

UNITED STATES PATENT OFFICE.

ADOLPH SOMMER, OF BERKELEY, CALIFORNIA.
LUBRICANT.

SPECIFICATION forming part of Letters Patent No. 461,513, dated October 20, 1891.
Application filed September 29, 1888. Serial No. 286,795. (No specimens.) Patented in England September 4, 1888, No. 12,795;
in Belgium September 4, 1888, No. 83,139, and in France September 4, 1888, No. 192,770.

to all whom it may concern:

Be it known that I, ADOLPH SOMMER, a citizen of the United States, and a resident of Berkeley, in the county of Alameda and State of California, have invented a new and useful Improvement in Lubricants, (for which foreign patents have been obtained as follows: in England, No. 12,795, September 4, 1888; in Belgium, No. 83,139, September 4, 1888; and in France, No. 192,770, September 4, 1888;) and I do hereby declare that the following is an exact description of the invention, which will enable others familiar with the manufacture of lubricants to make the same improved lubricating compositions.

Lubricants are introduced between the rubbing contact-surfaces of moving machinery for the purpose of protecting the contact-surfaces from wear. But, as most parts of machinery are made of metal, it is absolutely necessary that the substances to be used as lubricants be not destructive to metals. None but neutral or alkaline substances have heretofore been used for lubricating. Acid substances, even the weak fatty acids—such as oleic, stearic, and palmitic acids—have previously been carefully avoided, since experience has shown that they attack the metallic journals and bearings.

Although chloride of sulphur in the free state strongly attacks and rapidly destroys all the ordinary hard metals, I find that after it has been united with such oils and fats as combine with it chemically it is entirely inactive toward metals, and that such sulpho-chlorinated oils and fats are even not appreciably decomposed by the heat which is produced by the friction of the moving parts.

which possess the greatest amount of viscosity or body. But since most oils and fats, and especially those of mineral origin, form rather thin fluids when hot, various means have been tried to make them more viscid. The device most extensively resorted to consists in combining soaps with the oils and fats. To vegetable and animal oils and fats generally soda or potash soaps are added; to mineral and rosin oils principally alum or lime soaps. But although it is possible to increase by the addition of soaps the consistency and viscosity of a lubricant to any degree, the real lubricating value is but comparatively little increased by this addition, because nearly all anhydrous soap mixtures show a lack of slipperiness or lubricity apparently due to excessive molecular cohesion and resulting deficiency of adhesiveness.

That chloride of sulphur thickens fatty oils has been known for a long time, but that it also increases their lubricating value has not been observed before. I have found, however, that an addition of chloride of sulphur increases the lubricating value of oils and fats which are capable of combining with it chemically to such an extent that such preparations not only keep cool axles and shafts which run hot with every other commercial lubricant, but that, as regards consumption, they are also far more economical than other preparations. This is undoubtedly due not alone to the fact that the sulpho-chlorinated compounds are more viscid than the natural oils and fats, but also to the circumstance that these compounds possess a much greater degree of adhesiveness and lubricity than all the other known preparations used for lubricating purposes. Furthermore I have found that those sulpho-chlorinated compounds which contain large percentages of chloride of sulphur imparting the above-

(No Model.)

B. TURTON.
MANUFACTURE OF BRIDLE BITS.

No. 461,514.

Patented Oct. 20, 1891.

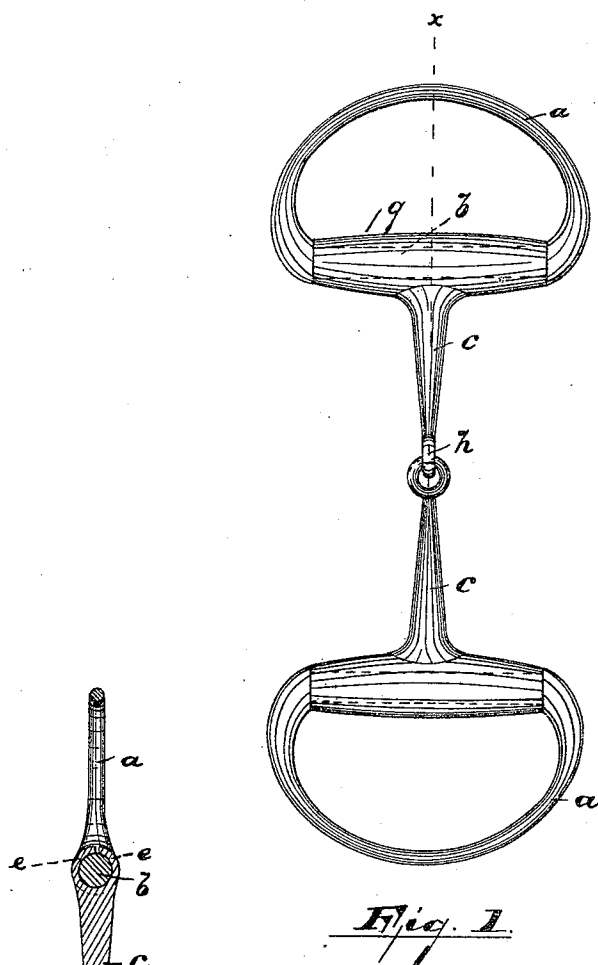


Fig. 1

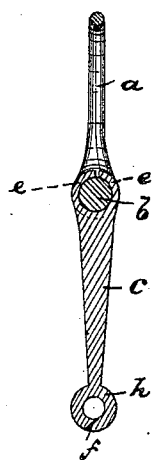


Fig. 2

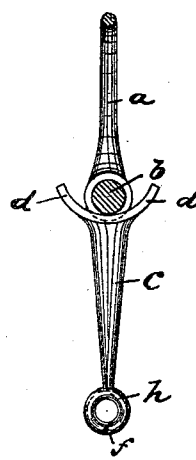


Fig. 3

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