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K. HACK

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DEVICE FOR STRAIGHTENING PLATES, WIRES, AND THE LIKE

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Fig. 1.

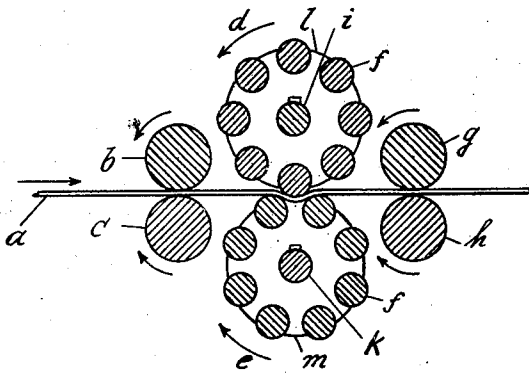


Fig. 2.

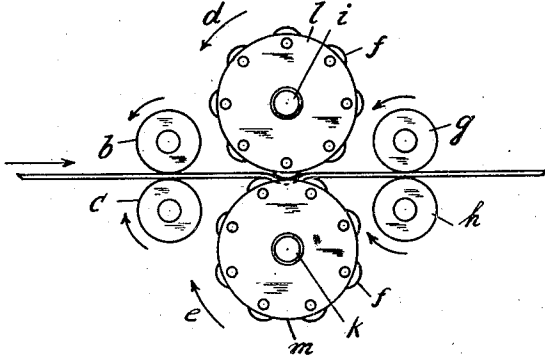
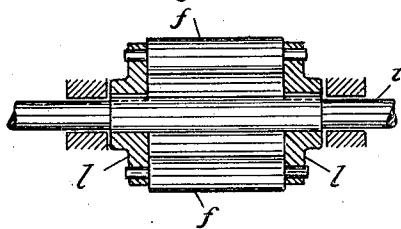


Fig. 3.



Inventor:
Karl Hack
by *[Signature]*
Attorney

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DEVICE FOR STRAIGHTENING PLATES,
WIRES, AND THE LIKEKarl Hack, Reutlingen, Germany, assignor to
Fritz Ungerer, Pforzheim, GermanyApplication December 3, 1931, Serial No. 578,697
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8 Claims. (Cl. 153—54)

This invention relates to a device for straightening plates, band material, flat material, profiled material or wires of any cross sectional shape and the like, according to the known method which consists in that the material to be straightened is bent backwards and forwards between two or more supports and is moved on during or after each bending.

The advantage of this device, as compared with the known devices, consists in the considerably increased output, which can be obtained therewith.

An embodiment of the invention is illustrated by way of example in the accompanying drawing in which:

Fig. 1 shows the device in cross section.

Fig. 2 is a side elevation of the device.

Fig. 3 is a longitudinal section showing the upper rotatable part of the device.

The device operates in the following manner:

The material *a* is fed in known manner by a pair of cylinders *b*, *c* to the bending device, driven at a high speed either in the direction of the two arrows *d*, *e* or in the opposite direction thereto and, during its passing between the cylinders *f* of the bending device, interengaging like the teeth of a pair of toothed wheels, the material is alternately bent backwards and forwards in quick succession. As the speed, at which the material to be straightened is conveyed, amounts to only a fraction of the circumferential speed of the bending device, it is straightened. The straightened material leaves the bending device to be guided between two cylinders *g* and *h*. If the pair of guiding cylinders *g* and *h* is driven it may serve for effecting the feed of the material. If thick material is to be straightened, it is advisable for the purpose of preventing vibrating of the free ends of the material, to substitute for the pairs of cylinders in front and behind the bending device several pairs of cylinders, all or some of which may be driven.

The bending device consists of two roller cage-like rotatable bodies, the two parallel axes *i* and *k* of which are driven and mutually adjustable in known manner. These two rotatable bodies are positively interconnected in known manner by means of toothed wheels or the like so that both rotate at the same speed.

Each of the two rotatable bodies comprises eight cylinders *j*, which are rotatably mounted in two discs *l* and *m* keyed on the corresponding axle *i* or *k* respectively. Any other number of

cylinders may however be used for each rotatable body.

Owing to the fact, that the cylinders *f* are rotatably mounted, they roll, during the bending of the material to be straightened, on this material and thus cause the least possible friction. The diameter of the cylinders *f* depends upon the thickness of the material to be straightened.

The cylinders *f* may be replaced by loosely mounted rollers for straightening flat material, wires and the like. These rollers may moreover be provided with guide grooves, having a cross sectional shape corresponding to that of the material. If stationary cams or teeth are substituted for the cylinders or rollers, the straightening effect remains the same, but the friction, and therefore the power consumed, are increased.

As can be seen from the description and the drawing a greatly increased output can be obtained with the device in that no oscillating movements, with the exception of those of the material, take place so that the smallest possible acceleration and retardation pressures occur, thus enabling the maximum oscillating frequencies to be obtained.

I claim:

1. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending the material backwards and forwards, comprising in combination opposite rotatable bodies adapted to be driven in opposite directions to one another and in either direction relative to the direction of feed of the material, interengaging cylinders alternately arranged in said rotatable bodies, and pairs of feed rolls adapted to feed the material between said cylinders.

2. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending the material backwards and forwards, comprising in combination opposite rotatable bodies adapted to be driven in opposite directions to one another and in either direction relative to the direction of feed of the material, interengaging rollers alternately arranged in said rotatable bodies, and pairs of feed rolls adapted to feed the material between said rollers.

3. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending the material backwards and forwards, comprising in combination opposite rotatable bodies adapted to be driven in opposite directions to one another and in either direction relative to the

direction of feed of the material, interengaging cams alternately arranged in said rotatable bodies, and pairs of feed rolls adapted to feed the material between said cams.

- 5 4. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending the material backwards and forwards, comprising in combination opposite rotatable bodies
10 adapted to be driven in opposite directions to one another and in either direction relative to the direction of feed of the material, interengaging teeth alternately arranged in said rotatable bodies, and pairs of feed rolls adapted to feed the
15 material between said teeth.

5. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending the material backwards and forwards, comprising in combination opposite rotatable bodies
20 adapted to be driven in opposite directions to one another and in either direction relative to the direction of feed of the material, interengaging cylinders alternately arranged in said rotatable
25 bodies, and pairs of feed rolls adapted to feed the material between said cylinders, the speed of travel of the material being less than the rotational speed of the work engaging parts of said rotatable bodies when said feed rolls rotate in
30 the same direction as said rotatable bodies.

6. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending the material backwards and forwards, comprising in combination opposite rotatable bodies
35 adapted to be driven in opposite directions to one another and in either direction relative to

the direction of feed of the material, interengaging rollers alternately arranged in said rotatable bodies the speed of travel of the material being less than the rotational speed of the work engaging parts of said rotatable bodies when
5 said feed rolls rotate in the same direction as said rotatable bodies.

7. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending
10 the material backwards and forwards, comprising in combination opposite rotatable bodies adapted to be driven in opposite directions to one another and in either direction relative to the direction of feed of the material, interengaging
15 cams alternately arranged in said rotatable bodies the speed of travel of the material being less than the rotational speed of the work engaging parts of said rotatable bodies when
20 said feed rolls rotate in the same direction as said rotatable bodies.

8. A device for straightening plates, band material, flat material, profiled material, wires of any cross-sectional shape and the like by bending
25 the material backwards and forwards, comprising in combination opposite rotatable bodies adapted to be driven in opposite directions to one another and in either direction relative to the direction of feed of the material, interengaging
30 teeth alternately arranged in said rotatable bodies, the speed of travel of the material being less than the rotational speed of the work engaging parts of said rotatable bodies when said
35 feed rolls rotate in the same direction as said rotatable bodies.

KARL HACK.