

## Title (en)

Device for drawing or stretching (wires, bars, tubes) with a quasi zero wear of the die and the reaching of optimal tribological conditions

## Title (de)

Vorrichtung zum Ziehen oder Strecken (Draht, Stange, Rohr) mit einem sehr verschleissarmen Ziehstein und zum Erreichen von optimalen tribologischen Bedingungen

## Title (fr)

Dispositif permettant de tréfiler ou étirer (fils, barres, tubes) avec une usure quasi-nulle des filières et l'obtention de conditions tribologiques optimales

## Publication

**EP 1388379 A1 20040211 (FR)**

## Application

**EP 02356158 A 20020808**

## Priority

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## Abstract (en)

The device uses a threaded tube (1) screwed into a threaded sleeve (2) which itself is held in a large section square (3) welded to the side plates of the slide or soap box. The device uses a threaded tube (1) screwed into a threaded sleeve (2) which itself is held in a large section square (3) welded to the side plates of the slide or soap box. A range of tubes of different internal diameters and substantial thickness are made with a hardness in the range 58HRC (Rockwell C hardness) to 3500HV (Vickers hardness) and have a conical part which matches exactly the angle of the drawing frame. The two surfaces in contact are mirror polished to a roughness of Ra=5/100[deg] of micron. The carbides of the working drawing frame are compacted micrograins using the best HIP (High isostatic pressure) processes. Alternatively, the drawing frame is made of industrial nitride, carbide or boride ceramics with a very high hardness, greater than 1200HV (Vickers), or combined industrial diamond structures of very high hardness and compactness, greater than 1500HV (Vickers). The extruding or drawing lubricants are high viscosity greases or oils (between 20 and 15000 centistokes), with or without the following additives: graphite, molybdenum bisulphide, metal powder or alloys, polymer powder or liquid, or stearate, palmitate, calcium oleate, or sodium doped or otherwise with high pressure elements. The threaded or unthreaded tubes are cylindrical or conical with an angle of 0 to 12[deg] and of any length. The entrance of the tube is equipped with a very hard ring acting as a guide and laminator for the lubricant to engage the very high pressures. In particular for wet drawing, liquid lubricants are used with a non-return valve in the drawing frame.

## Abstract (fr)

L'invention concerne un dispositif permettant de tréfiler et étirer les métaux en général, avec une usure quasiment nulle des filières, avec un respect entier de l'état de surface des produits fabriqués. Il est constitué de 3 pièces selon la figure 1: un tube (1) de forte épaisseur et haute dureté, terminé par un cône poli-miroir qui vient s'emboîter parfaitement dans le cône de la filière. le tube est soit cylindrique, soit conique. le manchon (2) fileté, reçoit ce tube et vient s'appuyer sur la pièce (3) soudée sur les flasques de la couleuse; un entonnoir s'emboîte dans l'orifice en (5), y fait couler sur le fil un lubrifiant, extrême pression et forte viscosité, avec ou sans additifs (graphite ou autres). Le point 7 est le siège de très hautes pressions; donc un film (15) fortement compacté et anti-usure. <IMAGE>

## IPC 1-7

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## IPC 8 full level

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