrating belts of the endless type, or those mounted for travel at an upward inclination over the surface of a shaking concentrator frame, the object of the invention being to so arrange or construct the surface of the concentrating belt as to permit of the lighter sulfurets being separated from the heavier sulfurets at the earliest possible moment after the delivery of the ore pulp onto the surface of the traveling belt, and in fact permit of a closer working of the sulfurets than is ordinarily accomplished by concentrating belts of this character.

To comprehend the invention, reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a perspective view disclosing the invention as applied to an ordinary shaking concentrator. Fig. 2 is a broken plan of the improved concentrating belt.

In the drawings, the numeral 1 represents the shaking frame of any well known form of a shaking concentrator, and 2, 3 the end rollers over which the concentrating belt works, the same receiving pulp from the distributing box or ore feeder 4.

The endless concentrating belt is provided with suitable side edge flanges 4′, and the working surface of the said belt is formed throughout the length thereof with the centrally disposed transverse riffles or corrugations 5, which, preferably, are formed integral with the belt. These transverse riffles extend approximately two-thirds the width of the belt, terminating in the plain or unriffled portions 6, which form longitudinally disposed smooth surfaces interposed between the ends of the transverse centrally disposed longitudinally arranged riffles and the side flanges of the concentrating belt, which transversely disposed riffles receive the pulp and retain therein the heavy sulfurets, while the lighter sulfurets are gradually worked onto the plain or unriffled portions 6 of working surface of the belt. The gangue as separated is gradually carried downwardly by the flow of the wash water toward the lower end roller 3 of the concentrator, in its downward course gradually fanning outwardly. A portion of the gangue will work onto the smooth or unriffled side edge portions of the belt with the lighter sulfurets, but, owing to the difference in specific gravity, the sulfurets will settle onto the surface of the belt and be carried upwardly with the travel thereof, while the gangue will be carried off by the downwardly flowing water. The course which the particles of gangue follow is the same as that which takes place on any endless concentrator belts in use, the direction of such flow being well known to those familiar with the working of concentrator belts of the endless traveling type. With the present concentrator belt, the separation of the lighter from the heavier sulfurets occurs at the earliest possible moment after the pulp is discharged onto the working surface of the belt, which eliminates to a great extent the feature of such lighter sulfurets being carried off with the flow of the water. By thus separating the heavier sulfurets on such portion of the working surface of the belt as the natural tendency of the same is to reside and causing the lighter sulfurets to work toward the plain or unriffled portions of the belt, the said lighter sulfurets are collected and retained at such portion of the belt as receives the least agitation, hence the chances of the lighter sulfurets being carried downwardly with the flowing stream and washed off of the belt with the gangue, is reduced to a minimum.

By the use of the described belt a quicker and cleaner separation of the sulfurets from the gangue is obtained and a larger percentage of the lighter sulfurets secured, than when the load of pulp to be treated is placed onto the unriffled surface of a concentrating belt, or onto the surface of a belt riffled transversely throughout the entire width thereof.

Having thus described the invention, what is claimed as new and desired to be protected by Letters Patent is:—

The combination with an inclined shaking frame, of end rollers mounted therein, an endless traveling non-perforated flexible concentrating belt mounted for travel over said rollers, a series of unbroken upwardly projecting transversely disposed collecting riffles integral with the working surface of the belt throughout the length thereof, and

a longitudinally disposed plain or unriffled portion intermediate the ends of the transverse riffles and each side edge of the belt, said plain or unriffled portions extended the entire length of the belt, and means for supplying onto the said belt material to be treated.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THADDEUS R. BROOKS.

Witnesses:
N. A. ACKER,
A. K. DAGGETT.